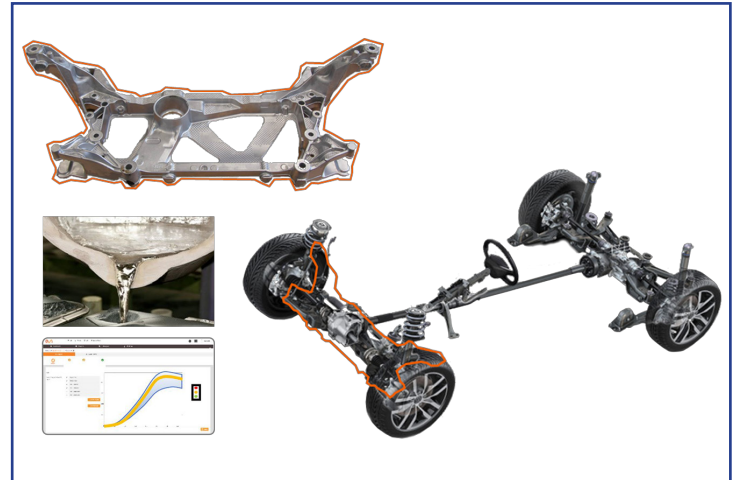




Volkswagen DE Metal Casting Digital Twin



"The advancing digitalisation enables the availability of any kind of data along the life-cycle of assets, which opens new exploitation fields, creates completely new markets and will strongly influence the existing world of manufacturing, e.g. by identifying even deeply hidden optimization potentials with Big Data Analytics approaches or by simulations, which are continuously improved by linked real data (streams)."



Data-driven mould engineering and foundry optimisation

Factory 4.0 Big Data Pilot Motivation

- Transform brownfield light metal casting processes into an Industry 4.0 compliant data space
- Exploitation of data analytics services provided as assistant systems in production
- Implementation, roll-out, transfer and replication of scalable solutions

Big Data Driven Casting Engineering Processes

- Simulated tool-health prediction models
- Integrated light metal casting mould design
- Continuous real-time tool condition monitoring

Competitive Advantages

- Reduced scrap rates
- Higher OEE in the light metal casting process
- Improved ecological and sustainable KPIs
- Higher product quality through data-driven optimisation

Big Data Pilot Lifecycle Scope

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

Big Data Pilot Site

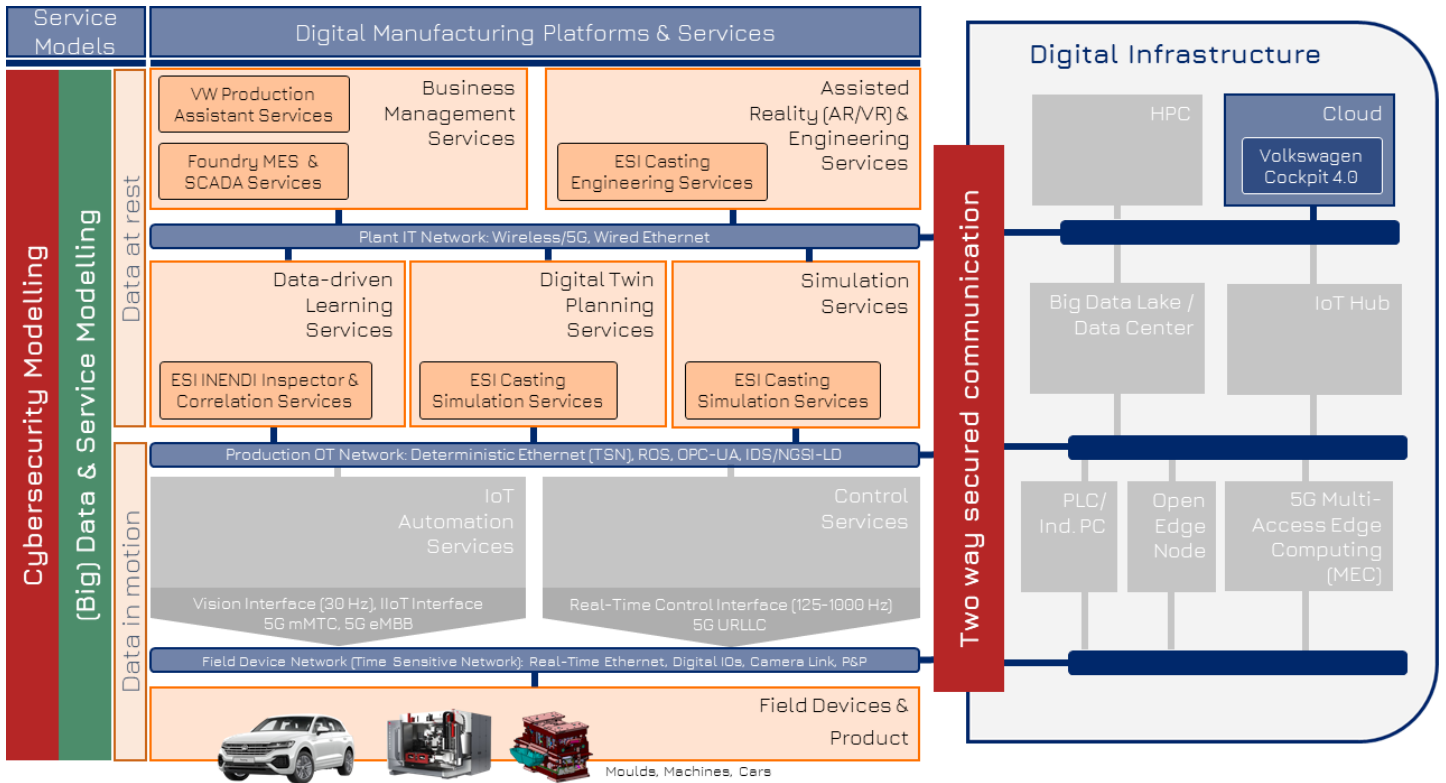


Volkswagen component tool shop in Branswick.

Pilot Partners



14.0 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/>).



14.0 Big Data Pilot Features

Sector / Product: Automotive

Manufacturing Process: Light metal casting

Big Data Analytic Techniques:

- Data correlation analysis
- Hybrid Twins

Big Data Platforms:

- Volkswagen Cockpit 4.0

Open 14.0 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.