Catena-X

THE FIRST OPEN & COLLABORATIVE DATA ECOSYSTEM

Catena-X PCF-Rulebook current status and next steps

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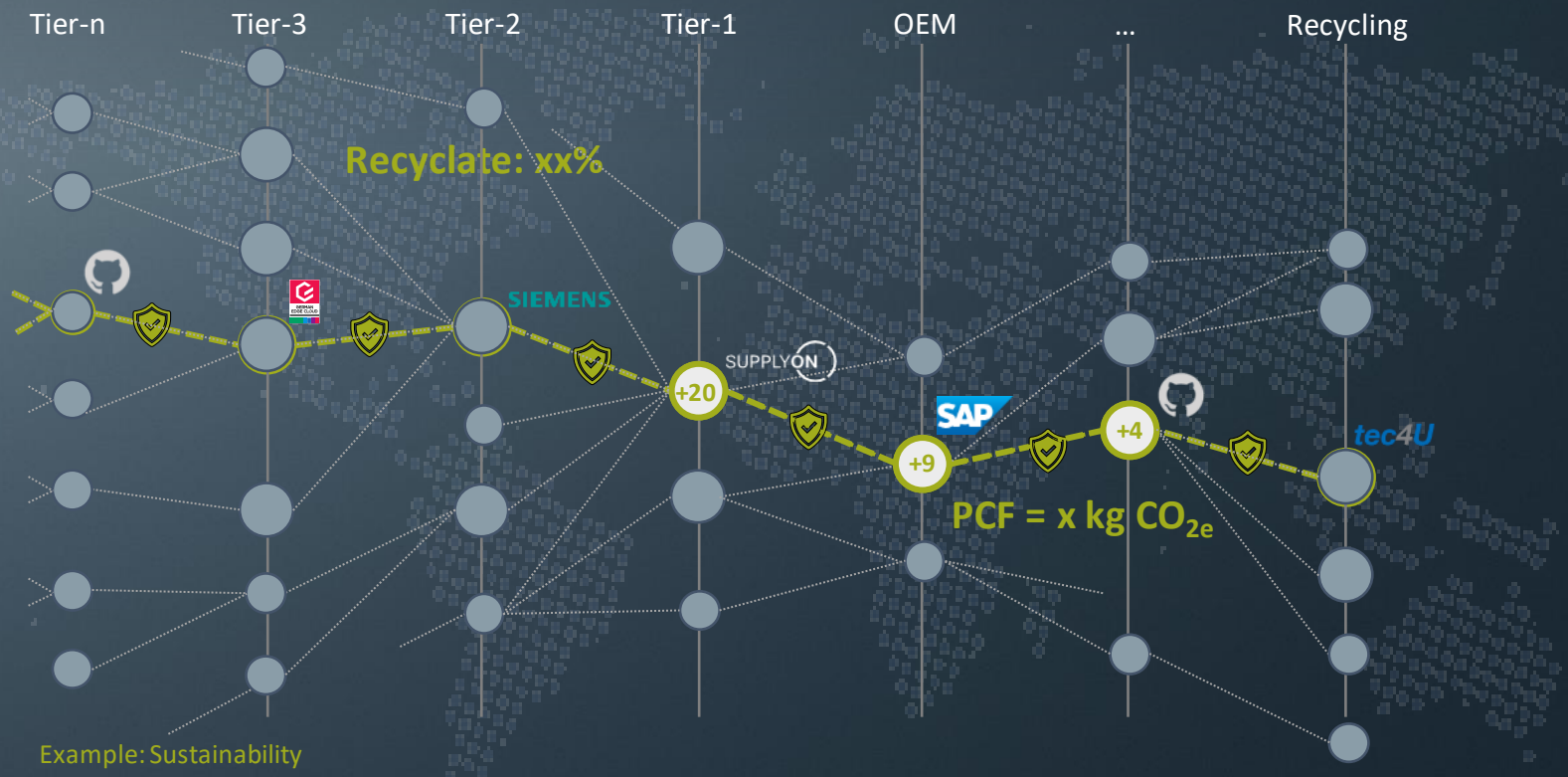
Our Mission for the Catena-X Data Ecosystem

Build a **global data space** that can host our industry

275.000+
legal entities
x
 # locations
globally
x
 # digital twins
machines, products, …
x
 # apps
business processes
x
 # users
business responsibility

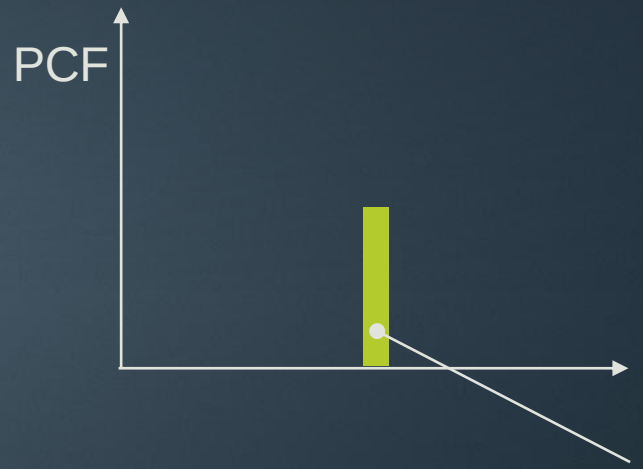
optional adjacent industries

Create the first **data driven value chain**; incorporating all participants via interoperable and trusted solutions

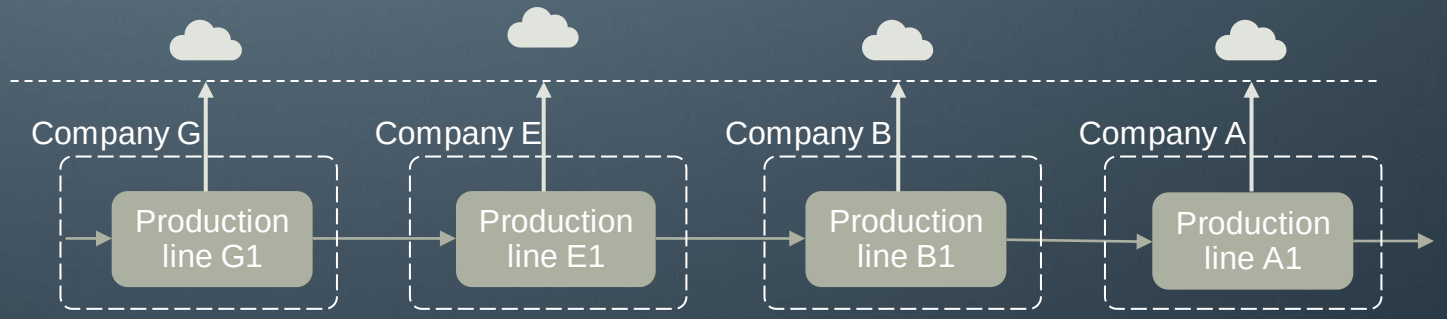


Average data blurs any differences in supply chains and fails to measure reductions in your supply chain

Established methods



Supplier-specific, primary data



An ecosystem is required to collect primary PCF values along supply chain

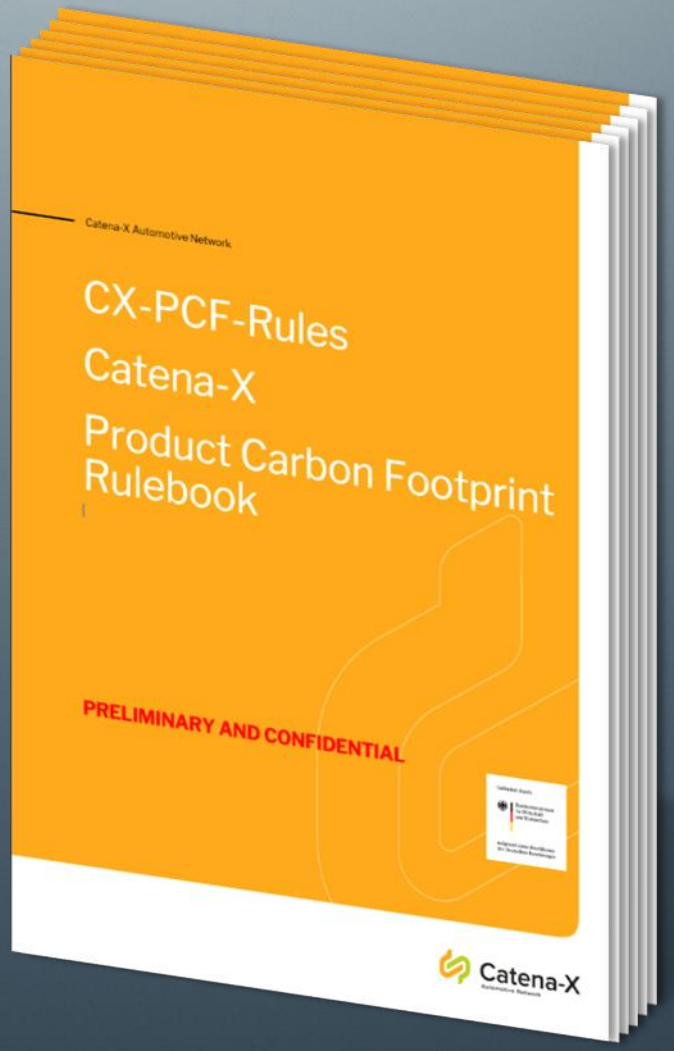
Methodology & Rulebook

Software

CO_2e-APPs

Acceptance & Credibility

The Catena-X PCF Rulebook



- **Broaden and deepen** the application of PCF in industry
- Balance **level of detail and scalability**
- Standardising measurement and reporting along the supply chain to **make CO_2 emission data comparable .**
- Definition of standardized & WBCSD / **Stakeholder-approved** CO_2 calculation schemes and methodologies.
- Improving efficiency by promoting one method and data format for PCF reporting: Calculate once, report again and again

Highlights of the PCF rulebook

Basic PCF calculation

- Declared unit
- System boundaries
- Cut-off criteria
- Multi-output allocation
- Secondary data sources
- Characterization factors

Basic PCF Exchange

- First data model for exchange
- Responsibility to account for transport emissions
- Primary data share and cascading

Advanced PCF calculation

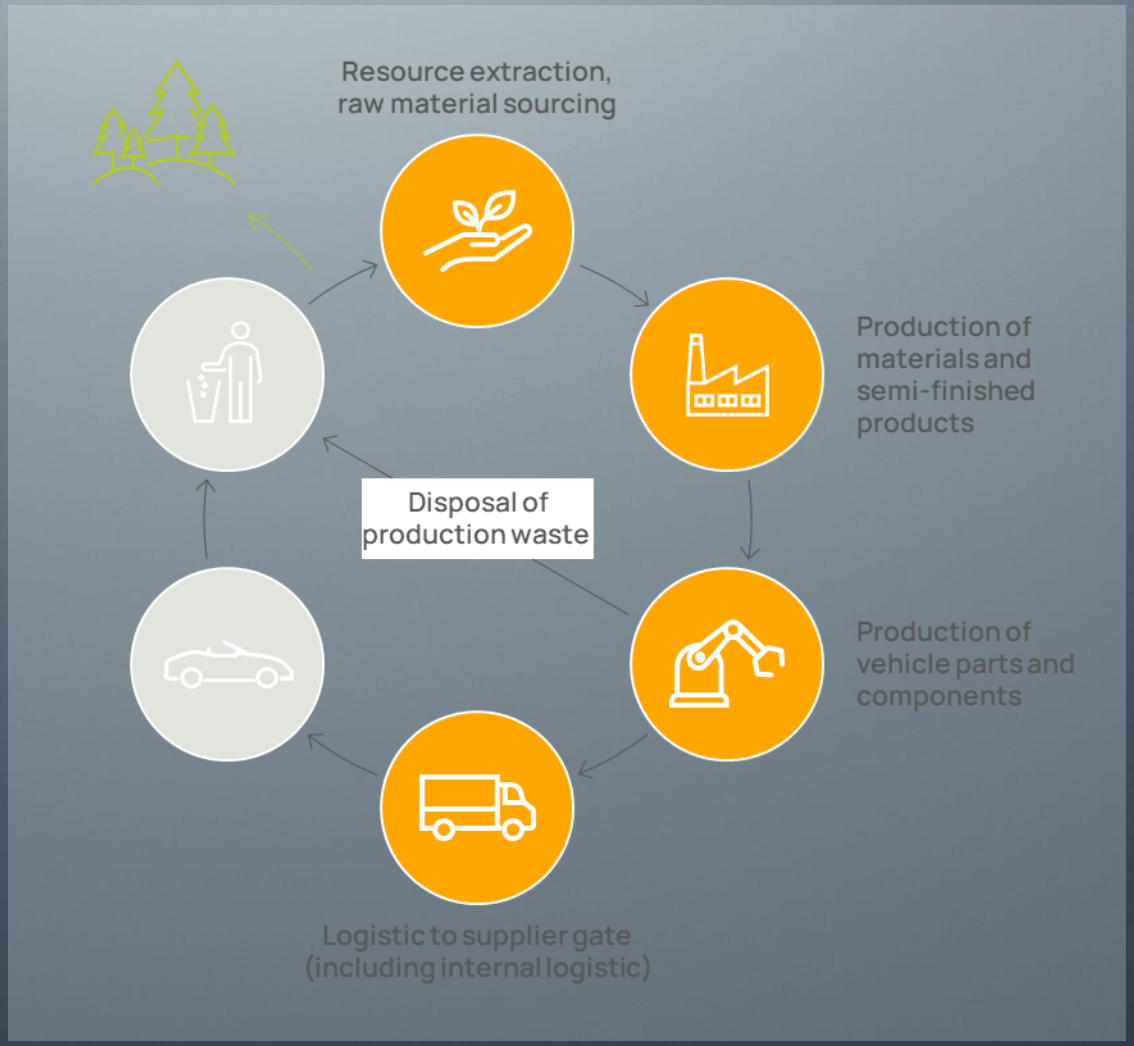
- Accounting for transportation
- Compliant secondary data sources
- PCF of homologous parts
- Contribution to PCF (e.g., fossil and bio)
- Accounting for electricity
- Material origin (e.g., recycled contents)

Advanced PCF Exchange

- Data quality rating and cascading
- Chain of Custody (e.g., mass-balance materials)
- Compensation and off-setting of residual emissions

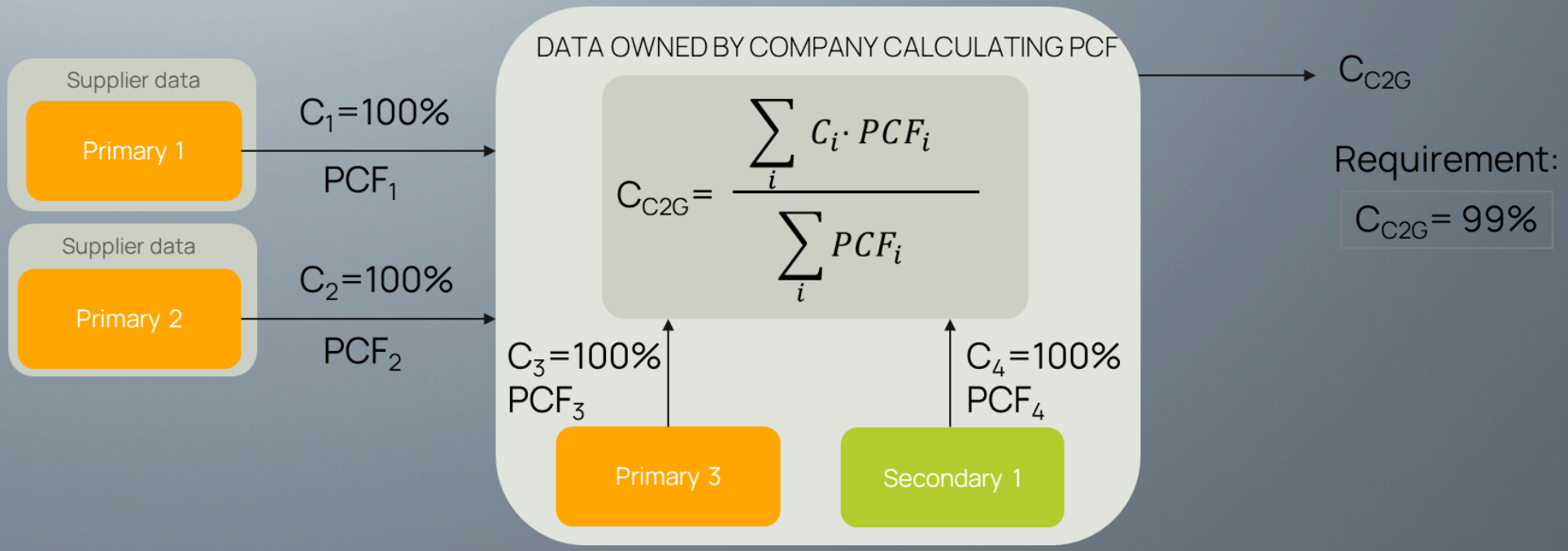
Overall

System Boundary: Cradle-to-Gate



- Resource extraction, raw material sourcing
- Production of materials, semi-finished products
- Production of vehicle parts and components
- Packaging of vehicle parts and Components
- Disposal of production waste
- Logistics to supplier gate (including internal logistics)

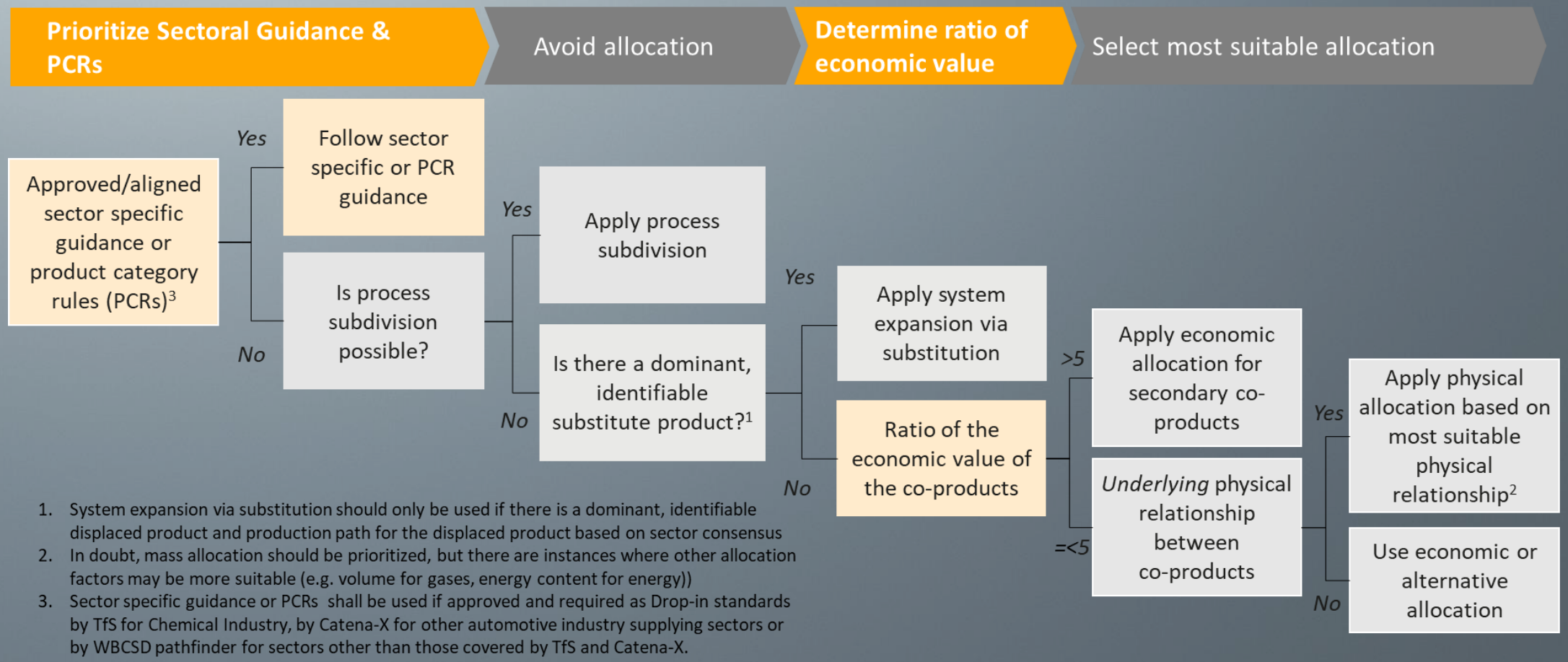
Cut-Off Rule



Completeness C shall be proven in **screening study** by considering 100% completeness of data without applying any cut-off.

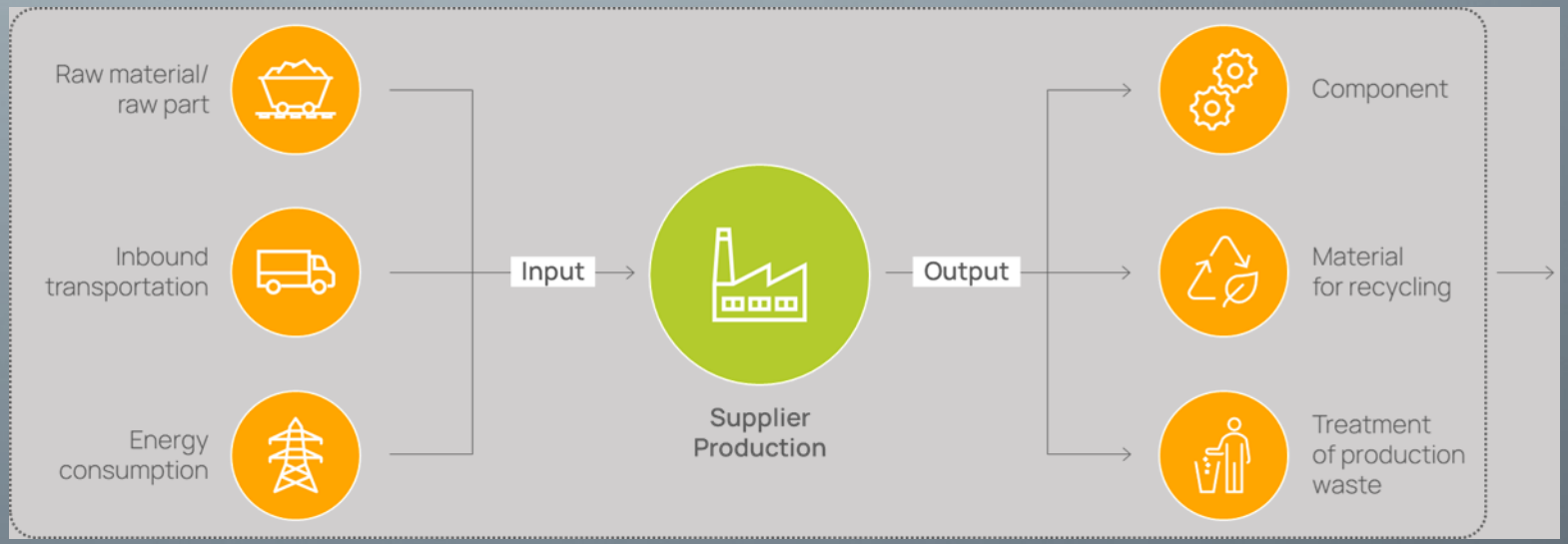
Impacts of processes modules, inputs and outputs may be excluded if the sum is representing less than 1% in screening study.

Multi-Output Allocation



1. System expansion via substitution should only be used if there is a dominant, identifiable displaced product and production path for the displaced product based on sector consensus
2. In doubt, mass allocation should be prioritized, but there are instances where other allocation factors may be more suitable (e.g. volume for gases, energy content for energy))
3. Sector specific guidance or PCRs shall be used if approved and required as Drop-in standards by TfS for Chemical Industry, by Catena-X for other automotive industry supplying sectors or by WBCSD pathfinder for sectors other than those covered by TfS and Catena-X.

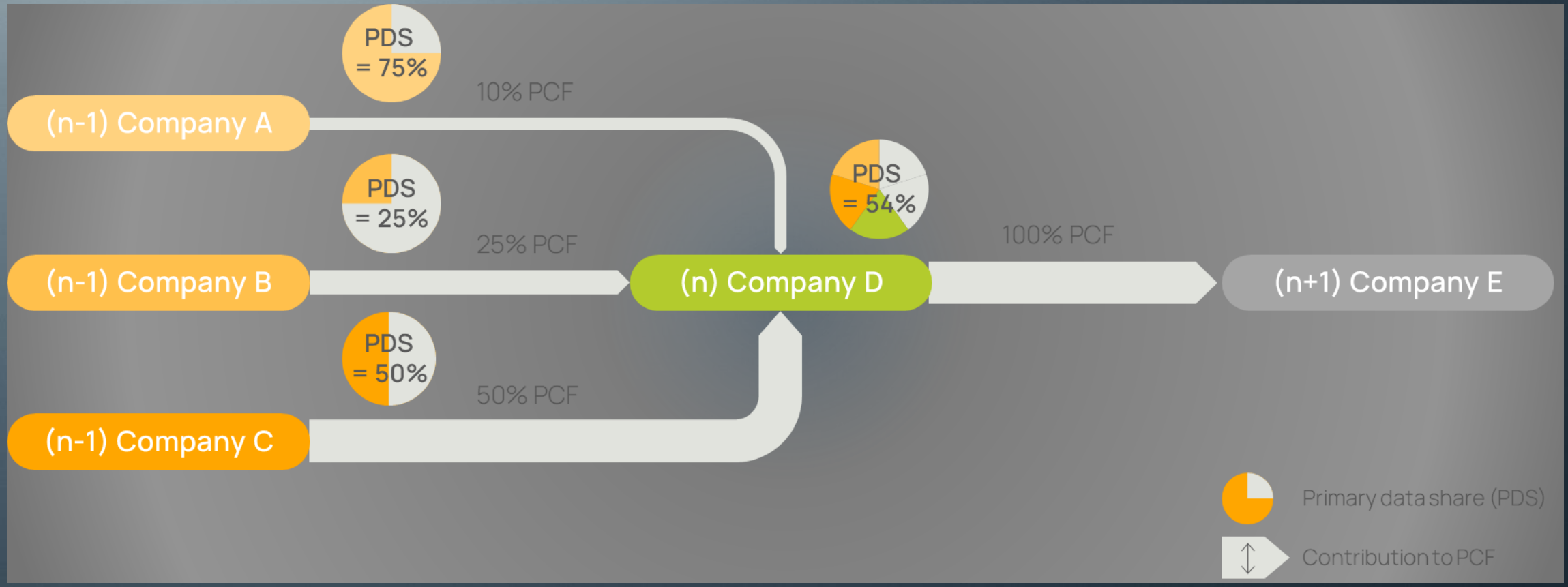
Accounting for waste treatment/recycling



Any emissions from the treatment of production waste shall be included following the polluter-pays-principle including collection, transportation, sorting, dismantling or shredding.

Emissions from treating waste with energy recovery shall be considered in the production system where the incineration occurs.

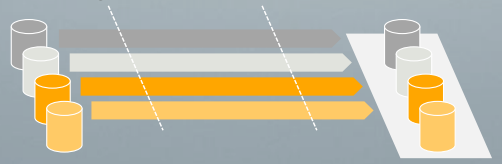
Primary Data Share



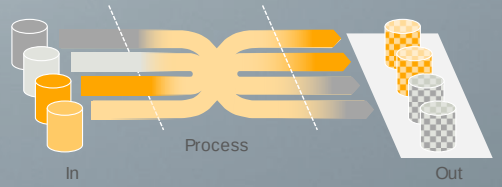
Additional Sections

Chain of Custody

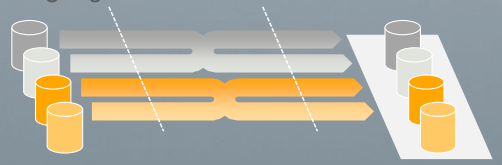
Identity Preservation



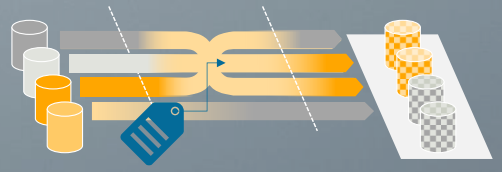
Mass Balance



Segregation



Book & Claim



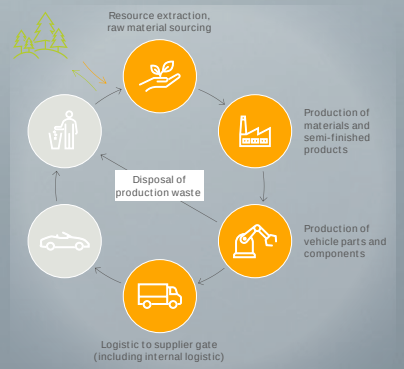
- Mass balancing helps enable the substution of fossil raw materials by more sustainable alternatives
- Chain of custody approaches shall be transparent, clear and credible
- Minimum requirements define guardrails for use and development of chain of custody models

Homogenous parts

- Many parts in the automotive supply chain are nearly identical but differ systematically in a single/few aspects
- PCF calculation can be simplifed tthrough sampling and interpolation
- Result: Efforts for automatized PCF calculation can be substantially reduced while reaching high data quality

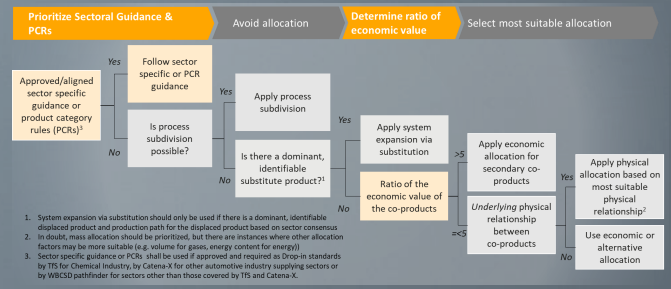
Alignment with othe PCF-Initiatives - more to come

Declared Unit, System boundaries, Focus on GHG Emissions



CLOSELY ALIGNED*

Allocation in case of multiple products



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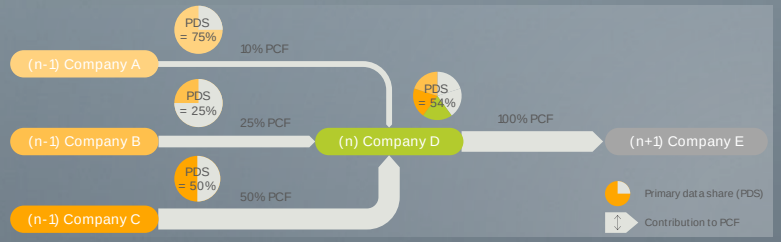
Primary data share, data quality rating



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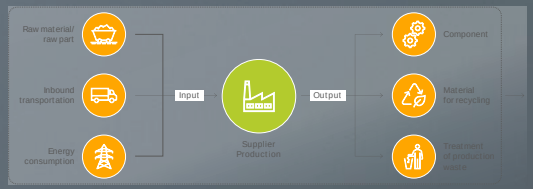
GHG Emissions from electricity and recycling



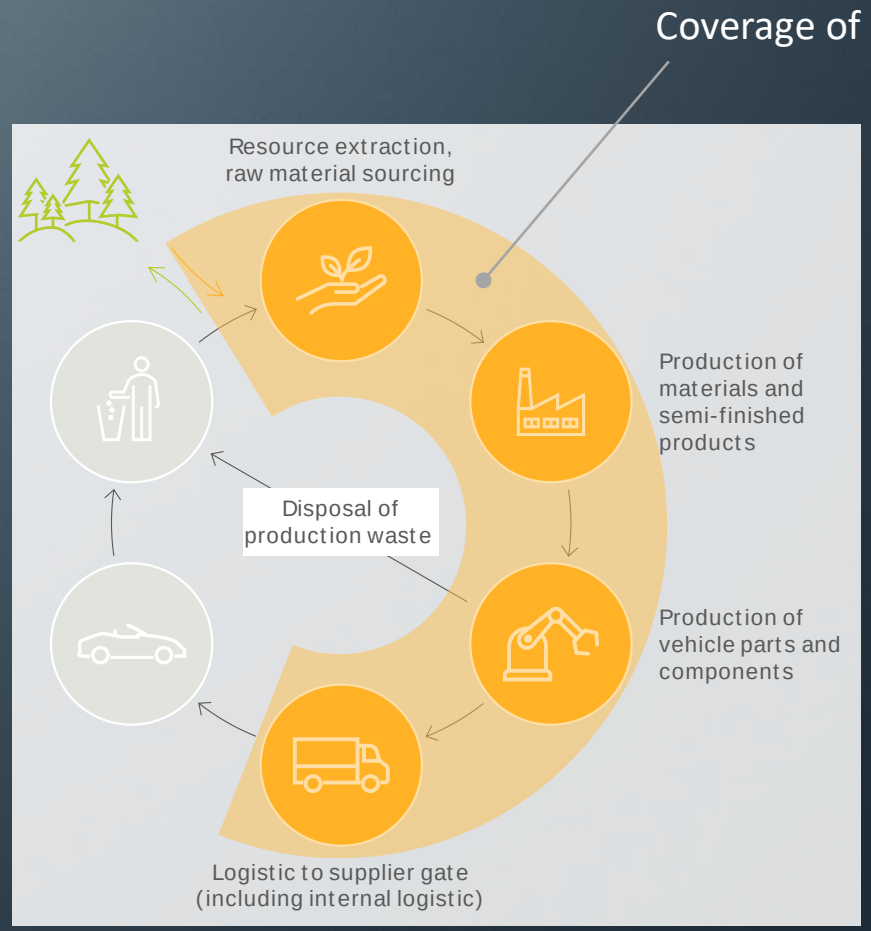
MOSTLY ALIGNED*

*with WBCSD PACT, TfS and GBA

From Cradle-to-Gate to Cradle-to-Grave

- Catena-X covers the resource extraction, production of materials and semi-finished goods, vehicle parts and component manufactering in a
  - Automatized, primary data focussed way with
  - standardized PCF calculation including
  - cross-industry alignment
  - in a fastly growing, international network and, thus…

… can serve as a solid foundation for cradle-to-grave assessments.



Thank you!

Questions and Discussion…

Please request Catena-X-PCF-Rulebook Version 2
prior to official publication planned for August 2023 via email:

to: WG_PCF_Standardization@catena-x.net

cc: martina.prox@ipoint-systems.de

Regular news & latest publications: www.catena-x.net

Back-Up

The Catena-X association has currently more than 120 members, and it’s open to all interested parties

Consortium

ADAC · ARENA2036 · BASF · BMW · ISTOS · LRP Autorecycling · Mercedes-Benz · Microsoft · VOLKSWAGEN · BIGCHAIN DB · CCT · DLR · fetch.ai · mipart · BOSCH · SAP · SCHAEFFLER · ZF GROUP · Fraunhofer · GAIA-X · GRIS · Henkel · SIEMENS · T · SUPPLYON · tec4U · up2parts · TRUMPF

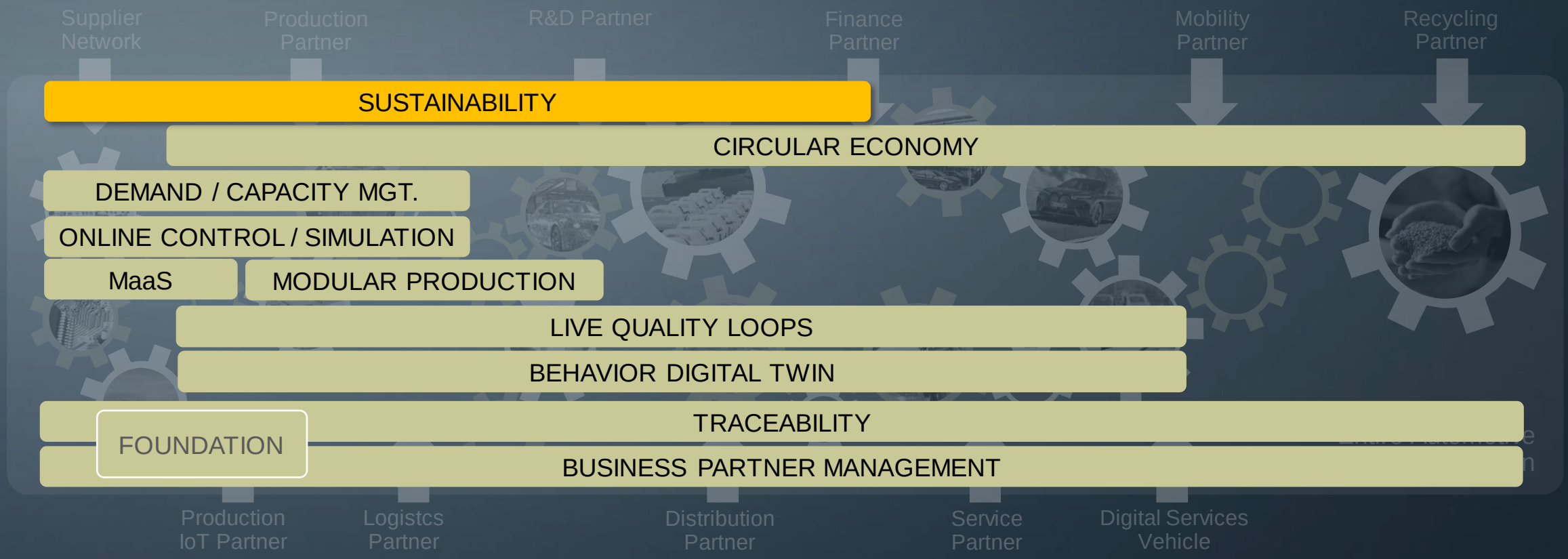
Association

allsafe · APHERIS · APLIKO · ARXUM · AsahiKASEI · VDA · vmware · brembo · HELLA · AAI · BRAIN OF MATERIALS · Capgemini · CDQ · CIRCULARISE · circunomics · WITTE AUTOMOTIVE · VOLVO · Scheer · dccs · Deloitte. · DENSO Crafting the Core · Continental · HANSELMANN & COMPAGNIE · HELIOT EUROPE · Kaputt · 23 Technologies · hp · IAV · ILI.DIGITAL · iPoint · itemis · Atos · DRÄXLMAIER · em engineering methods AG · Ford · CGI · MAGNA · ownCloud · SSC · Valeo · thyssenkrupp · tributech · STELLANTIS · fagorederlangroup · IBM

For the complete list of all members, please visit www.catena-x.net

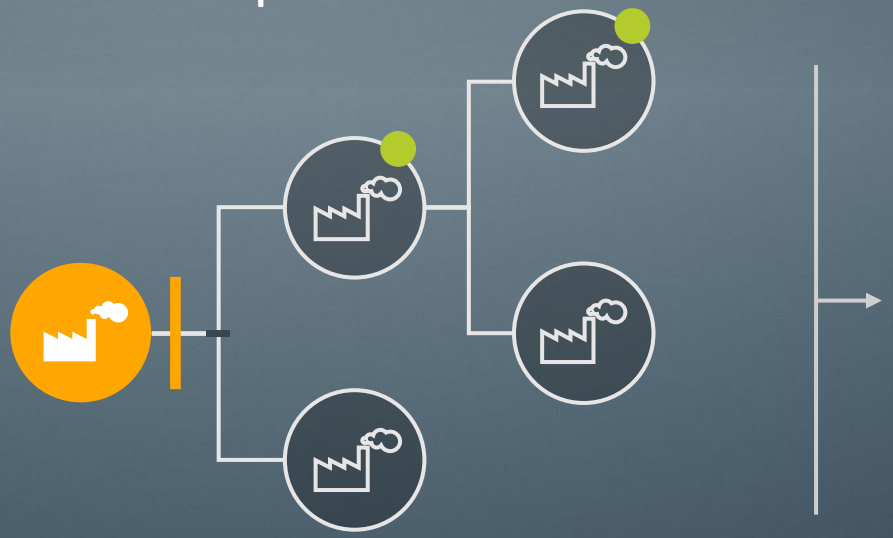
The First Use Cases to Kickstart the Network

10 business-critical end-to-end use cases



Challenge: No access to accurate, specific primary data of PCF in the supply chain

Status quo:

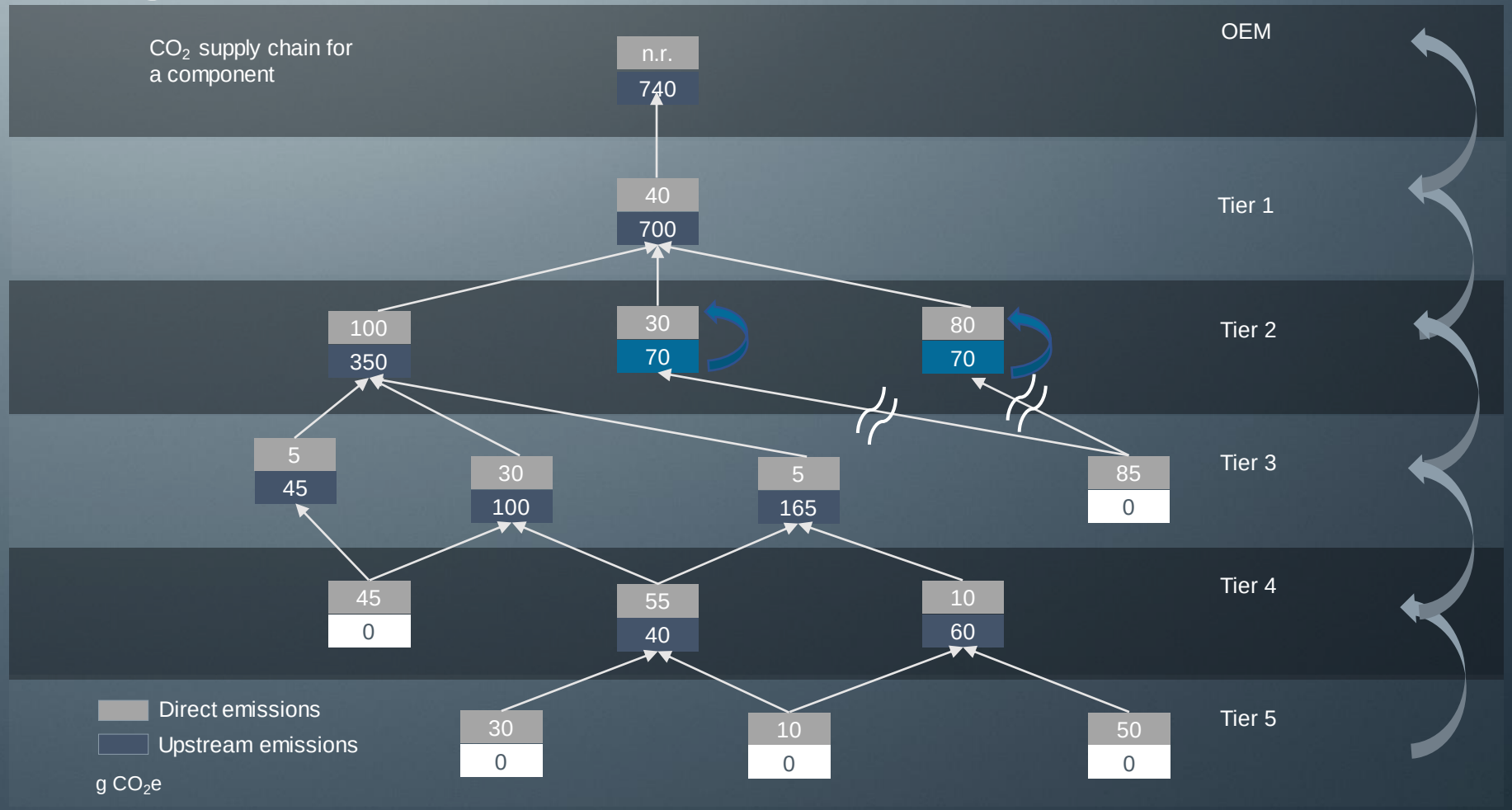


Little specific information on Product Carbon Footprint in the supply chain
No transparency regarding actual process efficiency or actual energy usage

Inconsistent methodology / standards für die PCF calculation

Today: PCF calculation using technology averages from LCA databases

Catena-X aims to exchange PCF based on primary data along the value chain wherever possible…



Quality indicators like **primary data share** allow for a system which is improving over time, improving quality along with a growing network!

… falling back on recognized database values when necessary

Catena-X has identified 5 core tasks to enable PCF measurements along the value chain

Rulebook

PCF calculation guidance

PCF Exchange Format

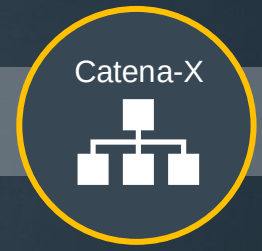
Unified data model based on rulebook

SME Focus

Calculation support environment for small and medium enterprises

PCF Verification & Audit

Streamlined processes to build trust along the supply chain while minimizing efforts

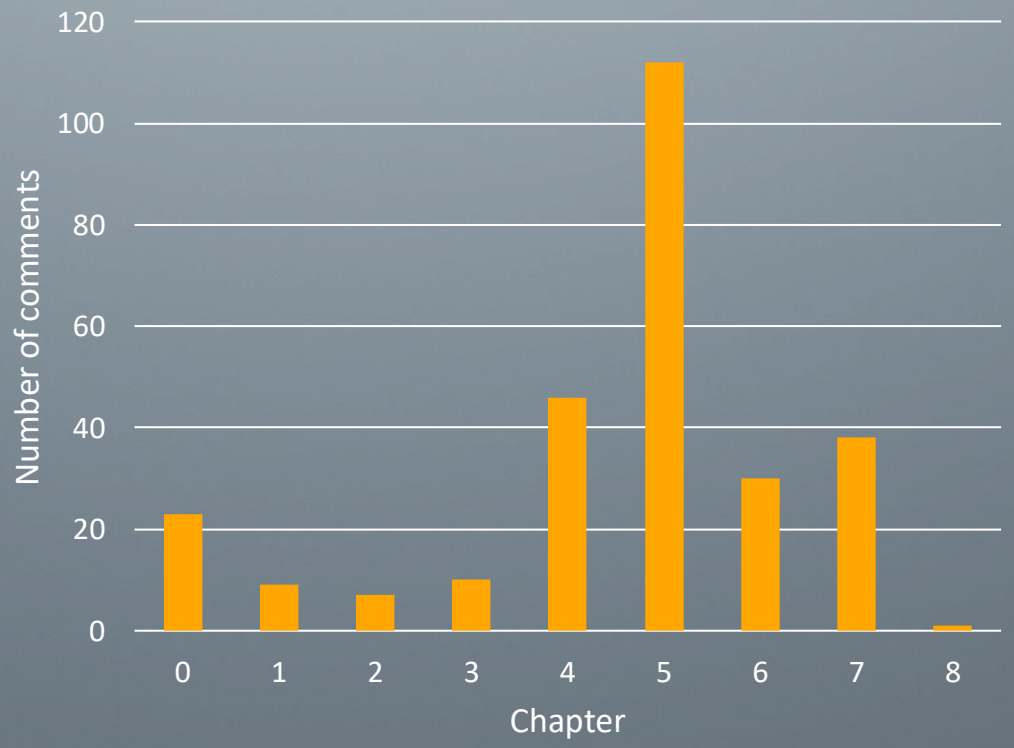


Infrastructure for PCF

Exchange software solutions

Stakeholder consultation of version 1.0

- 21 companies and 8 initiatives commented
- Total received: 276 comments



1. Introduction
2. Setup of the framework
3. Existing methods and standards
4. Scope and system boundary
    - 4.1 LCA scope and system boundary
    - 4.2 Focus on carbon footprint
        - 4.2.1 Accounting for carbon uptake (biogenic or fossil)
    - 4.3 System boundaries
        - 4.3.1 Cut-off rules
    - 4.4 Declared unit
5. Guidance for product carbon footprinting
    - 5.1 Accounting for product carbon footprint
        - 5.1.1 Calculation
        - 5.1.2 Allocation
    - 5.2 Additional guidance
        - 5.2.1 Emissions from transportation
        - 5.2.2 Accounting for waste treatment
        - 5.2.3 Accounting for recycling (within the transition period)
        - 5.2.4 Accounting for GHG emissions from electricity
        - 5.2.5 Homogeneous parts
6. Data sources and hierarchy
    - 6.1 Primary data
    - 6.2 Secondary data
    - 6.3 Additional quality rules for secondary data usage
7. Required elements for PCF data exchange

Stakeholder consultation of version 1.0