Smart Machine Tool Digital Engineering

Fill YOUR FUTURE

"FILL will be the leader in smart machines building by reducing the development time of machines. The developed edge-technology based on smart engineering and industrial big data engineering and analysis is obligate."

Unify different views on a machine

Factory 4.0 Big Data Pilot Motivation

- Model-based and big data-driven engineering process
- Machine and Process Models Optimization Engine
- Machine Big Data Logger and Exchange Platform
- 3D Production Simulation

Model-based and big data-driven engineering process

Model management & data analytics process:
- Digital asset repository
- Big Data & data processing pipelines
- Data exploration, model integration and deployment

Service development process:
- Extending Fill business model by digital services (Model as a Service)
- Smart Maintenance

Simulation based release process:
- IoT Data and simulation driven engineering (using real historic data)
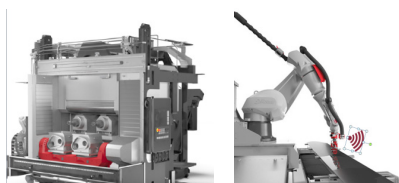- Virtual Commissioning

Competitive Advantages

- Reducing time to market: lot-size-1 engineering lead time -15%
- Increasing quality / reducing failure costs: service costs -15%
- Increasing efficiency: unplanned downtimes -20%
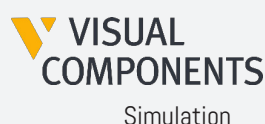
Big Data Pilot Lifecycle Scope

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

Big Data Pilot Site

Fill Gesellschaft m.b.H.
Gurten, Austria

Pilot Partners

Fill YOUR FUTURE
Machine Tool Lighthouse Factory

VISUAL COMPONENTS
Simulation

RISC Software GmbH
Machine Learning

TTTech
IoT Hardware

I4.0 Big Data Pilot Solution Framework
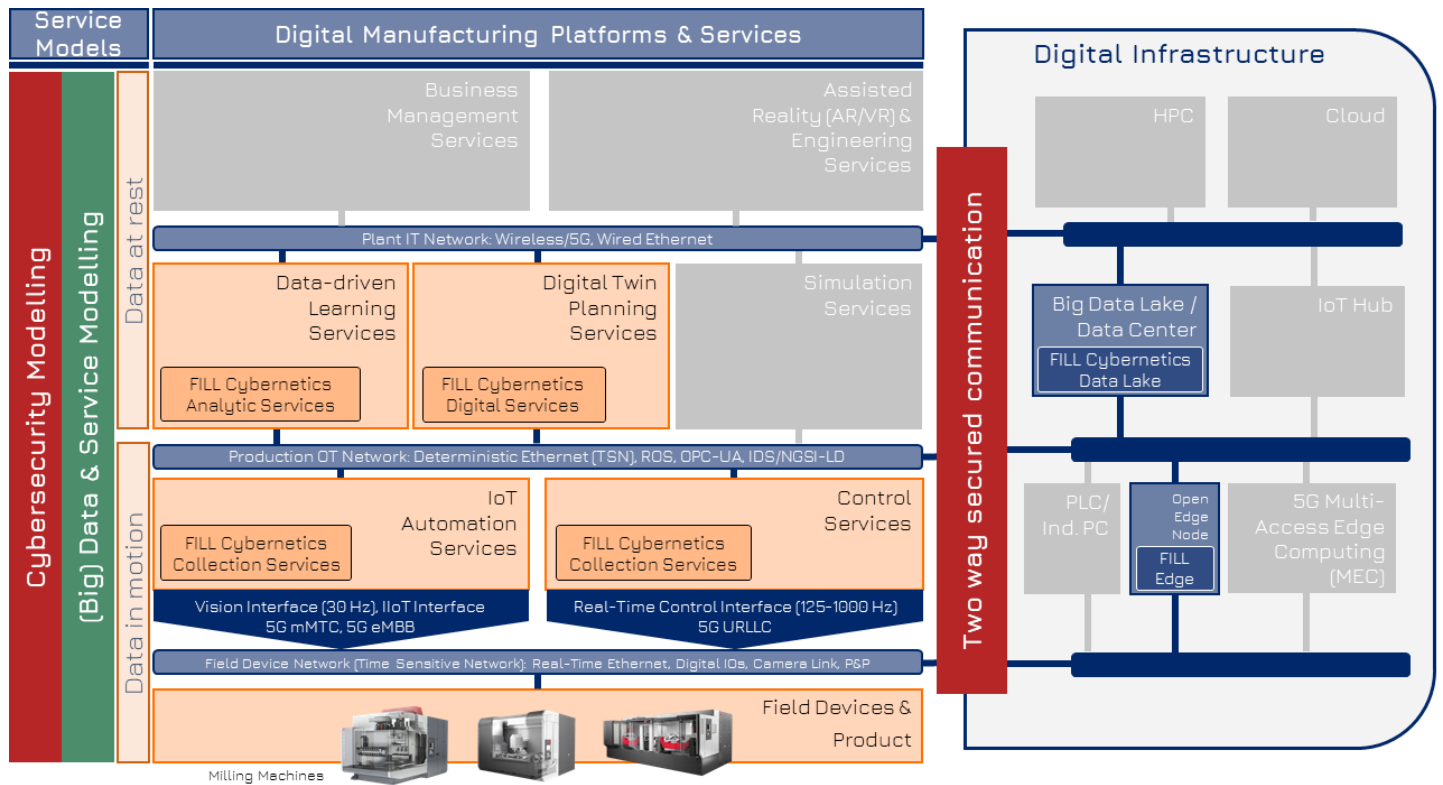
Boost 4.0 big data solution framework leverages on Big Data Europe (BDE) big data pipeline technologies, International Data Spaces Association (IDSA) specifications for data sovereignty, FIWARE NGSI-LD API for open IDS implementation and Hyperledger technologies for transaction traceability. Boost 4.0 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: Automotive

Manufacturing Process:
High-precision Lot-size-1 Machining

Big Data Analytic Techniques:
- IoT Platform (edge and cloud computing)
- Data analysis with Spark/Pyspark

Big Data Platforms:
- Cybernetics by Fill
- Hadoop Stade

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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