

wilo



Manufacturing Execution @ WILO

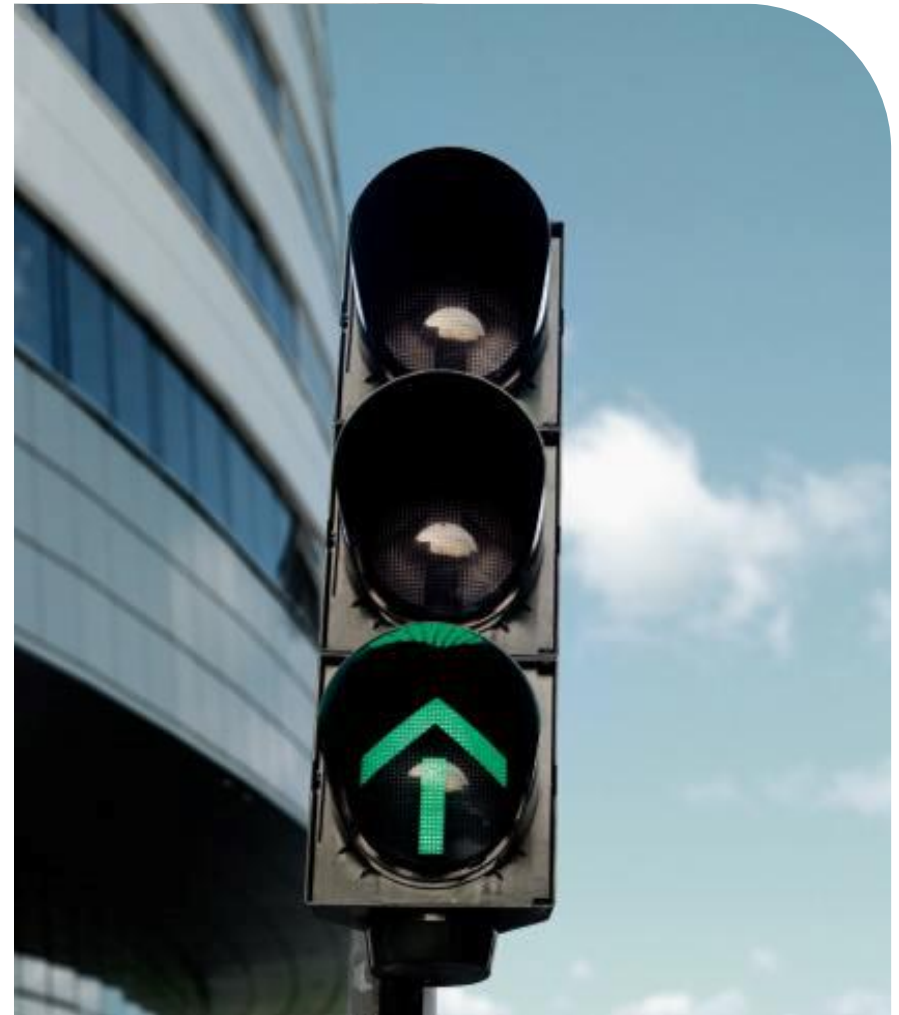
55.Erfa-Kreis-Treffen EPM / Nov. 24 2015

Andreas Möllmann, Process Engineering Electronics, Group E&M

MES @ WILO

Upcoming challenges

- Higher product complexity
- Increased complexity in production processes
- Traceability
- Increase of customer demands
- Higher level of cost control
- Transparency
- Efficiency

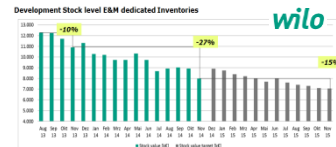


MES @ WILO

Our Motivation

Internal requirements

- Reduction of waste, re-work, scrap
- Improvement of product quality
- Decrease of production lead time
- Optimization of material flow
- Reduction of Inventory
- Increase in productivity



External requirements

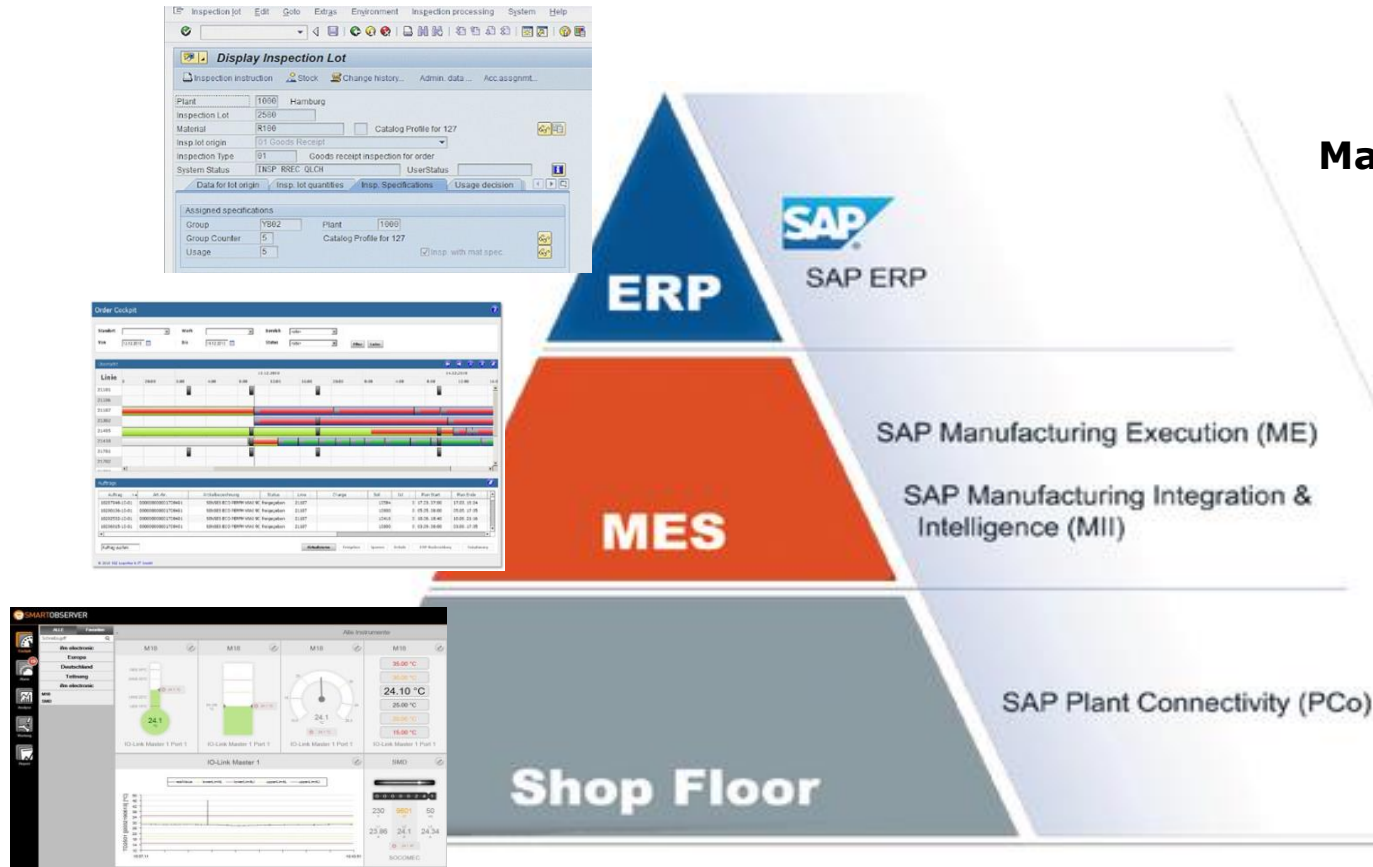
- Customer requirements (OEM traceability)
- Legal requirements (ProdHaftG)
- DIN / ISO norms
- Product re-calls



Implementation of a *Manufacturing Execution System*

MES @ WILO

The Interface between shop floor and ERP

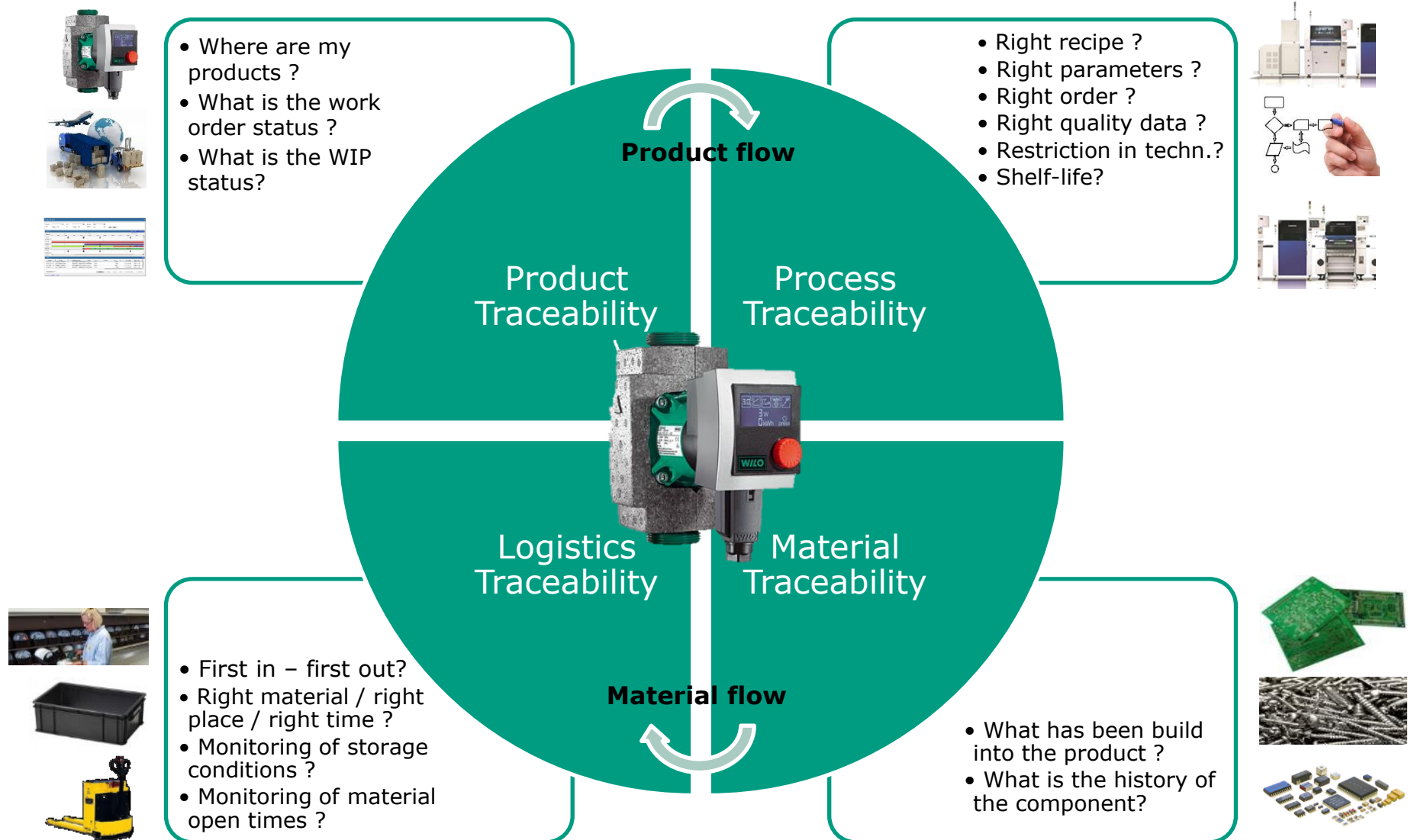


Manufacturing Execution Systems:

- Detailed production planning
- Traceability of machine data
- Traceability of material data
- Process interlocking
- Ressource allocation
- Production Cockpit
- Master data exchange with ERP

MES @ WILO

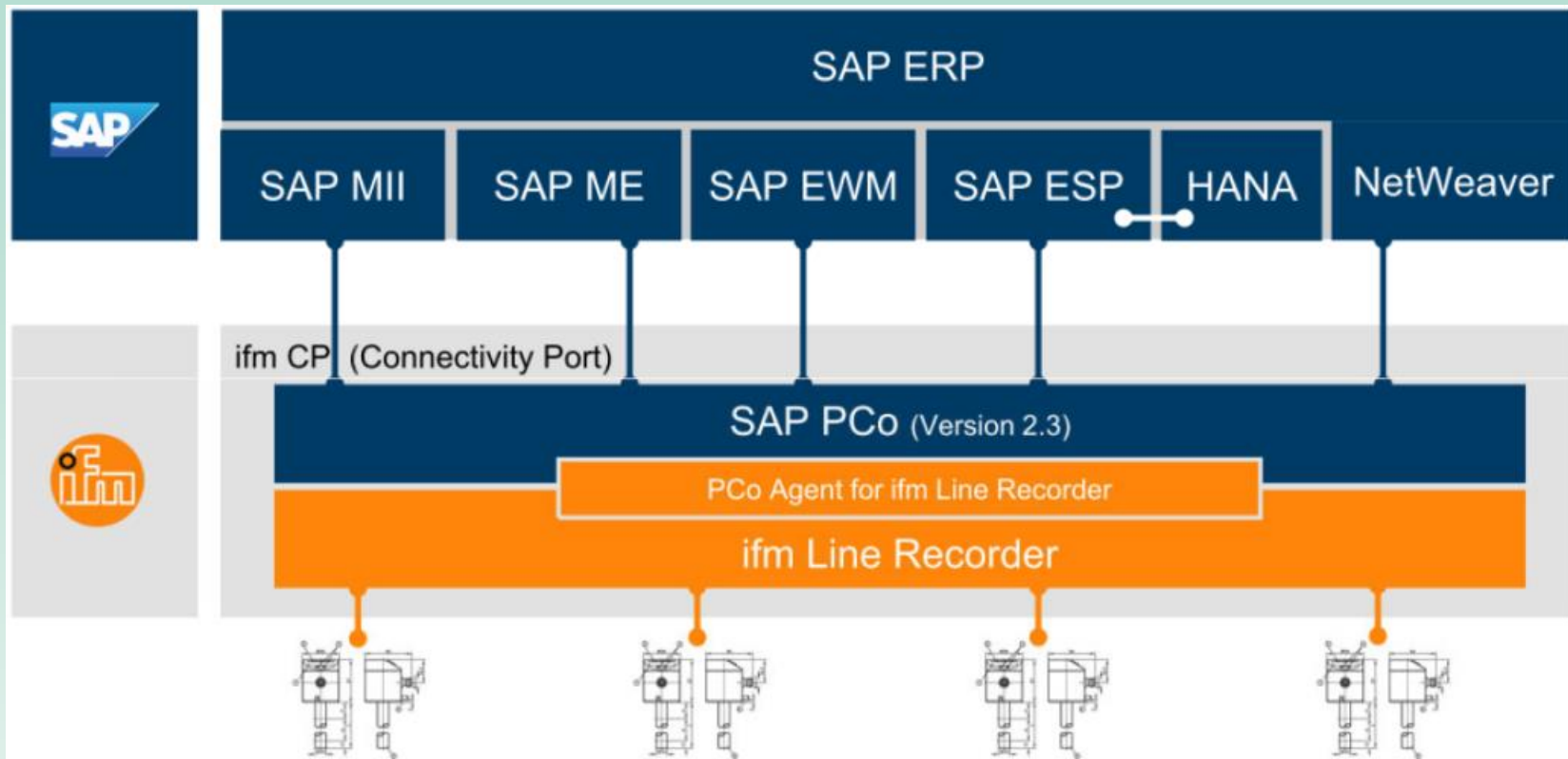
Traceability Definition



WILO MES Solution

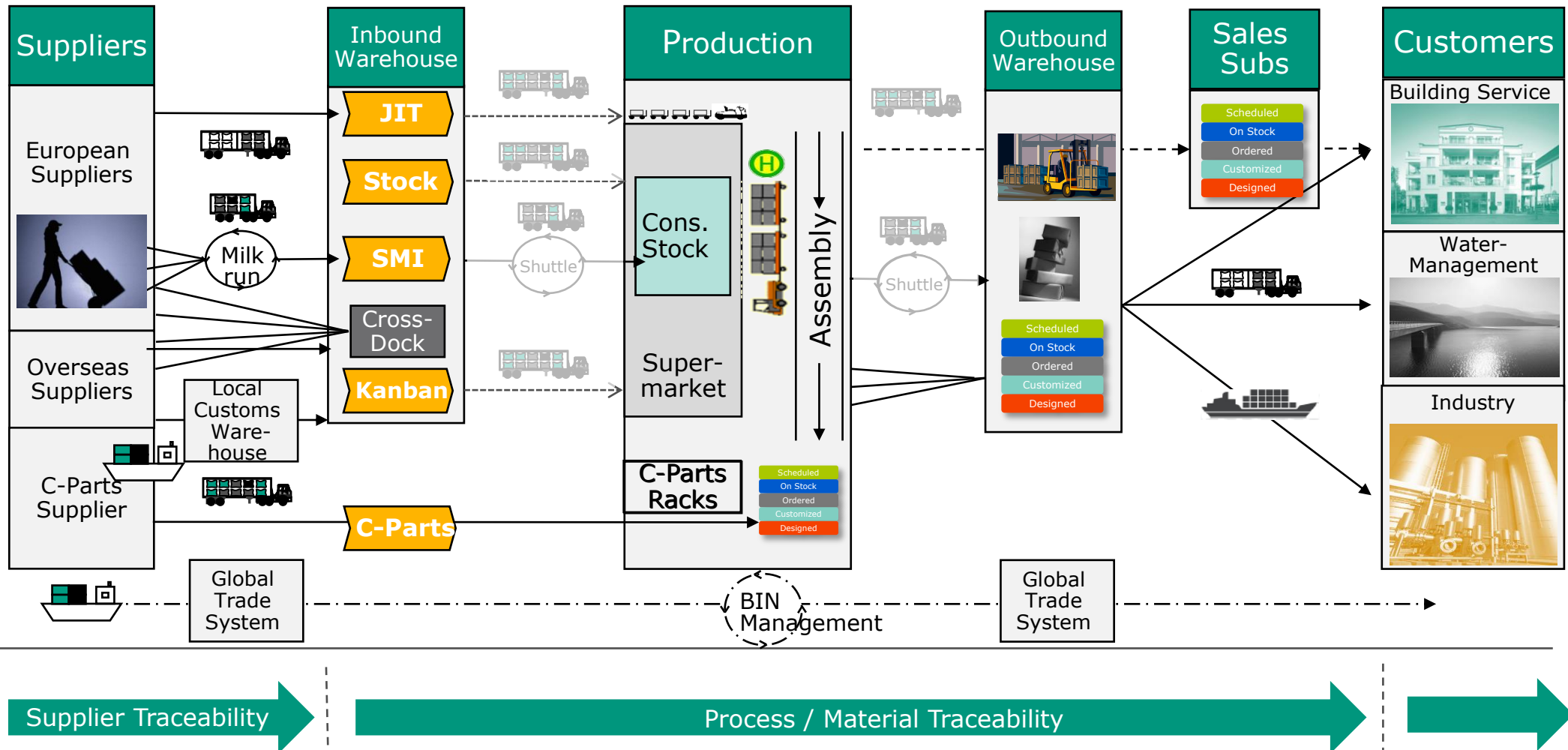


System Integration



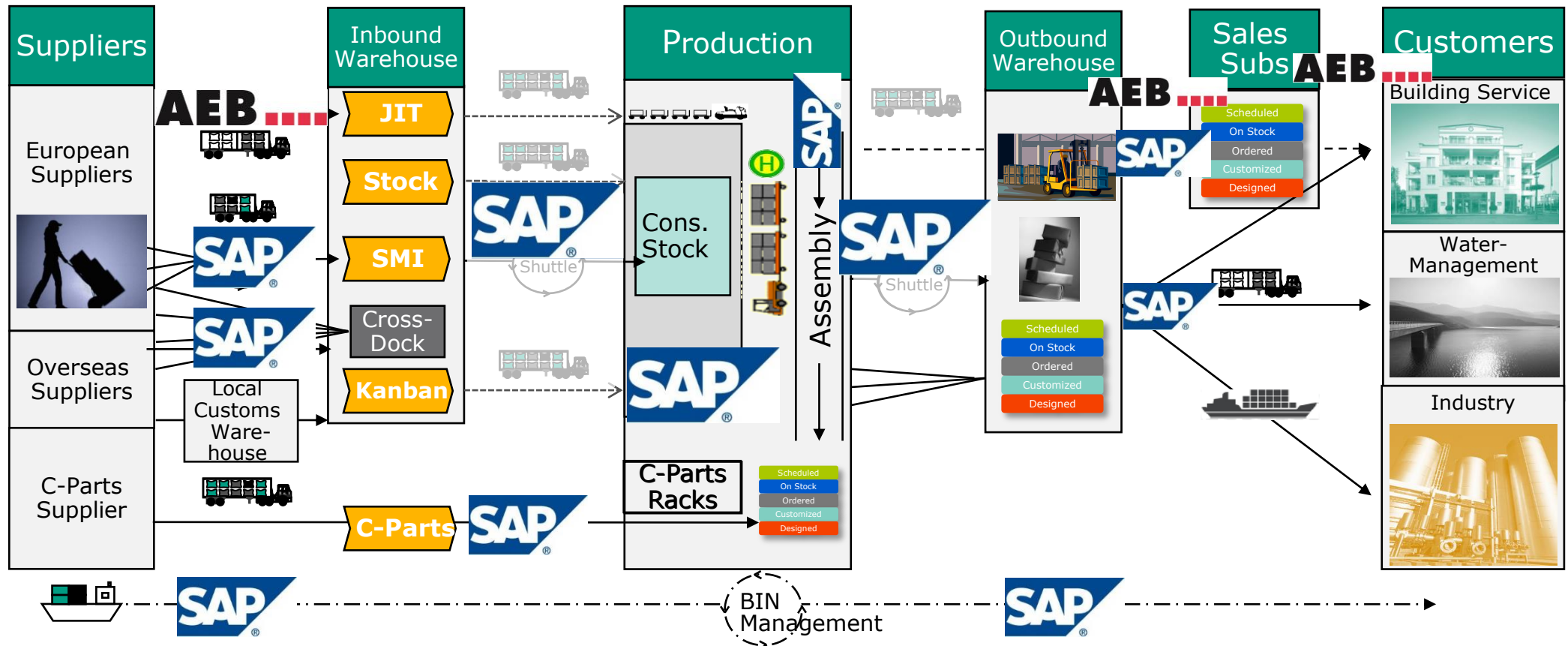
MES @ WILO

Supply Chain Traceability with SAP ME – The Big Picture



MES @ WILO

Supply Chain Traceability with SAP ME – The Big Picture

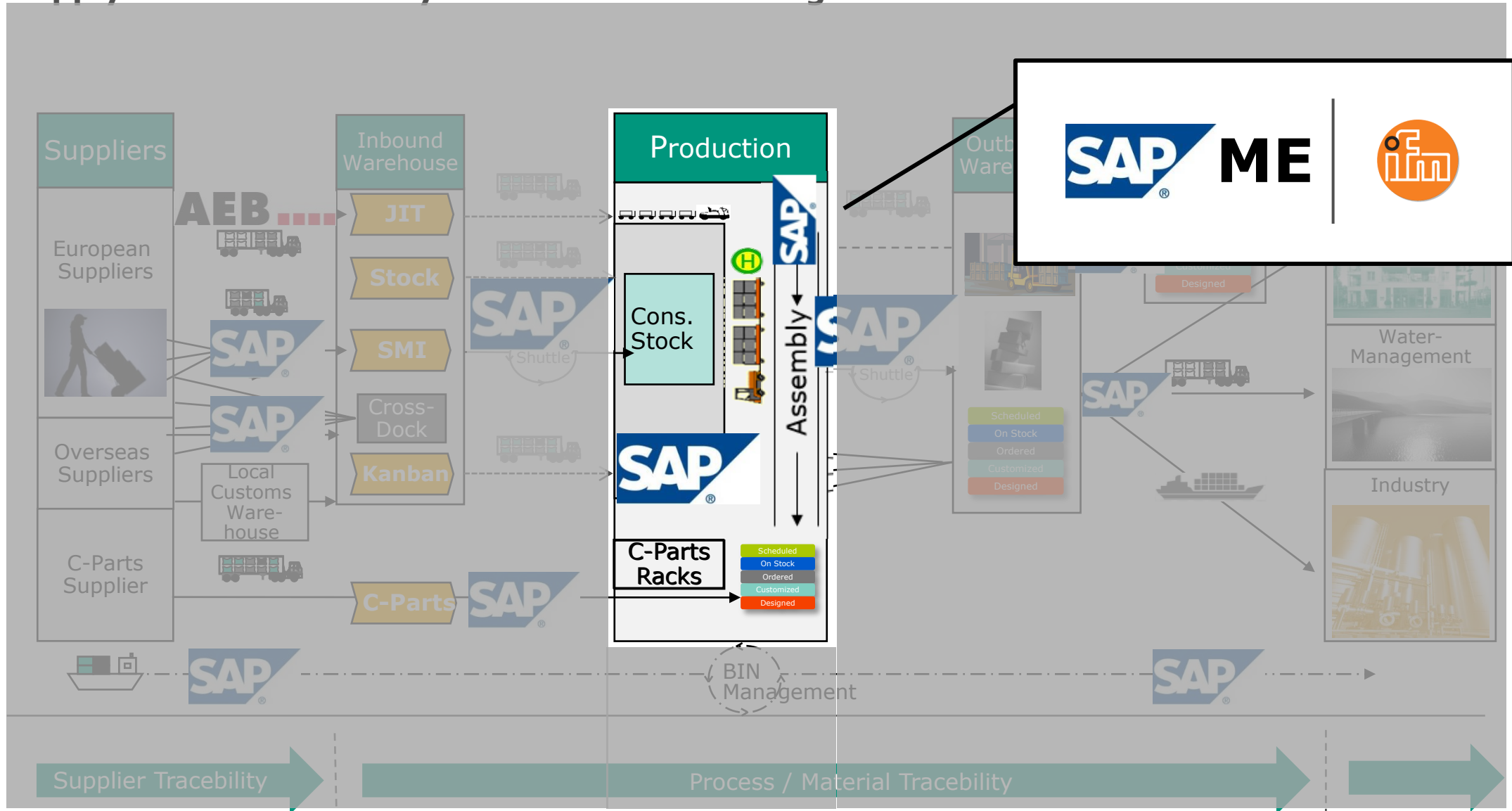


Supplier Traceability

Process / Material Traceability

MES @ WILO

Supply Chain Traceability with SAP ME – The Big Picture



MES @ WILO Timeline

2015

MES Pilot Process Traceability

E&M

- Process Traceability

CP

- MES based control of material supply



2017

MES Rollout Step 2

E&M

- Rollout Material Traceability

CP

- Pilot Material Traceability
- Rollout Process Traceability



2016

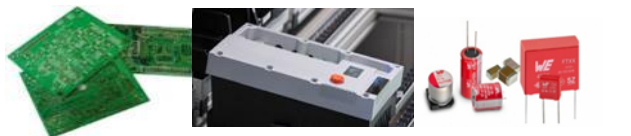
MES Pilot Material Traceability Rollout Step 1 – Process Traceability

E&M

- Rollout Process Traceability in SMD Production
- Pilot Material Traceability

CP

- Pilot Process Traceability

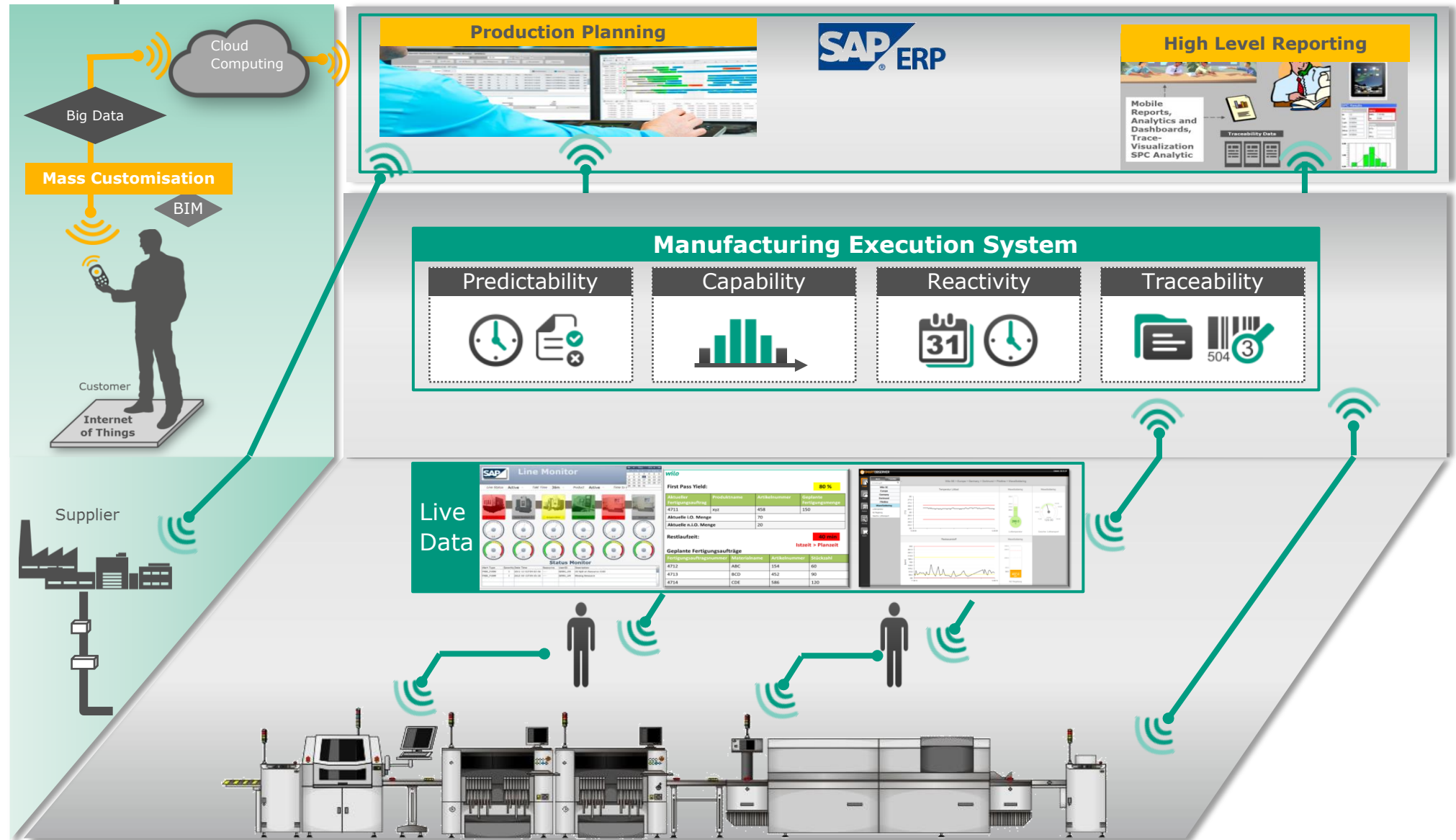


2018

MES rollout completed

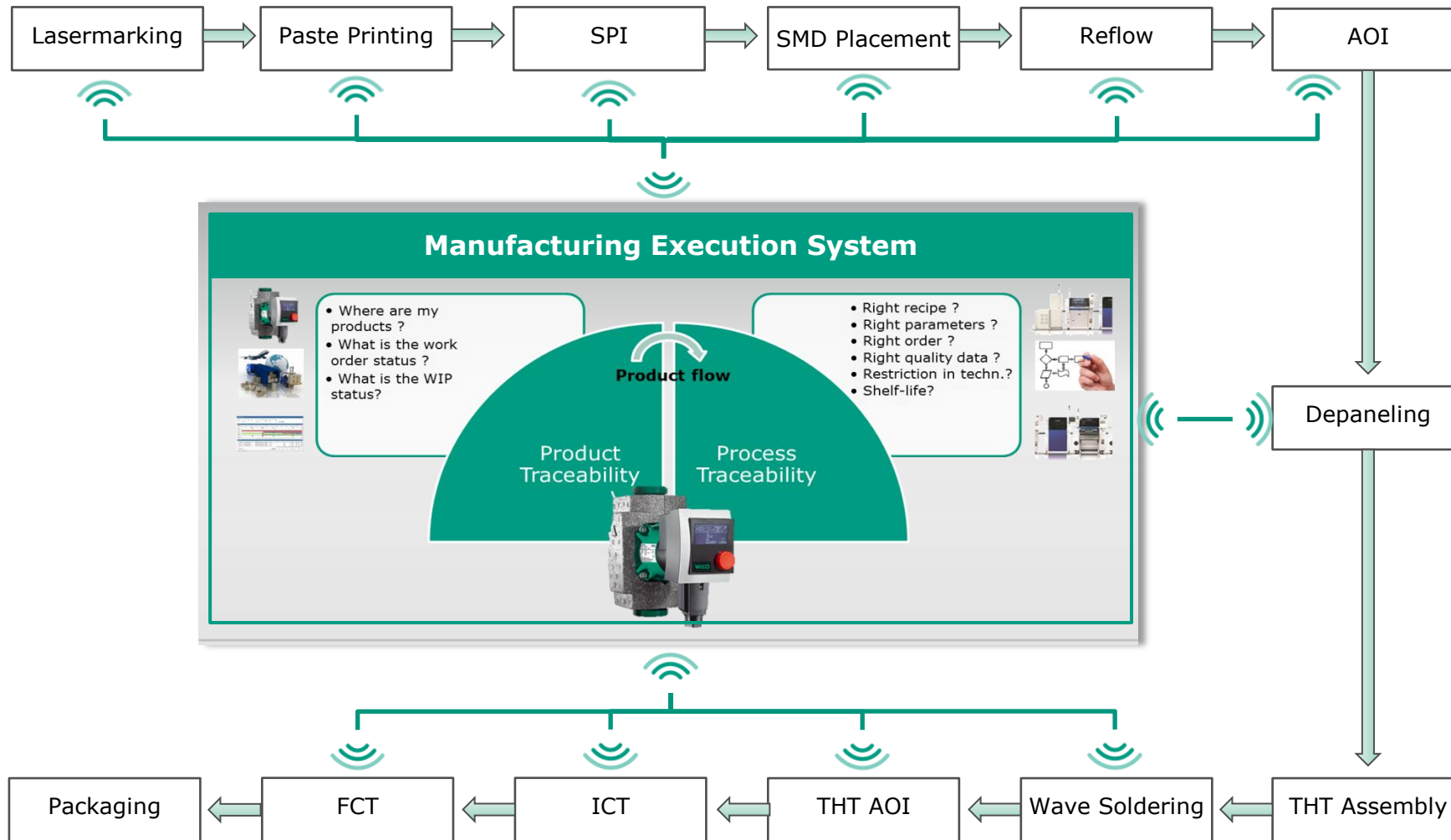


MES @ WILO Concept



MES @ WILO

Machine Integration Pilot line



MES @ WILO

Reporting Structure

Level 4: Enterprise Resource Planning/Execution

Vendors

Historical Data

- Long Term KPI Report
- Factory Wide Reports
- Cross-Plant Reporting
- Combination with financials

Business Objects MES & ERP Data



Level 3: Manufacturing Execution

ME/MII



Factory

Live Dashboards

- Real time KPI Reporting
- Line Status Reports
- Production Order Status
- Alarm Messages



Level 2: Automation/SCADA

Live Data Analysis

- Live Cpk Monitoring
- Key Parameter Monitoring
- Alarm Logs
- Defect Drill Down

ifm Reporting Beispiele

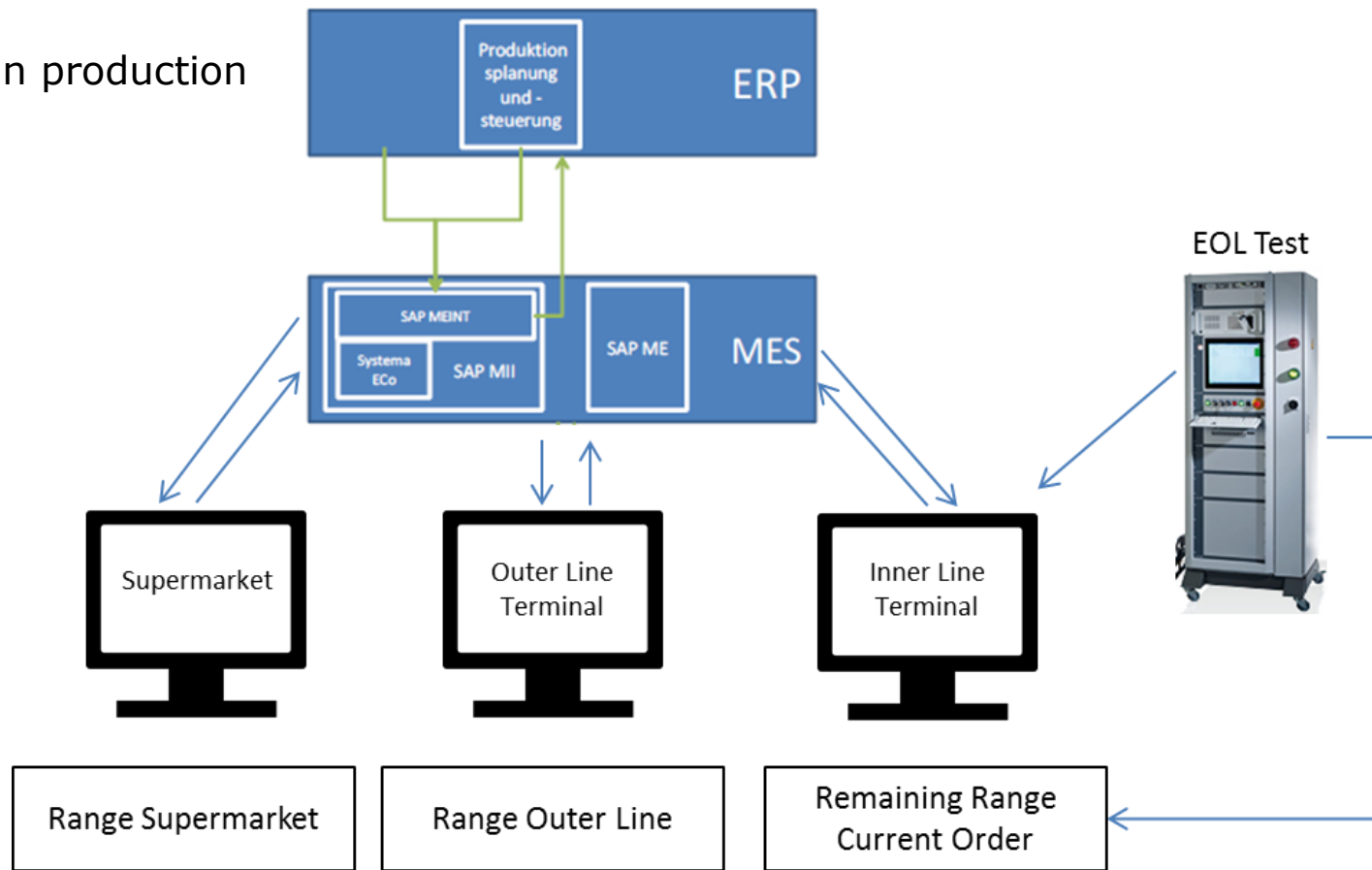


MES @ WILO

Pilot Material Supply

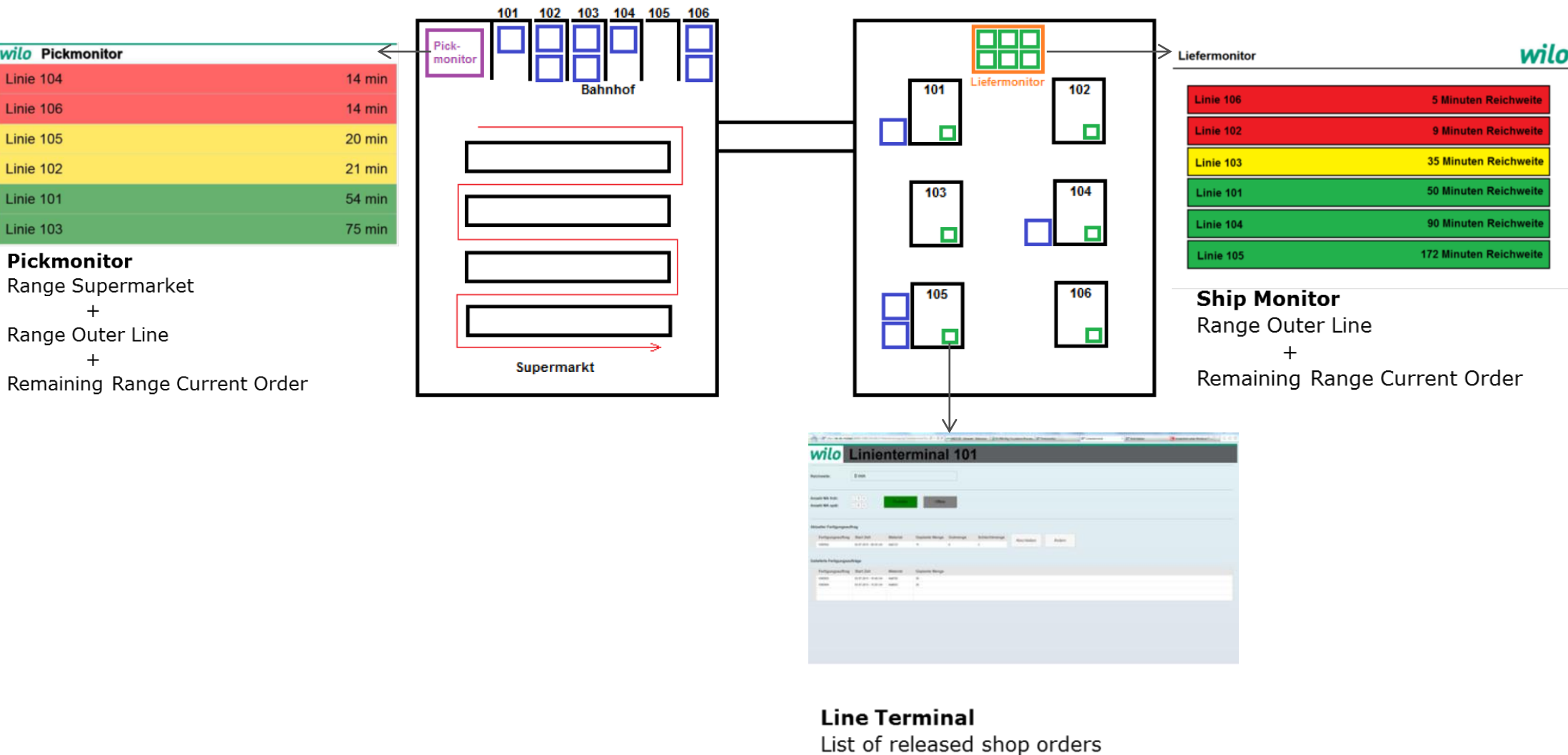
Transparency in Material Logistics

- Live order monitoring and control
- Optimized supply of materials
- Reduced amount of raw material in production
- WIP reduction



MES @ WILO

Transparency in logistics processes



MES @ WILO

Lessons Learnt

Machine Integration

There is no standard!

- Only 2 out of 11 equipment suppliers provide a MES Interface according to ZVEI recommendation
- 4 suppliers provide their own standard interface
- 5 suppliers don't have an standard. Interface will be programmed according to customer specification
- Detailed requirement specification is essential for a successful machine integration

IT requirements

- Gigabit LAN required in production environment
- User administration and network security management must be in place
- Network and MES Server availability must be assured during production hours

People

- Project team should at least be composed out of Production Specialists, SAP Experts and SW Programmer
- Production personnel must be well involved
- MES helps the people to facilitate and optimize their daily work by a plus in transparency

Thanks for your attention

