Predictive Maintenance and Service of a Hot Forming Line

“Big Data is a fundamental base to facilitate productivity, efficiency and agility for the automotive industry of the future.”

Smart Factory Big Data Pilot Motivation
Deployment and evaluation of a predictive maintenance framework at BENTELER:
• Standardized process from data acquisition to integration within the maintenance process
• Systematic collection and analysis of machine data of a hydraulic press system and a scrap belt
• Detection and prediction of fault patterns in the production process at BENTELER

Fault Detection and Prediction based on Machine Data
• Detection of machine errors before they occur
• Avoidance of breakdowns
• Decrease in downtime, improvement of the production process efficiency

Competitive Advantages
• 5% increase of overall equipment efficiency
• 25% reduction of unplanned machine downtimes
• 5% reduction of maintenance activities

Big Data Pilot Lifecycle Scope
- Digital Engineering
- Production Planning
- Smart Operations
- Smart Production
- Smart Services

Big Data Pilot Site
BENTELER Automotive Plant An der Talle
Paderborn | Germany

Pilot Partners
BENTELER Automobile Lighthouse Factory
ATLANTIS | Predictive Maintenance Solution & Decision Support System
Fraunhofer | PdM Solution & Model Transfer
it’s owl | Dissemination & Multiplication
Boost 4.0 big data solution framework leverages on Big Data Europe (BDE) big data pipeline technologies, International Data Spaces Association (IDSA) specifications for data sovereignty, FIWARE NGSI-LD API for open IDS implementation and Hyperledger technologies for transaction traceability. Boost 4.0 big data platforms and technologies align to RAMI 4.0 and are integrated under the Digital Shopfloor Alliance (DSA) autonomous service framework to ensure reduced cost, time and effort in solution deployment and extensibility (https://digitalshopflooralliance.eu/).

### I4.0 Big Data Pilot Solution Framework

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### I4.0 Big Data Pilot Features

**Sector / Product:** Automotive

**Manufacturing Process:** Hot Forming

**Big Data Analytic Techniques:**
- Fault Detection and Prediction
- Decision Support

### Open I4.0 Big Data Pilot Pillars

**INTERNATIONAL DATA SPACES ASSOCIATION**

IDSA defines a reference architecture and an ecosystem, which supports sovereign exchange and sharing of data between industrial partners.

**FIWARE**

FIWARE is a curated framework of open source platform components to accelerate the development of smart solutions for Industry 4.0.

**HYPERLEDGER**

HYPERLEDGER is an open source collaborative effort created to advance cross-industry blockchain technologies.

The BDE offers an open source platform, allowing to build several Big Data components into a pipeline through a simple graphical UI.