



The Future of Operations Management is Intelligent

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Public

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The **Technology** and **Strategy** that's modernizing **Operation management**

Embracing of the big four technologies **Big Data/Analytics**, **IoT**, **AI/ML**, and **Cloud** moves you from transactional data silos to integrated, data-driven business processes.

A worker wearing a yellow hard hat and a high-visibility vest is seen from behind, operating a control room. The room is filled with multiple computer monitors displaying various data visualizations, including charts and maps. The worker's hands are on a control panel with numerous buttons and a joystick. The overall scene is dimly lit, with the primary light source being the screens.

How do we take mountains of data
and **turn them into smarter decisions?**

Enabling Technology



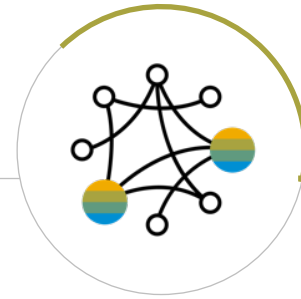
Internet of Things

Provides sensor-enabled value-added services and business outcomes



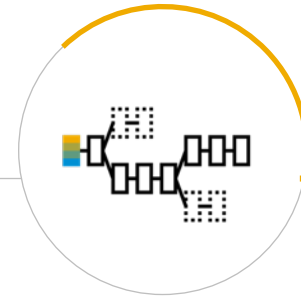
Advanced Automation

Increasing efficiency by integrating latest automation technology and robotics



Data Science

Sophisticated algorithms for data-driven optimize of processes



Networks

Align distribution and fulfillment processes by collaborating with logistics participants



Cloud

Flexible consumption models to cope with volatile demand situations

Technology alone is not enough

Technology transformation versus Business Transformation

Stand-alone technology transformation



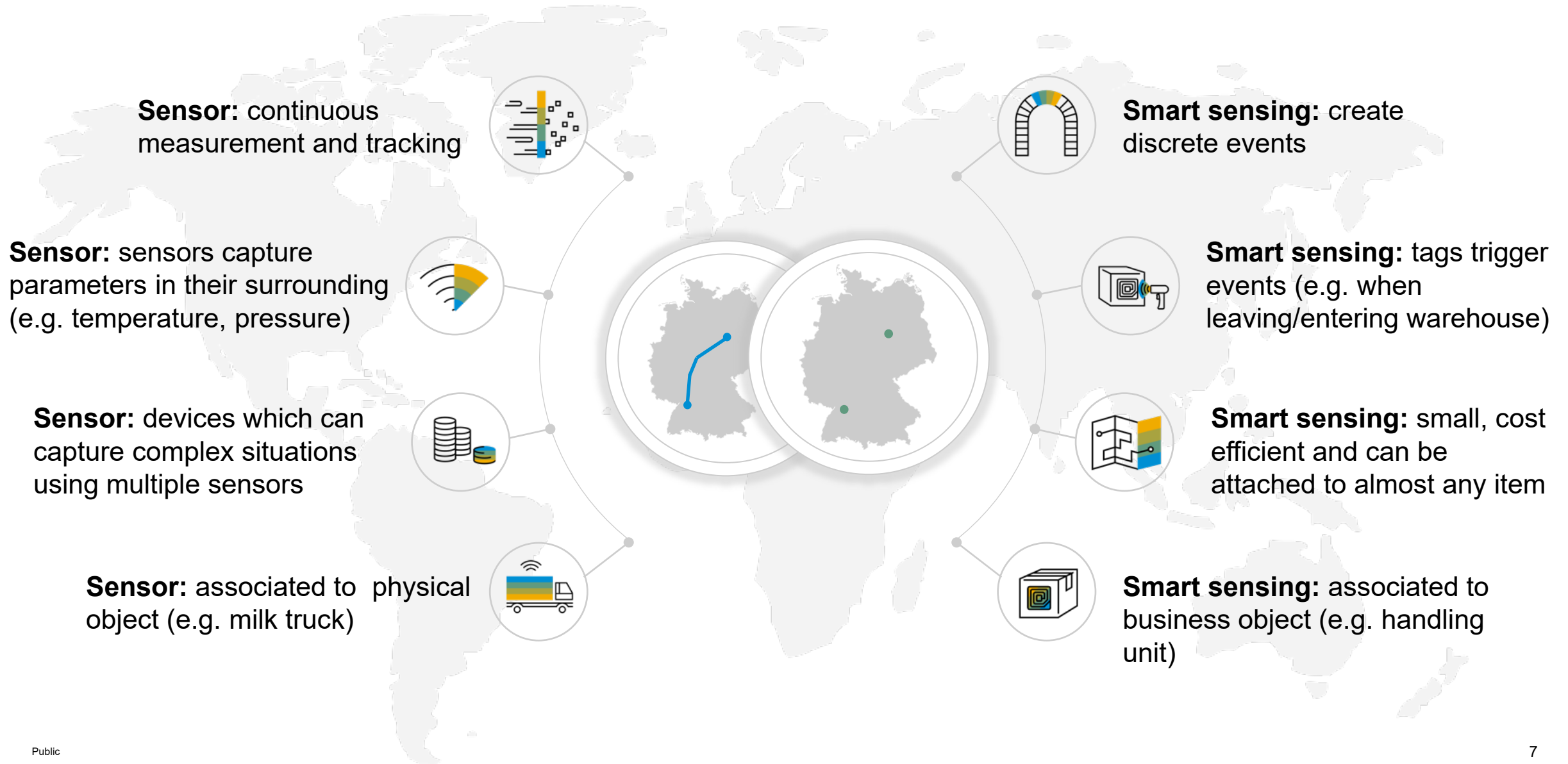
- Risk a myopic view of optimizing particular function
- High-risk projects and rigid, complex landscape

Business transformation enabled by intelligent applications



- In line with strategic business priorities
- Long-term agility and regular innovation

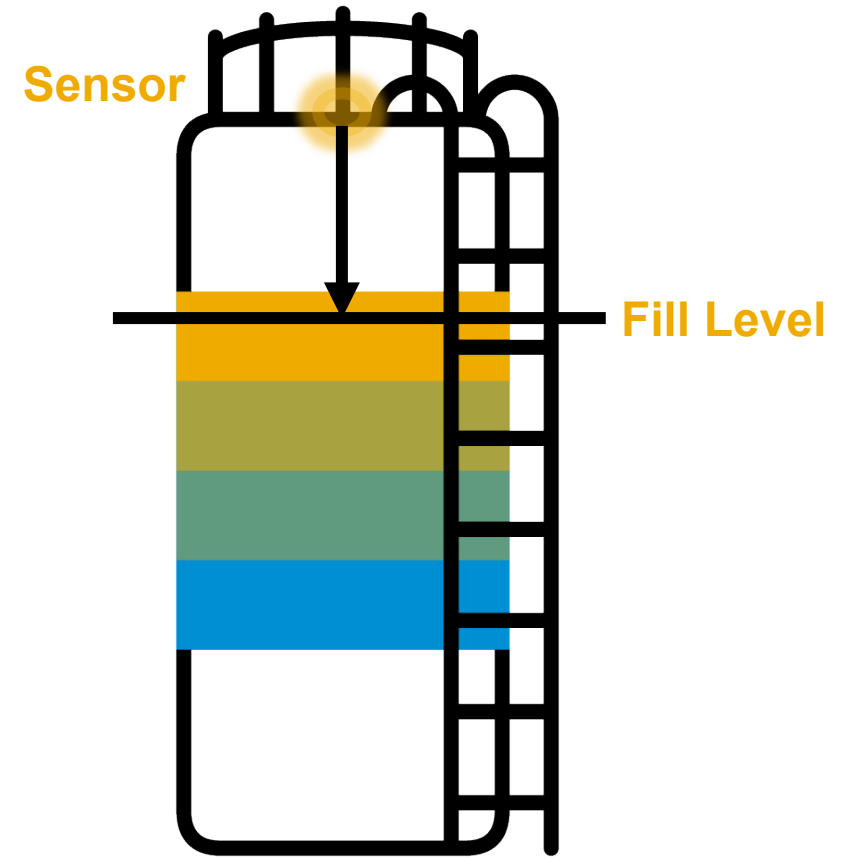
Difference Between Sensor-Based Scenarios and Smart Sensing Scenarios



Example: SAP S/4HANA with IoT for Replenishment

Tank Management with Fill Level Calculation

- Radar depth sensor measures distance between sensor and upper material plane
- Once distance threshold inside the silo is reached the replenishment is automatically triggered
- Additionally, the sensor can measure more raw data for further scenarios:
 - Temperature, Humidity, Pressure, Geolocation



SAP S/4HANA with IoT for Replenishment

Business Process Flow

Supplier



Supplier receives sales order



Just-in-time delivery of material

IoT

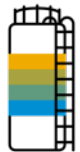


Monitor fill level



Automatic purchase requisition e.g. in SAP S/4HANA

Sensors and Receptacles



Collect data from receptacles e.g. temperature, pressure, distance between sensor and upper material surface

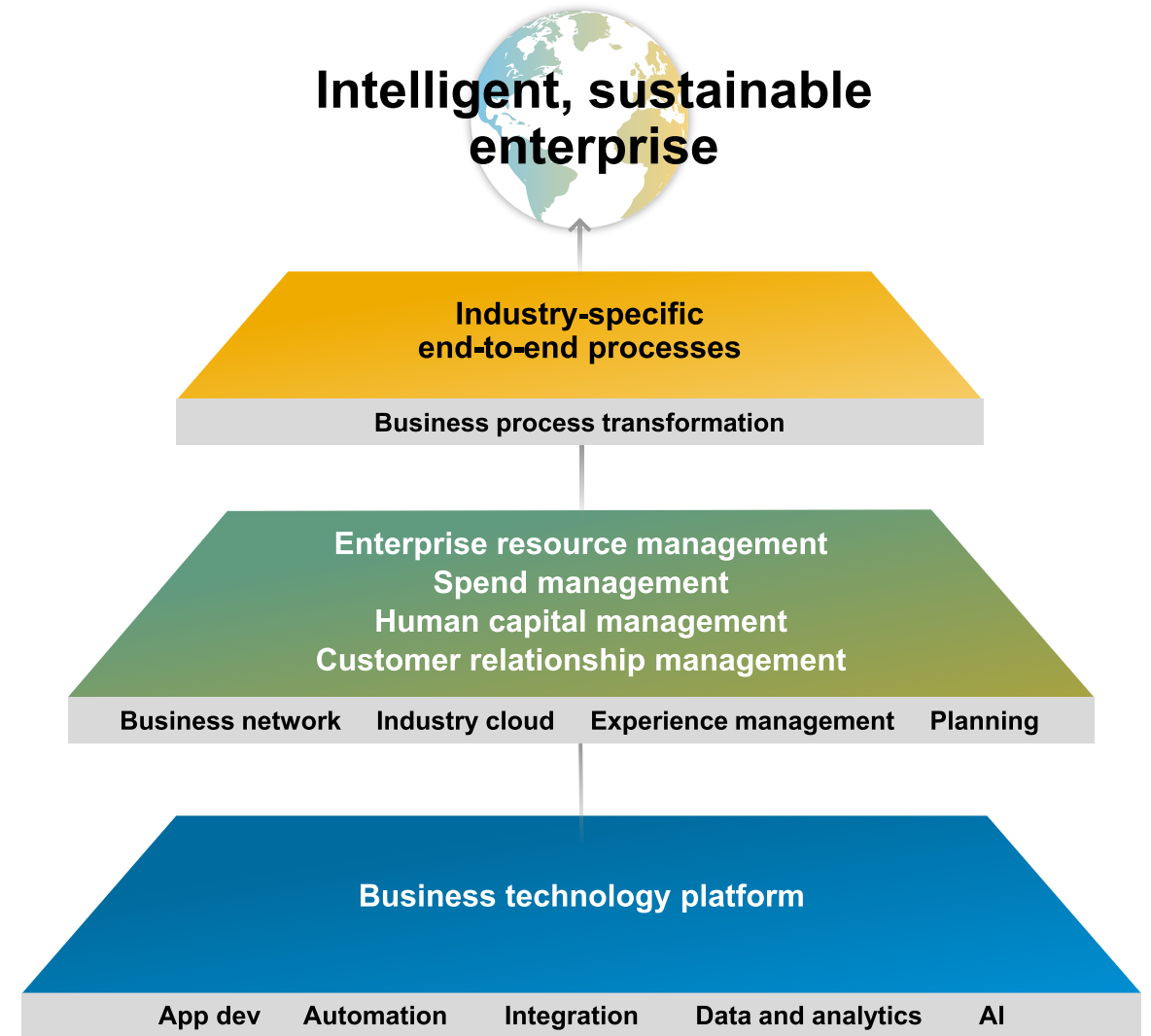


Low fill level



Replenishment

Enable every enterprise to become an **intelligent, sustainable enterprise**



IoT-enabled supply chain for a resilient enterprise

Use of IoT across the supply chain



Design

- Extend your **product development** and engineering models with sensors and IoT technology
- Analyze actual product performance and conduct what-if simulations



Plan

- Improve **supply chain planning and visibility** through an end-to-end connected supply chain
- Applications connected to IoT can track the movement and performance of IoT-enabled resources in real-time



Manufacture

- Real-time **manufacturing performance management** through IoT-enabled production line monitoring**
- **Manufacturing automation** by tracking resources throughout production



Deliver

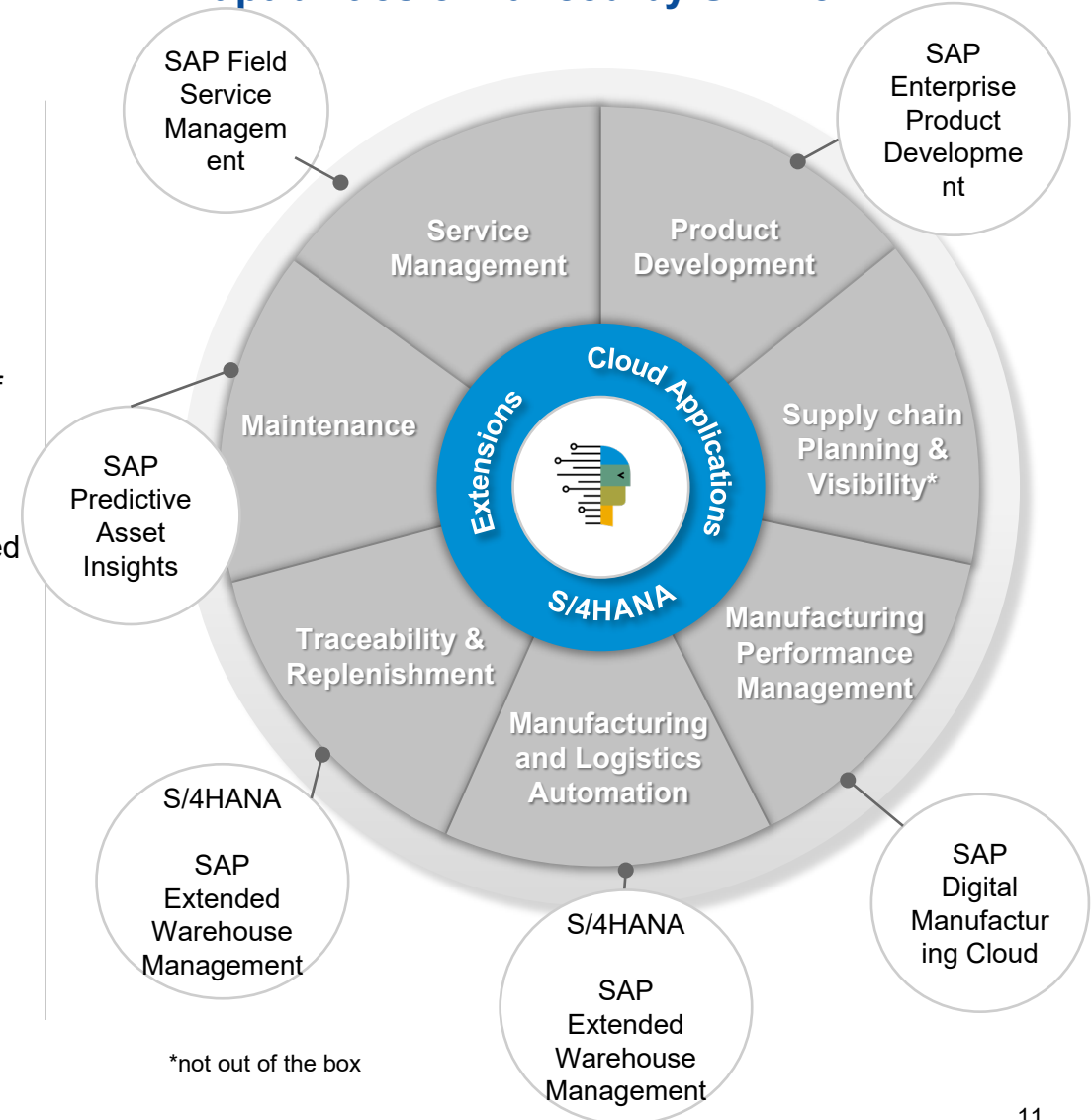
- Automate **traceability** of physical items in warehousing and logistics and automate **replenishment**
- Gain real-time visibility into location of IoT-enabled goods
- Track and automate response to condition-based monitoring



Operate

- Connect assets with IoT for real time **predictive and prescriptive maintenance**
- Integrate maintenance and **service management** across the enterprise, removing functional silos

Capabilities enhanced by SAP IoT



SAP Digital Manufacturing Cloud - Discrete Industry & Process Industry

Automate processes and resources to improve manufacturing efficiency, quality and productivity



Paperless production with intuitive user interfaces for production operators, automatic data collections and set machine parameters, thereby lowering cost, increasing productivity and quality.



Design, distribute and dynamically control manufacturing shop floor activities enabling a smart factory.



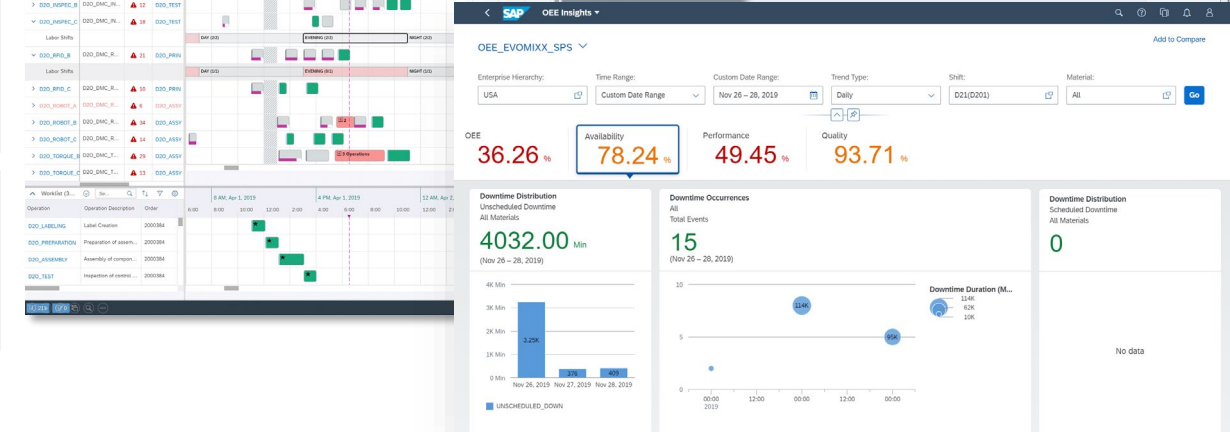
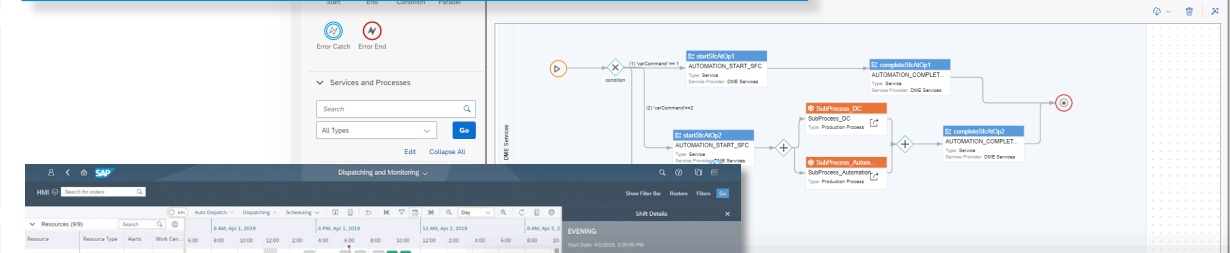
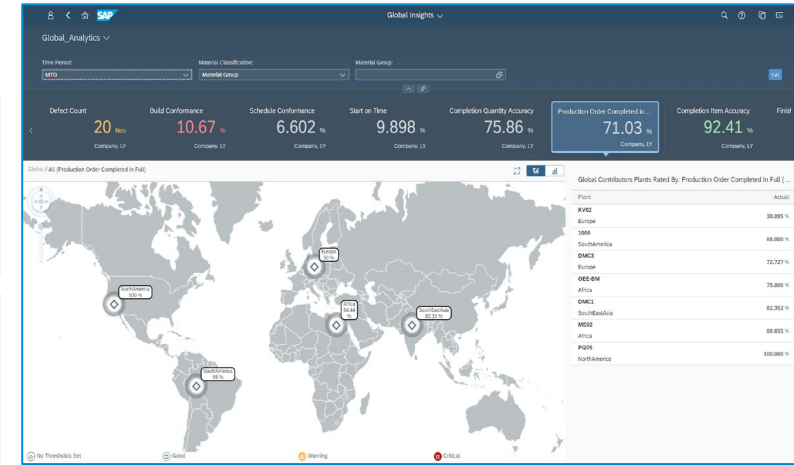
Shift and Labor planning to ensure business operations with right qualifications. Production Order scheduling and dispatching considering labor, resource and maintenance constraints to plan operations and adopt to short term changes.



Cross plant real-time analytics for manufacturing performance e.g. Perfect Order Fulfillment, Overall Equipment Effectiveness, loss analysis along with machine data to identify improvement opportunities.

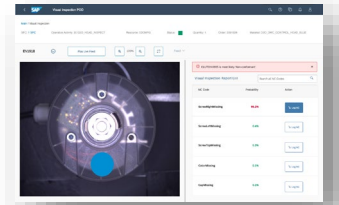


Ability to collect and share product genealogy data between members of the network to trace accountability and provide transparency.



SAP Digital Manufacturing Cloud

Example: AI/ML Scenario: Visual Inspection - Assist Nonconformance Logging



Machine learning models **assist operator** on the shop floor to **execute visual inspection tasks** of manufactured products. Using a **Production Operator Dashboard**, it **simplifies the identification of defects** and **logging the right Nonconformance** to ensure defective parts are handled as business requires.

Key Capabilities

- Upload pre-trained machine learning model and deploy it to shop floor supporting the operator on visual inspection tasks.
- Operator can capture images with connected cameras or can inspect images from industrial cameras provided by the data collection API
- Assist operator to identify defects and log the right Nonconformance code using the machine learning model
- Allow the machine learning model to log the Nonconformance automatically based on the prediction and under operator's control
- **Automated collection of images and inspection results which can be reviewed, analyzed and downloaded as analytical data sets to train new machine learning models.**

Visual Inspection POD

Main / Visual Inspection

SFC: 1 SFC Operation Activity: Inspection Resource: Xplanar Test Status: ■ Quantity: 1 Order: 1145 Material: CONTROL_HEAD__KIT

DMC_Control_Head_1192

Play Live Feed 100% Source

DMC_Control_Head_1192 is most likely 'Non-conformant'.

Nonconformance	Search all NC Codes	
NC Code	Probability	Action
Defective Sticker	99.3%	Log NC
QR Code Missing	0.3%	Log NC
Card Missing	0.2%	Log NC
Wrong Sticker Position	0.2%	Log NC

Mark as Conformant Mark Nonconformance Cancel

[Watch the Video on how Visual Inspection works](#)

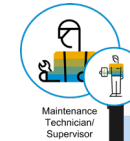
SAP Intelligent Asset and Service Management

SAP Service and Asset Manager



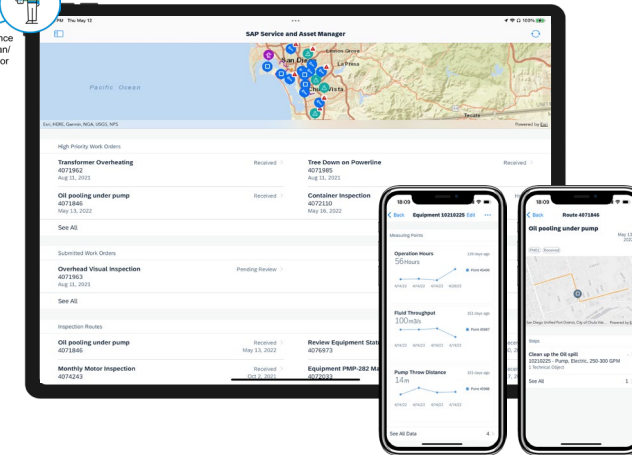
Cloud-based solution to transform enterprise business processes on a mobile experience

- **Mobile-enabled processes integrated with enterprise systems** enable easy and timely execution on the go
 - **Maintenance component** for technicians who maintain and service enterprise assets and need to perform their job with complex asset information and business logic for own and customer assets
 - **Service component** for field service technicians out on the field that need to follow a guided workflow and complete all service assignments based on the job to be done on customer equipment
 - **Inventory management** component for clerks who need flexible and automated mobile support in goods movements and stock management
 - **Native integration** with SAP S/4HANA Asset Management On premise, Private Cloud Edition and Public Cloud (SAP Maintenance Assistant) and SAP ECC Enterprise Asset Management.
- **Ready-to-use, extensible iOS and Android app integrated with native mobile features and services.** Enables the worker to be more productive and seamlessly take advantage of the mobile technologies to perform their job
- **Easy configuration,** in a cloud-based editor by leveraging SAP Business Technology Platform Mobile Services and the mobile development kit, providing **online and offline access** to context-rich visualizations and actionable asset insights.

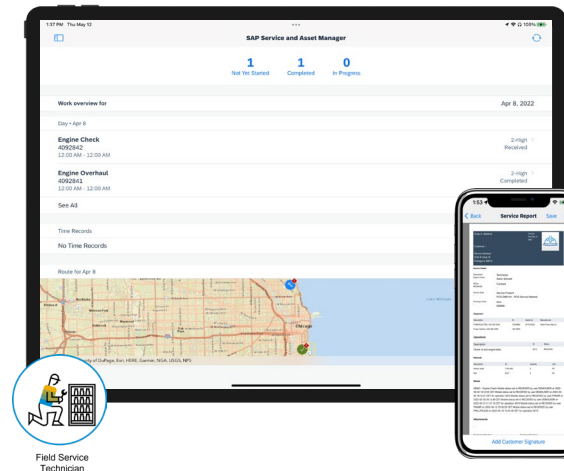


Maintenance Technician/Supervisor

Maintenance Component

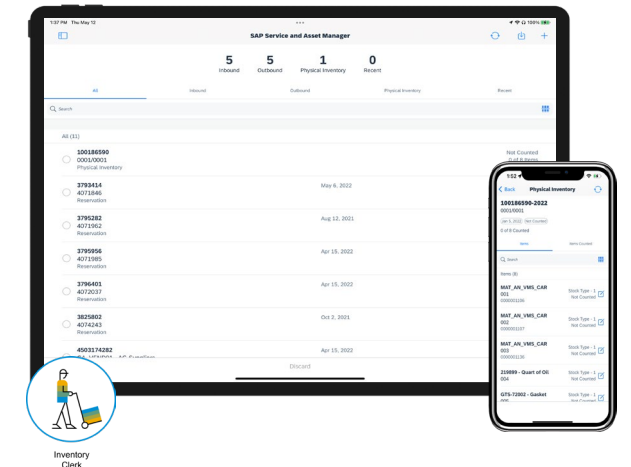


Service Component



Field Service Technician

Inventory Component



Inventory Clerk

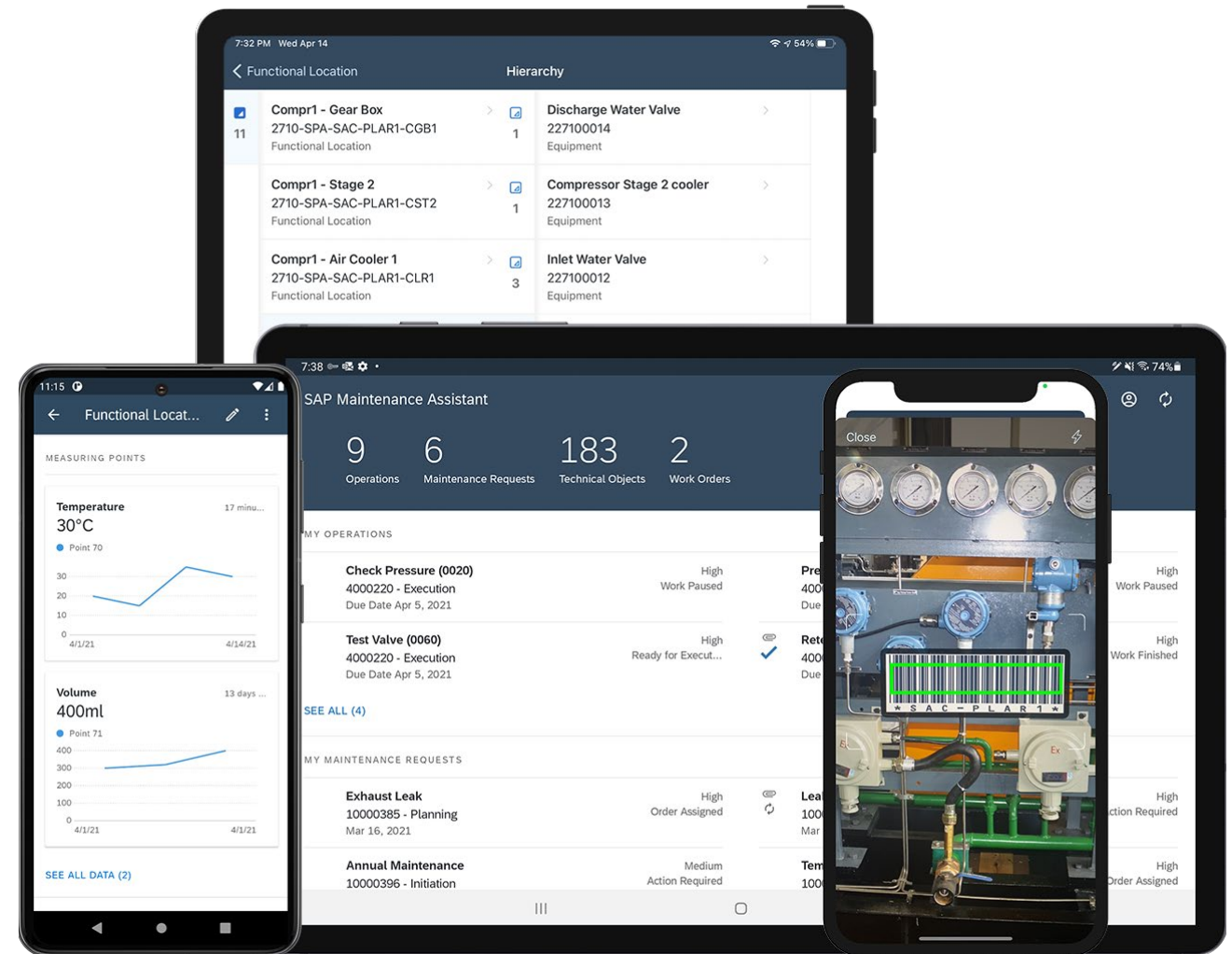
SAP Maintenance Assistant

Introduction

SAP Maintenance Assistant is a mobile application for maintenance technicians using SAP S/4HANA Cloud 2105 and onwards.

The native application has full offline capability and follows the best practice maintenance processes defined in SAP S/4HANA Cloud.

Supports iOS and Android, both phone and tablet form factors.



Improving Asset Utilization with the **SAP® Asset Manager Mobile App for SAP S/4HANA®**



Before: Challenges and Opportunities

- Limited capabilities of its aging mobile system increasingly unable to meet specific business needs
- Desire to improve efficiency and lower costs of maintenance operations
- Lack of a clear road map for its legacy system out of step with the company's strategic IT plan
- Empowerment of the maintenance team to perform daily tasks more efficiently and with greater accuracy

Why SAP

- Evaluation of the SAP® Asset Manager mobile app for SAP S/4HANA® during the implementation of SAP S/4HANA according to SAP Activate methodology
- Flexibility to use the mobile app online and offline and use it with various devices, allowing the most suitable device to be used in each maintenance area
- Customization potential, allowing unique steps in its maintenance processes to be configured
- Solution road map aligned with its strategic IT plans

After: Value-Driven Results

- Successfully integrated the inspection and service authorization capability of SAP Asset Manager with SAP S/4HANA
- Improved accuracy of important maintenance data, including inspection results, time, and costs
- Operationalized inspection work, replacing the overhead costs of paperwork with accurate and timely electronic data input
- Automated the collection of maintenance records and created an intuitive experience by leveraging the SAP Fiori® user experience

“We chose SAP Asset Manager because it has a clear solution road map that aligns with our **strategic IT plans**. Since we implemented the solution, we've had two new updates to the technology.”

Adilson Delfino de Abreu, Information Systems Business Partner, Celulose Nipo-Brasileira S.A. (CENIBRA)

3,000

Maintenance orders logged each week, shortening work cycles

60,000

Maintenance inspections included in the first wave of the technology rollout

Celulose Nipo-Brasileira S.A. (CENIBRA)
Belo Oriente, Brazil
www.cenibra.com.br
(Portuguese)

Industry
Mill products

Products and Services
Pulp and paper production

Employees
7,700

Revenue
US\$560 million

Featured Solutions and Services
SAP Asset Manager for SAP S/4HANA

THE BEST RUN



Enabling Innovation Through Green Manufacturing and a High Level of Quality with SAP® Solutions



Before: Challenges and Opportunities

- Build an innovative factory from scratch to help make a new production line highly successful
- Combine employee best-practice knowledge with operations data for constant innovation
- Improve product quality while meeting sustainability targets for water, energy, and waste reduction
- Stabilize and optimize a highly complex and waste-intensive production process

Why SAP

- Innovative capabilities enabled by SAP® Business Technology Platform
- Direct, no-latency connection between the factory's 1,600 sensors and its core SAP software operations, and resource efficiency with predictive analytics from SAP HANA®
- Real-time monitoring of factory sensor data with customized performance dashboards from the SAP Analytics Cloud solution
- Automation through the SAP Manufacturing Execution, SAP Manufacturing Integration and Intelligence (SAP MII), and SAP Extended Warehouse Management (SAP EWM) applications

After: Value-Driven Results

- Energy and water reductions through smart, automated consumption fine-tuning
- Reduction of scrap waste almost down to zero by using best-practice machine learning algorithms
- 24x7 production cycle leveraging autonomous, laser-guided vehicles (LGVs) controlled by SAP EWM
- Best-practice model and solution template for factory operations company-wide

“By using dashboards, predictive analytics, and embedded automation in SAP solutions, we can identify best practices and **teach those practices to the factory's machines, systems, and people.**”

Stefano Rossetti, Production Manager, Arpa Industriale S.p.A.

80%

Reduction in water, energy, and other resources used

€750,000

Production cost savings in the first year

Arpa Industriale S.p.A.
Bra, Italy
www.arpaindustriale.com

Industry
Building products

Products and Services
Premium surface materials and high-pressure laminates

Employees
575

Featured Solutions
SAP Business Technology Platform, SAP HANA, SAP Analytics Cloud, SAP Manufacturing Execution, SAP MII, and SAP EWM





Optimize and Automate

existing Processes

with Business-centric AI

Extend and scale applications with business-centric AI capabilities available in SAP Business Technology Platform

AI integrated into business processes and solutions

Intercompany reconciliation Sales order automation SAP Cash Application Workflow intelligence Personalized learning recommendations Returnable packaging management Product and pricing recommendations Intelligent expense scanning Automatic invoice processing Digital assistant

SAP AI Business Services

Service ticket intelligence Data attribute recommendation Document information extraction Business entity recognition Document classification Personalized recommendation

SAP Build Process Automation

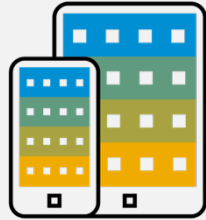
Workflow Robotic process automation Business rules Process visibility

SAP AI Core
SAP AI Launchpad

SAP HANA Cloud

SAP Data Intelligence

Optimize Existing Processes with SAP AI Business Services



SAP AI Business Services provide strategic machine learning capabilities that help you automate and optimize processes while enriching the customer experience. These reusable services are available on SAP Business Technology Platform.

Available via CPEA and SAP Store

Business document processing



Business Entity Recognition

Detects and highlights named entities in unstructured text

Available on
SAP BTP Free Tier



Document Information Extraction

Automatically extracts information from unstructured documents

Available on
SAP BTP Free Tier



Document Classification

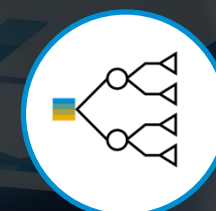
Classifies unstructured documents



Personalized Recommendation

Provides product recommendations and improved search results in web shop scenarios

Available on
SAP BTP Free Tier



Data Attribute Recommendation

Automates creation, maintenance, and management of structured data

Available on
SAP BTP Free Tier



Service Ticket Intelligence

Automates classification, recommendation and clustering of tickets

Available on
SAP BTP Free Tier

Improve Procurement with Machine Learning



Steel and Steel-related Mining Company



Challenges

- Significant effort for business users to order new spare parts
- High number of returns due to incorrectly chosen material classes
- Time-consuming manual master data creation and management



Solution

Implementation of **SAP Data Attribute Recommendation:**

- **20% decrease of effort** for new material creation
- **Suggestion of appropriate field content** ensures that users correctly fill in a new material request
- **Reduction of master data management** by applying Machine Learning to match hierarchies



Improve Operational Efficiency with Machine Learning



Villeroy & Boch | Ceramics and Tableware Company



Challenges

- Time-consuming repetitive tasks
- Enable the development of automated workflows
- Improve productivity and efficiency to deliver better customer service



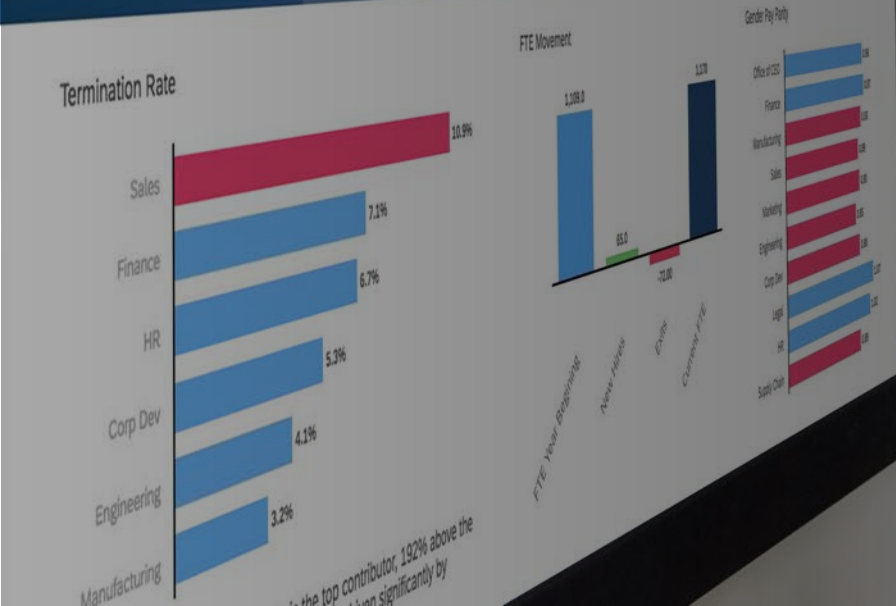
Solution

Implementation of **Document Classification** and **SAP Intelligent RPA**:

- Increased operational efficiency by **automating complex document classifying tasks**
- **Automation of determination processes** letting employees spend time on meaningful work
- **Efficient user feedback capturing** through usage of bots matching employees' exact needs



Augment **business processes** with Industry Solutions from **SAP and SAP Partners**



SAP's Industry Cloud

Accelerating innovation for **all areas** of the business, in **every industry**



Built by SAP and by its Partners



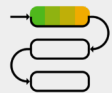
Interoperable and cloud native



Business applications, not just technologies



Extend SAP's intelligent suite



Optimize, extend and transform core business processes

Intelligent, sustainable enterprise



Industry-specific end-to-end processes

Business process management

Enterprise resource management
Spend management
Human capital management
Customer relationship management

Business network | Industry cloud | Experience management | Planning

Business technology platform

App dev | Integration | Data and analytics | AI

Track SO Fulfillment App

Feature Highlights

- Provide end-to-end document flow throughout the supply chain
- Aggregate logistics execution status from shipment up to corresponding upstream documents (e.g. outbound delivery, sales order)
- OTIF status calculation
- Work with either TM freight documents or LE-TRA shipment (ERP extractor template and configuration provided)
- Enable the extensibility for customer-defined fields or events or event-to-action scripts (e.g. send notifications)
- Flexible UI
- Display estimated status (provided by business partners)

Sample extractor and guide: [link](#)

Help document: [Guide for Internal Sales Representatives](#)

The screenshot displays the SAP Track SO Fulfillment application interface. At the top, there's a search bar with filters for Sales Order No., Purchase Order No., Requested Delivery Date, Sold-To Party, Ship-To Party, Material ID, Material Description, and Delivery No. Below this is a table titled 'Sales Orders (10)' with columns for Sales Order No., Sold-To Party, Ship-To Party, Net Value, Requested Delivery Date, Fulfillment Rate, Actual Delivery At, Execution Status, Delay Impact, Delay Status, and OTIF Delivery Status. The table lists several orders with their respective statuses like 'Not Started', 'In Execution', 'Completed', and 'Late'.

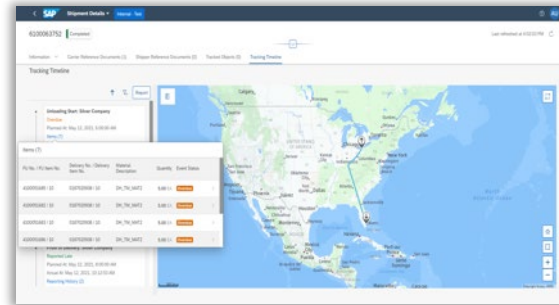
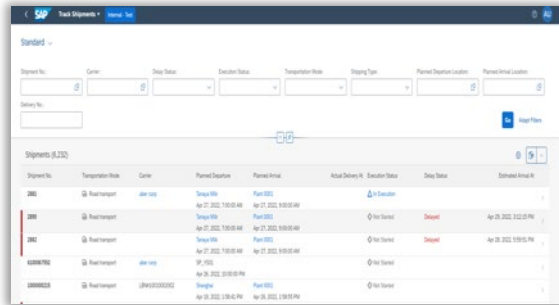
Below the table, there are three detailed views:

- Sales Order Item Details:** A flow diagram showing the relationship between Sales Order items and Delivery Items. It includes fields for Material ID, Material Description, Net Value, and Order Quantity.
- Milestone Fulfillment Process:** A horizontal timeline showing the progression of a delivery item through various milestones: Sales Order Item Created, Sales Order Item Confirmed, Delivery Created, Delivery Goods Issued, and Delivery Completed.
- Outbound Delivery Details:** A view showing the source and destination locations, planned events, and a map of the United States with a route highlighted. It includes a table for Planned Events with columns for Event Type, Location, and Planned At.

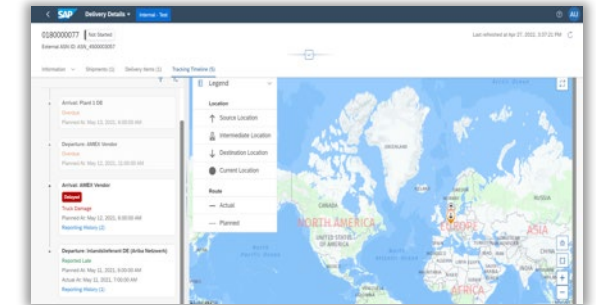
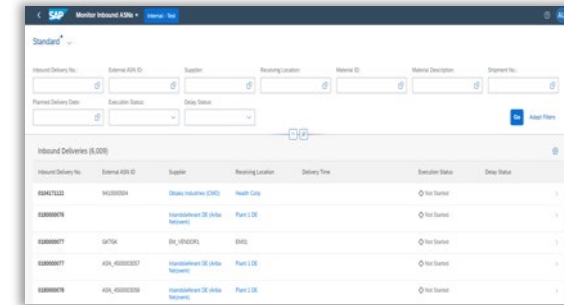
SAP Business Network for Logistics, **global track and trace option**

Available Standard Apps for Solution Owners

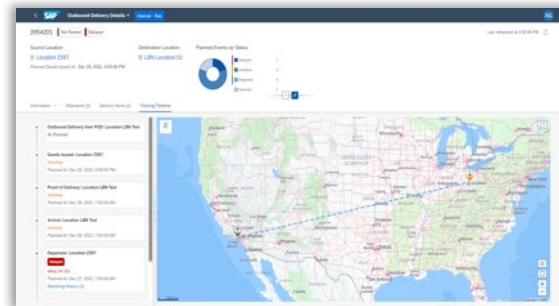
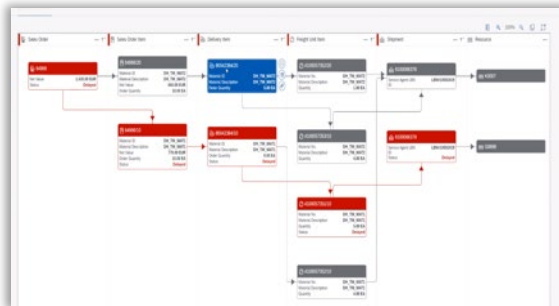
Track **Shipments**



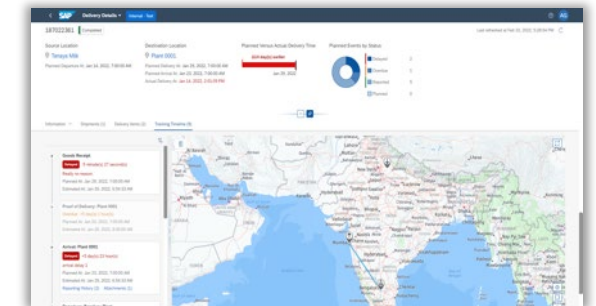
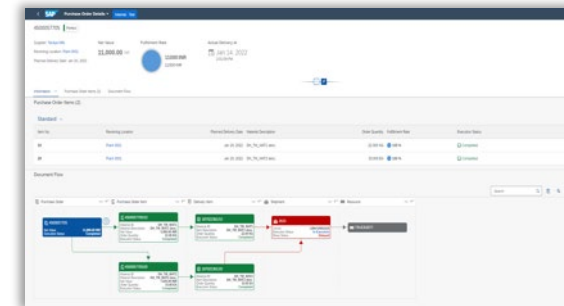
Monitor **Inbound ASNs**



Track **Sales Order Fulfillment**



Track **Purchase Order Fulfillment**



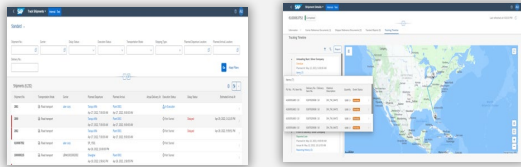
User Roles served with updated information: transportation planners, receiving specialists, internal sales representatives, and purchasers

Supported modes of transport for visibility data integration: global ocean FCL, global air and FTL and LTL in NA and Europe

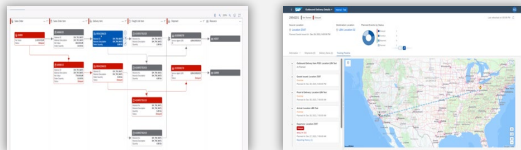
Connect to your carrier and LSP network through published APIs and receive milestones and geo location tracking data from your external fulfilment network

SAP Logistics Business Network, global track and trace option

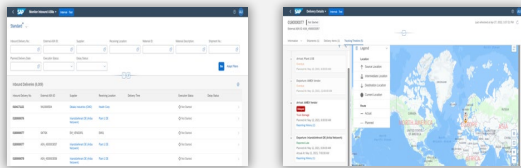
Track Shipments



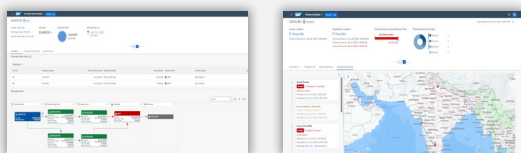
Track Sales Order Fulfillment



Monitor Inbound ASNs



Track Purchase Order Fulfillment



Published open APIs

- API for tracking request
- API for inbound event

Example: Descartes

When you buy this solution, you will make an impact in your business and beyond. For each purchase made on SAP Store, we will plant a tree on your behalf.

Descartes eBookings for Ocean Shipment Management
by Descartes Systems Group

At a Glance Features Pricing Technical Information Resources Publisher

Enable end-to-end ocean shipment management and visibility for your supply chain

Powered by the Descartes Global Logistics Network™ and integrated with the SAP Logistics Business Network, you can expand your ocean shipment capabilities, uniting multiple parties and processes together from the contract to booking phase, through the tracking and financial settlement lifecycle.

[Get it Now](#)

Solution Types: APIs and Technical Components | Works With: SAP Business Network for Logistics

[Have a Question?](#)

Ocean Shipment Visibility

ORIGIN → Leg 1 → PORT OF LOADING → Leg 2 → PORT OF DISCHARGE → Leg 3 → DESTINATION

Key Milestones: Full of Gate, Full Discharge

SHIPMENT DATA INCLUDES:

- Booking number, carrier SAC, Master BOL
- Vessel name, Voyage number
- Sailing Schedule, ETD, ETA
- Trans Shipping points

IN TRANSIT VISIBILITY PROVIDES:

- Proactive ETA based on multiple data sources
- Up-to-date statuses of containers
- Identification of containers in jeopardy
- Notification to appropriate parties of late containers

More Information
Visit: [SAP AppStore](#)

Mining Solutions and Extensions Solutions

Try and buy leading partner solutions and SAP software for the mining industry. Discover the latest news, digital store promotions, and more.

10+

Industry Cloud Solutions

50+

Total Solutions

ETM.next by BearingPoint Business Services
Equipment & Tools Rental and Lifecycle Management

[View Details](#)



INDUSTRY C
Drive cost
Your business



INDUSTRY CLOUD SOLU
Drive cost-effective
Your business is unique. f



INDUSTRY CLOUD SOLUTIONS

Drive cost-effective transformation and sustainable growth with innovative industry cloud solutions from SAP and partners
Your business is unique. Reimagine business with modular, industry cloud solutions from SAP and our partners. [Learn more about industry cloud >](#)

Trendminer

Software AG

Overview:

Next generation productivity through self-service industrial analytics. Democratizing analytics for process and asset experts. Combining timeseries and contextual data -like batch and quality data- from SAP Digital Manufacturing Cloud and 3rd party sources, enables subject matter experts to analyze, monitor and predict the operational performance in batch, grade and continuous manufacturing.

With Trendminer you can:

- Leverage the power of self-service analytics
- Use actionable intelligence to drive your business
- Help become a process engineer 4.0
- And much more ...



Roundwood Measurement Solution

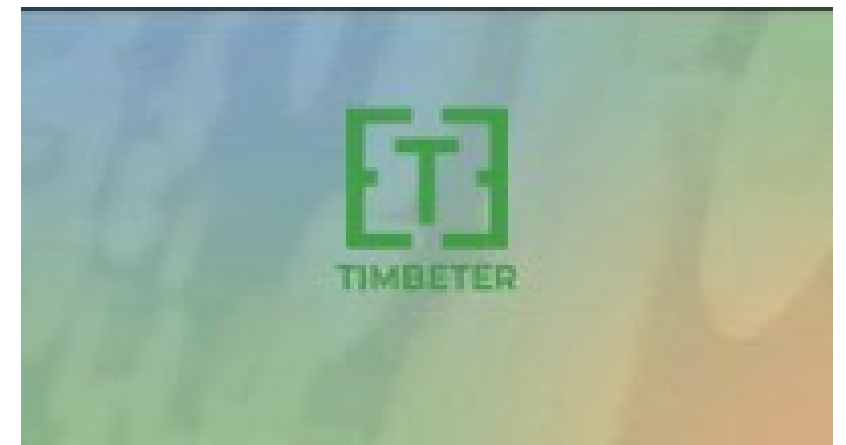
Timbeter

Overview:

AI-powered solution for quick and accurate digital timber measurement and data management that enables sustainable forest management by bringing transparency and efficiency to the measurement process from the field to the factory.

With Roundwood Measurement Solution you can:

- Increase transparency & efficiency
- Make data driven decisions
- Increase safety of employees
- And much more ...



Thank you.

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