

From carbon reporting to emissions intelligence

SBN NORGE

SAP User Group Norway

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accenture



AGENDA

- **The case for the “emissions intelligent” energy company**
- **Deep dive into Energy Transition**

THE CLIMATE CRISIS AND RACE TO NET ZERO ARE BRINGING A 'COMPRESSIVE DISRUPTION' TO ALL BUSINESSES



Investor demands

Change in **investor perception and actions on climate related risks**

Global ESG assets on track to exceed **\$53 trillion by 2025**, more than a third of projected total assets under management¹



Customers expectations

Customers with increasing willingness and power to choose sources and scrutinise supplier performance

62% of customers want companies to take a stand on issues like sustainability²



Regulatory shifts

Evolving & expanding **carbon pricing and control regulations** impacting profitability and cost of capital

Stimulus packages are increasingly **tied to ESG conditions**; **25%** of the EU's plan is allocated to "green" initiatives



Delivery Pressure

Corporates are **not on track** to deliver climate targets in line with the Paris Agreement

Only **50%** of listed companies in Western Europe **are on track** for a <1.5°C temperature scenario, 39% in Japan, 33% in ASEAN and 31% in the US⁴

CARBON IS NOT JUST A CONSTRAINT, BUT WILL INCREASINGLY BECOME A KEY SOURCE OF VALUE

Climate related drivers ...



Investor demands



**Customers/
suppliers
expectations**



Regulatory shifts



**Market &
technology
pressure**

... leading to business and market impacts ...

**Increase production costs
(carbon taxes & ETS)**

Shifting of capital allocation

**Increase in carbon transparency
requirements**

**Differentiated low carbon
products & services**

... and ultimately business value levers



COGS / Cost of capital

- Emissions reductions from operational interventions and efficiencies
- Reduced WACC
- Improved investor relations



Revenue / margin uplift

- ESG differentiated hydrocarbons and products
- Monetisation of CO2
- Carbon-linked services



Risk and compliance

- Reduced statutory & compliance costs
- Reduced reputational risk
- Greater visibility of physical and transition risk



Brand value and trust

- Enhanced Customer Loyalty
- Enhanced advocacy influence
- Greater share of voice

UNLOCKING CARBON VALUE WILL REQUIRE 'CARBON INTELLIGENT' ORGANISATIONS TO 'RE-WIRE' TO EMBED CARBON EVERYWHERE

Carbon value to be unlocked (examples)


Carbon regulatory costs


Green loans, access to capital


New product/innovation differentiation


Enhanced brand value


Streamline compliance, Integrated reporting


Community engagement/public relations



1. People

- Carbon related metrics become a decision making criterion along usual business dimensions



2. Process

- Workflows and insights incorporate carbon related data for decision making



3. Technology & Data

- Carbon related data captured and integrated with finance and operational metrics across platforms



CFO

Business units

Investor relations / corporate responsibility



New solutions



Solution integration (Carbon Threads)

'REWIRING' THE BUSINESS TO DRIVE CARBON INTELLIGENCE BRINGS CHALLENGES AND REQUIRES ENHANCED CAPABILITIES

Challenges across the organisation:



1. People

- **Skills capability** and **knowledge** on carbon can be a challenge, with expertise concentrated in the few



2. Process

- Carbon **information** and **decisions not integrated** to business processes across business units



3. Technology & Data

- Collation and **availability of data** is typically a challenge
- Carbon related data (e.g. energy, procurement, finance) are stored in **multiple platforms**, and often in **legacy systems**



4. Risk & Governance

- Climate change not an agenda in **risk registers** or overall governance
- Lack **accountability on climate performance** for senior leadership

Businesses will need an enhanced **set of capabilities** to enable the **carbon intelligent** organisation

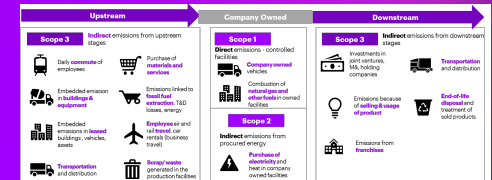
Focus is on equipping/ embedding organisation with capabilities across organisational operating model (people, process, technology)



Carbon Intelligence is a set of capabilities that enables organisations to control, improve, and drive value creation, by embedding carbon and ESG business intelligence into the core business and across the value chain

Moving from carbon as an afterthought ad-hoc reporting to embedding and driving value

Greater value comes from being able to unlock opportunities from upstream and downstream emissions from customers to suppliers



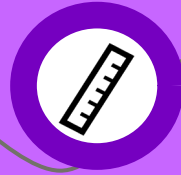
A series of carbon intelligence capabilities will help better equip organisations to drive value from carbon



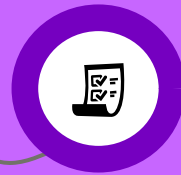
Enabling capabilities



Diagnose, Assess & Set Strategy



Monitor & Measure



Audit & Record, Report

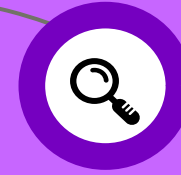


Target & Performance Management

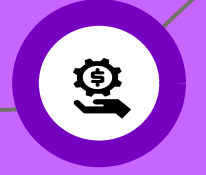
Value driving capabilities



Reduce, Replace, Optimize & Offset



Predict & Rebalance portfolio



Trade & Monetize

Diagnostic assessment of the Enterprise based against best in class and potential architectural future

Set strategic direction with enterprise-wide view against all pressure areas (e.g customer, regulatory, investor etc.)

Linked **carbon + hydrocarbon molecules tracking across all transformations and transactions**, with rich physical and business contextual data, weaving a continuous “carbon thread” across systems, processes and people

Automated reports to multiple stakeholders and integrated with financial models and metrics (e.g. for TCFD or carbon controls)

Helps **set, allocate and track absolute and intensity targets** against Science Based glidepaths and across assets, business units, employees, **integrated with key business performance and strategy metrics**

Innovate, identify, catalogue, benchmark and **prioritise actions, incentives & interventions to reduce, replace and offset emissions** across all scopes, in conjunction with other business objectives

Simulates **financial impact of different emissions, carbon costs and interventions at asset and portfolio levels**. Supports definition of optimized capital plan, M&A, operational, HR decisions

Enables differentiation of products and services e.g. ESG-attributed or compensated fuels including transactions of carbon and EACs

We are developing a range of assets and technologies to help our clients embed Carbon Intelligence and release business value

Carbon Intelligence Industry Solution (IS) Suite

01

IS Suite 1: Enterprise & Architecture Diagnostic

Strategy and Capability diagnostic and development

02

IS Suite 2: Carbon intelligence - Emission Analytics (Accenture assets)

Operational tools and assets accelerate agenda and develop data architecture

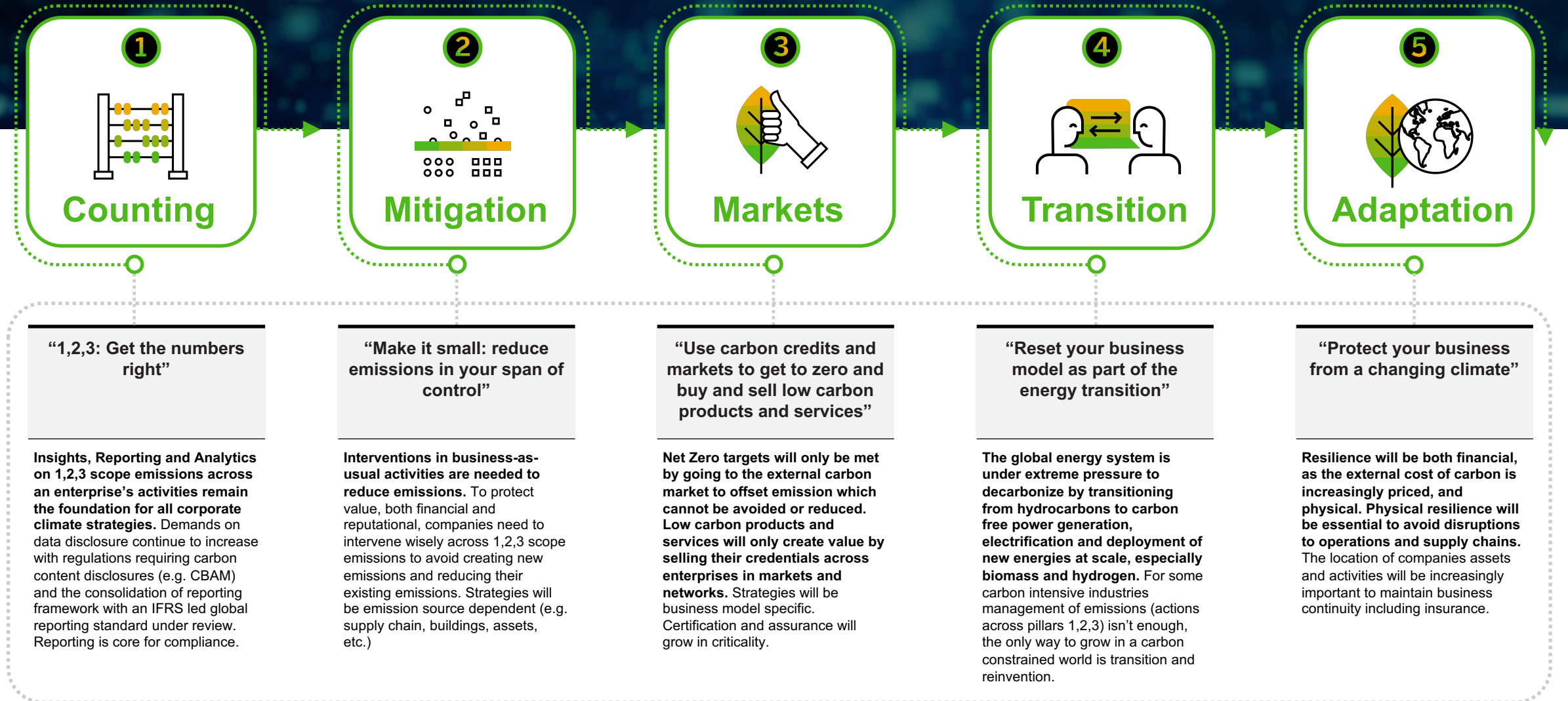
03

IS Suite 3: CI Enterprise integration and implementation solutions, with Alliance Business Groups

Ecosystem develop and platform architecture

SAP Climate Strategy Framework: 5 Pillars of Action

In order to thrive in a low carbon economy and be resilient to climate change companies will need to work across 5 imperatives



1,2,3 Common to all industries

Horizon: short-to-mid-term

4,5 Specific to hard-to-abate / high risk industries

Horizon: mid-to-long-term

Table of Contents



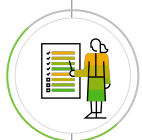
Towards Sustainable Energy

05



Pressure and Risk, Collaboration, Innovation, and Action

08



Key Energy Transition Topics

14

- On (Industrial) Energy Management
- On Renewable Energy Production
- On Methane
- On Carbon
- On Natural Gas and LNG
- On Hydrogen
- On Alternative Fuels and Circularity
- On Sustainable Operations and Sustainable Procurement
- On the Digital Prosumer
- On Digital Service Stations, EVs and Consumers



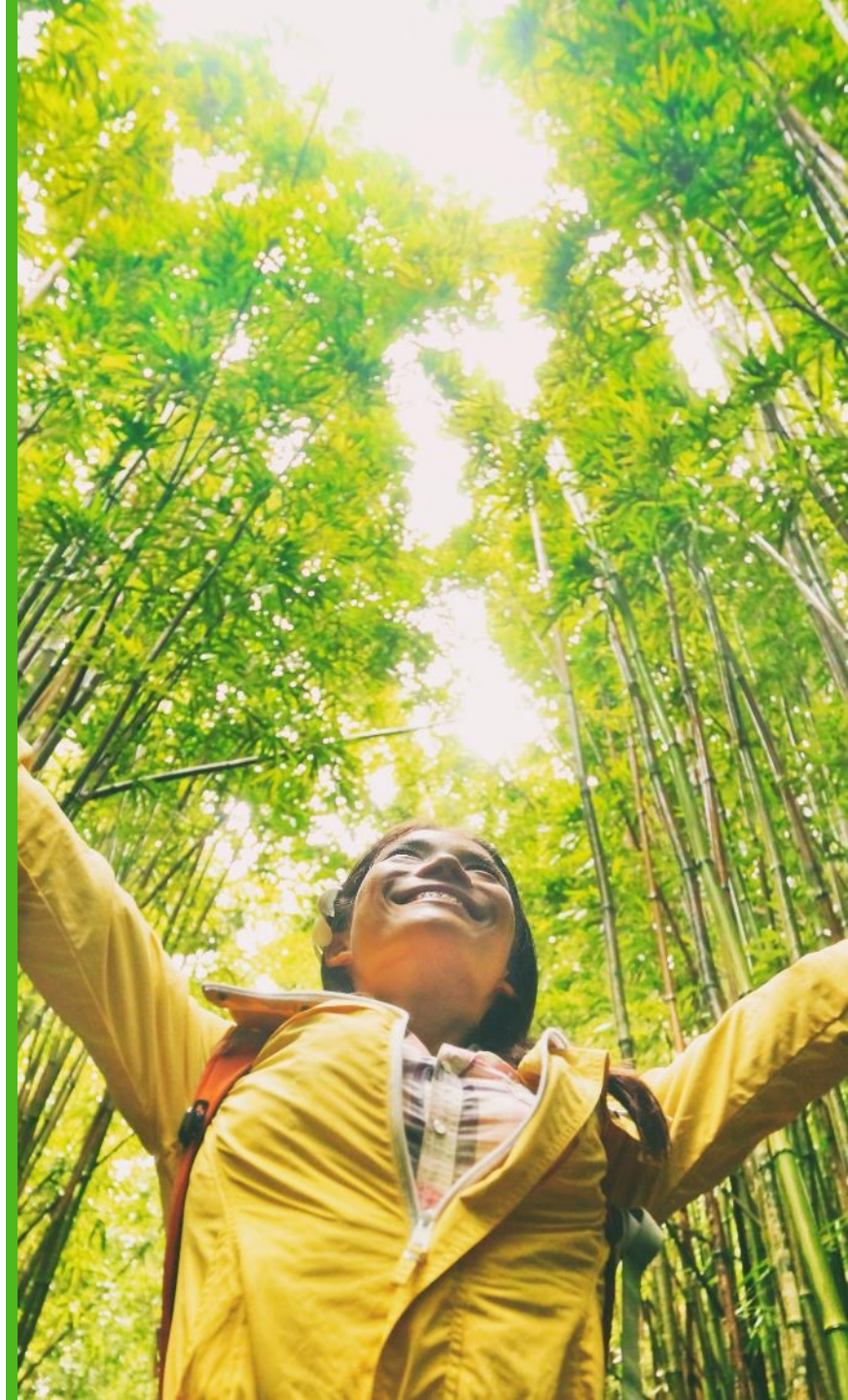
Our Journey Together

73



Appendix

78

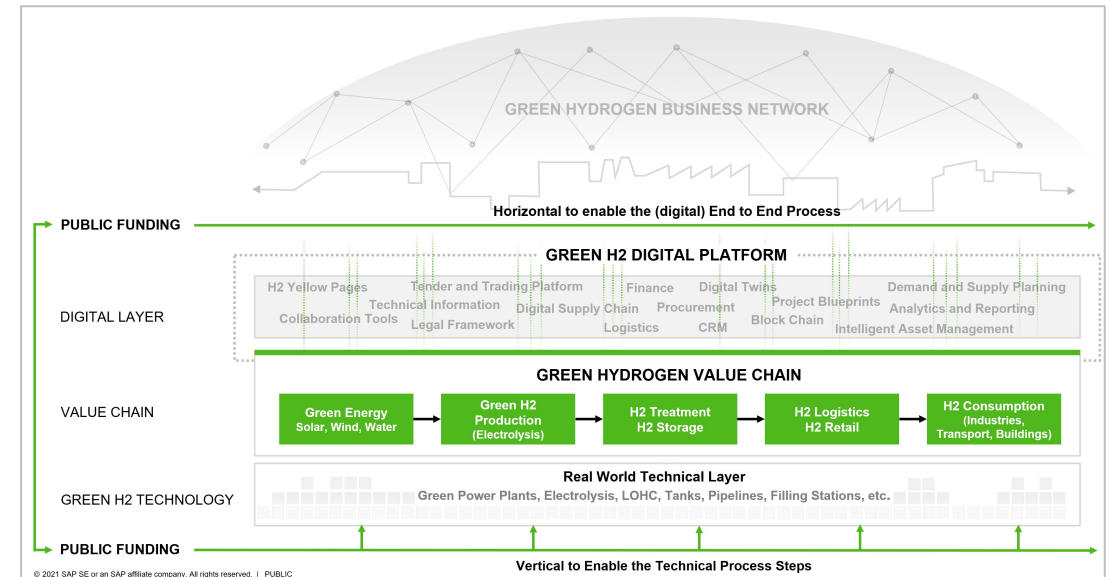


On Hydrogen



Relevance of SAP in the Creation of a Sustainable Hydrogen Market

SAP has the digital capabilities to support the entire Hydrogen value chain from production to end usage. In addition, SAP has a strong footprint in and serves all the relevant industries, which is a perfect match. **Utilities; Oil, Gas and Energy; Chemicals; Engineering, Construction, and Operations; Cargo Transportation and Logistics; Aerospace and Defense; Automotive; Industrial Machinery and Components; Building Products and Agribusiness.**

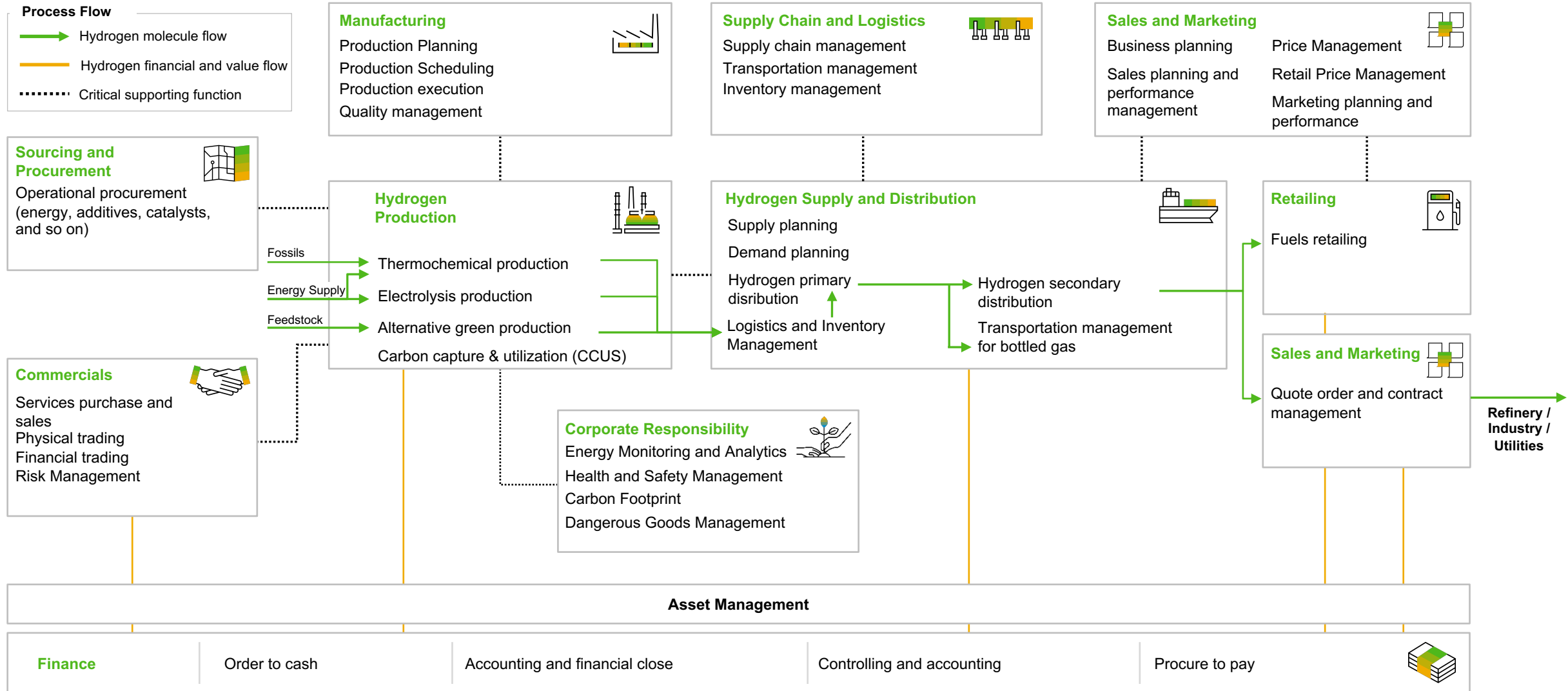


Besides working on local Hydrogen projects and supporting individual customers, SAP is part of the CEO Alliance for Europe's Recovery, Reform and Resilience working together with E.ON, ENEL, Iberdrola and ABB in the workstream „Green hydrogen value chain”.

Details of the project that aims to build up an industrial scale green Hydrogen value chain to serve the European market can be found under: [H2-Ruhr - CEO Alliance | E.ON \(eon.com\)](#)

High Level Processes Relative to Hydrogen

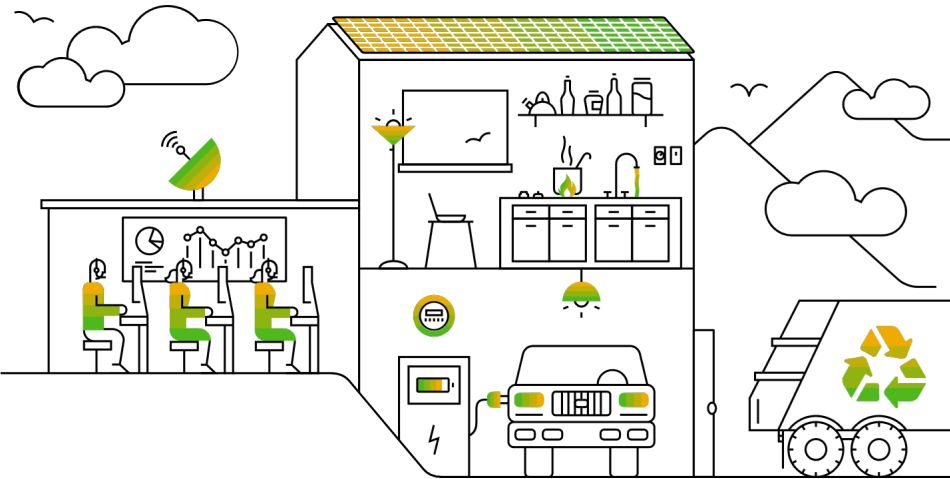
H2



Additional Requirements for (Green) Hydrogen's Acceptance and Success

Trust

The basis for the creation of a liquid and sustainable H₂ market is the implementation of trust. Knowing to get what you pay for is crucial like with organic food. This is especially true because green hydrogen will be much more expensive than blue H₂ and blue H₂ more than grey H₂ in the next couple of years. Therefore, tracking and tracing of the colour of hydrogen and the certificates of origin for example for the renewable energy production is the critical new process over the whole value chain.



Comparability and cross border trade

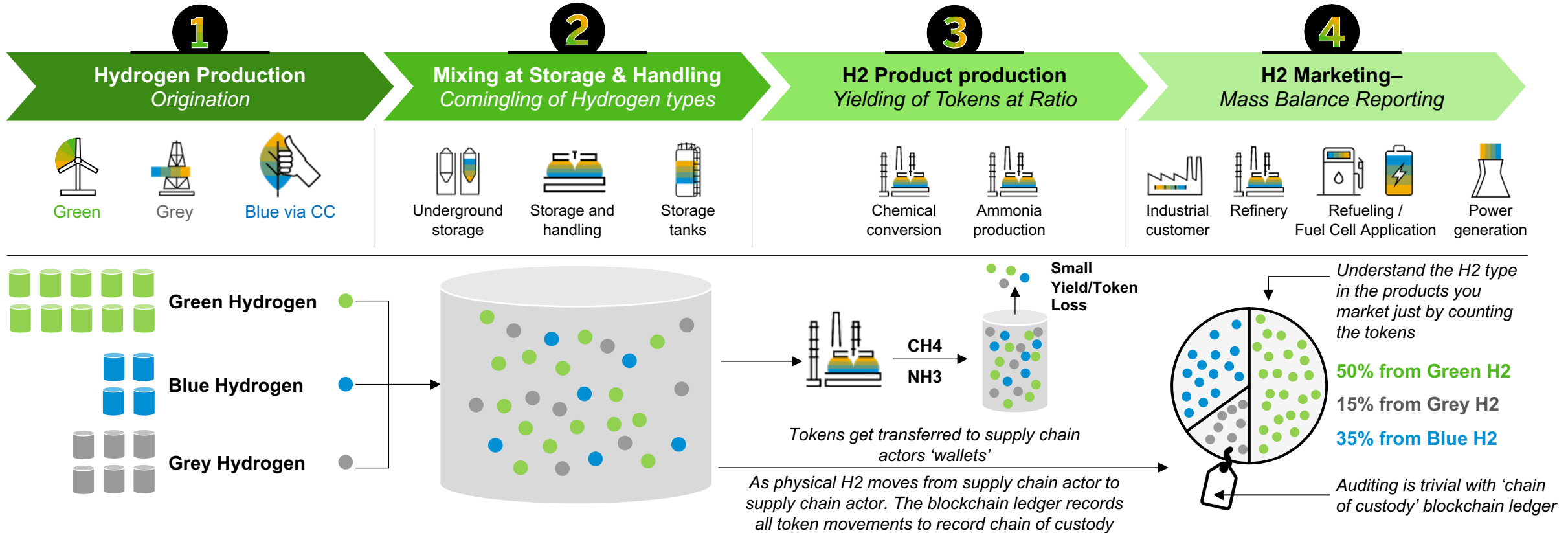
The final solution to judge the sustainability of a unit of H₂ (e.g. a kg) is the tracking and accumulation of all greenhouse gases that are released in the atmosphere through the whole value chain from production to end usage. This solves following problems:

Import from green H₂ or products made of it (ammonia, methanol etc.) that is transported over long distances very likely has a higher CO₂e footprint than locally produced green H₂. Instead of charging import taxes or risking stranded investments in a given import country the CO₂ price will take care of the market competitiveness.

Judging blue and grey H₂ the right way: To be able to calculate the CO₂e on top of blue or grey H₂ not only the H₂ value chain has to be tracked but also the whole value chain of the underlying fossil fuel (e.g. natural gas).

GreenToken | Tracking Hydrogen by Source

by SAP



IMMUTABLE CHAIN OF Custody (blockchain) ACROSS MULTIPLE BUSINESS PARTNERS

Green, blue and grey tokens are minted onto a blockchain at 1st point of aggregation (storage) based on hydrogen source type. 1 token = 10kg of H₂. Other facts can be stored like certificate of origin, location/plant.

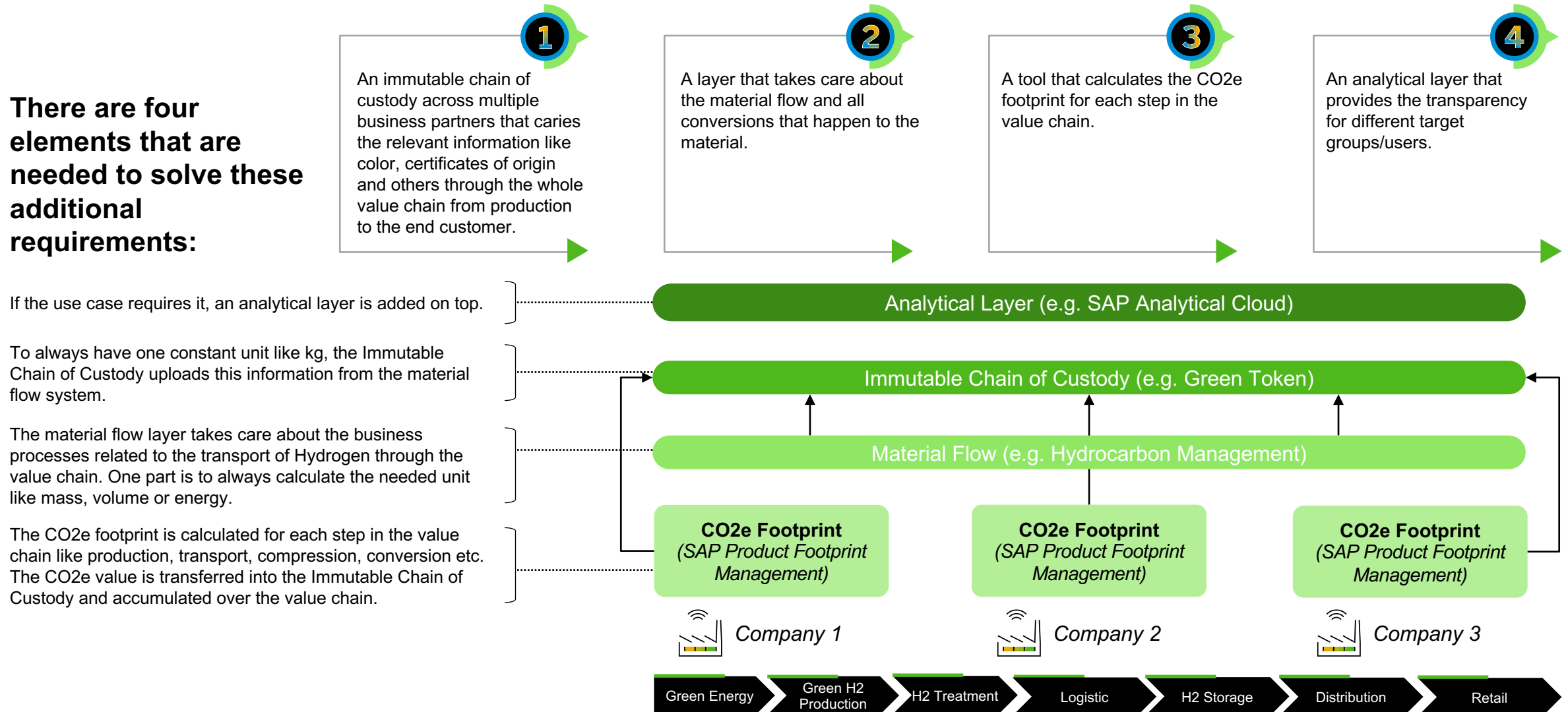
GreenToken uses these 3 concepts (1) mass balance, (2) tokenization and (3) chain of custody. Just by counting the tokens you instantly know the % mix of H₂ types and their origins at any point in the supply chain.

H₂ can be processed to new products. The tokens are digital twins of the physical H₂ and get converted to H₂ product tokens at the same yield, but still retain their original green/blue/grey origins

With **GreenToken** it is trivial to understand the source of H₂ /H₂ products that you are marketing. The token count, tied to the mass you are selling, reveals the color % mix and allows easy chain of custody auditing.

Solution Architecture for the Additional Requirements for (Green) Hydrogen's Acceptance and Success

There are four elements that are needed to solve these additional requirements:



On Hydrogen

Address Unique Challenges and Opportunities

Pain Points/ Opportunities



- Planning, financing and implementation of new assets and infrastructure (e.g. renewable power generation, electrolysers, storage, pipelines, low carbon shipping etc.)
- Finding the right partners and getting the needed funding from governments
- Finding customers for H2 and products made from it.
- Building trust in the market: Tracking and tracing the certificates of origin, the colors of hydrogen and the CO2e on top of e.g. a kg of H2 through the entire value chain
- Calculation of the carbon footprint on company and product level including analytics and reporting
- Dealing with new and changing regulations
- Security of assets and people
- Contracts and pricing, security of investments, cross border trade

SAP Solution Building Blocks



SAP Enterprise Portfolio & Project Management

Manage risks, activities, budgets, and costs within individual projects to reach organizational goals on time and within budget

Intelligent Asset Management

Reliable and predictable operations improves sustainable outcomes

SAP Environment, Health and Safety plus Environment Management

Proactively identify, analyze, and mitigate environment, health, and safety risks. Manage chemicals safely, monitor industrial hygiene, and reduce your environmental impact. Stay compliant with emissions-related environmental regulations

SAP Commodity Trading and Risk Management

Integrated end to end process from planning to trading (to scheduling to actualization and accounting)

SAP Hydrocarbon Supply and Primary Distribution, and Secondary Distribution:

End to end hydrocarbon logistics

Green Token by SAP

Tracking and tracing of the color of hydrogen and the certificates of origin for example for the renewable energy production is the critical new process over the whole value chain. Solving the mass balancing problem

SAP Product Footprint Management

Calculate carbon footprints for H2 and products made of it across the value chain

Business Value



- Supporting the set-up of new equipment and infrastructure
- Evaluates and analyze environmental footprints across the end to end value chain
- Collects information of CO2 footprint of a company's supply chain and products (upstream and downstream)
- Provides the ability to modify procurement sources, production systems, or logistics networks to minimize negative environmental impacts
- Ability to exchange, audit, benchmark on environmental footprints across organizational boundaries
- Transforms operations to minimize CO2 footprint and improve product portfolio



Expert Contacts

- Peter Koop (Oil, Gas and Energy)
- Klaus Schimmer (NVT Sustainability Team)

Next Steps

Accenture and SAP are working together to develop solutions to help enable the Energy Transition

First steps with Accenture:

Contact us to discuss how we can help and explore the opportunity of completing an Emissions Analytics Diagnostic

We have developed a Diagnostic Tool to evaluate Emissions Analytics and Carbon Intelligence capability across 7 key areas. This is a great way to understand capability gaps and plan a practical roadmap.

First steps with SAP:

Contact me to receive the full Sustainable Energy Transition Point of View (POV) to get a deeper insight how we can help you on your energy transition journey.

Let us start! Initiate an explore session to define and prioritize the key areas to be tackled.

Contact Details

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