

Powertrains and Energy Systems of Tomorrow 2024

Catena-X's Contribution to Sustainability in the Automotive Supply Chain

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DETECON International GmbH

Chemnitz, May 15th, 2024

DETECON



*Qualified for offering Catena-X
advisory and consulting services*

01 Catena-X – Data Exchange along the Automotive Value Chain

- 02 Deep Dive on Catena-X Use Case Product Carbon Footprint (PCF)
- 03 Deep Dive on Catena-X Use Case Circular Economy
- 04 Questions & Answers



Catena-X is an open, collaborative and interoperable Data Ecosystem to enable sovereign and standardized data exchange along the Automotive Value Chain.

- Catena-X is an initiative, founded in July 2021 as a consortium by 28 key players of the Automotive Industry: OEMs, suppliers, service providers and scientific research
- It is a network of participants, exchanging data along the automotive value chain according to agreed standards and respecting the principle of data sovereignty
- Catena-X is a data space that enables data exchange, but does not store the data centrally – it's neither a cloud nor a data lake
- Supported and subsidized by the Federal Ministry for Economic Affairs and Climate Action, it is intended to be a boost for Digital Transformation and Sustainability in Germany and in the EU
- With the nucleus in Germany, the network is designed and intended to become a global network, first international hubs are opened
- In October 2023, the network went live with its first operating company, Cofinity-X – ramp-up of participants is ongoing

#RadicalCollaboration
#DataSpace #DataSovereignty
#DigitalTransformation



#TrustfulPartnerEcosystem
#GAIA-X
#OpenSource #Tractus-X
#Networking #Innovation

Our Motivation.



RESILIENCY



“Today’s peer-to-peer supply chain network doesn’t do the job”

EXECUTIVE AWARENESS

SUSTAINABILITY AND REGULATORY REQUIREMENTS



“Flow of data across the entire value chain requires new collaboration models”

DATA ECOSYSTEM

GEOPOLITICS AND INNOVATION



“Sharing data is a matter of trust and sovereignty”

EUROPEAN VALUES GAIA-X

ECONOMICS



“Network adoption and interoperability is a team effort”

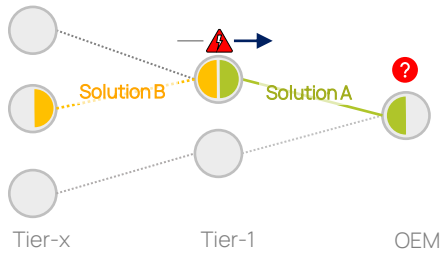
INDUSTRY DATA SPACE

Our Motivation.



RESILIENCY

Today's peer to peer network approach

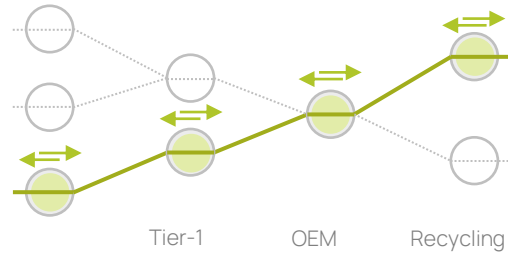


“Today’s peer-to-peer supply chain network doesn’t do the job”

EXECUTIVE AWARENESS

SUSTAINABILITY AND REGULATORY REQUIREMENTS

Potential data-driven value chain
Interoperability

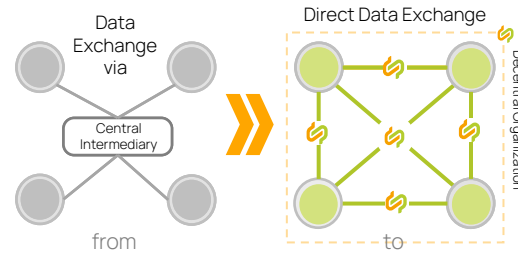


“Flow of data across the entire value chain requires new collaboration models”

DATA ECOSYSTEM

GEOPOLITICS AND INNOVATION

From central to decentral
→ Data Sovereignty



“Sharing data is a matter of trust and sovereignty”

EUROPEAN VALUES GAIA-X

ECONOMICS

We design and build together ...

Adopter & Outfitter

Provider & Operator

“Network adoption and interoperability is a team effort”

INDUSTRY DATA SPACE

The Catena-X Consortium agreed on 10 initial use cases, which will be used to lay the groundwork and have a starting point to launch Catena-X.



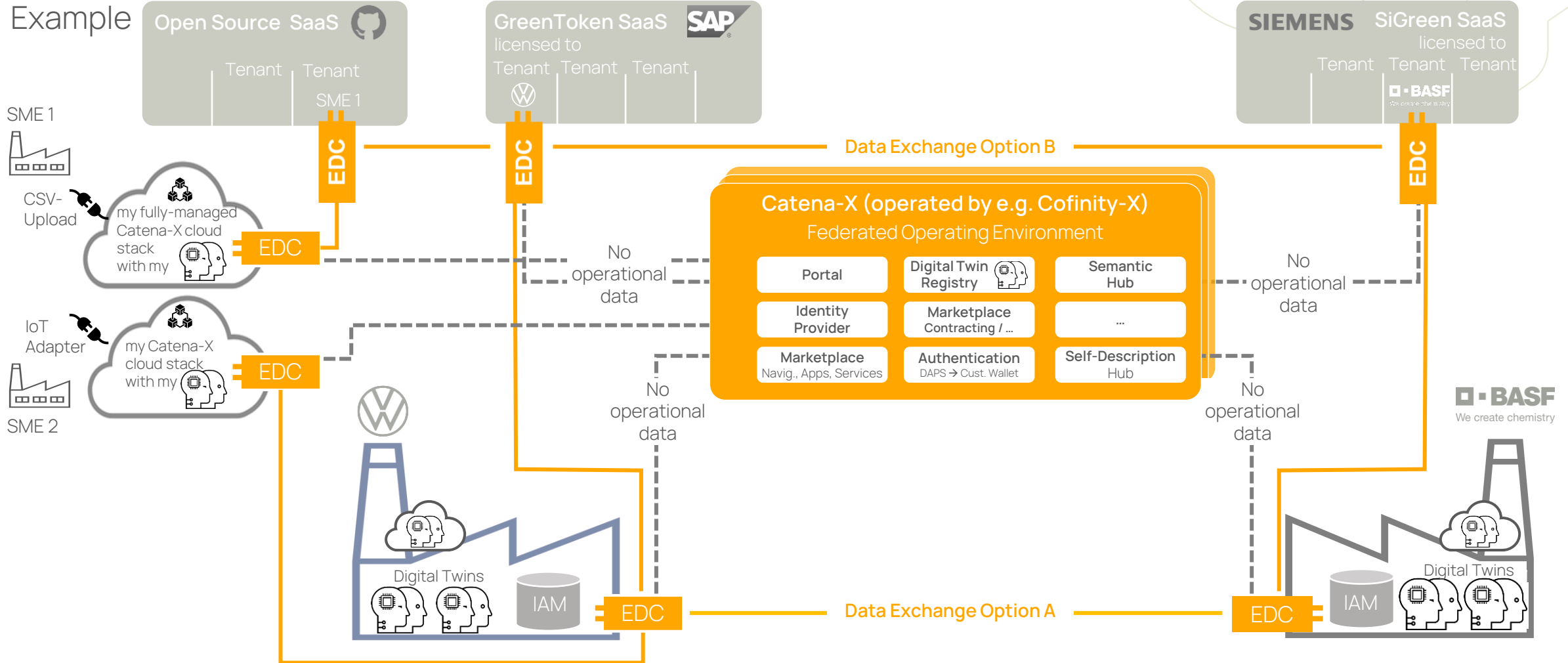
¹ ESG = Environmental Social Governance

² MaaS = Manufacturing-as-a-Service

- During the first phase, **the initial 10 use cases** will be implemented and rolled out into the supply chain
- Networks of companies can work together to develop their **own use cases** on the Catena-X basis
- Companies can develop and distribute their **own solutions and Apps**
- Companies can develop **new data-driven business models**, which leverage data by sharing or monetizing and implement them on the Catena-X platform

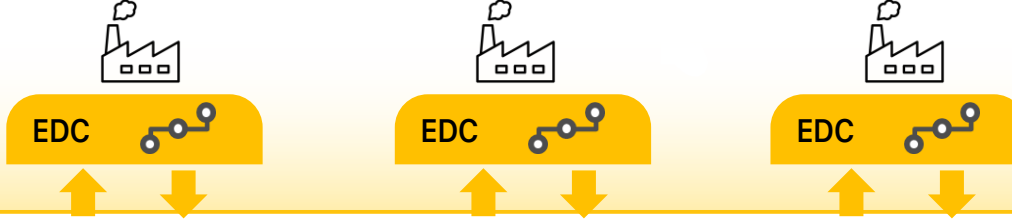


How Catena-X Works – Data Sovereignty.



Catena-X: Generic Architecture & Data flows.

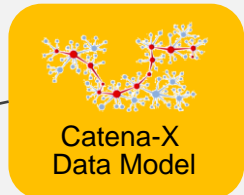
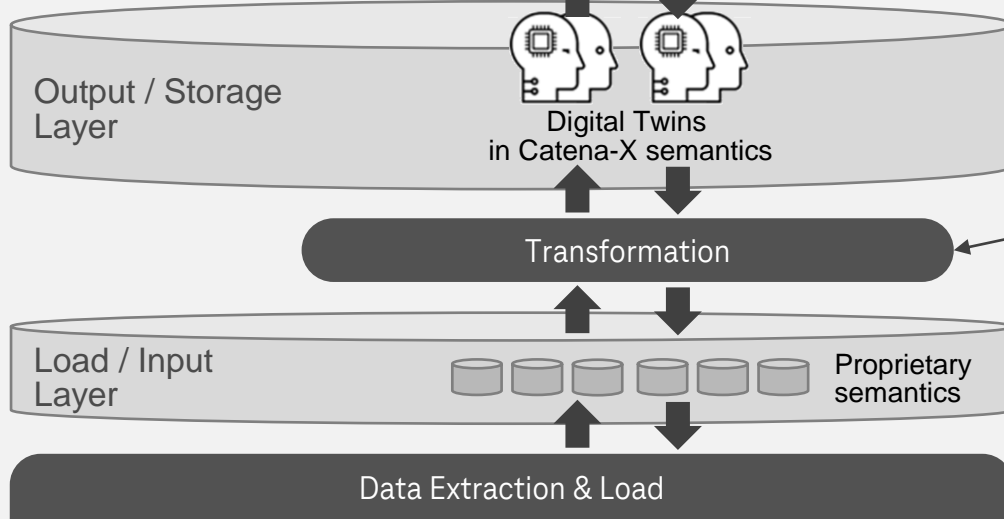
Partner Companies



Catena-X Connector



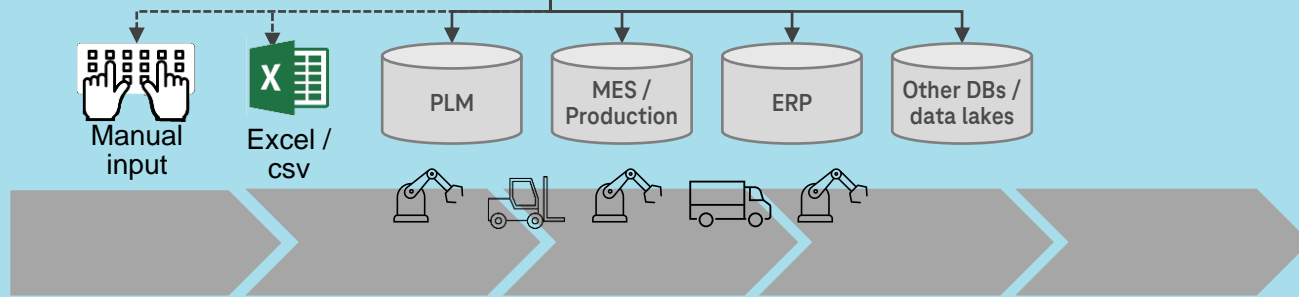
Catena-X Integration Layer



Data Sources

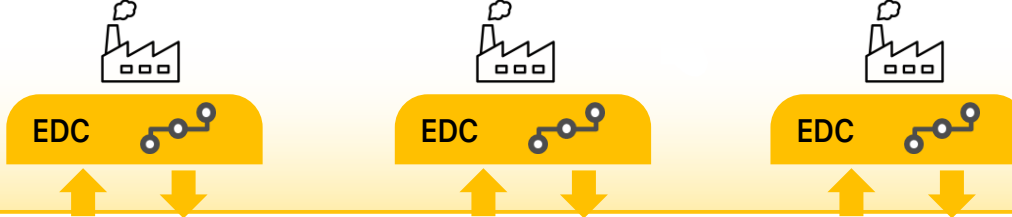


Transactional Processes



Catena-X: Generic Architecture & Data flows – downstream.

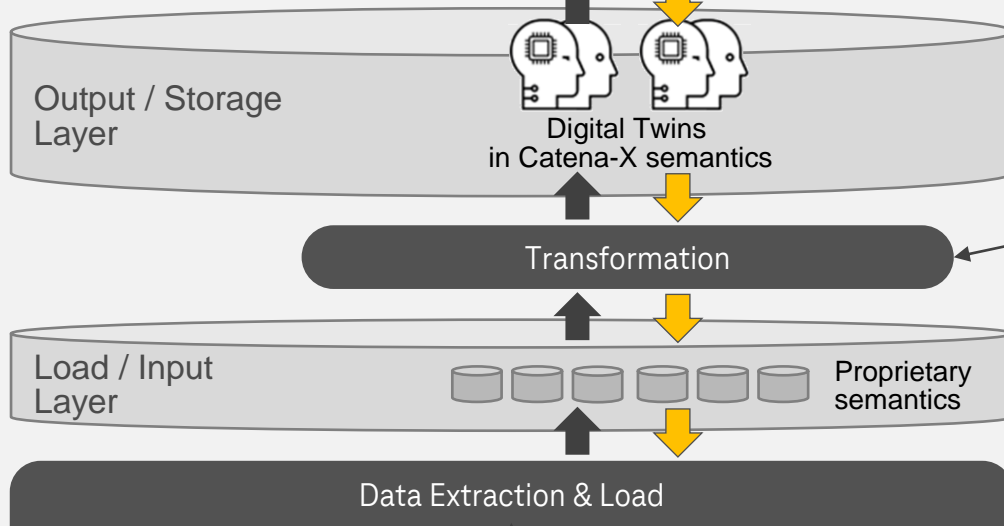
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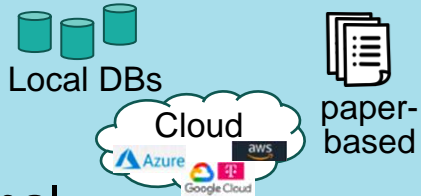
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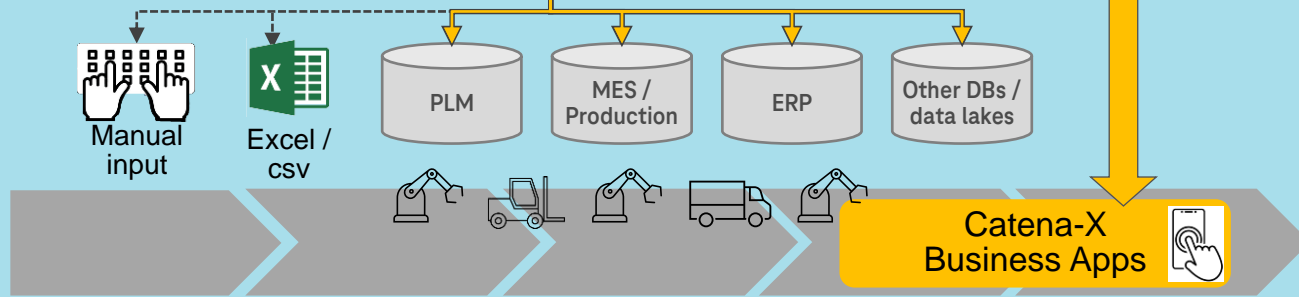
Catena-X Integration Layer



Data Sources



Transactional Processes



01 Catena-X – Data Exchange along the Automotive Value Chain

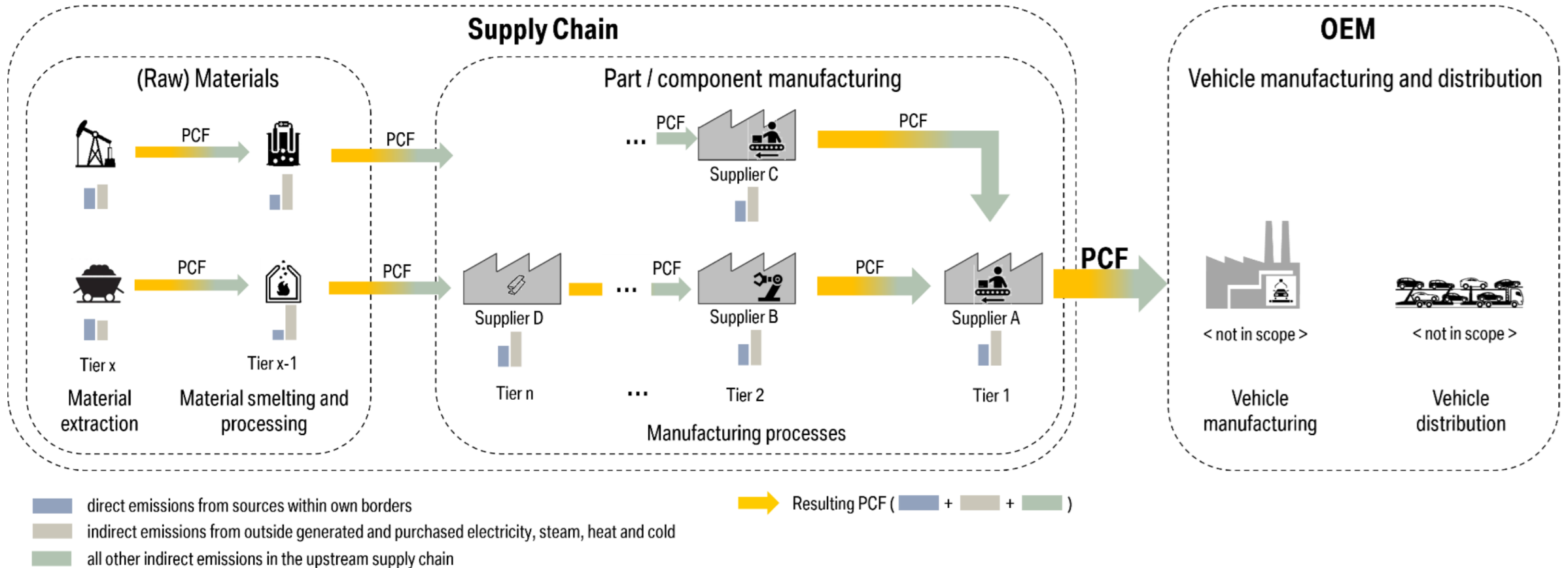
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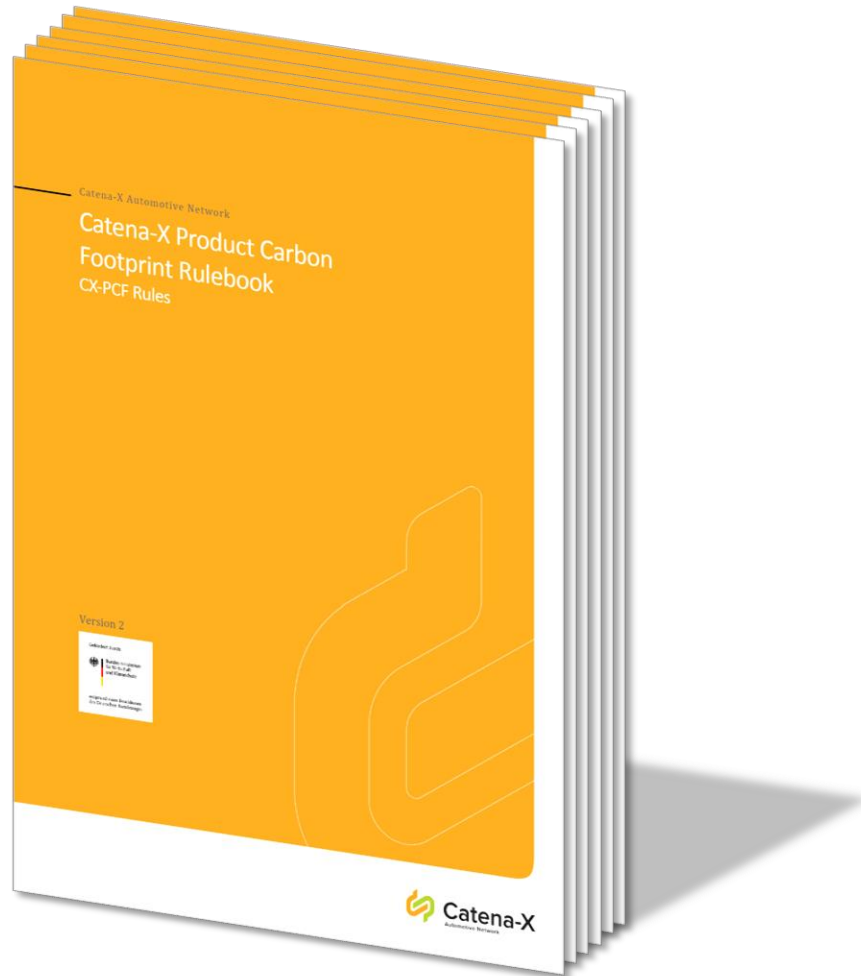


Product Carbon Footprint (PCF) in the Automotive Supply Chain. Scope of the Catena-X Use Case.



In each node of the supply chain, the PCF is calculated from the respective direct and indirect emissions. The PCF value is passed on from the supplier to the customer and is then again incorporated into the customers PCF calculation.

Catena-X standardized the rules for PCF calculation and defined a data model for exchanging the necessary data „from-cradle-to-gate“.



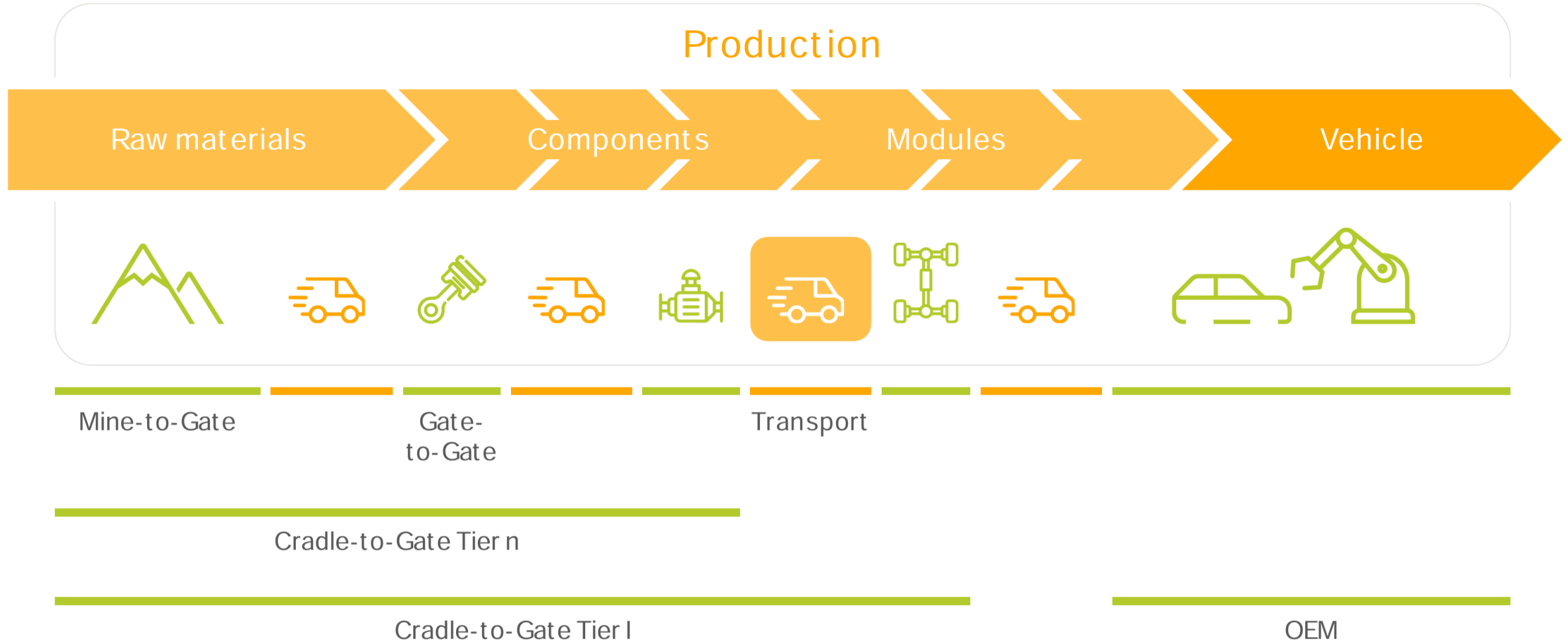
Goals of the Catena-X PCF Rulebook

- Moving away from using industry average measurements towards **using real emission data of the real supply chain**
- Standardising measurement and reporting along the supply chain to **make CO₂ emission data comparable**
- Definition of standardized & WBCSD*/**Stakeholder approved CO₂ calculation schemes** and methodologies

* World Business Council for Sustainable Development

** ESS = Environmental and Social Standards

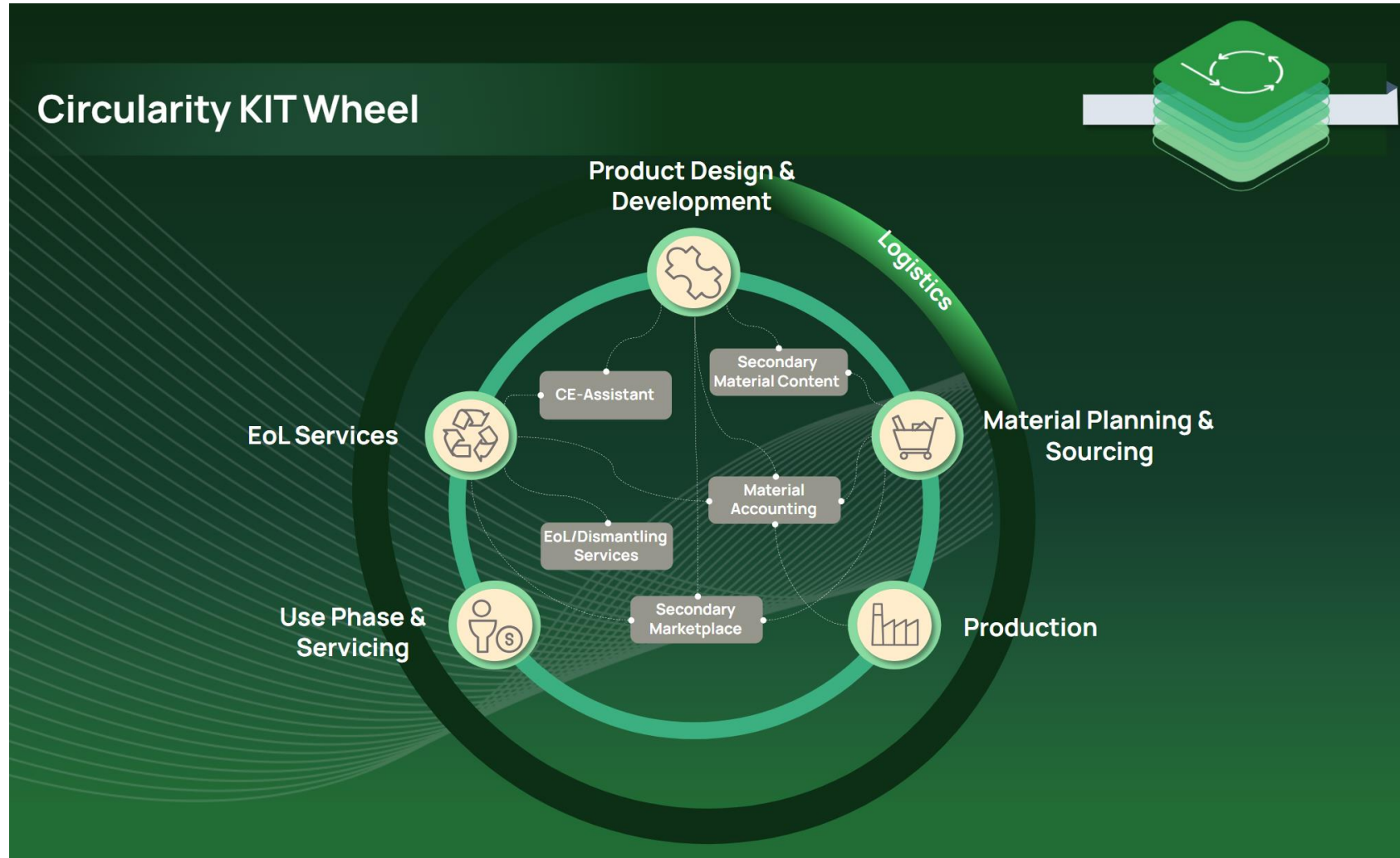
Catena-X's PCF calculation scheme aims at increasing the primary data ratio and also considers the transportation CO₂ footprint.



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Vision of Catena-X Use Case Circular Economy: „Closing the Loop, by harnessing the power of Circularity.”



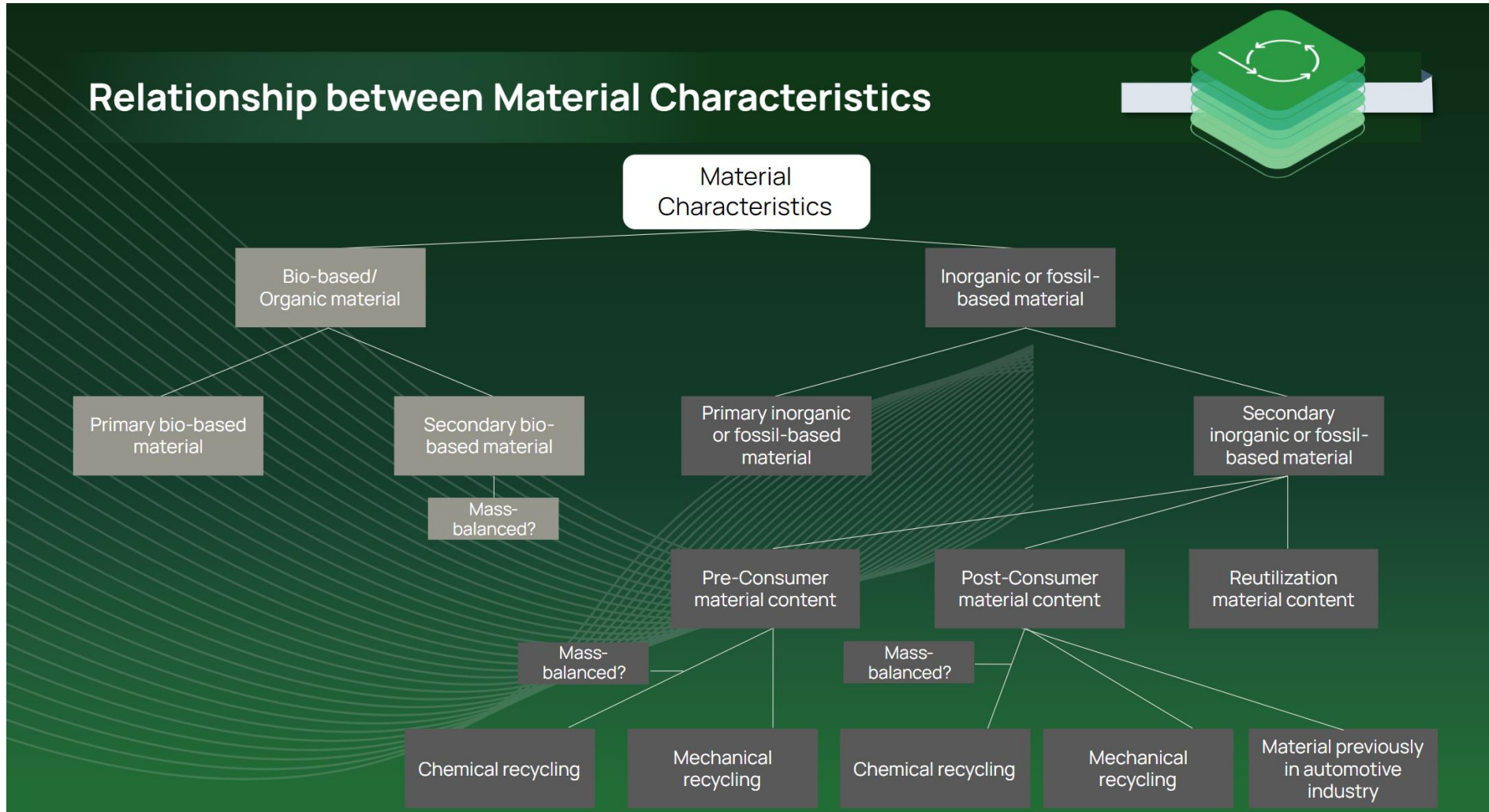
Catena-X Circular Economy Use Case covers 5 features

- Secondary Material Content
- Material Accounting
- End of Life / Dismantling Services
- CE-Assistant (Circular Economy Strategy Assistant)
- Secondary Marketplace

Scope of Catena-X Use Case Circular Economy: Provide transparency and advisory of how to increase the re-use of components and materials.

- **Secondary Material Content:** Promotes the use of secondary materials in the automotive industry by providing a standardized data model for data exchange and a calculation framework
- **Material Accounting:** Provides standardized scrap/waste and secondary material data exchange for the ecosystem partners to create transparency about recycling activities and verifiable closed loops
- **End of Life / Dismantling Services:** Offers essential support for the digitalization and automation of the EoL phase to consequently close value loops
- **CE-Assistant (Circular Economy Strategy Assistant):** Is a decision support system that facilitates the selection of the optimal “R-Strategy” for end-of-life vehicles, with a focus on Reuse, Remanufacturing, Recycling, and Recovery, guided by a comprehensive technical and environmental assessment process
- **Secondary Marketplace:** Buying and selling used components and secondary raw materials in order to create and open new opportunities for collaborating across the value chain and closing the loop on component and material level

Catena-X defined calculation schemes for the Secondary Material Content (SMC) and the Secondary Material Quota (SMQ) including the data models.

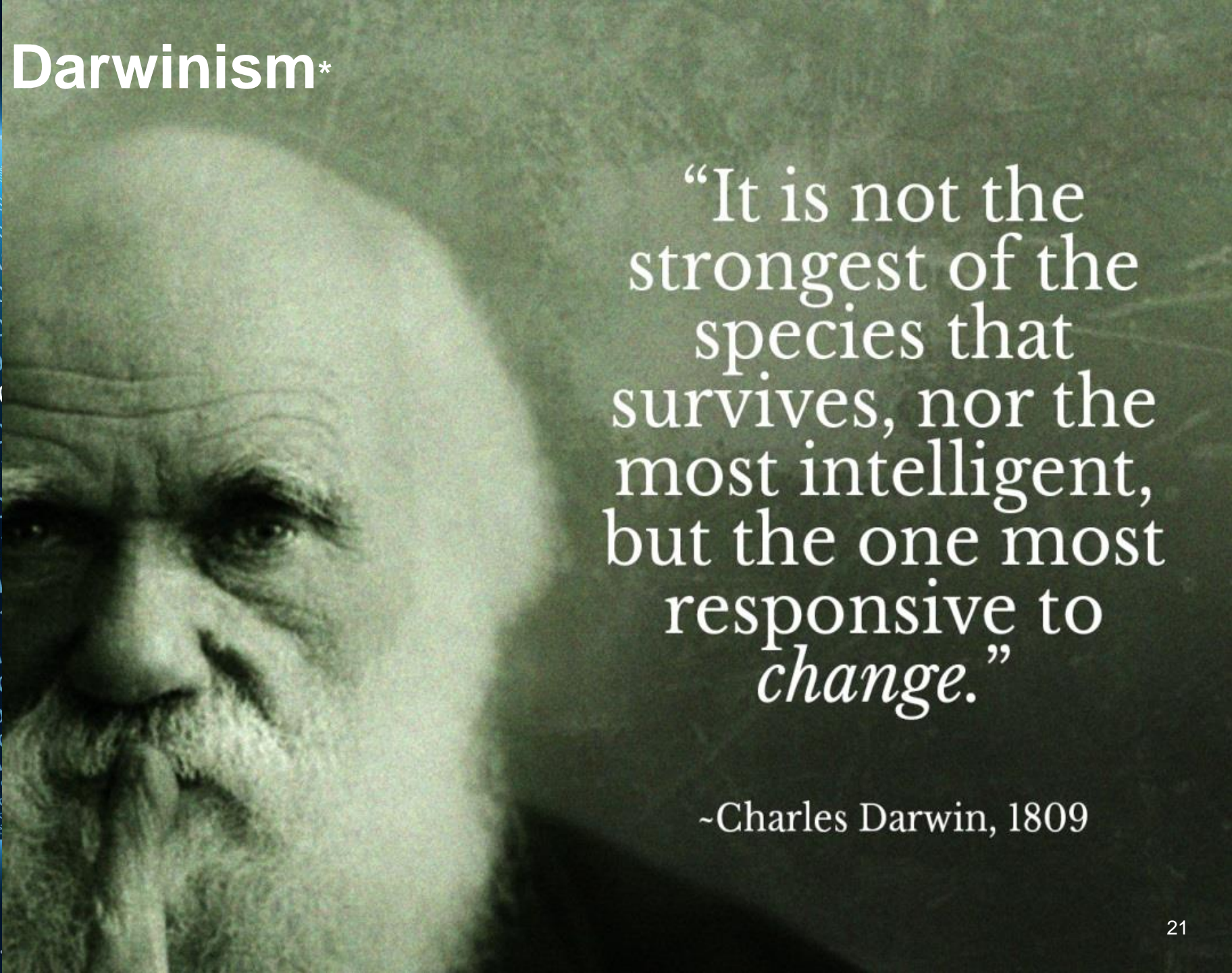


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Digital Darwinism*



“It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to *change*.”

~Charles Darwin, 1809

* Brian Solis: “The End of Business as Usual”, 2011.

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