



# Whats Next – Supply Chains

# Green Ledgers, AI, Networks, Digital Foundation

VNSG Update

October 2023



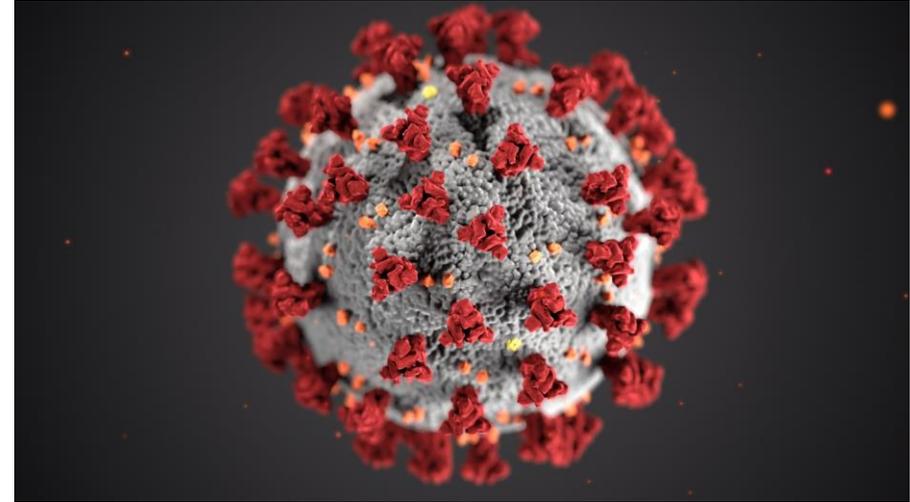
## Digital Supply Chains – Its all about time.

THE TROUBLE IS, YOU THINK YOU HAVE TIME.

- Buddah



# A Brief History..... The Wake Up Call?



# Moments in Time.... Constraints..?



# The End of Time?





## ChatGPT reaches 100 million users two months after launch

Unprecedented take-up may make AI chatbot the fastest-growing consumer internet app ever, analysts say



## Clayton M. Christensen – The Innovators Dilemma

“If you defer investing your time and energy until you see that you need to, chances are it will already be too late.”



***“If the physical goods flow faster than the information – you’ve got a problem!”***

John McNiff, Vice President SAP Digital Supply Chain Global CoE.

**Supply Chains in Focus- Our Time**

**Towards a Best Run Digital Supply Chain**

# Overall Market Trends YoY

The Supply Chain and rising Debt are the most pressing problems in the market



Revenue<sup>3</sup>  
**+13%**



Margins<sup>3</sup>  
**0%**



Earnings Per Share<sup>3</sup>  
**-11%**



S&P 500  
**-18%**



S&P Europe 350  
**-14%**



Cash Conversion Cycle<sup>3</sup>  
**+6%**



Days Inventory Outstanding<sup>3</sup>  
**+14%**



Days Sales Outstanding<sup>3</sup>  
**+6%**



Days Payables Outstanding<sup>3</sup>  
**+8%**



CO<sub>2</sub>e Emissions<sup>3,5</sup>  
**+17%**



Cash on Hand<sup>3</sup>  
**+2%**



Debt<sup>3</sup>  
**+14%**



CAPEX<sup>3</sup>  
**+30%**



R&D<sup>3</sup>  
**+16%**

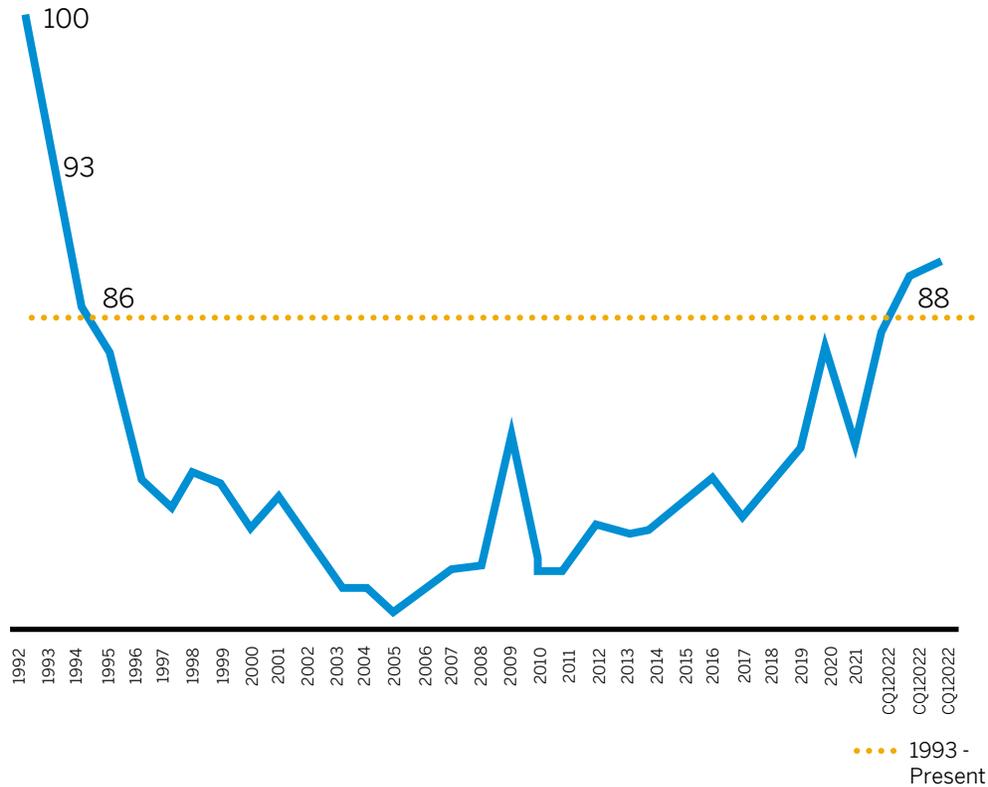


Employees<sup>3</sup>  
**+11%**

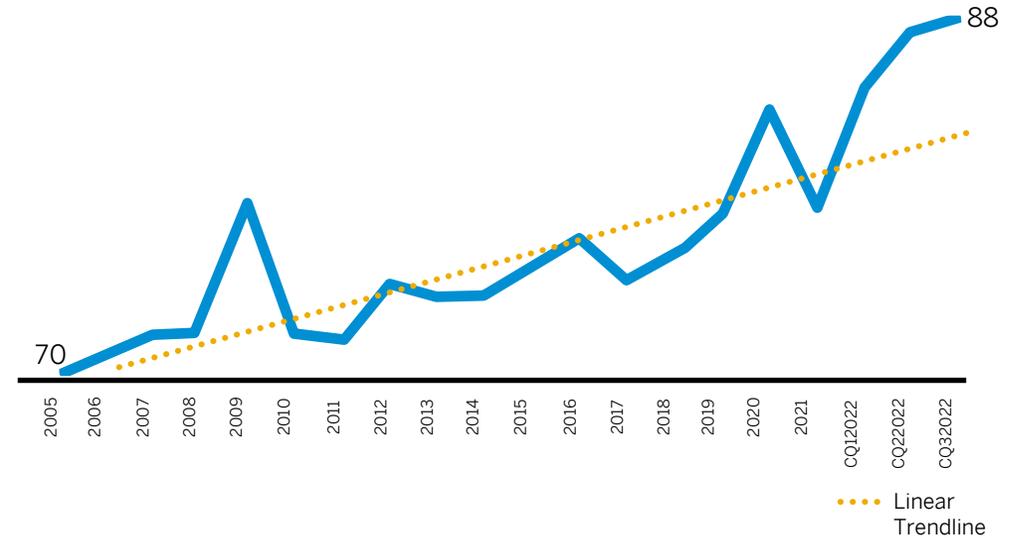
# The Growing Capital Strain of the Supply Chain

Inventory levels haven't been this high since 1993

## Days Inventory Outstanding (DIO) 1992 to Present



## Days Inventory Outstanding (DIO) Zoom in 2005 to Present



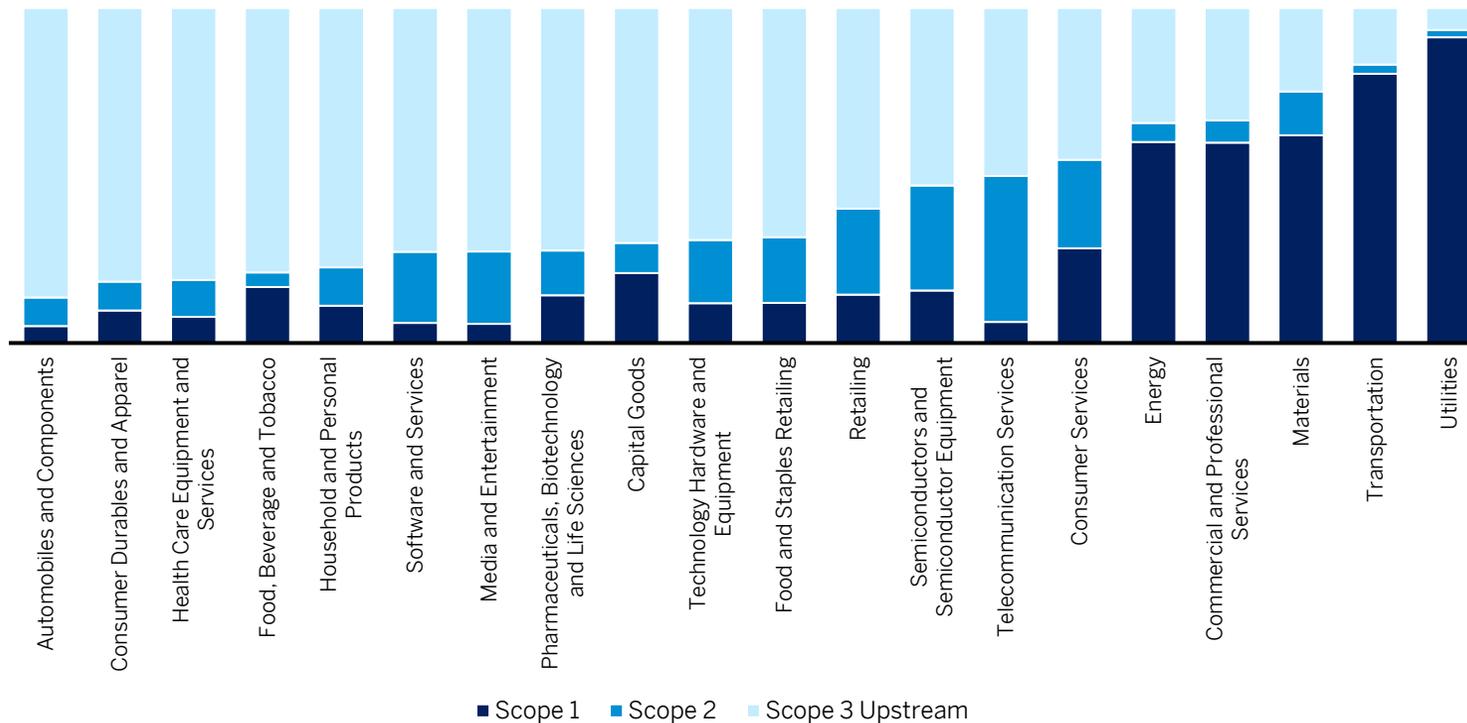
1. SAP, Best Run Intelligence. 1A: S&P Global Market Intelligence. 7,000 public companies in NA & EU only, aggregate average DIO for all companies for all industries except Banks, Diversified Financials, Insurance, and Real Estate, representing \$33 trillion in annual revenue

# The Resource Strain - 60% of CO<sub>2</sub>e Emissions are in the Supply Chain



## Analysis

Global GtCO<sub>2</sub>e by Industry  
All Scopes, Absolute Value



## Findings

**Scope 1:** direct emissions generated by owned or controlled resources. These are the emissions that a company generates while performing its business activities. In most cases, scope 1 emissions are generated by the fuel combustion that powers industrial processes or the vehicle fleet.

**Scope 2:** indirect emissions generated by the production of purchased electricity, steam, heating and cooling. These emissions are not generated by the company directly, but by the utilities that produce electricity, steam, heating and cooling.

**Scope 3:** all other indirect emissions that occur in a company's value chain. Scope 3 emissions are generated by resources not owned or controlled by the company, but that the company indirectly impacts in its value chain.

1. S&P Trucost Limited, 2019. 8,685 total companies – Scopes 1, 2, & 3 Upstream. Supporting Stat: [Why investors ask for your supply chain carbon footprint \(normative.io\)](https://www.normative.io)

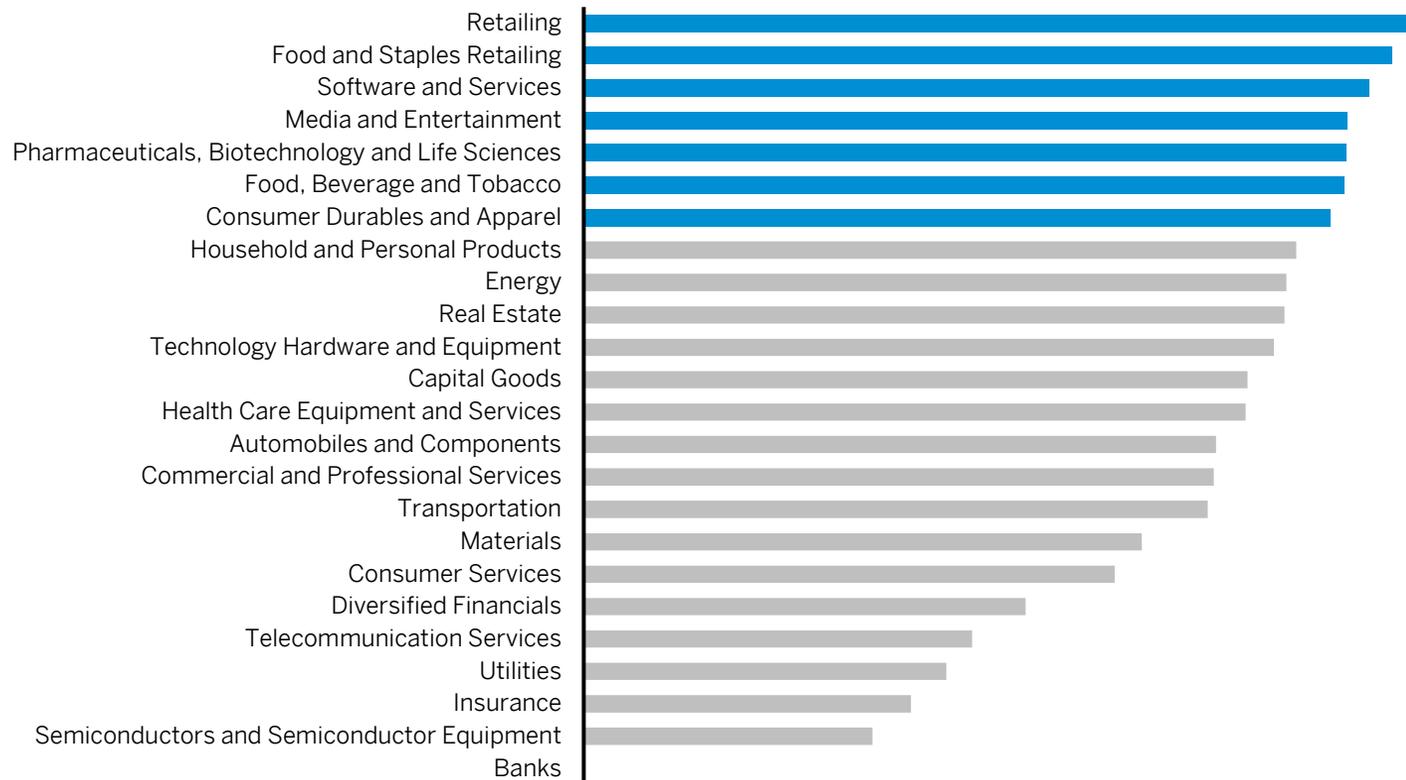
# The Sustainability Gap, Talking the Talk but Not Walking the Walk

Some industries have bold ESG ambitions but lack activation



## Analysis

**% Difference Between ESG Score and Earnings Call Keyword Trend Score for ESG Topics by Industry, 2021**



## Findings

AlphaSense AI analyzes quarterly earnings call transcripts for sentiment insights and produces a Keyword Trend Score, in this case “ESG/Sustainability”. It’s a barometer for the extent to which the C:Suite is updating shareholders on ESG topics

S&P Global provides a rigorous scoring system for ESG performance through a multi-dimensional evaluation criteria

The differences between the two metrics (both on a scale from 0 – 100) provide insights of Sustainability gaps, where business leaders are talking a lot about ESG but have poor ESG performance.

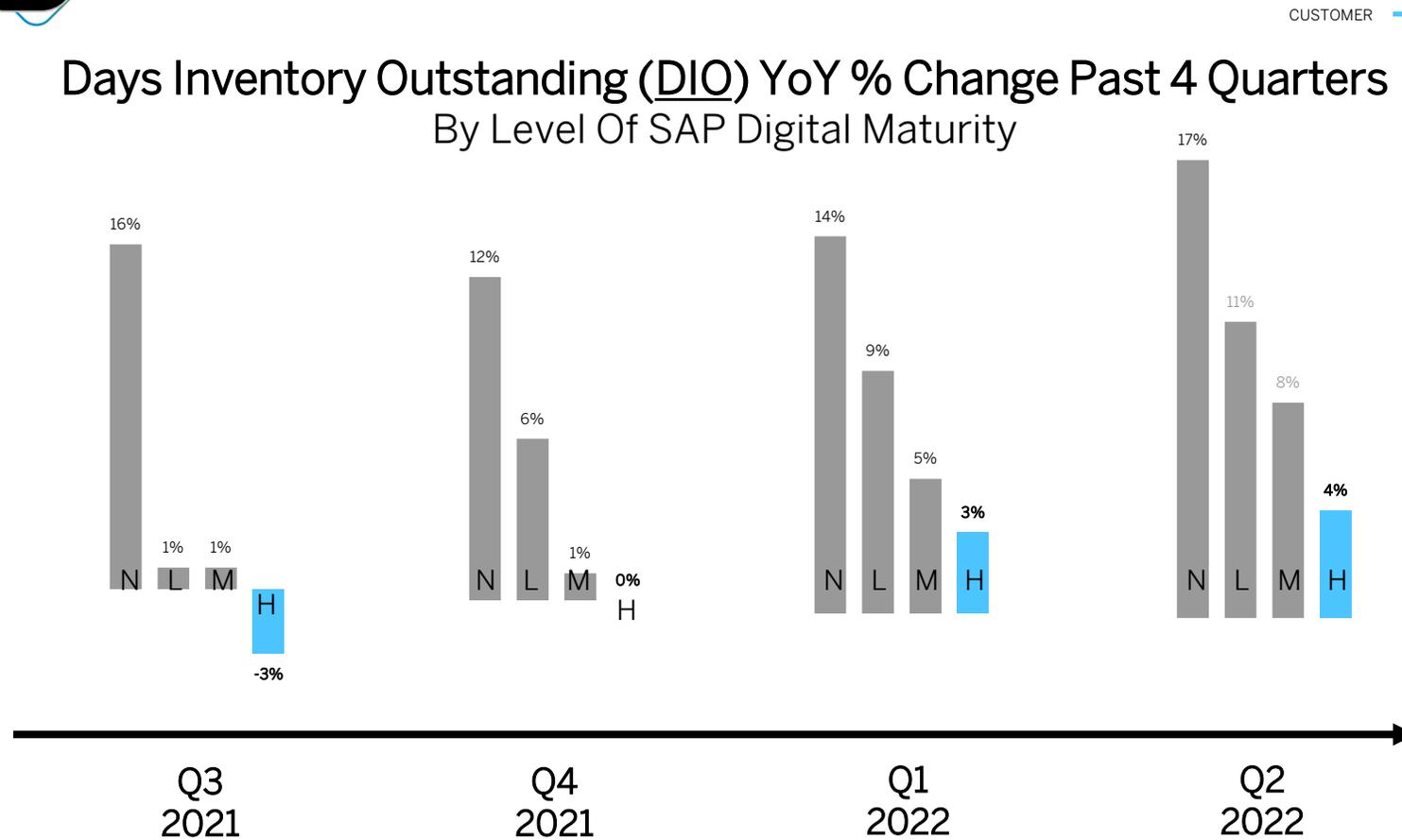
‘Retailing’ for example scored a perfect 100 out of 100 in their ESG Keyword Trend Score, but their actual avg ESG Scores are 23 out of 100 ( $\Delta$  77%). Therefore, Retail leaders are talking the talk but not walking the walk.

# Digitally mature companies have better managed their supply chains amidst ongoing market turmoil



## Analysis

Days Inventory Outstanding (DIO) YoY % Change Past 4 Quarters  
By Level Of SAP Digital Maturity



## Findings

- Corporate inventory levels are rising amongst a myriad of challenges in the market **Bloomberg | Reuters**
- However, SAP customers with high digital maturity are better navigating these challenges with their Days Inventory Outstanding not rising nearly as much as the rest of the market. This has been true the past 4 quarters straight and equates to an average 1% increase vs. a 8% increase for the market
- Methodology: through an automated statistical algorithm, SAP measures a customers digital maturity based on their adoption of SAPs latest and greatest technologies (such as S/4HANA, Cloud, & Analytical solutions) from 0 - 10. Then they are grouped into 'low', 'medium' and 'high' digital maturity
- The lower DIO, the better. It evaluates the operational efficiency of the supply chain and impacts revenue, profit, and working capital

# Resilient Businesses Are Digitalized

## Operations and Supply Chains are Built for Speed and Flexibility



### Agility

Proactively and profitably sense and respond to market dynamics



### Productivity

Deliver high-quality, mass-produced or make-to-order products faster



### Connectivity

Unified, collaborative trading partner relationships



### Sustainability

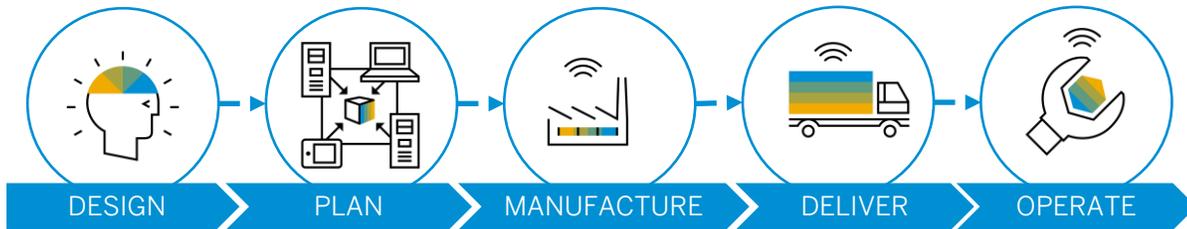
Actively manage your environmental and community impact

# From a Business Point of View

Companies are looking to move from Silos to an Interoperable Supply Chain

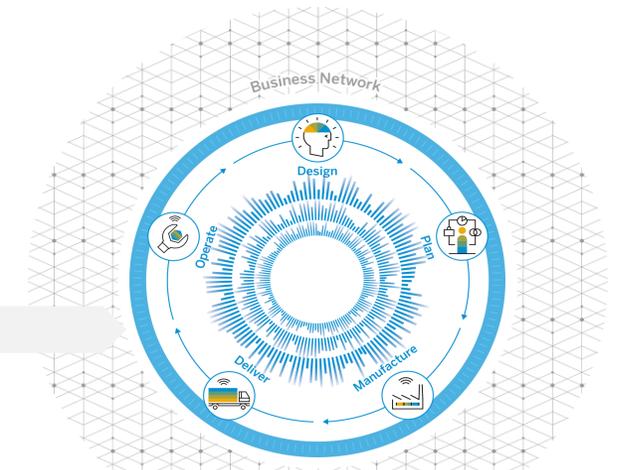
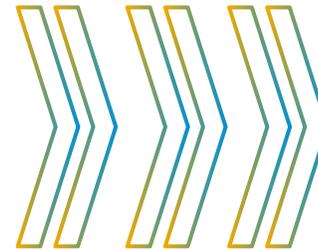
“Aspire to making SCM a "suite" play. Most organizations say that they favor application integration over marginal functionality and that their long-term goal for SCM is a single, integrated set of tools that are designed to work together”

Source: IDC market perspective: Five Things to Keep an Eye on in the Supply Chain for the Next Decade, April 12, 2022 (Simon Ellis)



- Objectives of one LoB might not be in full alignment with the objectives of other LoBs
- Limited interaction, flow of information and cross-department collaboration with other LoBs
- Longer lead times due to delays that happens between LoBs

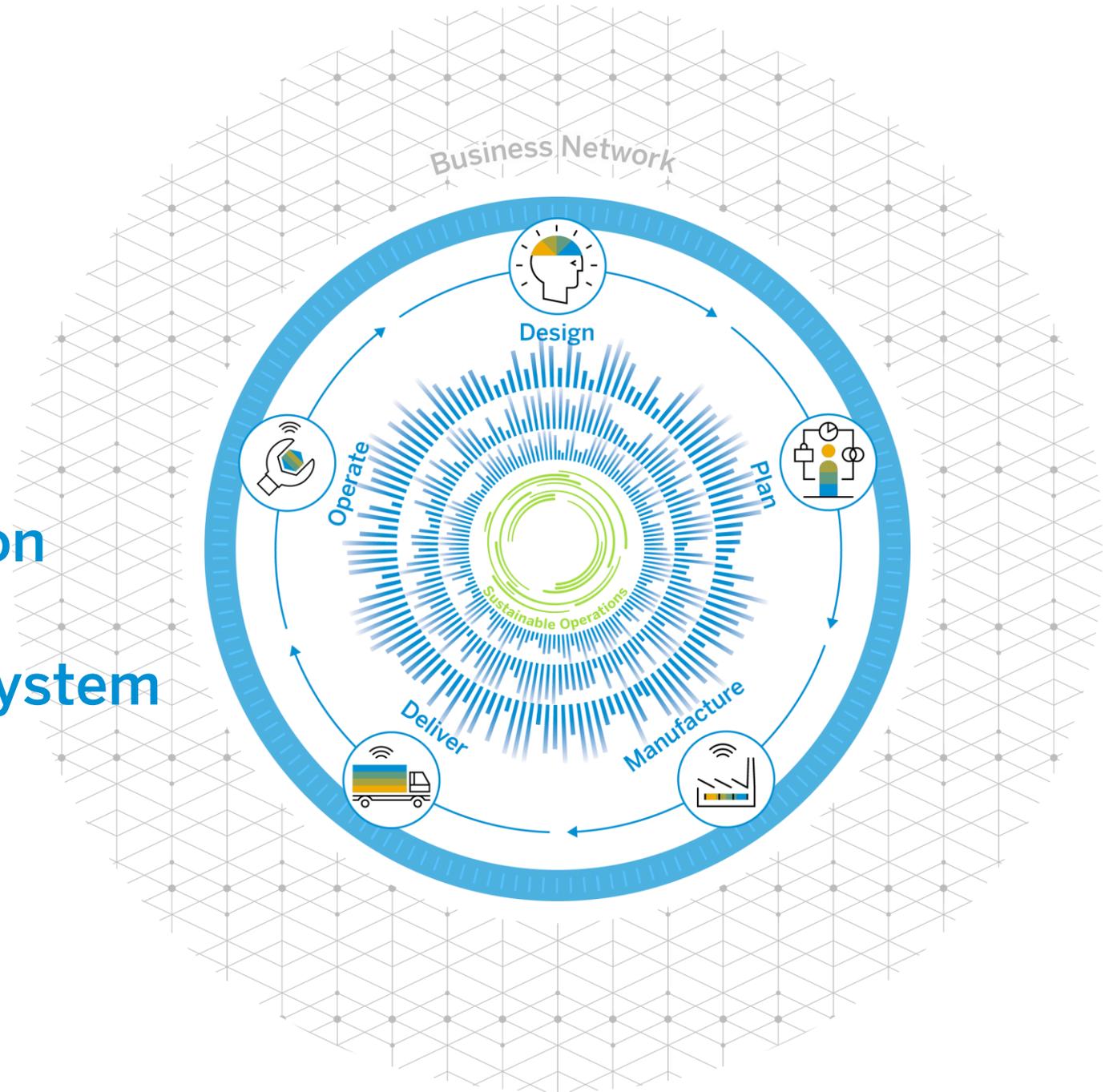
## Modularity

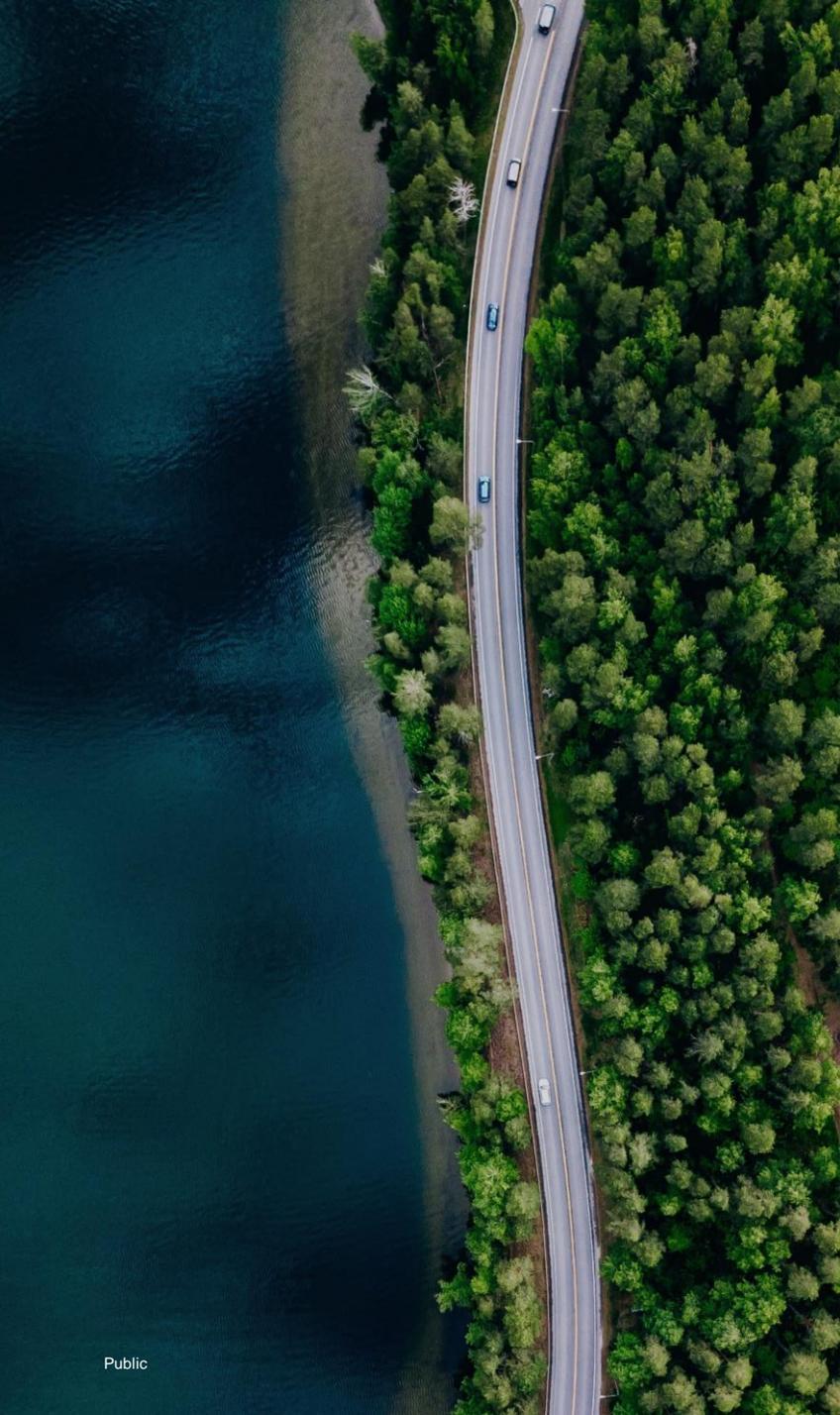


- **Better** balance of supply chain trade-offs and higher overall efficiency rate
- **Better** cross LoB collaboration, flow of materials and information
- **More** agile response to disruptions
- **Better** allocation of resources (to speed-up operations, lower costs, etc.)

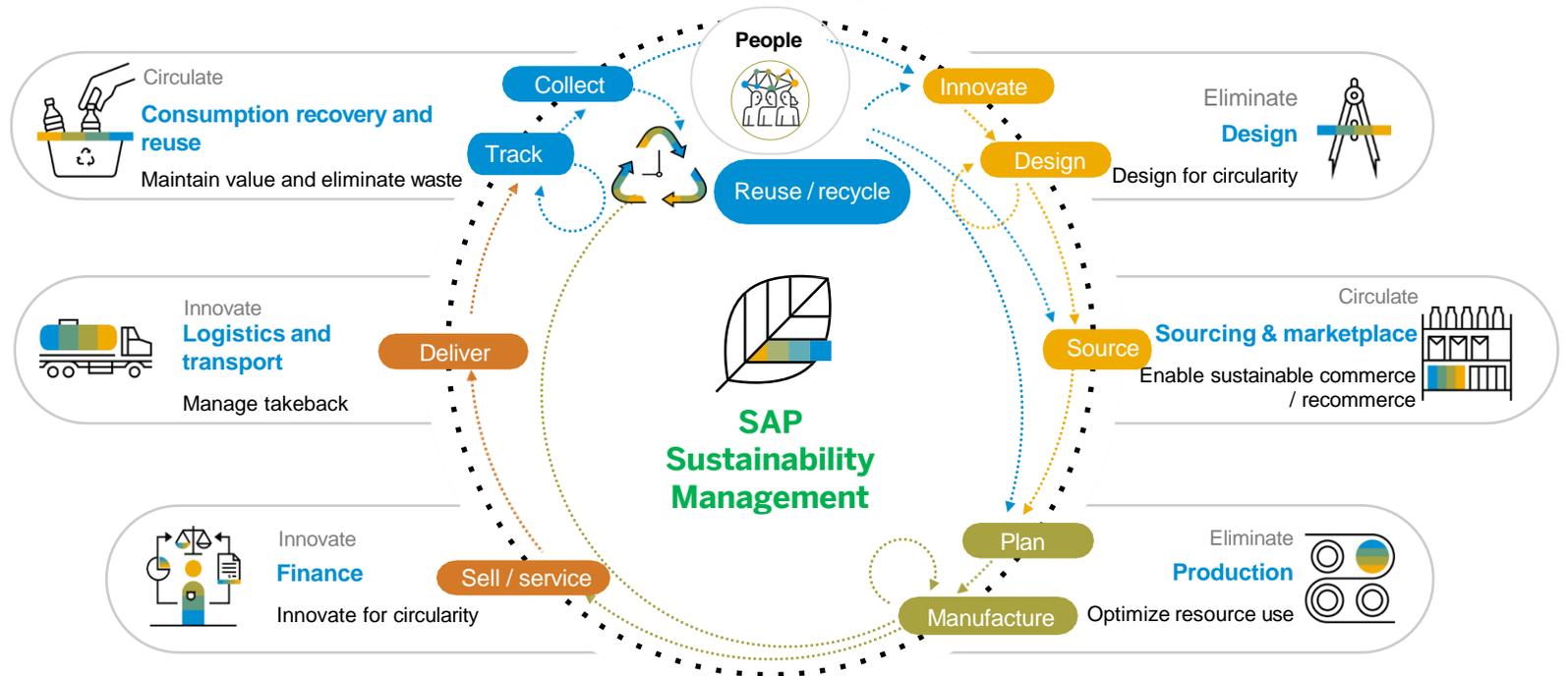
A risk-resilient supply chain is synchronized and sustainable:

- 1 Connect every process
- 2 Contextualize every decision
- 3 Collaborate with your ecosystem

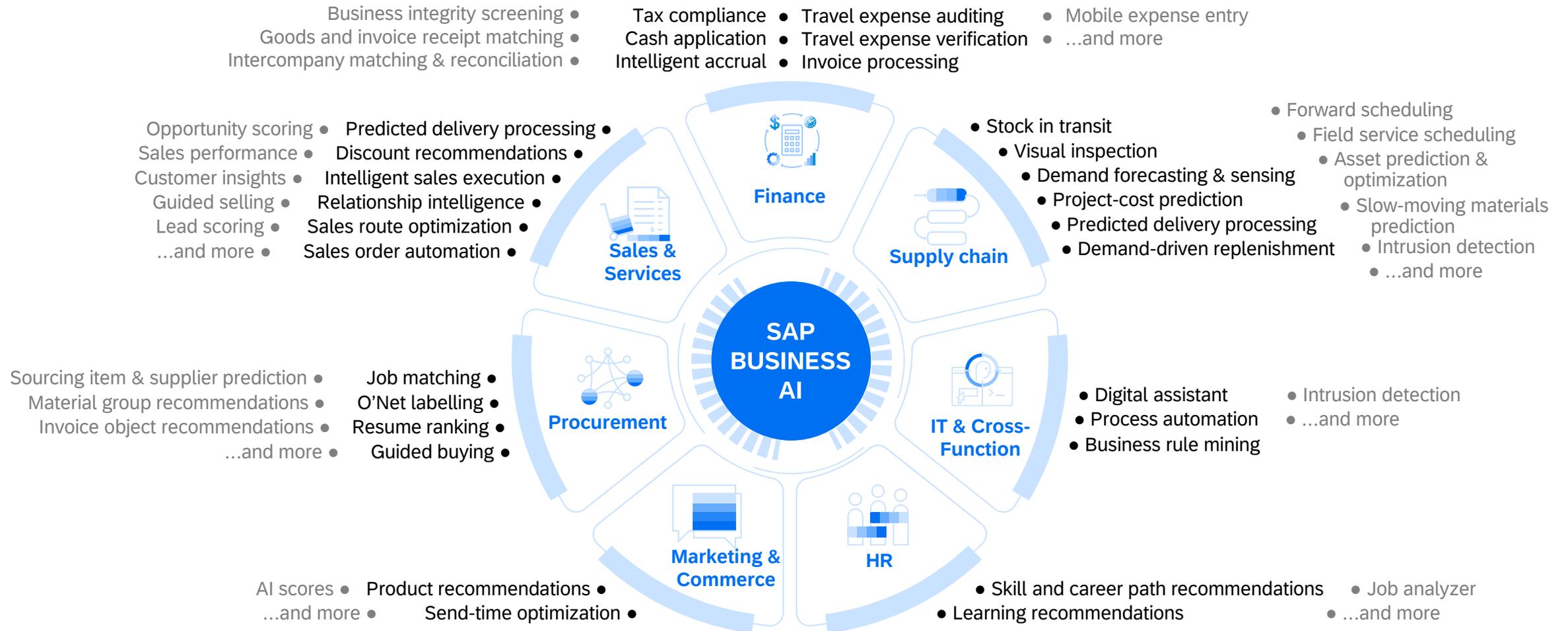




# Seamless E2E integration into business processes



# Intelligent - Comprehensive AI capabilities for every function



# Automate visual inspections on the shopfloor

**Reduce** manual effort in the quality control process

**Improve** operator productivity

**Increase** customer satisfaction

The screenshot displays the SAP Visual Inspection interface. At the top, there are search fields for SFC (D1004201), Operation Activity (QUAL), and Resource (KH\_QUAL001). Below these are buttons for Start, Complete, Sign Off, and Activities. The main area is divided into three sections:

- Work List (8):** A table listing work orders with columns for SFC, Status, Priority, Material, and Order.
- Camera View:** A central image showing a close-up of a mechanical component being inspected.
- Report List:** A table showing detected non-conformances (NC Codes) with their probabilities and actions.

SFC	Status	Priority	Material	Order
D1004201	Green square	500	D18184488	1029628
D1004202	Blue circle	500	D18184488	1029628
D1004203	Blue circle	500	D18184488	1030096
D1004204	Blue circle	500	D18184488	1030096
D1004212	Blue circle	2	D18184458	1030151
D18181234-21	Blue circle	500	D18181234	1030059
D18181234-3	Blue circle	500	D18181234	1030041
D18181234-8	Blue circle	500	D18181234	1030043

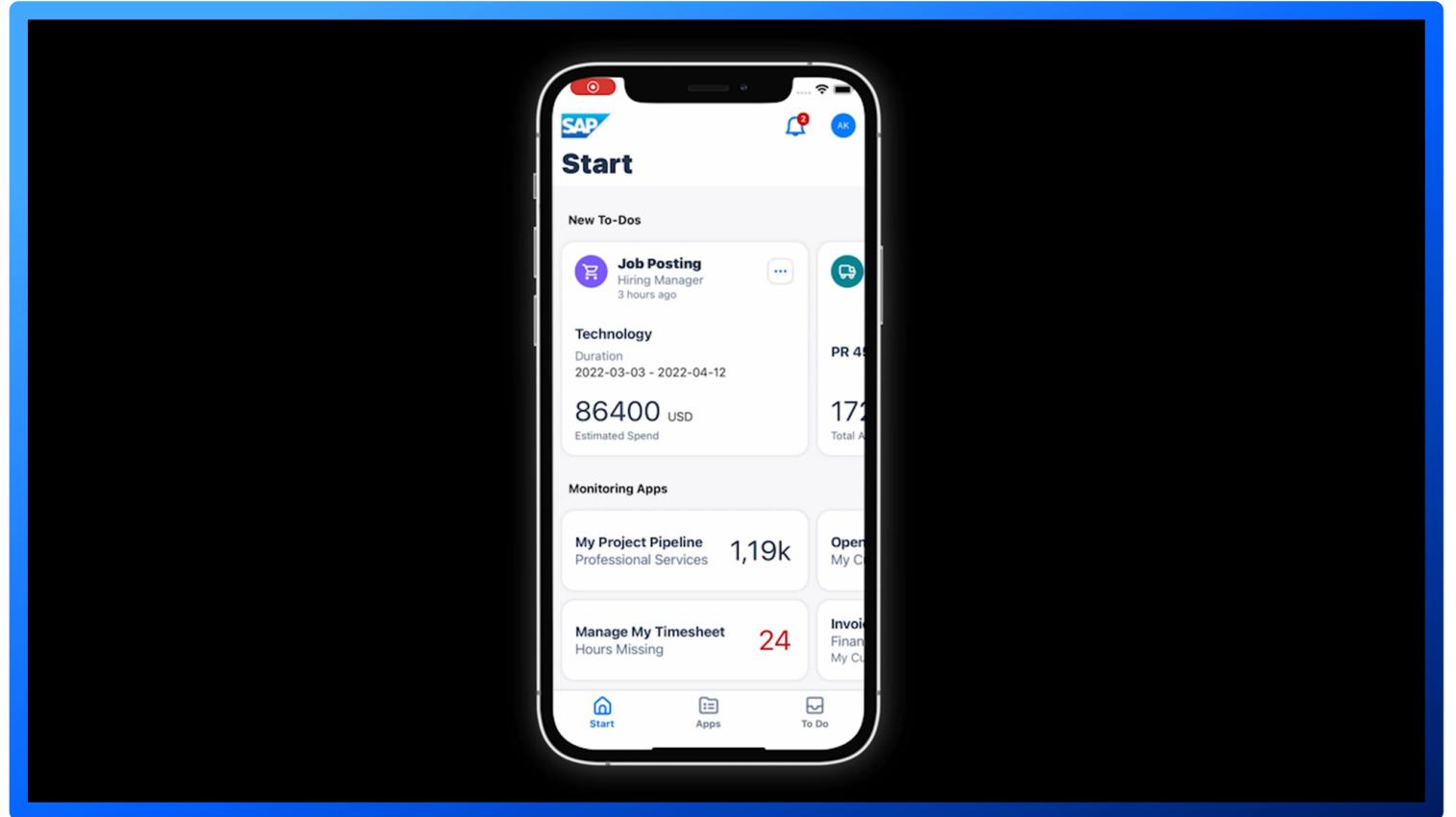
NC Code	Probability	Action
MISS CAP Cap Missing Head Assembly	100%	Log NC
MISS SCREW L Screw Left Missing Head Assembly	0%	Log NC
MISS SCREW R Screw Right Missing Head Assembly	0%	Log NC
MISS SCREW T Screw Top Missing Head Assembly	0%	Log NC

Visual Inspection – SAP Digital Manufacturing

# Expedite freight verification and documentation

**50%**

reduction in delivery note processing time



SAP Transportation Management

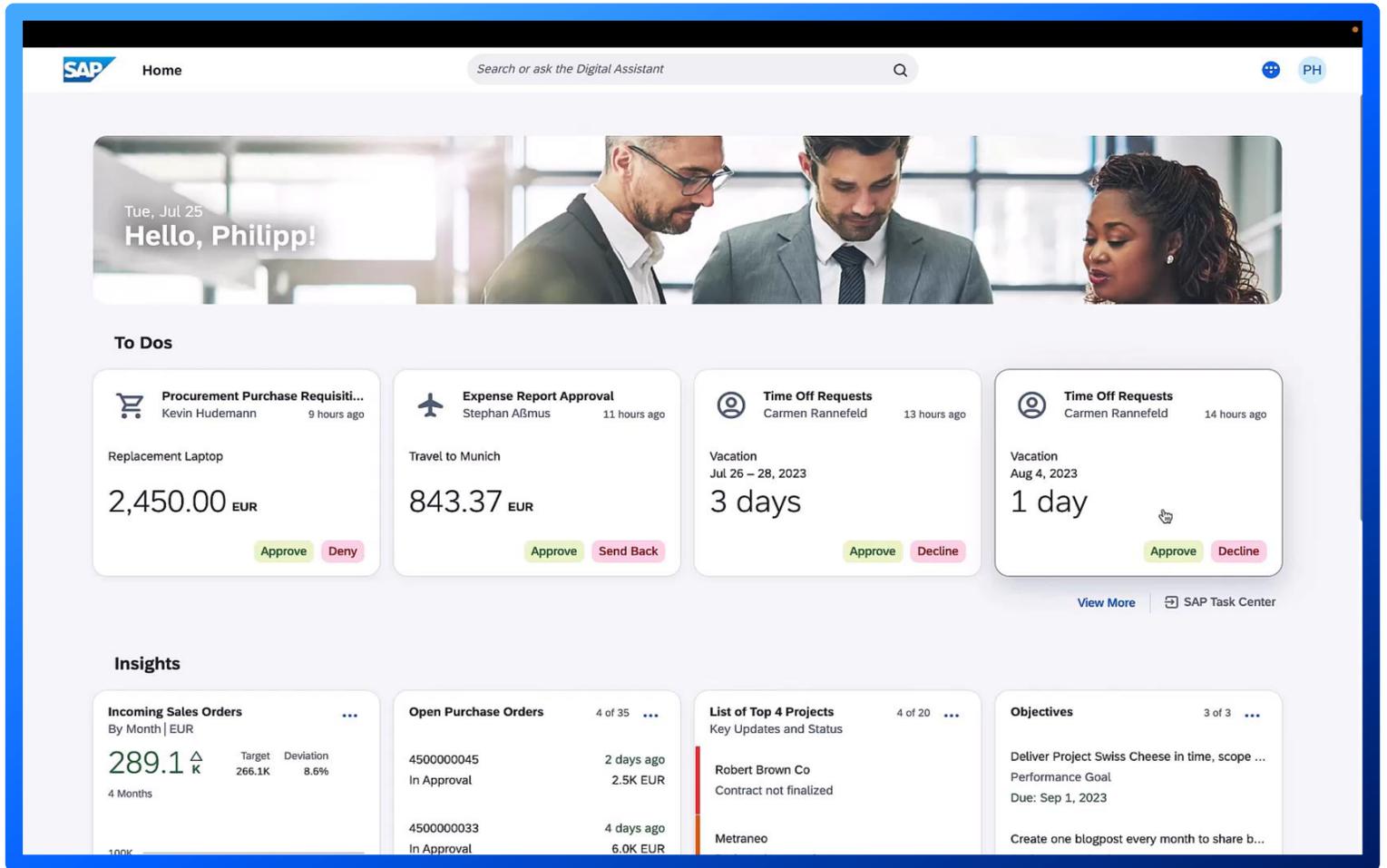
Note: Planned availability in Q2 2024

# SAP Digital Assistant

**Use** natural language to interact with your SAP applications in one out of the box unified experience

**Get** relevant responses, tailored to the context of your role and business process

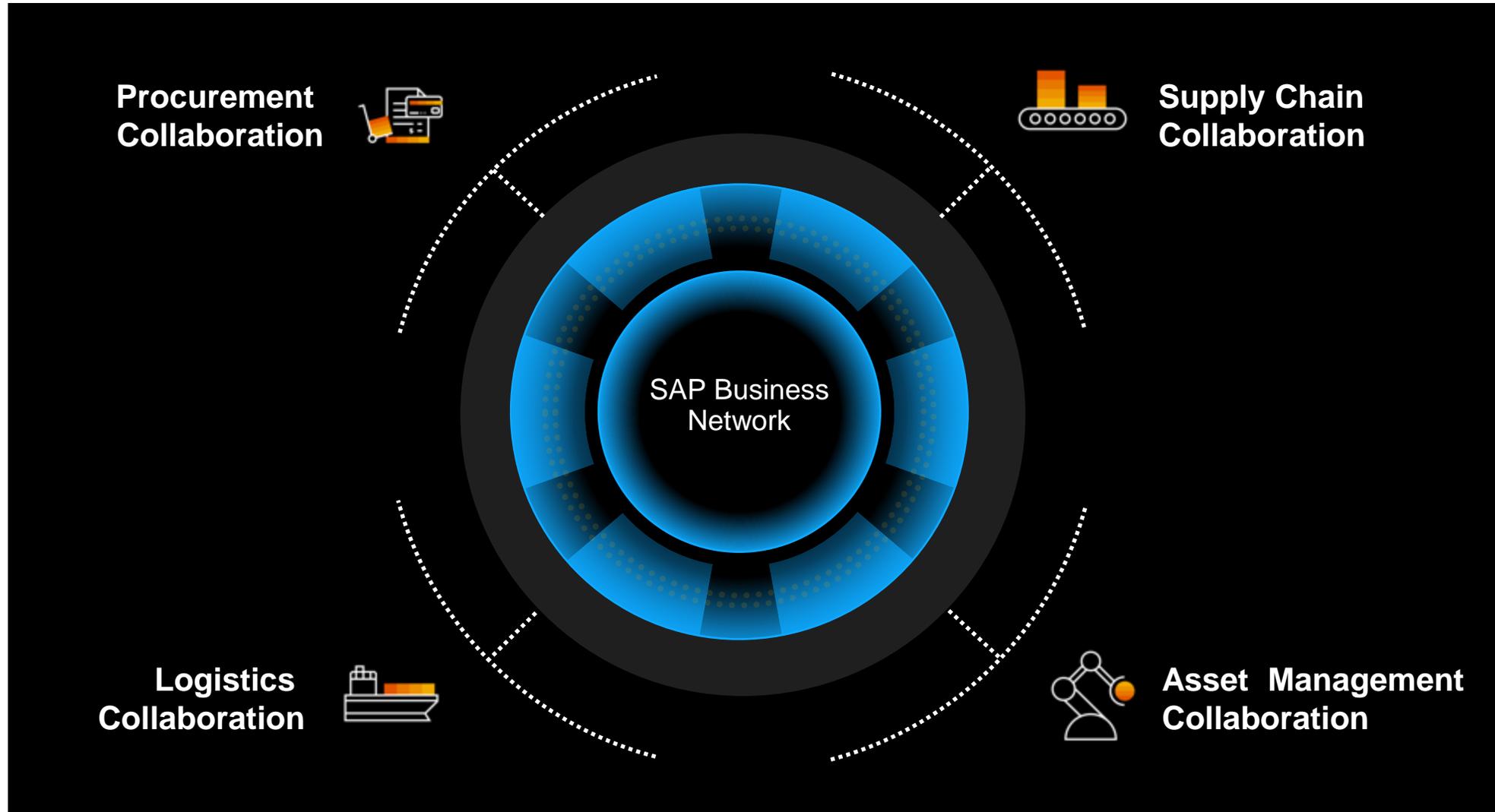
**Leverage** the power of generative AI while maintaining data privacy and control



SAP Digital Assistant

Note: Planned availability in SAP business applications at different times, starting with SuccessFactors and SAP Start in Q4 2023.

# Networked Applications - Collaboration and visibility.



# Synchronized - Agility by Anticipating Disruptions and Harmonizing Plans with Execution and Actions

## Planning to Execution



Extended Planning and Analysis (xP&A) with Finance and Commercial



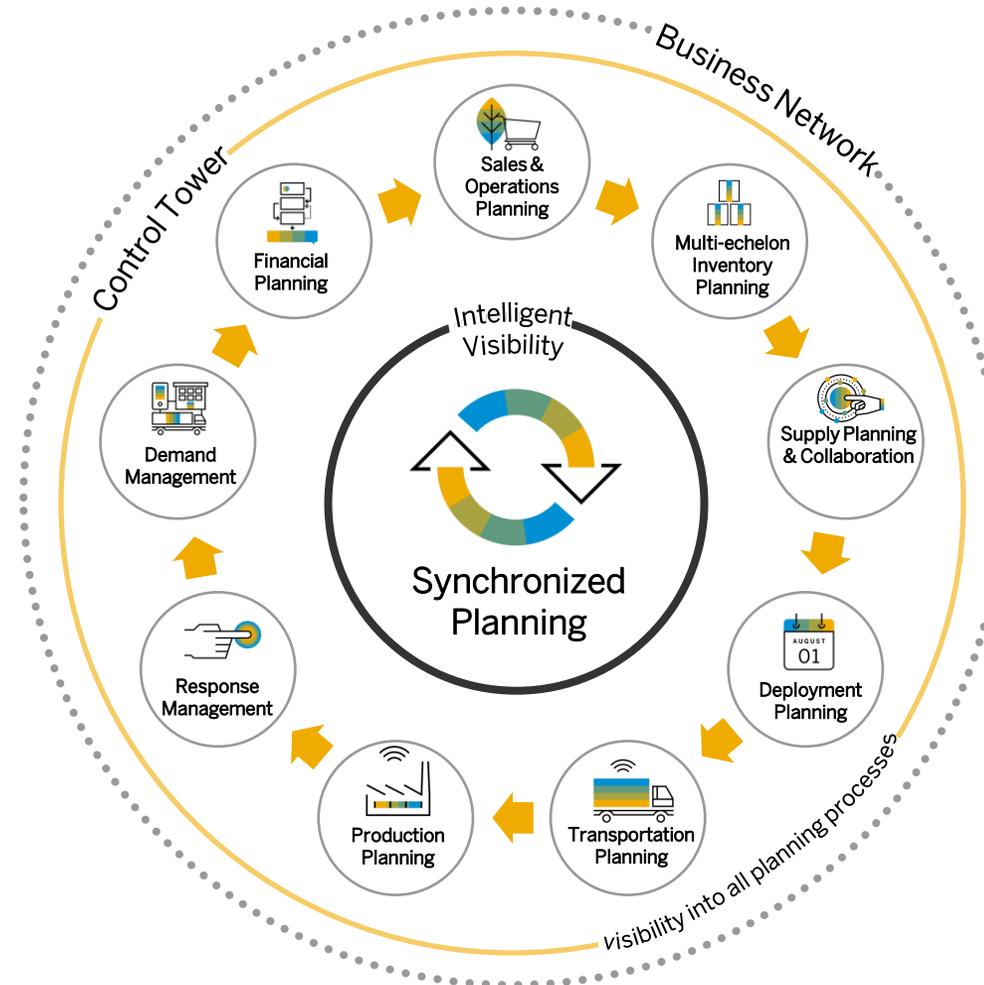
Synchronized Production Planning



Network Aware Planning



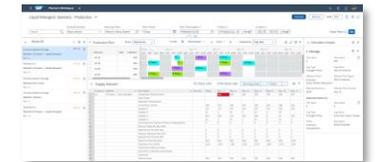
Synchronized Logistics Operations



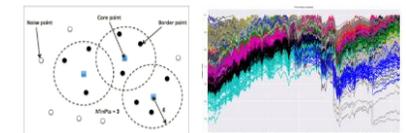
## Focused Innovations



Intelligent Visibility

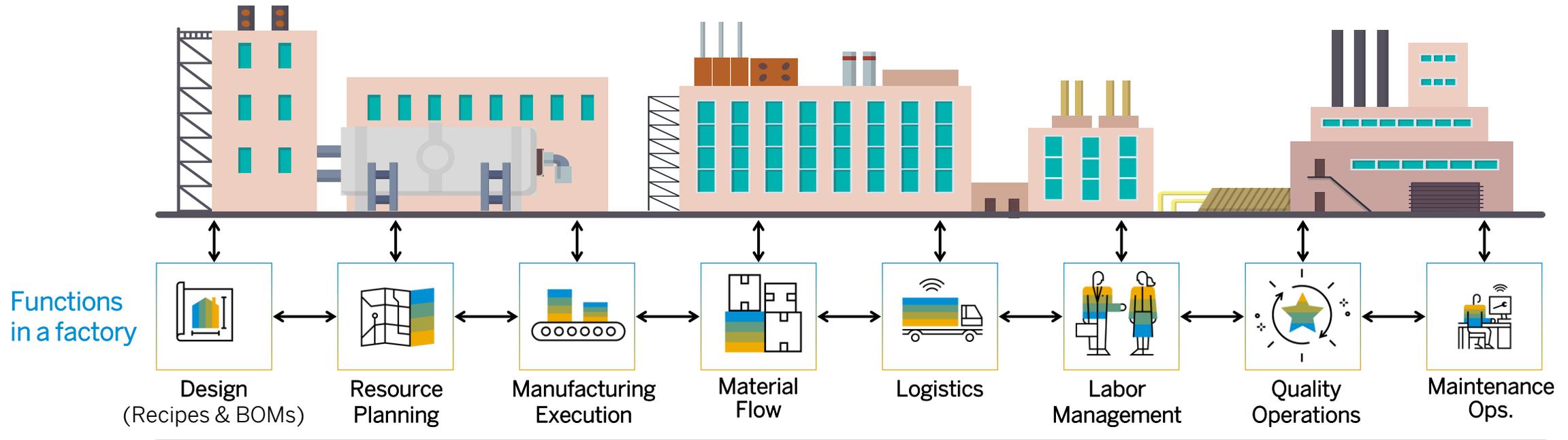


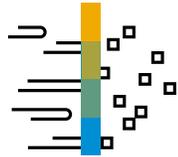
Planner's Workspace



Machine Learning and AI

# Connected - Industry 4.0 bringing factory transformation to enterprise scale



  
Drivers for Digital Transformation

-  E2E Business Processes
-  Automated & Autonomous
-  Modular Manufacturing
-  Sustainability

  
How to bring Enterprise Scale to the shop floor

-  Standardized & Customizable
-  Extensible by Citizen Developers
-  Scalable & Secure
-  Globalization
-  Enterprise Grade Resilience

# Value insights from SAP Performance Benchmarking

**12%**

**Higher sales forecast accuracy** rate when sales planning is integrated into manufacturing, planning, and supply chain management

**18%**

**Lower manufacturing cycle time** when all key performance indicators are monitored, measured, analysed, and controlled automatically

**6%**

**Higher on-time delivery** when promise dates are integrated with manufacturing conditions to generate schedules and optimize resources

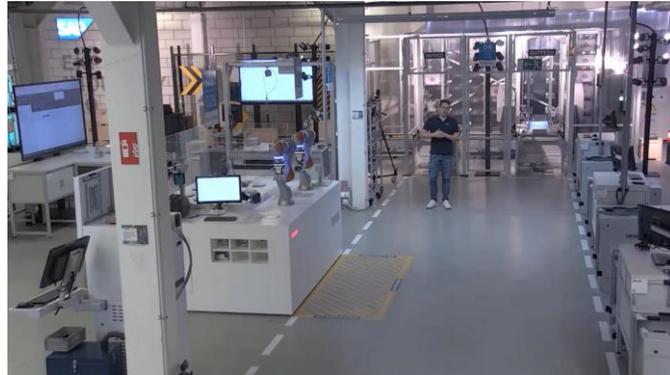
**44%**

**Shorter manufacturing cycle time** for companies that share and integrate quality data with standardized processes

**25%**

**Lower inventory carrying costs** when technology tools are used during the receiving process to optimize inventory accuracy and labor costs

# See it in action



**Visit the SAP Factory  
in Walldorf to experience  
Design to Operate**

SAP [participates](#) in  
Hannover Messe



**SAP.COM**

**Design to Operate**

[SAP Industry 4.Now Experience](#)

# Final Thoughts – Its time to be a hero!



# Thank you.

John McNiff,  
VP Digital Supply Chain  
Global Center of Excellence  
SAP



# Manufacturing Session Intro

# Circular – The Opportunity for Manufacturing

Retain inherent value and reduce emissions in manufactured goods and processes

## Challenges

- Dwindling natural resources, high cost of procurement of raw materials, regulatory compliance for sustainability
- OEMs want to leverage the circular economy, but need to evaluate and plan transformation of production processes
- Enterprises need to protect their brand value in this age of sustainability conscious consumers

## Benefits

- Retain and recapture the value inherent in OEM's existing products
- Reduce demand for new materials and energy consumption over new manufacturing
- Achieve significant reductions in CO<sub>2</sub>e (kg) versus new manufacturing
- Enable new business models for discrete manufacturers (Performance Economy / Product-as-a-Service)

## Opportunity (why should OEMs care?)

- < 2% of production goods are remanufactured
- < 10% of production goods are recycled
- current remanufacturing efforts generate > 100B € /year by < 15K firms



## Example from Caterpillar Reman

### Remanufactured engine cylinder head:

- 61% reduction in GHG,
- 93% less water,
- 86% less energy,
- 99% less material,
- 99% less disposal to landfill.

## Challenges

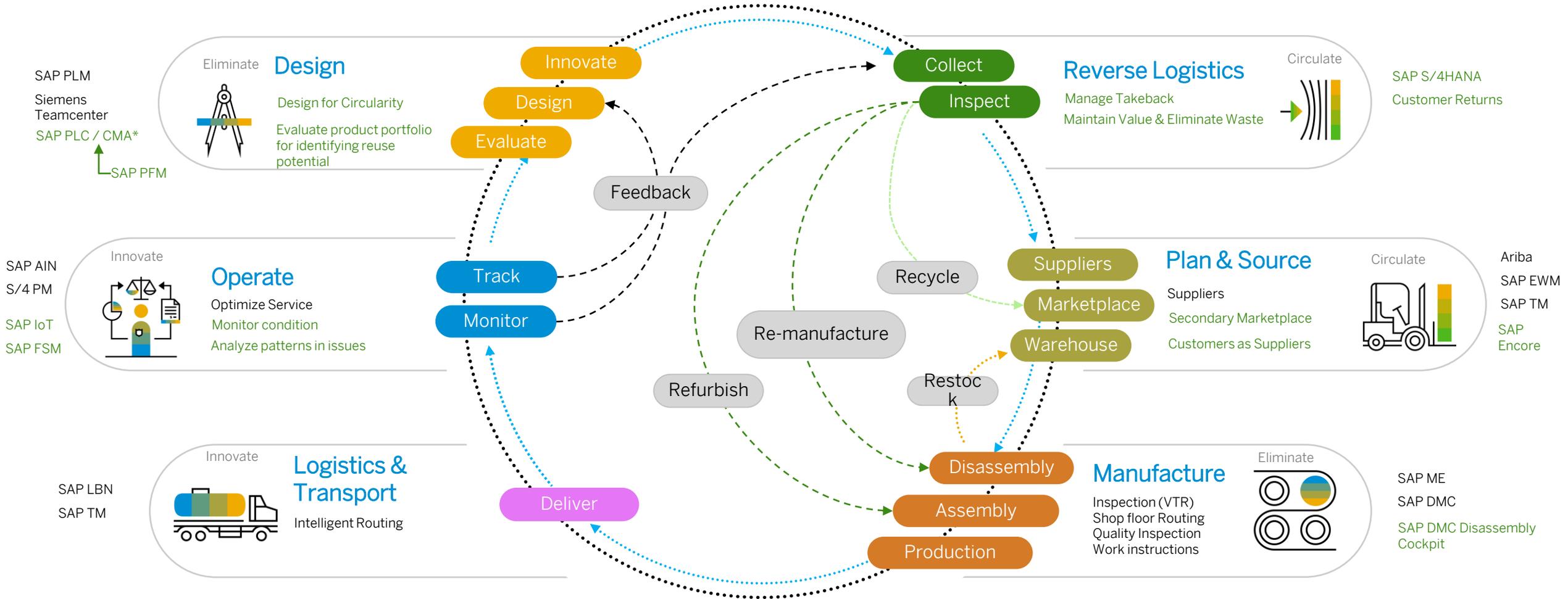
- How do we get material and product back and then back to the right party?
- How do we create the right incentives and economic model to engage our ecosystem?
- Can we use Circularity to increase resilience and predictability in the supply chain?
- How do we balance of transparency, data privacy, and protection of IP

# Embedding Regenerative Business from Design to Operate

Transform from linear to circular – functional view



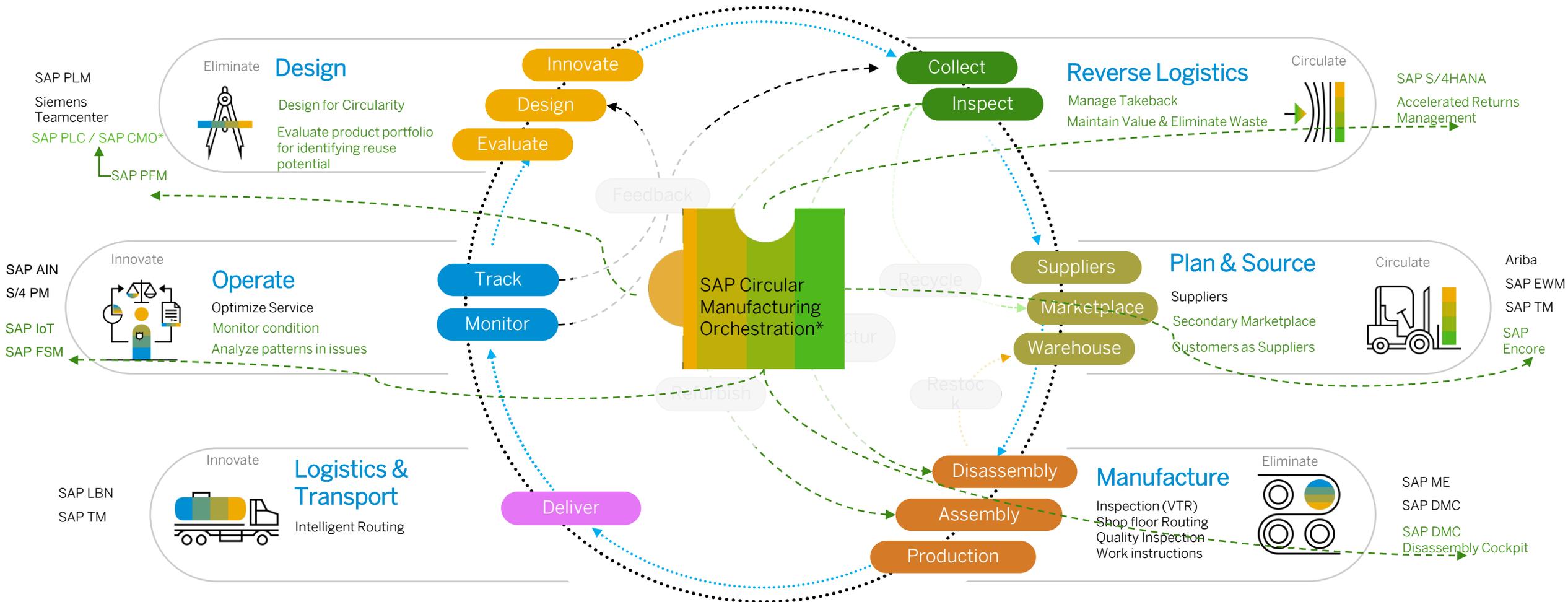
2 min Overview Video



SAP Products that support Circular Manufacturing

# Embedding Regenerative Business from Design to Operate

SAP Circular Manufacturing will do the end to end orchestration



SAP Products that support Circular Manufacturing – current and planned\*

*SAP Circular Manufacturing Orchestration is a planned Industry Cloud Application*