SAP Digital Supply Chain for Intelligent Asset Management
Desires, Delivered in the Experience Economy

Glenn Sawyer, Global Product Champion, Intelligent Asset Management
Ryan Jones, Solution Advisor, Intelligent Asset Management

THE BEST RUN SAP

Strong Momentum for Intelligent Asset Management

**Digital readiness surveys show that companies clearly see
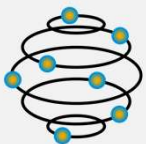the need to leverage the digital capabilities to optimize their asset management:**

76% of organizations consider it important to **predict potential failures** by leveraging data models

21% Only 21% of organizations employ **predictive and preventive maintenance** effectively

83% of organizations consider it important to have asset management processes and related metrics standardized across facilities and regularly tracked

13% Only 13% of organizations are able to drive asset performance based on analysis of real-time sensor data, along with historical maintenance data
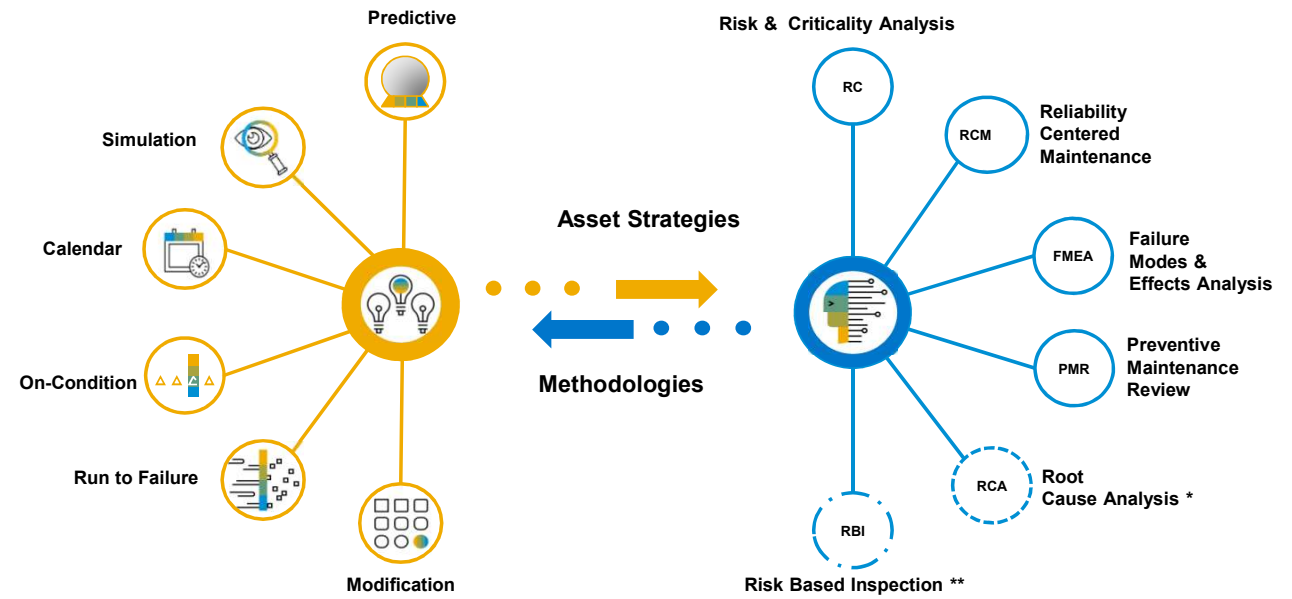
Source: Business Performance Benchmarking by SAP 2017

Evolve from reactive to reliability-centered & prescriptive maintenance

Calendar based maintenance results in **over-maintaining** assets at higher costs / less availability

Reactive based maintenance is too late for efficient planning and optimization
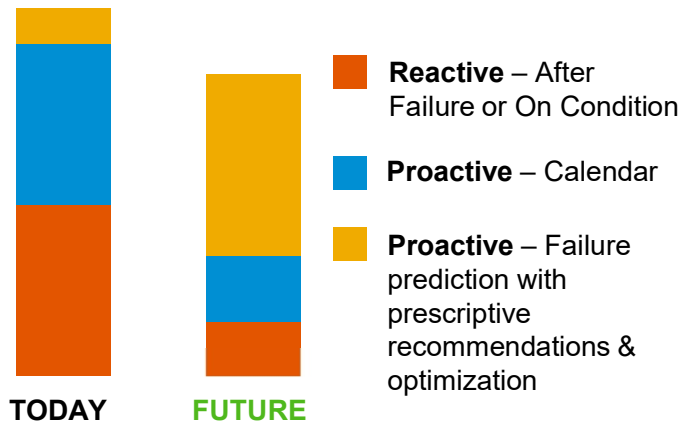
Intelligent Asset Management supports **data driven proactive** strategies with execution and optimization based on reliability & other goals. This achieves the delicate balancing of **profitability, asset health** and **availability**

Reactive – After Failure or On Condition

Proactive – Calendar

Proactive – Failure prediction with prescriptive recommendations & optimization

TODAY   **FUTURE**

Predictive

Risk & Criticality Analysis

RC

Simulation

RCM — Reliability Centered Maintenance

Calendar

Asset Strategies

FMEA — Failure Modes & Effects Analysis

On-Condition

Methodologies

PMR — Preventive Maintenance Review

Run to Failure

RCA — Root Cause Analysis *

RBI

Modification

Risk Based Inspection **

*Future Functionality
** Partner Solution

Forward Together

Customer value examples from SAP Intelligent Asset Management

30%

Shorter lead time for investment decisions

- Wien Energie faces new market conditions and regulation
- To help align investment with corporate strategy, Wien implemented SAP Portfolio and Project Management for all types of investments
- Over 600 users managing more than 200 complex programs, spanning financials, controlling, and resource management
- Increased forecast accuracy with more efficient budget control

"With Galileo IoT platform based on SAP, we bring our customers' logistics equipment up to date with the latest …technology."
Stephan Riemensperger, Head of Sales Tools, GEBHARDT Fördertechnik GmbH

- Developed a platform to revolutionize intralogistics for GEBHARDT customers offering content, design and maintenance services
- Implemented SAP Asset Intelligence Network as the collaboration platform
- Connected equipment for sensor based condition monitoring and predictive maintenance

40%

Decrease in work order processing time

- Synchronized field work with deployment of SAP Mobile Asset Management integrated with Esri Geographical Information
- Improved data quality, reduced duplication and simplified data access and analysis in the field
- Implementation in 6 months

8%–10%

Reduction in maintenance costs

- Implemented SAP Predictive Maintenance and Service solution for real-time monitoring of trains
- Used algorithmic predictions and indicators for dynamic planning
- Improved asset reliability and service, thanks to predictions and error forecasting
- Reduced maintenance costs

How We Enable Intelligent Asset Management

SAP Intelligent Asset Management Portfolio – Business Capabilities
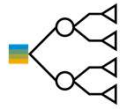
Innovative & collaborative business processes

Enable best practices for asset performance management. Transform with shared services for asset intelligence. Collaborate with partners throughout the asset lifecycle

Real-time insights and Connected Assets

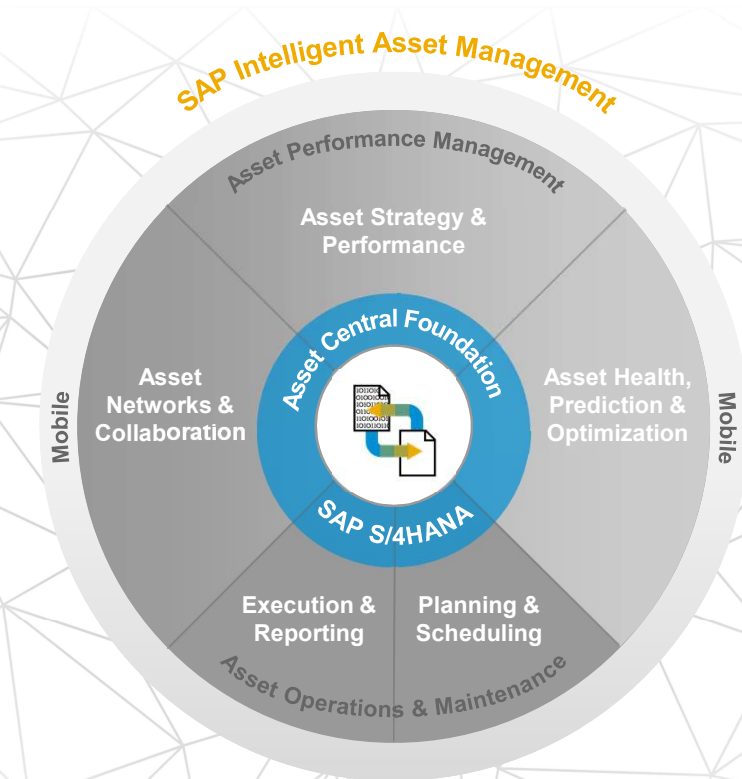End-to-end visibility on strategic, tactical and operational level, with real time information from IoT

Predict, optimize, simulate, prescribe

Drive smarter decisions, improve reliability, enable prescriptive maintenance and automate processes with IoT, advanced analytics, machine learning and simulation

Integrated asset lifecycle processes

Integrate maintenance strategy, planning and execution; and across enterprise silos with all users sharing the same data via easy analytical user experience and mobile

SAP Intelligent Asset Management

Asset Performance Management

Asset Strategy & Performance

Asset Central Foundation

Asset Networks & Collaboration

Asset Health, Prediction & Optimization

SAP S/4HANA

Mobile

Mobile

Execution & Reporting

Planning & Scheduling

Asset Operations & Maintenance

SAP S/4HANA Asset Management
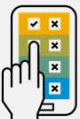## Execution and Reporting

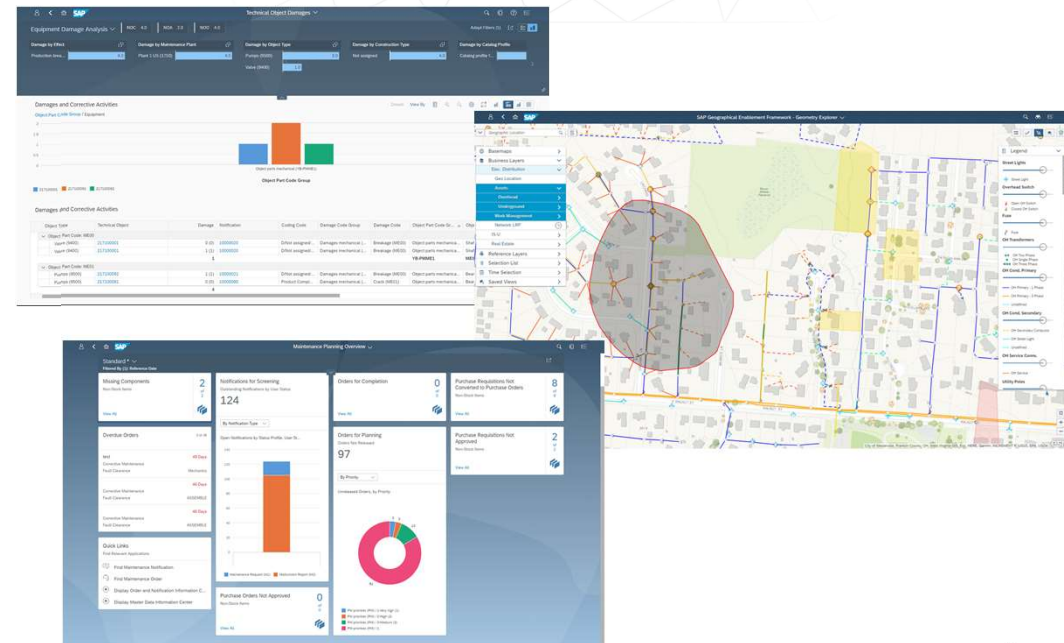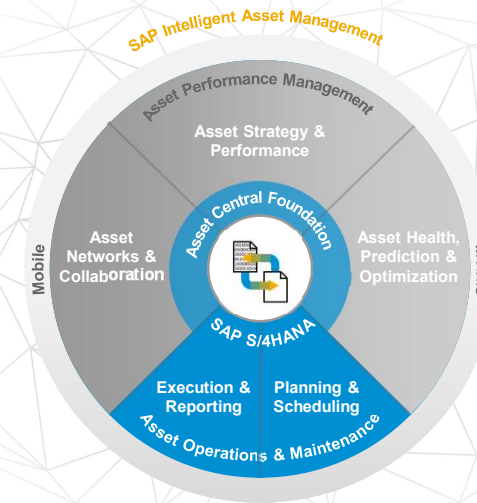Execute planned and unplanned maintenance tasks to help ensure optimal operations

Manage preventive and condition-based maintenance proactively

Increase equipment reliability and improve asset usage as well as safer maintenance processes

Manage asset information for work orders, maintenance, measurements, inspections, metering, and inventory

SAP Intelligent Asset Management
Asset Network and Collaboration

Enable secure asset information collaboration across your business network

Collaborate with manufacturers, operators, service suppliers, across the network on asset information

Provide one network channel for electronic handover of technical asset and maintenance data to OEMs, service providers, and procurement vendors

Improve data reliability, reduce master data maintenance, and maintain higher asset availability
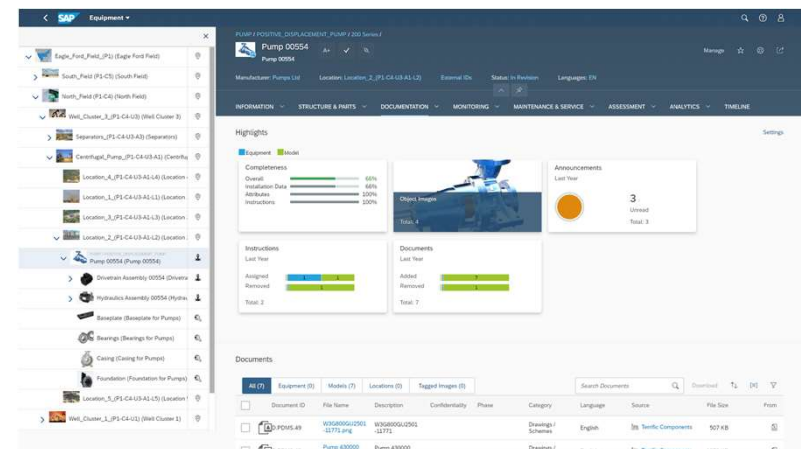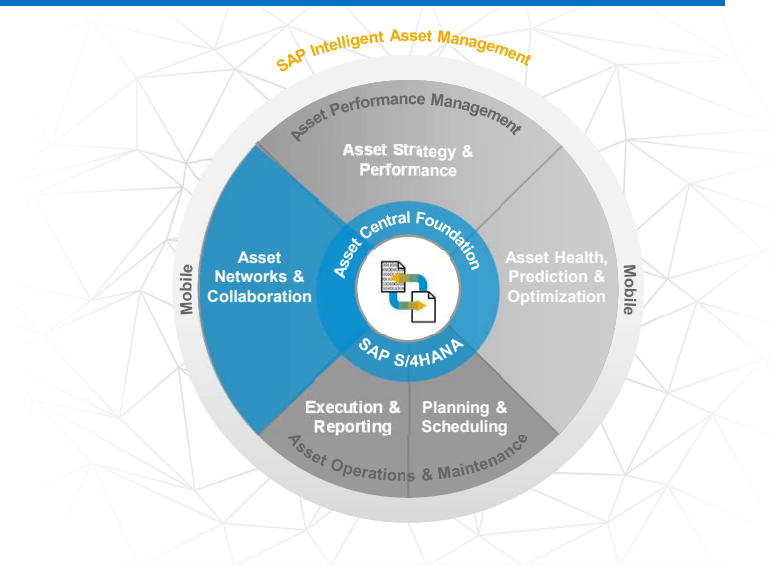
SAP Intelligent Asset Management
## Asset Strategy and Performance

Segment assets based on risk, criticality, impact, and environmental factors to determine best maintenance strategies at lowest cost and risk

Adopt Reliability Centered Maintenance processes, considering failure modes, effect and root causes

Manage performance to optimize return on assets across lifecycles. Monitor, review, and improve maintenance plans and budgets
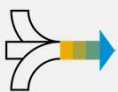
Reduce bottlenecks, improve decision making, and prevent incidents using a holistic view of asset types and maintenance strategies
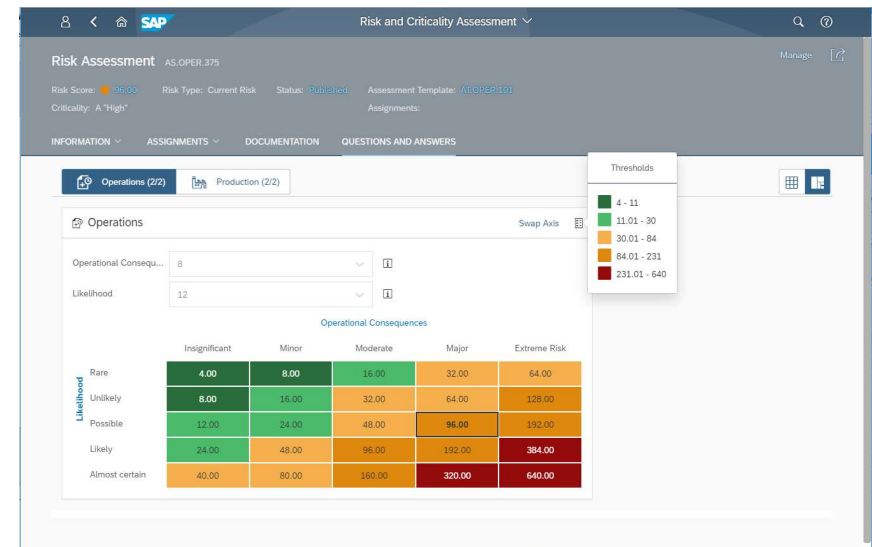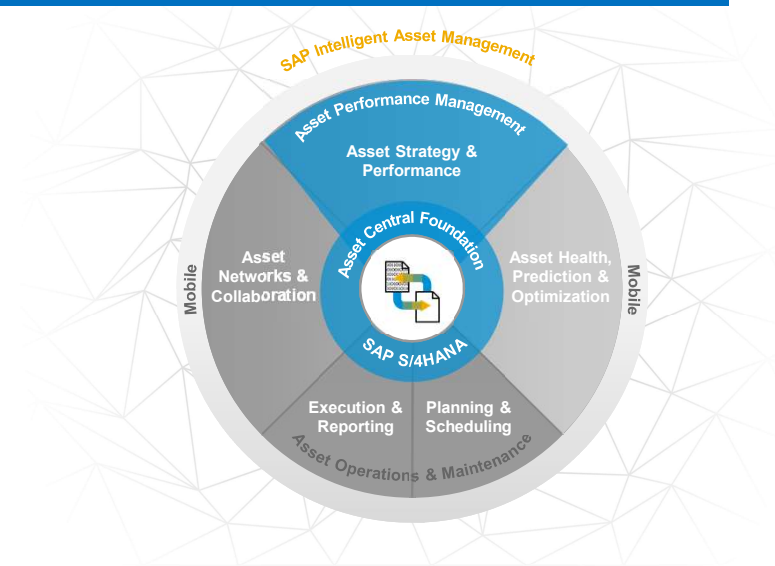
SAP Intelligent Asset Management
Asset Health Prediction and Optimization

Optimize the availability of your assets by using predictive maintenance and service capabilities and the Internet of Things to take corrective actions early

Collect and analyze sensor data from physical assets to predict operational failure
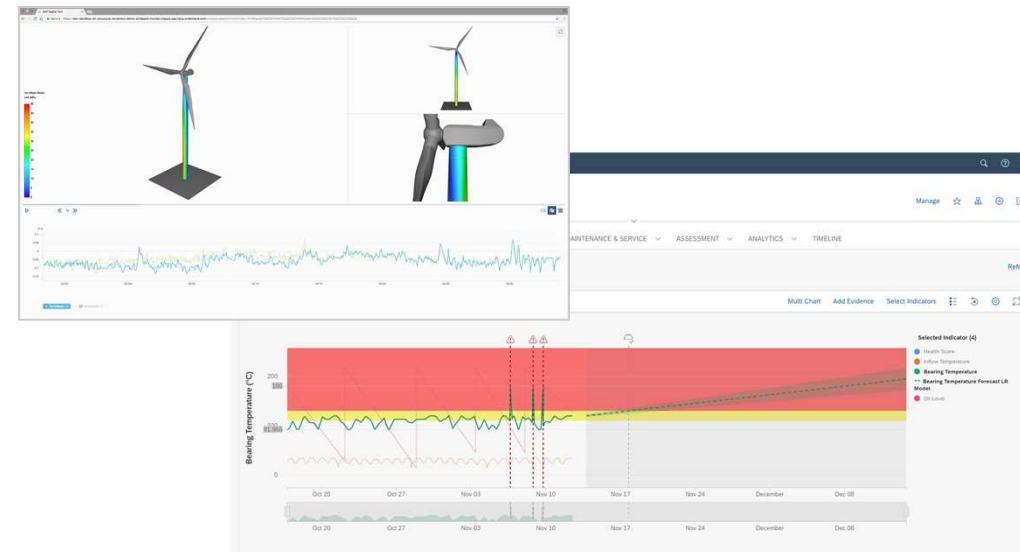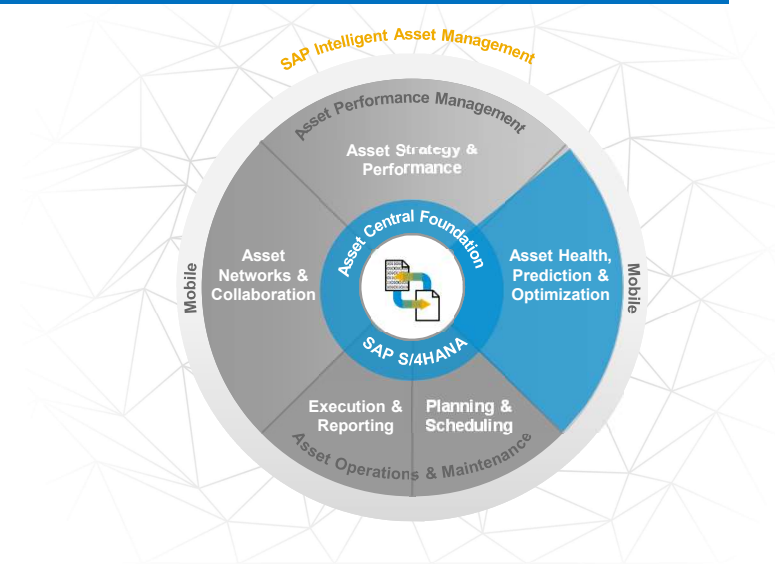
Initiate preventive countermeasures that trigger service or maintenance orders

Optimize asset performance with a closed-loop maintenance and service process

Create physics-based digital twins of industrial assets based on a real-time and predictive engineering analysis

SAP Intelligent Asset Management
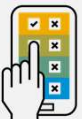## Mobile Asset Management

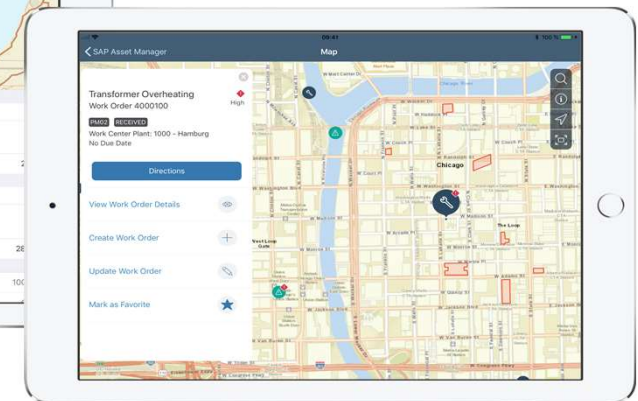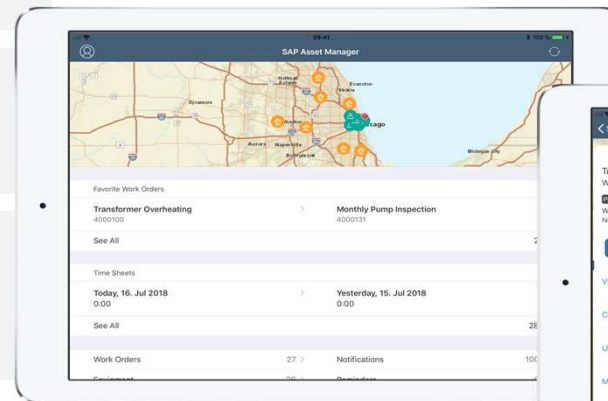Eliminate paperwork while reducing downtime and maintenance backlog

Extend and improve asset life and reliability by shortening work cycles

Turn capital spending into operational investments using cloud deployment

Manage existing work and asset data whether you're online, offline, or occasionally connected

SAP Digital Supply Chain for Intelligent Asset Management
Desires, Delivered in the Experience Economy

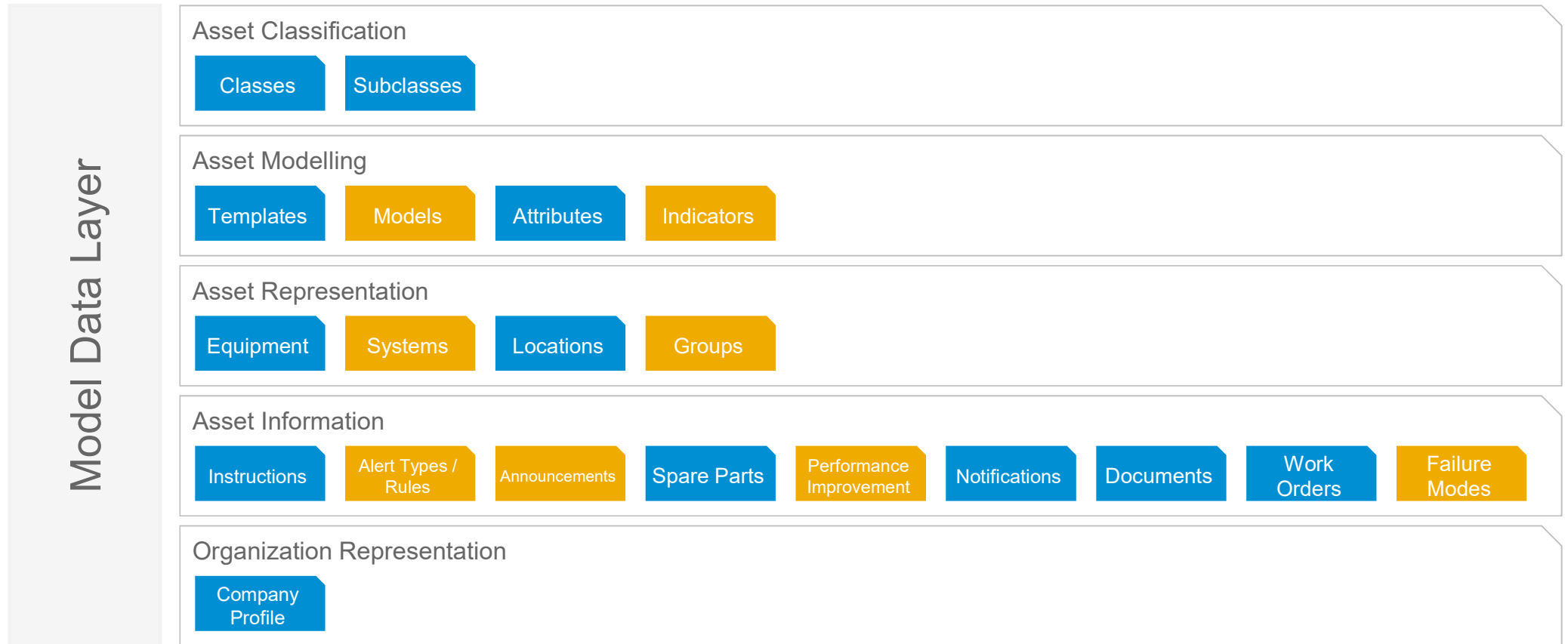## Intelligent Asset Management

- Adopt new **Collaborative** processes.

- Connect assets with **Industry4.0** for real time insights, predictive and prescriptive maintenance.

- Integrate **Strategy, Planning and Execution** to optimize asset life, service, OEE and costs

- **Connect** Maintenance operations across the enterprise, removing **silos**

SAP Intelligent Asset Management

Asset Performance Management

Asset Strategy & Performance

Asset Networks & Collaboration

Asset Central Foundation

SAP S/4HANA

Asset Health, Prediction & Optimization

Mobile

Mobile

Execution & Reporting

Planning & Scheduling

Asset Operations & Maintenance

SAP Asset Central - Next-Generation Data Model

Model Data Layer

Asset Classification
- Classes
- Subclasses

Asset Modelling
- Templates
- Models
- Attributes
- Indicators

Asset Representation
- Equipment
- Systems
- Locations
- Groups

Asset Information
- Instructions
- Alert Types / Rules
- Announcements
- Spare Parts
- Performance Improvement
- Notifications
- Documents
- Work Orders
- Failure Modes

Organization Representation
- Company Profile

New Innovations to improve Asset Master Data

Collaborate in a Common Asset Taxonomy

Built-in Components

Structure & Hierarchy

Location

Technical Plans

Attributes & Classification

Spare Parts List

Firmware Information

3D Model

Warranty Info

Documents
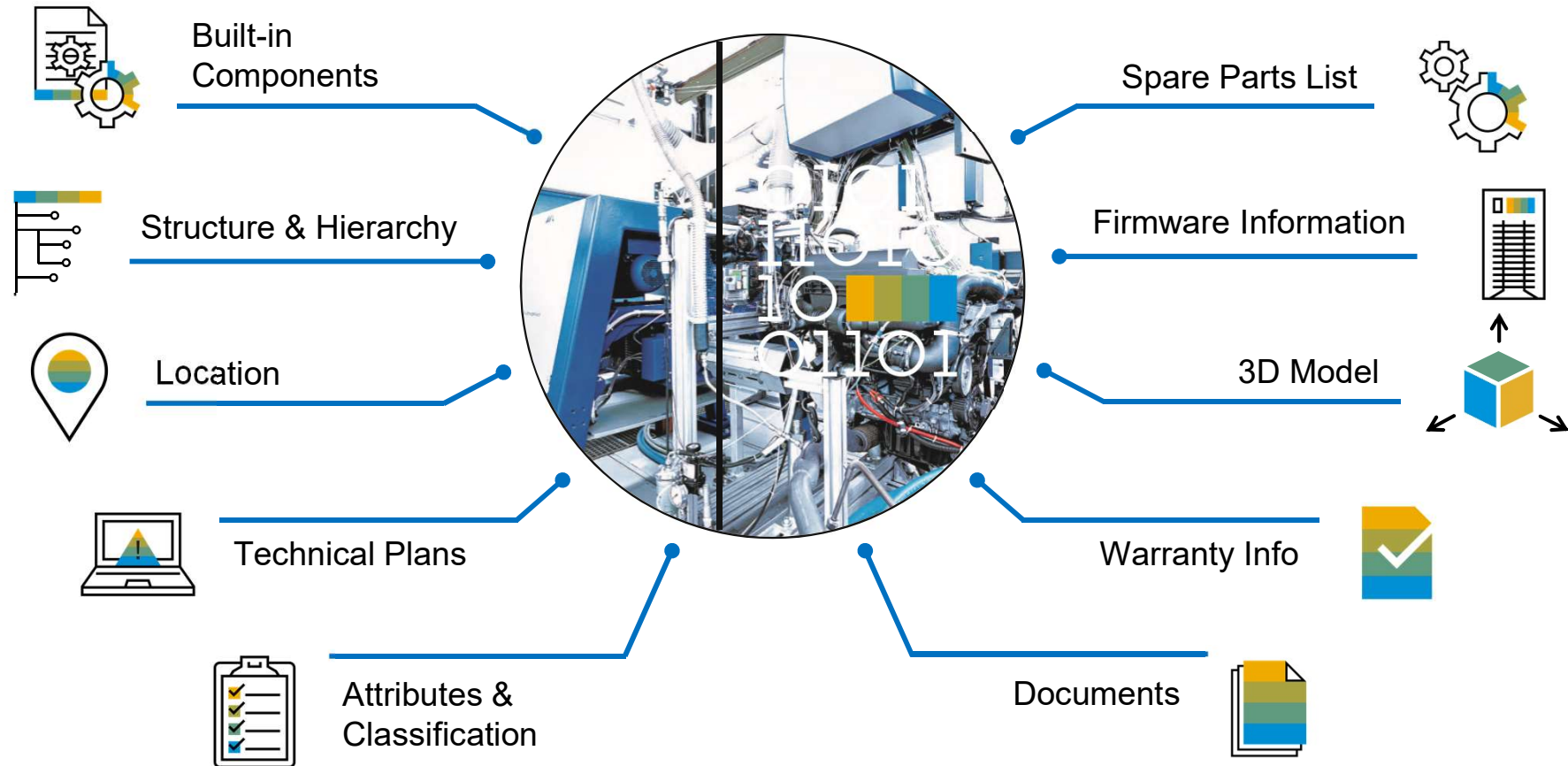
ASSET DATA INTEGTITY

Up to Date | Accurate | Comprehensive | Process-enabled

Customer Story – Kaesser Kompressoren

Process Innovation

| IT / OT Connectivity | Condition Monitoring Remote Service | Fault Pattern Recognition | Machine Health Prediction |

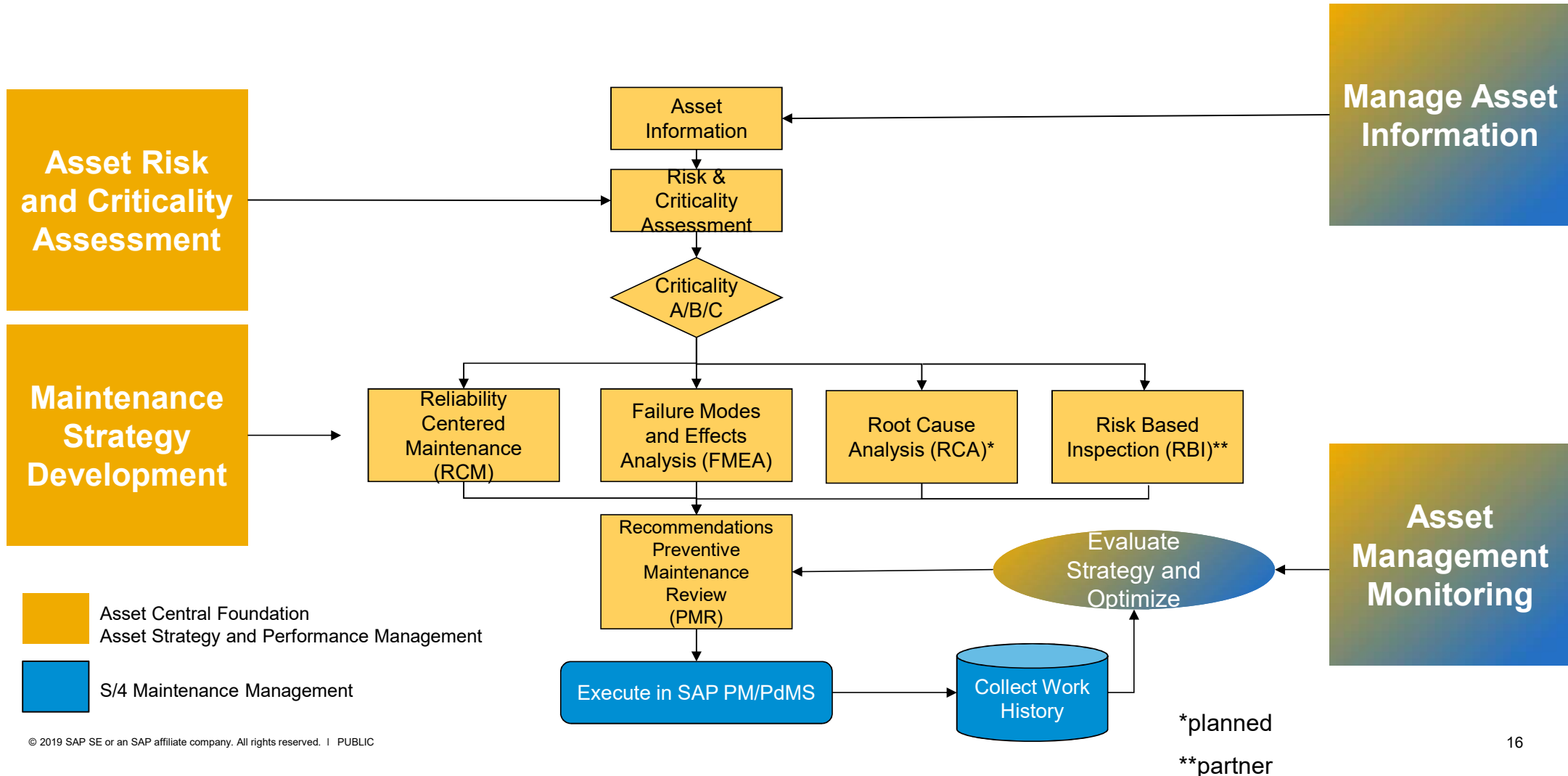| Create Service Order | Schedule Order | Execute Order on mobile device | Visual Support |

Benefits

- AIN and PdMS as an enabler for the new business model
- Improved availability of compressor stations
- Move from unplanned to planned maintenance

KAESER KOMPRESSOREN ®

Continuously Improve Maintenance Processes with ASPM

Manage Asset Information

Asset Risk and Criticality Assessment

Maintenance Strategy Development

Asset Management Monitoring

Asset Information

Risk & Criticality Assessment

Criticality A/B/C

Reliability Centered Maintenance (RCM)

Failure Modes and Effects Analysis (FMEA)

Root Cause Analysis (RCA)*

Risk Based Inspection (RBI)**

Recommendations Preventive Maintenance Review (PMR)

Evaluate Strategy and Optimize

Execute in SAP PM/PdMS

Collect Work History

Asset Central Foundation
Asset Strategy and Performance Management

S/4 Maintenance Management

*planned

**partner

16

SAP Predictive Maintenance and Service
Core Capabilities

Decision Support for Asset Management & Reliability Professionals

A 360 Degree View of Assets	Advanced Analytics for Decision Support	Intuitive and Scalable Machine Learning	E2E Process Integration
A comprehensive view across asset model, master, transactional and performance data in a single solution	Advanced analytics to support maintenance execution and strategy decisions	Machine learning for maintenance professionals… *"machine learning for the masses"*	Part of a comprehensive asset management portfolio

Customer Example
Train Operator

| Run to Failure | Preventative | Predictive |

*

Company

Owns and operates a fleet of around **2,000 electro-trains, 2,000 locomotives and 30,000 coaches and wagons**
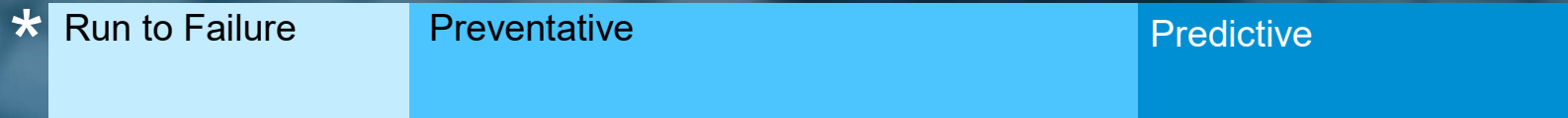
40% of maintenance is currently **reactive**

*The maintenance strategy proportions are for illustration purposes only and not reflective of actual customer percentages

Customer Example
Train Operator

Run to Failure	Preventative	Predictive

Solution

- Improve effectiveness of maintenance programs
- Data fusion between IT and OT data
- Remote train diagnostics
- Engineering rules and predictive models
- Dynamic planning of maintenance schedules

Improved Program Effectiveness Starting with Improvements to Preventative Maintenance Plans

BRAKES

Energy Dissipation versus **Mileage**

DOORS

Open/Closure Cycles & Times versus **Mileage**

Benefits

- Higher asset availability & passenger satisfaction
- Projecting **100M Euro savings** per year in maintenance operations costs when fully implemented

SAP Intelligent Asset Management
Mobile Asset Management

Eliminate paperwork while reducing downtime and maintenance backlog

Extend and improve asset life and reliability by shortening work cycles

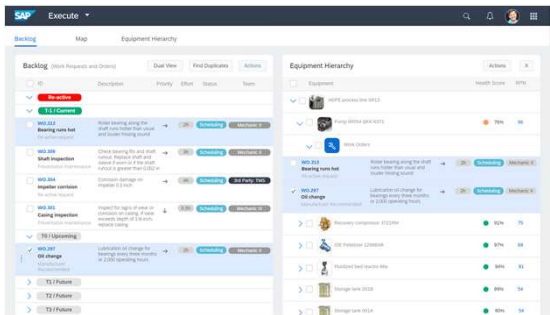Turn capital spending into operational investments using cloud deployment
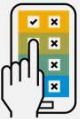
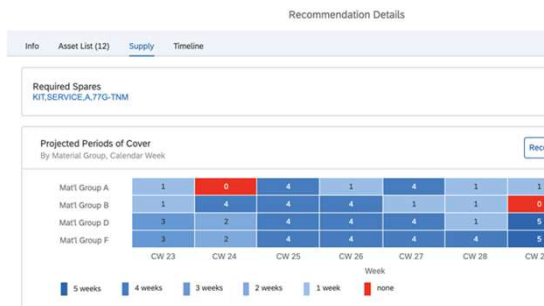Manage existing work and asset data whether you're online, offline, or occasionally connected
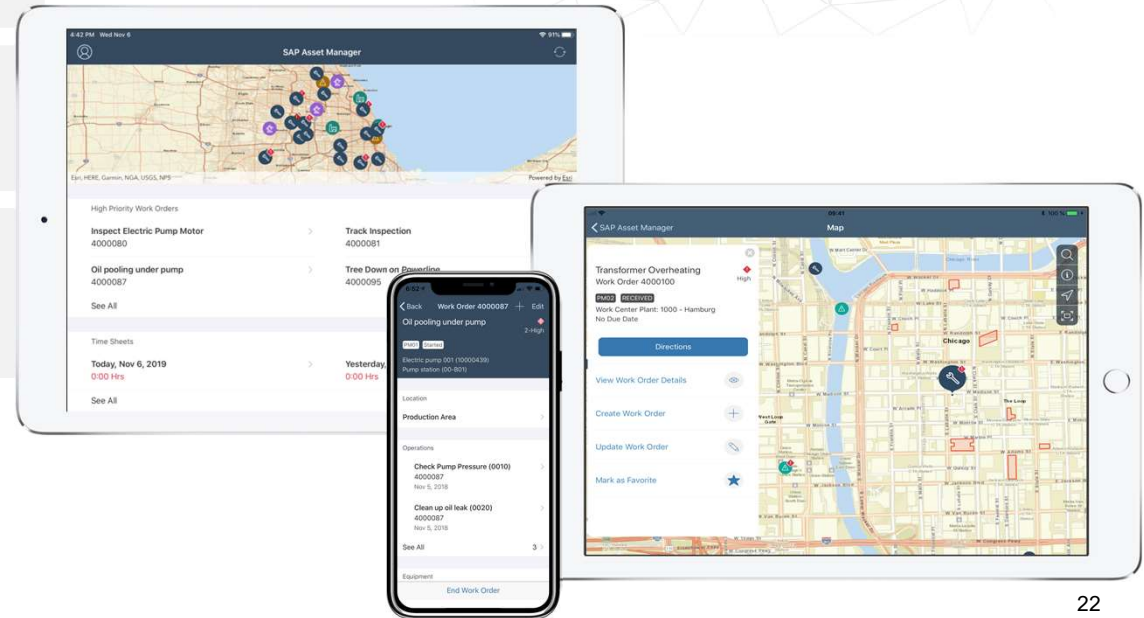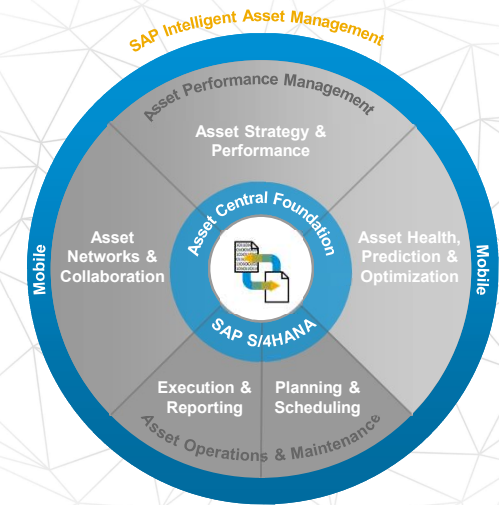
Investment Priorities for Intelligent Asset Management

Collaborative and IoT enabled Work Order*

Integrated processes with manufacturing; supply chain; service and procurement using one common 'asset central' foundation

Content, Industry Standards and Extensions provided via subscription through digital store

SAP Cloud Platform, Hyper-scalers and Extensibility
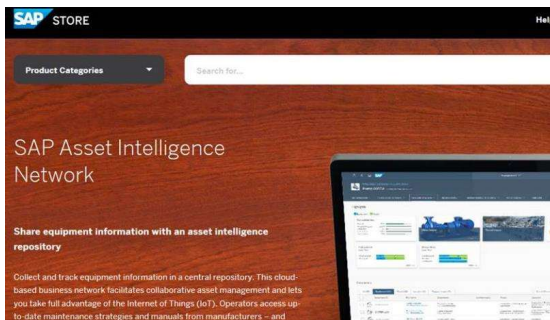
Usability: Fiori; Native Apple / Android Apps; 3D and Augmented reality
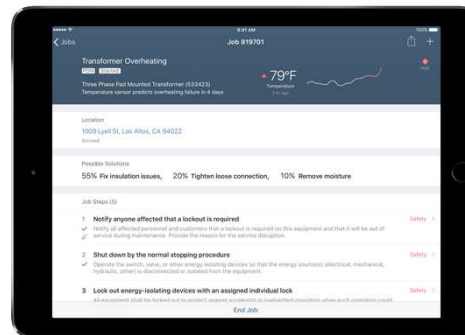
Unified IAM and EAM for continuous performance optimization

1

SAP are delivering IAM and Maintenance Execution as one Solution

Get Started

2

Adopt now our cloud IAM solutions as you upgrade to your S/4 system

Be Fast

THANK YOU

Glenn Sawyer

Global Product Champion, Asset Mgmt.

SAP.COM I SAP Community I YouTube

Ryan Jones

Solution Advisor, Asset Management

SAP.COM I SAP Community I YouTube