



SAP Industry Network for Automotive – Carbon Footprint Management

March 2026



Catena-X
Certified Solution

Agenda

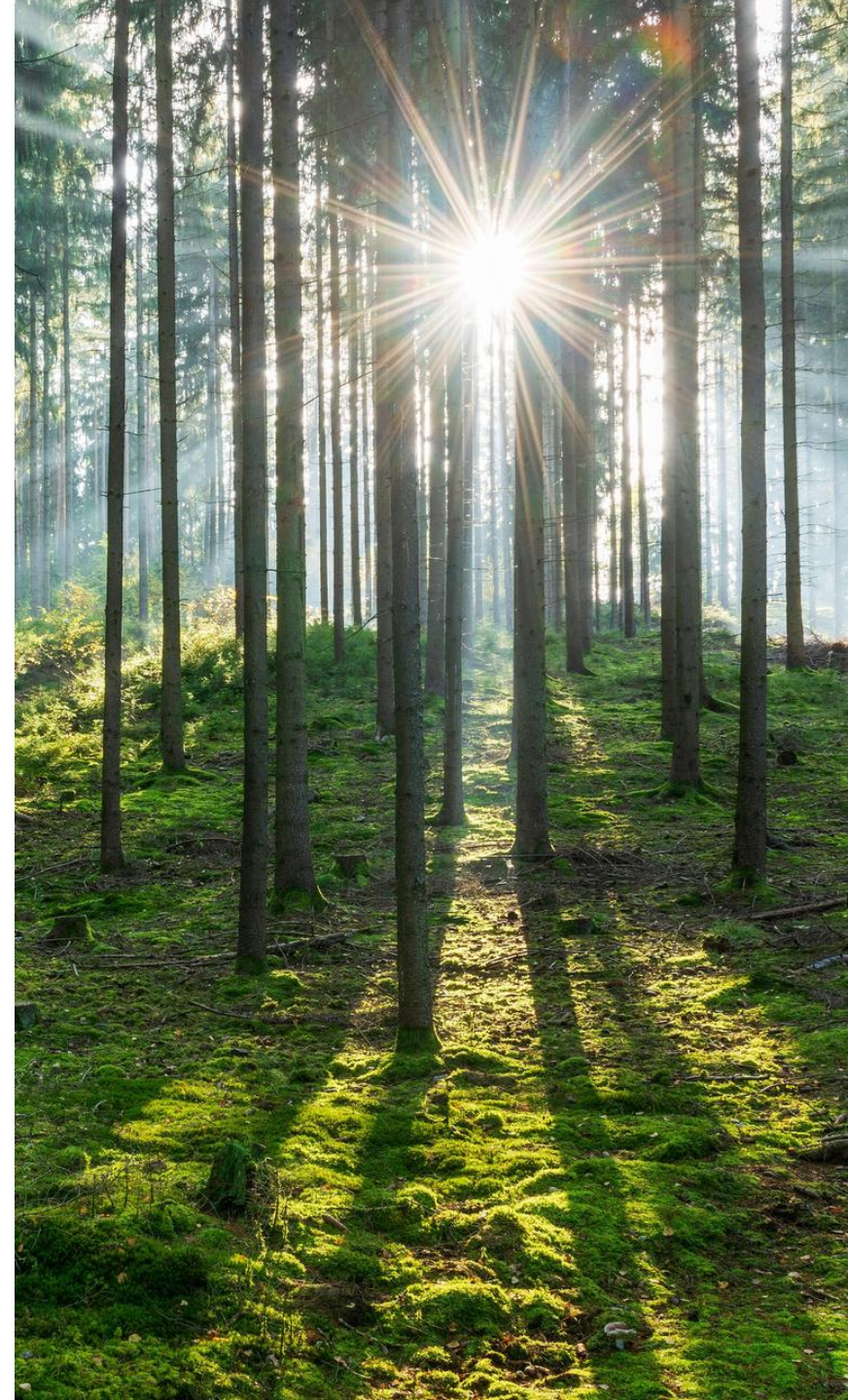
01 Catena-X in General

02 Core benefits and business values

03 Solution Demo

04 SAP Solution Offering

05 Q&A



Catena-X and the SAP Automotive Industry Network



Build jointly and operate interoperable and secure networks with SAP as development contributor.



Leverage network enabled existing SAP and new applications.



Realize concrete industry use cases for data exchange and interoperability.



Drive standardization for network of networks and Gaia-X.

Industrial Data Sharing with Cloud ERP

SAP is leading provider of Catena-X certified Business Applications

Step 1: Define your business value

Step 2: Register & verify your organization

Step 3: Connect & exchange data

Step 4: Explore Use Case

Industrial Data Sharing Readiness

supports advisory and onboarding into Catena-X, including assistance with system integration, data transformation and EDC configuration.

Data Space Enablement

enables the management of business partner data across organizations and enables your convenient secure, and self-sovereign data exchange within Catena-X

Carbon Data Exchange

helps to create transparency of the product carbon footprint across the supply chain and thus, achieve decarbonization goals.

Quality Management

can provide targeted and precise error detection and root cause analysis in companies and networks across the automotive industry.

Circular Economy Management

is about increasing the resource efficiency of production processes and products by leveraging recycled materials.

Services

- Advisory Service for Industry Networks
- Manufacturing-X Onboarding Service

Data Space Enablement

- SAP Decentralized Identity Verification
- SAP Master Data Governance
- SAP Integration Suite

Sustainability & PCF

- SAP Sustainability Data Exchange
- SAP Sustainability Footprint Management

Quality Management


- SAP Business Data Cloud
- SAP Datasphere
- SAP Analytics Cloud

Digital Product Passport

- Digital Product Passport

Challenge

Growing sustainability ambitions and regulations require higher data trustworthiness, data sharing standards and connected systems

 Verband der Automobilindustrie e.V. | VDA
<https://www.vda.de/topics/en...> · Diese Seite übersetzen

Environmental protection in production - Automotive industry

Ecology and **sustainability** must be thought of holistically. This is what the **automotive industry** is doing to reduce CO2 emissions in manufacturing.

 Taxation and Customs Union
<https://taxation-customs.ec.europa.eu/...> · Diese Seite übersetzen


Carbon Border Adjustment Mechanism

CBAM is a system to confirm that a price has been paid for the embedded carbon emissions generated in the production of certain goods imported into the EU. This ...

[CBAM definitive regime \(from...](#)


[CBAM transitional phase...](#)

[Why CBAM?](#)

 European Circular Economy Stakeholder Platform
<https://circulareconomy.europa.eu/default/files> [PDF](#)

IMPLEMENTING THE EU DIGITAL BATTERY PASSPORT

von V Rizos · 2024 · Zitiert von: 8 — The Regulation specifies that **QR codes need to be established** to access the battery passports, linking to a unique identifier established by the economic ...
29 Seiten

 europa.eu
<https://finance.ec.europa.eu/co...> · Diese Seite übersetzen

Corporate Sustainability Reporting Directive - Finance

The Directive on corporate sustainability reporting (CSRD) **empowers the Commission to adopt delegated and implementing acts.**

 europa.eu
<https://climate.ec.europa.eu/eu...> · Diese Seite übersetzen

EU Emissions Trading System (EU ETS) - Climate Action

Set up in 2005, the EU **ETS** is the world's first international emissions trading system. It is now in its fourth phase (2021-2030).

Compelling Events in Response to the Worldwide Push

Granular footprint calculation and disclosure

...and many more



CSRD
EU



SEC
US



CBAM
EU



Consortia
Global
(Catena-X, TFS, etc.)



Digital
Product
Passport
EU

Methodology	TCFD/GHG Protocol	TCFD/GHG Protocol	Independent: Followed ETS and translates it into product category level	LCA based, GHG-P	TBD: product-related data across a product's lifecycle
Who	Phased by company size in EU/with EU entities ¹	All companies, registered to the SEC	Companies importing selected products ² to the EU	Different industries, focus automotive and chemicals	Every product placed on the EU market
What	Corporate scope 1,2,3	Material, corporate scope, or with target	Product scope	Product scope	Product scope
When	Phased, starting RY 2024	Phased, starting in RY 2023	Start of reporting Oct. 2023; Start of payments Jan. 2026		Approval in 2024; implementation expected in 2026

Corporate level based on GHG-P

Product level based on different methodologies

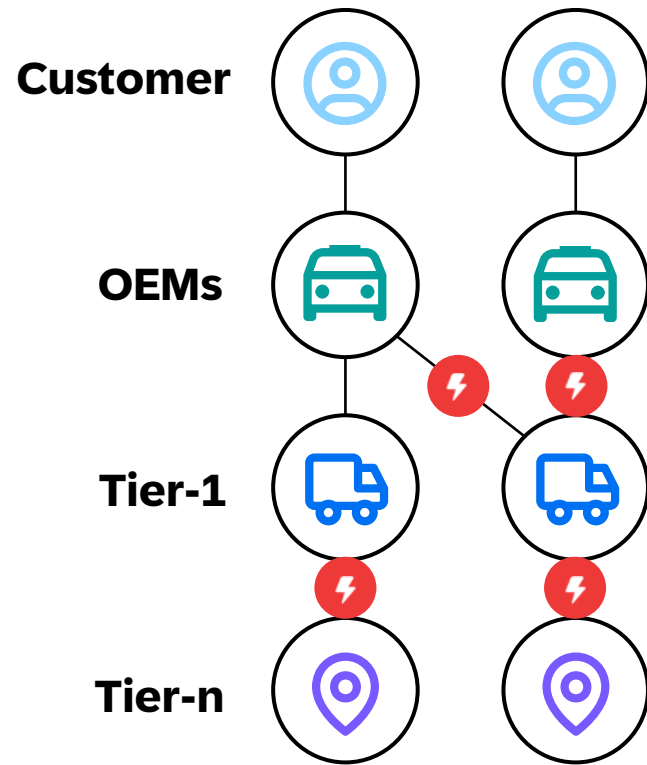


Data Quality in calculation and reporting:
SDX helps companies to bring higher data quality into their footprint calculation for reporting on product and corporate level.



Reduction targets/net-zero:
To drive targeted decision making and report on progress companies need high quality data on a granular, transactional level.

One Data-Driven Value Chain to Enable Next Generation Automotive Processes



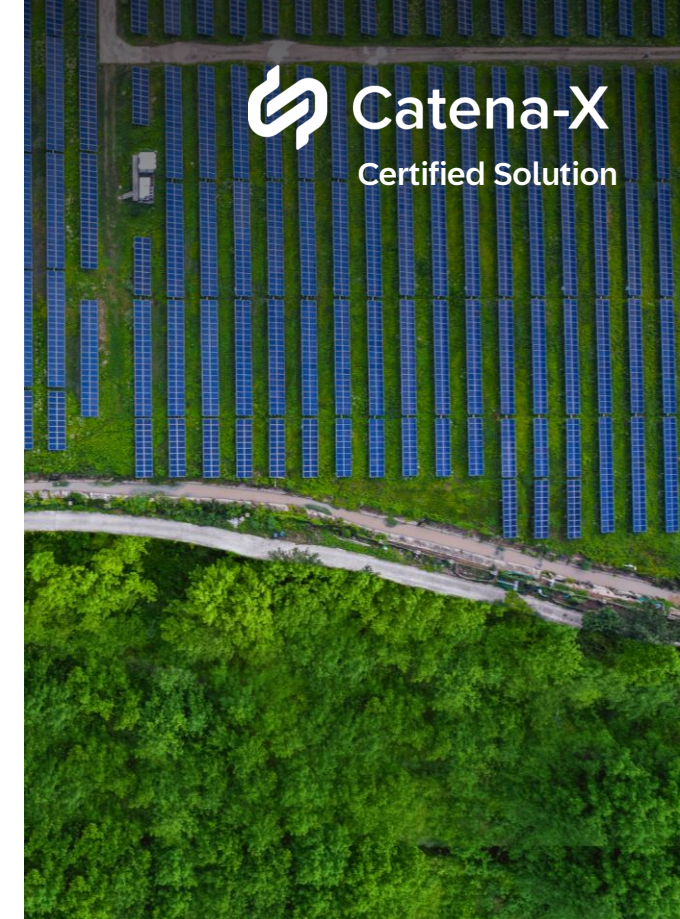
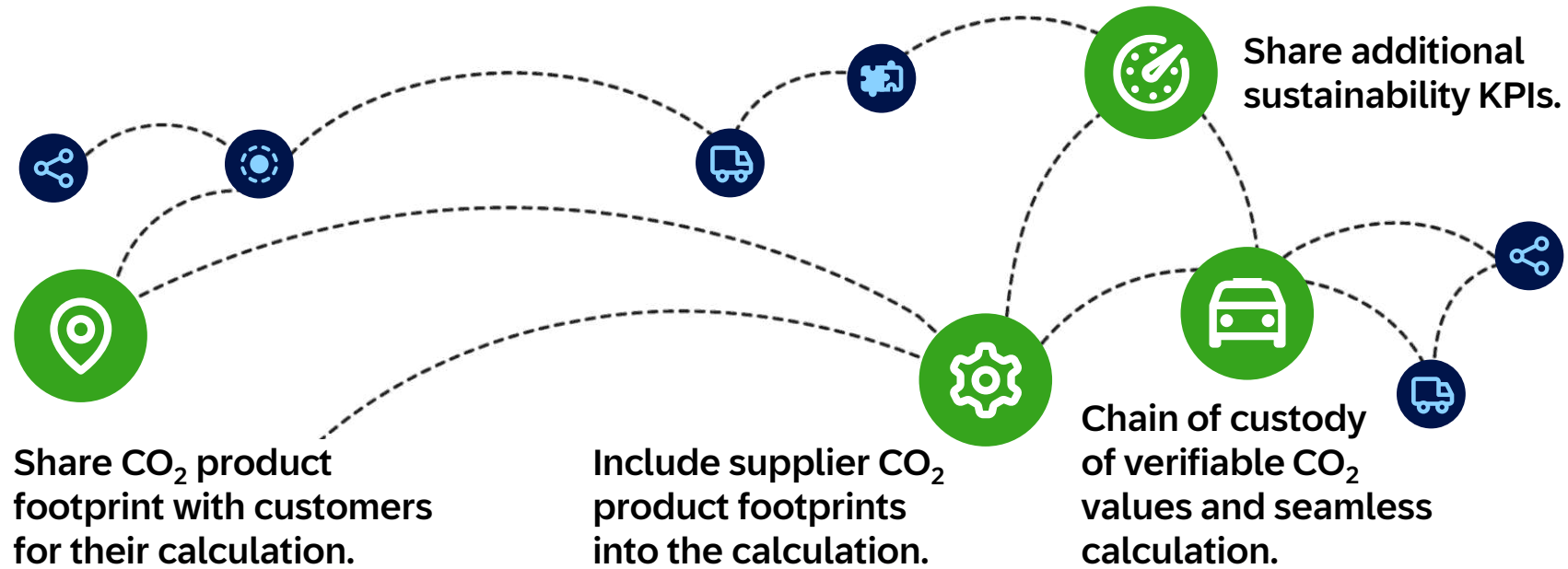
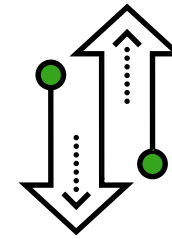
From solitary data lakes and partial integrations...



...to data driven value chains across the end-to-end value chain.

Carbon Data Management

Share and enable carbon footprint calculations



Create transparency into verifiable CO₂ footprints of parts and components across the entire value chain.

SAP Sustainability Data Exchange

SAP Sustainability Footprint Mgmt.

Create higher precision in CO₂ product lifecycle assessments through collaboration based on primary data.

Identify products or processes with high potential for CO₂ reduction and optimization scenarios.

Meet regulatory requirements across regions (e.g., *European Green Deal, Batteries Directive, SC Act*).

Carbon Data Management - Core Benefits

Share and enable carbon footprint calculations based on actuals

Comply with regulatory Rules

Indirect emissions from upstream and downstream operations (scope 3) account for over 90% of total emissions requires accurate emissions recording requires supply chain data collaboration based on actual data.

Simplifies auditing process

PCF rulebook along with the verification framework contains standards and replace company-specific reporting and enhances trustworthiness.

Process Efficiency

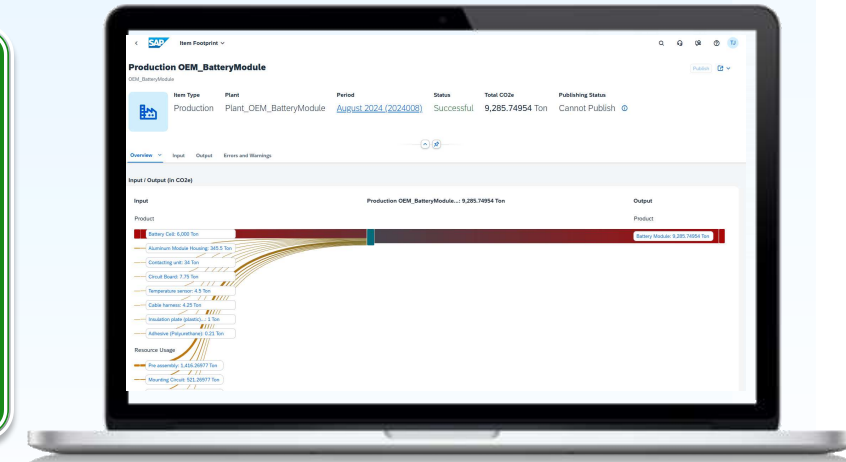
The combination of standardized data exchange & tool-based calculation leads to scalable and standardized CO2 reporting.

Management of own CO2 Targets

More accurate primary PCF data replacing the second data helps managing CO2 targets and hotspots based on actuals.

Reliable and trusted information of Supply Chain CO2

Receiving trusted and comparable CO2 values are a solid basis for decision making within your company and supports your supplier selection process (facilitates technology / design decisions).



PCF Capture Across the Supply Chain

An ecosystem of calculation, data exchange and verification required

Governance & Rulebook

Calculation methodology and rules, recognition of sector-specific methodologies and secondary data, data models, and API

Secondary database of purchased parts: emission factors (e.g. GABI)

Consumption data: gas, electricity, heat

BOM systems: purchased parts

Calculation

Calculation and attribution/ allocation

Result:
CO₂ e/product

Exchange (Catena-X)

Inquiry and transmission of CO₂ e values in the network

Result:
CO₂ e/purchased part

CO₂ reporting

Audit

Verification/quality assurance of CO₂ e values for reporting and dissemination

SAP's focus



Future-Proof Journey: Move from Averages Towards Actuals

Start your journey now and gradually move towards highly accurate transactional carbon accounting with SAP

Transactional Carbon Accounting

Moving from averages to actuals

Aggregated
Averages

Transactional
Actuals

Carbon Data Sharing

Exchange actual carbon emissions data across your value chain (scope 3).

**SAP Sustainability
Data Exchange**

Carbon Footprint Calculation

Combine averages and actuals for footprint calculations at corporate, product, and transactional level.

**SAP Sustainability
Footprint Management**

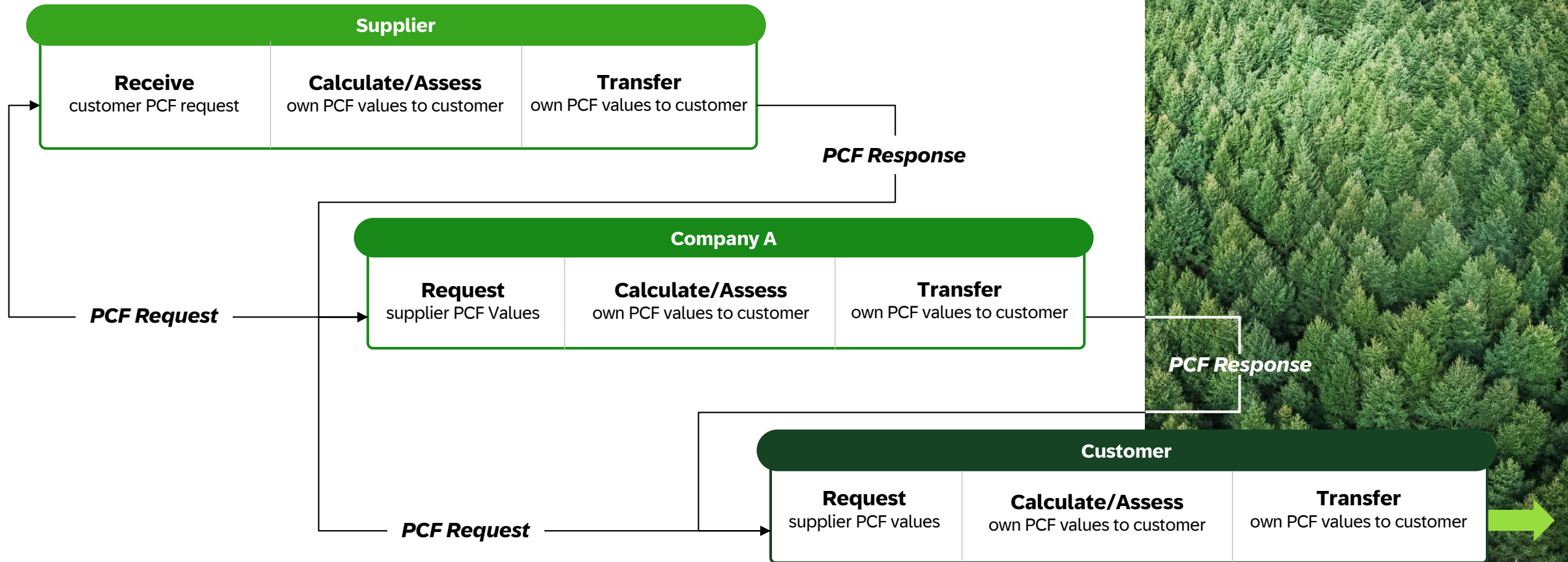
Transactional Data Foundation

Sync financials with carbon emissions of every business transaction in a single ledger.

**SAP S/4HANA
Cloud**

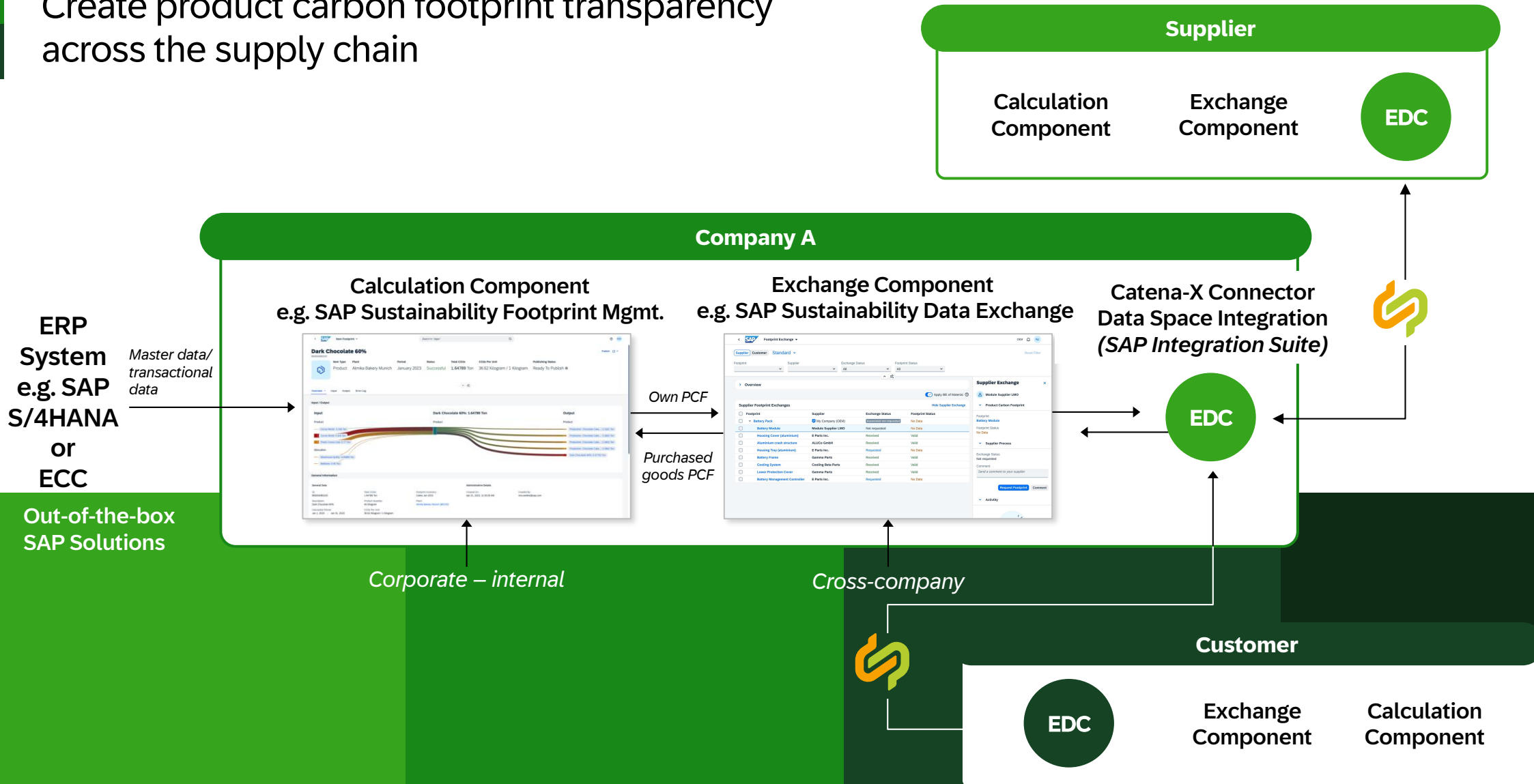
Catena-X CO₂ Use Case – Process

Create product carbon footprint transparency across the supply chain



Catena-X CO₂ Use Case – Capabilities

Create product carbon footprint transparency across the supply chain



SAP Sustainability Data Exchange | External Integration

Extend beyond SAP to facilitate a smoother transition

- ✓ Two solutions, one language
- ✓ Right data points in the right format
- ✓ Seamless and easy data transaction
- ✓ PACT V2 compliant data

SAP Sustainability Footprint Management

Calculate and manage your corporate and product footprints across scope 1, 2, and 3.



SAP Sustainability Data Exchange

Receive, manage, and share scope 3 product carbon data across your value chain with increased interoperability.

SAP Sustainability Data Exchange is open for everyone across complex supply chains:

- ✓ Cloud-based solution with open APIs
- ✓ Independent of company size
- ✓ Industry agnostic
- ✓ **Interoperability:** Communicate and exchange data with different systems and programs

Public

SAP Business Network

SAP Business Network connects people, processes, and systems across multiple enterprises, digitizing transactions and creating transparent, resilient and sustainable supply chains.

Third party platforms:



WBCSD conform peer-to-peer integration

Supplier

Buyer



Find trading partners in SAP Business Network*

Discover partners who align with your sustainability ambitions and likewise desire to reduce their carbon emissions.



Connect to industry platforms and networks

Communicate with business partners through industry networks (e.g. Catena-X, Tfs,** etc.)



Standardize APIs for data exchange

Utilize standardized WBCSD APIs for integration to expose/retrieve product carbon footprint data from supplier in individual peer-to-peer integrations.

Carbon Footprint Management Demo Flow

Customer

Supplier

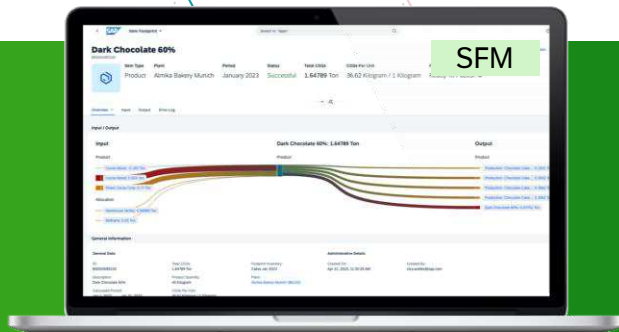
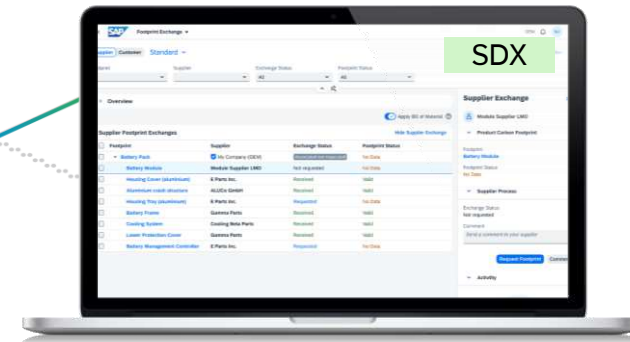
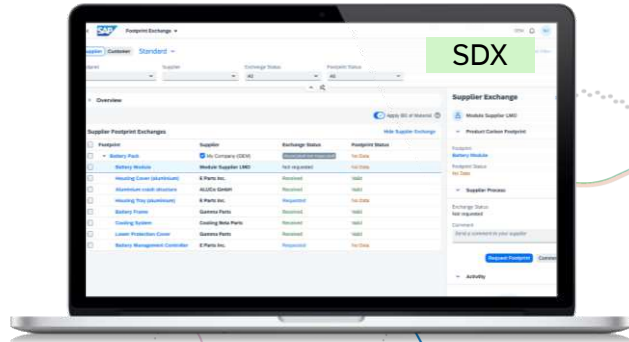
1 PCF Request

2 PCF Response

3 Integrate Supplier-specific Emission

5 Publish calculation results

4 Calculate own PCF/CCF



SAP Solution Offering

How you manage your
PCF targets with SAP with
SAP Sustainability Data
Exchange and SAP
Sustainability Footprint
Management



SAP Sustainability Data Exchange

Achieve carbon neutral supply chains by sharing and enabling carbon footprint calculations

1 Record: Standardized exchange of carbon emissions

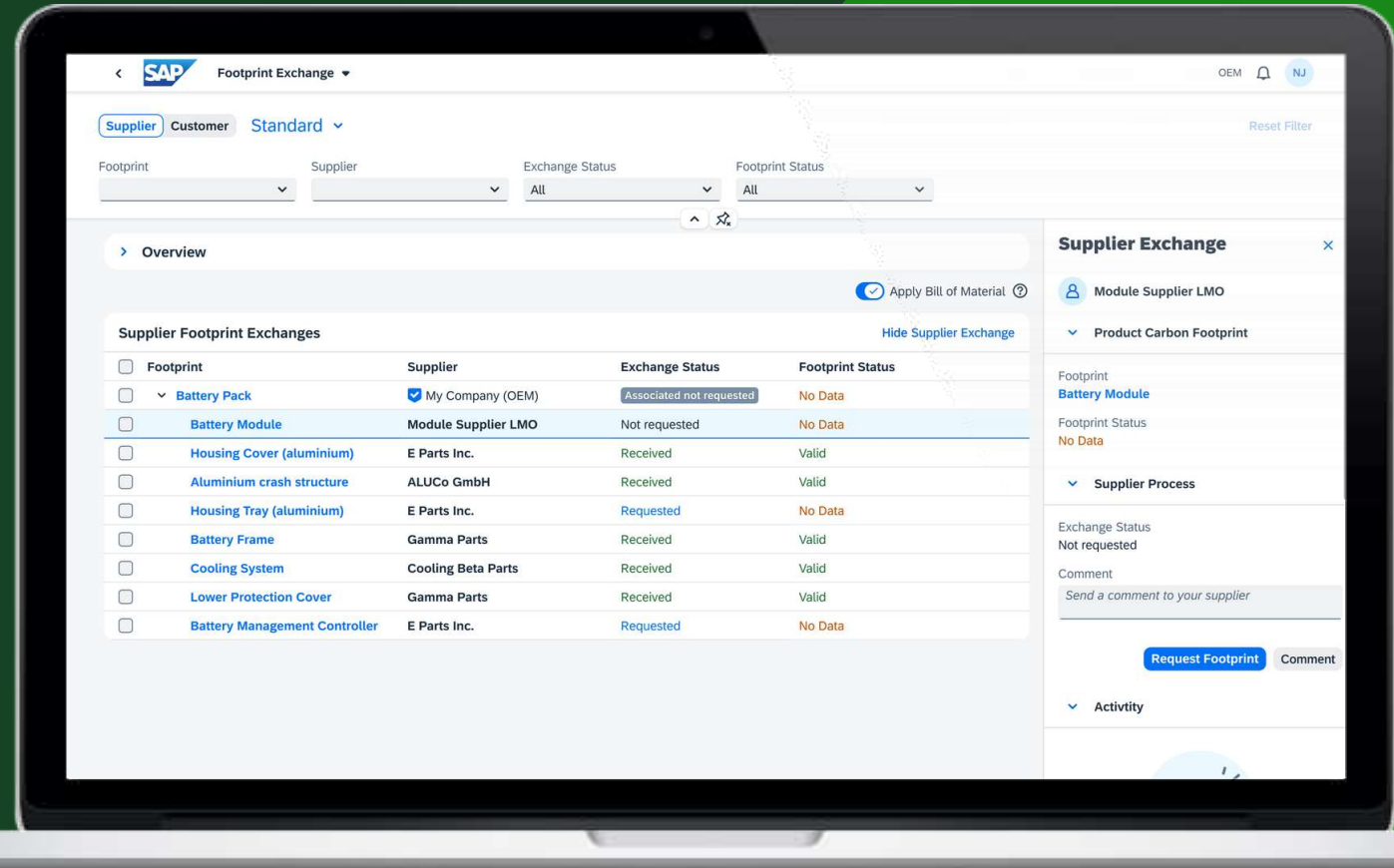
- **Ease of exchange** of Scope 3 supplier emissions to improve business and climate action setting goals.
- **Transparent value chains:** Enable accumulation and sharing of actual product carbon footprints in the supply chain (scope 3).
- **Integration with SAP Sustainability Footprint Management:** Create higher precision in CO₂ product life cycle assessments.

2 Report: Uniform reporting and accounting standards

- **Improved** interoperability to make auditable, trusted decisions on climate action.
- **Standard** data models and workflow based on BOM helps to exchange information seamlessly and confidentially.

3 Act: Comparable and transparent reporting addresses increased scope

- Collective action through consistent supplier data sharing improves decarbonization efforts and accelerates climate action.
- Accelerating Net-Zero goals: Identify products or processes with high potential for CO₂ reduction and optimization scenarios.



In collaboration with:



SAP Sustainability Footprint Management

Decarbonize your value chain with carbon accounting software that calculates your corporate and product carbon footprint

1 Record:
Easily leverage existing data with seamless integration and automation

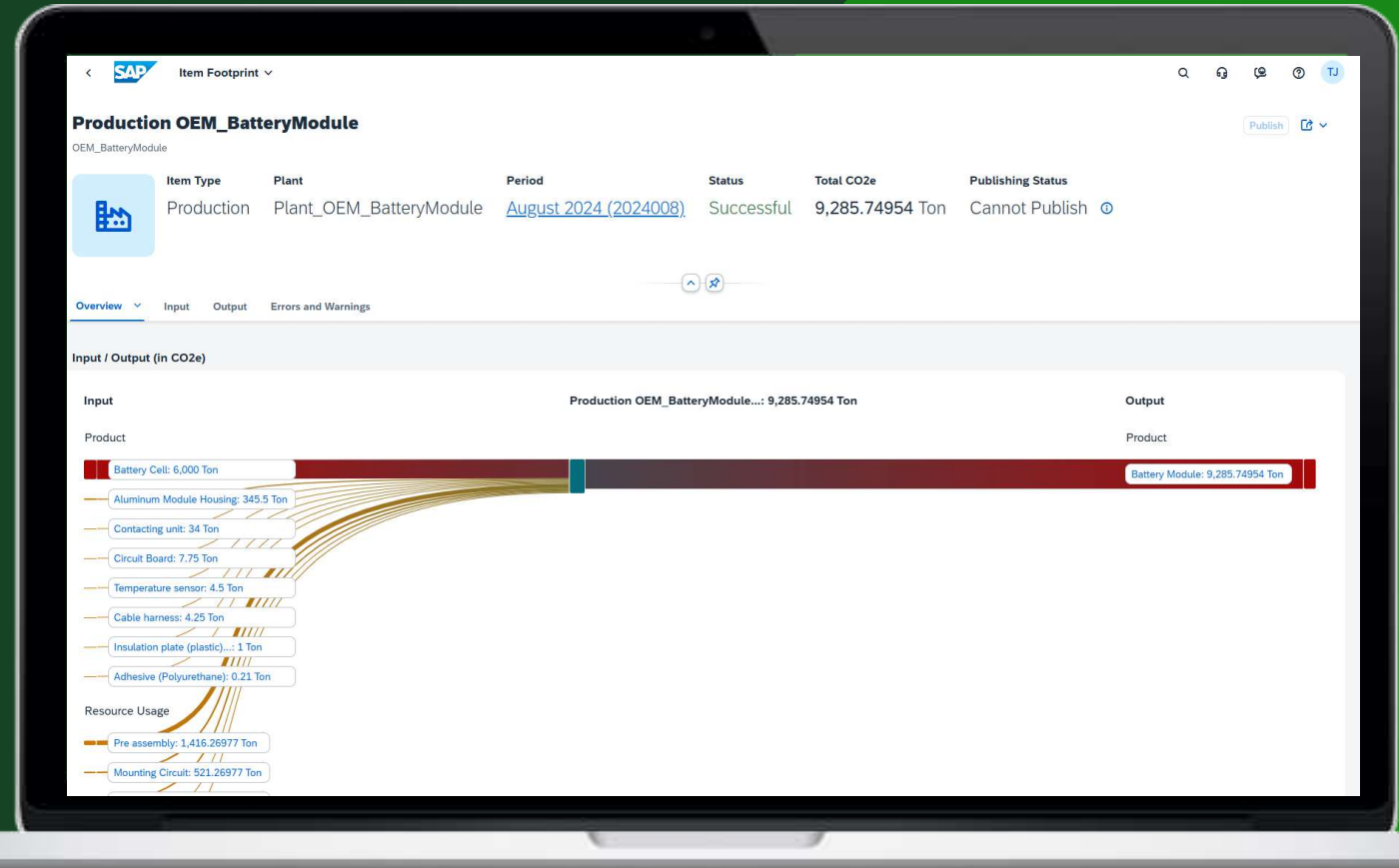
Integrate data seamlessly from SAP S/4HANA, third party data, supplier data, and facility energy flows for data acquisition and footprint distribution.

2 Report:
Get auditable product and corporate carbon footprints at scale

Assess your sustainability footprint with granular cradle to gate carbon footprint calculations that consider materials, transportation, and production.

3 Act: Decarbonize along business processes through granular transparency

Act on your reduction targets with carbon accounting software that supports Scope 1, 2, and 3 transparency and generates analytical insights from footprint data.



Footprint Calculation

Calculate and monitor footprints according to defined inventory scopes, energy flow models and allocation rules

1 Manage Footprint Inventory Scopes

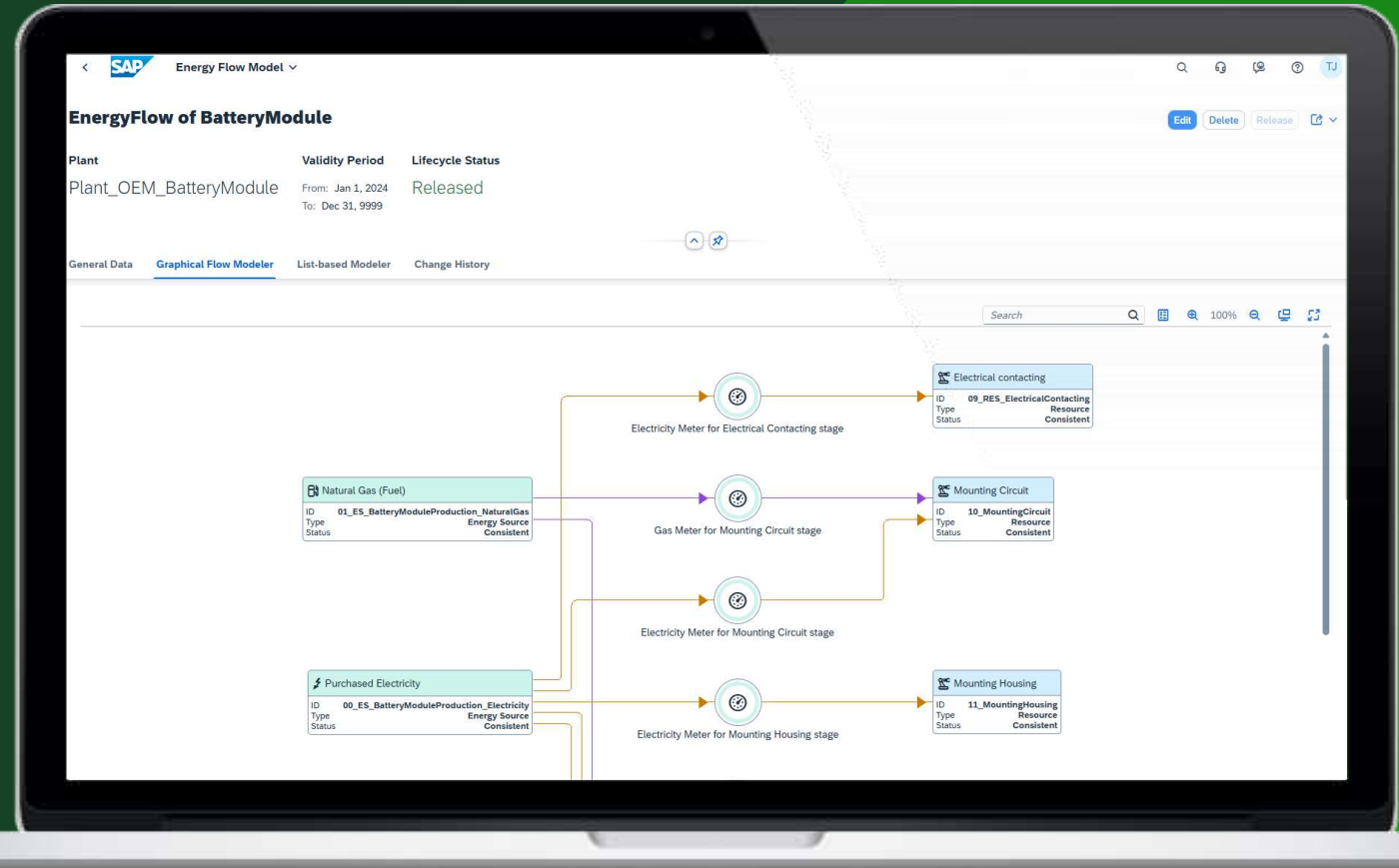
Maintain individual inventory scopes to define the organizational boundaries of the footprint calculation. Define and list all data sources to be used for the calculation and map products to emission factors.

2 Model Energy Flows and Allocations

Model the energy flows per energy carrier and resource in your production line or facility. Use those models and/ or create own rules to allocate energy consumption and assign emissions to the manufactured products.

3 Calculate & Monitor Footprints

Calculate footprints as per the defined scope and monitor the results in an easy-to-read graphical format with drill-down possibilities into main footprint drivers. Various levels of details create full transparency on the usage of input factors like purchased energy.



Footprint Analytics

Analyze the calculated footprints for gaining valuable insights

1 Dashboards and Corporate Balance

Gain full transparency into your emissions through comprehensive dashboards that showcase hotspots and provide various breakdowns. Understand all emission inflows and outflows within the specified timeframe and organizational boundaries.

2 Transport Routes and Emissions

Visualize and analyze all your inbound & outbound transport routes and legs and respective emissions on various charts and on a world map.

3 Analytical API

Integrate footprint data via **ODATA API** into any analytical application of your choice.

ODATA API



Footprint Integration

Reuse existing ERP data which have the highest value according the calculation goal and extend SAP S/4HANA end-to-end business processes by embedding footprint information

1 SAP S/4HANA Cloud & SAP S/4HANA

Leverage the Sustainability Integration Component in S/4HANA Cloud and S/4HANA (2021 and later) for displaying calculated footprints and integrating them into business processes via Key User Extensibility.

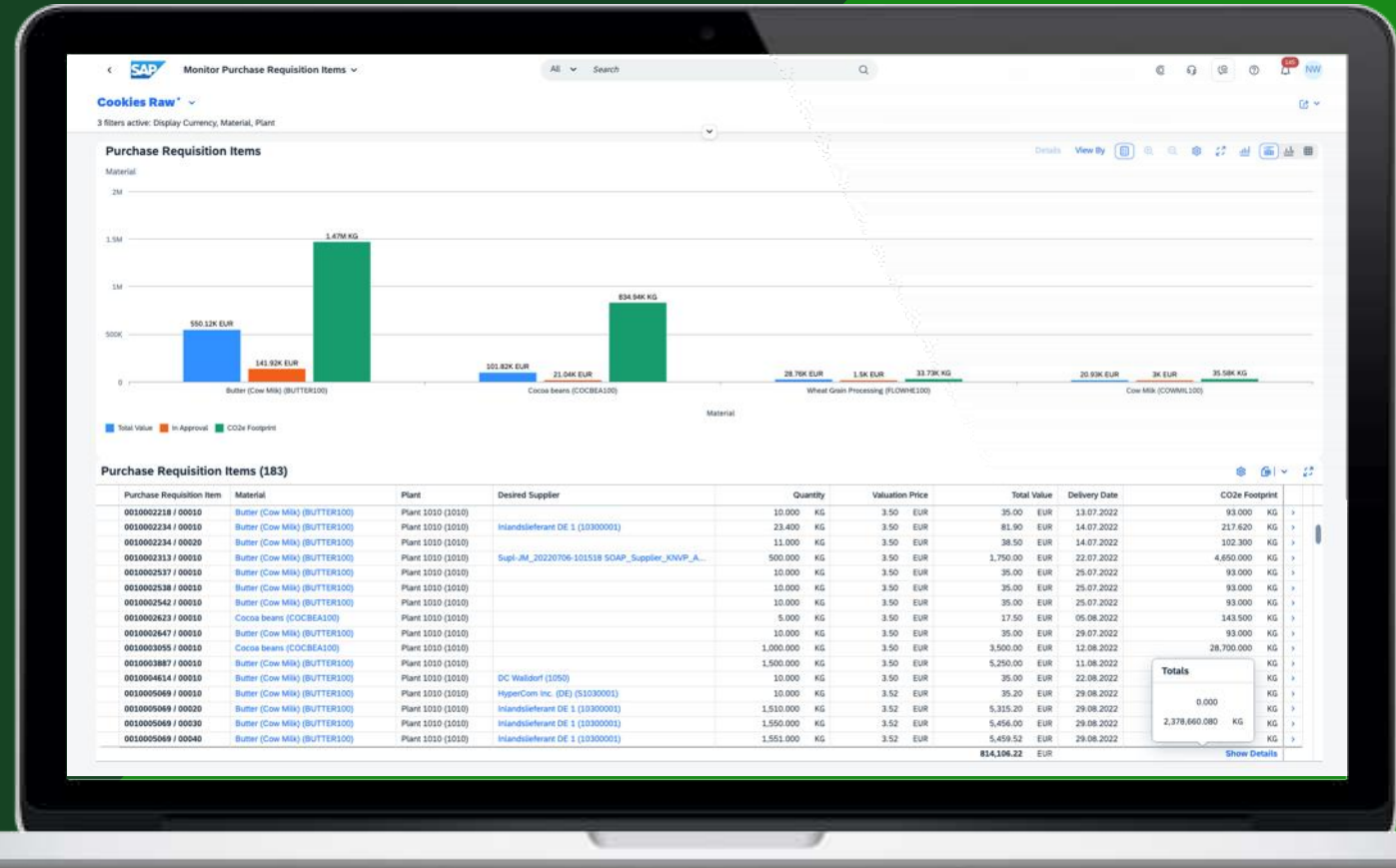
Key User Extensibility

2 Purchasing and Inventory Management

Take sustainability criteria into decision making by direct integration of footprints within Purchasing (Purchase Requisitions) and Inventory Management (Stock – Multiple Materials) apps.

3 Integrated Business Planning (IBP)

Build sustainability directly into your supply chain planning: **SAP IBP** allows you to monitor the GHG emissions of your plants on a geographic map and to make them visible in the production plan.



Customer References

Selected SAP Catena-X references





WITTE AUTOMOTIVE Leads the Way in Supply Chain Decarbonization with Catena-X Network, Empowered by SAP Sustainability Solutions

Before: Challenges and opportunities

- Calculate their product carbon footprint in a standardized way which can be widely accepted in the industry
- Communicate the PCF value, standardized, efficiently to multiple customers instead of current 1-1 communication, same applied for supplier communication

Why SAP and Catena-X Automotive Network

- With **SAP Sustainability Footprint Management**, WITTE AUTOMOTIVE is able to calculate the carbon footprint compliant to the Catena-X rulebook and will significantly reduce the effort of PCF assessment with automated data flow directly from their S/4HANA ERP systems.
- **SAP Sustainability Data Exchange** helps WITTE AUTOMOTIVE manage their PCF data from and for their business partners and significantly ease the data sharing through Catena-X network.
- The SAP onboarding team worked closely with WITTE Automotive sustainability and IT team to ensure a smooth and successful onboarding to Catena-X network as well as the successful live data exchange

“By leveraging the SAP Sustainability solutions, WITTE AUTOMOTIVE is now able to calculate carbon footprints of the product portfolio in compliance with the Catena-X Rulebook and manage the PCF data sharing in a standardized way. Supported by SAP's expert teams - many thanks for that - we have gained valuable experience in PCF data management and target towards more automation and scaling..”

Georg Stalter, Head of Sustainability and Environment, WITTE Automotive GmbH

3-5x

more efficient calculation* compared to manual, excel-based method *with interface to ERP system

~10k€

Savings per PCF calculation compared to hiring external calculation experts

Featured Partner



WITTE AUTOMOTIVE
Velbert, Germany
<https://www.witte-automotive.de/>

Industry
Automotive

Products and services
Hoods and tailgates; Doors;
Seats

Employees
Approximate 5000
of employees

Revenue
670 Mio Euro

Featured solutions
SAP Sustainability Data Exchange
SAP Sustainability Footprint Management

Thank you.

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