The enablement of Eco-design through the integration of LCA and PLM

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Product Lifecycle Management

PLM is both a business strategy and toolset that helps manage the entire product life cycle, including sustainable practices.

Single Source of Truth

Traceability and Versioning

Design for X

Integration with External Systems

Supply-chain Collaboration

Digital Twin / Thread

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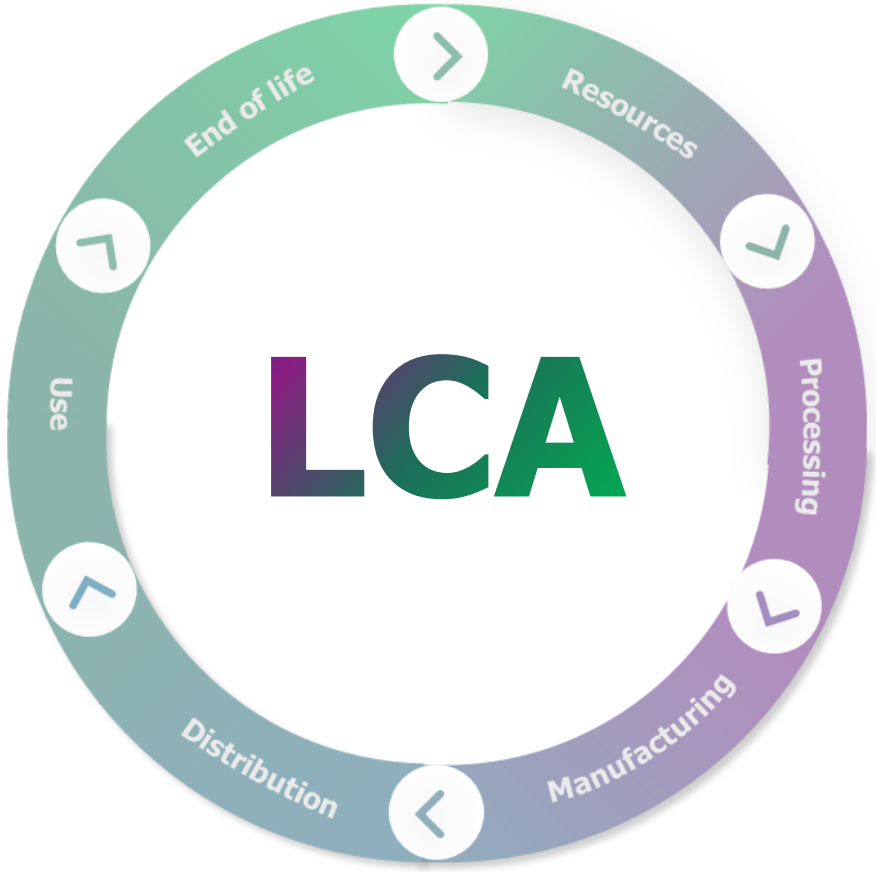
Sustainability supported by PLM

Lifecycle Analysis (LCA) for Designers



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Sustainability supported by PLM

Lifecycle Analysis (LCA) for Designers

Sustainability supported by PLM

Eliminate data silos and standardise datasets

Evolve LCA data in combination with your product data across each Mission Phase

Traceability and version control of LCI data

Empower Eco-design for Engineers

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Eco-Design

Eco-design focuses on minimising the environmental impact of products throughout their lifecycle. This includes considering substances of concern, reusability and recyclability, reducing environmental footprint and more

Drivers

Legislation e.g. ESPR, REACH, EU Space Law

ESA and Supply Chain Expectations

Cost and Time Reduction

Challenges

Data

External Supply Chain (Tier 2 and below)

Capability and Mindset

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Current Landscape

ESA Concurrent Design Facility

Standalone tools

- Bespoke spreadsheets
- Custom applications with high license costs
- Restrictions on data formats and application links

Data collection

- Primes have different questionnaires for data collection
- Readiness to share data (IP)
- Data availability / reliability
- Multiple data sources and formats

Gold standard:

- Simple to use
- Require as little inputs as possible
- Low level of LCA expertise
- Integrate with existing tool and data sets

How does PLM support Eco-Design?

Product Architecture

- Part name and level
- Physical links between Parts
- Product configuration

Part Characteristics

- Material
- Weight
- Manufacturing Process

Impact Factors

- Impact Categories
- Weighting
- Single score

One source of truth, aggregated data in a single format makes data more available and reliable

All activity within **one application** or connected to one dataset

Accessible with little to no change to process required from designers

Built to manage **different product configurations**

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Case Study: EcoDesign in PLM

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Eco-Design For Engineers

Designer Centric

- Simple UI
- Graphical Feedback
- Abstracted Complexity

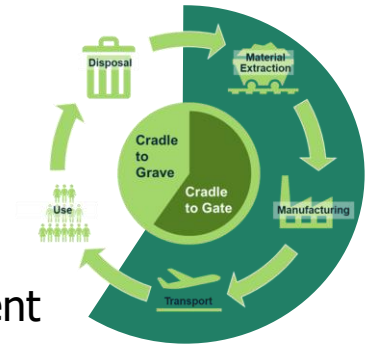
Our Approach

Data Principles

- Retain all levels of data
- Data traceability
- Aggregate data from all sources
- LCA for product configurations

Life Cycle Analysis

- Cradle-to-Gate
- Single Score
- Midpoint Assessment



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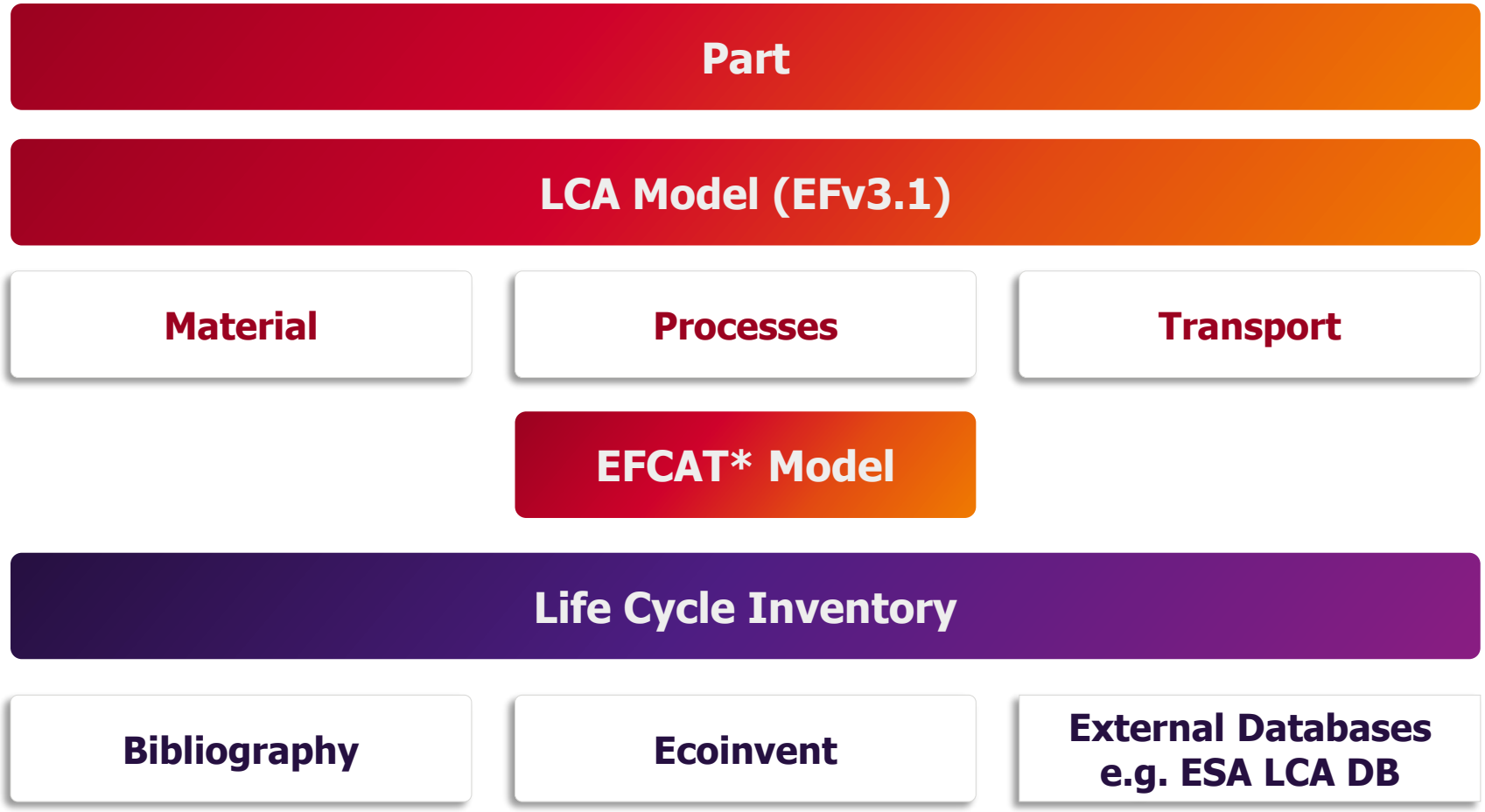
Case Study: EcoDesign in PLM



* EFCAT = Environmental Footprint and Cost Analysis Tool

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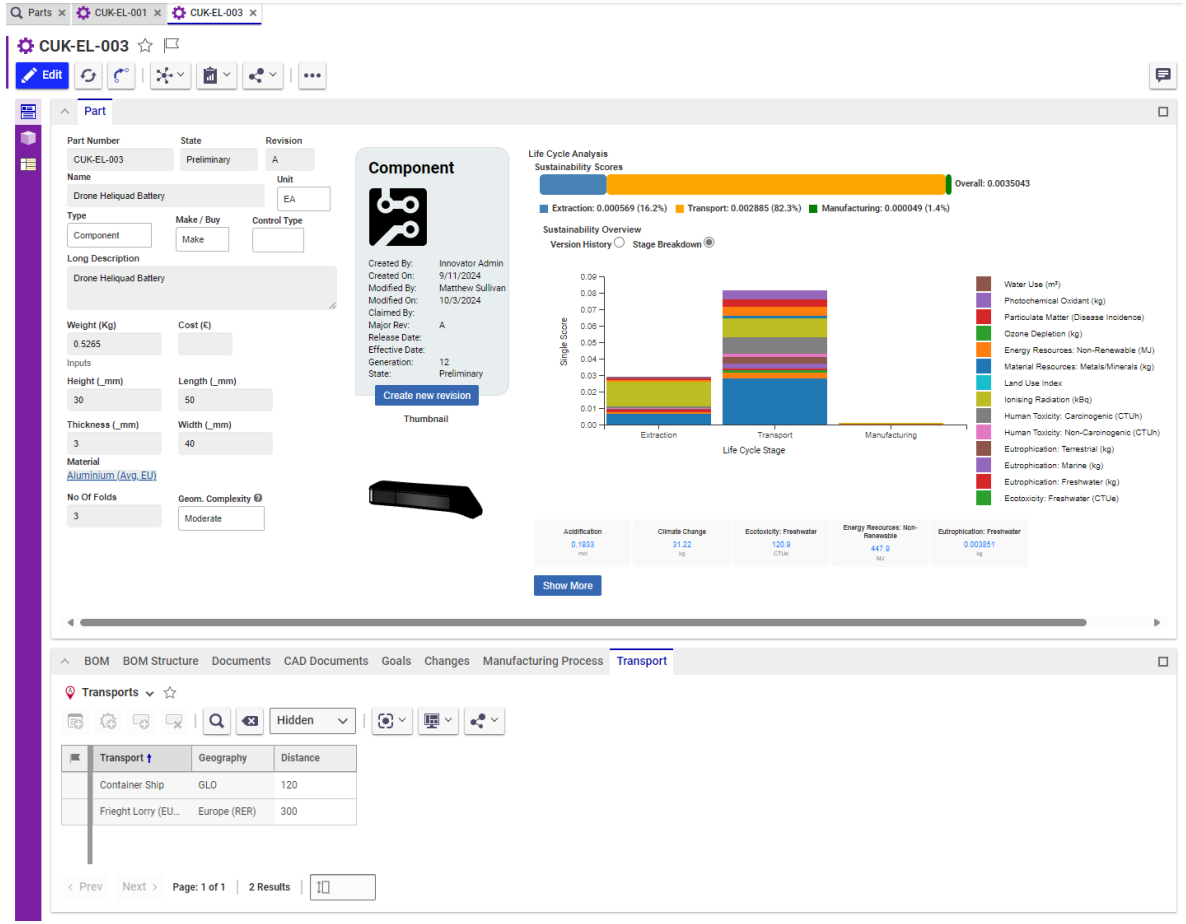
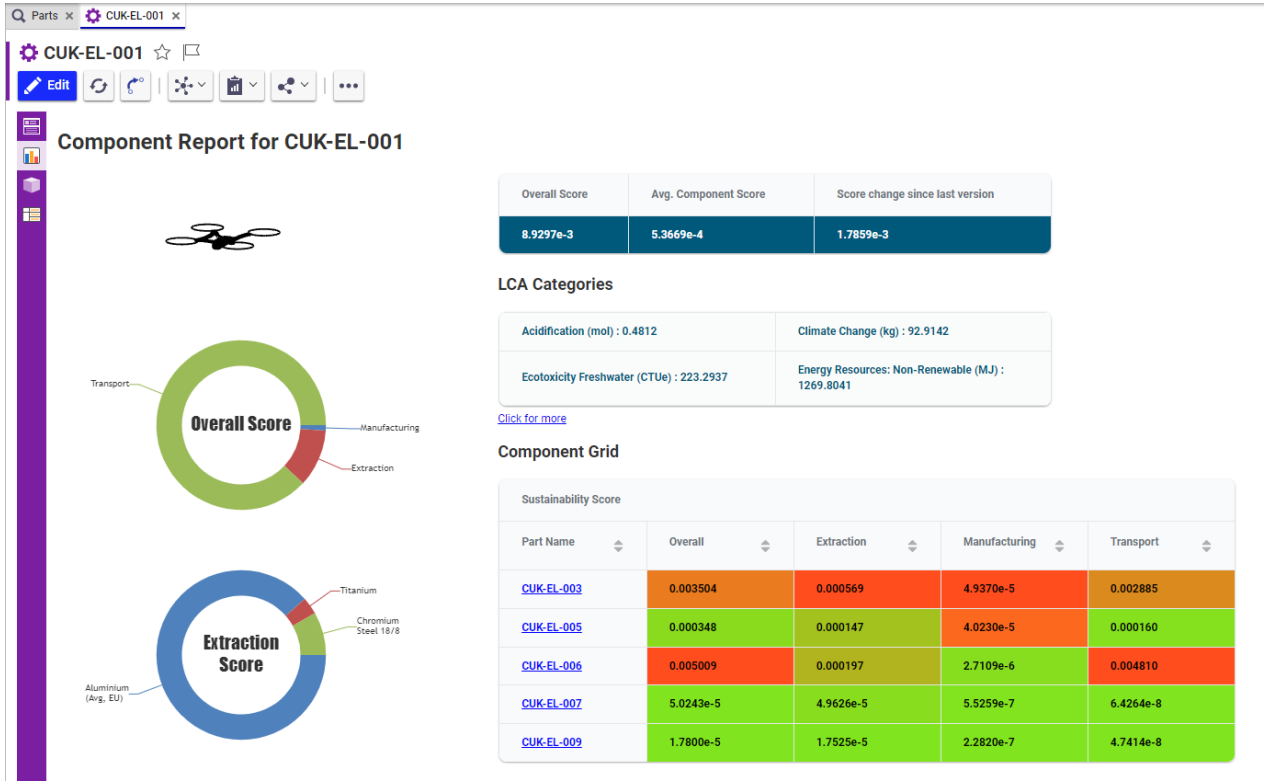
Case Study: EcoDesign in PLM





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What's Next?

Our goal is to enable a **designer-centric** Eco-Design process through the **integration of Life Cycle Analysis and Product Lifecycle Management**

Data Availability and Transparency	Workflow integration	Real-time feedback

We are looking for **partners** to develop use cases based on your workflows and develop **best-practices for implementing Eco-Design**

Features

- Substance tracking
- Connector for any LCA database (xml, ecoSpold2…)
- LCA management interface
- Data quality reporting

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Q&A

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