

**Datensilos
aufbrechen**



**Synchrone Produktions- und
Qualitätsdaten als Grundlage für
KI-basierte Prozessoptimierung**

Ihre Ansprechpartner:



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+49 172 908 95 21

- Foundation: **2024**
- Team Size: **15+**
- Headquarter: **Aachen**
- Domains: **Injection Molding, Extrusion, Particle Foaming**
- Customers in: **Europe, Asia, North America**
- Number of Deployments: **1**



OSPHIM

AI-enabled Plastics Manufacturing





Product:
AI-SaaS for Process Optimization
In Plastics Manufacturing

AGENDA

1. **Industrial AI – Status Quo**
2. **AIMOX – Bridging ERP, MES and CAQ data**
3. **Integration Example: Quality & Order data**
4. **Application Example: Mold Trial & Setup**
5. **Customer Use Cases**

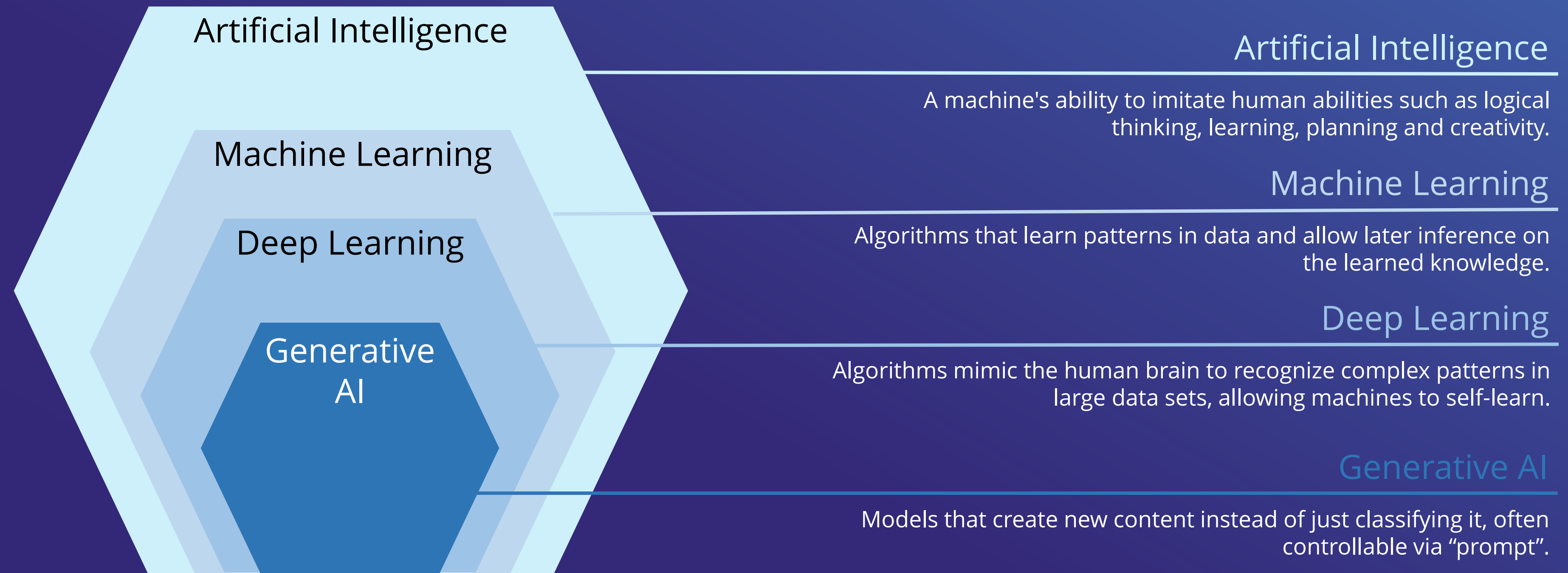
1. INDUSTRIAL AI – STATUS QUO

The German Industry momentarily realizes the Potential of AI for the Future of Work



n=552 | Quelle: Bitkom Research 2025

Most important Segments of AI at a glance: Machine Learning, Deep Learning and Generative AI



1. INDUSTRIAL AI – STATUS QUO

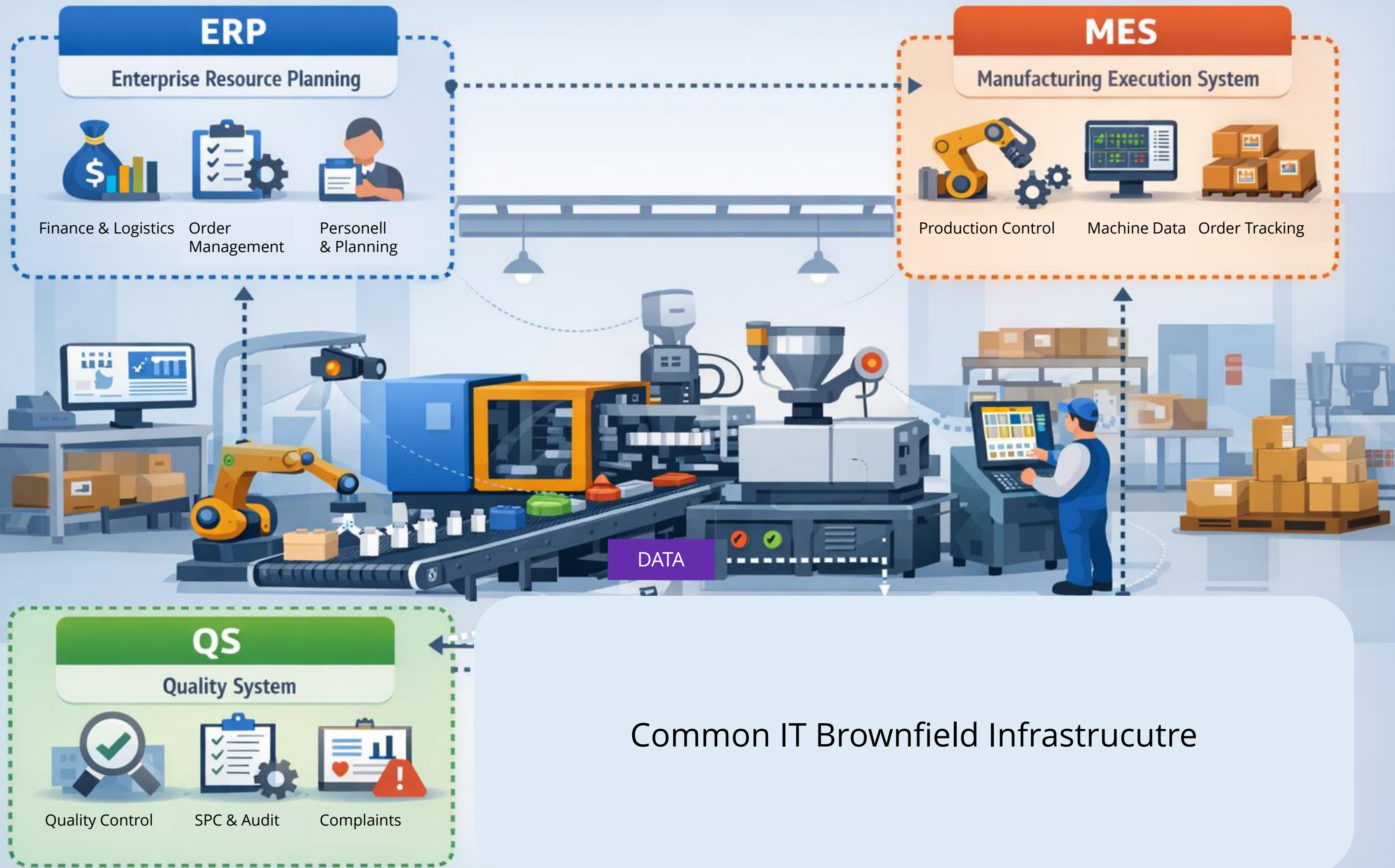
Industrial AI must rely on machine and sensor data to support solving recurring challenges

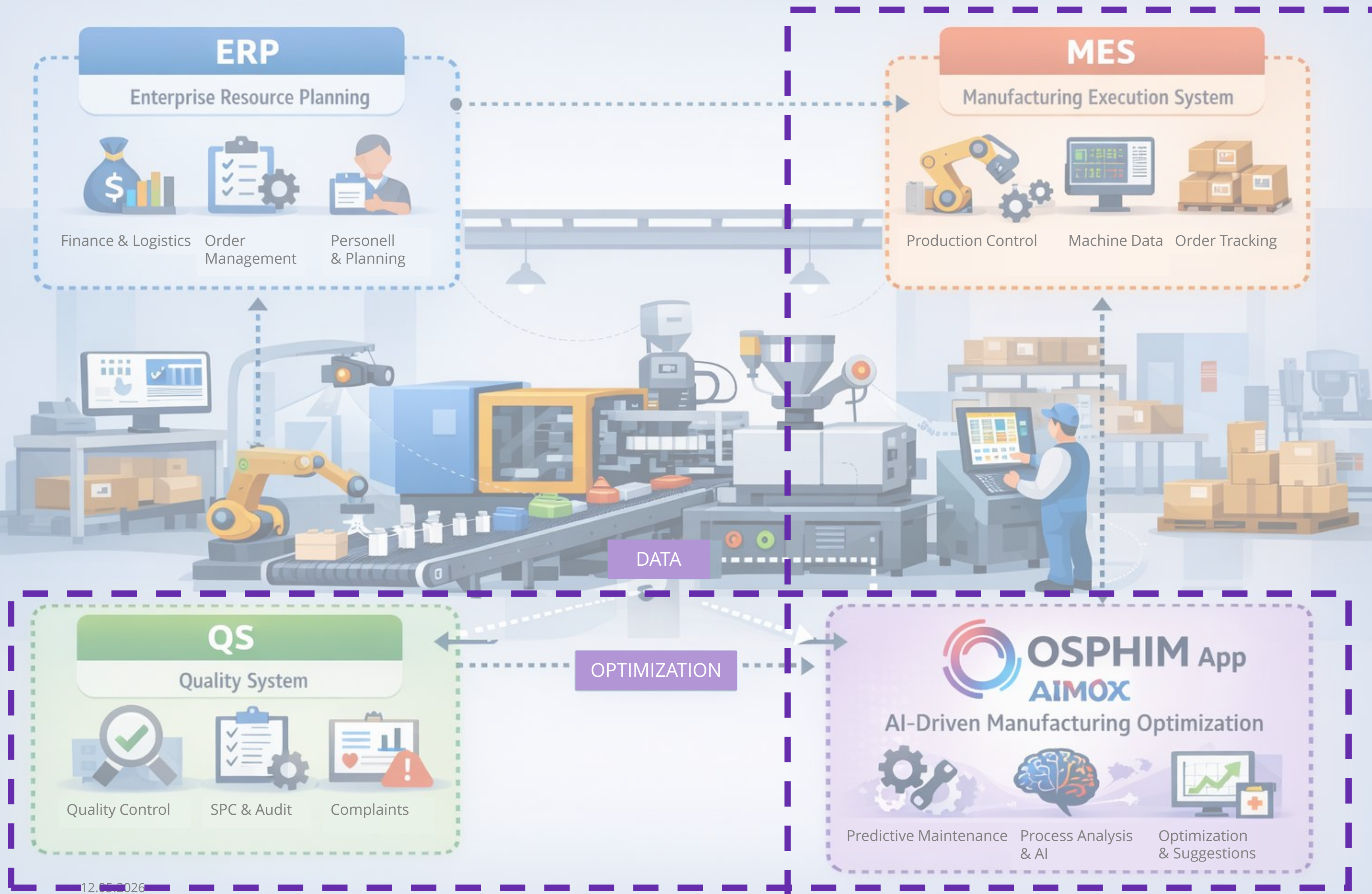
| | Usage | Data Sources | Model | Implementation |
|---------------------------|--|--|---|--|
| AI for Private Use | Personal assistants, recommendation systems, mobile apps | User interactions, social media, publicly available data | Broad, standardized models for many users | Focus on user experience, rapid scaling, and data protection in the consumer context |

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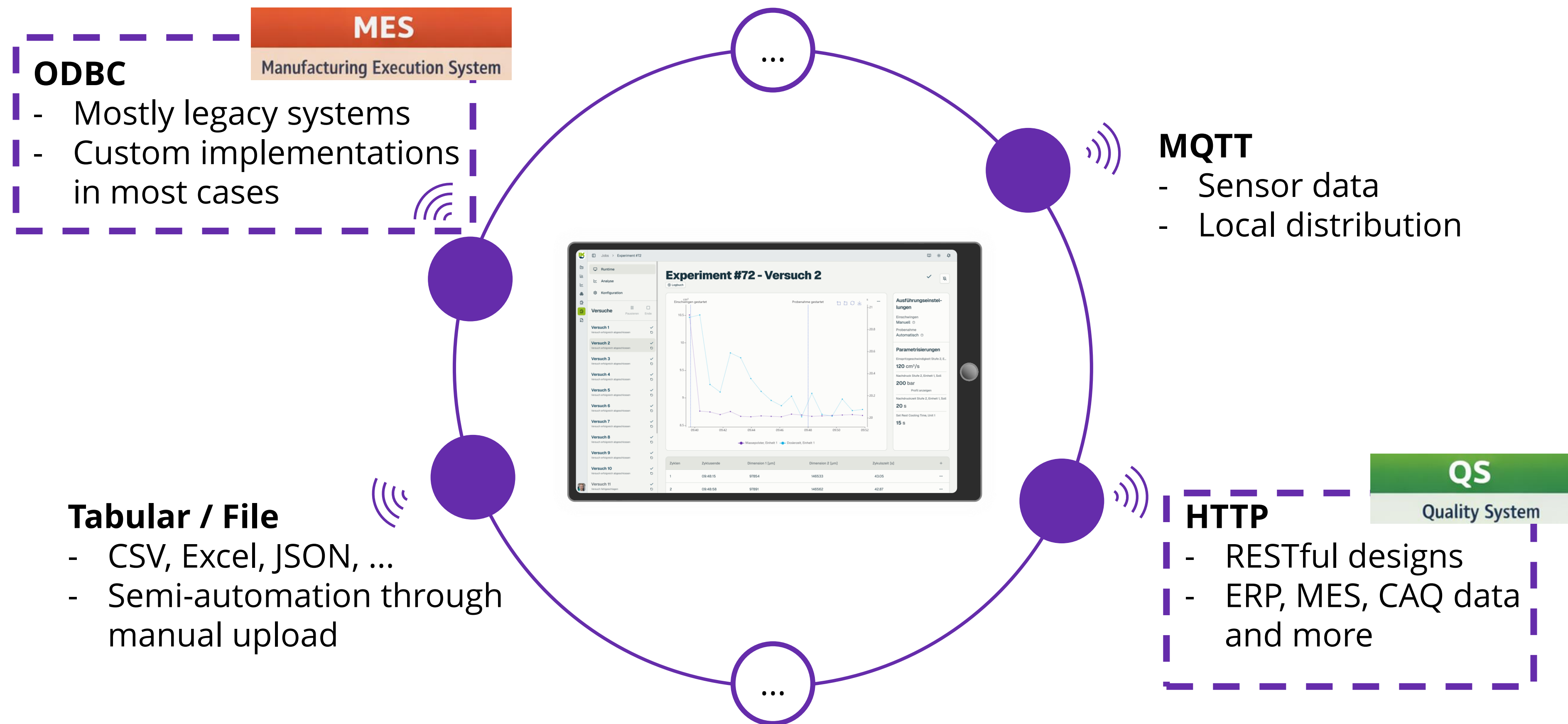
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| AI for Private Use | Personal assistants, recommendation systems, mobile apps | User interactions, social media, publicly available data | Broad, standardized models for many users | Focus on user experience, rapid scaling, and data protection in the consumer context |
| Industrial AI | Predictive Maintenance, Anomaly Detection, Quality Inspection, Process Optimization | Sensor/PLC data, machine logs, IoT devices, production line data, simulation data, MES, ERP, CAQ | Models that are often customized for a specific system, product, or process | Focus on operational safety, robustness, and availability, traceability, and integration with existing IT/OT and legacy systems |



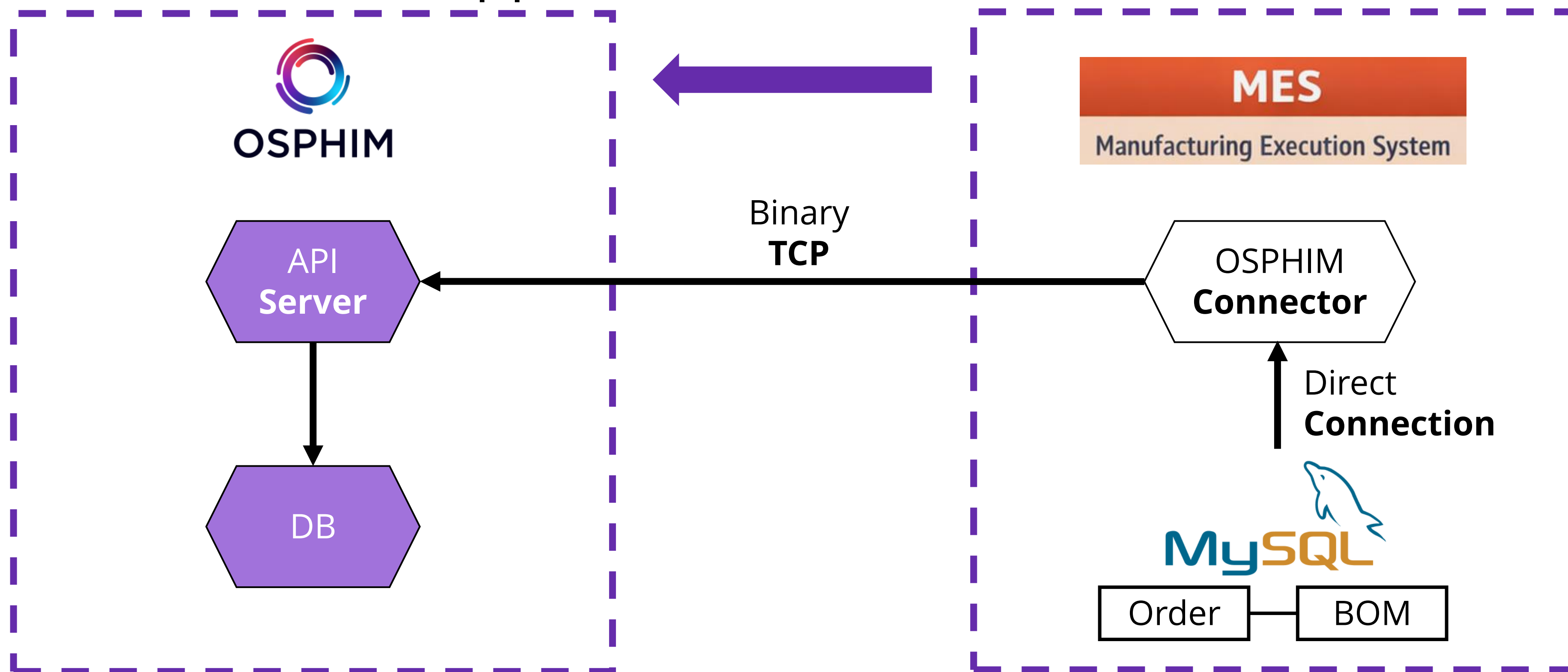


Data Integration beyond Euromap, OPC-UA and Serial



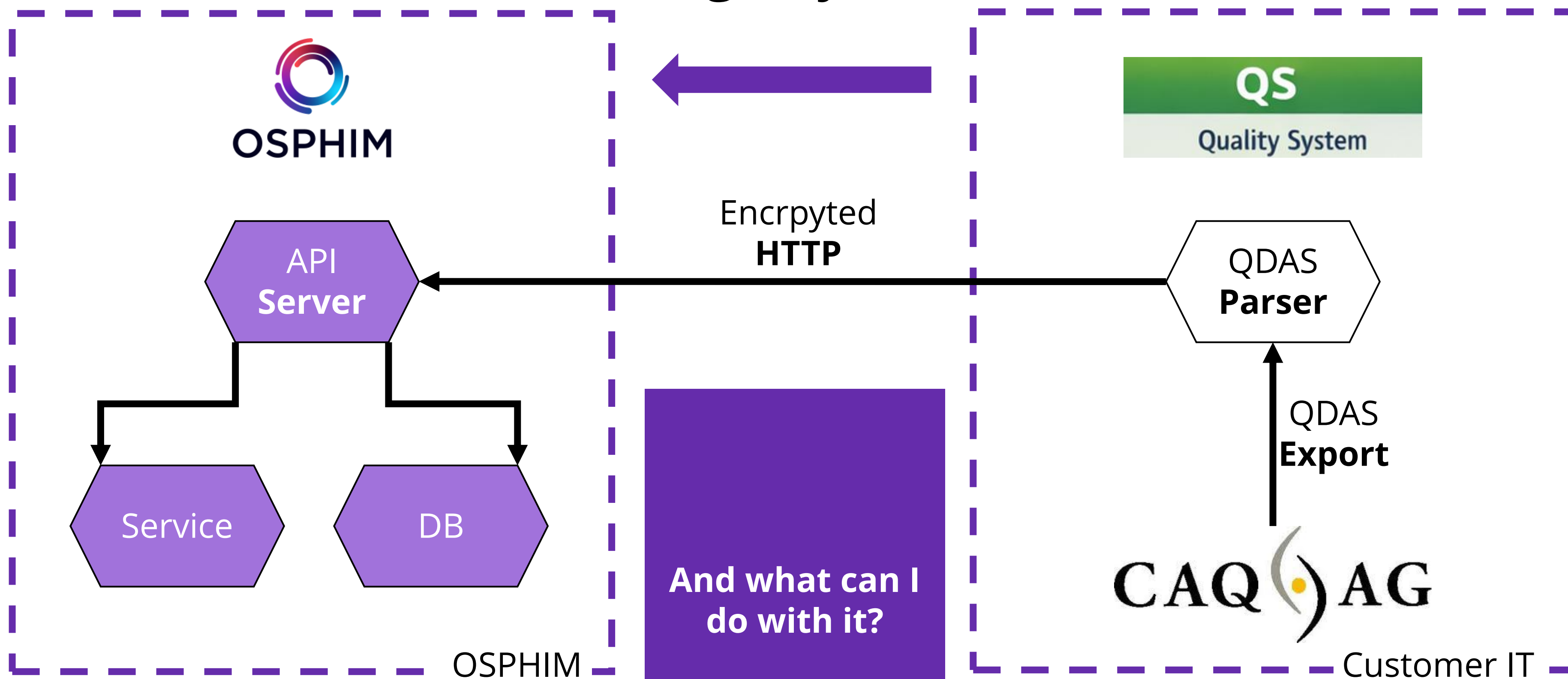
3. INTEGRATION EXAMPLE: QUALITY & ORDER DATA

Quick integration of MES data with established communication approaches

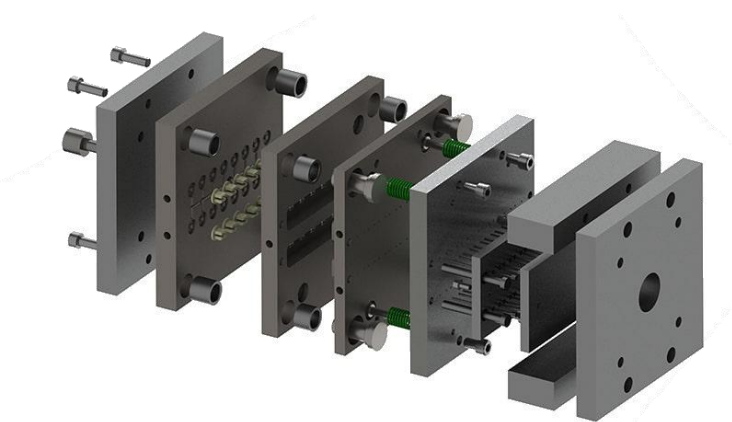


3. INTEGRATION EXAMPLE: QUALITY & ORDER DATA

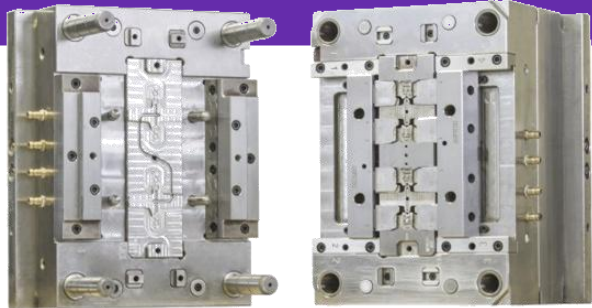
Integration of machine (setting, monitoring) and quality data done within 5 working days



GOAL: Optimal Settings for Series Production



Start: New Process / Mold



Knowledge Transfer

Basis:
OSPHIM-App

Secure
Data Acquisition

Describe the Process

Understand
(Cor)relations

Validation and
Production Transfer

OSPHIM-AI: Settings
and Process Window

Mold Trials & Process Setup

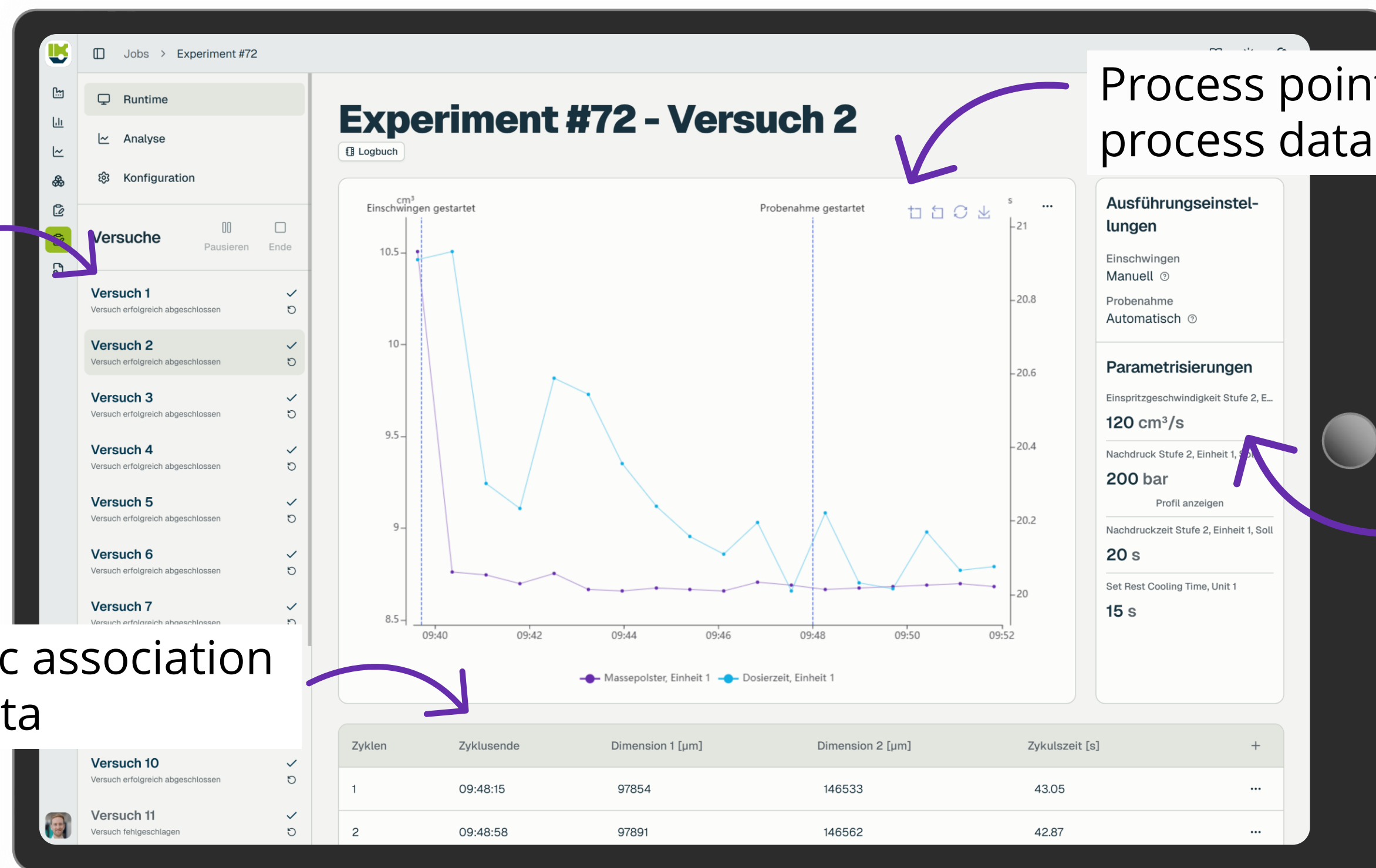


4. APPLICATION EXAMPLE: MOLD TRIAL & SETUP

Experimentation Manager

Control
Mold Trials

Cycle-specific association
of quality data



Process point stability &
process data

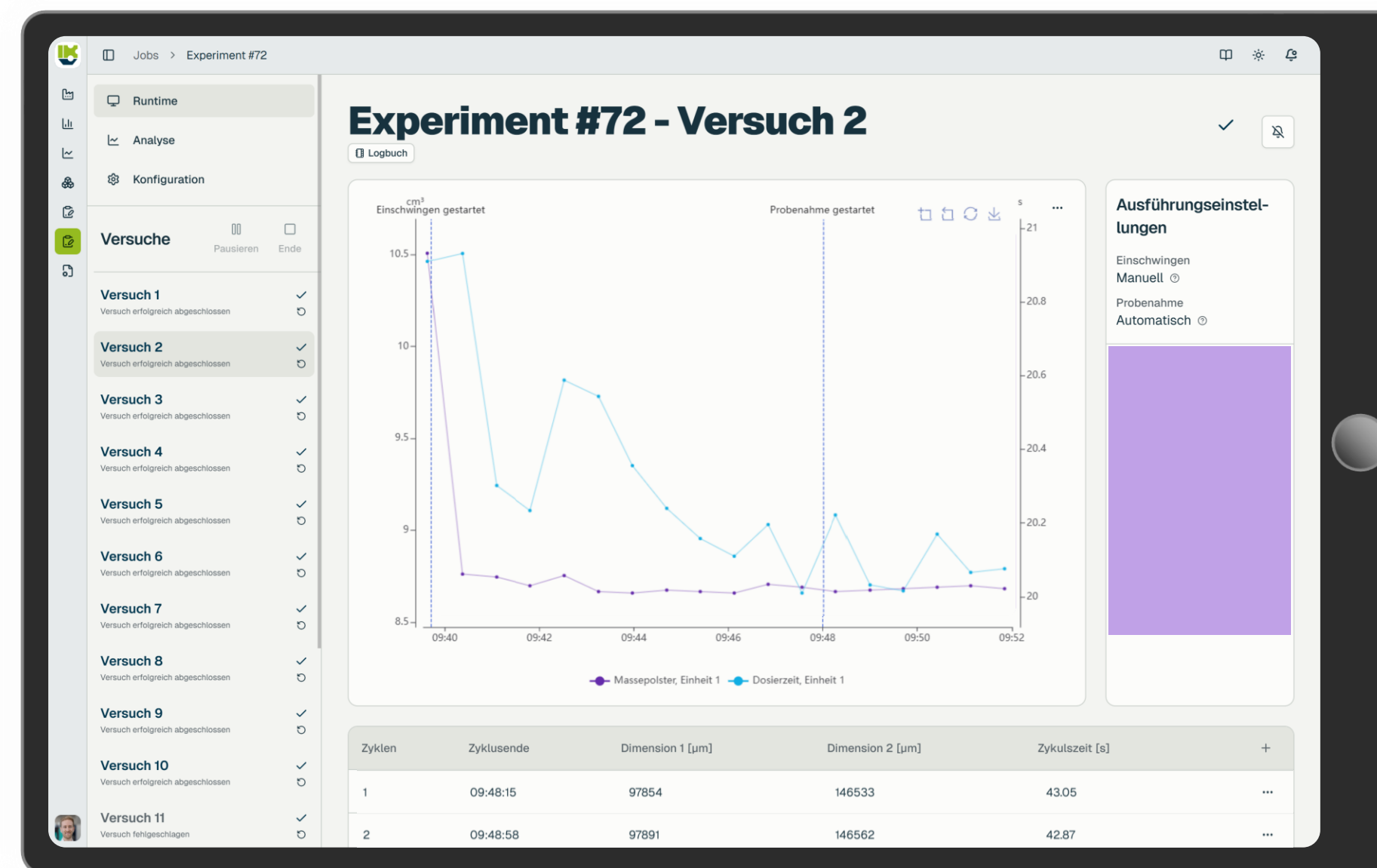
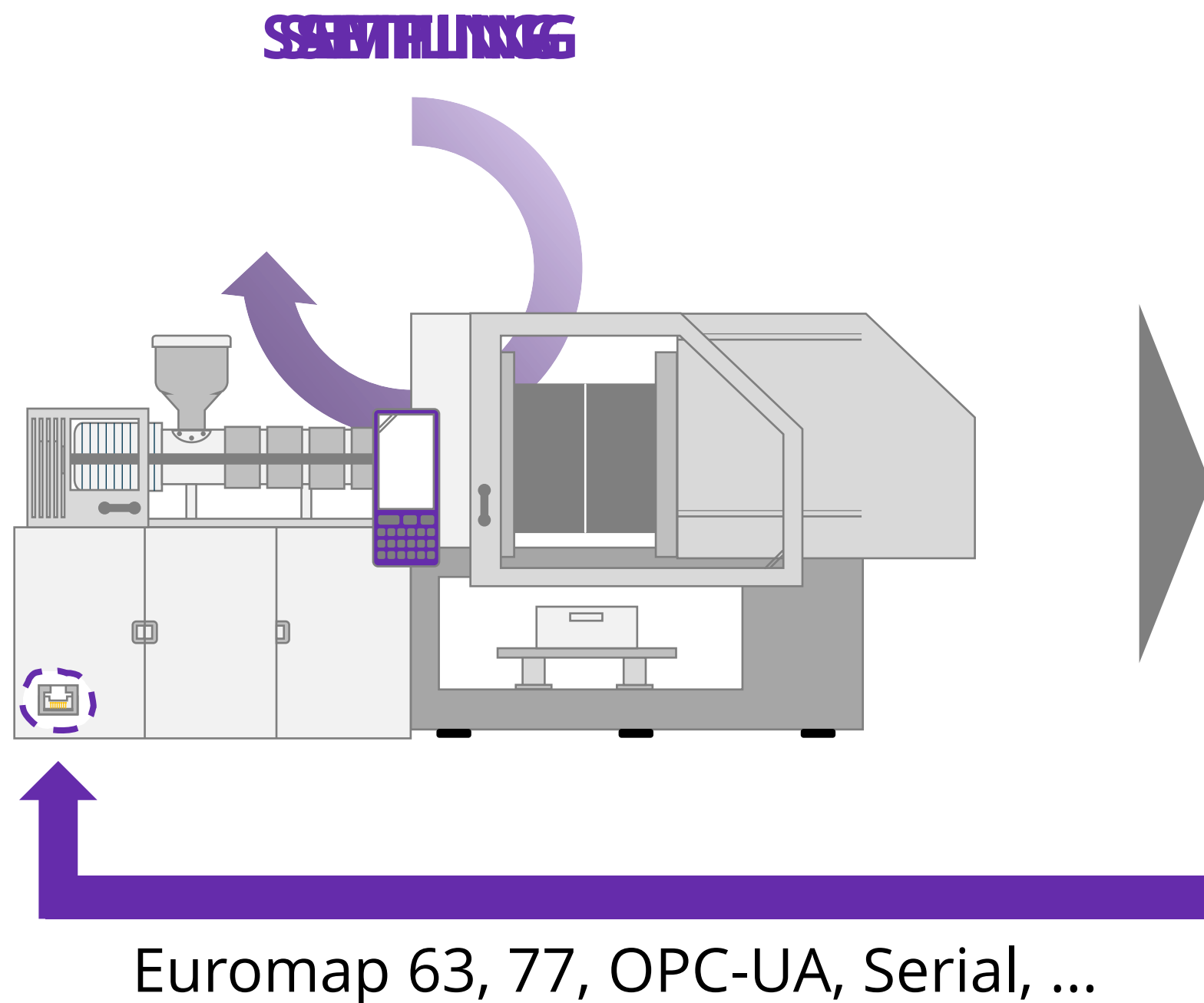
Setting values
and configuration

Mold Trials & Process Setup



4. APPLICATION EXAMPLE: MOLD TRIAL & SETUP

Automated aggregation of setting, process and quality data: Trial Lifecycle

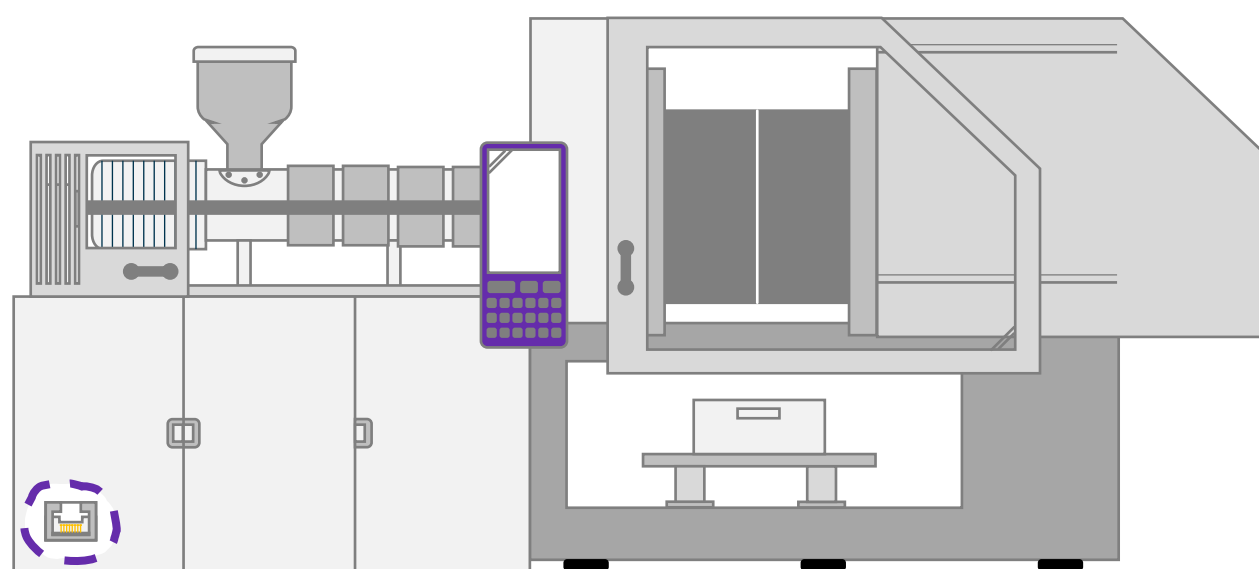


Mold Trials & Process Setup

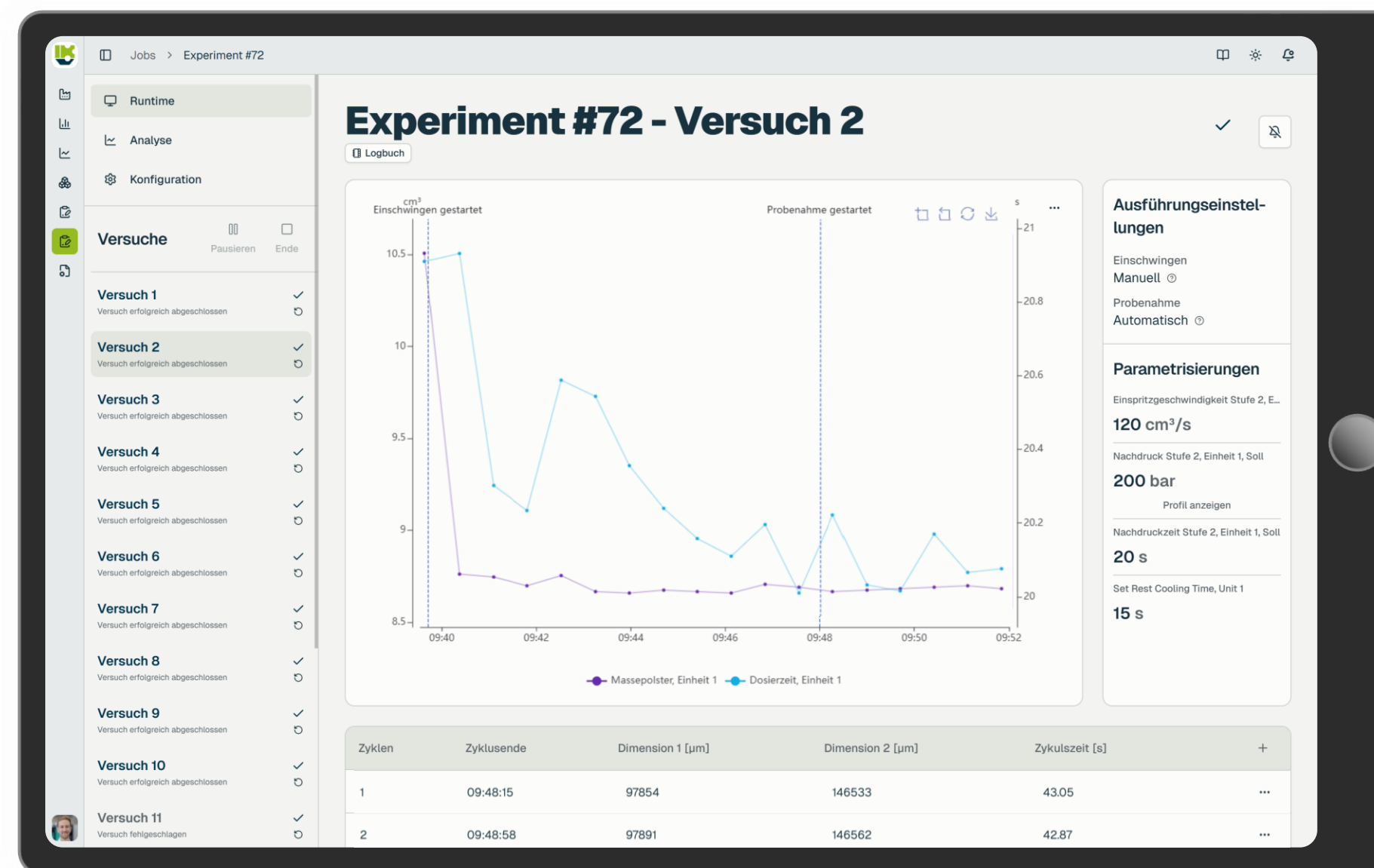


4. APPLICATION EXAMPLE: MOLD TRIAL & SETUP

How OSPHIM aggregates setting, process and quality data



Euromap 63, 77, OPC-UA, Serial, ...



Mold Trials & Process Setup



Optimal Settings & Process Window for Series Production

Optimal Values & Process Window

Part & Process Quality

The screenshot shows a software interface for 'Raspberry Pi Case #21' under the 'Setup' tab. It features two main sections: 'Optimal Process Settings' and 'Expected Quality'. The 'Optimal Process Settings' section lists five parameters: Melt Temperature (247 °C), Injection Speed (11 mm/s), Mold Temperature (79 °C), Max. Injection Pressure (73 MPa), and Cooling Time (15.3 s). A radar chart visualizes these settings across five axes: Melt Temperature [C], Max. Injection Pressure [bar], Injection Speed [mm/s], Mold Temperature [C], and Cooling Time [s]. A blue button labeled 'Set values to machine' is positioned to the right of the radar chart. The 'Expected Quality' section lists three metrics: Weight (72.3 g), Hole Diameter (11.3 mm), and Bridge Height (22.9 mm), each with a corresponding horizontal bar chart showing a target value and a range between minimum and maximum values.

| Parameter | Value |
|-------------------------|---------|
| Melt Temperature | 247 °C |
| Injection Speed | 11 mm/s |
| Mold Temperature | 79 °C |
| Max. Injection Pressure | 73 MPa |
| Cooling Time | 15.3 s |

| Metric | Value |
|---------------------------|---------|
| Weight (ActWgt) | 72.3 g |
| Hole Diameter (ActDim[1]) | 11.3 mm |
| Bridge Height (ActDim[3]) | 22.9 mm |

Automatically set on machine!

Used Data & Assets

Mold Trials & Process Setup



5. CUSTOMER USE CASES

-8,3% cycle time through conformal mold tempering & application of the OSPHIM-App

voestalpine

Cycle time reduction with OSPHIM by

8,3%

Factors

- Remaining Cooling Time
- Packing Pressure
- Packing Pressure Time
- Melt Temperature
- Core Temperature
- Slider Temperature



Allrounder 520 A 1500-400 Barrel Tempering Allrounder 520 A 1500-400

OsphimVoest
 Current Cycles
1574

| Zone | 12 | 11 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|-----------|-------|-------|-----|-------|-------|-------|-------|-------|------|
| Ist [°C] | 224.8 | 224.9 | 225 | 225.2 | 225.5 | 215.5 | 195.8 | 175.5 | 49.6 |
| Soll [°C] | 225 | 225 | 225 | 225 | 225 | 215 | 195 | 175 | 50 |
| Tol [°C] | N/V | N/V | 5 | 5 | 5 | 5 | 5 | 5 | 15 |

Set Residual C... **11 s** 34d
 Zylinderheizzo... **225 °C** 34d
 Zylinderheizzo... **225 °C** 34d

Holding Configuration Allrounder 520 A 1500-... Injection Config Allrounder 520 A 1500-400

Accelerated and Standardized Mold Trialing for Production Release with higher Process Stability



Status Quo

- Complex Automotive Parts
- Tight quality tolerances
- Manual Selection of Setting Parameters for Series Production

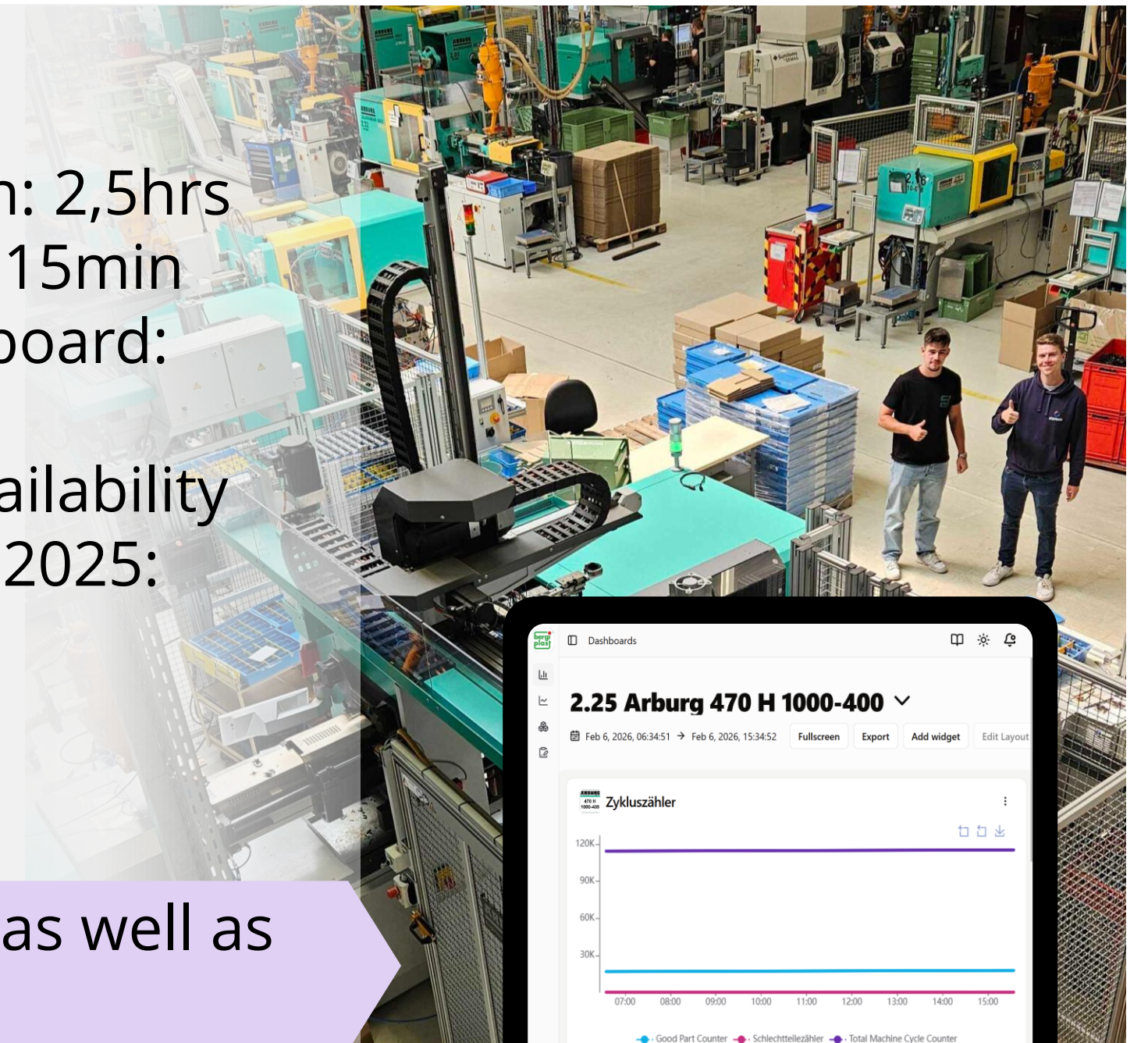
Solution

- Usage of the OSPHIM-App
- Integration of Machine, Process and Quality Data
- Data-based Parameter Optimization

KPIs

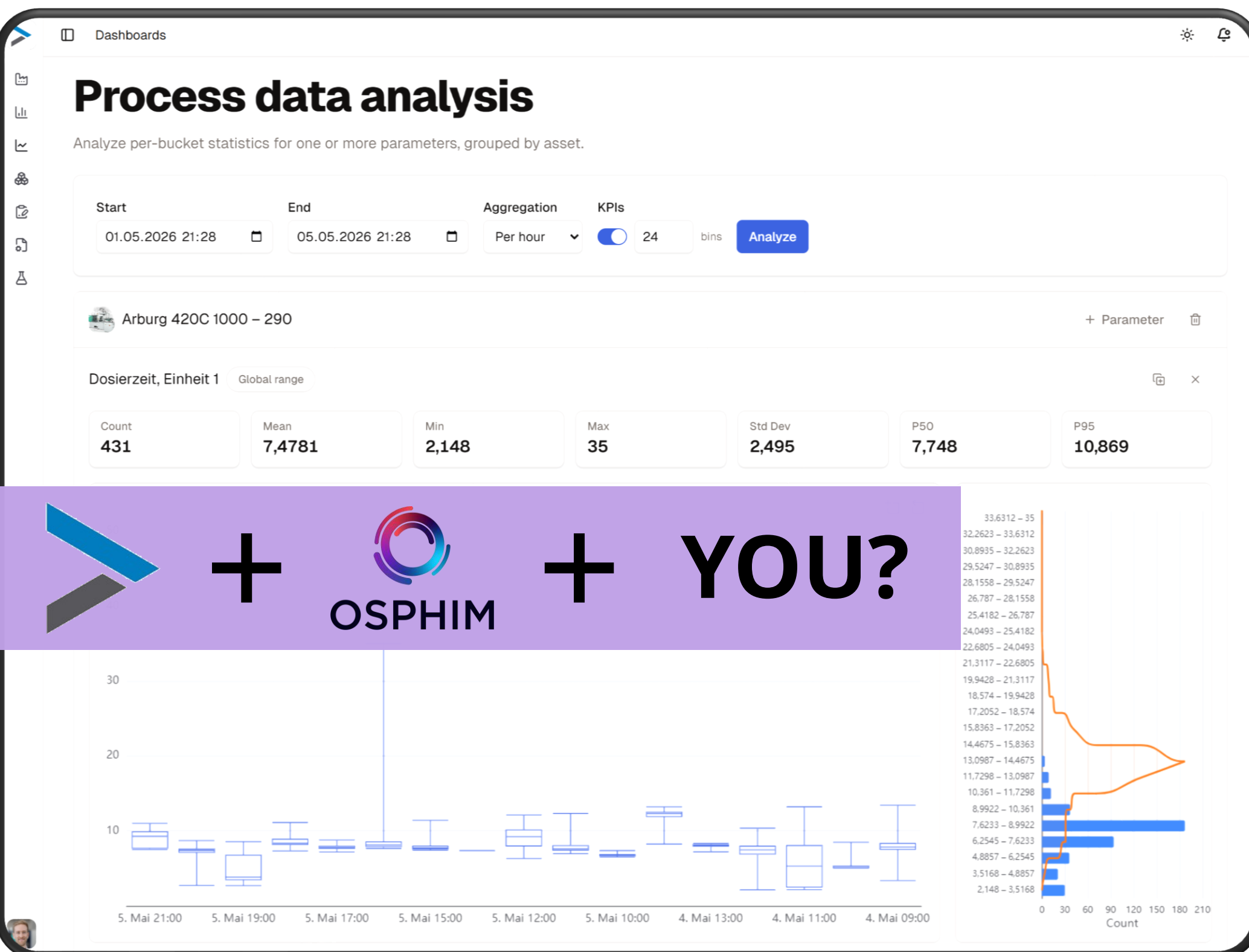
- Installation: 2,5hrs
- First data: 15min
- First dashboard: <30min
- System availability since May 2025: >99,9 %

Significant Simultaneous Process Stability and Efficiency as well as Transparency Increase



ADDENDUM: CALL TO ACTION

Process optimization across company borders, within the value chain



 +  + **YOU?**

WHAT?

Aggregate data from **material manufacturer** and **plastics processor**

→ Analyze **effects** of (ever so slight) variations in material **on process stability and part quality**

WHY?

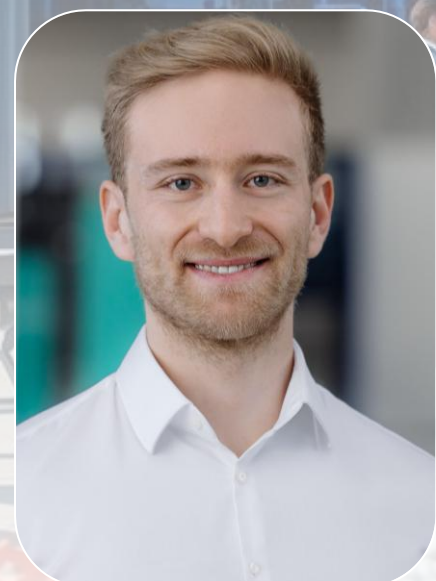
- **Akro:** Improve material for processors
- **You:** Automated root cause analysis

HOW?

Multilateral project, ideal with **public funding**

SOMMEREVENT: Kunststoff und KI

From **AI applications** and interfaces to real-world use cases: inspiring presentations and **networking** with **experts** from the plastics and AI industries.



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1st Juli 2026 | AI Village in Hürth
Start: 12:00 pm | FREE

REGISTER NOW



KI BUNDESVERBAND



OSPHIM