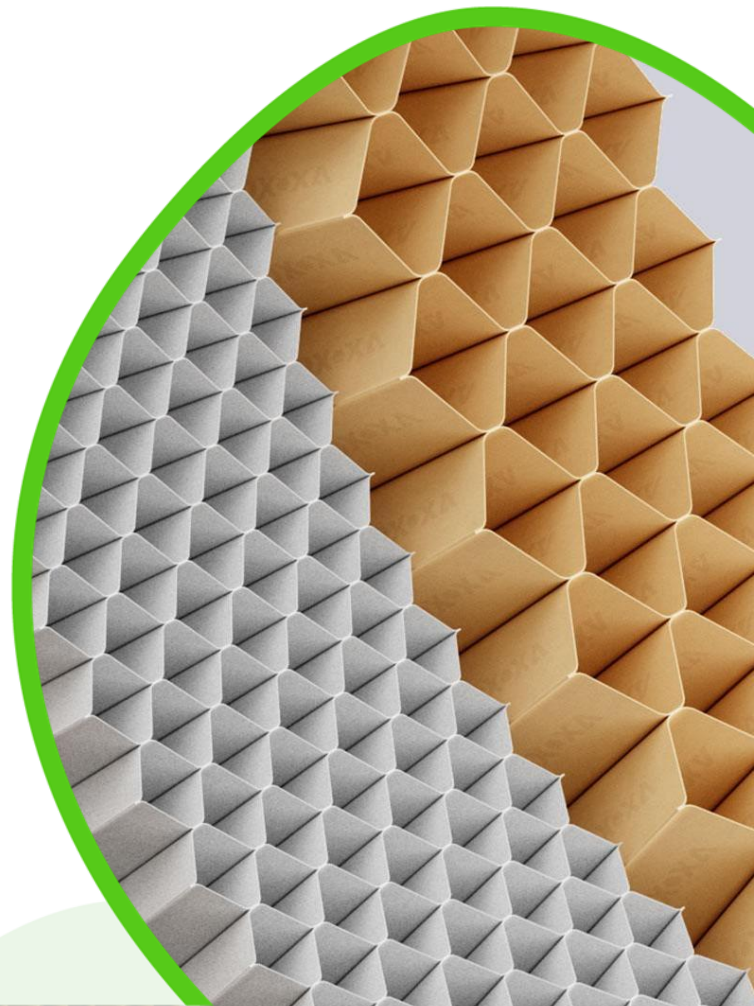# Ecochain
Empowering sustainable impact

EMPHA

2025 general assembly

Version 1.0 | June 2025 | External

Goal of the presentation

- Present an evaluation of the environmental challenges in the honeycomb industry

- Show the Life Cycle Assessment of honeycomb vs polystyrene

- Share how Ecochain helps companies/industries become futureproof

LCA & EMPHA Challenges

- Regulations (like the **EU CPR**, **Green Deal**, **ESPR or CSRD**) increasingly require LCAs for products

- There is no **benchmark** for the impact of honeycomb

- Honeycomb has a **large variety** & number of products

- **Plastics** are trying to prove they are more sustainable

- **High cost** and **resource** demands per footprint

- Data sources from suppliers are non-existent or inconsistent – **no level playing field**

LCA background

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Life Cycle Assessment background

Every product and service has an impact on the world around us.

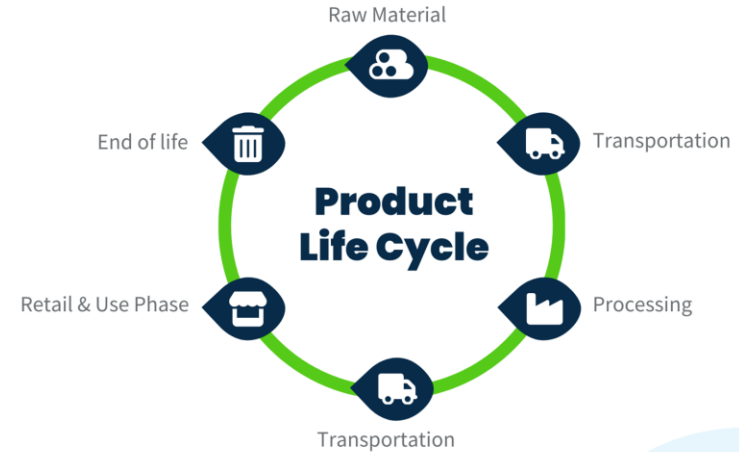**Life Cycle Assessment is a scientific method to:**
Measure the impact of a product on the environment using a Life Cycle Perspective

EPD (Environmental Product Declaration): A standardized, third-party-verified report that communicates the results of an LCA in a transparent and comparable way.

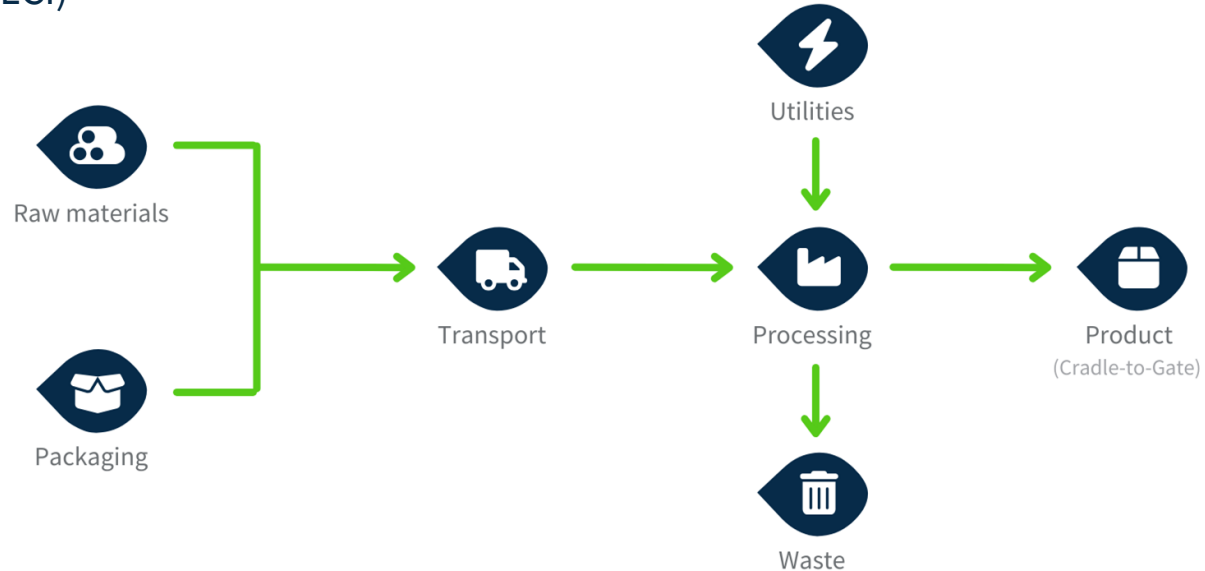**Main standards for LCA:**
ISO14040 / 14044

But also setor specific standards

Raw Material

Transportation

Product Life Cycle

End of life

Processing

Retail & Use Phase

Transportation

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LCA goal & scope

Flowchart: helps in defining the technical aspects of LCA
 (1) System boundaries
 (2) Input for Life Cycle Inventory (LCI)

The Importance of LCA/Carbon Data
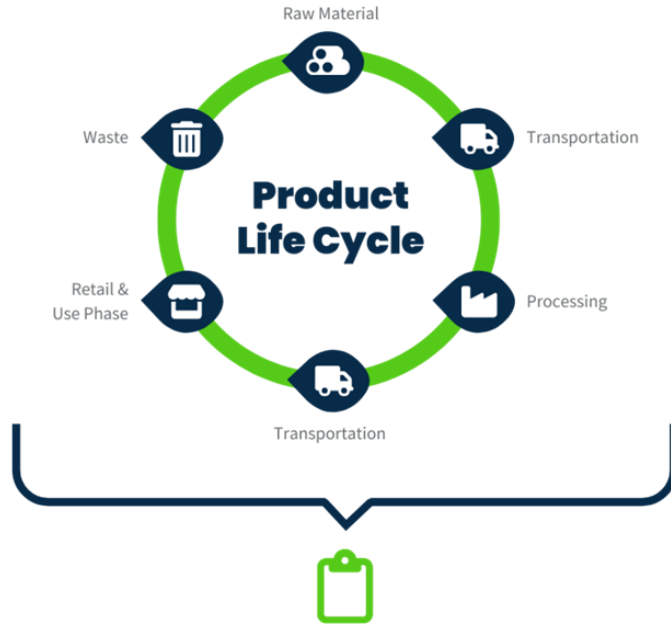
Why carbon?

- It's the **most tracked** and regulated metric for sustainability today.

The role of LCA

- **Quantifies** environmental impact.

- Used in **EU regulations** and corporate sustainability reporting.

- Forms the basis of upcoming **CSRD** (Corporate Sustainability Reporting Directive) disclosures.

CSRD will require companies to report environmental performance with **data-backed evidence**—LCA is one of the key tools that support this.

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Life cycle impact assessment

Product Life Cycle

- Raw Material
- Transportation
- Processing
- Transportation
- Retail & Use Phase
- Waste

Data input: Energy use, emissions, waste, purchased raw materials, transport, etc.
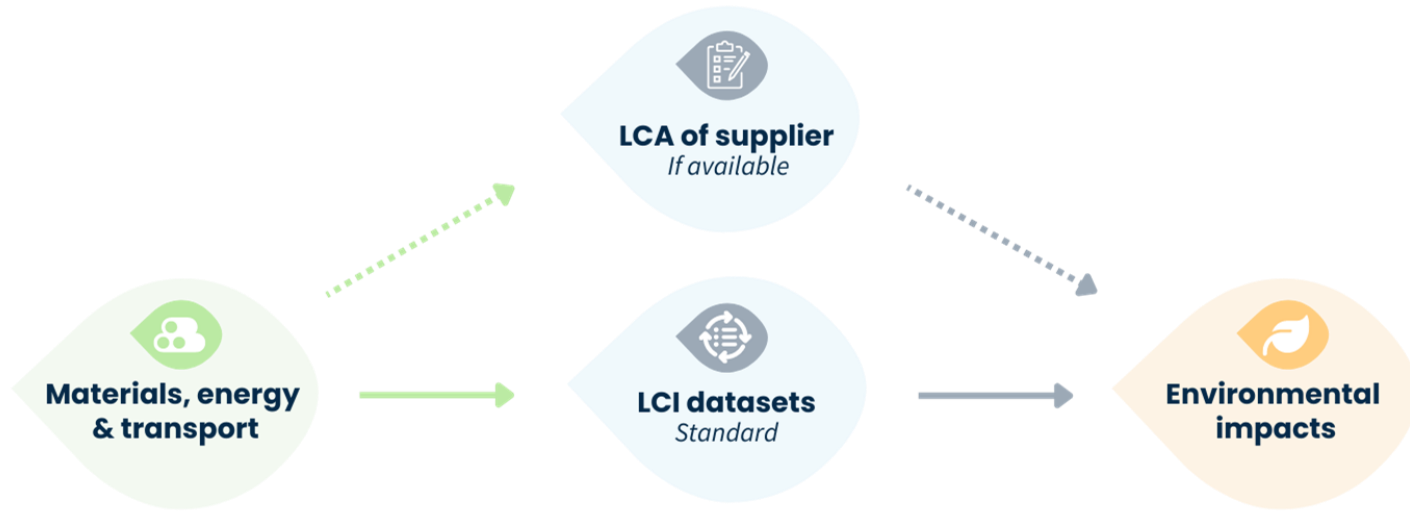
- Land use
- Human Toxicity
- Water Scarcity
- Ozone depletion
- Global Warming Potential (carbon footprint)
- Particulate matter emissions
- Resource depletion
- Eutrophication
- Acidification
- And more

Environmental footprint 15+ impact categories

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Life cycle impact assessment

Materials, energy & transport → LCI datasets (Standard) → Environmental impacts

LCA of supplier (If available)

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Honeycomb vs EPS

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What We Measured

Functional Comparison: 1 m2 of Panel Core Material, 25mm Thickness, Cradle-to-grave

Materials:

- Paper Honeycomb: ~0.6 kg/m²

- EPS (Expanded Polystyrene): ~0.8 kg/m²
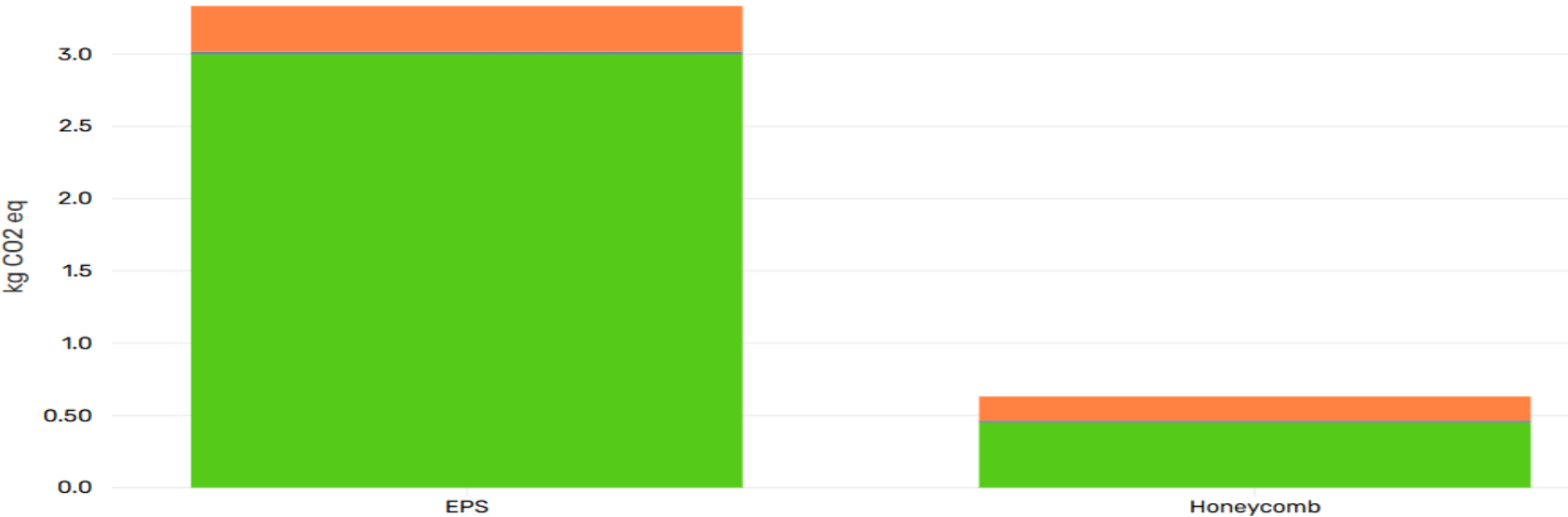
Transport Efficiency:

- 1 pallet holds 1700 m² of paper honeycomb
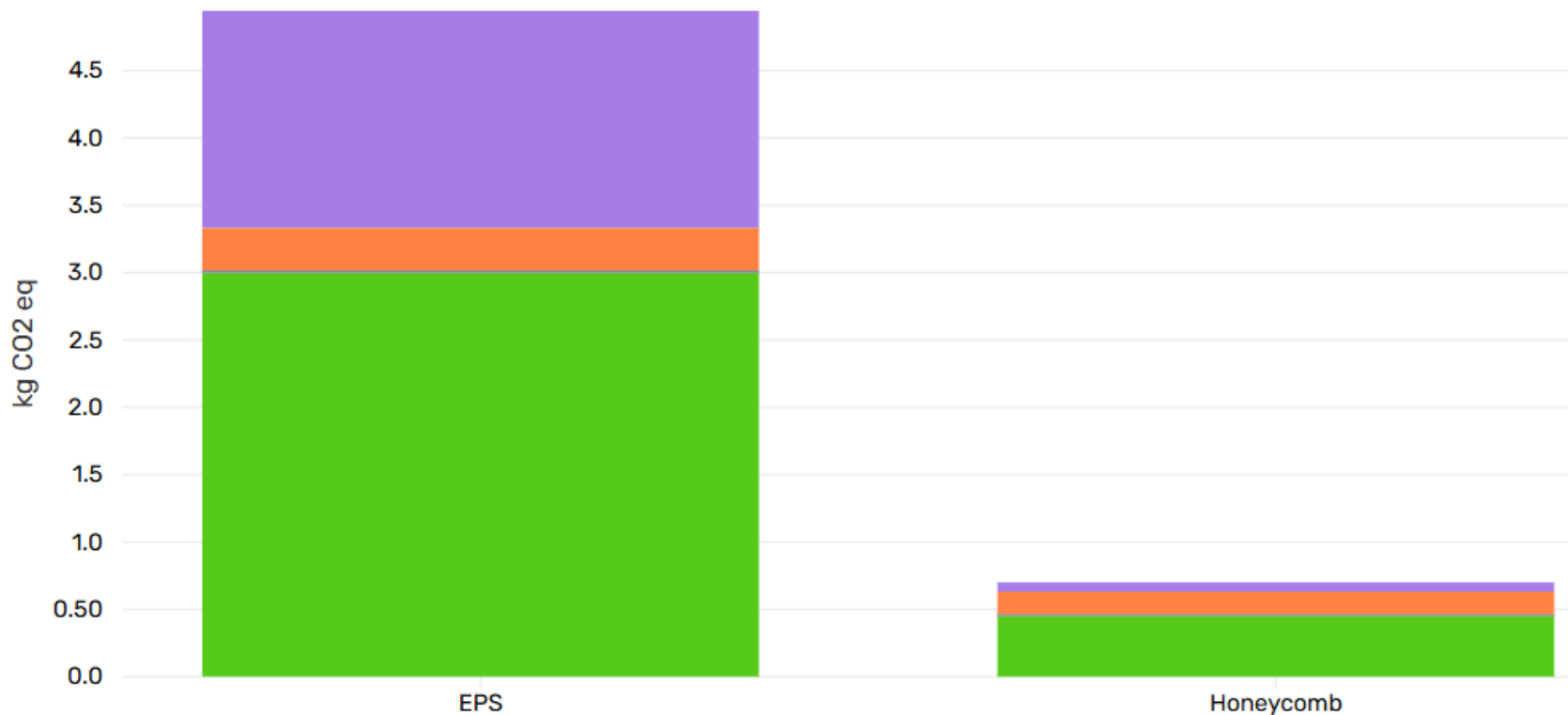
- 17 pallets needed to transport the same amount of EPS

End-of-life recycling (EU averages):

- Paper Honeycomb: ~83% recycled

- EPS: ~40% recycled

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Impact per product – Climate change – Total (EF v3.1)

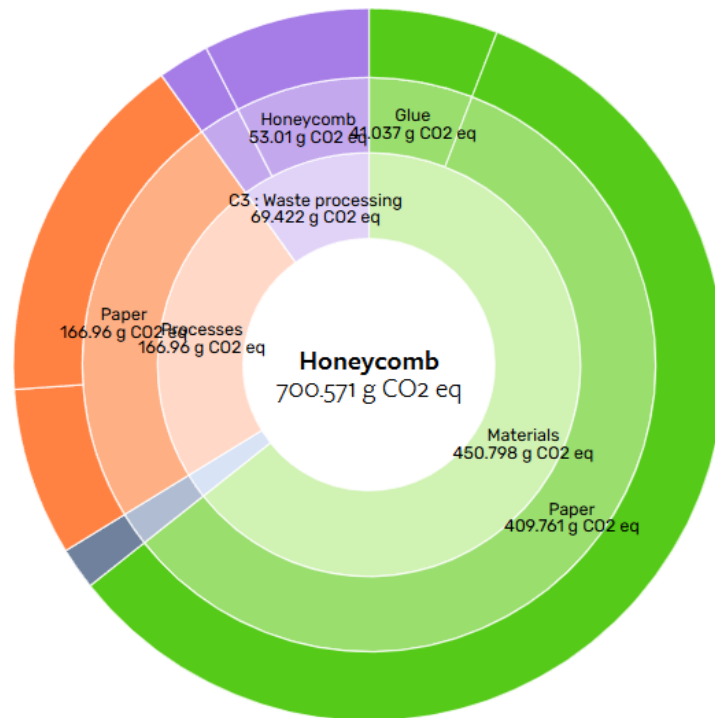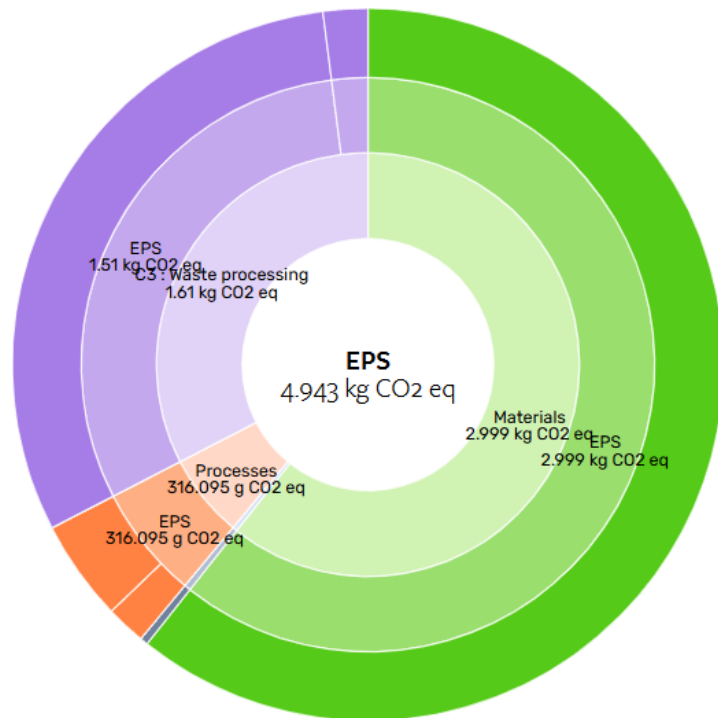# Impact per product – Climate change – Total (EF v3.1)

kg CO2 eq

EPS · Honeycomb

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EPS

Climate change - Total (EF v3.1)

EPS
1.51 kg CO2 eq
C3 : Waste processing
1.61 kg CO2 eq

EPS
4.943 kg CO2 eq

Processes
316.095 g CO2 eq

EPS
316.095 g CO2 eq

Materials
2.999 kg CO2 eq
EPS
2.999 kg CO2 eq

Honeycomb

Climate change - Total (EF v3.1)

Honeycomb
53.01 g CO2 eq
Glue
41.037 g CO2 eq

C3 : Waste processing
69.422 g CO2 eq

Paper
166.96 g CO2 eq
Processes
166.96 g CO2 eq

Honeycomb
700.571 g CO2 eq

Materials
450.798 g CO2 eq

Paper
409.761 g CO2 eq

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Ecochain Helix: LCA Software

How Ecochain Makes It Accessable

- Input from the factory on **material, transport, process** data

- Ecochain offers help in calculating **customized results** for your factories

- Instantly generate LCA/carbon reports **for every product** without increasing the complexity or costs

- Enables **internal decision-making** and **external reporting**

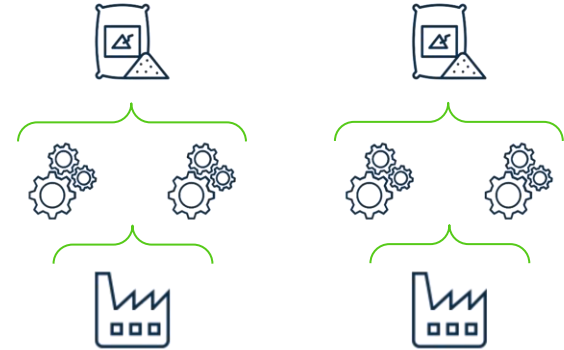- Supports Sales and Marketing to increase the **competitive edge**

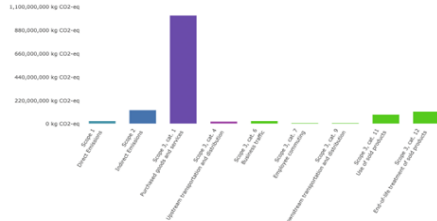# Ecochain Helix – Different than other solutions
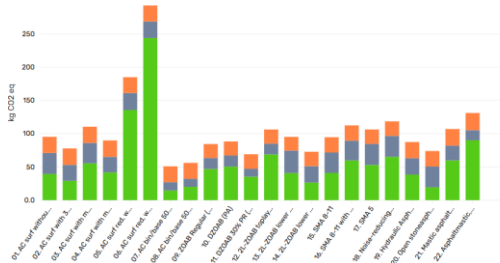
Ecochain Helix

Other solutions

Ecochain Helix results
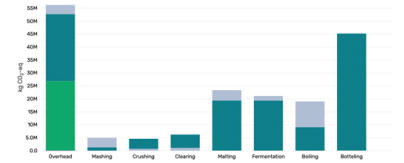
Production location

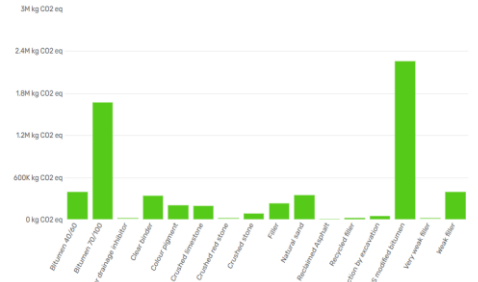Global warming potential (kg CO₂-eq) per footprint category

Products
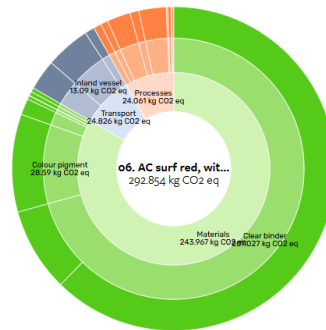

Supply chain and operations

Impact per process - Global warming potential [kg CO2-eq]

	Impact	%
Scope 1	23,977,200.82 kg CO2-eq	1.68 %
Scope 2	129,167,574.11 kg CO2-eq	9.06 %
Scope 3 Upstream	1,068,533,910.24 kg CO2-eq	74.98 %
Scope 3 Downstream	203,431,015.75 kg CO2-eq	14.27 %
Total	1,425,109,700.92 kg CO2-eq	

Verification at scale

```
Customized                            PCF/LCA/EPD
tool                                  generation          →  Publish
         ↘
          → External
          → review
         ↗                            Verified at
PCF/LCA/EPD                           scale model &       → Efficient re-
at scale report                      report                 verification
```
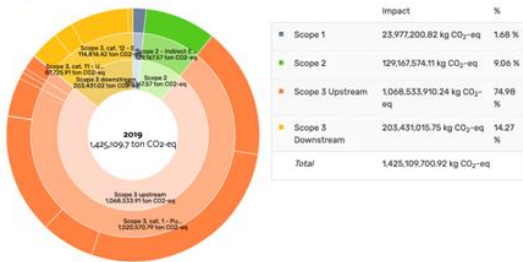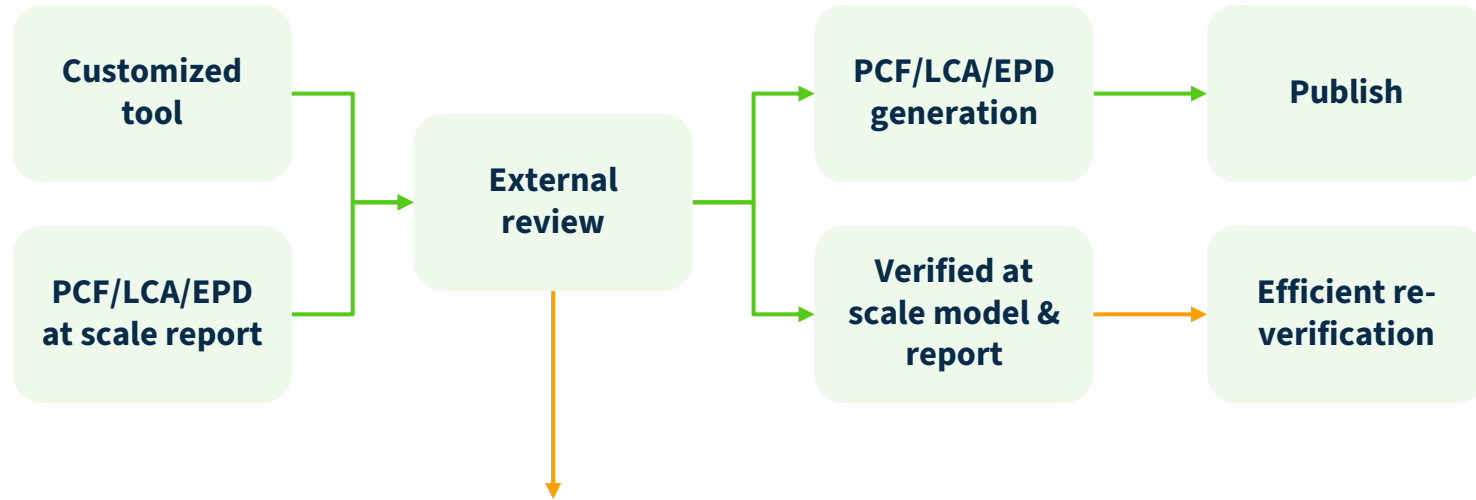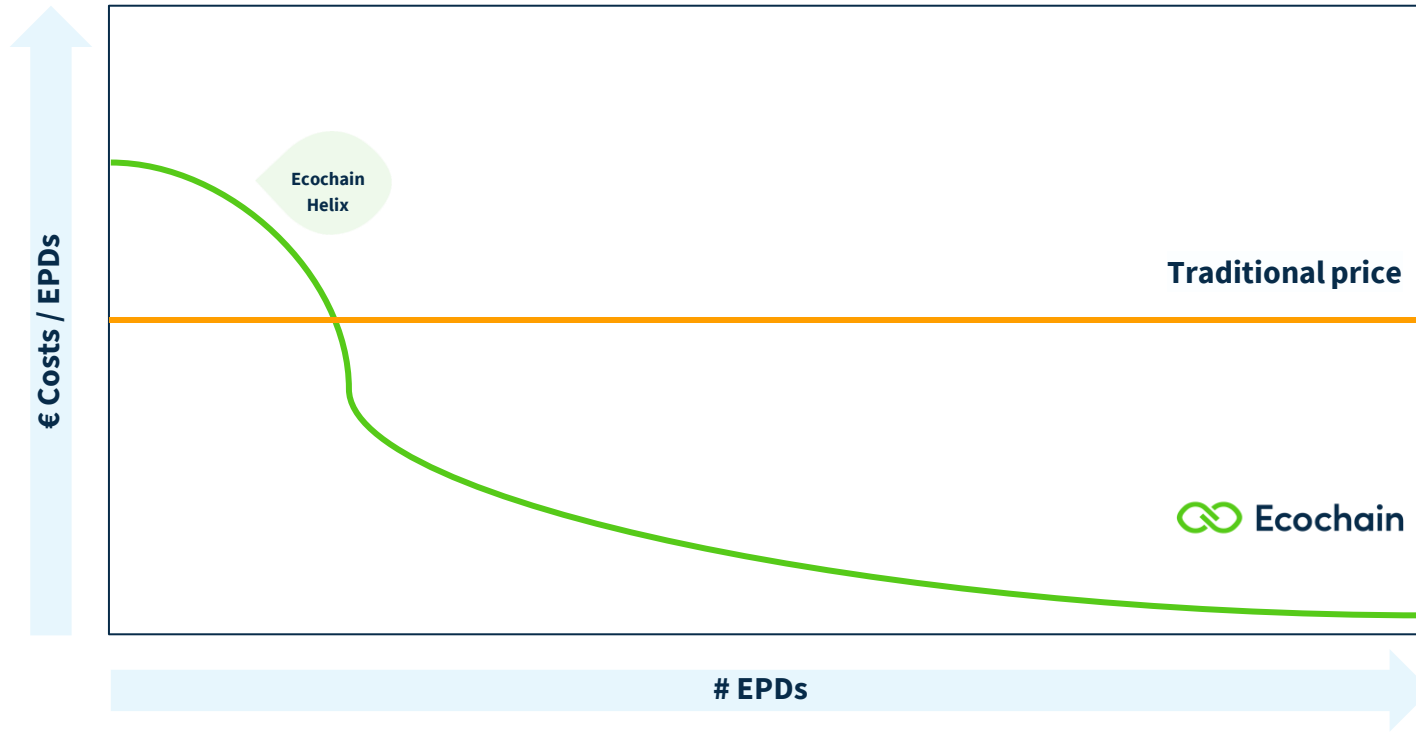
☑ *The third party **verification** will be done **on factory level** resulting in one verification for the **entire product portfolio***

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Competitive costs for EPDs at scale

€ Costs / EPDs

Ecochain Helix

Traditional price

Ecochain

EPDs

Ecochain

About Ecochain

Founded in 2011, Ecochain is an **LCA software company** with customers in 20+ countries and a broad range of industries, including construction, food & beverages, consumer electronics, apparel, and packaging. Ecochain provides two solutions: **Helix**, which efficiently measures product LCAs in bulk, and **Mobius**, an easy-to-use product LCA tool for product designers.

2M+
LCAs created
calculated

20+
countries

80+
employees

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Our expertise network

ECO PLATFORM — Founding member

United Nations — Carbon Workgroup

Years of LCA experience in honeycomb

Embedded in **Global** EPD Landscape

FDES inies

PEP eco PASSPORT®

MRPI milieu relevante product informatie

B-EPD .BE

Institut Bauen und Umwelt e.V.

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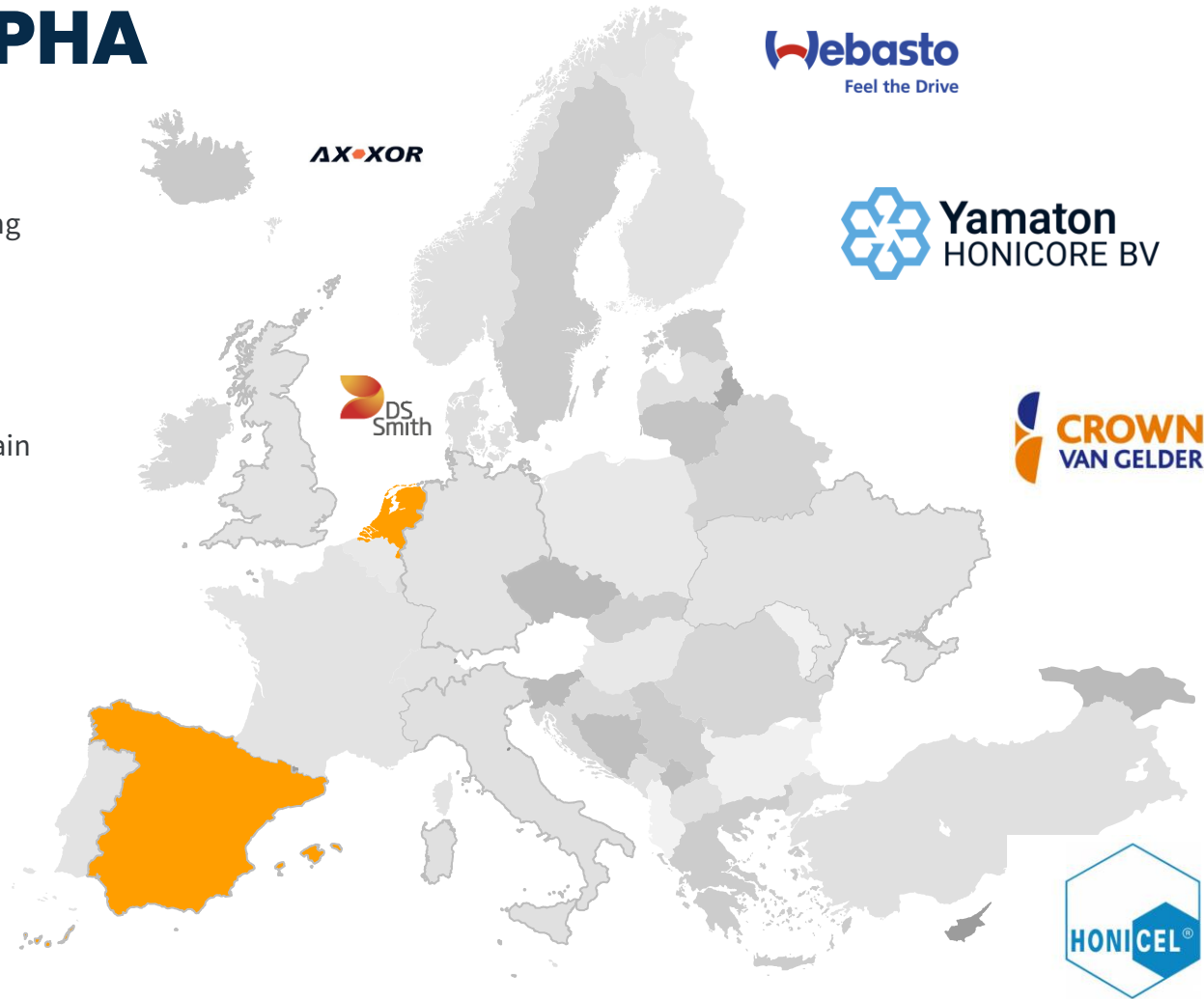
Ecochain & EMPHA

- The 'chain' in Ecochain is for connecting the entire supply chain to achieve accurate data and connectivity

- Currently experienced in the whole chain (from wood to car parts)

- Every party in the chain needs LCA at some point (CSRD, ESPR, CPR)

- Supplier demands increase per year

Conclusion

- **Regulatory**, **competitive**, and market drivers for product footprinting data. The most proven sustainable materials will be required in the future.

- Paper honeycomb is **significantly more carbon-efficient** than EPS in both material, logistics and End-of-life. Manufacturers still need to be able to proof it through site and company/brand specific data.

- LCA provides the **clarity and proof needed** to meet evolving regulatory demands and maintains your current customers

- Ecochain software + guidance = **helps your sustainability reporting and make your business robust for the future**

Ecochain

External

Questions or up for a (sustainable) chat?

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