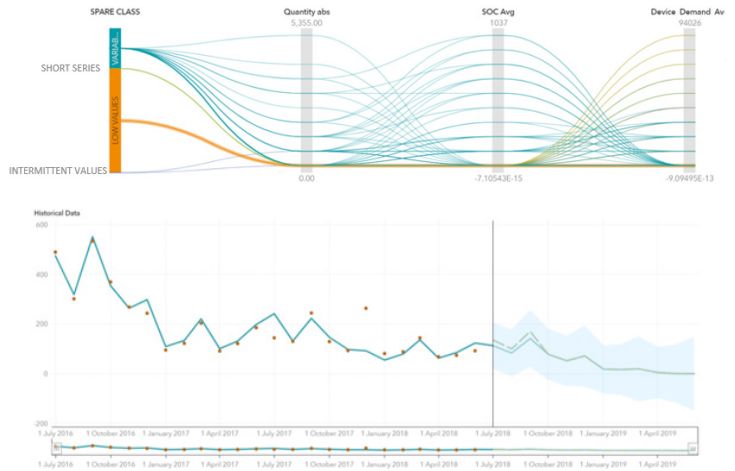




After-Sale Consumer Services powered by Predictive Analytics



BE READY AT THE RIGHT TIME WITH THE RIGHT SPARE IN THE RIGHT PLACE
CONSUMER CARE



REDUCE NOT NEEDED INVENTORY AND SAFETY STOCK
PROCESS EFFICIENCY



REACT PROMPTLY TO CLAIMS: IDENTIFY COMPONENTS AND PROCESS QUALITY ISSUES
PRODUCT QUALITY

Factory 4.0 Big Data Pilot Motivation

- Spare part production and distribution is one of the most complex and important challenges of the after sales services
- Field Service Engineers do have the need to rely on a central warehouse where the right parts are available at the moment they need to make a repair
- Large number of different product families and huge number of different product codes with different components to be handled

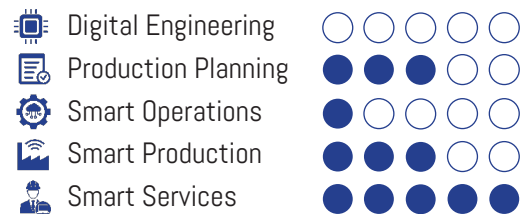
Spare part demand forecasting big data process

- Consumer Service Data Model Creation
- Spare Parts Demand, Forecast Generation, Inventory and Supply, Planning Optimization
- Cross Department Quality Monitoring and Feedback

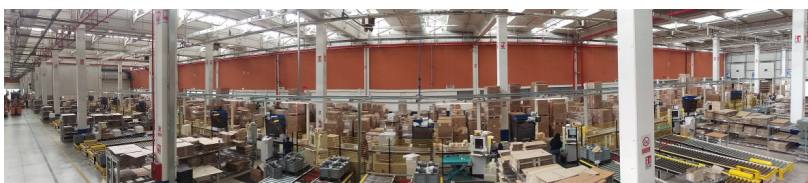
Competitive Advantages

- Spare Part Stock Reduction (-30%)
- Increase Inventory Turnover (+35%)
- Lead Time to Consumer (-25%)
- Plant Service Level (+1%)

Big Data Pilot Lifecycle Scope



Big Data Pilot Site



Whirlpool EMEA Hub for spare parts and accessories Carinaro (CE) | Italy

Pilot Partners



White Goods Lighthouse Factory

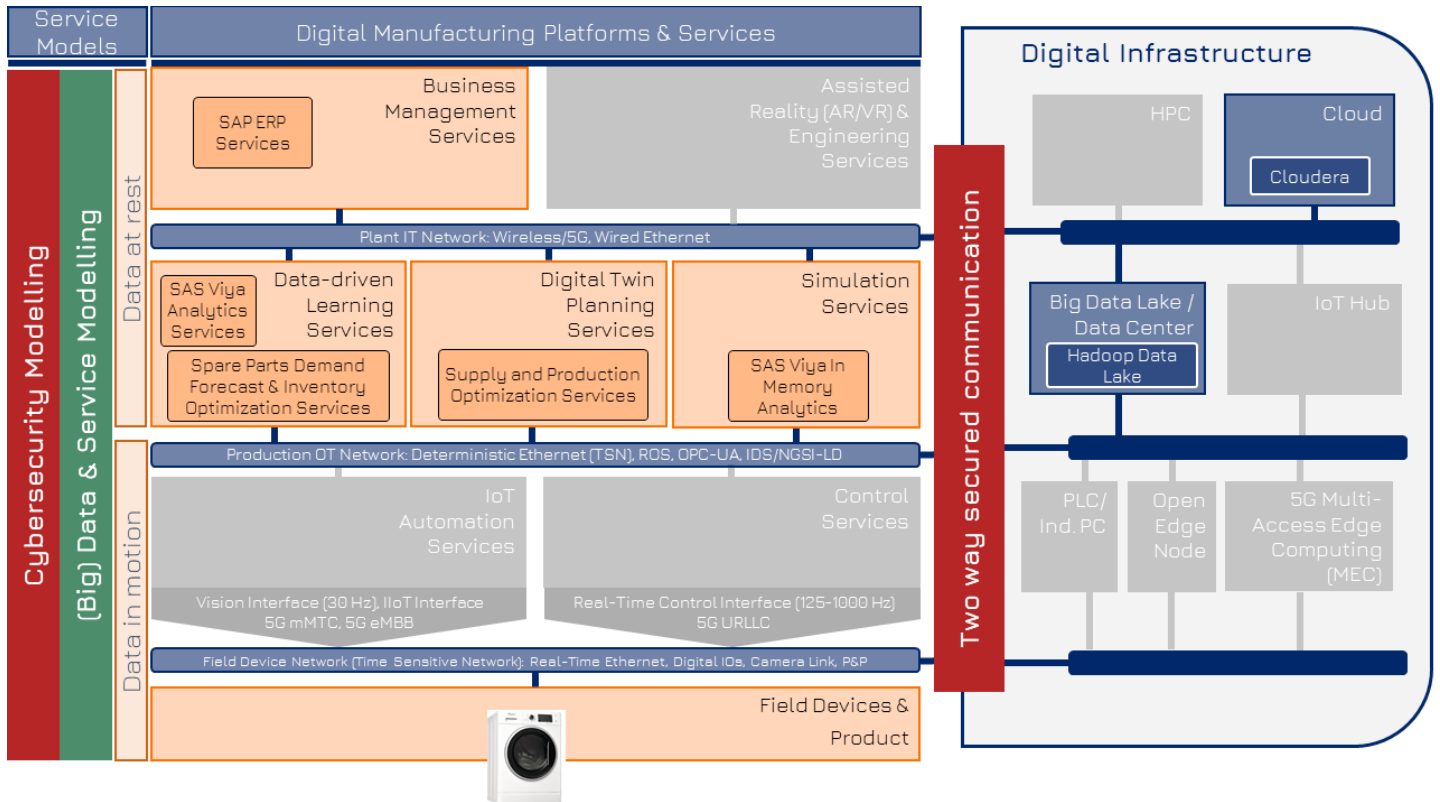


Big Data and Analytic Platform



Big Data Space for Industry

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: Home Appliances

Manufacturing Process:

Spare Parts Production and Distribution

Big Data Analytic Techniques:

SAS Visual Forecasting

Big Data Platforms:

SAS Viya

- SAS VIYA in-memory engine (Cloud Analytic Services)
- Multi-node distributed computing
- Integrated with Big Data Platforms (ex. Cloudera)

Cloudera

- Hadoop commercial distribution

Docker Container: SAS Analytics for Container

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.