



# SAP Intelligent Asset Management Update on Strategic Direction

**Ralf Vath**

VP, Head of Product, Digital Supply Chain Cloud – Operate

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# Agenda

## SAP Intelligent Asset Management Update on Strategic Direction 30 MIN

- 1 Welcome**
- 2 Intelligent Asset Management with SAP**
- 3 Strategic Priorities**
  - From Maintenance Strategy to Execution
  - AI In Asset Management
  - Dynamic Maintenance & Supply Optimization
  - Integrate Product Design Time with Asset Run Time
- 4 Q&A**



# Business Priorities in Asset Management Domain

Shift towards agile maintenance approaches, responsive to changing operating conditions and risks



*“Equation for the License to Operate”*

**Performance  
oriented to  
drive  
Business  
Outcome**



A man wearing a yellow hard hat and a dark jacket is looking at a tablet computer in an industrial setting. In the background, another person in a yellow hard hat and safety vest is visible near some machinery.

Our Mission is to

# Make the world's assets operate effectively

We provide innovative and **Intelligent Asset Management** capabilities throughout the asset lifecycle within **Design-to-Operate** context.

Together, we help the world run better and improve people's lives while delivering closed loop business excellence.



A photograph of three industrial workers in safety gear (hard hats, safety glasses, and high-visibility vests) examining a piece of machinery. The worker on the left is leaning over, looking at a component. The worker in the middle is looking on, and the worker on the right is pointing at a gauge. The background shows a complex industrial facility with pipes and structures.

**From  
Maintenance  
Strategy to  
Execution**

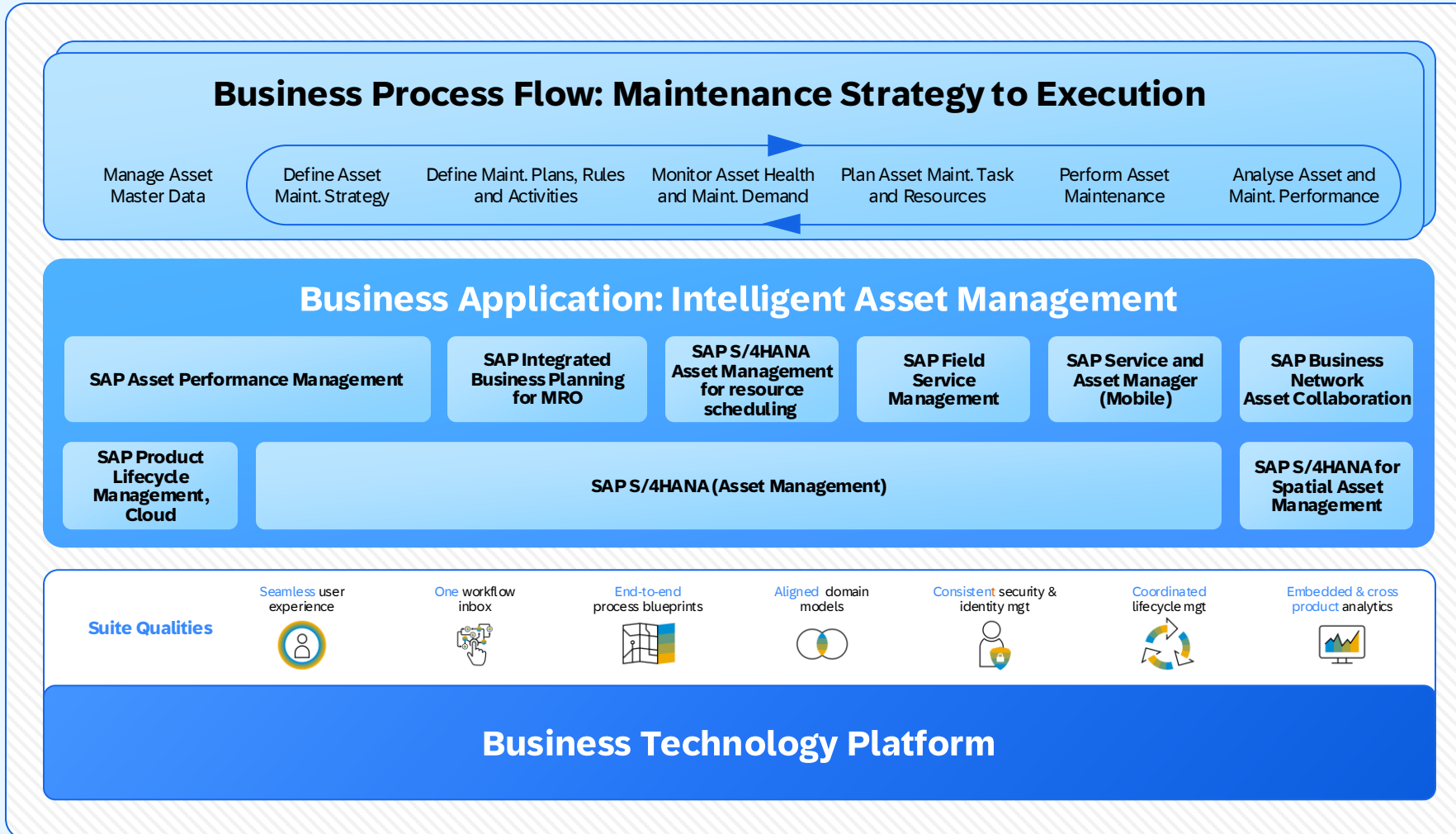
**How to overcome data silos between maintenance reliability engineering and maintenance execution for optimal asset performance?**

**How to establish a failure mode-centric paradigm for evidence-based feedback loops and strategy optimization?**

**How to do reliability engineering at scale for asset-intensive industries?**

# Intelligent Asset Management with SAP

## Overview



## Increase Asset Performance, Reduce Maintenance Costs and Deliver Operational Excellence

### Connect Every Process

- Close the loop between maintenance strategy, planning, and execution
- Turn continuous insight into continuous improvement
- Decrease operational costs, reduce equipment down time, optimize service levels, and maximize the return on your ERP investment

### Contextualize Every Decision

- Leverage intelligence to reduce downtime by using AI-driven analytics
- Empower maintenance techs by mobile apps

### Collaborate with Your Ecosystem

- Connect everyone to the digital thread
- Integrate maintenance across the supply network



## From Maintenance Strategy to Execution

Seamlessly extend Enterprise Asset Management with Asset Performance Management along end-to-end processes to close the loop between maintenance strategy and execution

1

**Manage Risk for the License to Operate**



## AI in Asset Management

Use AI to increase efficiency and effectiveness in Asset Management practices

- Visual Inspection
- Order Recommendation

2

**Automate Asset Management**



## Dynamic Maintenance & Supply Optimization

Plan and optimize maintenance demand and its resource supply across different time horizons (long-, mid-, short-term)

3

**Optimized Maintenance Demand and Supply**



## Integrate Design Time with Run Time

Synchronized information flow along the D2O process which feeds a digital twin and ensures interoperability and traceability along the Asset Life-Cycle

4

**E2E Asset Master Data Life-Cycle Management**

# A combination that enables real business value.





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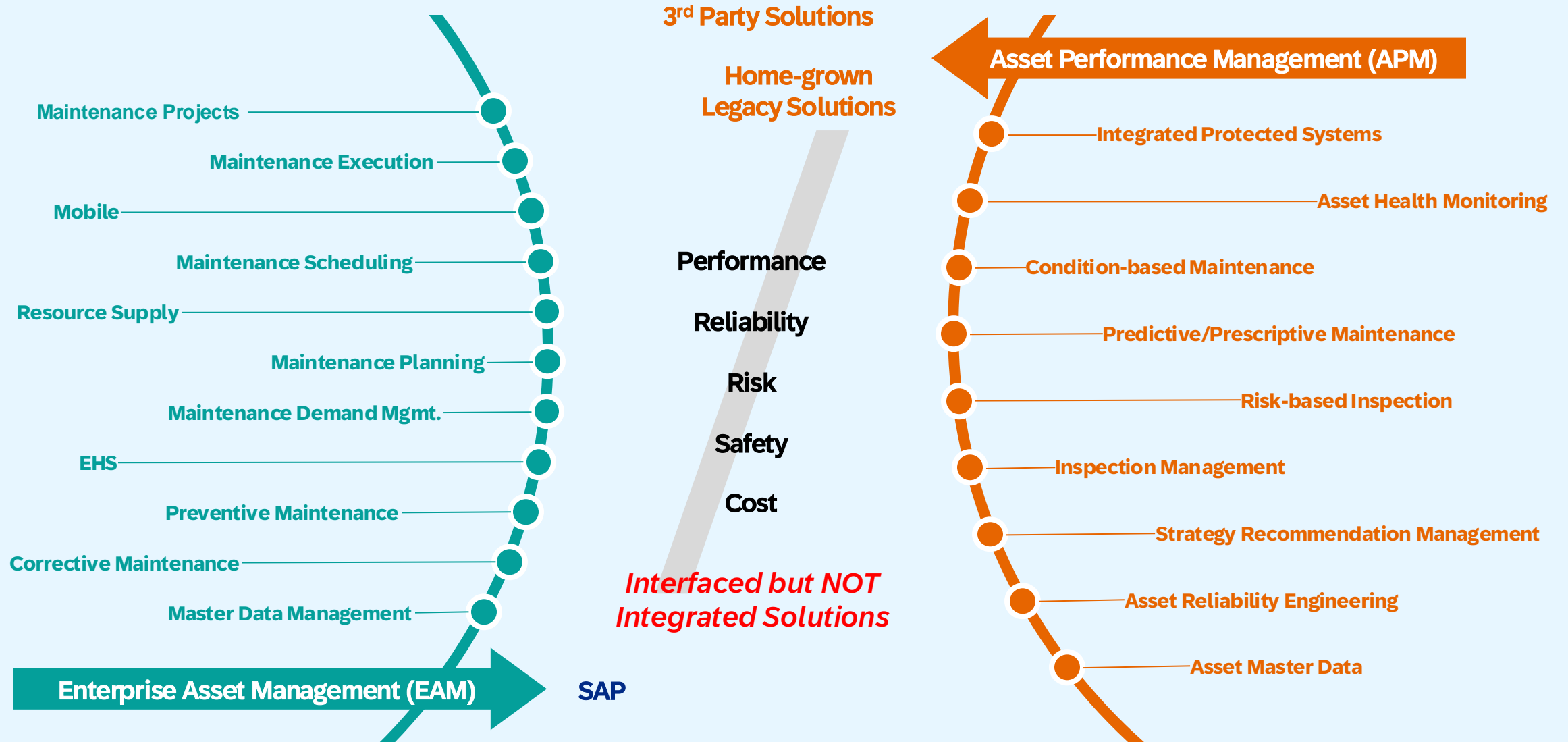
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# The Past Challenge



# From Maintenance Strategy to Execution

## Core Pillar in SAP's IAM Suite – Business Capability orchestrated via Business Activity

### Strategy for Maintenance Strategy to Execution

Transform Asset Management by seamlessly extend **Enterprise Asset Management** with **Asset Performance Management** along **end-to-end processes** to **close the loop** between maintenance strategy and execution to define, implement, execute and monitor the optimal asset maintenance.

#### 4 – Plan Asset Maintenance Task and Resources

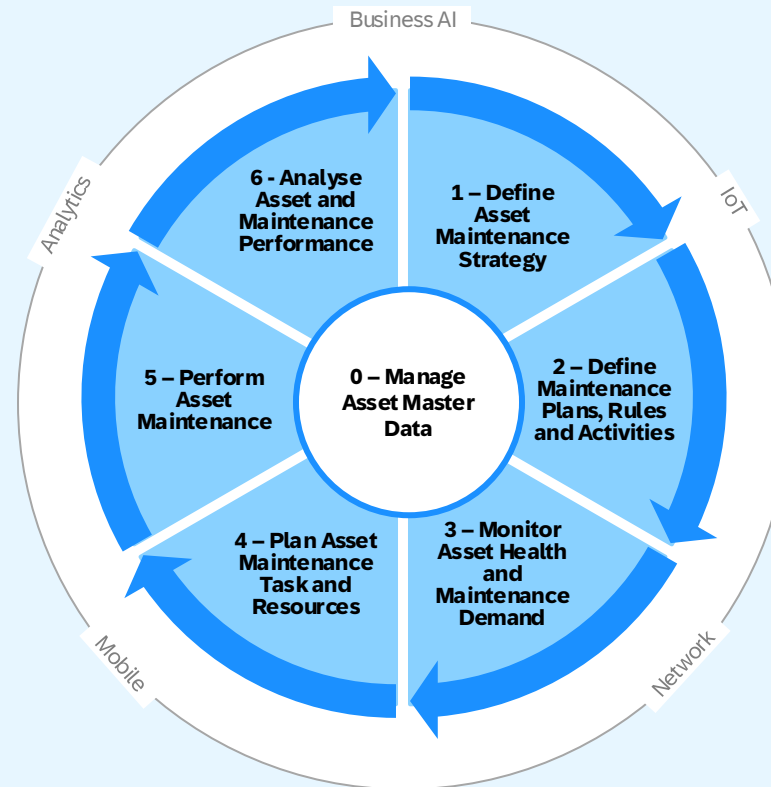
- Asset Management Resource Planning (operational) connected:
  - Tactical Asset Management Planning
  - Strategic Asset Management Planning

#### 5 – Perform Asset Maintenance

- Maintenance Execution
- Asset Fault and Incident Response Management

#### 6 – Analyze Asset and Maintenance Performance

- Asset Performance Analysis
- Asset Costing and Valuation



#### 0 – Manage Asset Master Data

- Asset Data and Information Management
- Asset Information Standards Definition

#### 1 – Define Asset Maintenance Strategy

- Asset Risk Assessment
- Asset Reliability Engineering

#### 2 – Define Maintenance Plans, Rules and Activities

- Tactical Asset Management Planning

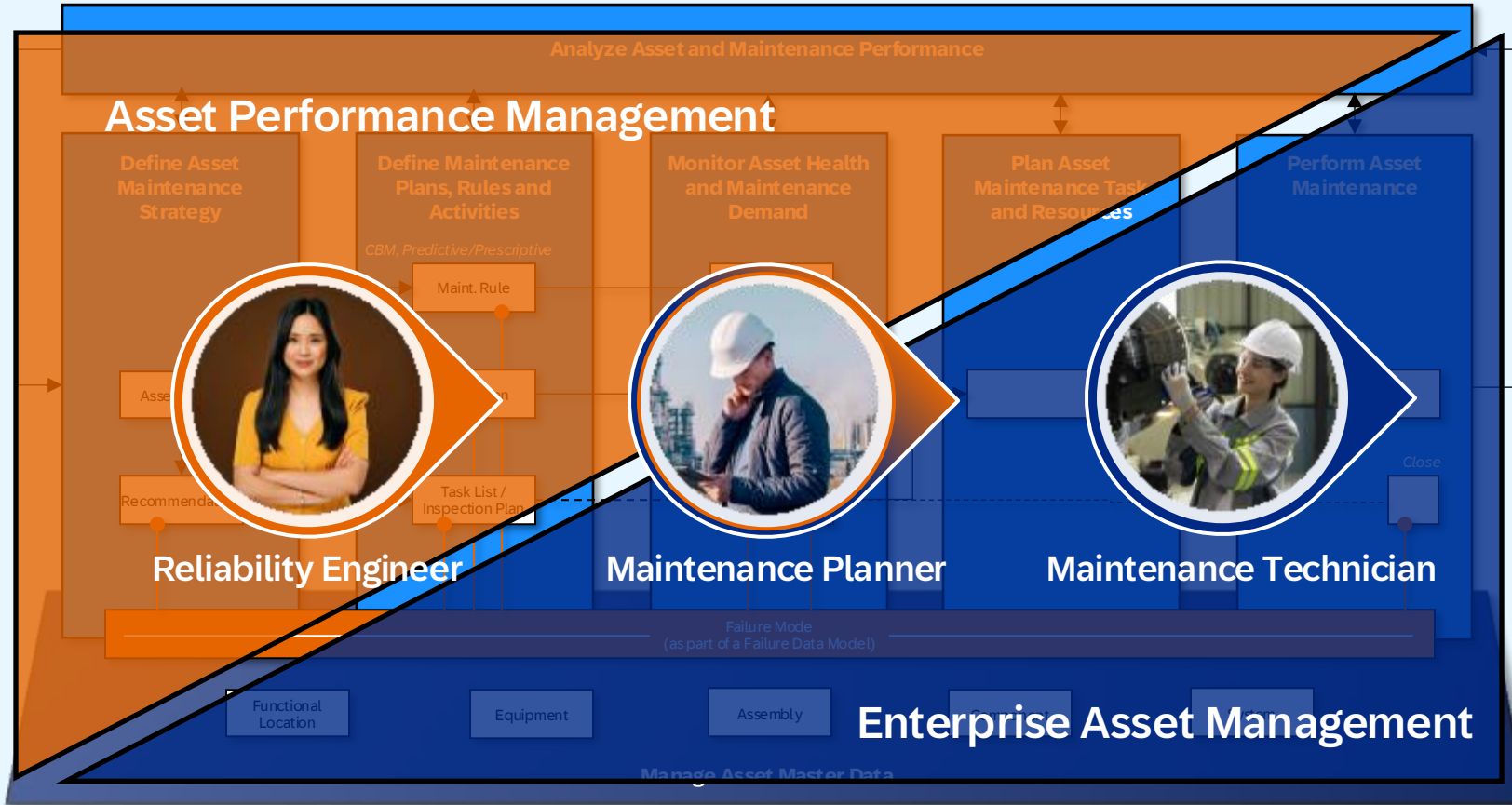
#### 3 – Monitor Asset Health and Maintenance Demand

- Asset Health Monitoring
- Asset Fault and Incident Response Management



# From Maintenance Strategy to Execution

## Key Persona



### Key Principles

- Connect Maintenance Strategy to Execution via key Business Objects forming an E2E Business Process Flow
- Run a Failure Mode-centric Paradigm in E2E Asset Management
- Build on harmonized and aligned Asset Master Data as a Foundation for integrated E2E Processes

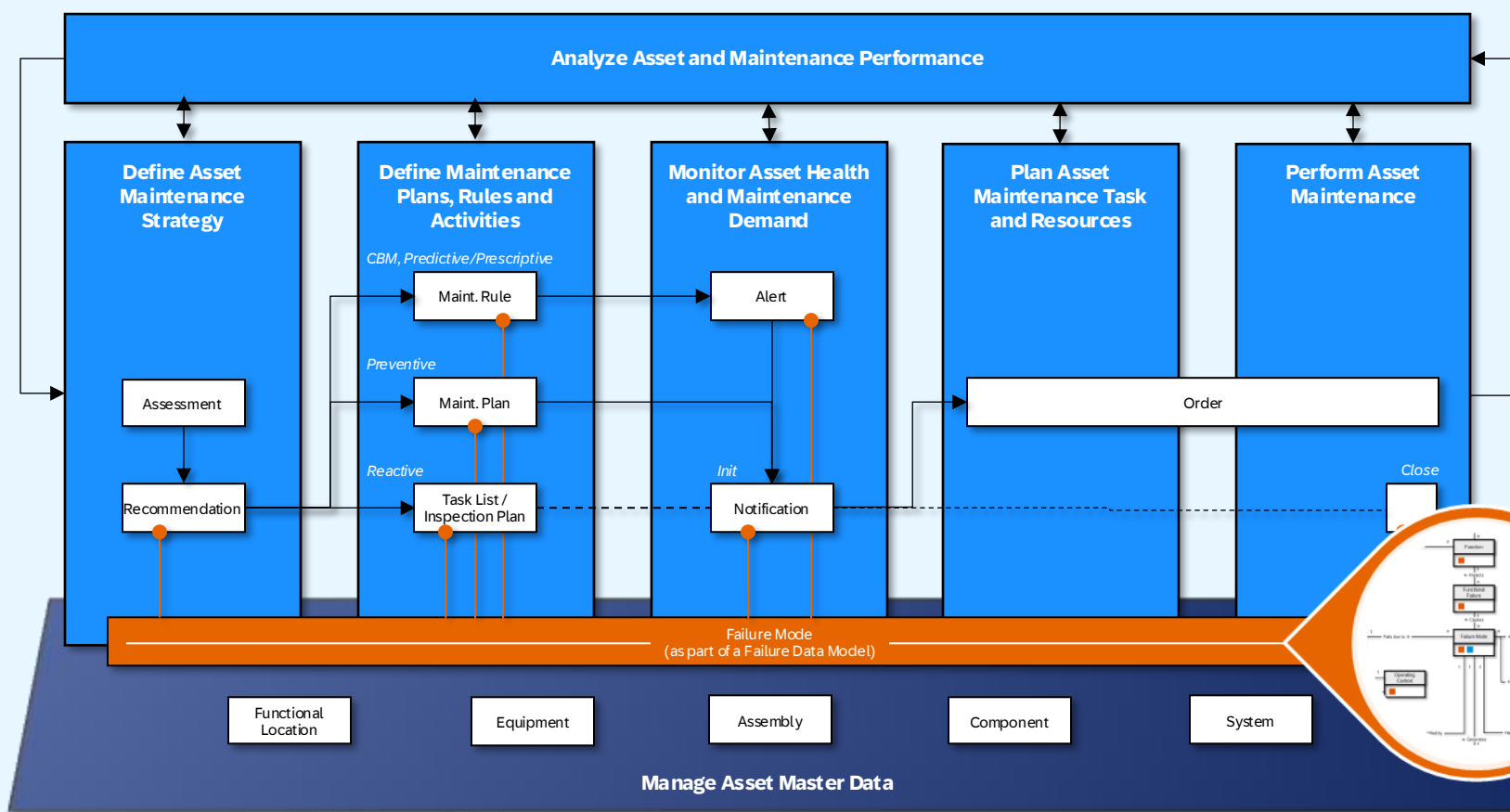
### Key Goal

- Automate maintenance via E2E process integration to continuously improve the maintenance program for optimal asset performance



# From Maintenance Strategy to Execution

## High-Level Blueprint: Failure Mode-centric Maintenance Paradigm

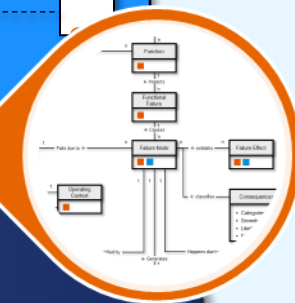


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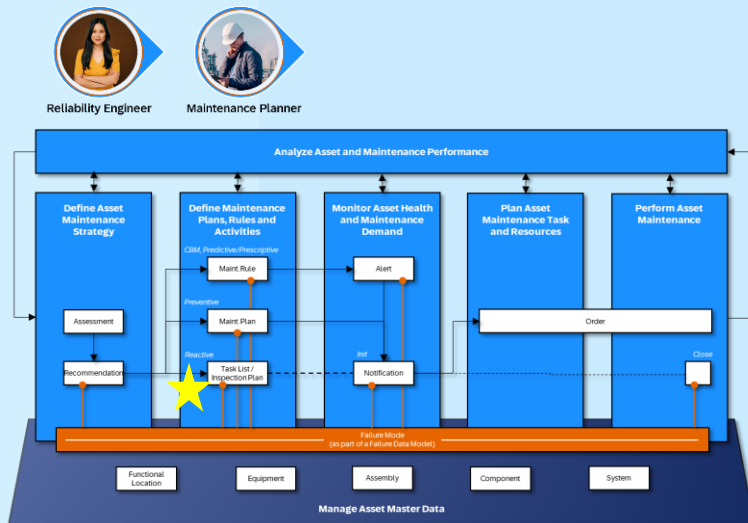
- Automate maintenance via E2E process integration to continuously improve the maintenance program for optimal asset performance



Asset Performance Management — Enterprise Asset Management

# From Maintenance Strategy to Execution

## Closed Loop Asset Management



**Connect Failure Modes and Maintenance Recommendations in SAP Asset Performance Management with Task Lists in SAP S/4HANA**

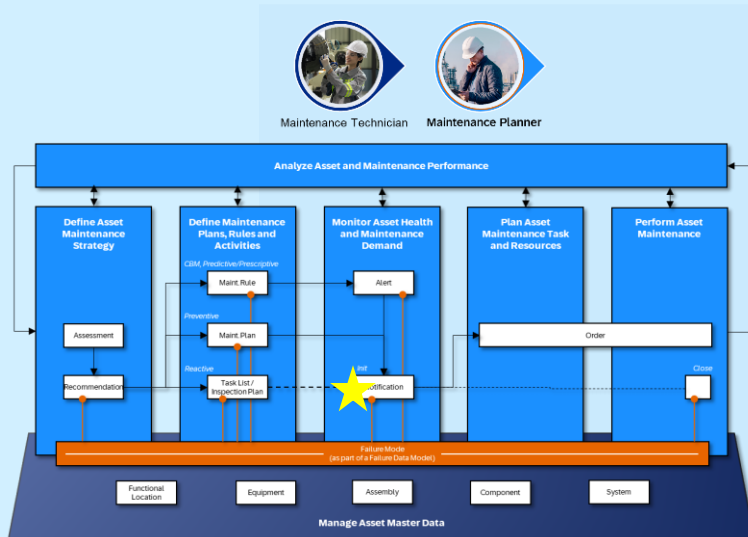


**SAP Asset Performance Management - Implementation Workbench -**



# From Maintenance Strategy to Execution

## Closed Loop Asset Management



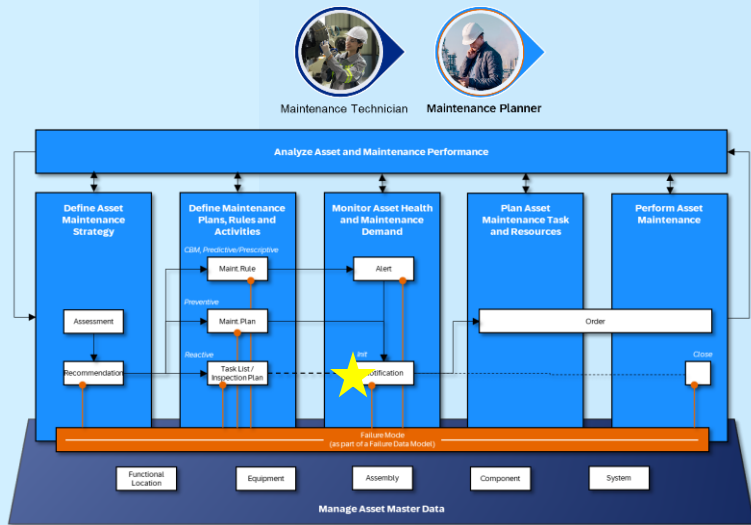
Create a Maintenance Request with **“intelligent” Failure Data recording** based on interrelated Failure Data from SAP Asset Performance Management



SAP S/4HANA  
- Maintenance Request-

# From Maintenance Strategy to Execution

## Closed Loop Asset Management



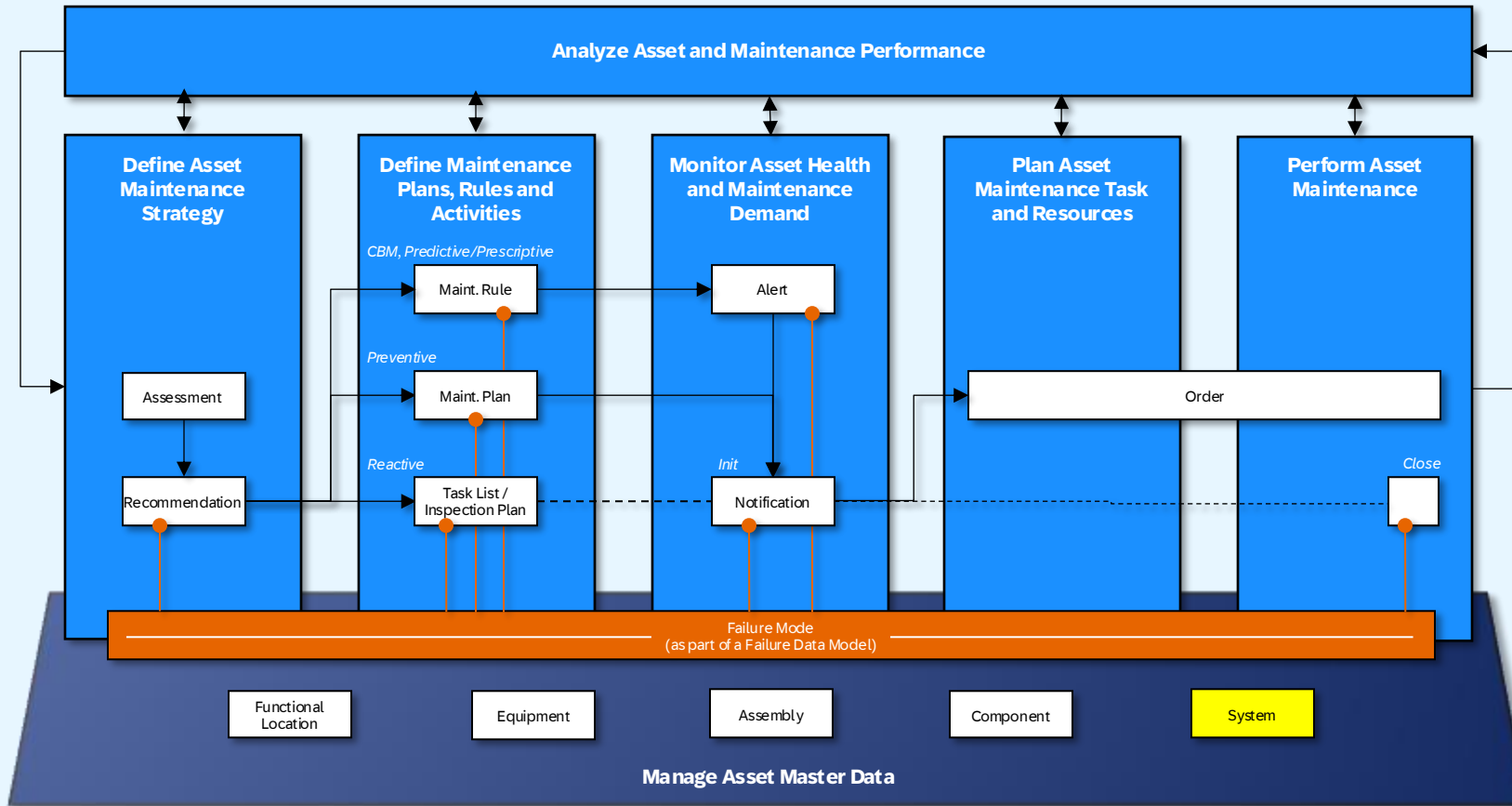
Screen a Maintenance Request with  
**“intelligent” Task Lists proposal** based on  
 recommendation implementation from  
 SAP Asset Performance Management

Task List	Recommendation	Recommendation Type	Recommendation Priority	Recommendation Mainte...	Recommendation Validity From	Recommendati...	Recommendation Subtype
<input type="radio"/> Centrifugal Pump Maintenance (A8781)	Pump_Casing Service Procedure (RCMD_REP_PRC_0001)	REACTIVE	2-High	Repair service			FMEA
<input checked="" type="radio"/> Task List Planning Plant: Plant 0001 (0001)							
<input type="radio"/> Inspect-updated delta demo - 14-Sep (A1101)	Routine Inspection of Booster Pump (RCMD_BPNIP_INSF_0001)	PROACTIVE	1-Very high	Inspection			FMEA CALENDAR
<input type="radio"/> Task List Planning Plant: Plant 0001 (0001)							

SAP S/4HANA  
 - Maintenance Request-

# From Maintenance Strategy to Execution

## High-Level Blueprint: System Object



### Key Principles

- Connect Maintenance Strategy to Execution via key Business Objects forming an E2E Business Process Flow
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### Key Goal

- Automate maintenance via E2E process integration to continuously improve the maintenance program for optimal asset performance

Asset Performance Management — Enterprise Asset Management



# System Object in Asset Master Data Management

## Complementary Perspectives and Structuring for Technical Objects

### Why

Current way of structuring assets provides only one view

- Customers have to decide on **one leading structure** that represents their assets
- This makes it difficult for end users to find and handle assets based on **different perspectives**

### How

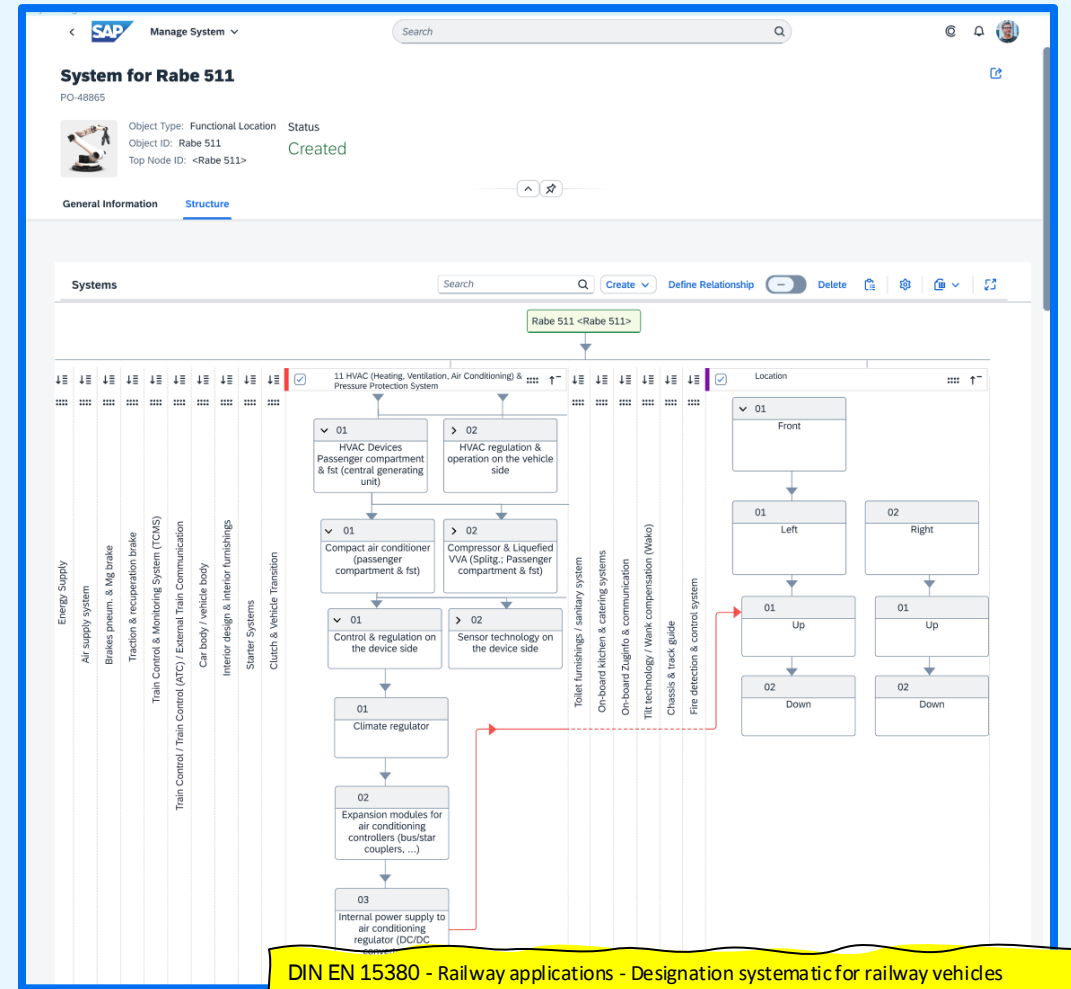
Introduction of a new master data object called “System”

- Based on **Industry Standards like ISO81346** describing multiple aspects of an Object
- **Complementary** and connected to existing Technical Object Structure
- **Integrated** into SAP Asset Performance Management and SAP S/4HANA Asset Management Process

### What

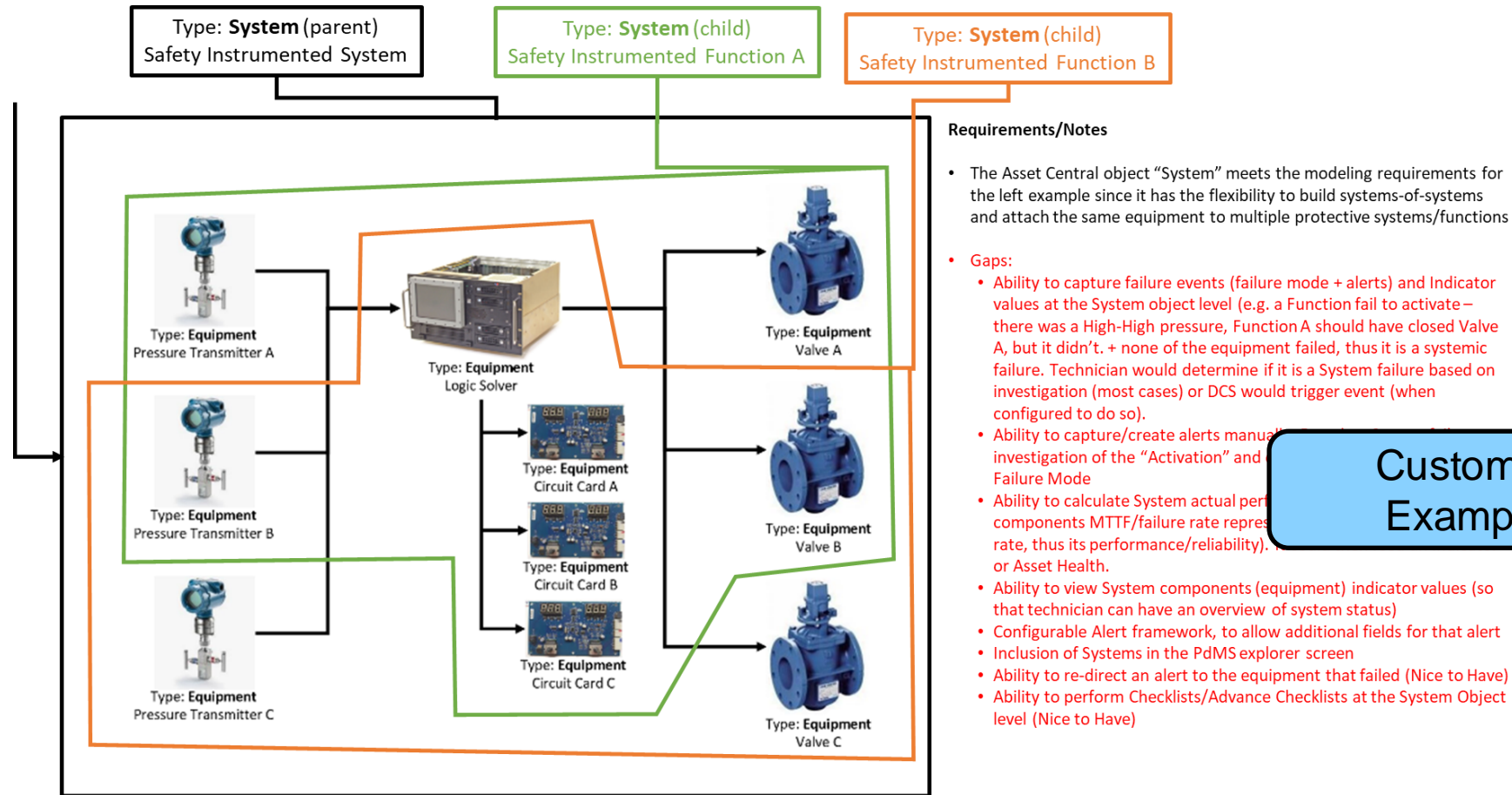
Apart from functional locations and equipment, additional structures and perspectives are needed, e. g.

- **Functionals Structures** describing the function of an Object
- **Product Structures** describing the components that fulfill the functions
- **Locational Structures** describing where the Object is located or mounted



# System Example from Oil & Gas, Energy Industry

## Integrated Protected System (IPS)



Customer Example



## From Maintenance Strategy to Execution

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## Dynamic Maintenance & Supply Optimization

Plan and optimize maintenance demand and its resource supply across different time horizons (long-, mid-, short-term)

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**Optimized Maintenance Demand and Supply**



## Integrate Design Time with Run Time

Synchronized information flow along the D2O process which feeds a digital twin and ensures interoperability and traceability along the Asset Life-Cycle

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**E2E Asset Master Data Life-Cycle Management**

# A combination that enables real business value.



# AI in Intelligent Asset Management

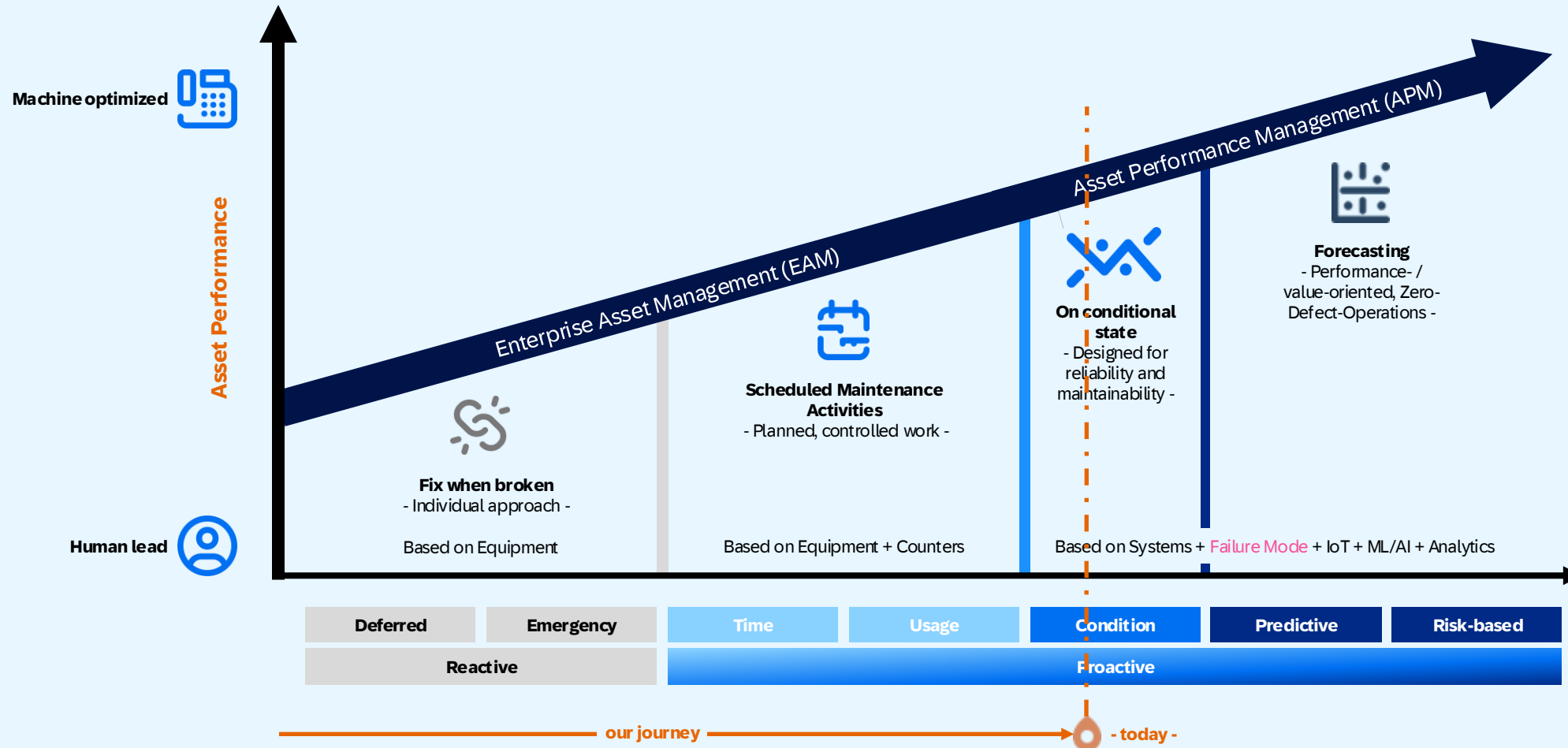
Its all about **Artificial Intelligence**

How to **embed Artificial Intelligence** fostering near-autonomous processes in **Asset Management**



# Maintenance Management Maturity Model

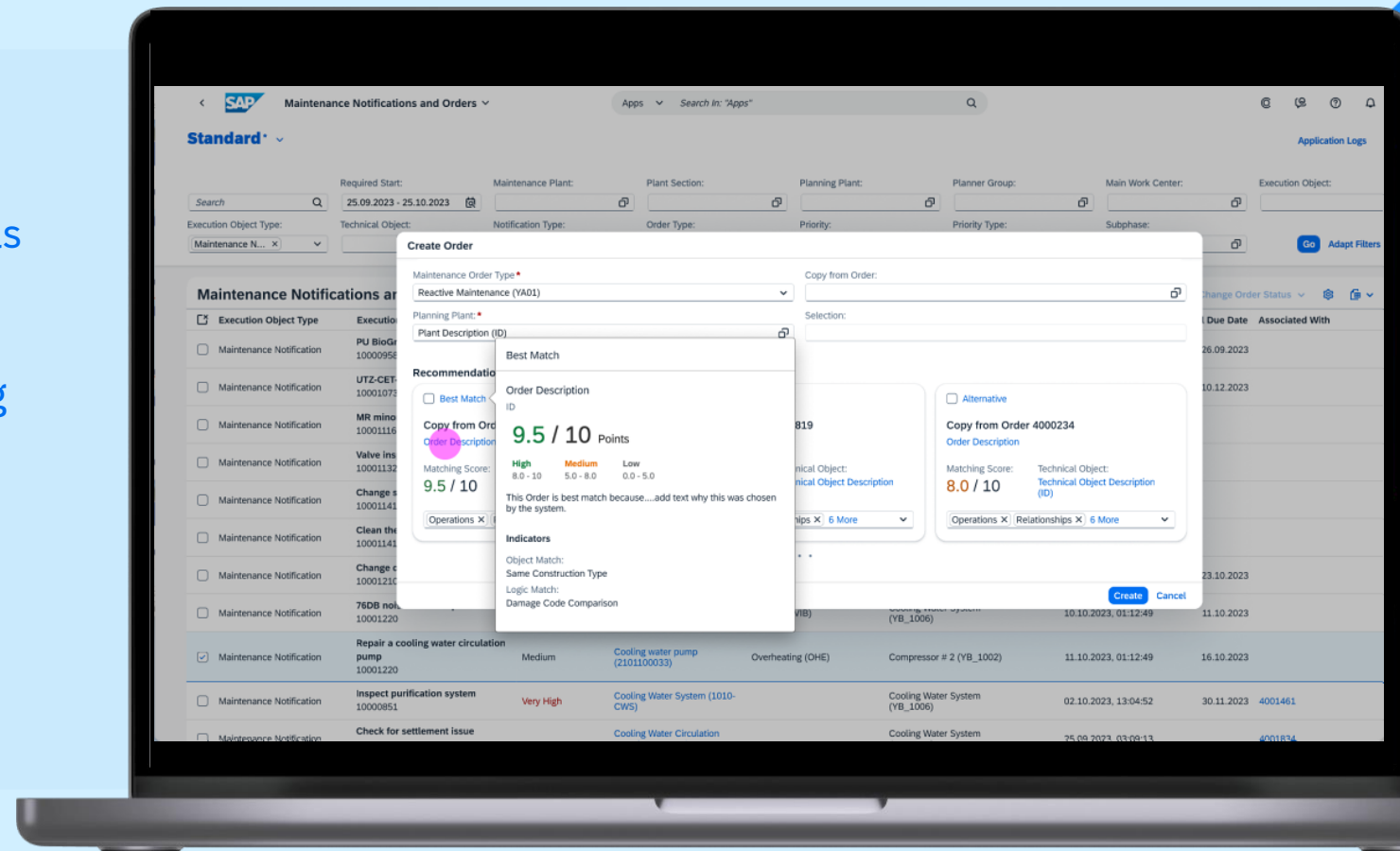
Focus on **Asset Performance** by managing Maintenance on Failure-Mode Level



# Utilizing AI to streamline Creation and Planning of Maintenance Orders

- Leverage historical data from maintenance orders and notifications
- Suggest matching historic orders and details (relationships, operations, components, services, documents etc.)
- Explainable recommendations by matching score and feature contributions

➔ **Improve efficiency and effectiveness in maintenance planning practices**



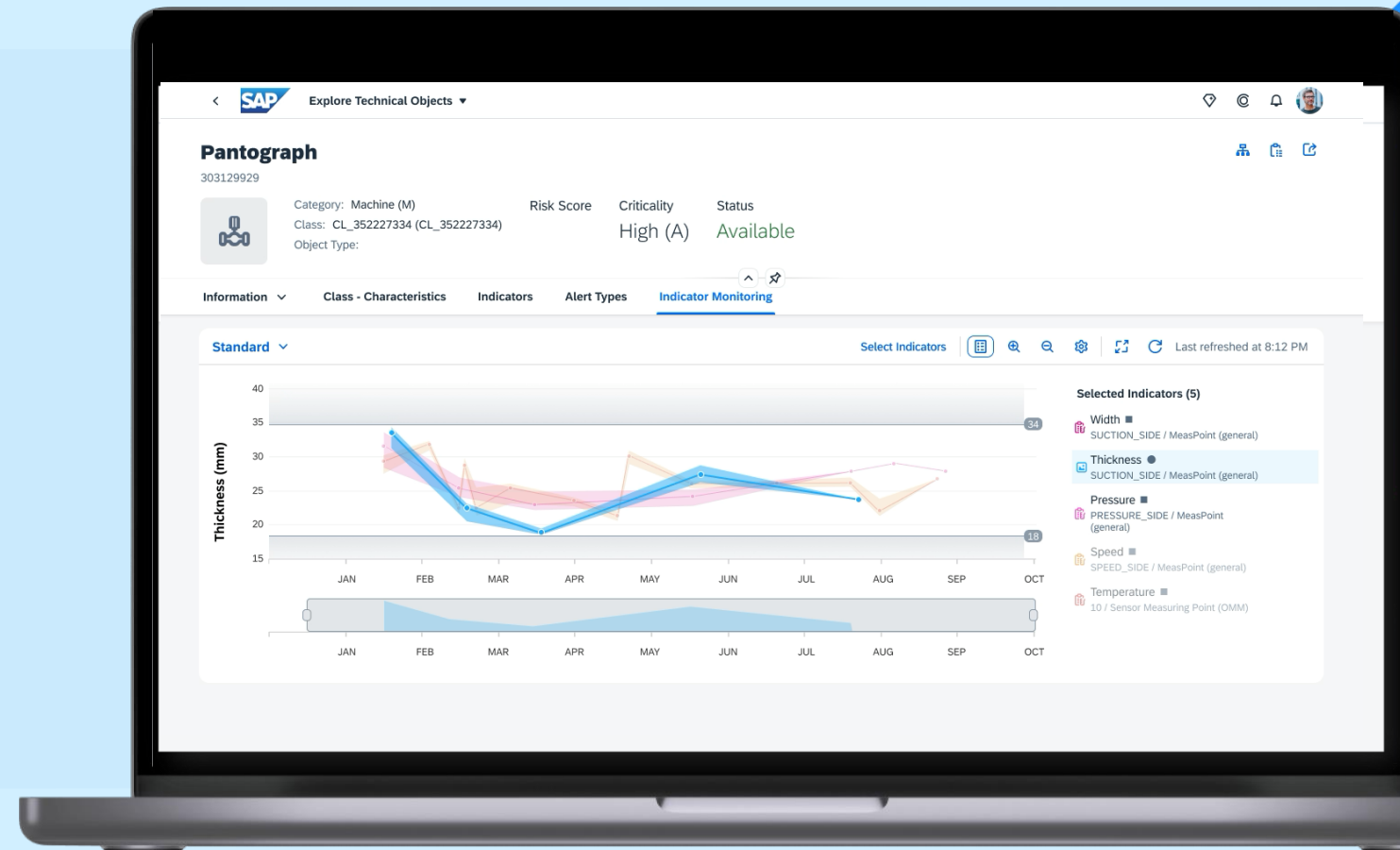
SAP S/4HANA

# Visual Asset Condition-Based Monitoring with AI

- Monitor asset condition using images
- Analyze images with AI to derive asset conditions such as wear, health, or failure modes
- Create automatically alerts and maintenance notifications when critical conditions has been detected



**Improve your maintenance strategy from reactive to condition-based maintenance**



SAP Asset Performance Management



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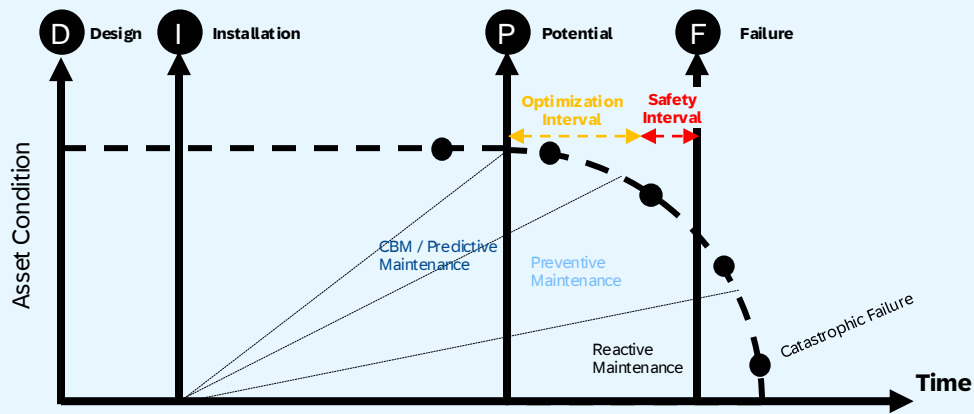


# Maintenance Scheduling and Optimization

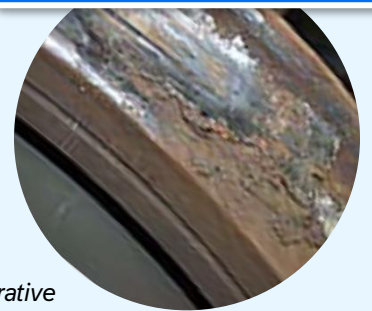
How to integrate **condition-based and predictive/prescriptive maintenance strategies** as **best-practice processes** for **targeted maintenance**?

How to include **asset health insights and criticality/consequence evaluations** across **different time horizons (short/mid-term)** to **dynamically arrange and optimize maintenance backlogs**?

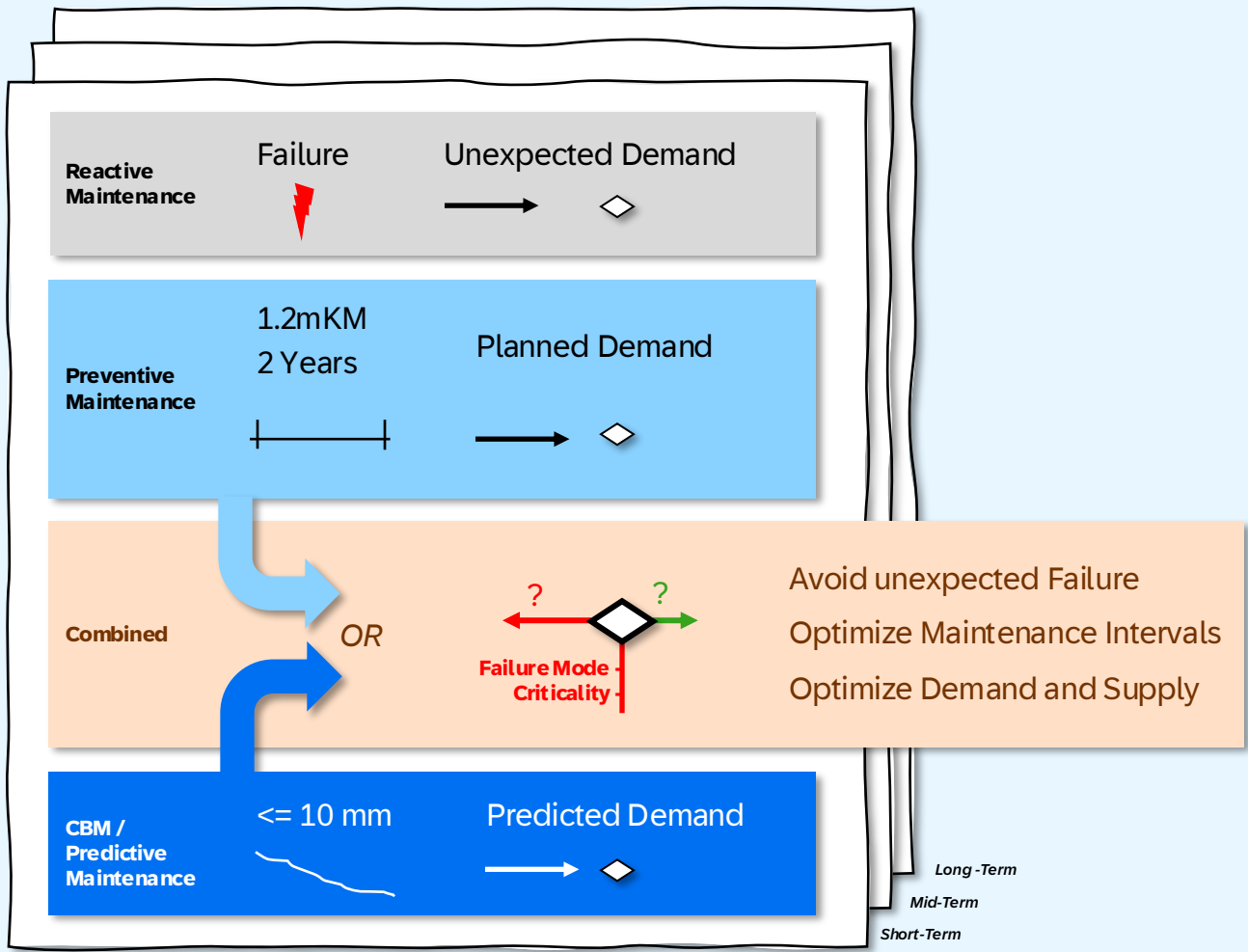
# Optimize Proactive Maintenance with Conditional Asset Health Insights



Wheel Degeneration

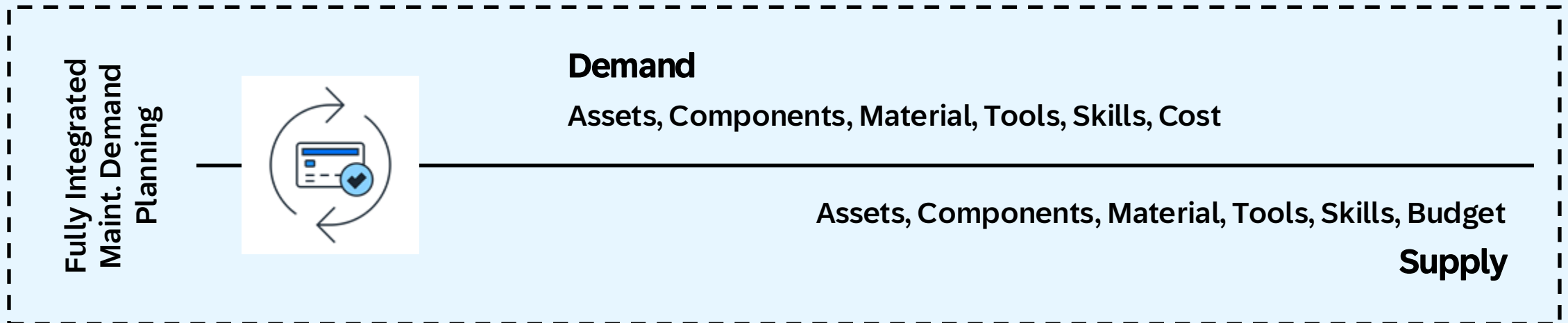
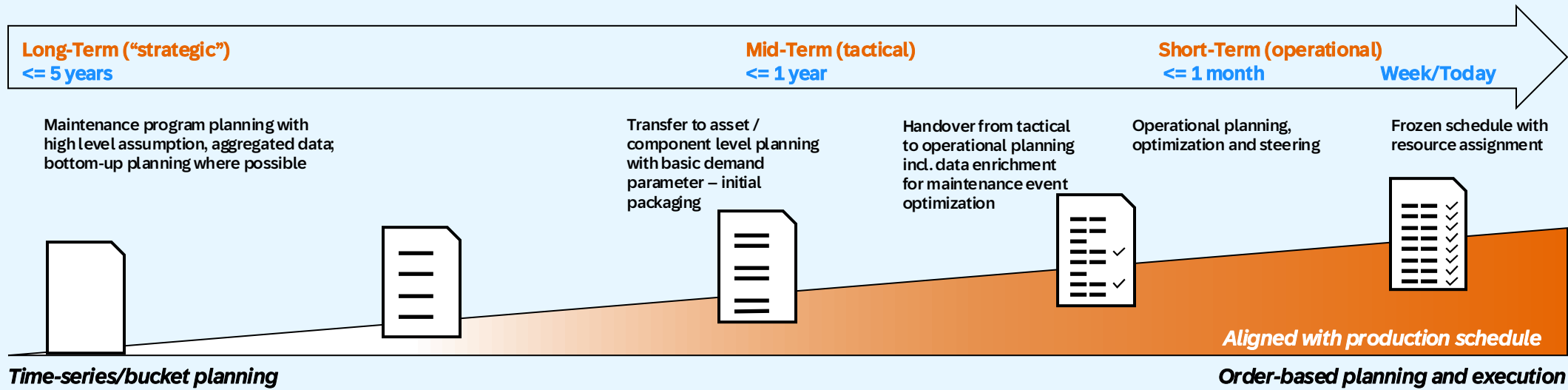


illustrative



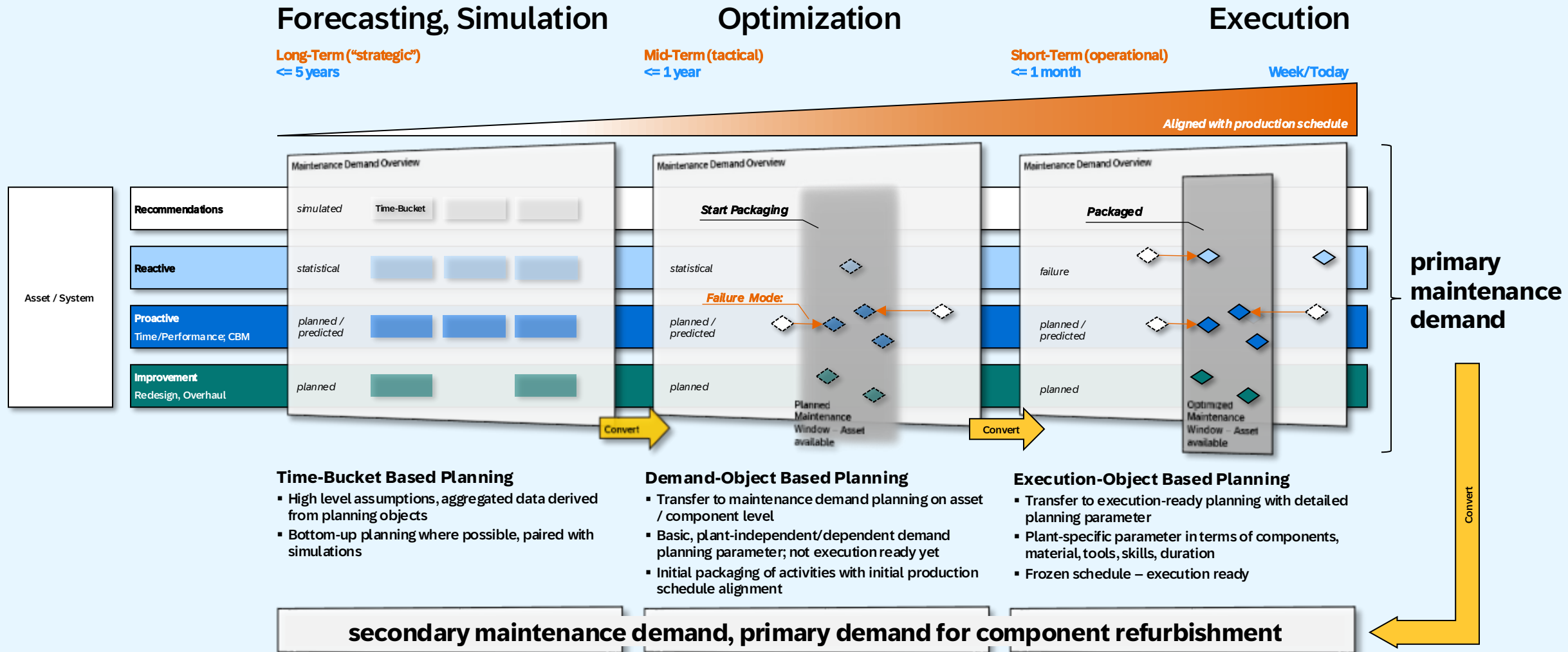
# Integrated Planning for Maintenance Demand and Supply Optimization

## Dynamic Maintenance Demand Planning and Optimization



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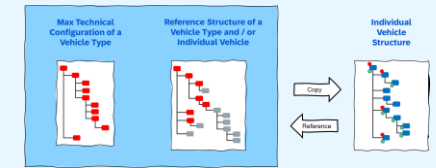
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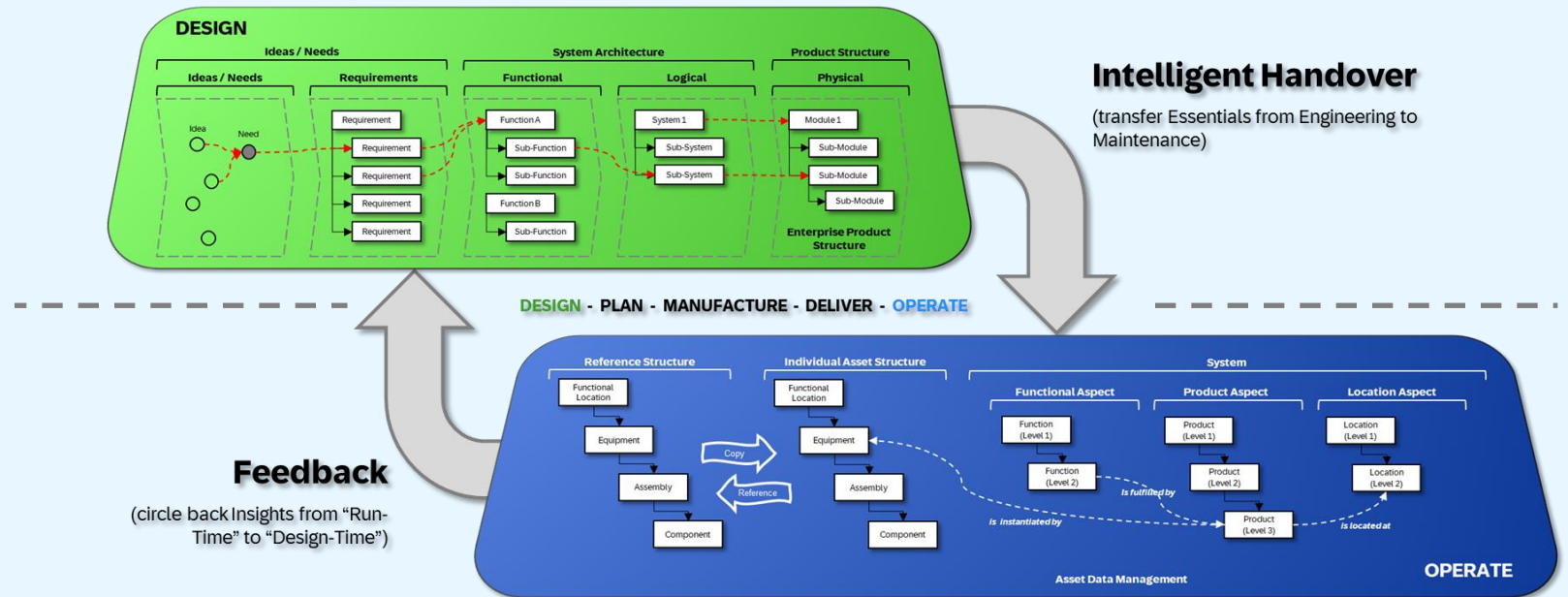
# Manage the Asset Life-Cycle from Design to Operate

## Integrate Product Design Time with Asset Run Time













**Rely on an integrated, 360° view for your Technical Asset connecting Product-, Reference- and Individual Structure across the whole Life-Cycle**

- Manage functional needs and requirements
- Cover the **technical configuration for rail-vehicles** for design and re-design purposes along the life-cycle based on **Enterprise Product Structure**
- Handover relevant information** from design time to run time for maintenance
- Manage asset information for **Individual rail-vehicles**
- Rely on a **Reference Structure** to copy and validate individual assets
- Form a set of inter-related, unique objects via the **System Object**



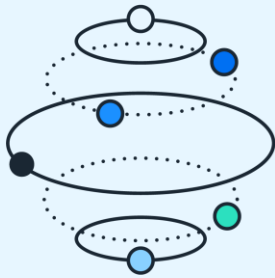
# Overview Priority Topics

<p><b>Master Data Management</b></p> 	<p><b>Condition Based Maintenance</b></p> 	<p><b>Maintenance Planning &amp; Scheduling</b></p> 	<p><b>Maintenance Execution</b></p> 	<p><b>Others</b></p> 
<ul style="list-style-type: none"> <li>▪ Product-, Reference- and Individual Vehicle Structures </li> <li>▪ Document Management System incl. Collaboration with 3<sup>rd</sup> Parties</li> <li>▪ System Object as Master Data Object </li> <li>▪ Unified and integrated Failure Data Management </li> </ul>	<ul style="list-style-type: none"> <li>▪ Intelligent Maintenance Plan Scheduling</li> <li>▪ ML / AI Integration to predict vehicle condition and remaining life </li> <li>▪ Visualization of Vehicle Condition</li> <li>▪ AI-based Processing of Notification (e.g. for Failure Data, Prioritization)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rolling 18-Month Planning and Scheduling </li> <li>▪ “Maintenance Demand Order” Object</li> </ul>	<ul style="list-style-type: none"> <li>▪ Optimized Maintenance Planning, Scheduling and Dispatching</li> <li>▪ Embedded Qualification Management and Processing</li> <li>▪ Digitize Workshops by Mobile Sophistication</li> </ul>	<ul style="list-style-type: none"> <li>▪ Collaborative Maintenance and Service with 3<sup>rd</sup> Parties</li> <li>▪ “Warranty Hub” for collaborative warranty processing</li> <li>▪ Case Management for Reliability Engineering</li> </ul>

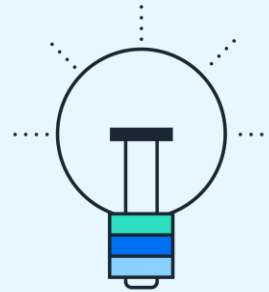
 Addressed Highlights in Previews Slides

## Summary

# SAP Intelligent Asset Management



We are committed to our vision to **Make the world's assets operate effectively**



We have a plan and execution strategy to help transform into a **performance-oriented Asset Management**



With SAP's Intelligent Asset Management Suite you have the business blueprint to **manage your assets of the future**



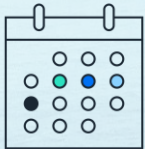
# Summary



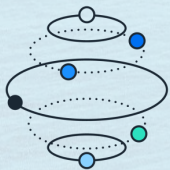
We added **intelligence to asset management** by extending Enterprise Asset Management with **SAP Asset Performance Management**



We closed the loop of **maintenance strategy and execution** so that you can **continuously improve your maintenance operations**



We plan to add a seamlessly integrated **Maintenance Scheduling and Optimization** capability to cover the Mid-term Horizon; next to Long- & Short-Term



We plan to add **AI capabilities into our e2e process** fostering a **near-autonomous Asset Management experience**

# More Information

## SAP Intelligent Asset Management

[SAP Roadmap – Asset Management](#)

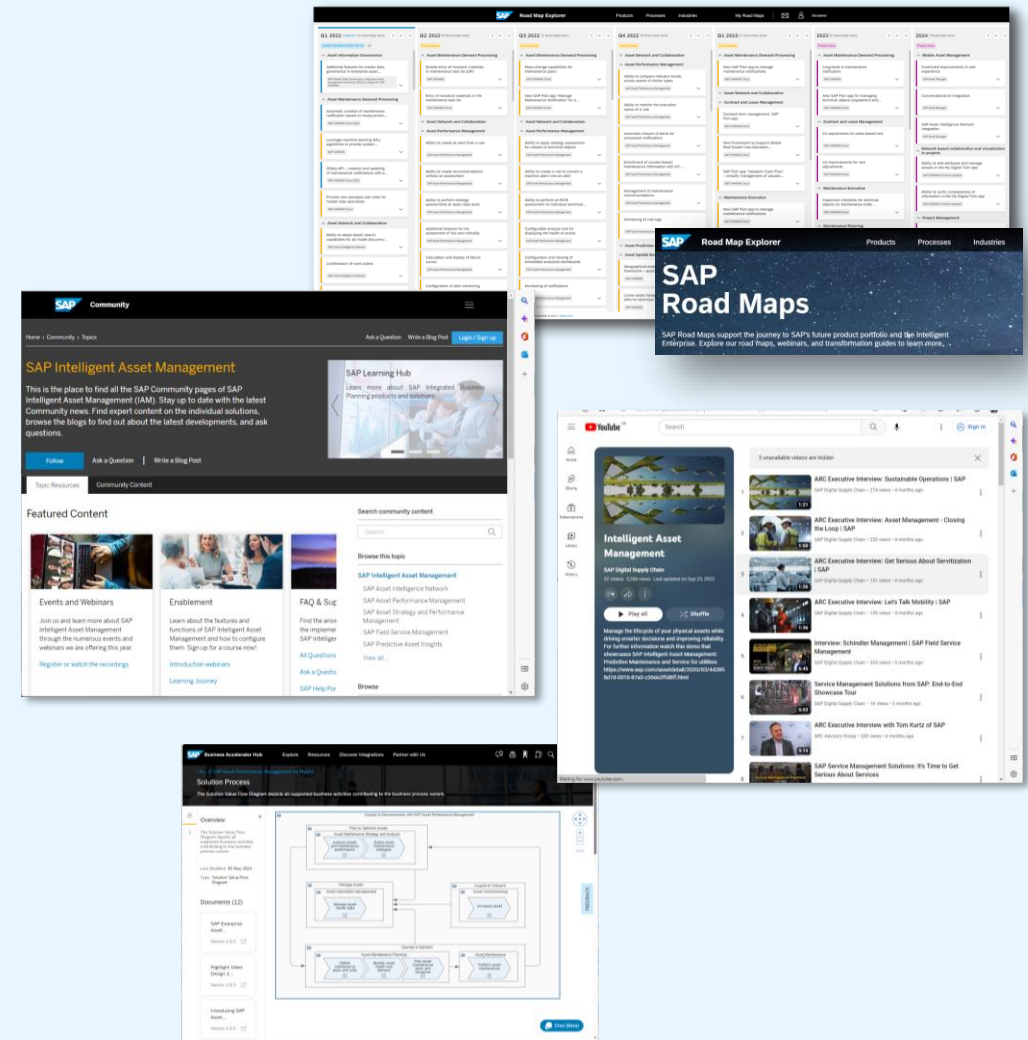
[Asset Management Software Solution @ SAP](#)

[Intelligent Asset Management – Community](#)

[Intelligent Asset Management – Video Channel \(Youtube\)](#)

[Intelligent Asset Management – Strategy Document](#)

[Business Accelerator Hub – Acquire to Decommission](#)





# Q&A

# THANK YOU

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