Your Roadmap to Better Manage Supply Chain Risk: The Synchronized Planning Approach

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SAPinsider

In This Session

- Transform your business with a digital, integrated planning approach.
- Leverage embedded AI technology and external data in SAP IBP for process automation, decision support and improved forecast accuracy.
- Break down silos between planning and execution, creating flexible and agile plans.
- Understand true risk and the probability of disruptions or changes.
- Increase customer satisfaction with maximum product availability.

What We'll Cover

- Supply Chain Objectives
- SAP Solutions
- Risk Aware Planning
- Product Direction
- Wrap Up

Supply Chain Objectives

Supply Chain Priorities Have Changed

Efficiency and profitability

Balance resiliency, profitability, sustainability with customer satisfaction.

Customer satisfaction

Availability of goods and reactivity.

Sustainable performance

Meet sustainability objectives (net-zero CO_2 emissions target).

Risk-resilient supply chains

Proactively anticipate risks and build resilience.

Our Goal: Enabling an **Intelligent**, **Resilient** and **Sustainable** Supply Chain

Intelligent

Planning Automation based on embedded AI and Optimization – leveraging internal and external data sources.

Resilient

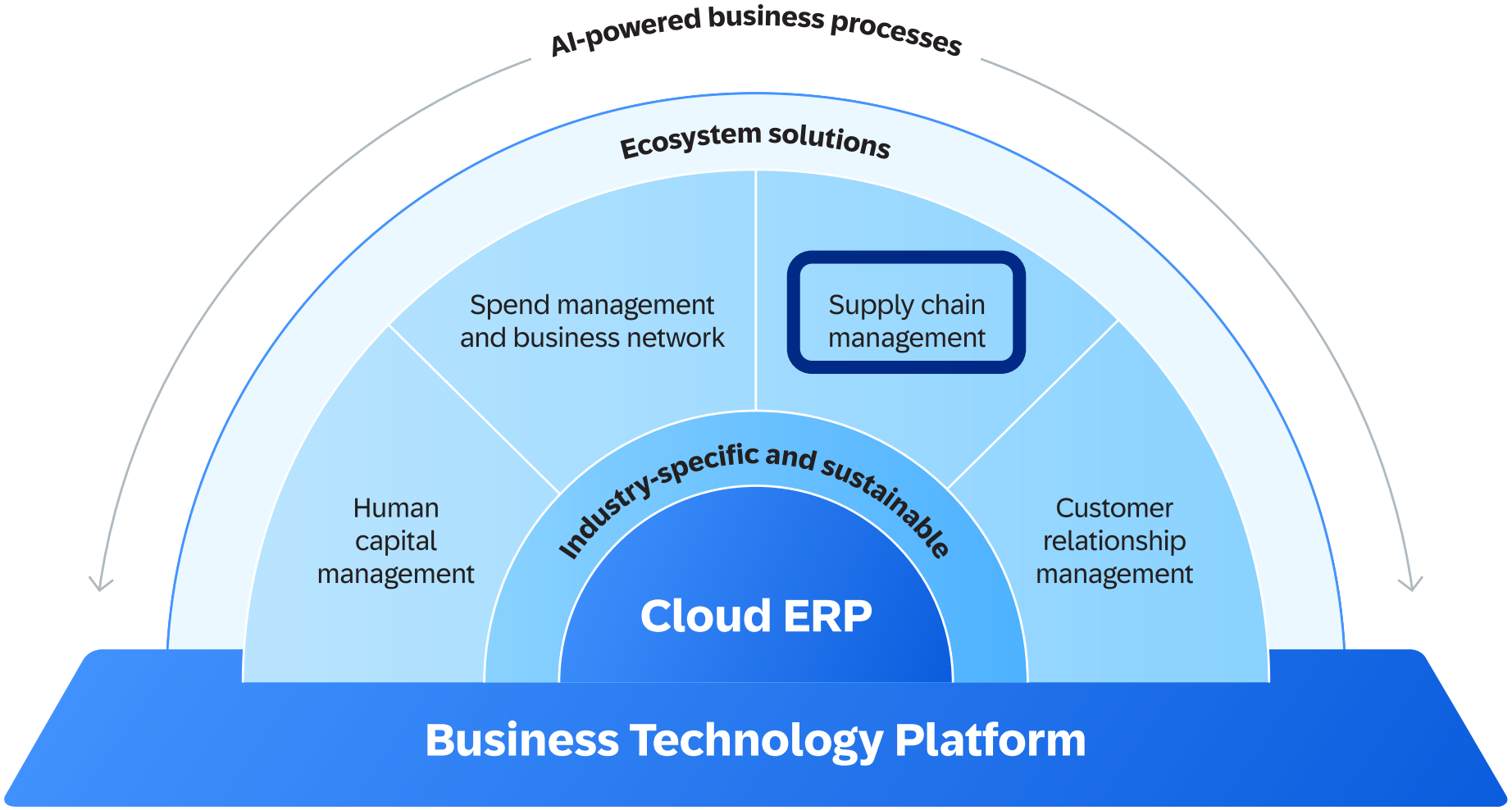
Using technologies that enable companies to anticipate and respond quickly to all the risks and opportunities the future holds.

Sustainable

Helping businesses make sustainability part of the fabric of their enterprise-wide operations.

SAP Solutions

Supply Chain Management is a Key Part of SAP's Overall Portfolio



SAP Supply Chain Planning Platform

Connect strategic and operational planning with real-time visibility and execution

Digital Business Planning

Plan

SAP Integrated Business Planning (IBP) for Supply Chain

- Digital Twin of the entire supply chain
- Predictive and Prescriptive Decision Support
- Real-time scenarios and Intelligent Visibility
- Impact Analysis & Optimization

Collaborate

SAP Business Network

High scalability with access to trading partners (including suppliers, logistics providers, and customers) for collaborative planning and execution

SAP Analytics Cloud (SAC)

Financial planning, steering and financial impact analysis on enterprise level

Execute

SAP S/4HANA

Leverage proximity to core for transactional planning and scheduling, order promising and service parts planning.

Innovate

SAP Artificial Intelligence

Leverage AI technology to improve master data quality, manage supply chain risk and improve sustainability

This is the current state of planning and may be changed by SAP at any time.

SAP Integrated Business Planning for Supply Chain

Overview

Synchronize planning processes to minimize disruption risks and increase supply chain resiliency

Strategic	Tactical	Tactical	Operational	Digital Twin
Sales & Operations Planning	Demand Management	Multi-tier Inventory Optimization	Response & Supply Network Planning	Analytics & Dashboards Scenario Planning & What-If Simulations Collaboration

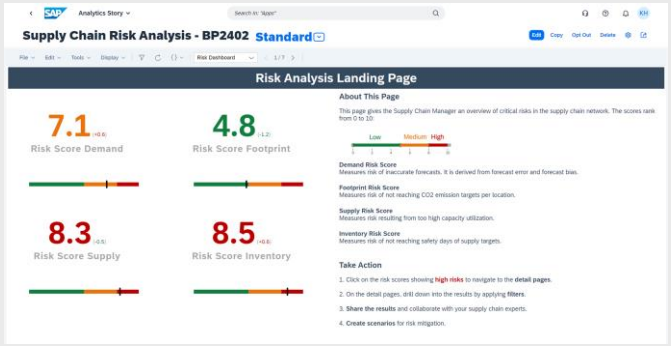
$ Value and volume-based planning

Embedded Machine Learning

End-to-end supply chain visibility and reporting

Risk Aware Planning

Risk-aware Supply Chain Planning



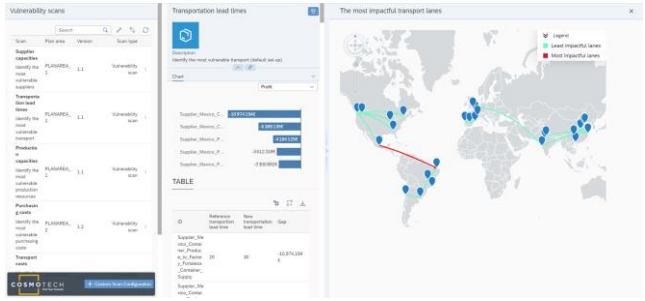
Risk-aware Planning

Have a competitive advantage

Strategical

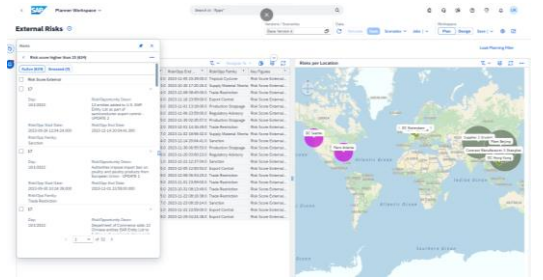
Operational

Vulnerability Scan*



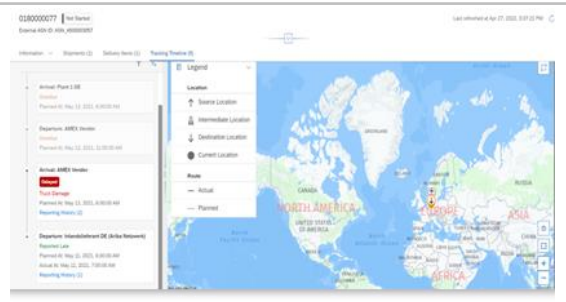
Supply Chain Planning

SAP Integrated Business Planning

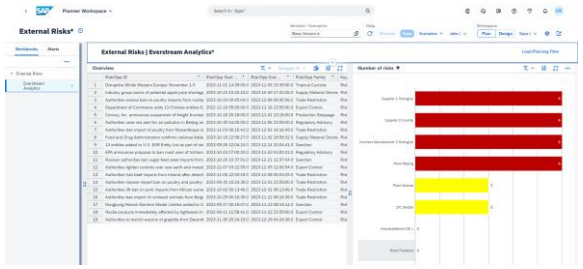


Network-aware Planning

SAP Business Network



External Incidents*



* SAP Partner Solutions

Cosmotech and SAP IBP – Supply Chain Vulnerability Scan

Vulnerability Scan

Identify top vulnerabilities in the supply chain and simulate to get optimal mitigation plans

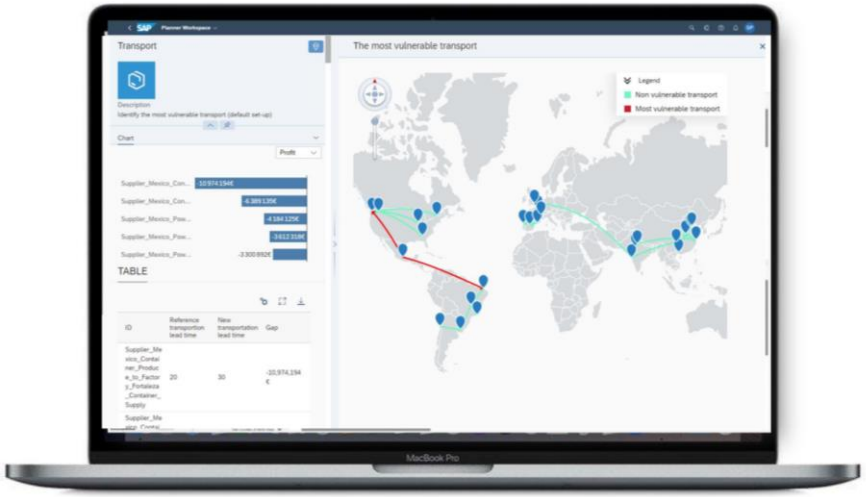
Available on **SAP Store**

SAP IBP & Cosmo Tech Supply Chain AI Simulation - YouTube

Supply Chain Resilience for SAP Integrated Business Planning - Cosmo Tech

SAP Store entry Cosmo Tech Supply Chain Vulnerability Scan

Ready-to-deploy Software Add-On



Identify top vulnerabilities in the supply chain (resources, operations, transport...)

Ensure business continuity

Minimize revenue at risk

Everstream Analytics and SAP IBP

everstream ANALYTICS

Global Event Data

Data Sources

- Local Newspaper
- Social Media
- Forecasts
- Public Sources
- Partner Information (e.g. DHL)

Risks Categories

- Labor & workforce
- Transportation
- Customs
- Public Safety
- Terrorism
- Geopolitical
- War
- Production
- Fire & Hazard
- Weather & Natural Disaster
- Market & Trade
- Industry
- Critical Infrastructure
- Cyber

SAP Integrated Business Planning

Incidents reflected in Supply Chain Planning

- Visibility and Scores
- Risk-based alerting
- Risk-aware planning

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Risk-Dashboards in SAP IBP

Eliminate Risks and Visualize Planning Results with Supply Chain Risk Management

Risk Assessment and Analysis

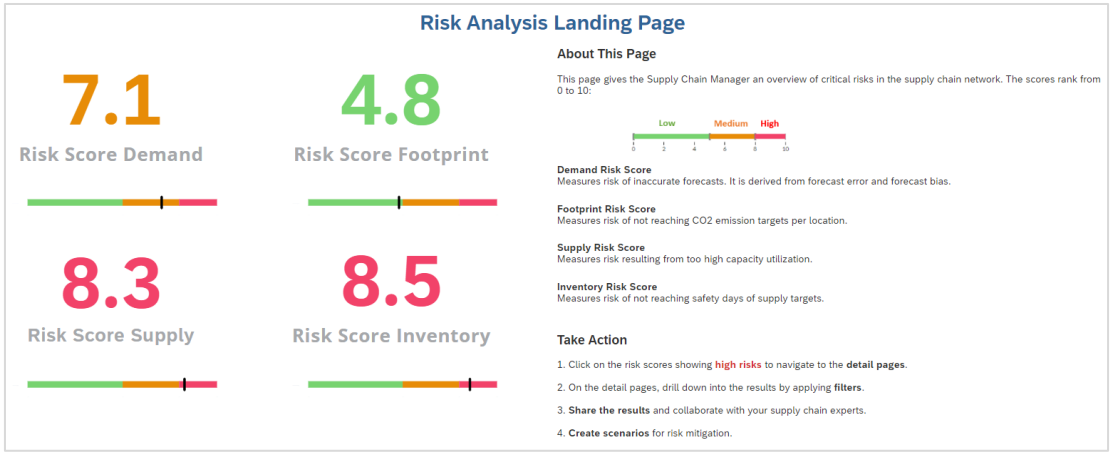
- scores to uncover risks
- steer supply chain planning
- based on risk factors

Risk Examples

- low forecast accuracy
- excess CO2 emissions
- resource bottlenecks
- inaccurate safety stock levels

New Risk Dashboard in SAP IBP (BP content)

based on IBP Analytics Stories



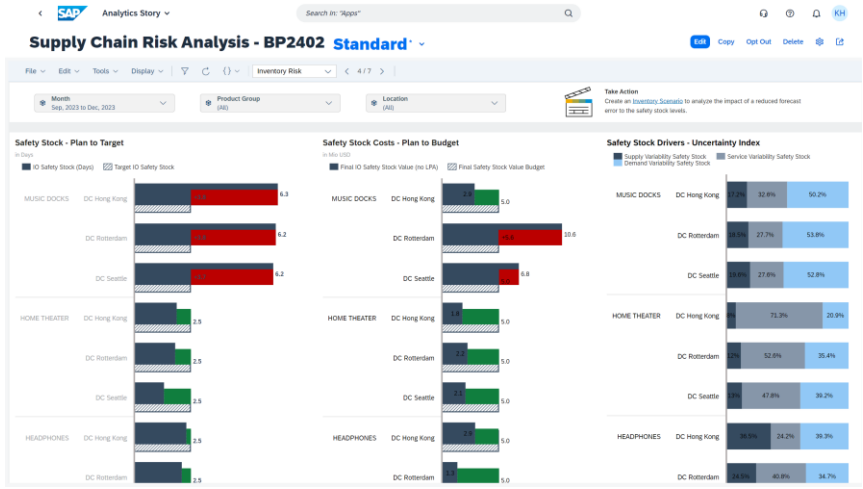
discover and subsequently eliminate planning risks by analyzing the effects and root causes

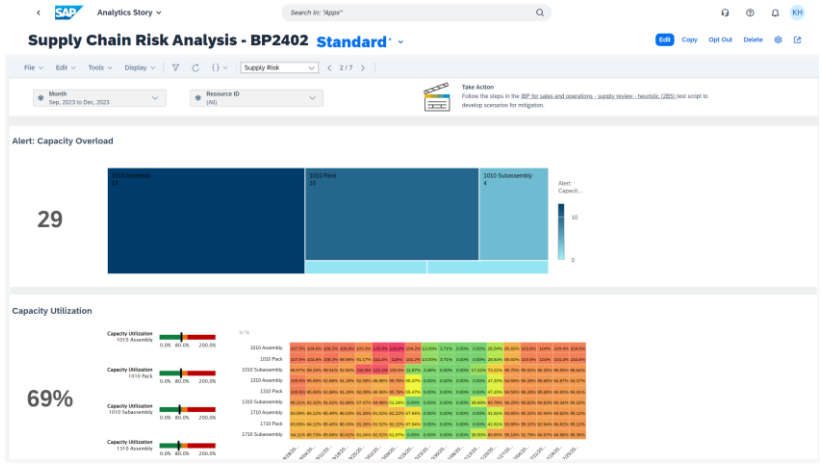
SAP IBP - Supply Chain Risk Management - YouTube

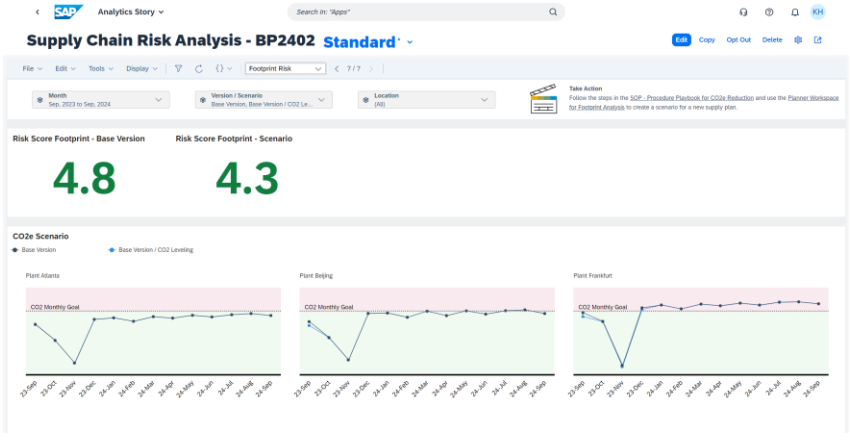
SAP IBP - Supply Chain Risk Management – Blog

Risk-Dashboard Examples

Eliminate Risks and Visualize Planning Results with Supply Chain Risk Management







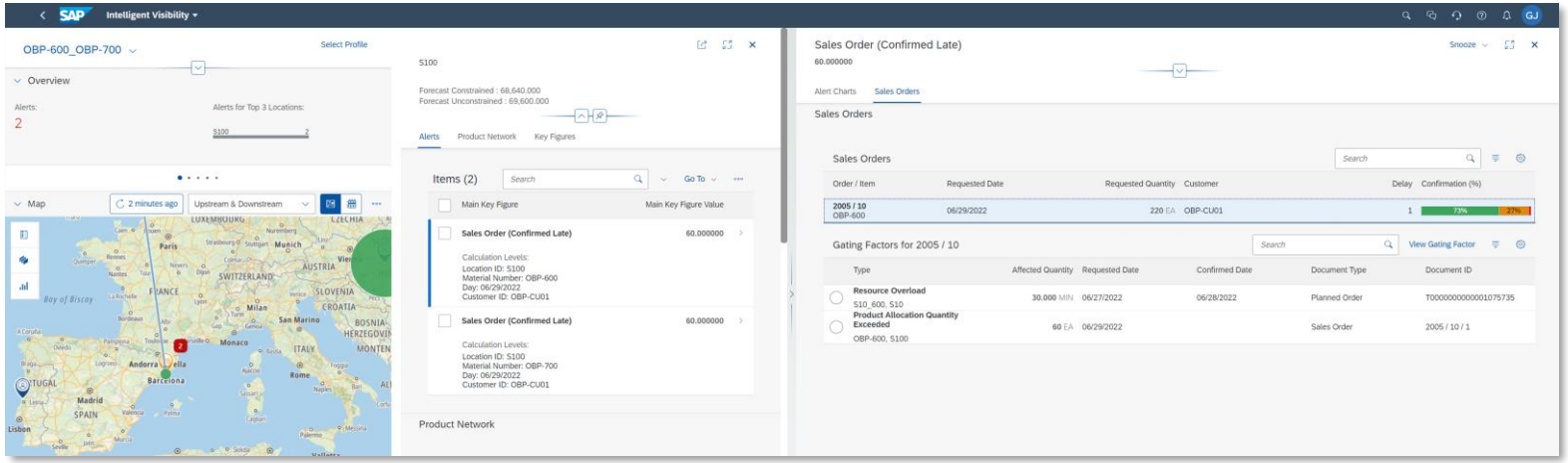
Quickly detecting supply chain disruptions and effectively manage alerts

Respond faster to exceptions in planning

Get extended visibility, understand impact and act

by leveraging

Supply Chain Control Tower



enabling sophisticated Alert Management

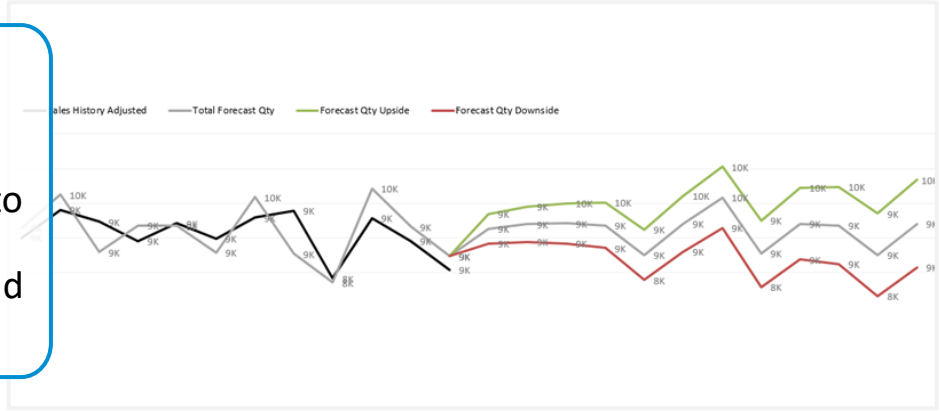
- Leverage and Manage custom alerts for critical supply chain issues
- Calculate on-the-fly alerts using also AI and provide context and priority
- Use Procedure Playbooks for guided solutions

[Interactive Value Journey Custom Alerts with SAP Integrated Business Planning & AI]

Probabilistic Planning Approaches Available and Planned in SAP IBP

Range Forecasting

Provide confidence ranges likely to contain the future demand

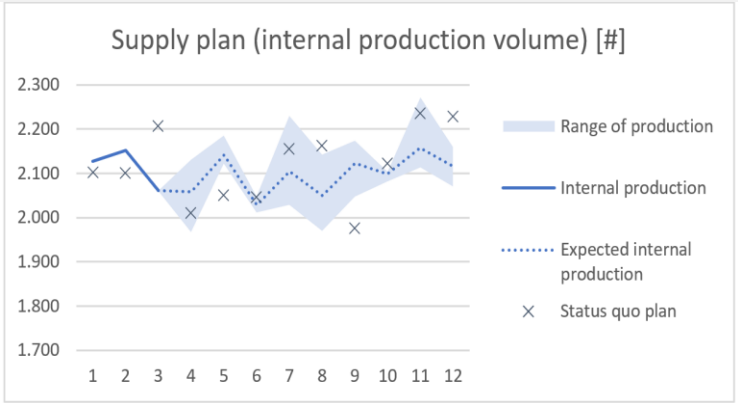


Probability-Based Inventory Simulation

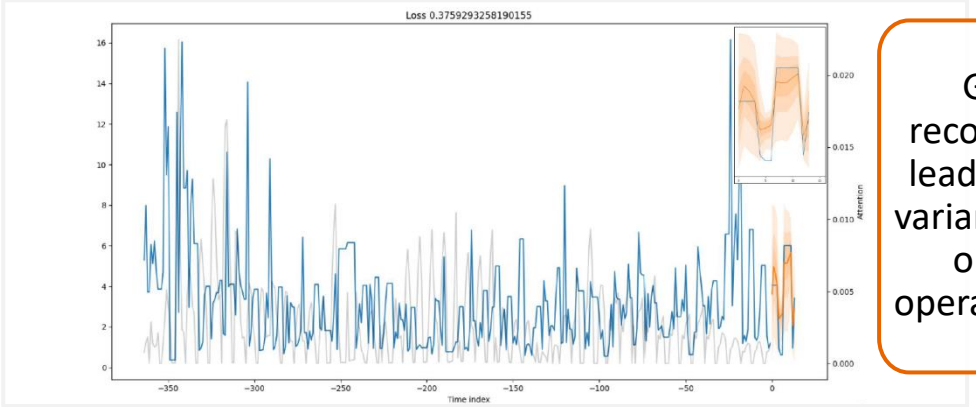
Provide confidence intervals on inventory recommen-dations

Stochastic Supply Chain Planning

Create a supply plan to best prepare for multiple futures (Research with TUM)



Supply Lead Time Prediction



Get ML-recommended lead times and variances based on actual operational data

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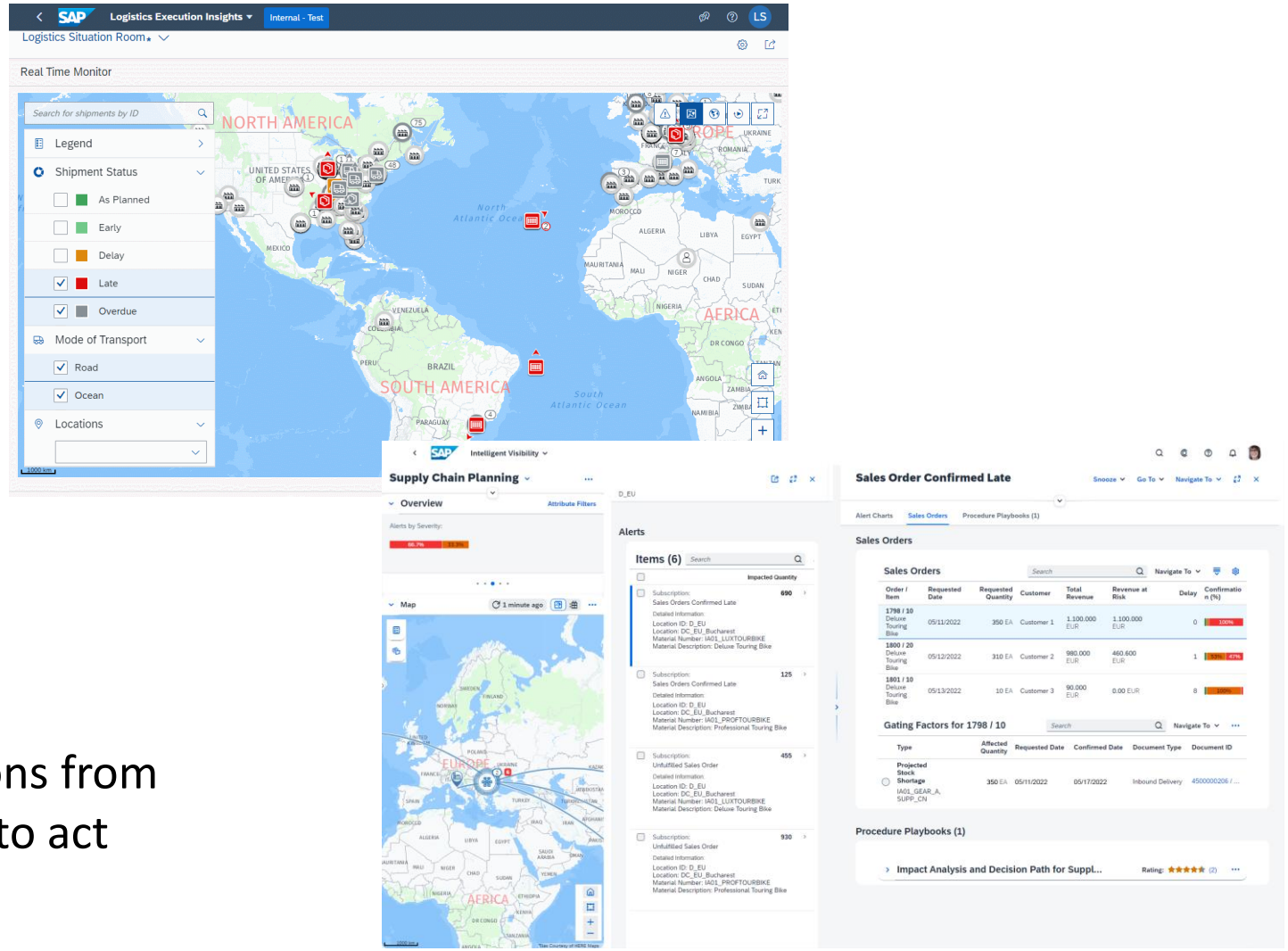
SAP Business Network

Network-aware Planning

Achieve extended supply chain transparency and collaborate effectively with your trading partners



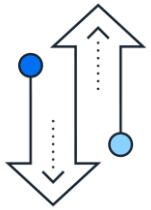
Timely insights and predictions from network data provides time to act and solve critical situations.

Network-aware Supply Chain Planning

Collaborate with your trading partners via the SAP Business Network

- Enabling **digitized collaboration & transparency** with all trading partners in your supply chain
- **Unparalleled visibility** across all processes in your supply chain
- **Faster response** to supply chain disruption

Collaborate with your suppliers to get inventory and manufacturing visibility



Leverage SAP Business Network Planning Collaboration to consider supplier constraints and external partner information in your Supply Chain Planning

Collaborate with your third-party logistics providers and gain early insights into delayed shipments

Use SAP Business Network for Logistics to detect Logistics‘ disruptions and reflect critical delays and impact in Supply Chain Planning

Product Direction

Investment focus areas in SAP Integrated Business Planning for Supply Chain

Cloud Operations and Engineering

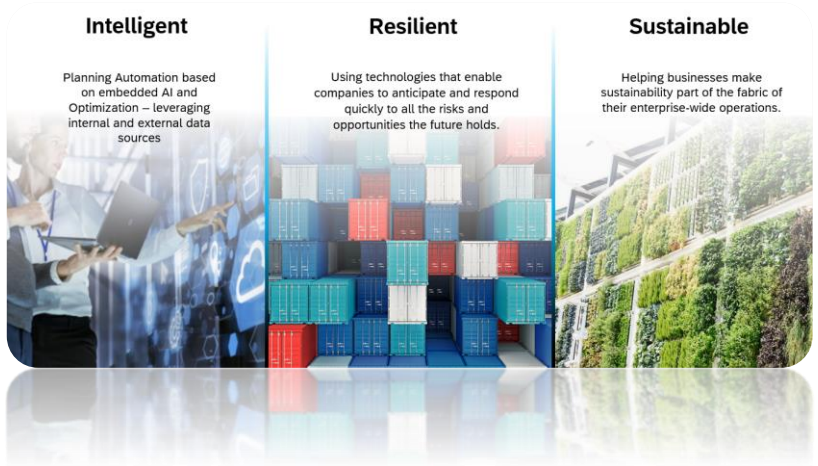
- ✓ Scaling & Performance
- ✓ Security & Monitoring
- ✓ True cloud scalability with HANA Cloud

Seamless Planning Processes

- ✓ Real-time integration
- ✓ Network Aware Planning
- ✓ Supply Chain Risk
- ✓ External Causal Factors
- ✓ Collaborative Enterprise Planning (xP&A) with SAP Analytics Cloud
- ✓ Sustainable Supply Chain Planning

Extensibility

- Supply Optimizer Extensibility
- Extension Points



Intelligence & Visibility

- Generative AI
- ✓ Machine Learning
- ✓ Process Automation

Planning UI

- ✓ Planner Workspace
- ✓ Analytics Stories from SAP Analytics Cloud

Advanced Planning

- ✓ Synchronized Planning for Production
- Characteristics-Based Planning
- Harmonized Supply Planning
- ✓ Touchless Forecasting
- ✓ Next generation Inventory Optimization
- ✓ Probability Based Planning
- ✓ Scenario Management

✓ Delivered. Continuous Innovation with large investments

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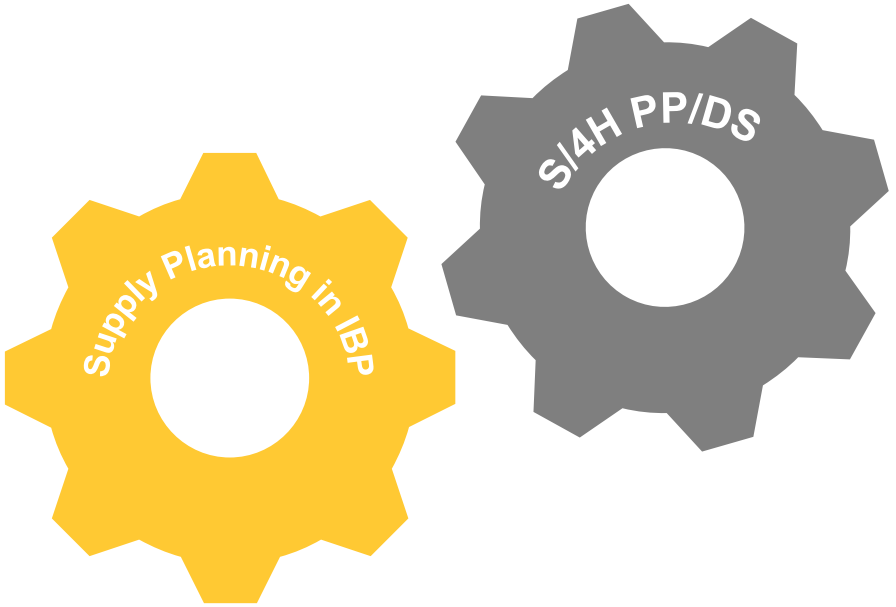
Synchronized Planning for Production: Combining Supply Planning capabilities in IBP with Production Planning in SAP S/4HANA in a Synchronized Way

Supply Planning in SAP IBP

Supply Planning business process

SAP S/4HANA PP/DS (Advanced Planning)

Detailed Planning and Scheduling business process



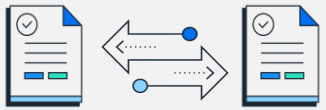
* Manufacturing for Planning and Scheduling (MP&S) & DSC Edition aka Production Planning and Detailed Scheduling (PP/DS)

Two Standard Integration Patterns in Synchronized Planning for Production Enabling Seamless Business Process Integration

Use order integration…

…for **Operational Planning**

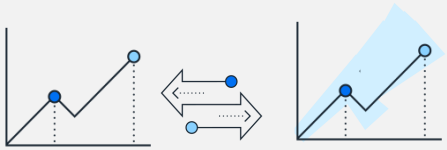
- **Synchronization of supply plans in real time** between SAP IBP and SAP S/4HANA PP/DS on order level and vice versa
- **Tight integration for E2E processes** across SAP IBP, SAP ERP, & SAP S/4HANA PP/DS leveraged for base version
- **Flexible definition of process ownership** between operational supply planning and detailed planning and scheduling



Use key-figure integration…

…mainly for **Tactical Supply Planning**

- **Synchronization of supply plans by sharing constraints** as key figures between SAP IBP and SAP S/4HANA PP/DS
- **Loosely coupled** direct integration between SAP IBP and SAP S/4HANA PP/DS
- Constraints are considered in selected SAP S/4HANA PP/DS heuristics



Outlook

- **Order Integration**: Advanced scenarios (like withdrawal from another plant or characteristic based planning) and new Fiori App for SYPP Master Data Maintenance in SAP S/4HANA
- **Key Figure Integration**: Extend the constraint heuristic for production planning process (e.g. IBP Supply Plan as minimum and maximum supply key figures to SAP S/4HANA PP/DS)

This is the current state of planning and may be changed by SAP at any time.

Supply Planning

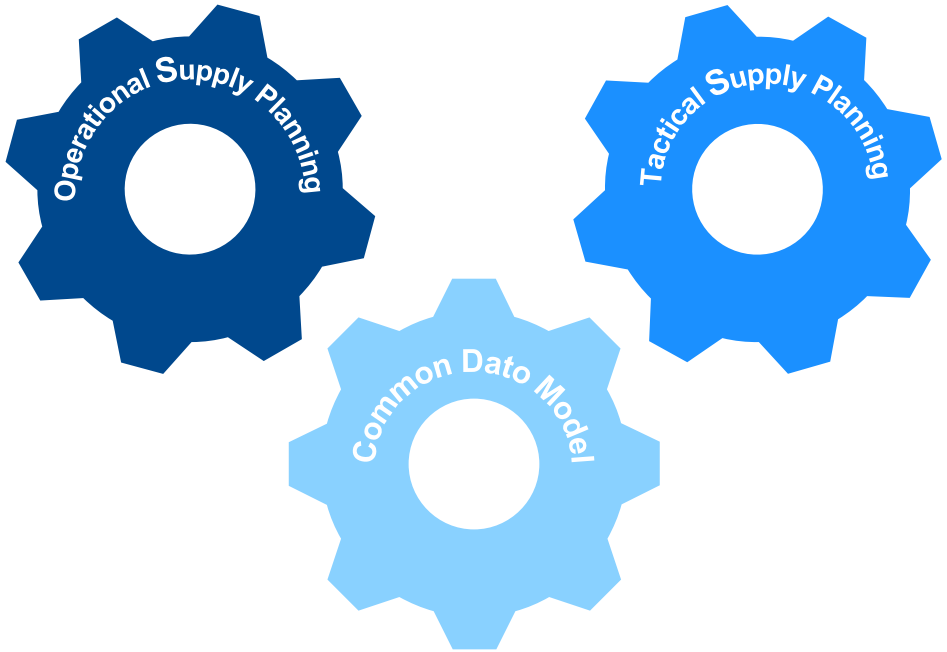
- **Characteristics-Based Planning**: Use order attributes to support planning where supply decisions are based on demand characteristics, e.g. regulatory or embargo use cases, planning with many characteristic combinations

Planned in 2024

- Further enhancements in interactive planning in **Transport Load Building**

Planned in 2024

- **Harmonized Supply Planning**



Planned in 2025

This is the current state of planning and may be changed by SAP at any time.

SAP Integrated Business Planning for Sales and Operations

- Increase internal collaboration and productivity via **Approvals and Workflow Management** — **First scenario shipped in 2024**
- **Task Management** in Planner Workspace — **Planned in 2024**
- **Driver Based Planning**: Flexible planning levels and Driver Analysis in Planner Workspace — **Planned in 2024**
- Improved **Collaboration with Microsoft Teams** — **Planned in 2024**
- Process hierarchies and additional activity types in **Process Management** — **Research**

This is the current state of planning and may be changed by SAP at any time.

SAP Integrated Business Planning for Demand

- **Product Lifecycle Management (PLM):**
  - Guided-procedure for occasional users, multiple launch dimensions — **Shipped in 2023**
  - Aggregated like-modelling — **Planned in 2024**
  - Consider PLM in Segmentation, Time Series Analysis and for independent variables — **Planned in 2024**
- **Range forecasting** and **confidence intervals** — **Shipped in 2023/24***
- **Additional forecast automation options:**
  - Automated Outlier Correction, parameter optimization for Croston TSB — **Planned in 2024**
  - Auto-Machine Learning — **Research**
  - Identify & consider life cycle status, forecast level optimization — **Vision**
- **Additional ML & AI:**
  - Curve-based forecasting & Extreme Gradient Boosting algorithms — **Shipped in 2023/24**
  - Forecast Explainability via Generative AI — **Research**
- Increased forecast accuracy and improve visibility of relevant factors for your demand with **easy access to external information** — **Research**

* For all Exponential Smoothing algorithms

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Next Generation of Inventory Optimization

SAP IBP for inventory is already a **leading inventory optimization solution (IDC 2022)** that offers **robust and proven algorithms** and **sophisticated planning capabilities**

Digital Twin for Supply Chain Planning

Demand Sensing & Forecasting

ML-based short & long-term forecast & forecast error

Supply Lead Time Recommendation

ML-based network lead times and variances for inventory planning, em

Shipped in 2024

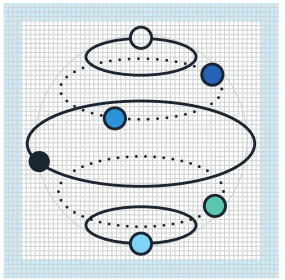
Time-phased Service Targets

Model changes in budget c business constra

Planned for 2024

Optimizer inputs

Inventory Optimizers and Heuristics



Multi-echelon

Single-echelon

Components

Inventory drivers

…

Time-phased inventory targets

Inventory Analytics

Inventory Analytic Dashboards

SAP Analytics Cloud embedd

Planned for 2024

Customer **service** **diction** based on **quantity**

Shipped in 2023

Inventory and Se **ulation**

Build confidence and compare alternate decisions through probabilistic future inventory mo

Planned for 2024

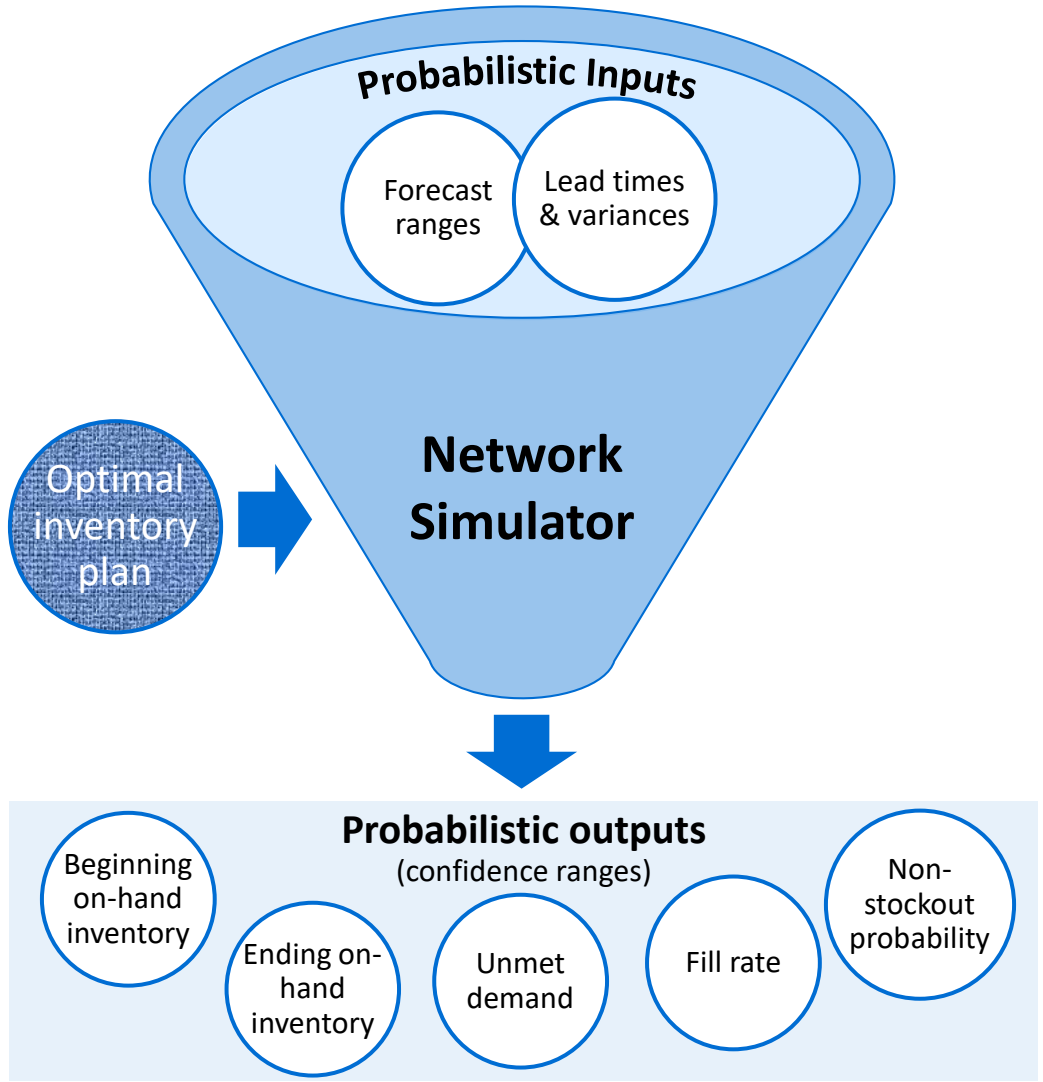
Inputs will be **more accurate** and require **less effort** to maintain.

Outputs will drive **analytical capabilities** for strategic and financial decision making.

This is the current state of planning and may be changed by SAP at any time.

Inventory & Service Simulation

Assess the performance of an inventory plan when exposed to demand and supply uncertainties



Starting with an optimal inventory plan and a profile of network uncertainties, the Network Simulator mimics flow of information and physical material across a multi-stage network.

Thousands of trials are automatically executed to generate range-based performance indicators.

Planners may rapidly configure profiles to compare benefits of alternate operational risks and decisions.

"SAP IBP inventory, how confident are you of projected December inventory at DC 2?"

"Given new delays from Supplier Y, what is the expected customer service range for product Z in December?"

SAP Integrated Business Planning for MRO (Maintenance & Operations Planning)

IBP for MRO

Covers Maintenance & Operations Planning (**M&OP**) by allocating MRO parts & workforce in the right place at the right time by optimizing inventory levels to decrease asset downtime and optimize procurement decisions

Target market

Asset-Centric Segment
(Oil & Gas, Mining, Railways, Utilities, etc.)

Shipped in 2022 & 2023

- Integration with **Plant Maintenance** (ECC & S4)
- Integration with **Project system** (ECC & S4)
- **Inventory Planning** using Poisson & N (μ, σ) & γ distribution

Outlook (Planned in 2024)

- **MRO Parts Criticality determination**: rules-based criticality and risk score determination for automatic service level calculation
- **Rotables Planning**: Repair, re-introduction, refurbish or scrap material
- **Inventory Balancing Operator**: rules-based materials allocation

Public

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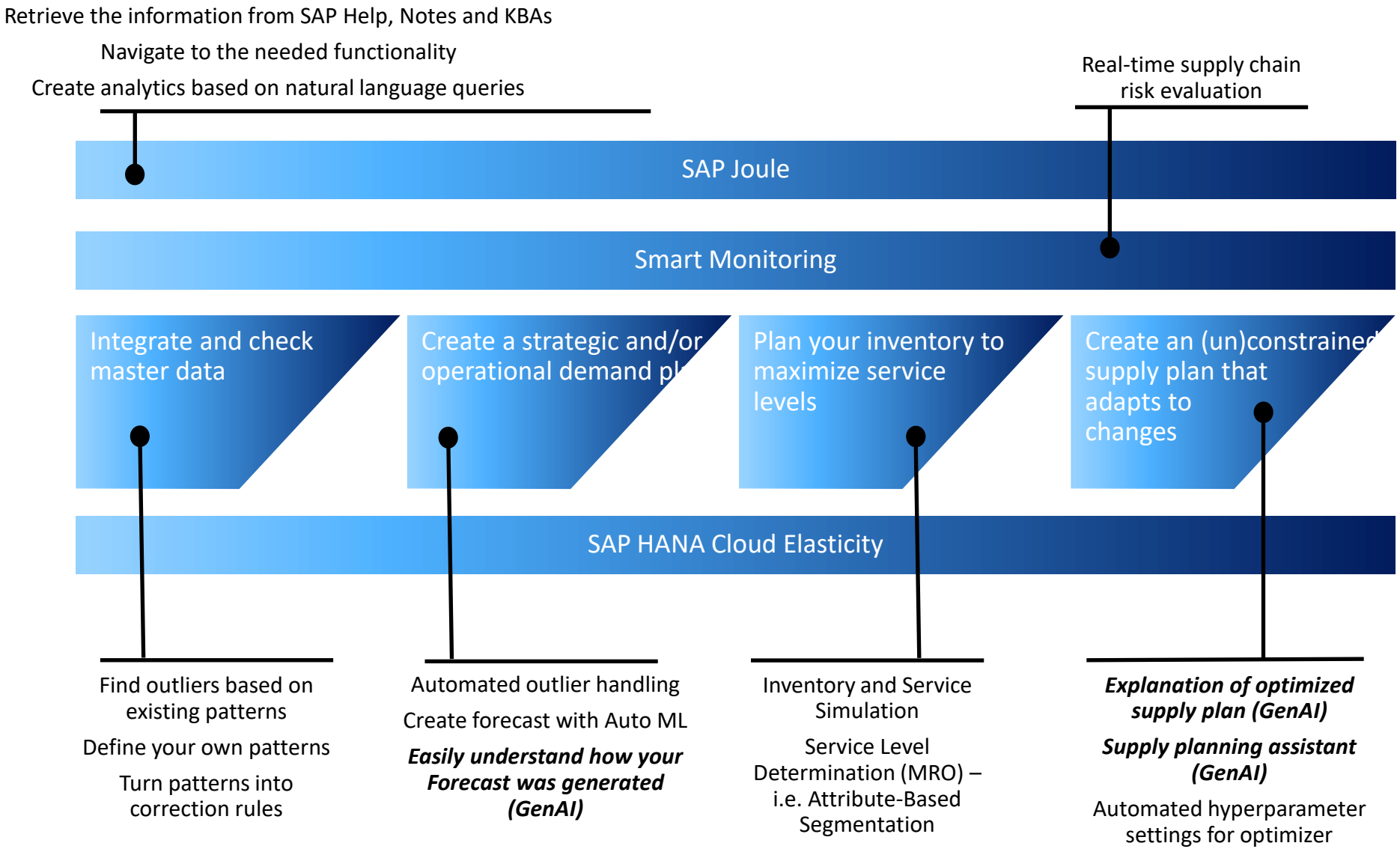
Business AI in SAP IBP



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SAP IBP Vision for Artificial Intelligence

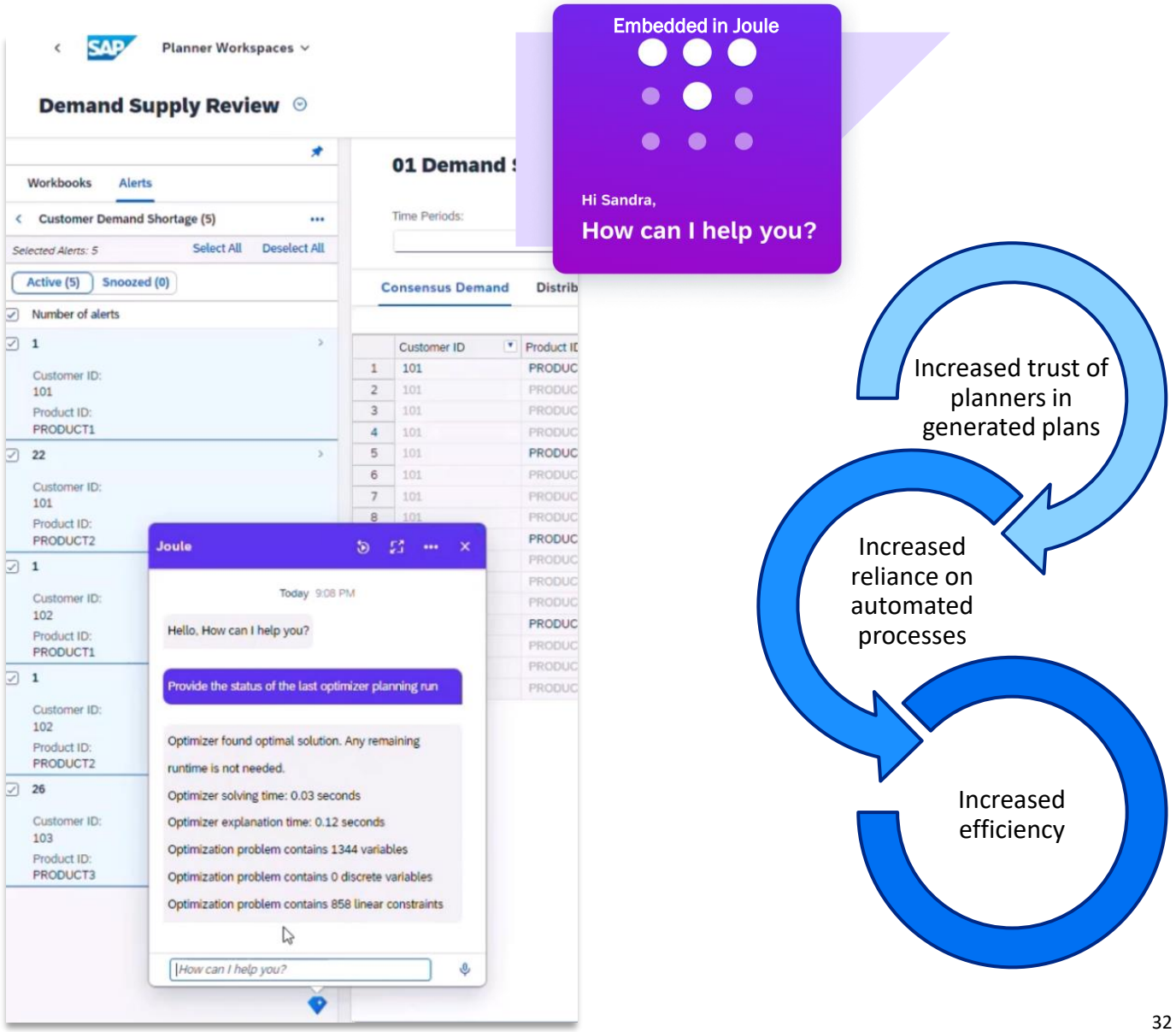
GenAI to support your planning

Explanation of planning jobs

- Demand Forecasting
- Inventory Optimization
- Supply heuristics and optimization
- Integration
- Others

Compares different planning runs

Generates what-if scenarios



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Wrap Up

Where to Find More Information

www.sap.com/ai

- Get started with SAP Business AI

Supply Chain | SAP Business AI (on SAP.com)

- Scroll to Planning for more information

IBP Roadmap (S-user required – to request click here)

- Select “Focus Topics” > Artificial Intelligence (must have an S-User to access)

http://help.sap.com/IBP

Key Points to Take Home

- Risk is a critical component of Supply Chain Plans
- Everstream, an SAP partner, can surface risks that are relevant to your supply chain
- Cosmotech, an SAP partner, can stress test your supply chain to identify areas of risk
- SAP Solutions can help you break down silos between planning and execution, creating flexible and agile plans
- SAP Supply Chain solutions already have AI embedded in them

Thank you! Any Questions?

Tod Stenger, SAP

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Please remember to complete your session evaluation.

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