Injection Moulding Smart Operations & Digital Workplace

PHILIPS

"The vision is to have a unified strategic goal: managing all data sources on a modern and centralized platform, starting with injection moulding."

Machine learning to further improve machine performance

Factory 4.0 Big Data Pilot Motivation

- Integrate all support systems into one Injection Moulding monitoring platform
- Implement industry standards and tools
- Solutions which are scalable and centralized
- Deploy standardized data structures
- Re-usable models and visualizations

Big Data Assisted Injection Moulding Process

- Gather process data across many machines
- Use insights and predictions to improve process performance
- Use real-time data to automatically adjust process steering parameters

Competitive Advantages

- Gather process data across many different IM-machines
- One standardized approach for connecting Injection Moulding processes

Reduce costs of operation by
- Predictive Quality: Improvement on Fall Off Rate
- Predictive Maintenance: Reduce down time
- Intelligent process control

Big Data Pilot Lifecycle Scope

Digital Engineering	●○○○○
Production Planning	●●○○○
Smart Operations	●●●●●
Smart Production	●●●●○
Smart Services	●○○○○

Big Data Pilot Site

Philips Consumer Lifestyle
Oliemolenstraat 5 | Drachten, the Netherlands

Pilot Partners

PHILIPS

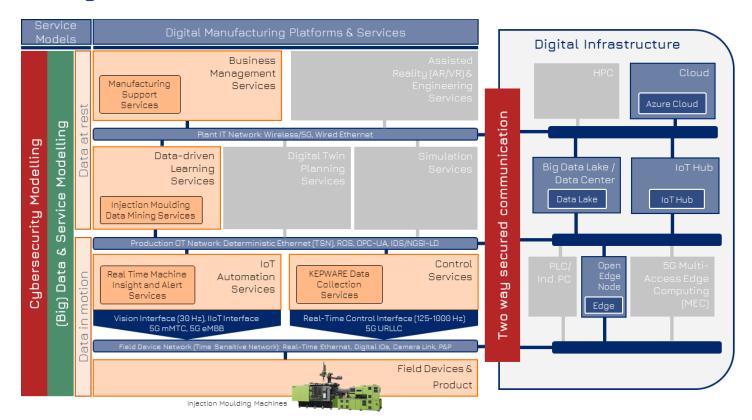Consumer Lifestyle Lighthouse Factory

PHILIPS Research

Algorithm Analysis

imec

Platform Scoping

I4.0 Big Data Pilot Solution Framework

Service Models	Digital Manufacturing Platforms & Services				Digital Infrastructure	

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 Features

Sector / Product: Consumer Electronics

Manufacturing Process: Injection Moulding

Big Data Analytic Techniques: Real time processing using machine learning. Time Series analysis

Big Data Platforms:
- Azure Data Lake
- Azure Time Series Insights

IDS-FIWARE Connectors & Standards:
- Philips Global Data Connections
- Standard connectivity protocols

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.

FI-WARE

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.

BIG DATA EUROPE
Empowering Communities with Data Technologies

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

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