SAP Product Footprint Management

Assess your climate impact and improve your performance across the entire value chain

February 2023

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Content

Zero Emissions with Climate Action

A part of the SAP Cloud for Sustainable Enterprises

Business Network	**Industry Capabilities**	**Partner Ecosystem**
for carbon data sharing	to solve your specific challenges	geared towards sustainability

Holistic Steering and Reporting

Record – Report – Act

Focus today

Zero Emissions
with Climate Action

Decarbonize your entire value chain (scope1-3) based on actual business transactions

Zero Waste
with Circular Economy

Incorporate **circularity** into your supply chain & create sustainable business models
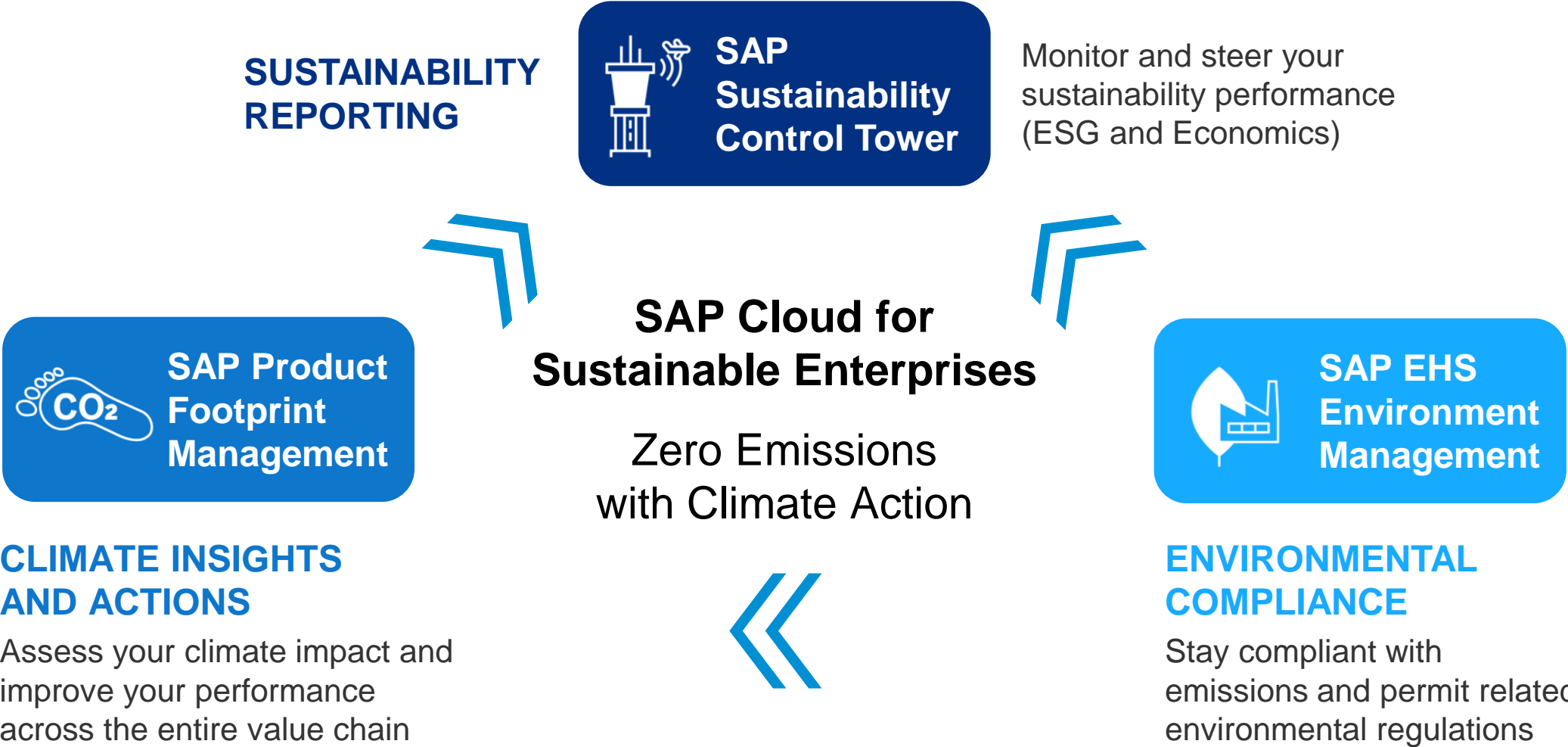
Zero Inequality
with Social Responsibility

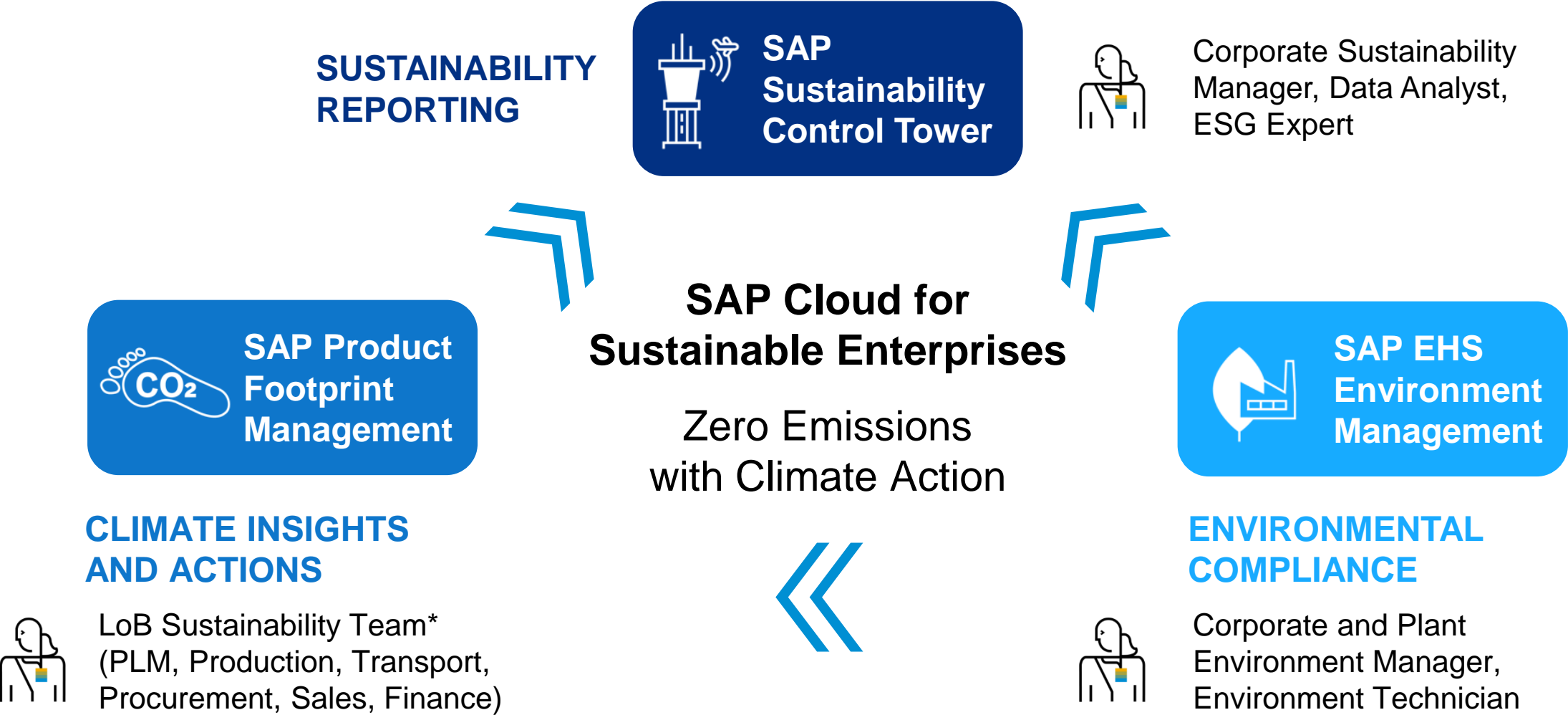Understand the **impact of** your **business** on **people and the society**

SAP S/4HANA, Customer relationship management, Human capital management, Spend Management and Business Network

SAP Business Technology Platform

Product View

SUSTAINABILITY REPORTING

SAP Sustainability Control Tower

Monitor and steer your sustainability performance (ESG and Economics)

SAP Cloud for Sustainable Enterprises

Zero Emissions with Climate Action

SAP Product Footprint Management

CLIMATE INSIGHTS AND ACTIONS

Assess your climate impact and improve your performance across the entire value chain

SAP EHS Environment Management

ENVIRONMENTAL COMPLIANCE

Stay compliant with emissions and permit related environmental regulations

Personas

SUSTAINABILITY REPORTING

SAP Sustainability Control Tower

Corporate Sustainability Manager, Data Analyst, ESG Expert

SAP Product Footprint Management

SAP Cloud for Sustainable Enterprises

Zero Emissions with Climate Action

SAP EHS Environment Management

CLIMATE INSIGHTS AND ACTIONS

LoB Sustainability Team* (PLM, Production, Transport, Procurement, Sales, Finance)

ENVIRONMENTAL COMPLIANCE

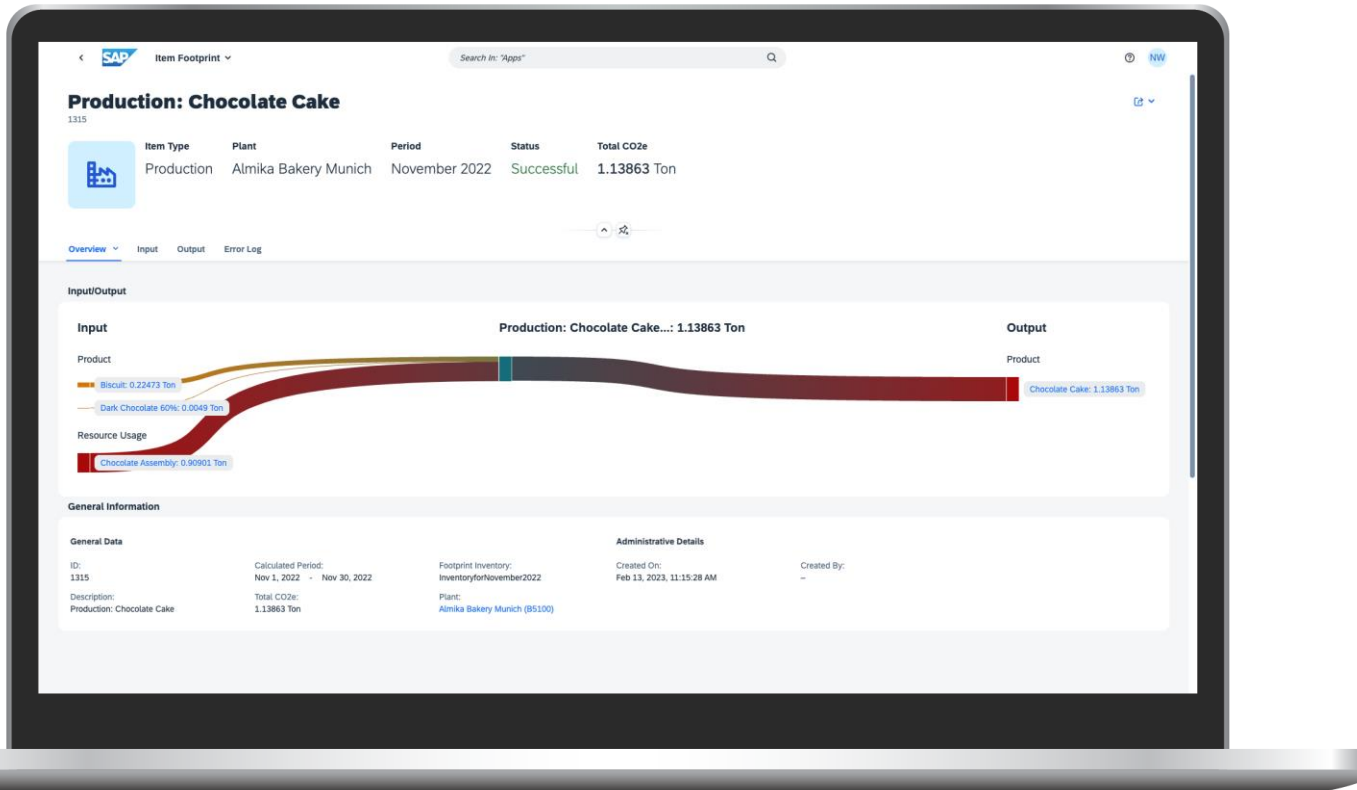Corporate and Plant Environment Manager, Environment Technician

SAP Product Footprint Management

Assess your climate impact and improve your performance across the entire value chain

Corporate environmental performance

Assess your corporate environmental performance incorporating GHG Scope 1, 2 & 3 to improve on business level and drive towards your climate action and sustainability goals.

Environmentally friendly products

Produce and sell environmentally friendly products and services to your customers so that you can support them in reaching their decarbonization and sustainability goals.

Leveraging ERP data and logic

Reuse the data, structure and logic of your existing business systems to derive decisions and take climate action.

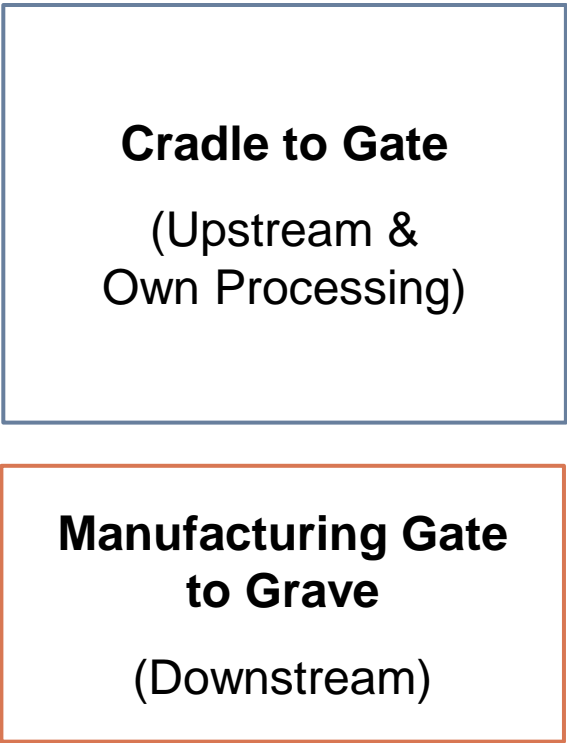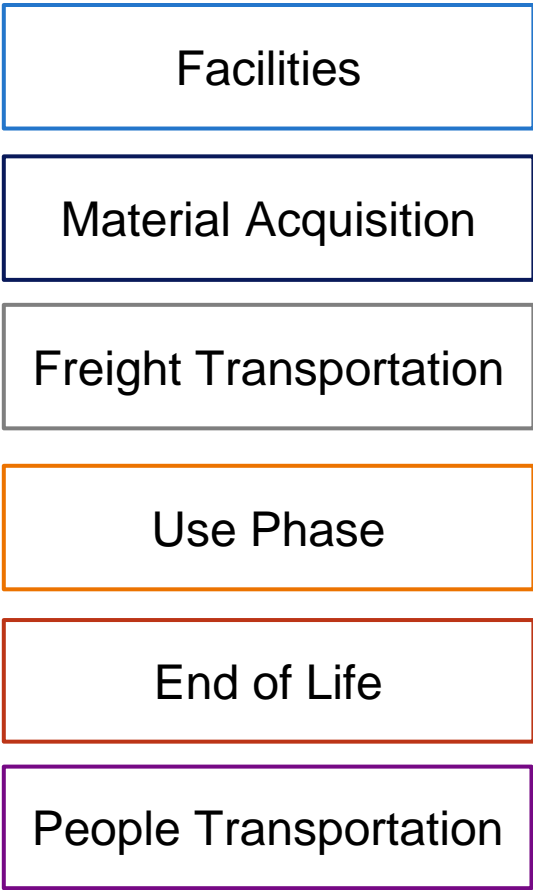# Content

Product Scope

Evolution from Product Footprint to Value Chain and Corporate Footprint Calculation

PRODUCT FOOTPRINT

Cradle to Gate

(Upstream &
Own Processing)

**Manufacturing Gate
to Grave**

(Downstream)

VALUE CHAIN FOOTPRINT

Facilities

Material Acquisition

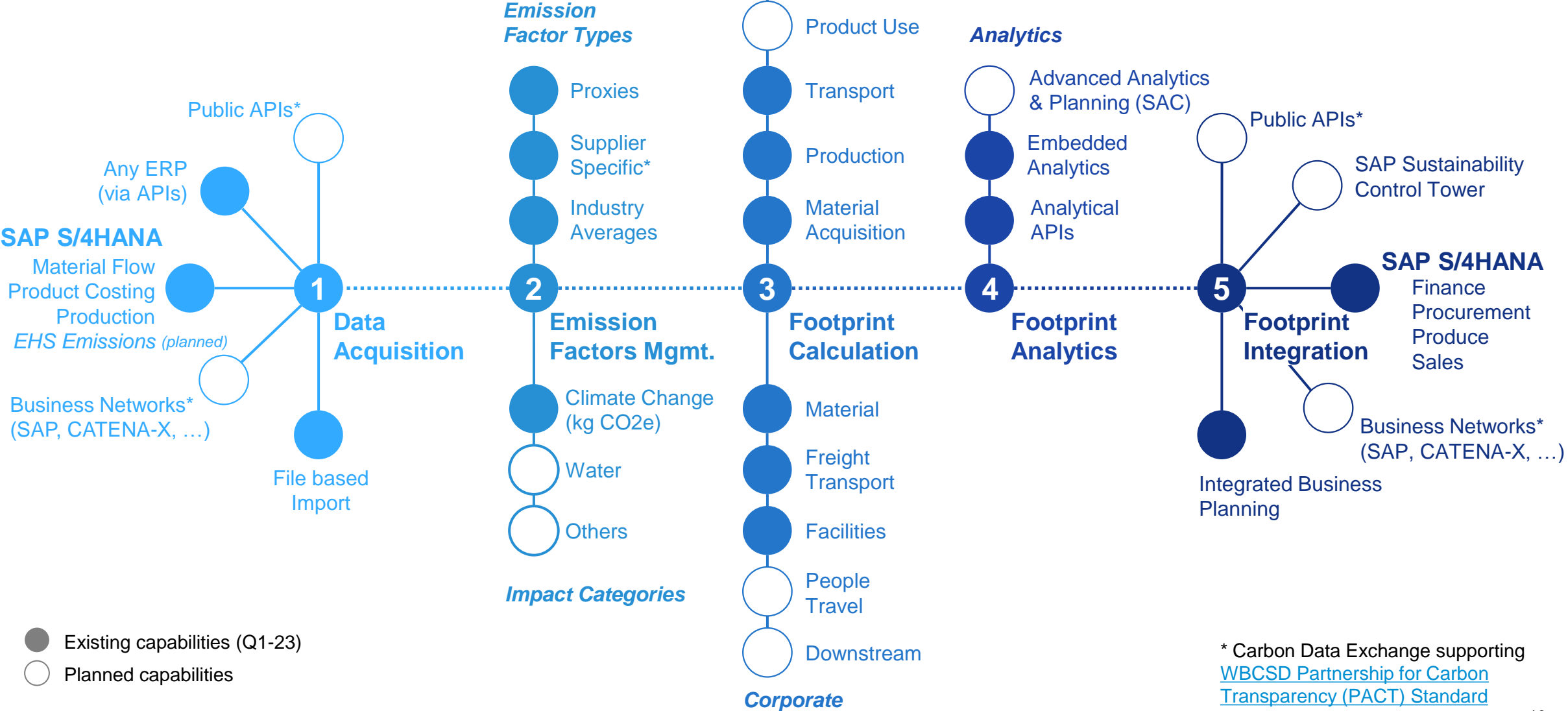Freight Transportation

Use Phase

End of Life

People Transportation

CORPORATE FOOTPRINT

Scope 1 – Direct

Scope 2 – Energy

Scope 3.1 – Purchased Materials

Scope 3.2 – Capital Goods

Scope 3.3 – Fuel / Energy

Scope 3.4 – Upstream Transport

Scope 3.5 – Waste Treatment

Scope 3.6 – Business Travel

Scope 3.7 – Employee Commuting

Scope 3.8 – Upstream leased assets

Scope 3.9 – Downstream transport

Scope 3.10 – Processing of sold products

Scope 3.11 – Use of sold products

Scope 3.12 – End of Life treatment

Scope 3.13 – Downstream leased assets

Scope 3.14 – Franchises

Scope 3.15 – Investments

Product Capabilities

Planned Q1-23 Release

Product
- End of Life
- Product Use

1 Data Acquisition

Public APIs*

Any ERP (via APIs)

SAP S/4HANA
Material Flow
Product Costing
Production
EHS Emissions (planned)

Business Networks*
(SAP, CATENA-X, …)

File based Import

2 Emission Factors Mgmt.

Emission Factor Types
- Proxies
- Supplier Specific*
- Industry Averages

Impact Categories
- Climate Change (kg CO2e)
- Water
- Others

3 Footprint Calculation

- Transport
- Production
- Material Acquisition

Corporate
- Material
- Freight Transport
- Facilities
- People Travel
- Downstream

4 Footprint Analytics

Analytics
- Advanced Analytics & Planning (SAC)
- Embedded Analytics
- Analytical APIs

5 Footprint Integration

Public APIs*

SAP Sustainability Control Tower

SAP S/4HANA
Finance
Procurement
Produce
Sales

Business Networks*
(SAP, CATENA-X, …)

Integrated Business Planning

- ● Existing capabilities (Q1-23)
- ○ Planned capabilities

* Carbon Data Exchange supporting
WBCSD Partnership for Carbon
Transparency (PACT) Standard

Internal – SAP and Partners Only

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Data Acquisition

Reuse existing ERP data which have the highest value according the calculation goal

SAP S/4HANA Integration

Integrate SAP S/4HANA Cloud and SAP S/4HANA[1] out-of-the box for importing master data, transactional activity data, and costing results from Product Cost Planning.

Any ERP via APIs

Connect any ERP system via Public APIs that are available in API Business Hub (requires IT project).

File Upload

Import data from any source via flat file upload (.csv files).
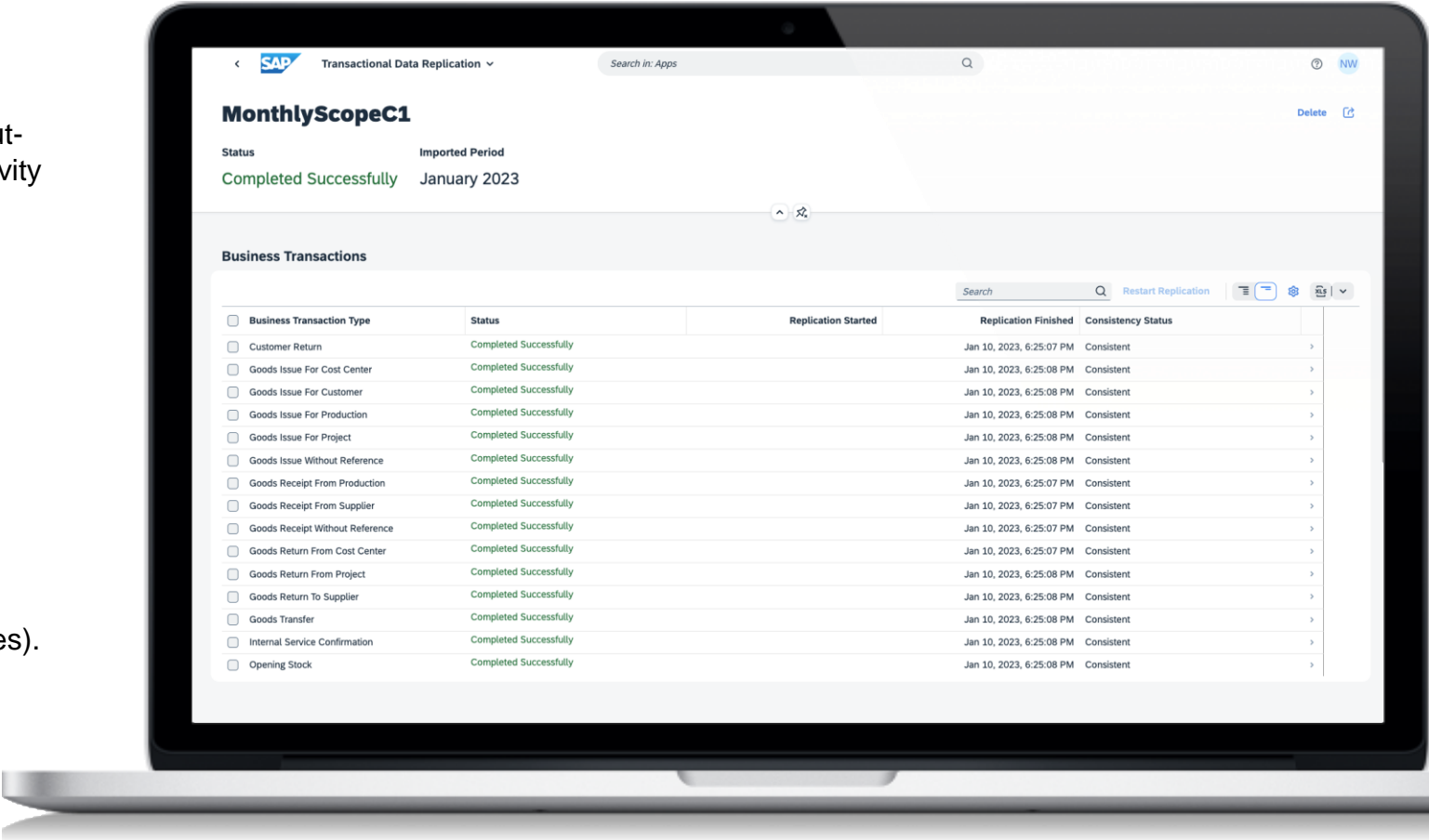
1) 2021 and later

Emission Factors Management

Import emission factors to calculate footprints at scale across their entire product inventory

Lifecycle Assessment (LCA) databases

Use industry averages from content providers, such as ecoinvent or Carbon Minds.

Supplier Data

Import footprints that you receive directly from your suppliers.

Custom Data & Proxies

Leverage custom data that was collected during own operations or calculated by using LCA software tools. Leverage estimated proxies for the respective material/activity.
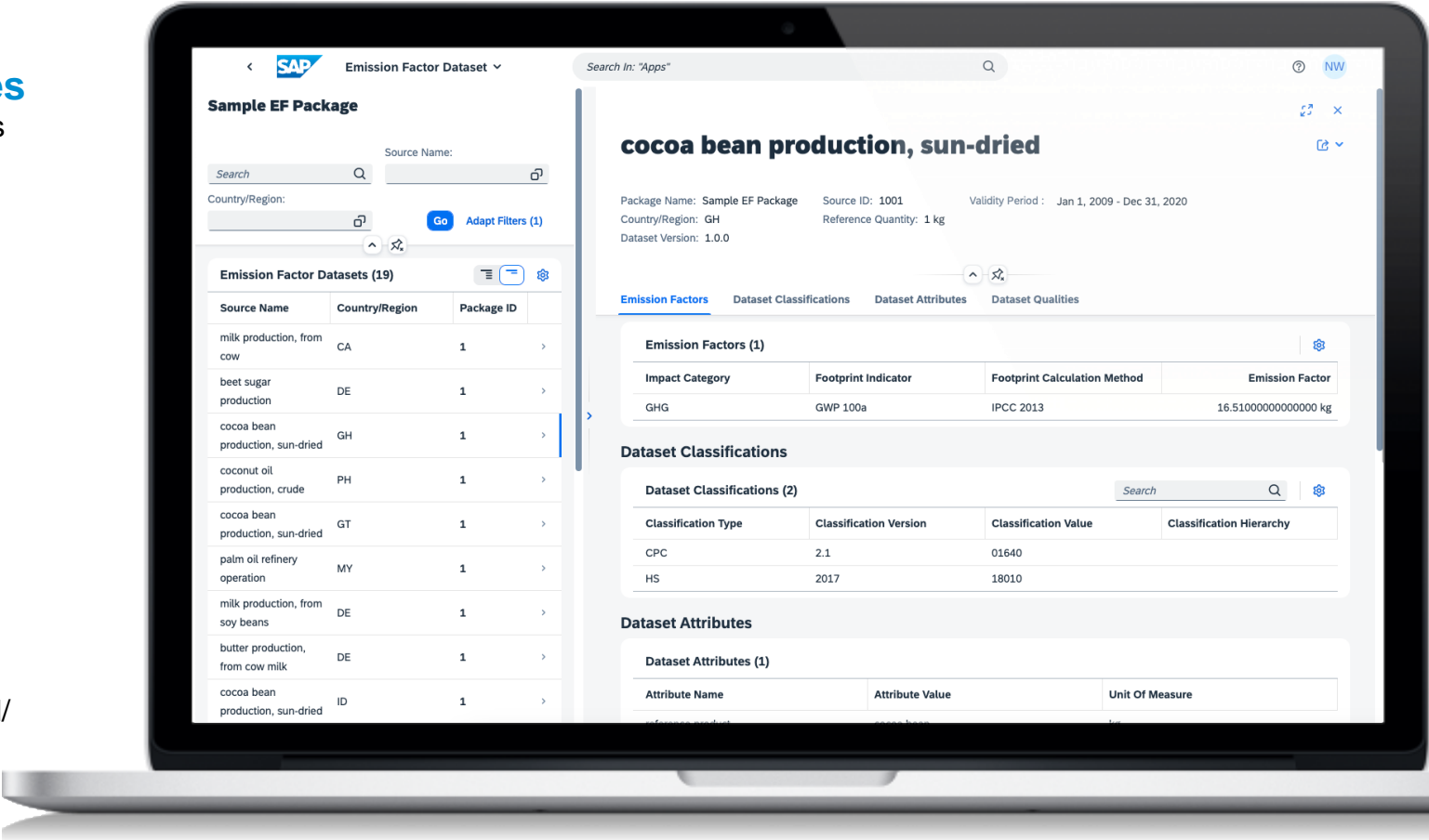
Footprint Calculation

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

## 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.

Model Energy Flows & 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.

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 footprints drivers. Various levels of details create full transparency on the usage of input factors like purchased energy.
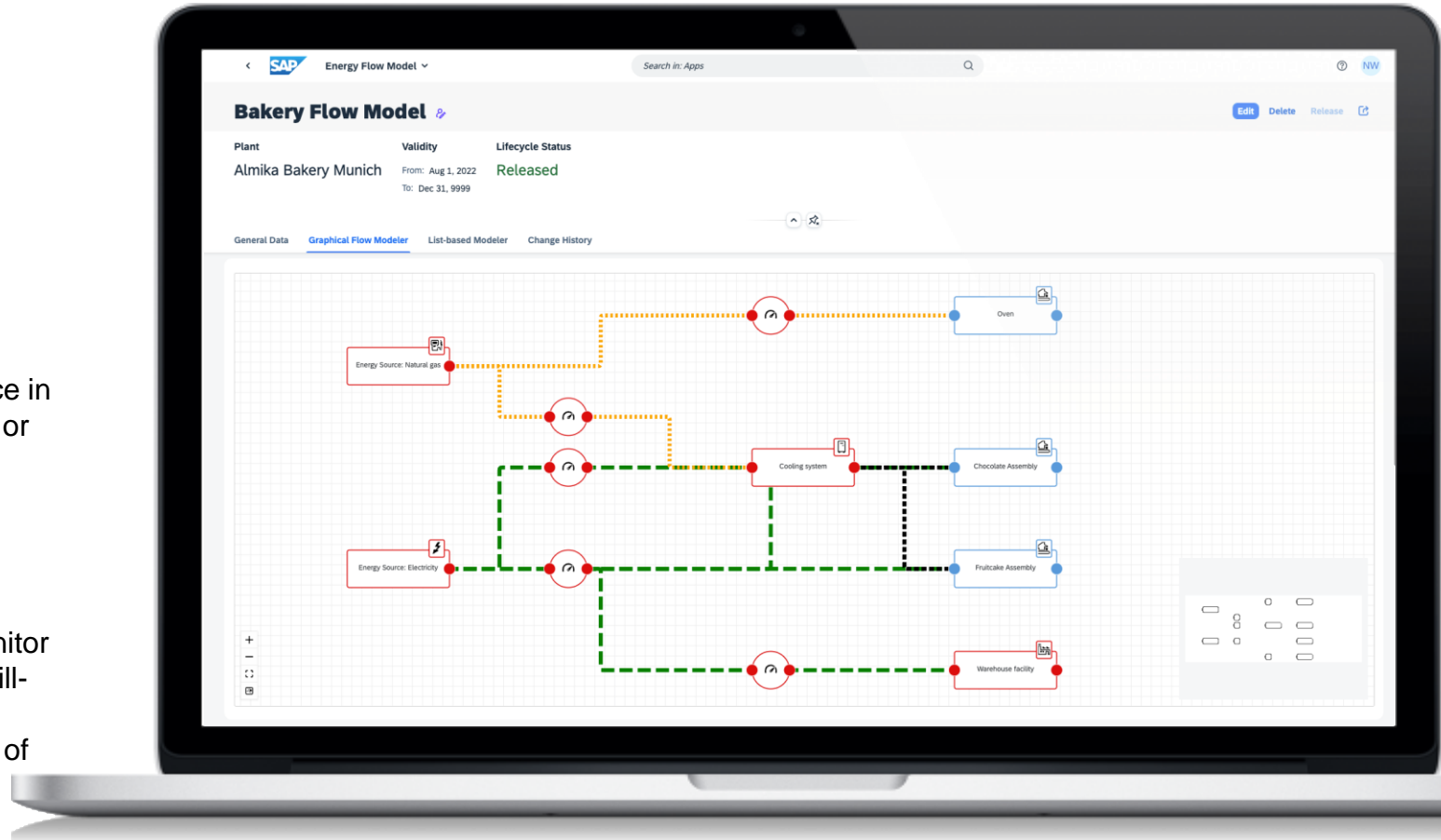
Footprint Analytics

Analyze the calculated footprints for gaining new insights

Footprint Overview

Get an overview of the footprint calculation results in various charts, displaying the purchased/ sold products with the highest emissions, emissions in total as well as per GHG category or energy source.

Corporate Balance

Gain full transparency on all the inflow and outflow of emissions for the selected period within the defined organizational boundary.

Analytical API & SAP Analytics Cloud

Integrate footprint data via ODATA API into any analytical application or leverage content package with dashboards, models & stories in SAP Analytics Cloud out-of-the-box.

Footprint Integration

Extend SAP S/4HANA end-to-end business processes by embedding footprint information
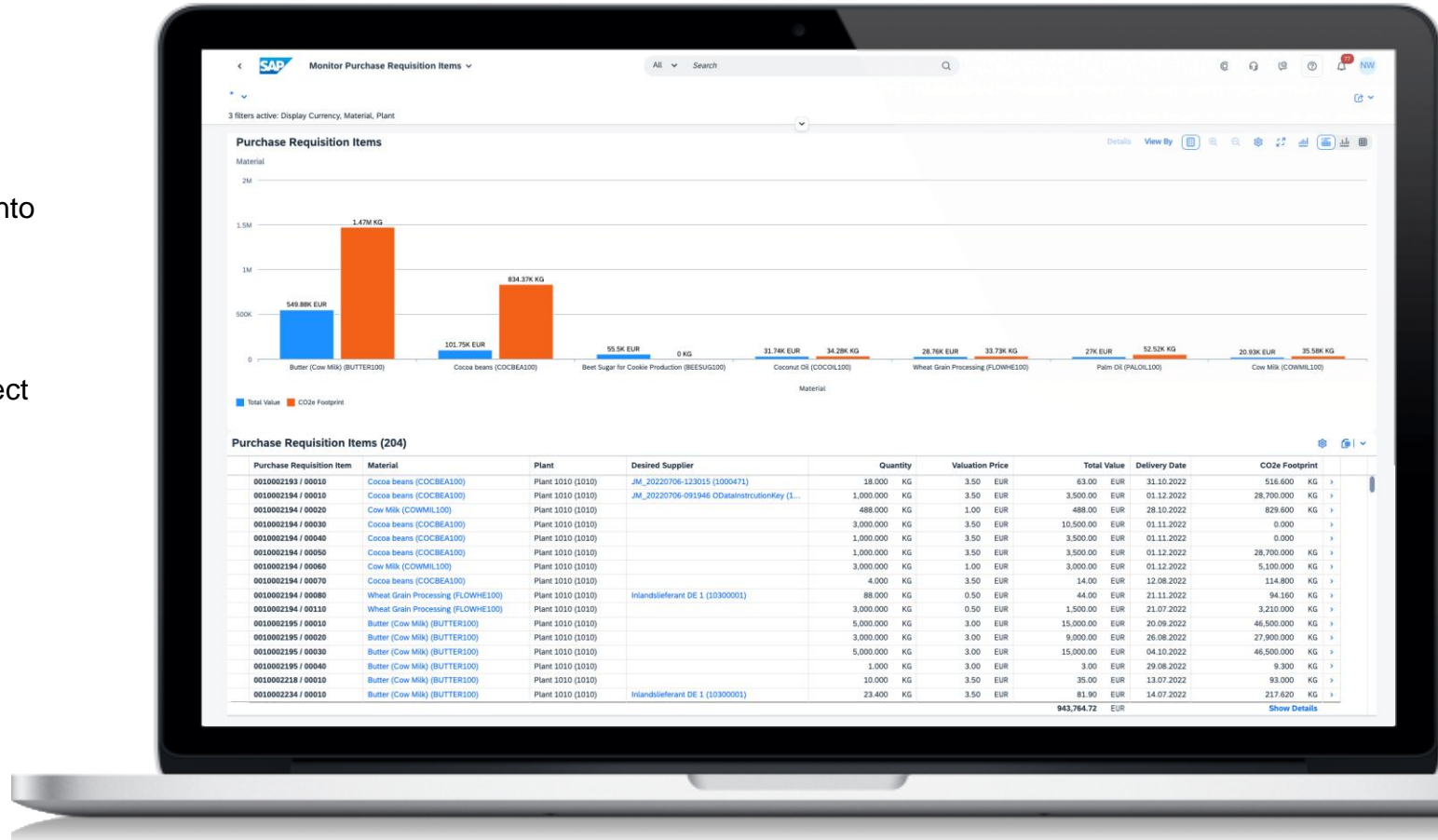
SAP S/4HANA

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

Purchasing & Inventory Management

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

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.

Content

Business Architecture

Simplified

Steering & Analytics

Sustainability Control Tower[2]

SAP Analytics Cloud (SAC)

Business Networks[2]
Carbon Data Exchange

3rd Party Applications[2]
(e.g., analytics, disclosure mgmt.)

SAP Product Footprint Management

SAP® Business Technology Platform

Footprint Inventory

Footprint Calculation

Extraction | Modeling | Mapping | Derivation

Sustainability Integration Re-Use Component[1]

Footprint Provisioning

Data Extractor

End to End Processes

Idea to Market

Source to Pay

Plant to Fulfill

Lead to Cash

Finance

SAP S/4HANA® Cloud

SAP S/4HANA®

SAP S/4HANA EHS Environment Management[2]

Emissions, Waste

Business Networks[2]

Carbon Data Exchange

Emission Factors

Carbon Tools

3rd Party Data Providers

ERP

Other Data Sources

1) Re-use component included in SAP S/4HANA (INTEGRATION_SUS_PFM) | 2) planned

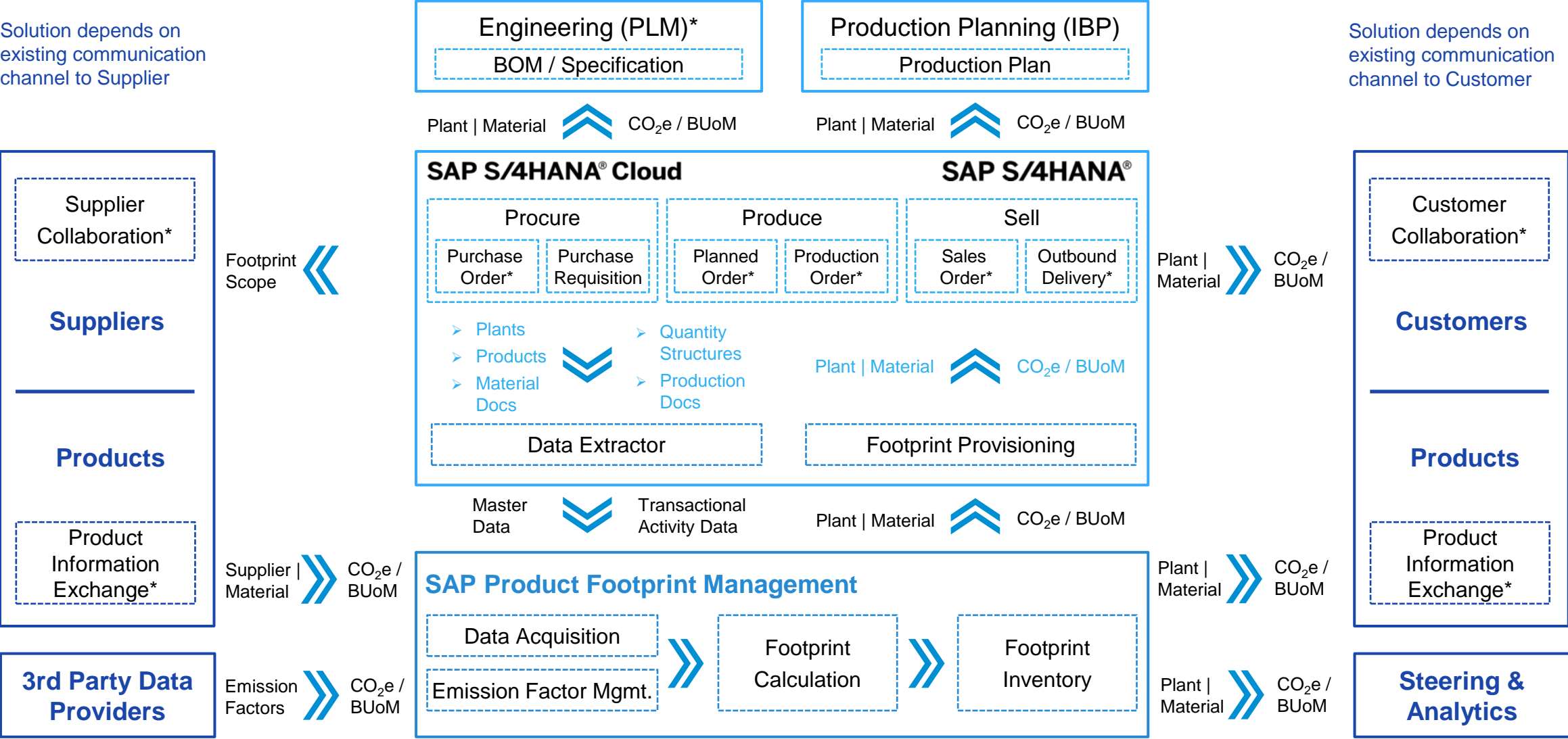# Business Flow

Solution depends on existing communication channel to Supplier

Solution depends on existing communication channel to Customer

Engineering (PLM)*
BOM / Specification

Production Planning (IBP)
Production Plan

Plant | Material CO_2e / BUoM

Plant | Material CO_2e / BUoM

SAP S/4HANA® Cloud   **SAP S/4HANA®**

Supplier Collaboration*

Footprint Scope

Suppliers

Procure
- Purchase Order*
- Purchase Requisition

Produce
- Planned Order*
- Production Order*

Sell
- Sales Order*
- Outbound Delivery*

Plant | Material CO_2e / BUoM

Customer Collaboration*

Customers

- Plants
- Products
- Material Docs
- Quantity Structures
- Production Docs

Plant | Material CO_2e / BUoM

Products

Data Extractor

Footprint Provisioning

Products

Master Data   Transactional Activity Data

Plant | Material CO_2e / BUoM

Product Information Exchange*

Supplier | Material CO_2e / BUoM

SAP Product Footprint Management

Plant | Material CO_2e / BUoM

Product Information Exchange*

Data Acquisition

Emission Factor Mgmt.

Footprint Calculation

Footprint Inventory

3rd Party Data Providers

Emission Factors CO_2e / BUoM

Plant | Material CO_2e / BUoM

Steering & Analytics

* Planned (partially already possible via key user extensibility)   18

Content

Road Map

For latest updates see SAP Road Map Explorer

Q1 2023

- Ability for periodic "Cradle to Gate" footprint calculation
  - ➤ Material Acquisition
  - ➤ Transport
  - ➤ Production activities / energy flow
- Calculate "Product Footprints" from Bill of Materials and Bill of Operations / Activities
- Integration of a geolocation-based mapping service for visualization and analysis of transport emissions

Q2 2023

- Supplier Stewardship: Import supplier specific product footprints
- Business scoping supporting different customer journeys
- Productivity enhancement for emission factor mapping
- Climate Action integration to sustainability reporting and steering

Q3 2023

- Inbound data quality management for supplier specific product footprints
- Climate Action integration to environmental accounting and compliance
- Downstream – Product Use
- Calculate People Transport Footprint addressing Business Travel and Employee Commuting

Q4 2023

- Basic simulation and "what if" analysis of footprint scenarios
- Supplier Stewardship – Supplier Self Service
- Customer Stewardship – Publish footprints to networks or portals
- Intelligent emission factor mapping
- Downstream – End of Life Treatment

Key Takeaways

SAP Product Footprint Management

Precise calculation of product, value chain & corporate footprints

Calculate footprints based on actual data and energy flow modeling which is close to physical reality, resulting in emission balancing on a corporate level

Simple implementation through integration and vast reuse of data

Use various integration options to leverage existing data and structures from your ERP system, leading to easy implementation and low recurring effort

Auditable results for process integration & voluntary reporting

Integrate the calculated footprints into your end-to-end business processes and exchange them with your customers, audit-safe based on ERP financial data

Gain environmental insights across the entire value chain and take climate action by leveraging ERP data and logic

THANK YOU

Contact: