



SAP Leonardo and the Digital Supply Chain

A world with Connected Logistics

Rhod Joyce, SAP
May 31, 2017



Agenda

An Overview: Leonardo and Digital Supply Chain (dSC)

A focus on: Manufacturing

A focus on Portfolio and Project Management

A focus on: Asset Management (operational)

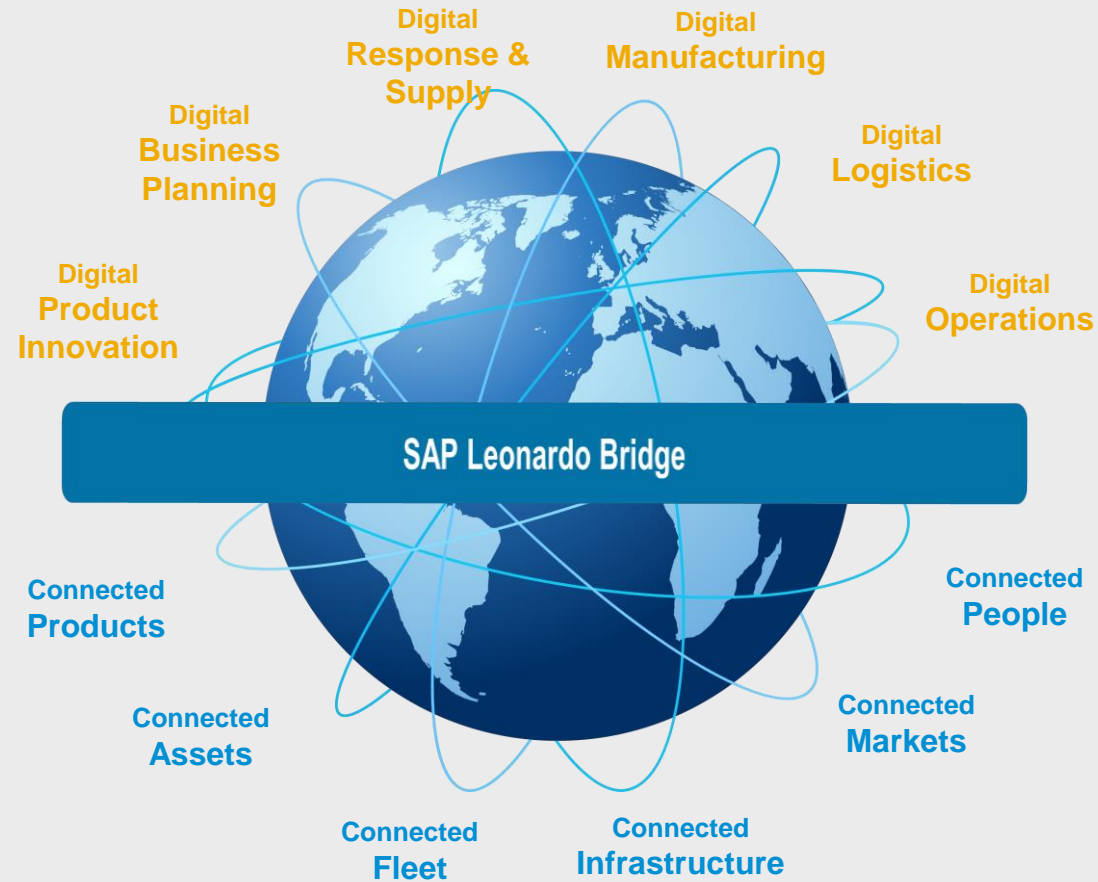
- SAP Asset Intelligence Network
- SAP Predictive Maintenance and Service



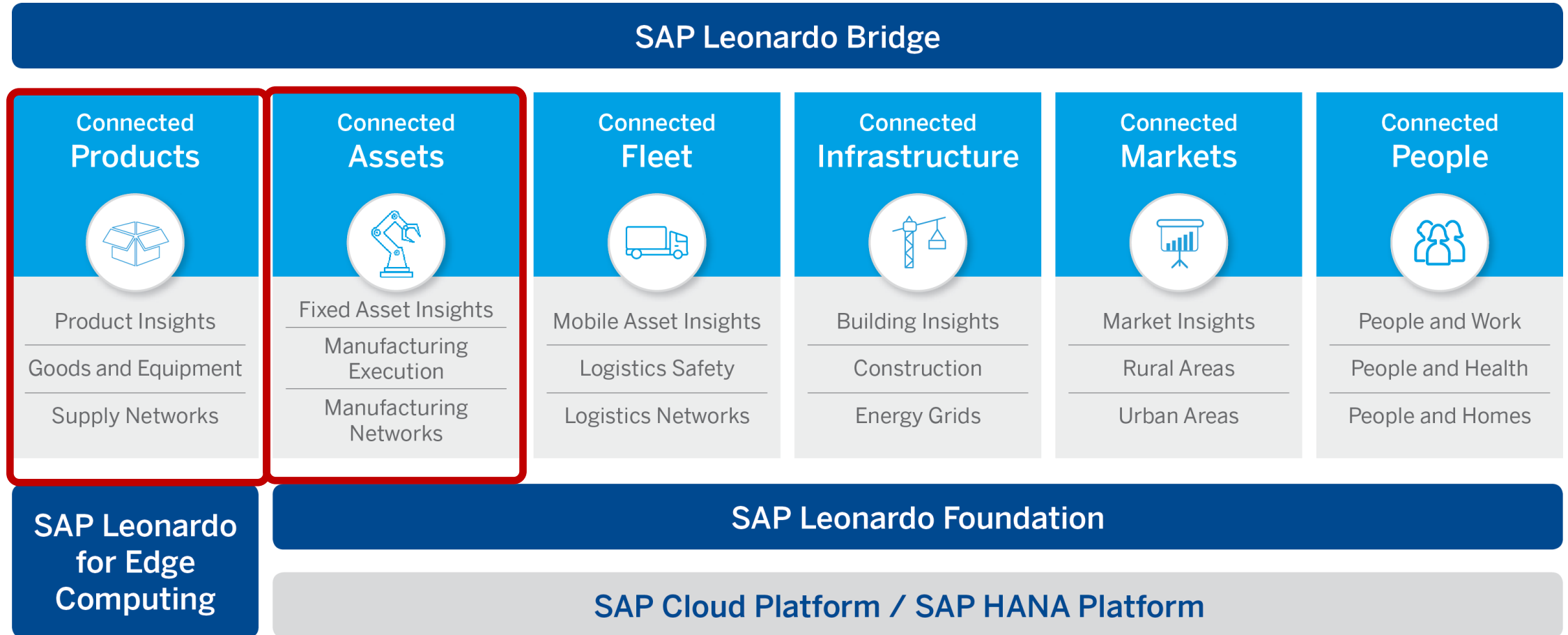
Overview: SAP Leonardo and the Digital Supply Chain

The Digital Supply Chain is powered by SAP Leonardo

Digital Supply Chain

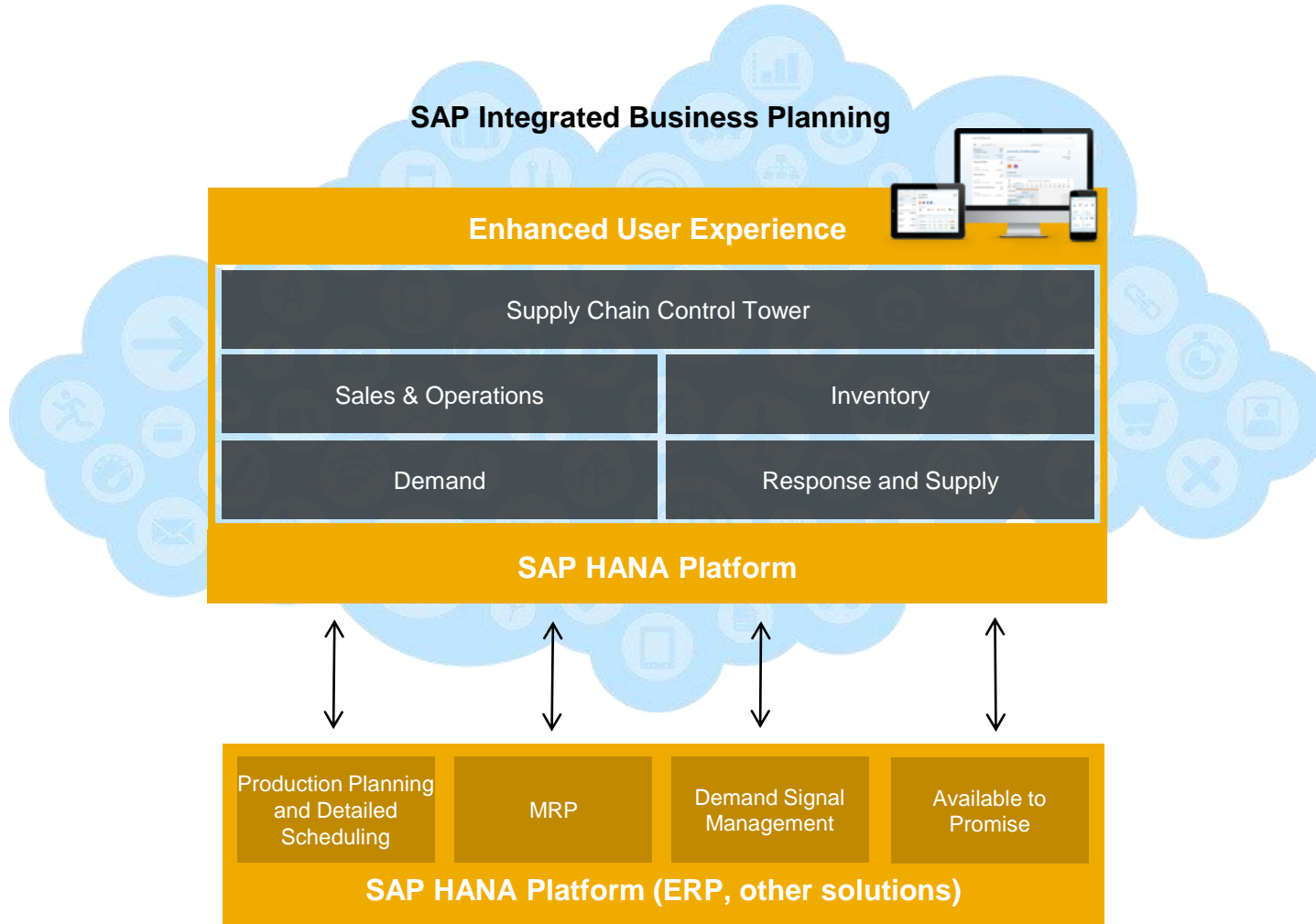


SAP Leonardo Innovation Portfolio



Focus: Manufacturing

SAP Integrated Business Planning



Benefits

- Fast development and deployment through agile methodologies
- Standard integrations to ERP
- Flexible choice where to execute business processes
- Deep industry capabilities to maximize value delivery now
- HANA & IBP enable evolution to next generation real time supply chain platform

Comprehensive Plan to Produce in ONE System



Key Benefits

- ❑ Comprehensive plan to produce in a single system at a low cost
- ❑ Just one database to manage. Less time for setup, back up and administration
- ❑ Integrated material requirements planning
- ❑ Simple and seamless integration
- ❑ Easy monitoring and administration



Production Planner



Production Supervisor

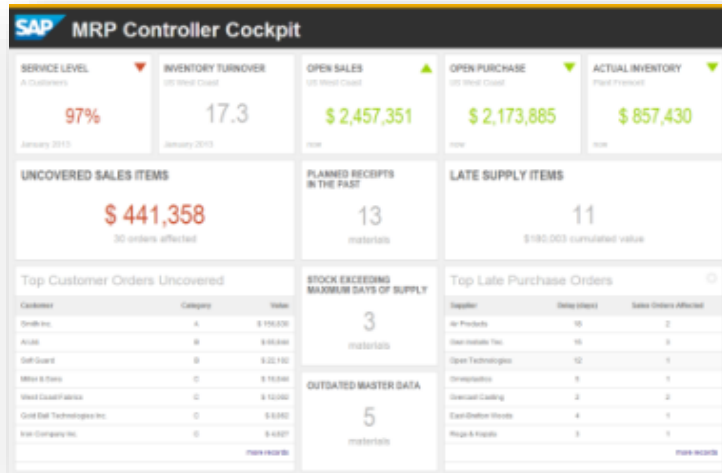


Production Operator



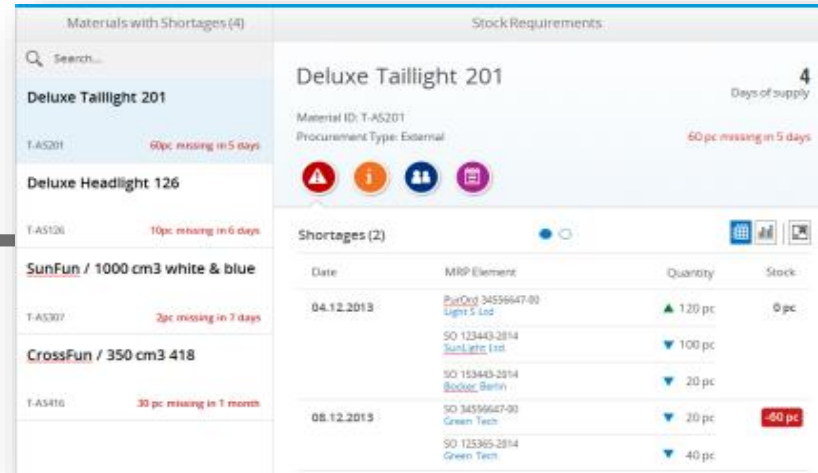
Production Planner

Material Requirements Planning (Live) in S/4HANA



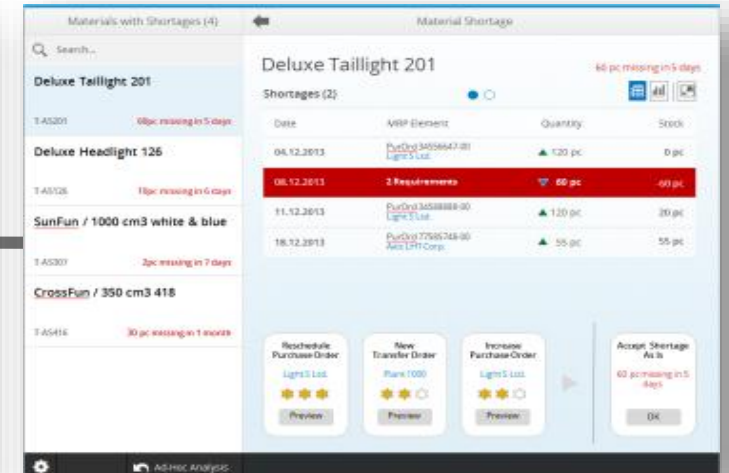
MRP Cockpit

Monitor KPIs
Receive Alerts on material shortages, late purchase orders etc.



Material Planning View

Identify most urgent and important issues, considering time to action and order values, priorities, and the like.



Solution Proposals

Choose from a set of pre-evaluated solution proposals.

PP/DS: Constraint-based Scheduling

Monitor Capacity Utilization

Standard * ⌵

Hide Filter Bar Restore Filters (4) Go

*Evaluation Profile: SAP Standard Capacity Utili...
 *Evaluation Horizon: 28 Days
 Working Days with Overload: >=1
 Working Days with Underload: >=1

Resources (16)

Resource	Breakdown	Maximum	Minimum	Average
<input type="checkbox"/> WAK_WC_0001_001 MACHINE		200 %	0 %	13 %
<input type="checkbox"/> WAO21_0001_001 WORK CENTER FOR TESTING 001		340 %	0 %	75 %
<input type="checkbox"/> WAO22_0001_001 WORK CENTER FOR TESTING 001		320 %	0 %	96 %
<input type="checkbox"/> WAO23_0001_001 WORK CENTER FOR TESTING 001		423 %	0 %	96 %
<input type="checkbox"/> WAO51_0001_001 WORK CENTER FOR TESTING 001		370 %	0 %	82 %
<input type="checkbox"/> WAO52_0001_001 WORK CENTER FOR TESTING 001		540 %	0 %	102 %
<input type="checkbox"/> WAO53_0001_001 WORK CENTER FOR TESTING 001		890 %	0 %	213 %
<input type="checkbox"/> WJOY_DEM1_0001_001				

Production Scheduling Board

Standard * ⌵

Time Profile: SAP001 Resource: WAO53_00... 3 More

Mode: Find Slot Direction: Forwards Scheduling Order

Hide Utilization

Resource	Resource Description	Start	End
<input checked="" type="checkbox"/> WAO21_0001_001	WORK CENTER FOR TESTING 001	79452-10	79503-10
<input type="checkbox"/> WAO51_0001_001	WORK CENTER FOR TESTING 001	90625-10	90627-10
<input type="checkbox"/> WAO52_0001_001	WORK CENTER FOR TESTING 001	80294-10	80315-10
<input type="checkbox"/> WAO53_0001_001	WORK CENTER FOR TESTING 001	80315-10	80315-10

Adopt Save Save New Application Profile Logs

Focus: Project and Portfolio Management

Project and Portfolio Management

Orchestrate, Plan and Execute projects

Portfolio Management

Maximize return on investments

Precise investment planning and closed-loop monitoring

Project Management

Do the right things fast

Manage projects, tasks, and timelines and track progress.

Resource Management

Do more with less

Complete transparency of the availability of critical resources

> Do the Right Projects, Do the Projects Right

Project and Portfolio Management

Different Requirements per use-case - one Solution: SAP



11 Mio
New Project
Management
jobs by 2020*

Portfolio Management

Project Management

Resource Management

Research and Development Projects

“optimize capital spent & strategic resources in innovation lifecycle”



IT Projects

“alignment of IT-activities and resources with the business strategy”



Capital Projects

“planning, management and monitoring of investment projects”



Commercial Projects

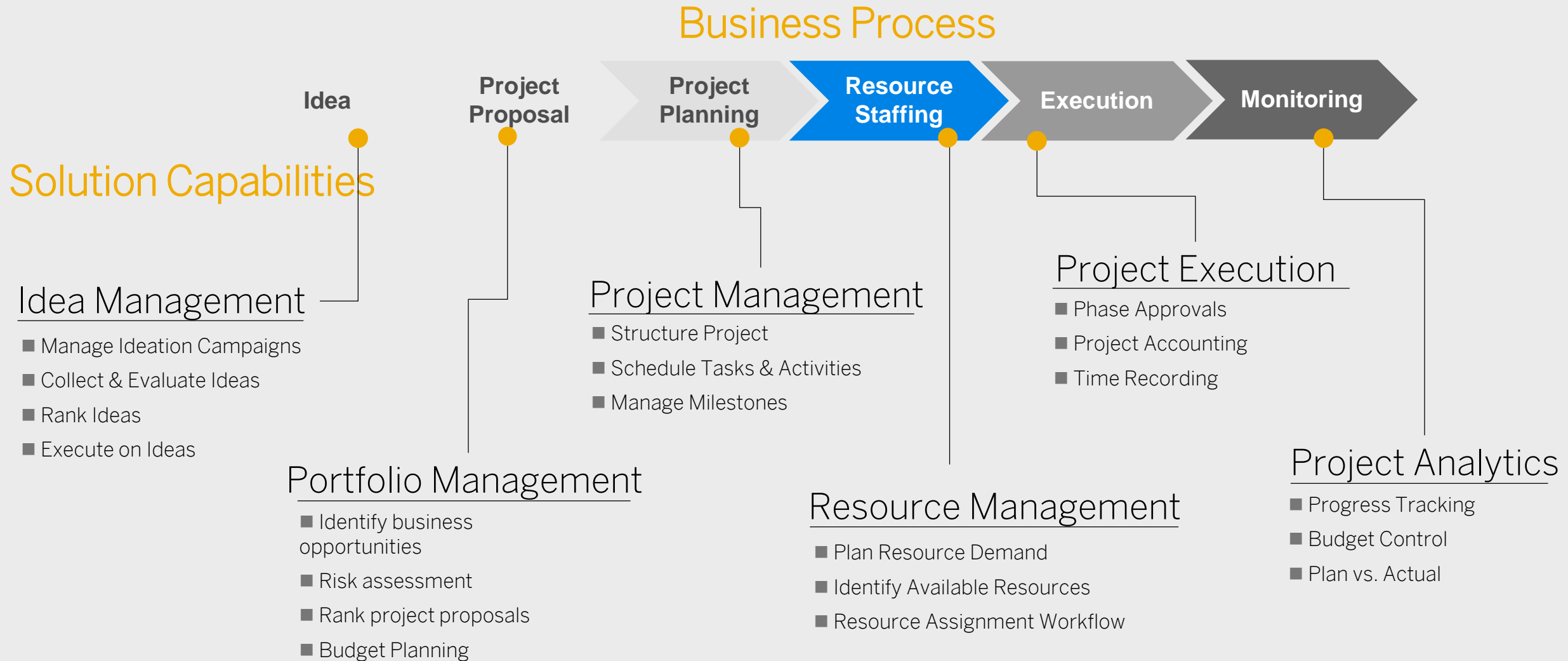
“execution of customer projects from opportunity to hand-over”



Enterprise Portfolio and Project Management

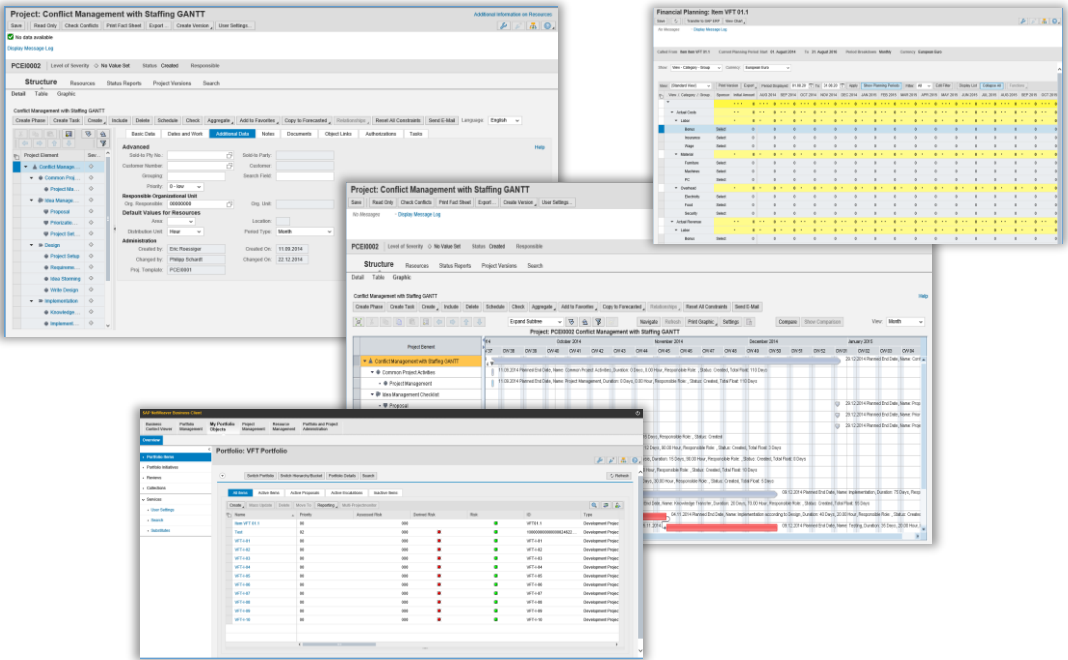
* According to Project Management Institute (PMI)

Portfolio and Project Management: Solution Capabilities



Leveraging the Fiori User Experience

Multiple Entry Points with Traditional System



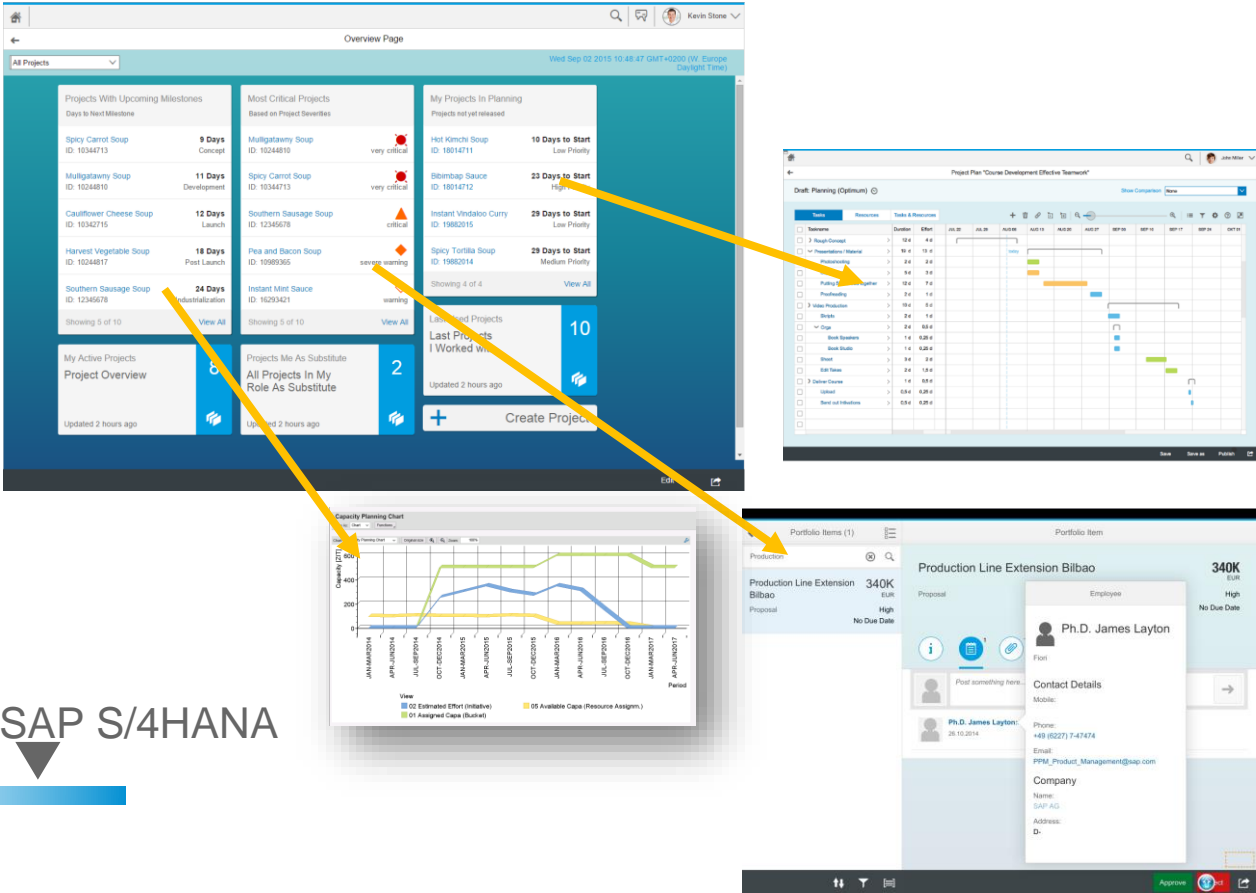
Traditional

EPPM & SAP S/4HANA

User Experience

Poor → Strong

Fiori Single Point of Entry for EPPM with SAP S/4HANA



Identify new Business Opportunities with Innovation Management

Innovation Management*



- Manage Ideation Campaigns
- Collect & Evaluate Ideas
- Expert Finder
- Rank Ideas
- Execute Ideas in Portfolio Management

The screenshot displays the SAP Innovation Management interface. On the left, the 'IDEA' details for 'Dacuda Mouse' are shown, including general information like campaign, author, and scores. On the right, a table lists 'RELATED OBJECTS IN SAP PROJECT AND PORTFOLIO MANAGEMENT (SAP PPM)'. The table has columns for Name of SAP PPM Object, Status, Object Type, and Link.

Name of SAP PPM Object	Status	Object Type	Link
IM Test Task 2	Released	Task	https://ldcix7e.wdf.sap.corp:44355/...
IM Test Task 1	Released	Task	https://ldcix7e.wdf.sap.corp:44355/...
Demo for Review Meeting	Created	Task	https://ldcix7e.wdf.sap.corp:44355/...
IM Test Task fo Jochen	Created	Task	https://ldcix7e.wdf.sap.corp:44355/...

*SAP Innovation Management requires additional license

Balance Project Portfolio and Invest in the Right Projects

Portfolio Management



- Identify and describe project proposal
- Estimate Project Timeline
- Budget & Capacity Planning
- Assess Project Risk
- Rank project proposals
- Monitor Portfolio Performance

SAP Bucket: Gourmet Line 2016

Read Only Reporting Cockpit Refresh Financial and Capacity Planning You can also

No Messages - Display Message Log

SWS Food > Soups 2016 > Gourmet Line 2016

ID SWS-2016-1-1 Items 7 Initiatives 0 Reviews 0

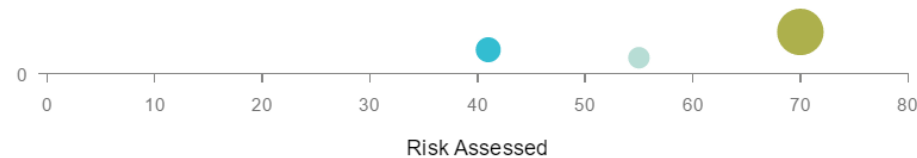
Overview Items Initiatives Collections Reviews Documents and Notes Miscellaneous

All Items Active Items Active Proposals Active Escalations Inactive Items Archived Items

View: * [Standard View] Print Version Export Create Mass Update Delete Move To Reporting Cockpit Advanced Filter Clear Filter

<input type="checkbox"/>	Name	ID	Type	Budget Status	Schedule Status	Staffing Status	Status	Decision Point Name	Decision Point Status
<input type="checkbox"/>	Riesling Flavored Red Snapper...	SWS-2016-1-1-GL-REDSNAPP	Development Project	■	●	■	In Preparation	Specification	In Progress
<input type="checkbox"/>	Broccoli Shrimps Mie Soup	SWS-2016-1-1-GL-SHRIMPS	Development Project	■	●	■	In Progress	Specification	In Progress
<input type="checkbox"/>	Mulligatawny Soup	SWS-2016-1-1-GL-MULLYGAT	Development Project	■	⊗	■	In Preparation	Specification	In Progress
<input type="checkbox"/>	Chardonnay Flavored Oyster S...	SWS-2016-1-1-GL-OYSTER	Development Project	■	●	■	In Progress	Specification	In Progress
<input type="checkbox"/>	Salmon Spinach Soup	SWS-2016-1-1-GL-SALMONSP	Development Project	■	■	■	In Preparation	Specification	In Progress
<input type="checkbox"/>	Lobster Cheddar Soup	SWS-2016-1-1-GL-LOBSTERC	Development Project	■	■	■	In Progress	Specification	In Progress
<input checked="" type="checkbox"/>	Lentil soup with cookies (Board...	SWS-2016-1-1-COOKIEL	Development Project	●	●	■	In Preparation	Specification	In Progress

Save

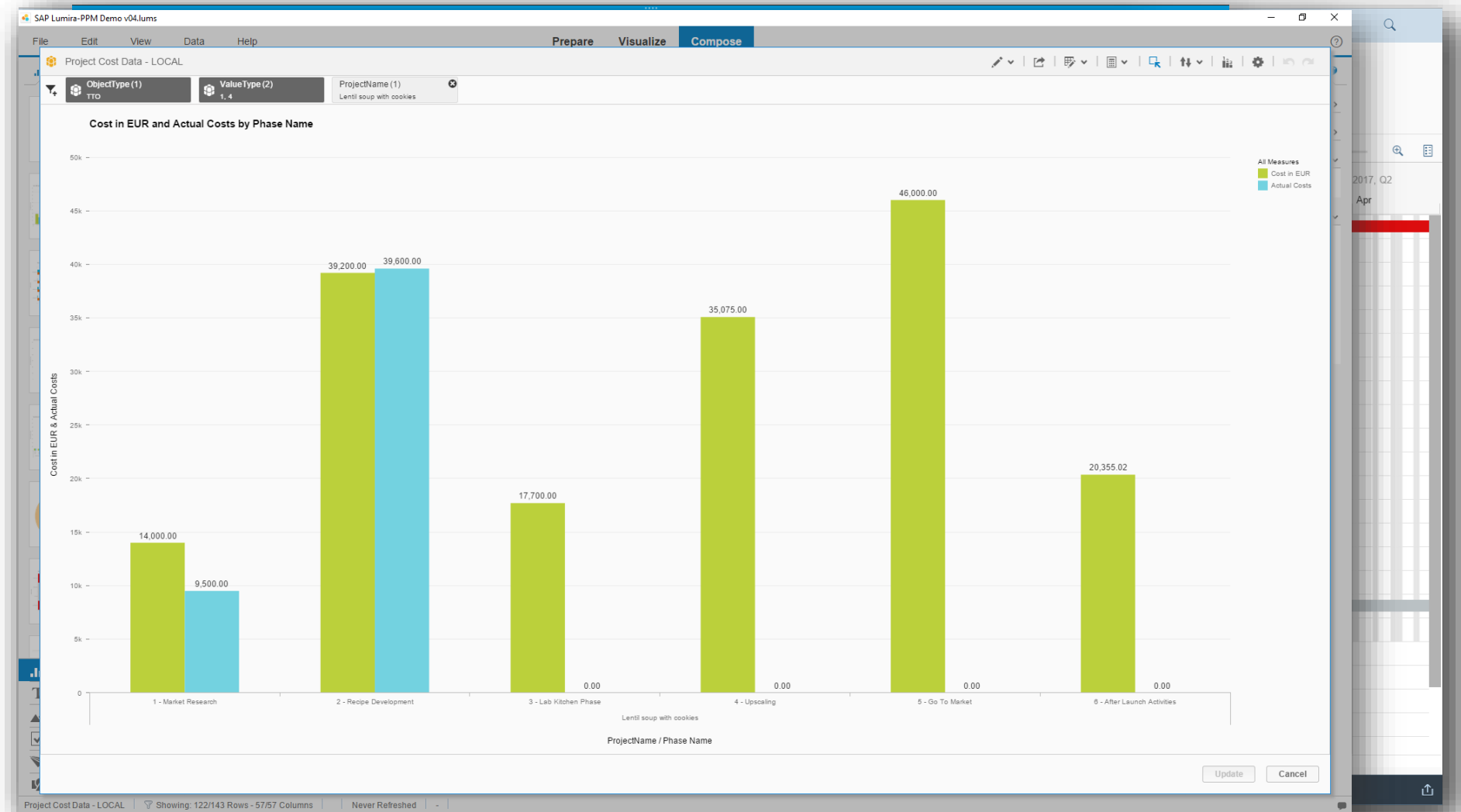


Plan, Execute and Monitor Projects

Project Management



- Project Entry Page
- Project Planning
- Schedule Tasks & Deliverables
- Planning of Project Efforts & Costs
- Project Accounting
- Project Reporting



Allocate the right resources while optimising resource utilization

Resource Management



- Capacity Planning - Portfolio
- Role Demand - Project
- Resource Overview
- Resource Allocation
- My Tasks List
- Progress & Time Recording - Fiori

The screenshot shows the 'Confirm Project Tasks' dialog box in SAP Fiori. The dialog is divided into several sections:

- Status and Severity:** Severity: Scheduling Hazardous; Current Status: Released - Transferred - Assigned; New Status: No Change; Note: (empty text area).
- Work Progress:** Done Since Last Confirmation: 0,00 Days; Remaining: 5,00 Days; Planned: 5,00 Days; Confirmed: 0,00 Days; Forecasted: 5,00 Days.
- Completion:** Percentage: 0 %.
- Dates:** Actual Start: 18.08.2016; Actual Finish: dd.MM.yyyy.

At the bottom right, there are buttons for 'Save', 'Cancel', and 'Close'. A sidebar on the right shows a filter for 'Priorität' (Priority) set to 'High'.

Focus: Asset Management

SAP Asset Intelligence Network (AIN)

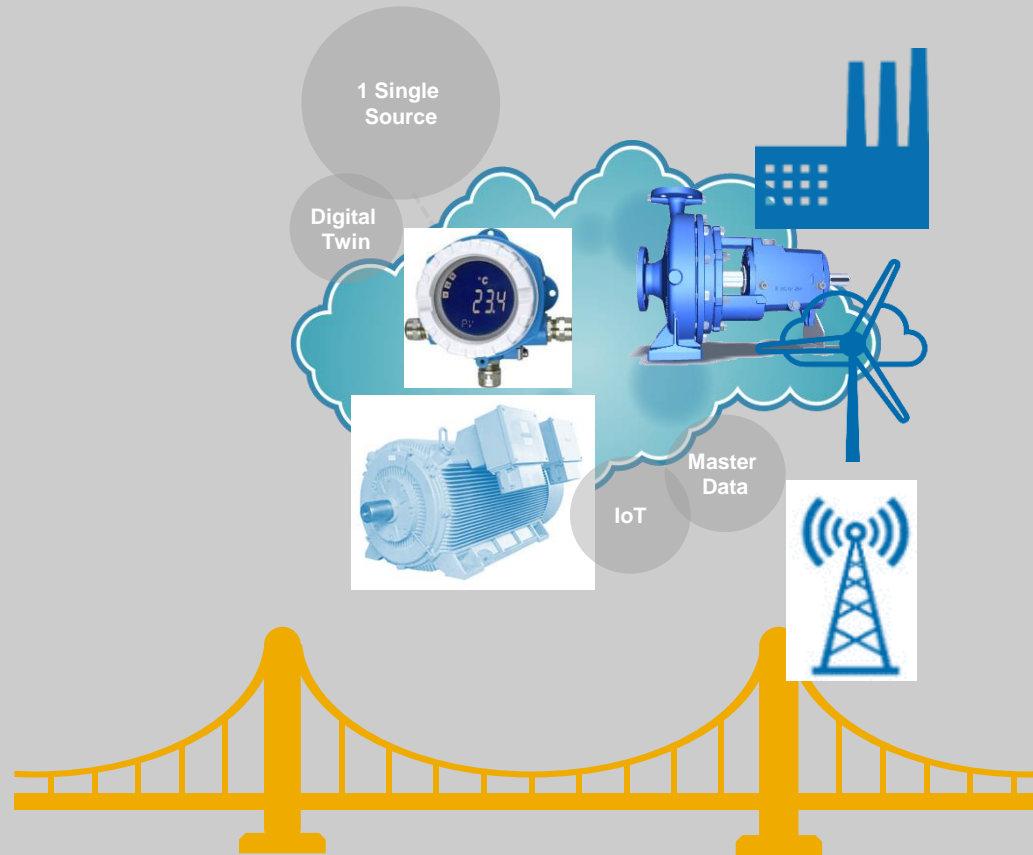
Manufacturer's perspective – how it should look like

Manufacturer

- N:M equipment portal
- Product information
- Maintenance data
- Additional services
- Customer feedback
- Intensive customer relationships



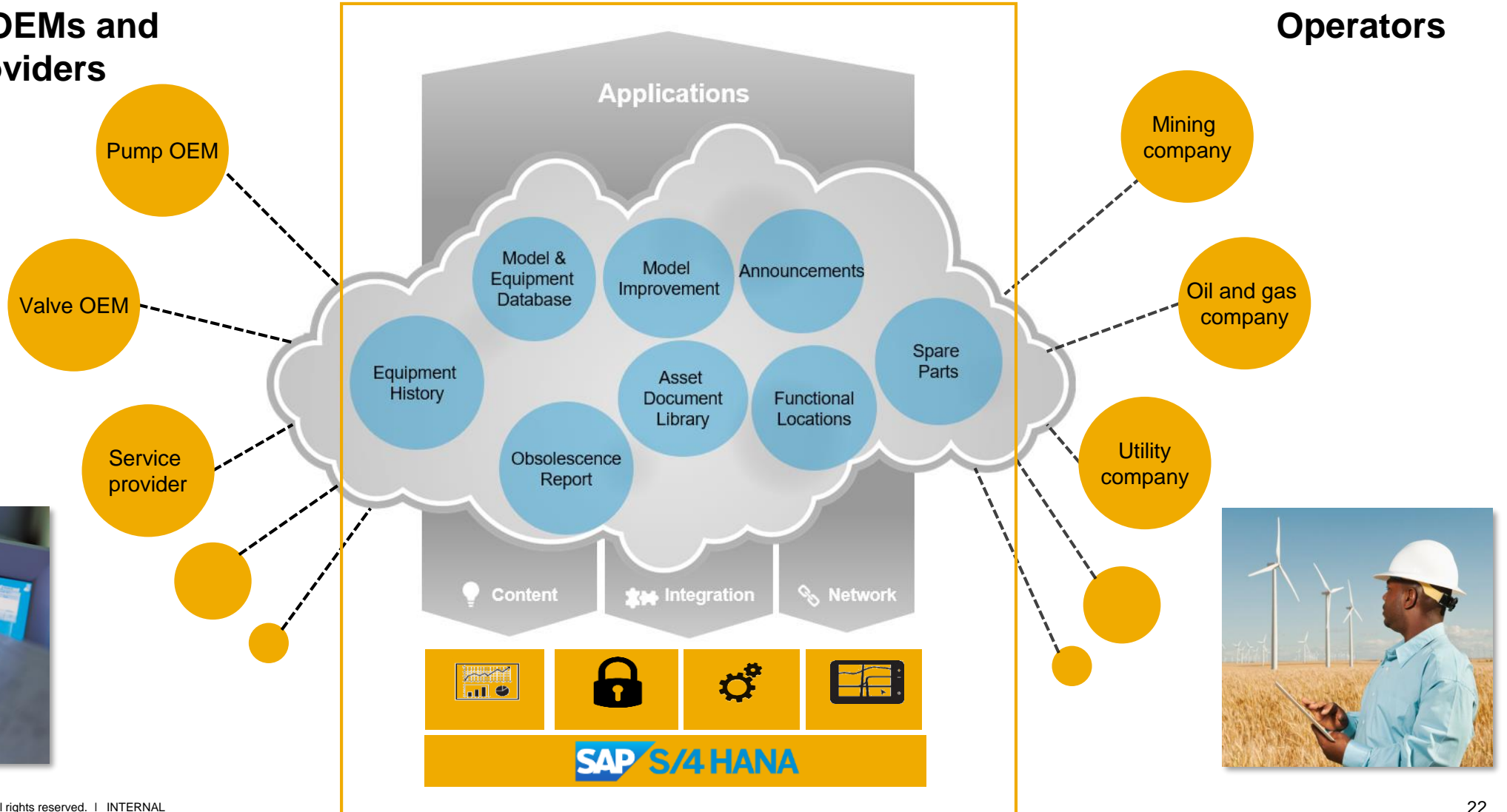
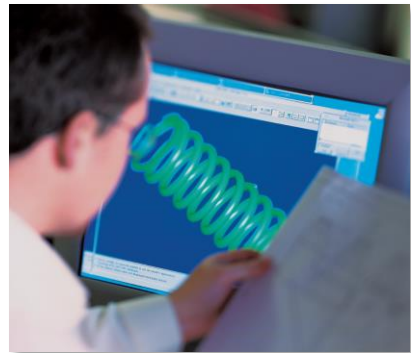
Operator



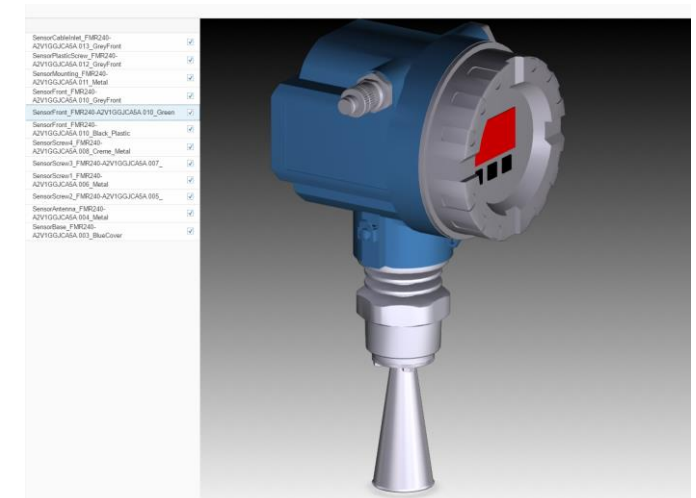
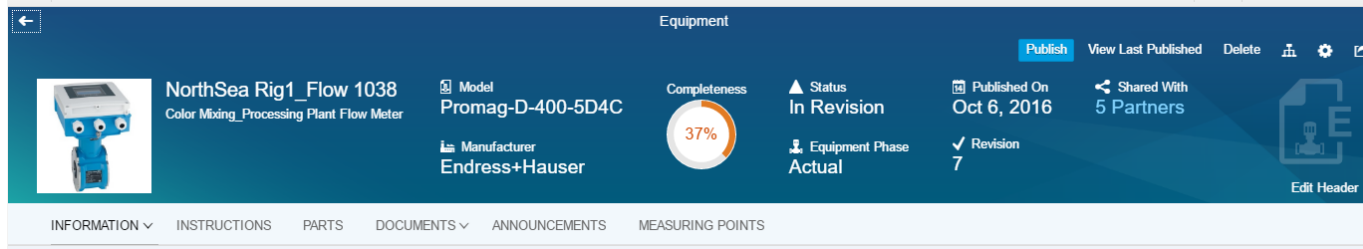
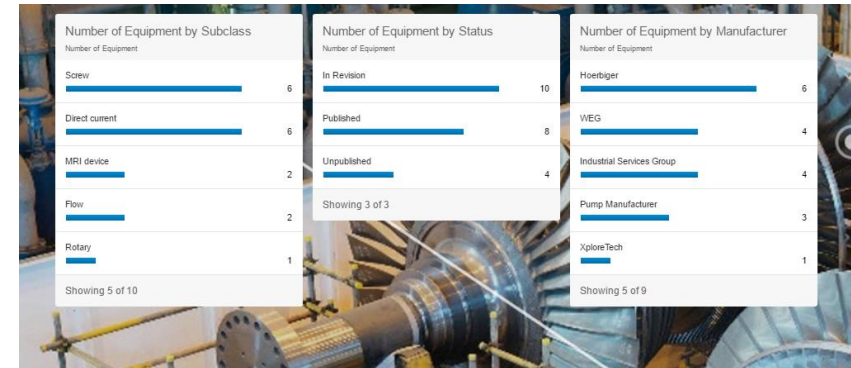
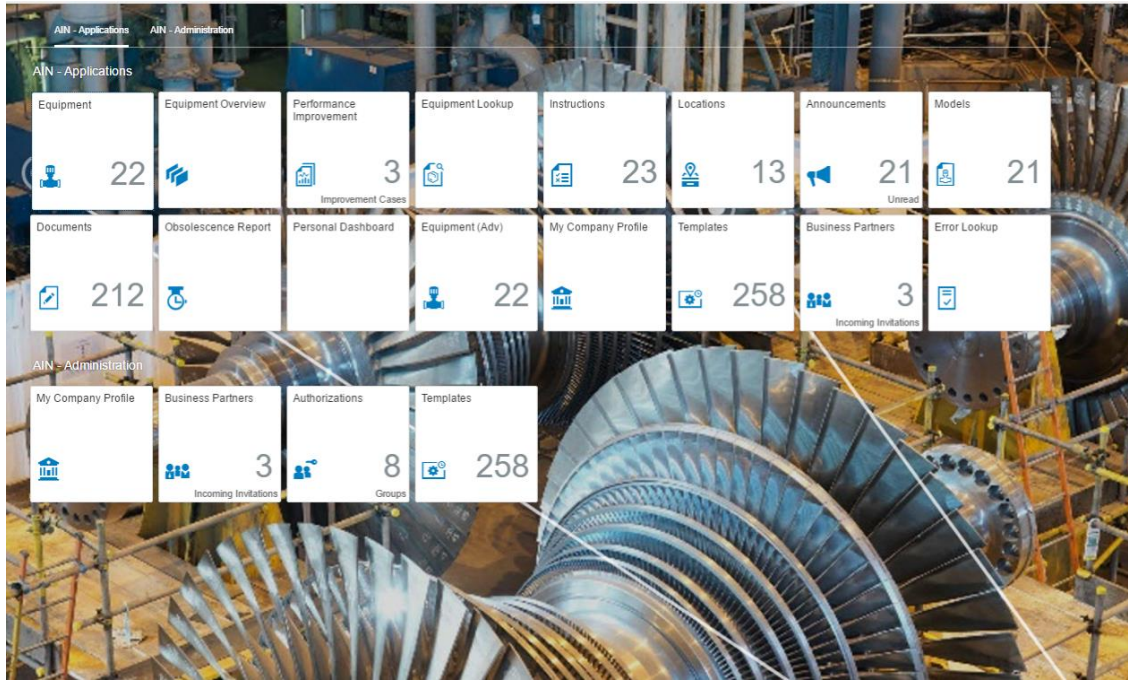
SAP Asset Intelligence Network: bringing together business partners

Manufacturer/OEMs and service providers

Operators



Screen Examples: Fiori Launchpad to SAP AIN



Screen Examples: Business applications

Starting issue Published

Subclass: Flow_ISO14224 Published On: Aug 31, 2016
 Source: Pump Manufacturer Instruction Revision: 2

Number of Steps: 2 | Expected Minutes: 35 | People Required: 1 | Medium Criticality

Information | Safety Rules | Tools and Parts | Roles | Models

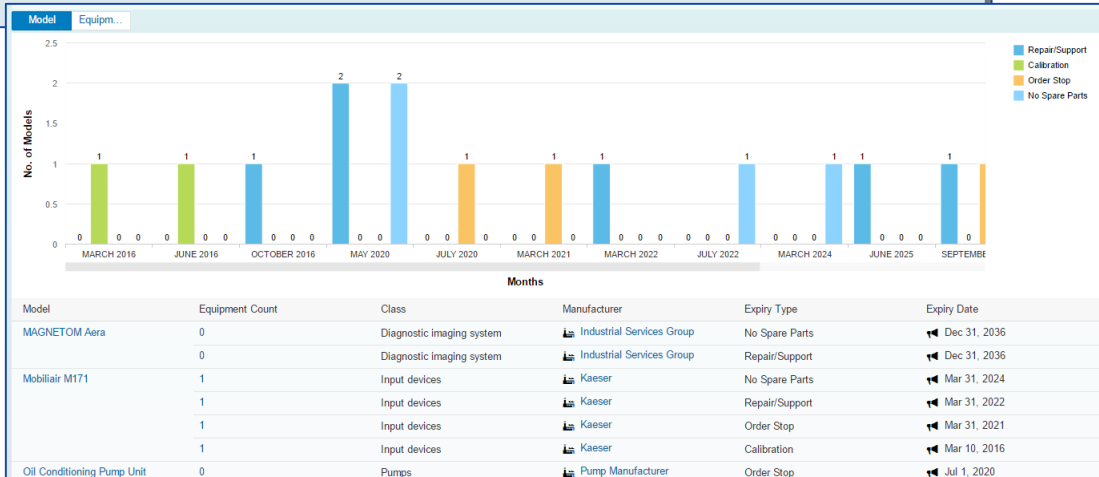
Activity: Refit | Instruction Name: Starting Issue | Instruction Description: Fix the starting issue please
 Failure Mode: Fails to function on demand
 Primary Document: honda-windfarm.jpg
 3D Visual: 998 Clutch.vds
 Relevant to Warranty: No

Preconditions | **Steps** | Post Checks

Preview	Explanation	Tools and Parts	Documents	Expected Duration
	remove flow meter case Flow meter needs case needs to be removed to be carefully accessed.	1	0	0
	Repair speed meter Repair speed meter	0	0	0

Installation Location Edit

Address: Ludwigshafen
 Description: Abwasserbehandlungsanlage - N



Improvement Case

Design Improvements | Model: SST-6000 | Status: Created | Priority: Medium
 Case ID: 10005 | Manufacturer: Siemens | Current Processor: Dow Chemical/Improvement Case Requestor | 2 Days since creation
 Source: Dow Chemical

CASE INFORMATION | AFFECTED EQUIPMENT | REQUEST | COMMENTS | TIMELINE

Case Information

- *Case Name: Design Improvements
- *Model: SST-6000
- *Improvement Type: Process Improvement
- *Priority: Medium

Involved Stakeholders

- Improvement Requestor: Dow Chemical
- *Improvement Reviewer: Pump Manufacturer
- *Recommendation Provider: Dow Chemical

Impact Rating

- Commercial Impact: ★★★★★
- Safety Impact: ★★★★★
- Operational Impact: ★★★★★
- Environmental Impact: ★★★★★
- Urgency: ★★★★★

AFFECTED EQUIPMENT

Equipment (2)

Equipment	Serial Number	Tag Number	Criticality
SST-6000-S-64	SST-6000-S-64		
SST-6000-S-31	SST-6000-S-31		Low

Focus: Asset Management

Predictive Maintenance in SAP (SAP PdMS)

Compelling Trends to Predictive Maintenance

While the world's GDP is around \$ 46.6 trillion. Maintenance spend alone comes up to \$ 447 billion.

Managing assets efficiently makes a **difference!**

The financial motivation

The World is Connected

50 billion
devices connected
by 2020*

40-50%
CAGR for M2M
market until 2020*

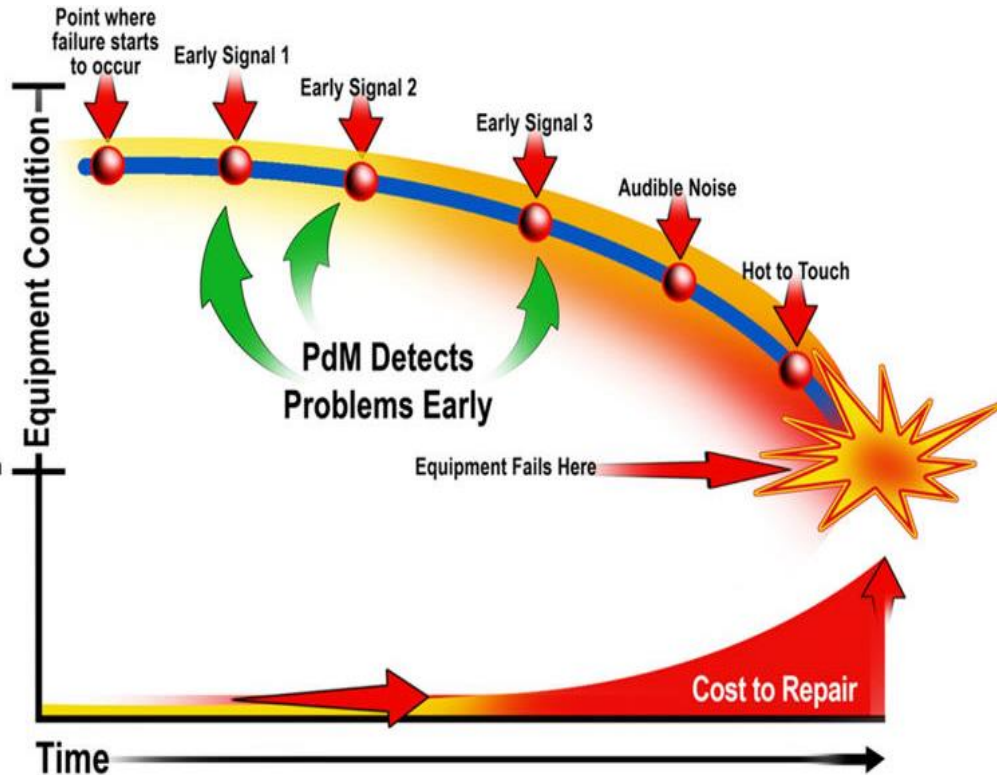
1/5
price of sensors,
microprocessors &
wireless technologies
today vs. 4 years ago**

The Technical Capability

*Source: Gartner – "Top 10 Tech Trends for 2014" – 2012

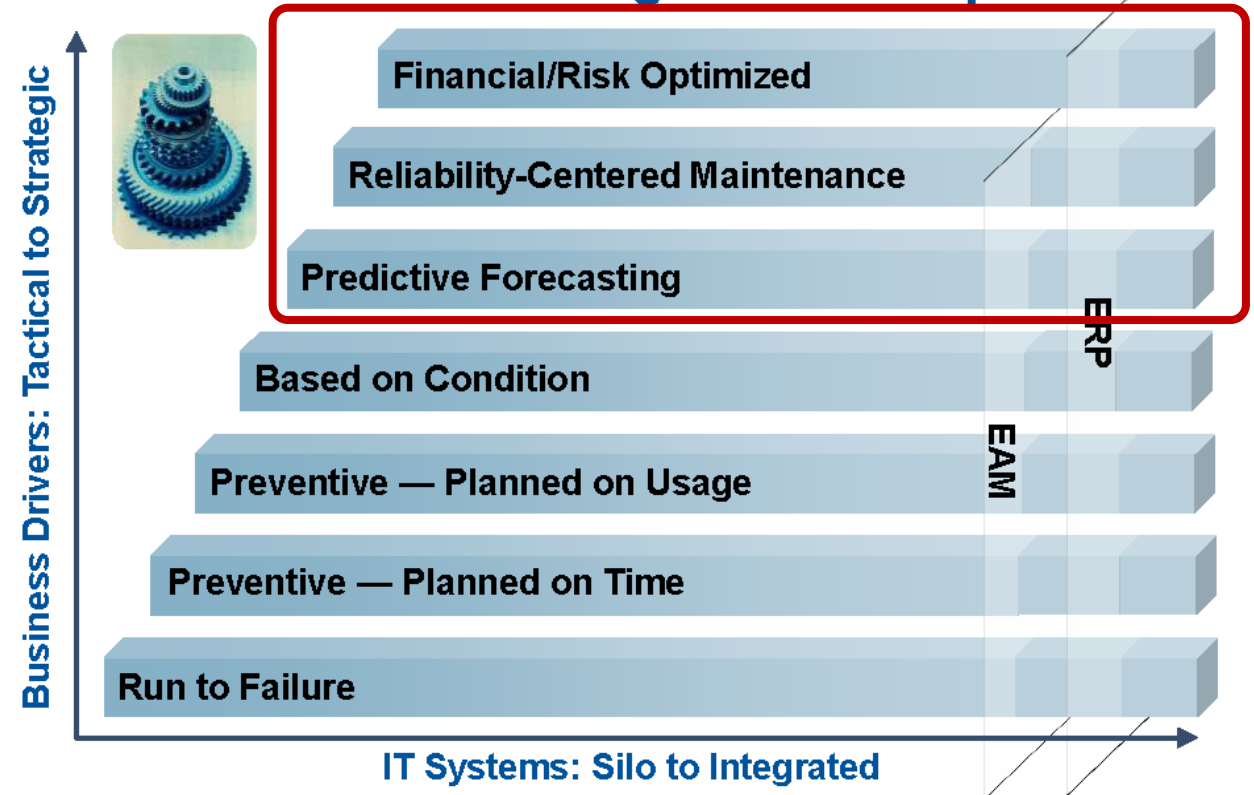
**Source: Economist Intelligence Unit – "The Rise of the Machines" – 2012

SAP's unique business perspective on Predictive Maintenance



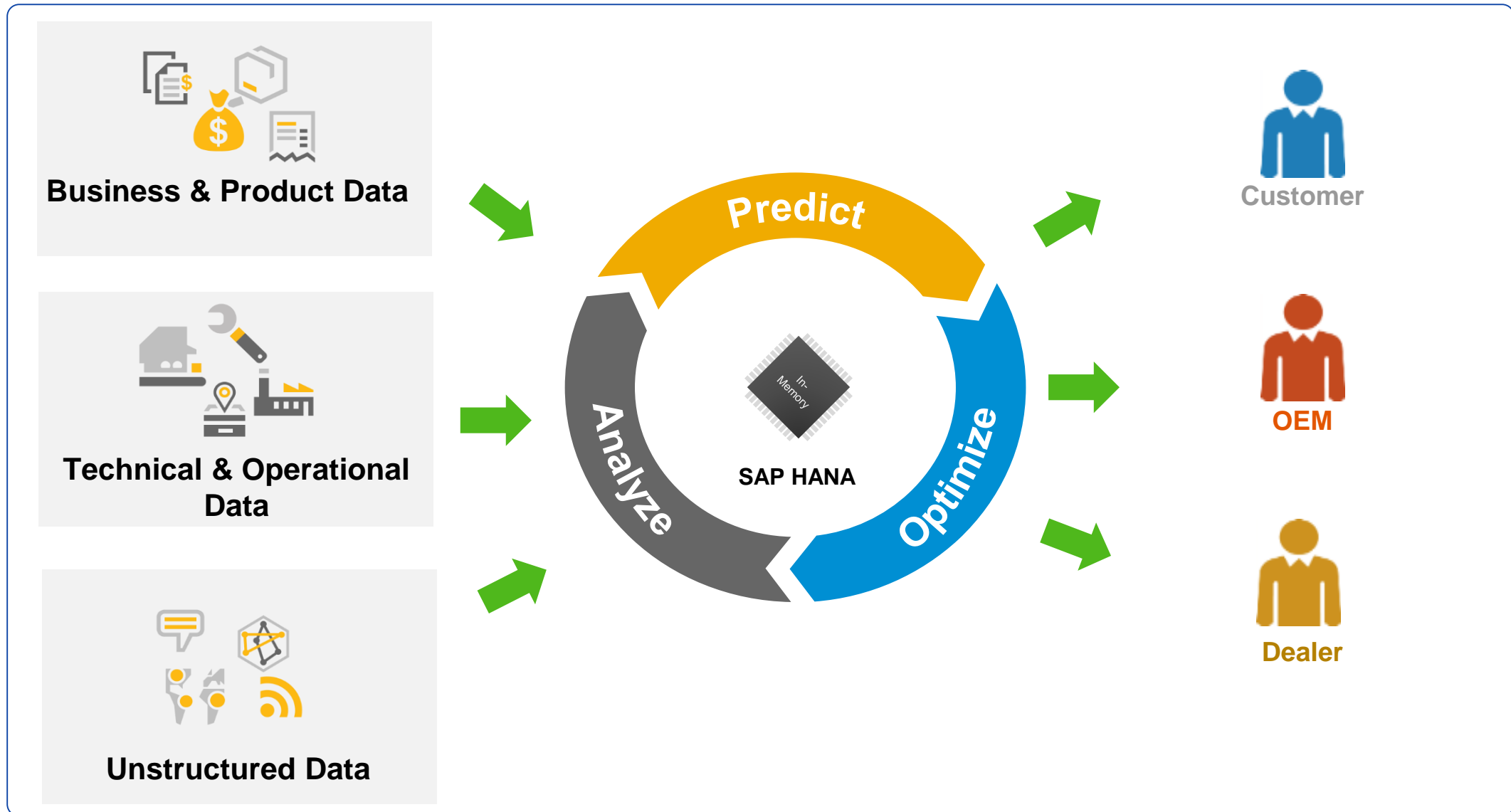
Delivering business value and context

Maintenance: A Strategic Road Map



Providing the technical capability

The business advantage



The Technology advantage

HW Technology Innovations



Multi-Core Architecture
(8 x 8core CPU per blade)
Massive parallel scaling with many blades
One blade ~\$50.000
= 1 Enterprise Class Server



64bit address space
- 2TB in current servers
100GB/s data throughput
Dramatic decline in price/performance

SAP SW Technology Innovations



Row and Column Store



Compression



Partitioning



No Aggregate Tables



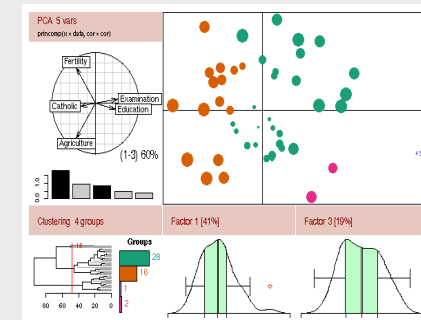
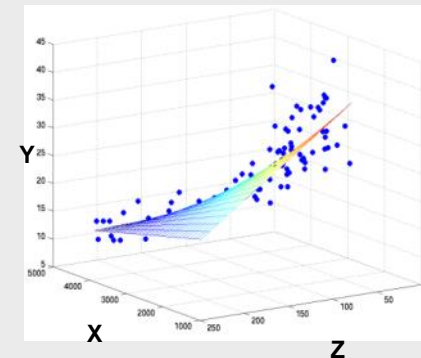
Insert Only on Delta

The Hardware Advantage

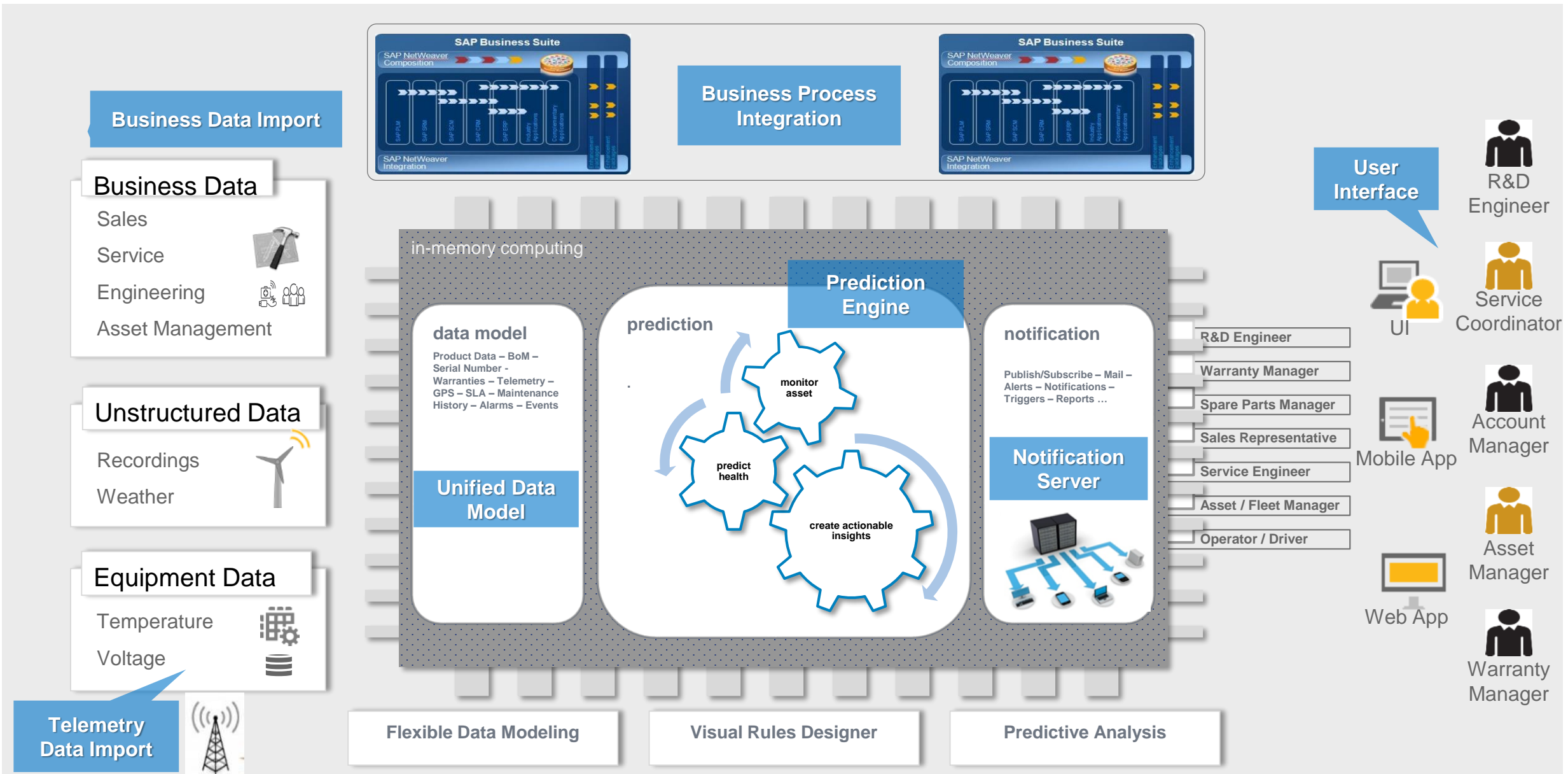
- In-memory computing
- Optimised for the best in performance

The Embedded Predictive Advantage

- Predictive Analysis Library (PAL)
- R Integration for SAP HANA



Merged into a Predictive Maintenance solution to deliver business benefit



Thank you.

Contact information:

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