

# Product-level carbon accounting @ BASF

Workshop on Carbon Content - Hamburg



Irving Fisher Committee on  
Central Bank Statistics

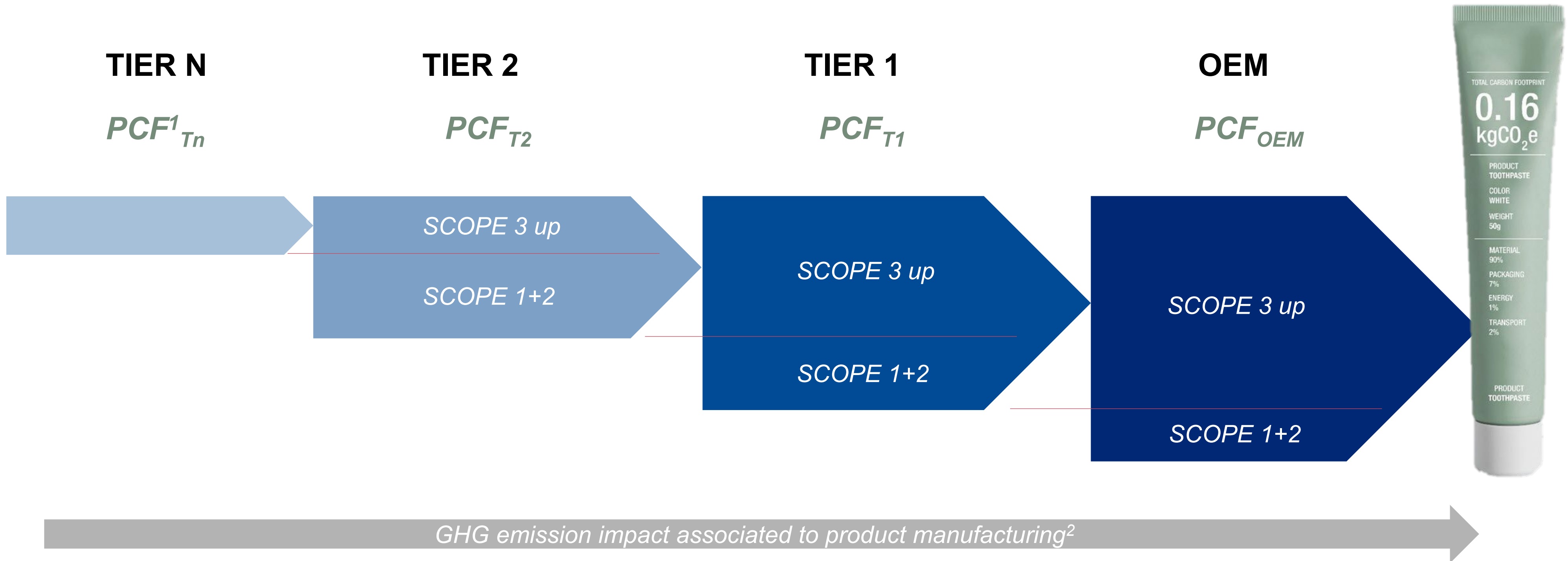


Feb 22, 2024

A. Pistillo

# Emission impact build-up in value chains

## Consumers, brands, OEMs and suppliers along the value chain need product level carbon accounting & scope 3 transparency

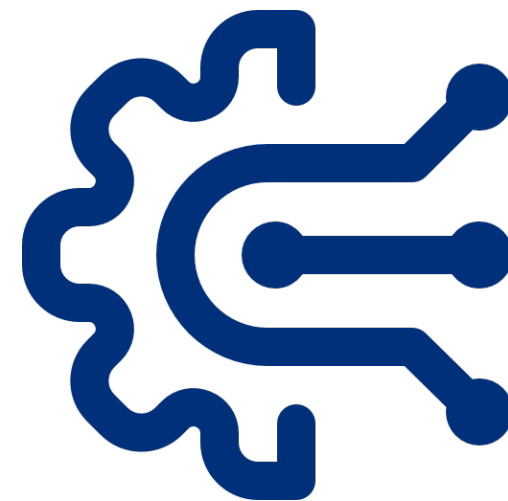


Note: 1. PCF=Product Carbon Footprint (“cradle to gate” in this context); 2. final participant is the value chain to address final use-phase and EoL

# Three key ingredients are required to execute product-level carbon accounting



*Practice-oriented carbon accounting **standards** to ensure PCF comparability*



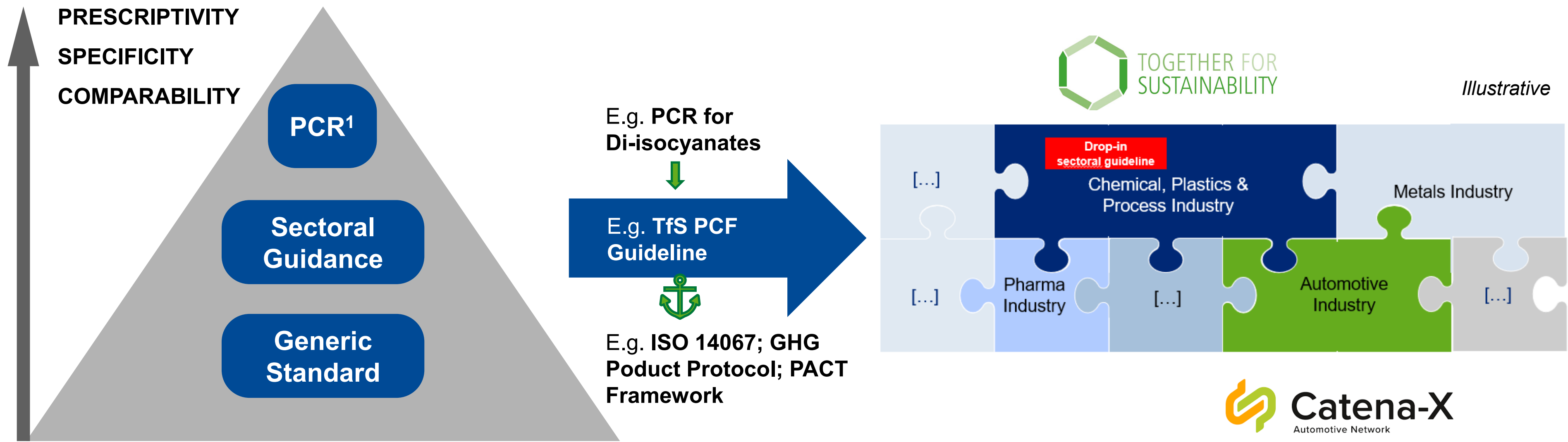
*Carbon accounting **tools** to generate accurate & certifiable PCF data at scale*



***Data exchange platforms** to enhance PCF transparency for Scope 3*

# #1 – Carbon accounting standard

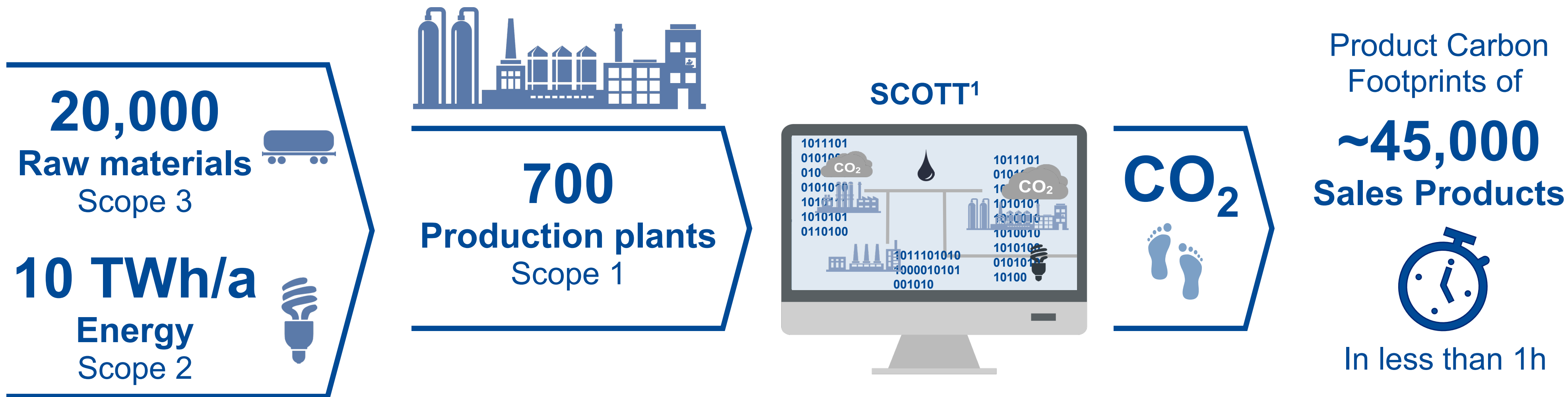
## Generic standards set the foundations for more specific rulebooks aiming at assessing product & production systems in greater detail



Note: 1. TfS PCF Guideline available at <https://www.tfs-initiative.com/how-we-do-it/scope-3-ghg-emissions>; Catena-X PCF Rulebook available at <https://catena-x.net/en/standard-library>; PACT Framework available at <https://www.carbon-transparency.com/our-approach/pathfinder-framework>.

## #2 – Digital carbon accounting tool

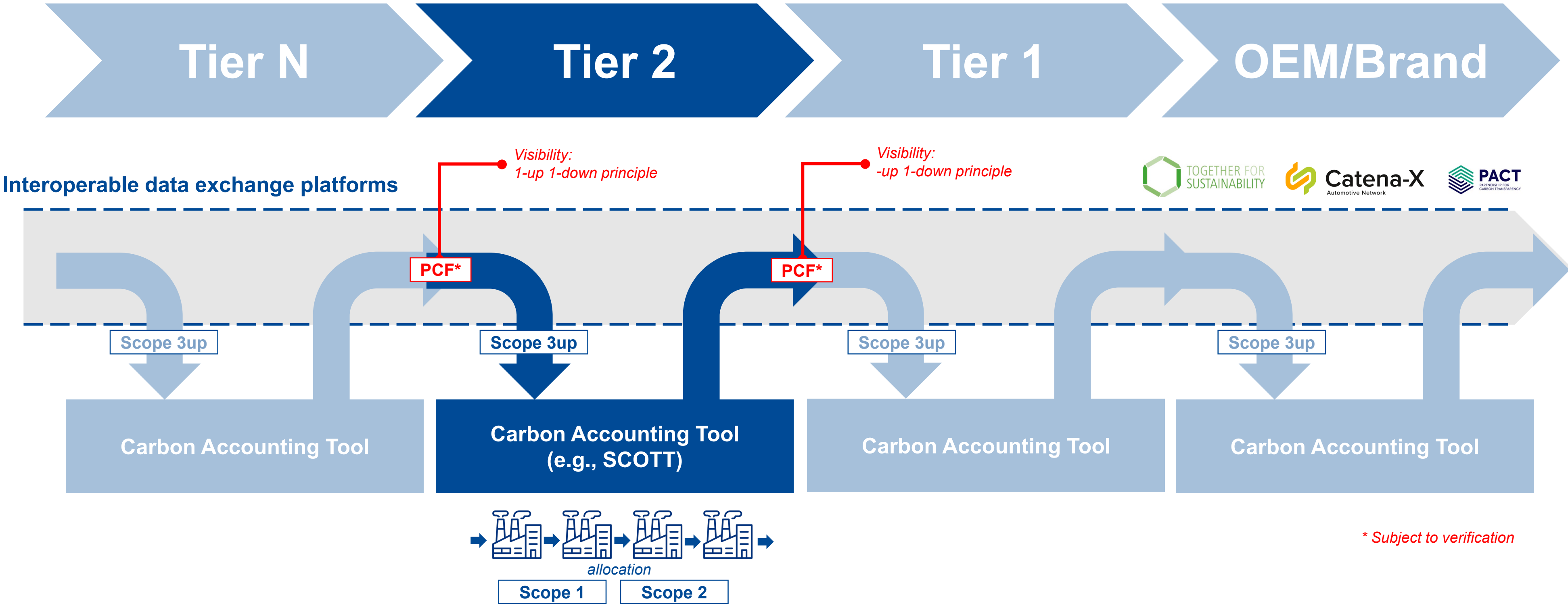
# With its SCOTT tool, BASF can efficiently steer its product portfolio at scale based on PCFs. The solution is now also on the market.



Note: 1. SCOTT=Strategic CO2 Transparency Tool. More information available at <https://www.basf.com/global/en/who-we-are/sustainability/we-drive-sustainable-solutions/quantifying-sustainability/product-carbon-footprint/partnerships.html>

### #3 – Data exchange platform

# Hundreds of companies will exchange thousands of primary PCFs this year through interoperable data platforms along value chains



\* Subject to verification

# Someday soon, down the supermarket aisle...





We create chemistry



# Leveraging primary activity data, SCOTT provides PCF transparency to subject matter experts and accountants, enabling marketing & sales

Harmonized data extraction of manufacturing & emission primary data from existing information ERP systems

Data consolidation and proper, ISO compliant, CO<sub>2</sub> allocation on product level along the typically non-linear chemical manufacturing network

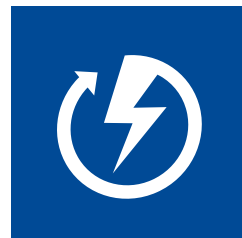
Transparency to all stakeholders of the organization, with insights on emission drivers for subject experts and dashboards for sales&marketing



Plant emissions



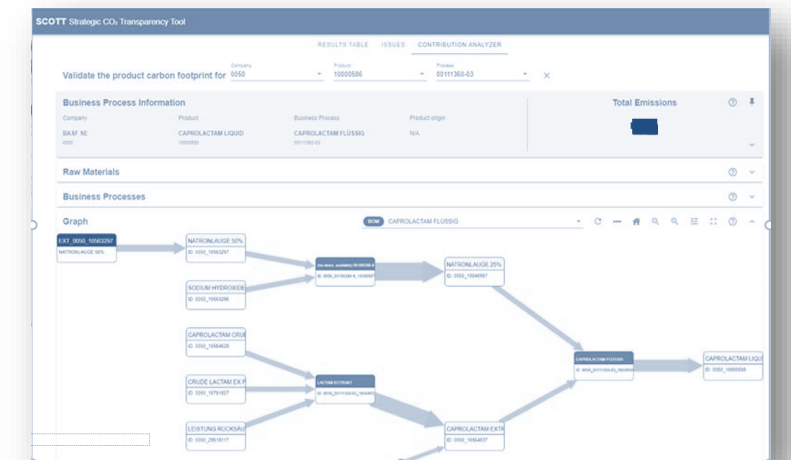
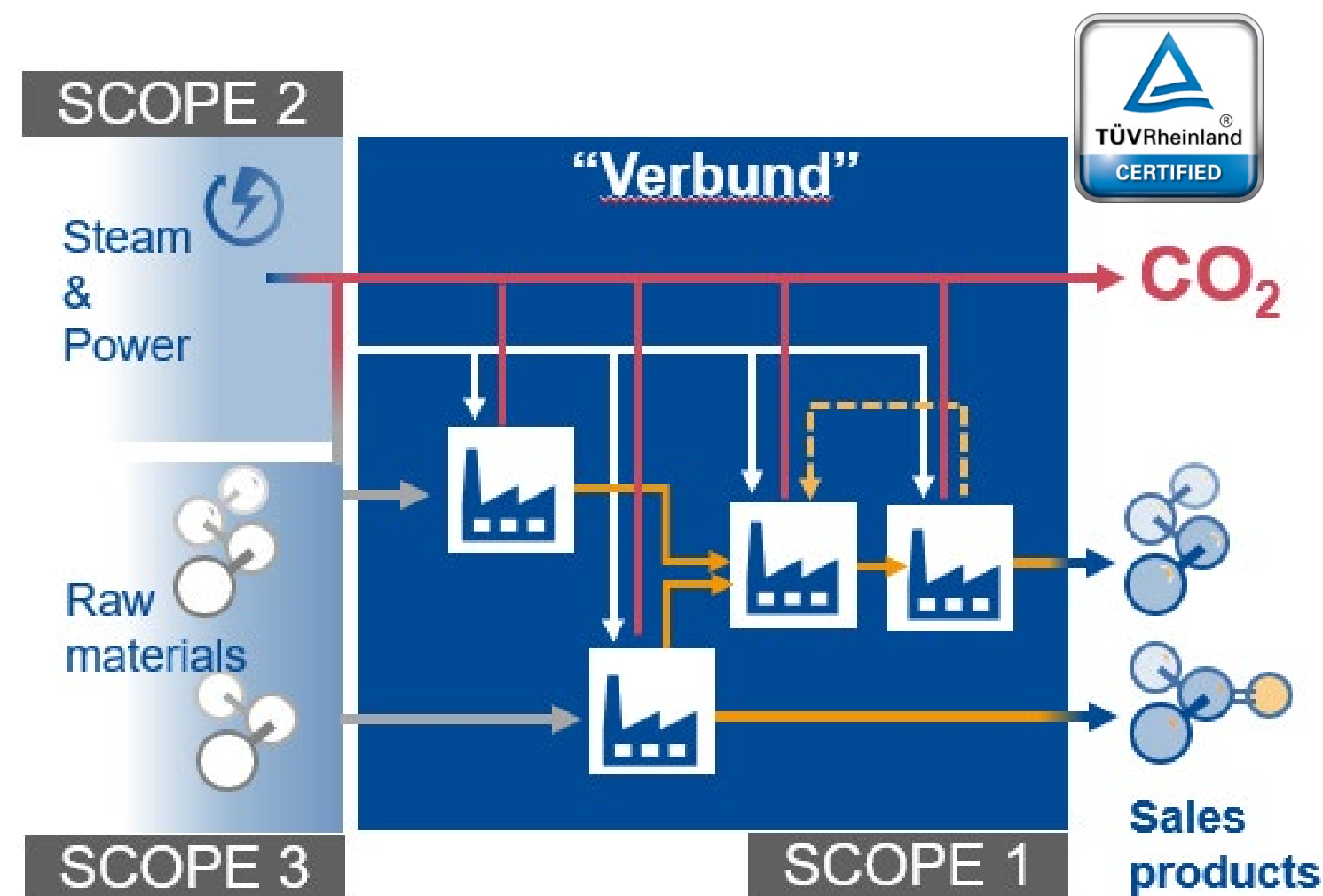
Bill of materials



Utility consumptions



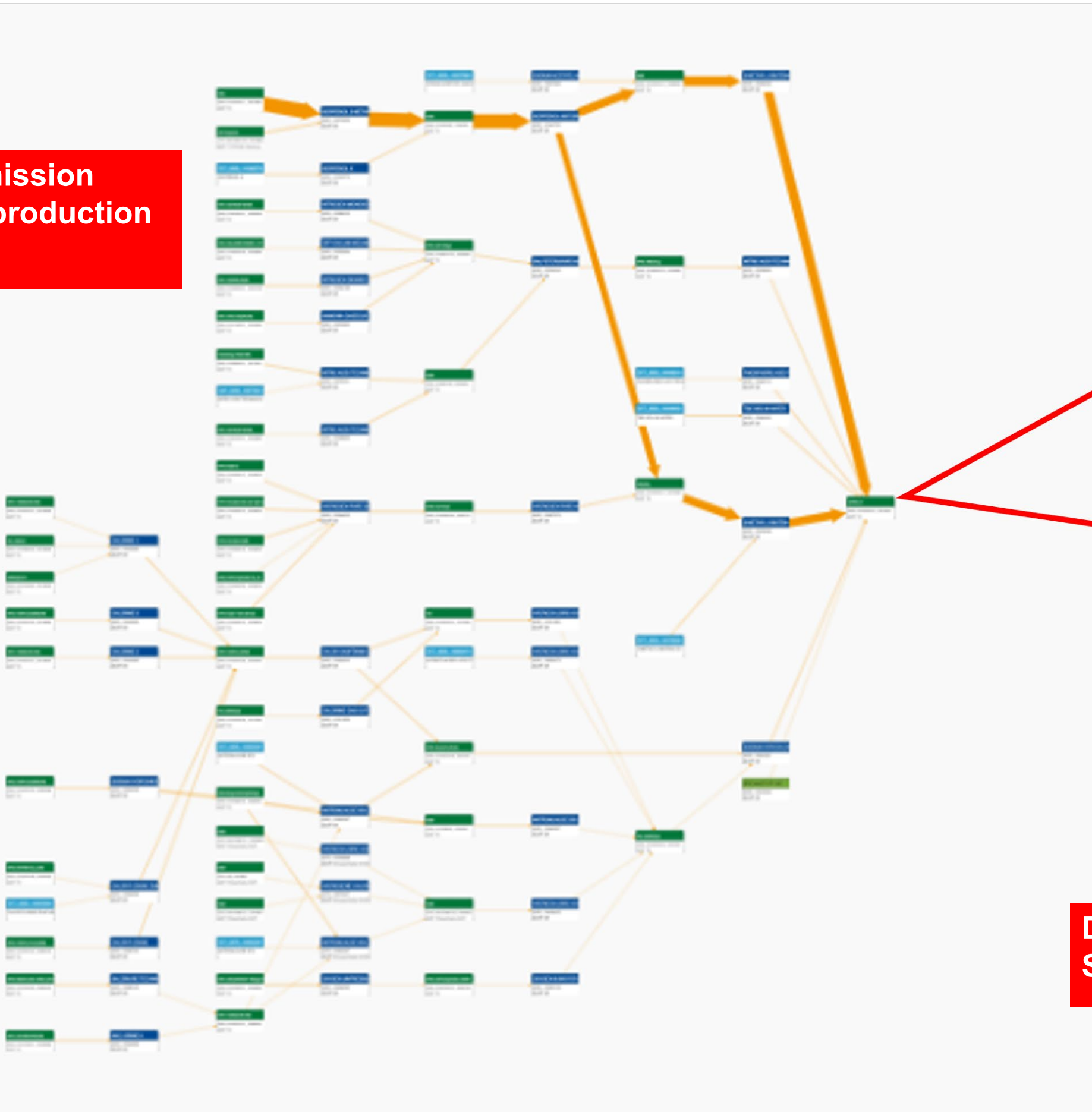
Raw material purchases and PCFs<sup>1</sup>



Note: 1 preferably primary data calculated by the respective supplier; if not available, secondary data will be used

# SCOTT – Strategic CO<sub>2</sub> transparency tool – some impressions

Identify emission drivers in production footprint



**CITRAL N**

Business Process: 00123500-14  
CITRAL N

Product: 10014541  
CITRAL N

Company: 0050  
BASF SE

Emissions: PCF Scope 1, PCF Scope 2, PCF Scope 3, On-stage Scope 1, On-stage Scope 2, On-stage Scope 3

Primary Data:  SCOPE 1,  SCOPE 2,  SCOPE 3, **DOWNLOAD**

SCOPE\_1\_STEAM, SCOPE\_3\_STEAM, SCOPE\_1\_ELECTRICITY, SCOPE\_1\_FUEL, SCOPE\_1\_PROCESS, SCOPE\_3\_WASTE, SCOPE\_3\_ELECTRICITY, SCOPE\_1\_WASTE, SCOPE\_3\_FUEL

All values given as kg CO<sub>2</sub> eq. / kg end product

HIDE PRIMARY ON-STAGE DATA <

Emission details at product level (consolidated & on stage)

**Raw Materials**

Status	Company	Product	Emission Contribution ↓	% of Total PCF	Cons. Input Factor	Scope 3	Scope 3 Transport	Flag Quality Product	Flag Quality Region
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	0050 BASF SE	...	...	...	...	...	...	...	...
●	7157 BASF PETRONAS Chemi	...	...	...	...	...	...	...	...
●	1071 BASF Antwerpen N.V.	...	...	...	...	...	...	...	...
●	1071 BASF Antwerpen N.V.	...	...	...	...	...	...	...	...
●	1094 BASF Intertrade AG	...	...	...	...	...	...	...	...

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Deep dive example: Scope 3 raw material impact

# SCOTT consolidates all bill-of-materials providing transparency in product level carbon emissions at all steps of the production chain

## Consolidated view

### ▶ Raw Materials

Consolidate along the value chain until you reach the “end” → External purchased Raw Material

**(CO<sub>2</sub> Raw Materials)**

### ▶ Business Process

Identify and consolidate all involved Bus-Process within the production chain

**(CO<sub>2</sub> Plant Emissions and CO<sub>2</sub> Utilities)**

## Graph view (on-Stage view)

