



# **Deep Dive:** Digital Manufacturing Cloud for “configurable production” at Bosch Rexroth

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# SAP Digital Manufacturing

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**.



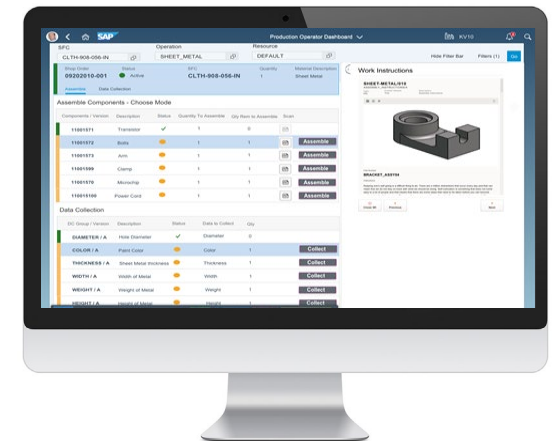
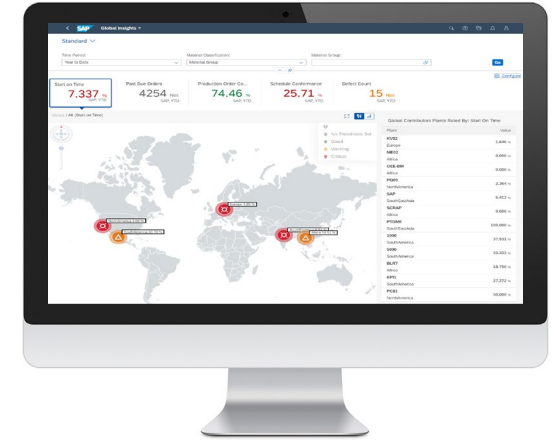
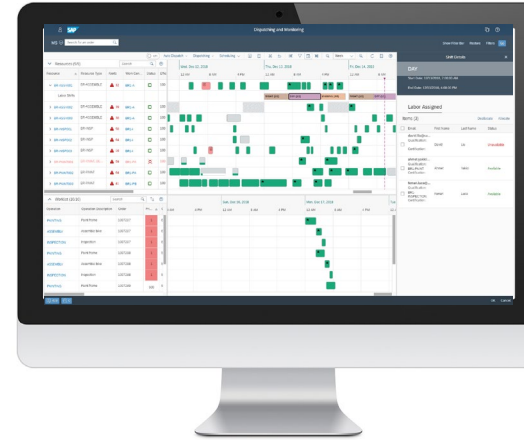
**Shift and Labor planning** to ensure business operations with right qualifications. Production Order scheduling and dispatching considering labor, resource and maintenance constraints to plan operations and adopt to short term changes.



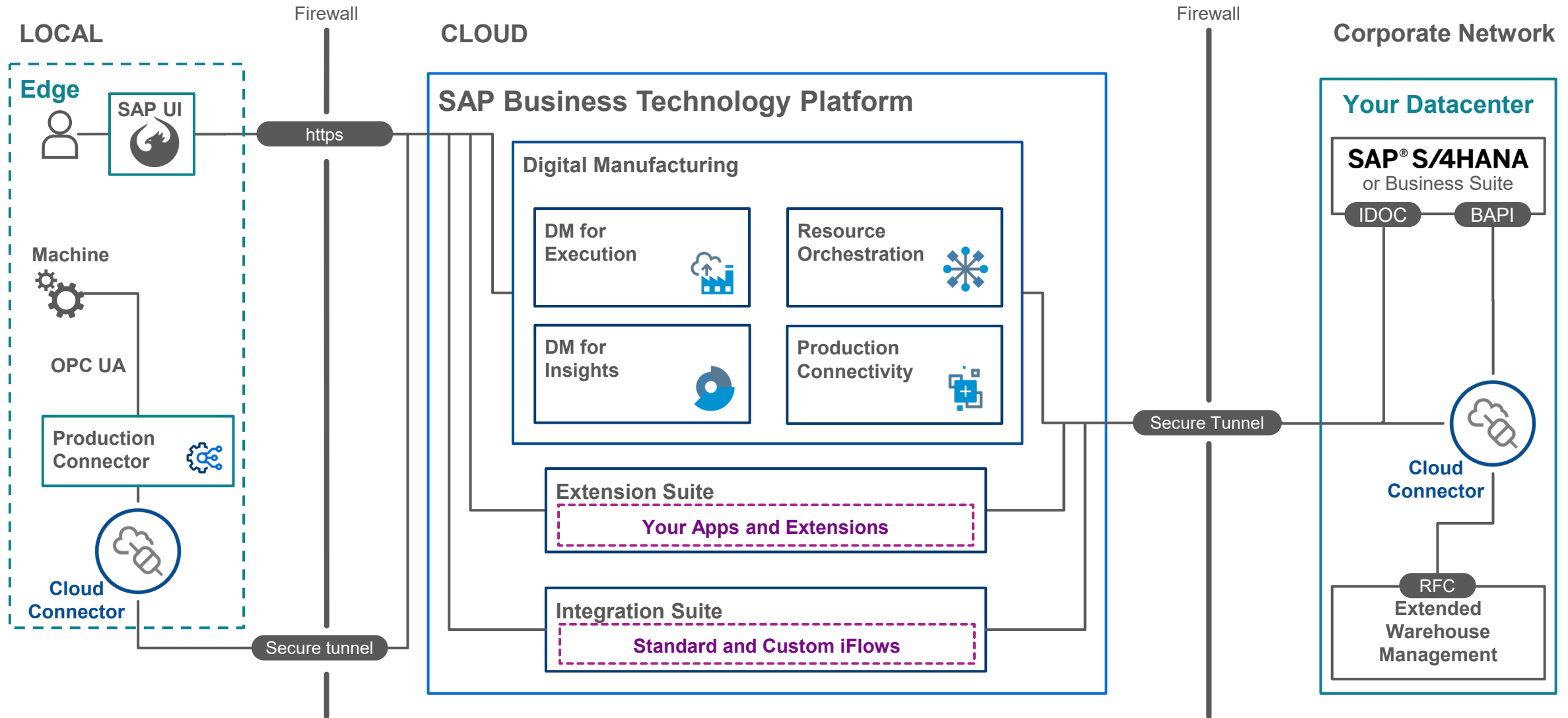
Cross plant **real-time analytics** for manufacturing performance e.g. Perfect Order Fulfillment, Overall Equipment Effectiveness, loss analysis along with machine data to identify improvement opportunities.



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



# DMC Solution Architecture

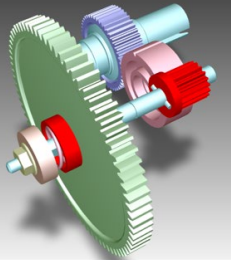


# SAP Digital Manufacturing for Execution

## Production Operator Dashboard (POD)

- Support operators with a highly flexible and **intuitive user interface** (POD)
- Configure and **design the POD** based on user requirements
- Display execution-relevant information of production orders
- **Guide operators through work instructions** in the POD
- Support of **data collections**
- Logging of defects and subsequent rework and repair actions using the **nonconformance** functionality
- Provides product serialization and re-identification
- Recording of assembled components for traceability and to trigger **goods movements**
- Monitor **OEE** using established **KPIs** in the POD
- Post-operation activity-level **yield confirmations** happen automatically as well as **goods receipts** as units are completed

The screenshots illustrate the SAP DME Work Center POD interface, showing search filters, work order lists, operation activity lists, data collection lists, and OEE KPIs.



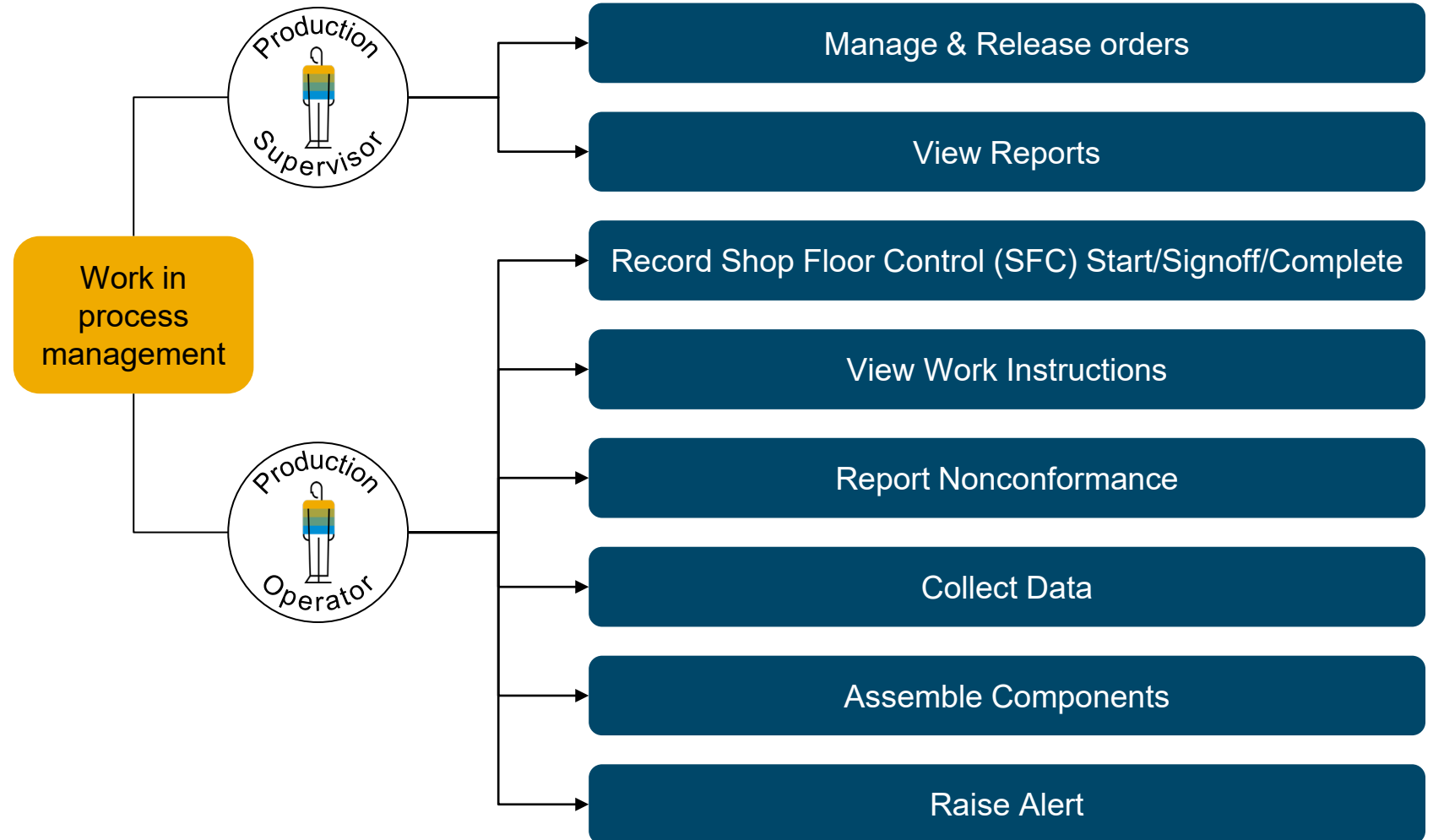
# DEMO



# SAP Digital Manufacturing for Execution

## Work in process management and reporting

- **Manage and release** orders for execution on the shop floor
- Production operators use the **configurable PODs** that were created in the POD Designer to capture and report execution data
- An **SFC is a unique identifier** representing a specific instance of the material being built during the manufacturing process and allows for full traceability of the product.
- The SFC represents a **quantity of the product instances**, depending on the lot size of its material.

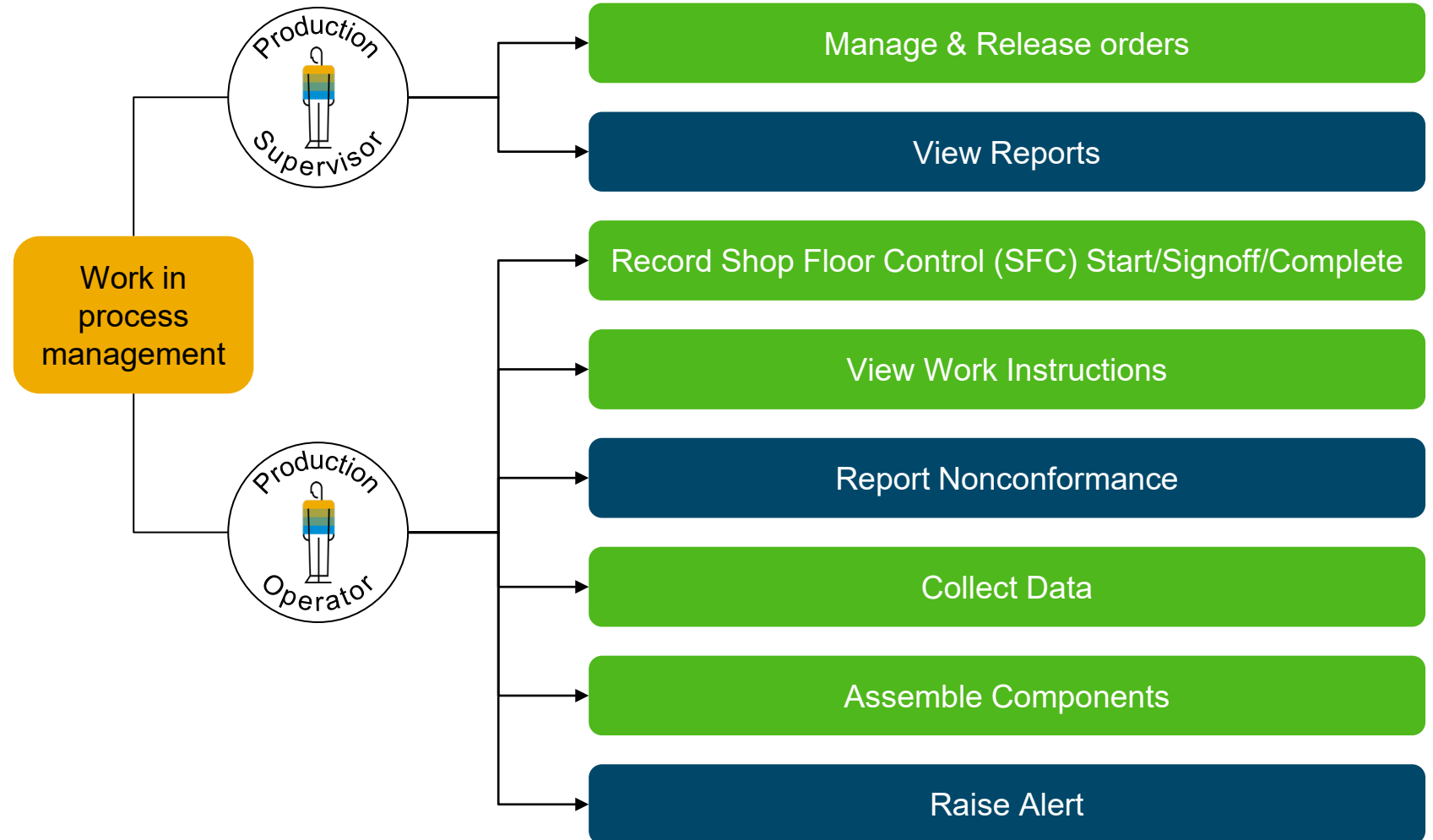




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# Building a Digital Twin of the Shop Floor

## Example: Set Points as Integration Object

### Physical Asset on the Shop Floor



**Screwdriver #04**

### Header Information:

**Type:** Screwdriver XYZ  
**Description:** Assembly station S04  
**Location:** Plant ABC, Hall 1  
**Resource:** S\_04

### PPG Job as Input

Job Number 34 shared via Set Points

- Torque 1: **15 Nm** (+/-1 Nm)
- Torque 2: **25 Nm** (+/-1 Nm)
- Torque 3: **20 Nm** (+/-1 Nm)

### Data Collection from Shop Floor

Indicators/Measurements shared with DM via PCo

- Actual Torque 1: **15.3 Nm**
- Actual Torque 2: **17.3 Nm**
- Actual Torque 3: **19.9 Nm**

### Indicators from Shop Floor

- Visualization of application UI (POD)
- Storing in a database (e.g. for further analysis)
- Making use of calculation and aggregation capabilities of DM for Insights
- Trigger actions on the shopfloor (e.g. nonconformance routing)



# Thank you.

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