

# Managing Manufacturing Complexity by latest IT Technologies

Dr. Wolfgang Rybczynski, SAP Business Transformation Consulting  
Global ManuCHEM Strategies, 27th -28th of February 2014 in Berlin

The SAP logo is located in the bottom left corner of the slide. It consists of the letters 'SAP' in a bold, white, sans-serif font, set against a blue rectangular background that is part of a larger blue graphic element.

# Agenda

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- **IT Trends impacting Manufacturing**
- The Visual Plant
- Mobility Work Manager
- Performance Monitoring / OEE
- Outlook

# IT Technologies impacting Chemical Manufacturing

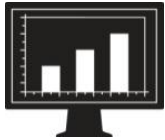
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Applications



Business Process Automation



Analytics



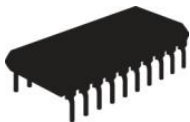
Enterprise and Business Insight



Mobility



Software independent from Location



Database &  
Technology



Big Data Management in Real-time

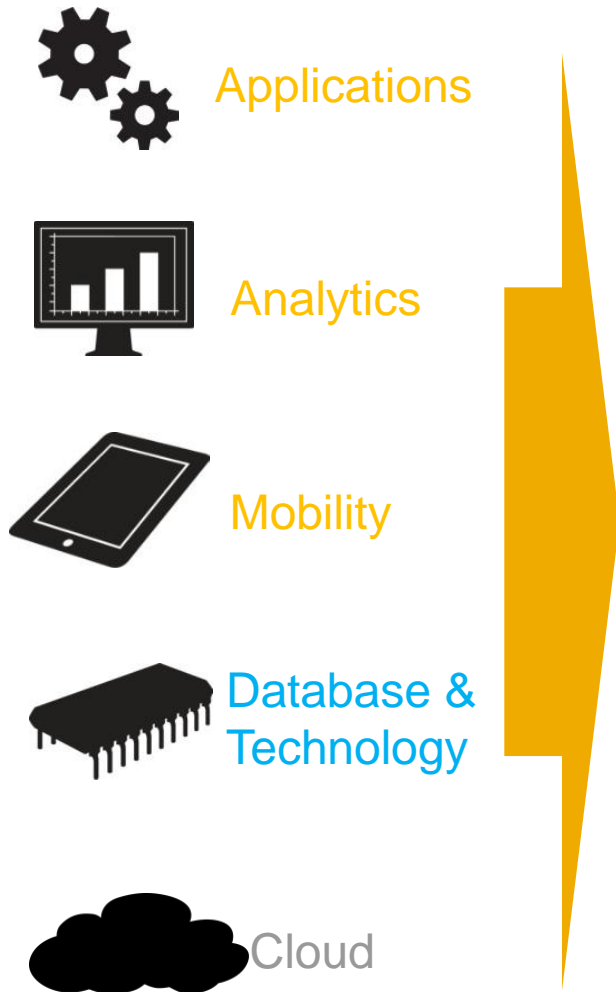


Cloud

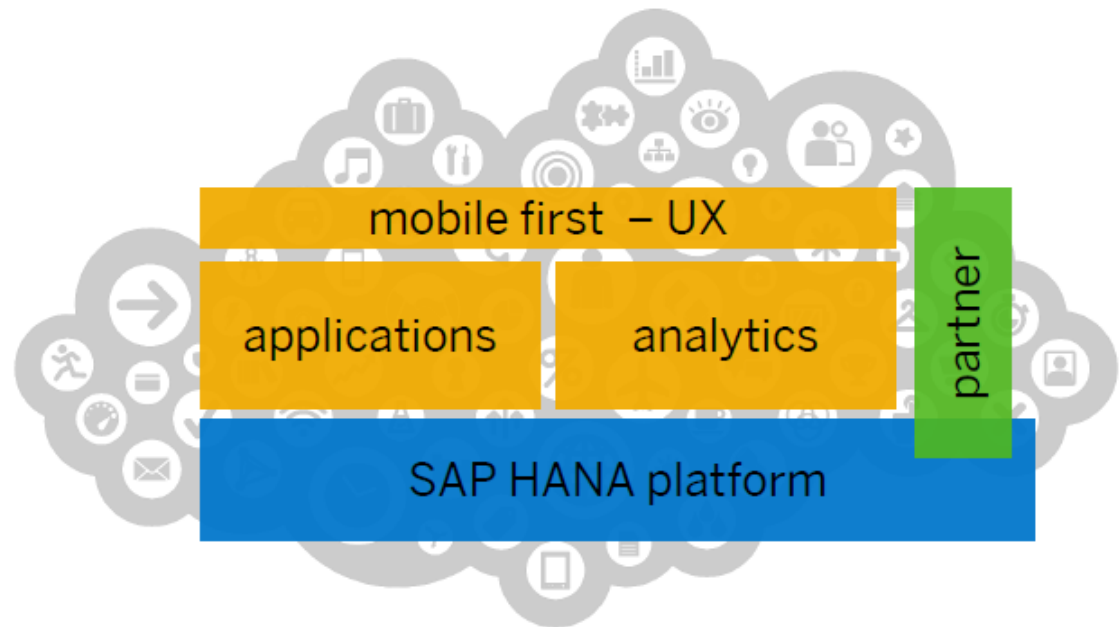


Software as a Service

# The Future has already begun



## End-to-End Solutions by Industry ...



...on Premise or in the SAP Cloud powered by HANA

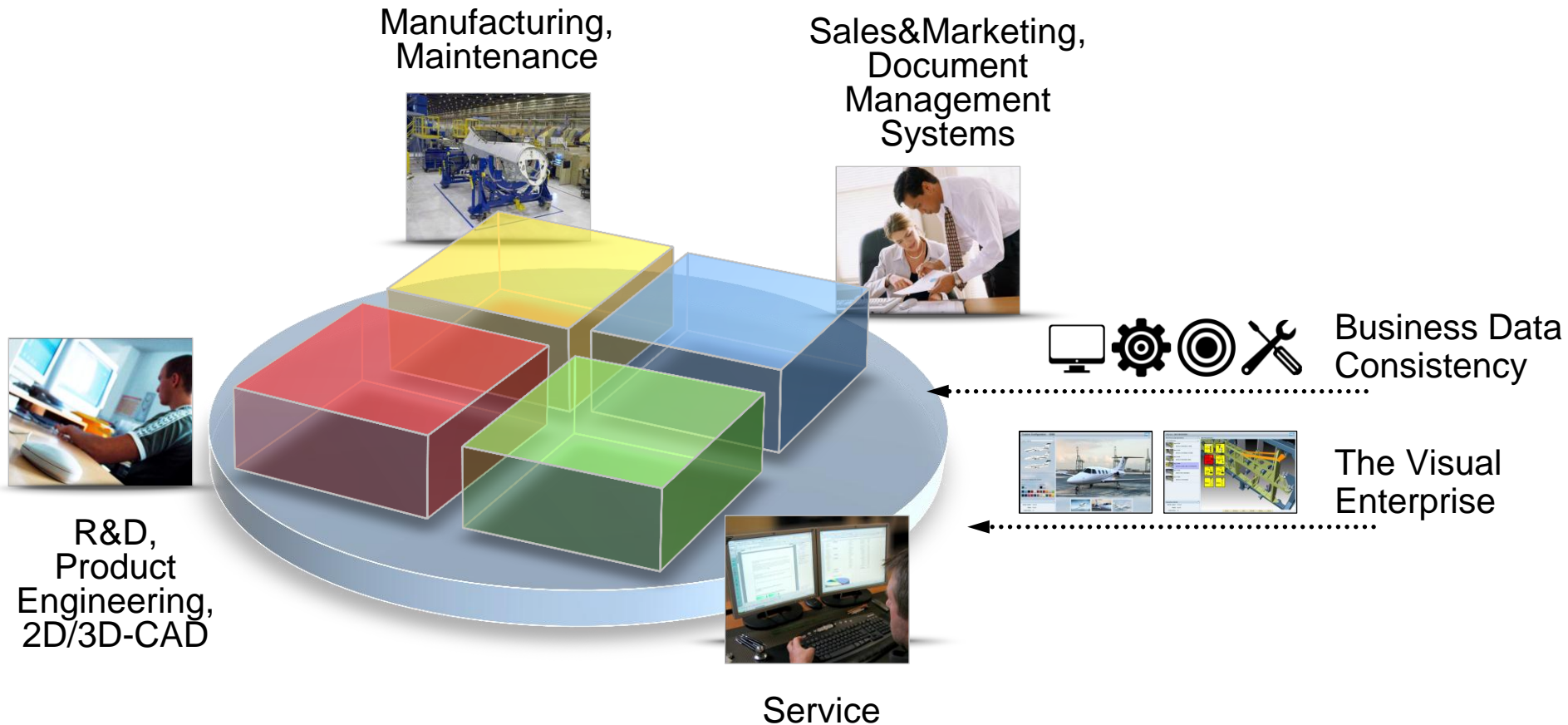
# Managing Manufacturing Complexity by latest IT Technologies

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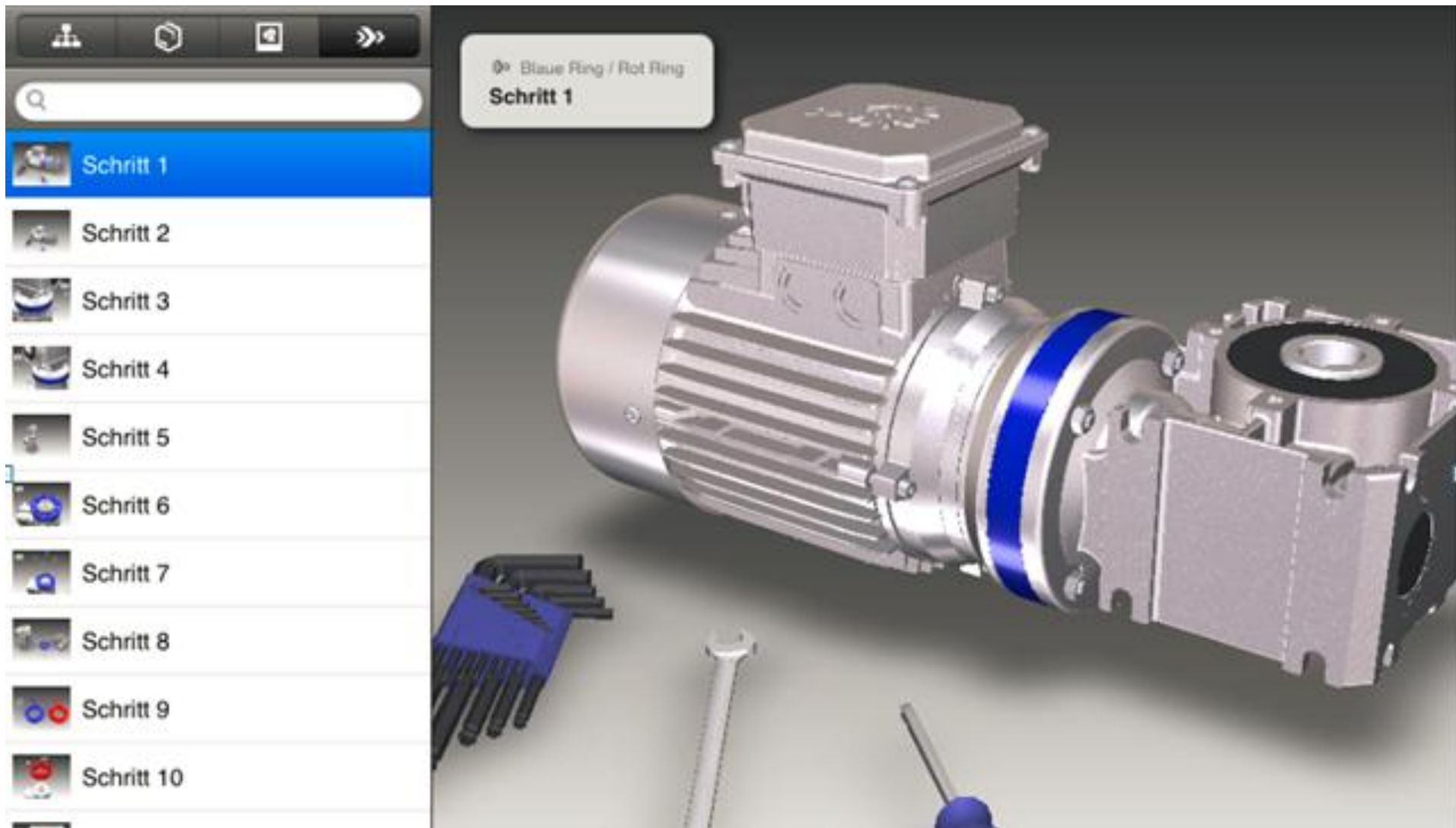
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# The fully integrated SAP Visual Enterprise consumes and publishes Information from different Systems of Record



# SAP Visual Enterprise in Action

## Linking CAD and SAP Data



# Visualization Improves Core Business Metrics

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- **Business Speed**
  - Better Design Collaboration / Decision Support
  - Faster Product Innovation / Time to Market
  - Reduced Time to Revenue / Profit
- **Improved Quality**
  - Enhanced Product Collaboration
  - Reduced Training Time
  - Improved Process Comprehension
- **Optimal Productivity**
  - Finer Clarity in Procedures and Methods
  - Compressed Process Cycle-Times
  - Quicker and Improved Decision Making





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# Empowering the Field Workforce

## SAP Work Manager

### Uses Cases

- Enable the maintenance side of your business
- Install and geo-tag equipment, including meters
- View asset schematics, history, dependencies
- Provide secure mobile access to work orders, notifications, and inventory information on the go
- Eliminate paper work and shorten work cycles
- Execute to guided workflows and standards
- Generate notifications and work orders on-the-spot
- Report worker's status, progress and location
- Shorter response times and timelier maintenance
- Complete safety checks and follow safe work practices to protect employees

### Business Value

- Increase plant and equipment performance
- Improve workforce productivity and safety
- Reduce overtime and cost of maintenance
- Promote a 360° view of operations
- Reduce maintenance costs by working to standards

**SAP's industry leading mobile app maintains, inspects and repairs mission critical assets**



# Syclo Apps Drive Value in Multiple Areas

	Value source	Realized or expected improvement from Syclo Apps	Benefit Range	Process App
Value of Process Apps	Increase Revenue	Improve First-Time Fix Rates	15% - 20%	<ul style="list-style-type: none"> <li>• Service Manager</li> <li>• <b>Work Manager</b></li> </ul>
		Reduce Unplanned Downtime	20% - 30%	
	Reduce Costs	Eliminate Admin Time of Manual Paper Orders	90% - 100%	<ul style="list-style-type: none"> <li>• <b>Work Manager</b></li> <li>• Inventory Manager</li> <li>• Service Manager</li> </ul>
		Increase Work Order Capacity	20% - 30%	
		Minimize Overtime Costs	40% - 60%	
		Reduce Inventory Carrying Costs	5% - 10%	
		Eliminate Manual Data Entry into CRM	90% - 100%	
	Optimize the Balance Sheet	Accelerate Days Sales Outstanding		<ul style="list-style-type: none"> <li>• Service Manager</li> <li>• Inventory Manager</li> </ul>
		Reduce Spare Parts Inventory	10% - 15%	
		Reduce Pick Errors		

# Comprehensive Mobile Suite of Service & Maintenance Functionality – 100% Configurable



## Work Management & Calibrations

- Start, Hold, Complete, Transfer, and Edit WO's & Notifications
- Record labor, parts, notes and failure information
- Create field WO's & Notifications
- Access operations, asset, safety, and history information
- View pending work orders
- Capture calibrations
- Signature capture

## Rounds, Audits

- Download measurement points using flexible filters
- Filter measurement points for easy access
- Enter readings and record observations
- Enforce action and warning limits
- View measurement history
- Create notifications
- Perform asset audits

## Inventory

- Conduct physical counts (planned and ad hoc)
- View material information
- Serialized inventory
- Add/Edit/Clear material Issues
- Access material reservations
- Add/Edit/Clear Material Transfers
- Material Reversals
- Add/Edit/Clear Material Receipts

## Service Orders & Sales

- Update order status (Enroute, On-Site, Start/Hold/Complete)
- Accept/Decline and update status of Assignments
- View asset and customer information and history
- Mapping and signature capture
- Record parts and labor
- Record confirmations
- Execute Sales Process

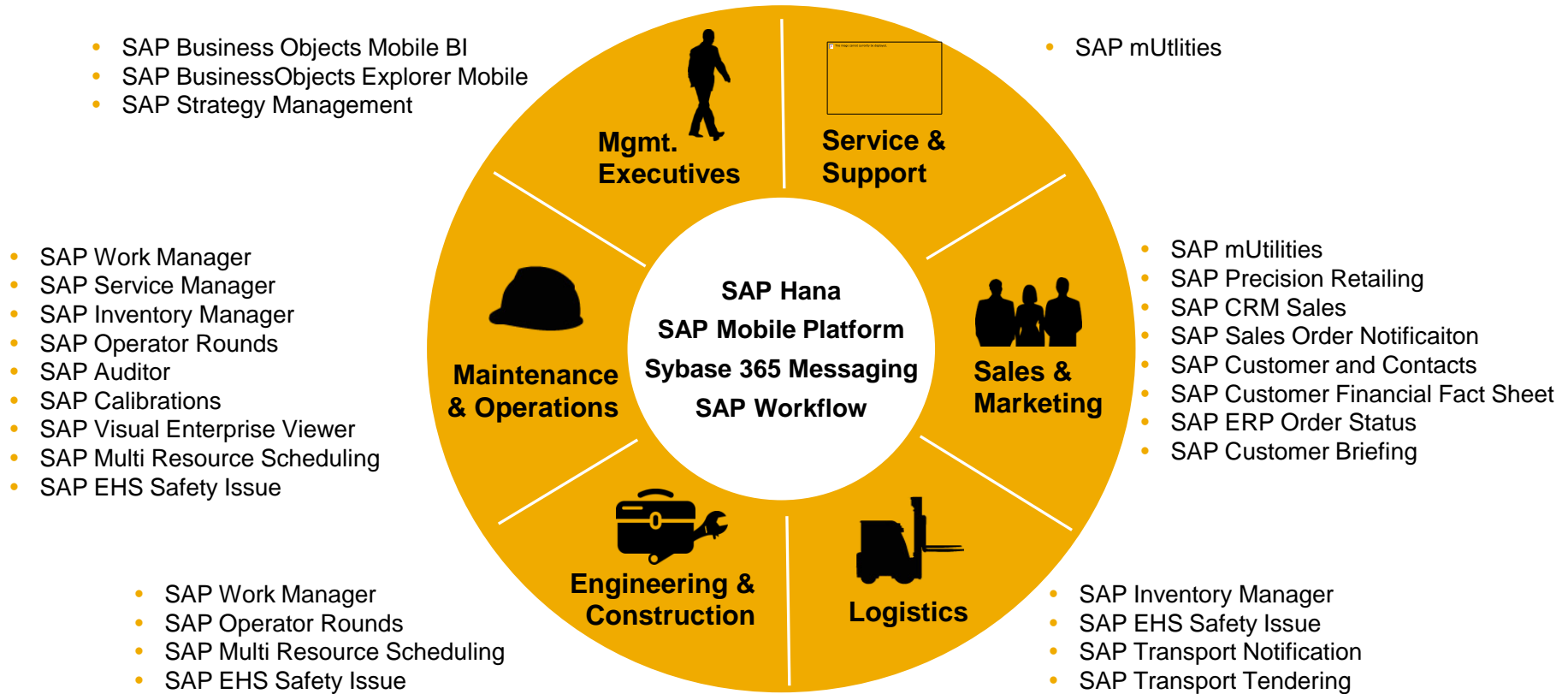
## Time recording

- View and edit daily time
- Record non work order time, labor type, OT scale
- View and filter pay periods
- Pop-up calendars and automatic start/stop calculator
- View daily summary of time
- View and edit attendance



# Industry's most complete Portfolio of Apps

## And rapidly growing



• SAP Finance mobile apps • SAP Human Resources mobile apps • SAP Procurement mobile apps • SAP StreamWork for Mobile

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# Solutions for Chemical Manufacturing powered by latest Database Technology SAP HANA

Insights

Real-Time

Speed

Overall Equipment Effectiveness



Identify the sources of production loss to improve the effectiveness of manufacturing processes

Predictive Maintenance



Initiate maintenance when one or more indicators show that equipment is going to fail

Energy Management



Gain complete visibility into energy consumption and costs in real-time

Operational Analytics & Intelligence



Optimize manufacturing operations across the value chain with predictive, real-time analytics

Next Generation Production Planning



Optimize planning processes across operations in real-time

Manufacturing Execution



Run higher production volumes and support more complex operations with superior response times

Product Performance Feedback



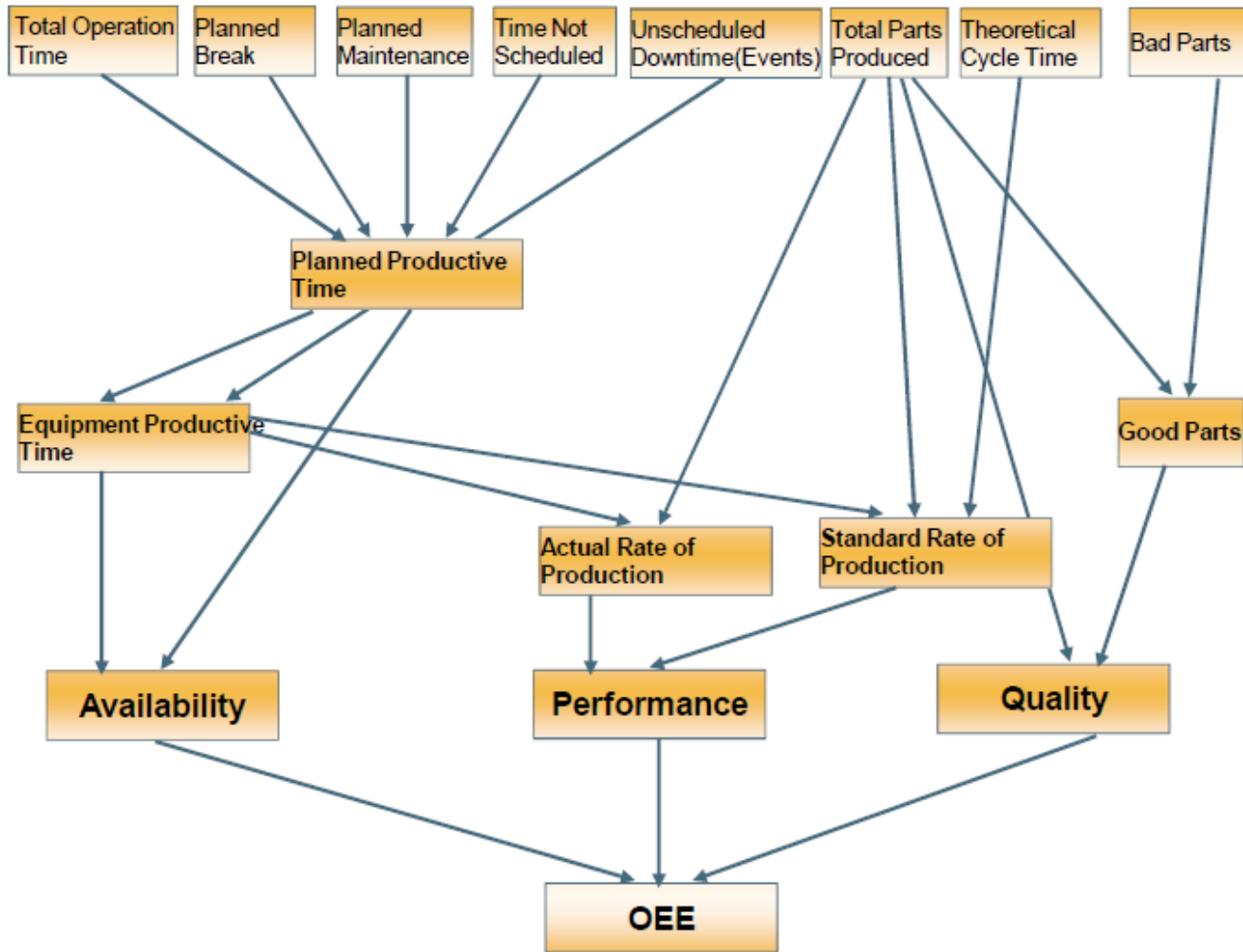
Leverage vast amounts of product data to drive engineering innovation manufacturing performance

# SAP Overall Equipment Effectiveness (OEE)





# OEE KPI Calculation Tree (Example)



# SAP Overall Equipment Effectiveness (OEE)

## Real-Time Visibility to Production Performance



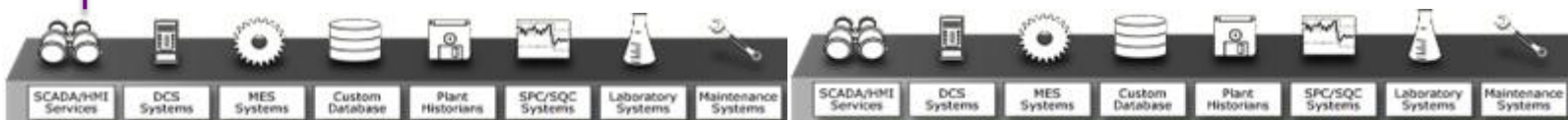
- ❑ Real-time visibility and monitoring of performance metrics
- ❑ Production data combined with business data
- ❑ Real-time calculation and presentation of OEE metrics
- ❑ Real-time alerts and notification of production issues

A screenshot of the SAP OEE Data Collection elements of Raw Materials table. The table lists raw materials and their quantities required and remaining. The table has columns for Material, Quantity Required, and Quantity Remaining. The data is as follows:

Material	Quantity Required	Quantity Remaining
AM_BISCUIT_MIX Mix For Biscuit Baking	200.000000	200.000000
AM_BISCUIT_FLAVR Flavour for Biscuit Production	400.000000	400.000000
AM_BISCUIT_FLOUR Flour For Biscuit Production	400.000000	400.000000

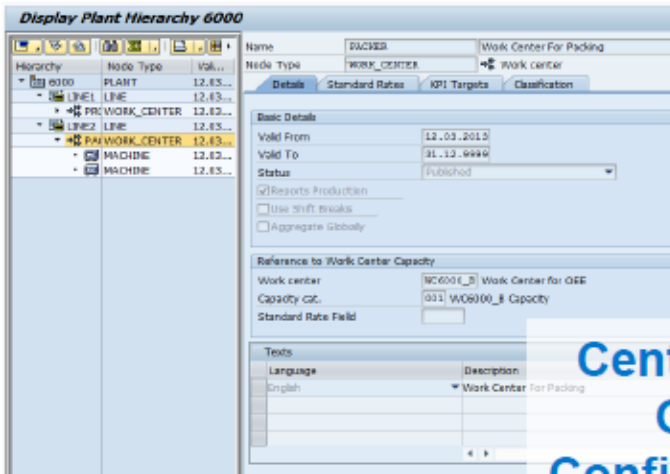
- ❑ Simple, touch screen user interface
- ❑ Add qualitative comments and context

- ❑ Connectivity to disparate plant systems and data sources
- ❑ Automated, real-time data collection



# SAP Overall Equipment Effectiveness (OEE)

## Usage of Role-based Screens and User Interfaces



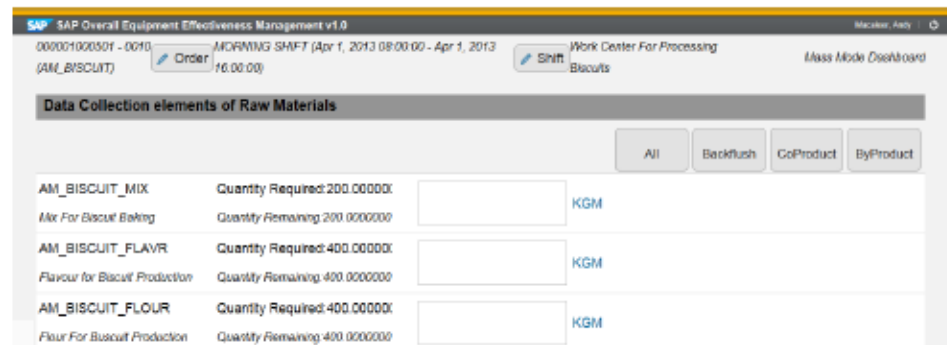
Centralized  
OEE  
Configuration



Cross Plant, Business  
Context-Related  
Analytics



Configurable  
Operator  
Dashboard



Simple Operator UI  
and Data Entry

# Manufacturing Visibility and Performance

## Business value for Global Plant Performance Management



### Improved

Return on Assets,  
Costs of Goods Sold  
and Product Quality



### Increased

Resource Utilization  
and Asset Uptime



### Reduced

Unplanned  
Downtime,  
Changeover and  
Waste by

**5-10%**

#### Today

- Inability gathering and visualizing data from production in real-time to improve the status of manufacturing performance both within and across multiple sites.

- Inability to understand where machine maintenance issues and bottlenecks exist in production.
- Need to capture the root causes for downtime, efficiency loss and poor quality.

- Unplanned downtime, suboptimal performance and poor product quality all contribute to decreased asset utilization, poor product yields, increased costs and reduced customer responsiveness

#### With Suite on HANA

- Combines quantitative performance measures with qualitative context and reasons for performance issues
- Combines plant performance with business context

- Facilitates corrective action at the plant level and across plants
- Enables broader supply chain, sustainability, financial and enterprise performance improvements

- Enterprise level OEE rolls up plant level OEE for enterprise analytics and comparing assets and performance across multiple sites

KPI improvements are high-level estimates, and will have to be validated for each customer situation

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# SAP Business Glasses

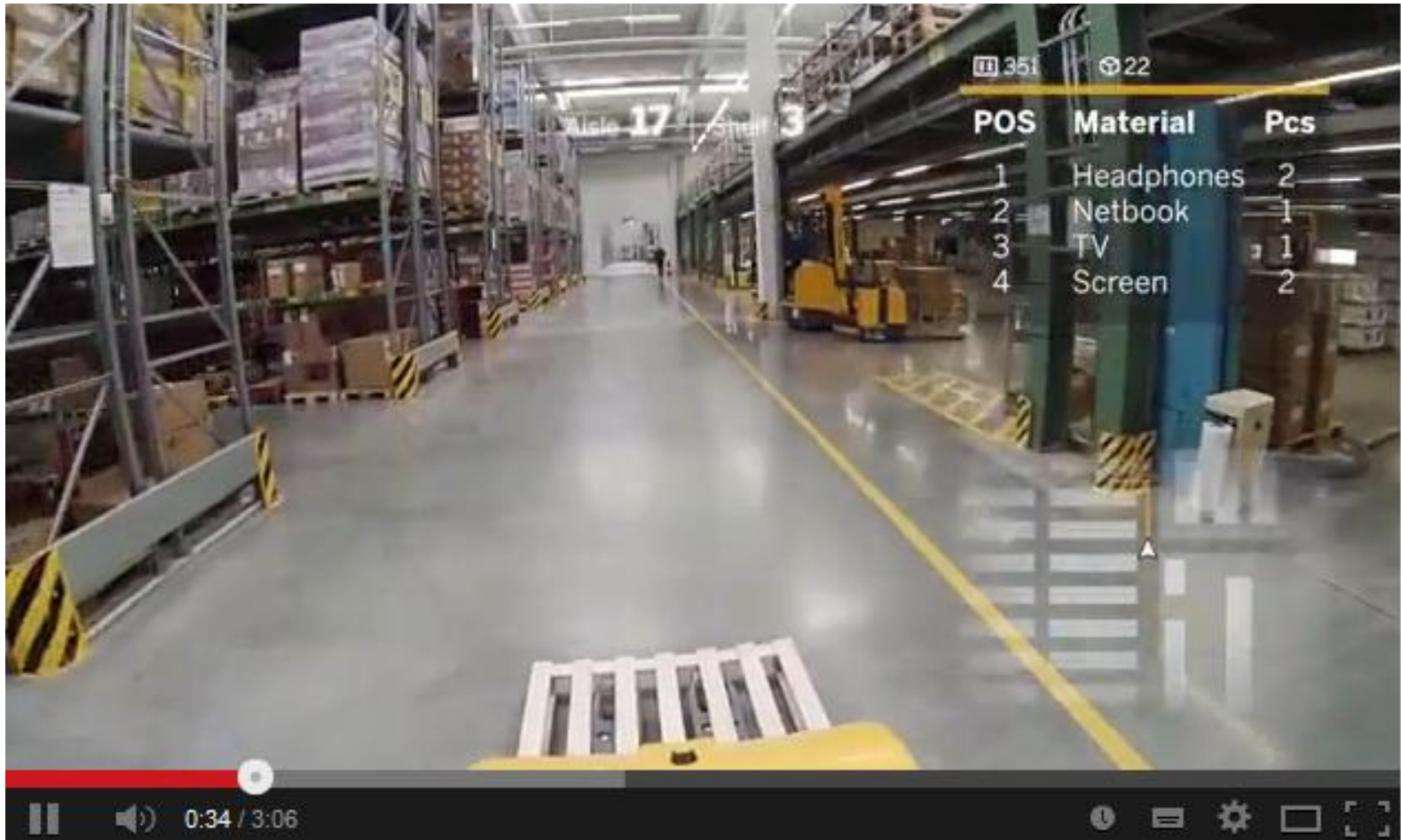
## An Outlook to Innovations driven by SAP

[http://youtu.be/9Wv9k\\_ssLcl](http://youtu.be/9Wv9k_ssLcl)

Imagine hands-free working with  
**Augmented Reality Glasses**

**SAP**

# Imagine hands-free Working ... Video



[http://youtu.be/9Wv9k\\_ssLcl](http://youtu.be/9Wv9k_ssLcl)

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# Appendix

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# SAP Work Manager – Technical Data and Facts



## Facts and Figures

- Role: Maintenance/ Field Service Technicians
- Target segment: Enterprise Asset Management / Cross-Industry
- Version: 5.3 / optional add-on component: SAP Meter Management 1.3
- Availability: November 2012
- Prerequisites: SAP ECC 6.0 SP6, IS-UT 604 SP7 (for SAP Meter Management); Syclo Agentry 6.0.22
- Mobile device support: iOS 4.3 and later, Android (tablets) 3.x and above; Android (phones) 2.3 and above; Windows 7 32-BIT; Windows 7 64-BIT; Windows CE 6.5
- Video <http://www.youtube.com/watch?v=EEJHWncVkV8>

## Typical Business Challenges

- Provide technicians, wherever they are working, with immediate access to work orders and equipment information
- Automate manual, paper-based work order processes and give supervisors greater visibility into maintenance activities
- Integrate maintenance operations with other enterprise processes
- Proactively manage data, devices, applications, and communications for maintenance workers

## Mobile Business Impact

- Boost productivity
- Reduce cost
- Gain a 360° view of operations
- Increase asset longevity

## Features and Capabilities

- Work Order Management
- Access to asset location, repair history, work order details, materials needed
- CATS - Time & Attendance
- Measurement Documents
- Guided Workflow
- Prompt TECO (close) and Data Completion
- Create Notifications on-the-spot
- Support for SAP EAM (PM) (SAP ERP CS on a project basis)