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Gestamp Industry 4.0 Strategy

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September 2018

Global Leader in Large Segment With High Content per Vehicle

€8.2 Bn [1]
Revenues 2017A

€890 MM [1]
EBITDA 2017A

107 [2] Plants | **13** R&D Centers | **21** Countries

> 41,000 employees
Across All Key Automotive Regions

>900
Vehicle Models Worldwide

Geographically Diversified
EMEA:61%; Americas:25%; APAC:13%

Gestamp Provides Critical Components representing close to 1/3 of B Segment Vehicle Content[3]

Body Products
Gestamp BIW

Body-in-White
#1

Chassis
Gestamp Chassis

Chassis
Top 3

Mechanisms
Edscha Gestamp

Mechanisms
#1

(1) Based on 2017A financials (At constant FX, Revenues were €8.4bn and EBITDA €916m)
(2) Addition of BHAP's plant in Beijing resulting from the JV announced on January 25th, 2018 which is subject to approval from the Chinese special commission SASAC, as well as to competition and other government authorities
(3) Source: A2MAC1 Global Automotive Benchmarking

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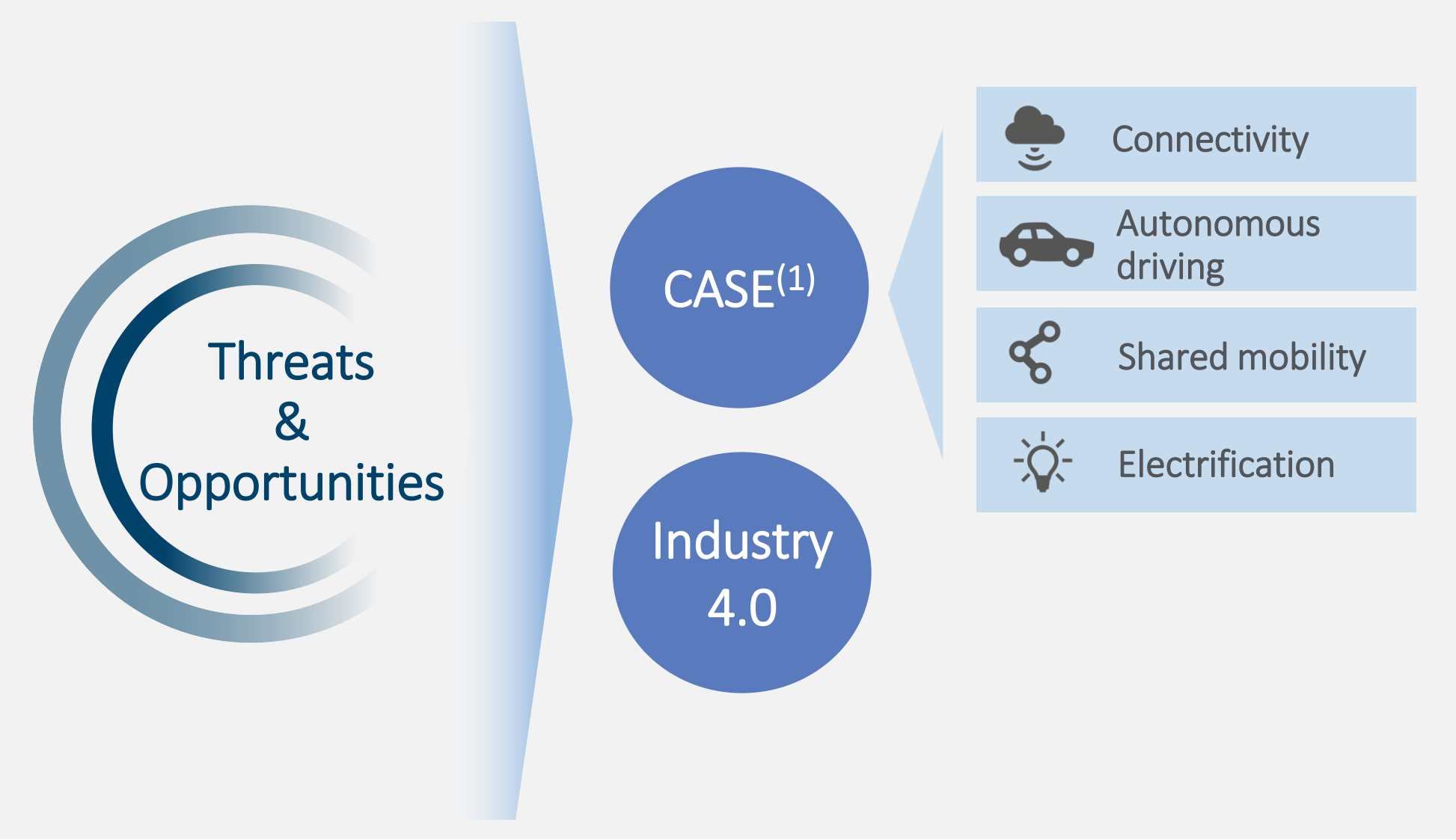
Automotive Industry Trends



(1) CASE: Connectivity, Autonomous driving, Shared mobility and Electrification

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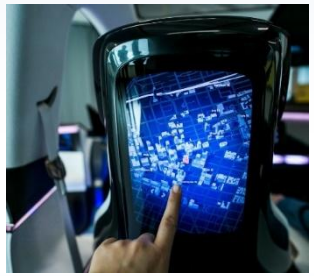
CASE: New Trends that Define Tomorrow's Cars

Connectivity



Autonomous driving

Shared mobility

drivy, amovens, OuiCar, zipcar, Enterprise CarShare, enjoy, autolib', VROOM, SnappCar, Bla Bla Car, ecomobie, CARPOOL waze, car2go, DriveNow, UBEEQO, Flinkster, GREEN WHEELS, sunfleet, Koolicar, mobility car sharing, flinc, liftshare, GoMore, mitfahren.de, Carpoolworld

Electrification

There are still many uncertainties surrounding CASE

- Current Technologies
- Vehicle ownership
- Infrastructure changes
- Financial Model
- Smart Cities
- Raw material
- Data ownership
- Regulations
- New players

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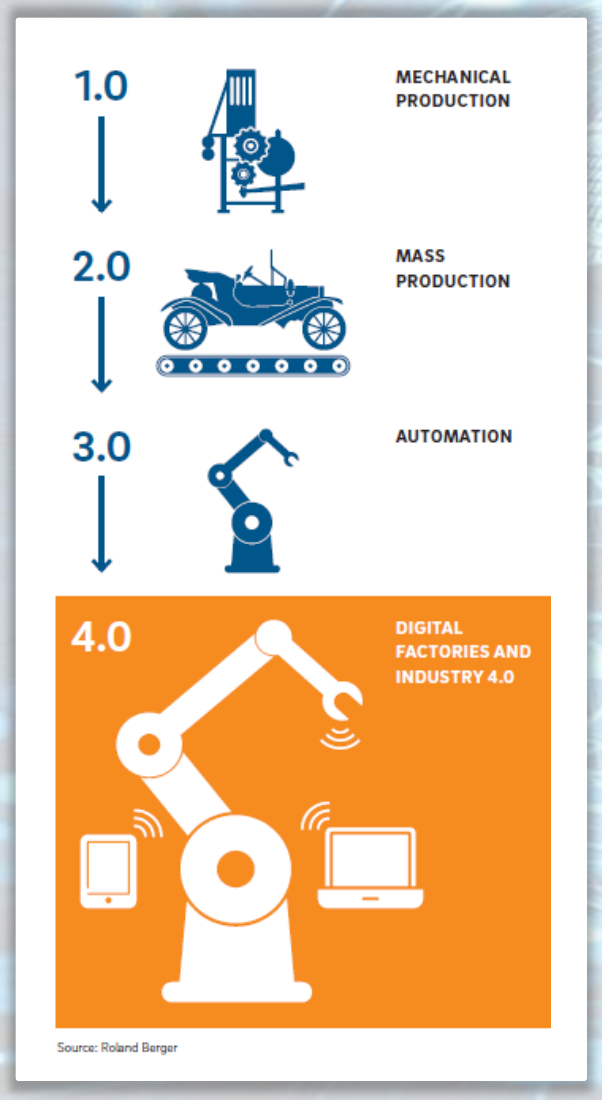
Industry 4.0, The Digital Transformation of Manufacturing



Digitalization is providing **more tools** & **data** to take current industries to the next level

Connected, smart, and highly efficient Industries

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Industry 4.0 – Concept and technologies

BIG DATA

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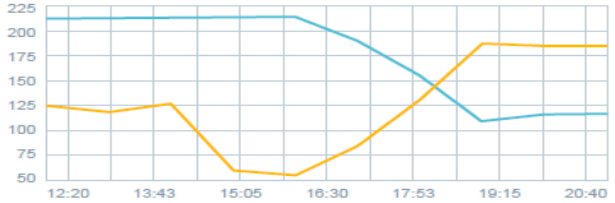
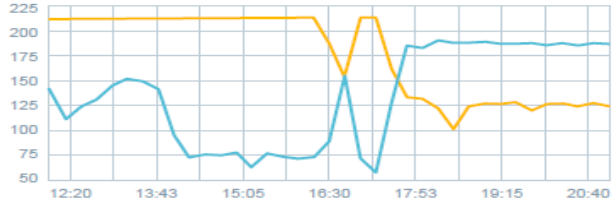
Resolution

15 min resolution



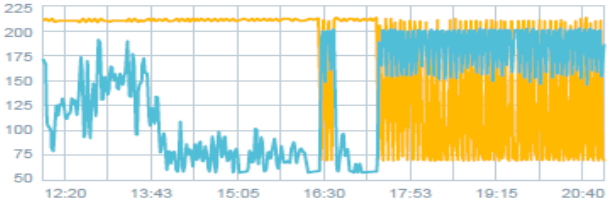
"Low" resolution – useful to know overall energy consumption.

1 min resolution



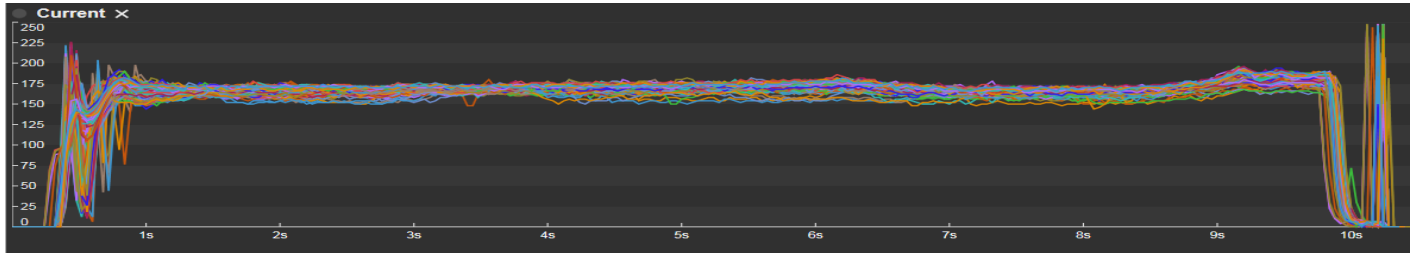
"High" resolution – useful to understand behavior patterns and to implement algorithms.

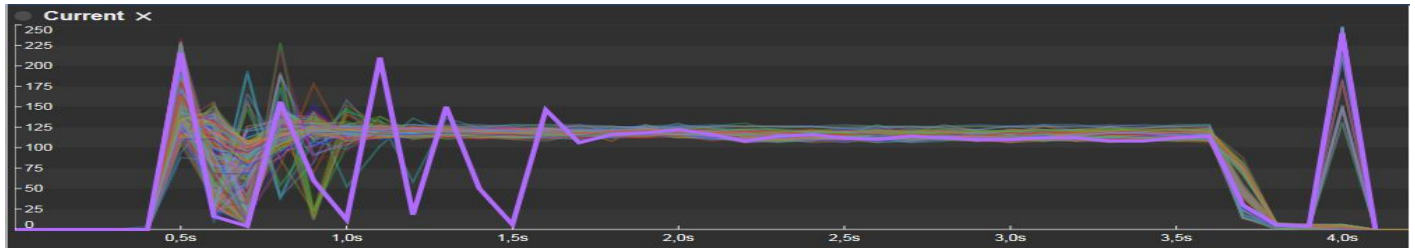
Near real-time



High volume of data gathered – detailed information from processed data.

Real-Time Data Infrastructure





300 cycles overlapped of the current of the same Weld

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Industry 4.0 – Concept and technologies

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Expert Rules

"Digitalize the knowledge of our experts"

Advanced Analytics

Statistics; Machine Learning; Deep Learning

Adoption

RIGHT DATA

RIGHT TIME

RIGHT PEOPLE

DECIDE & ACT

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Gestamp Smart Factory Video

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Gestamp: Industry 4.0 vision

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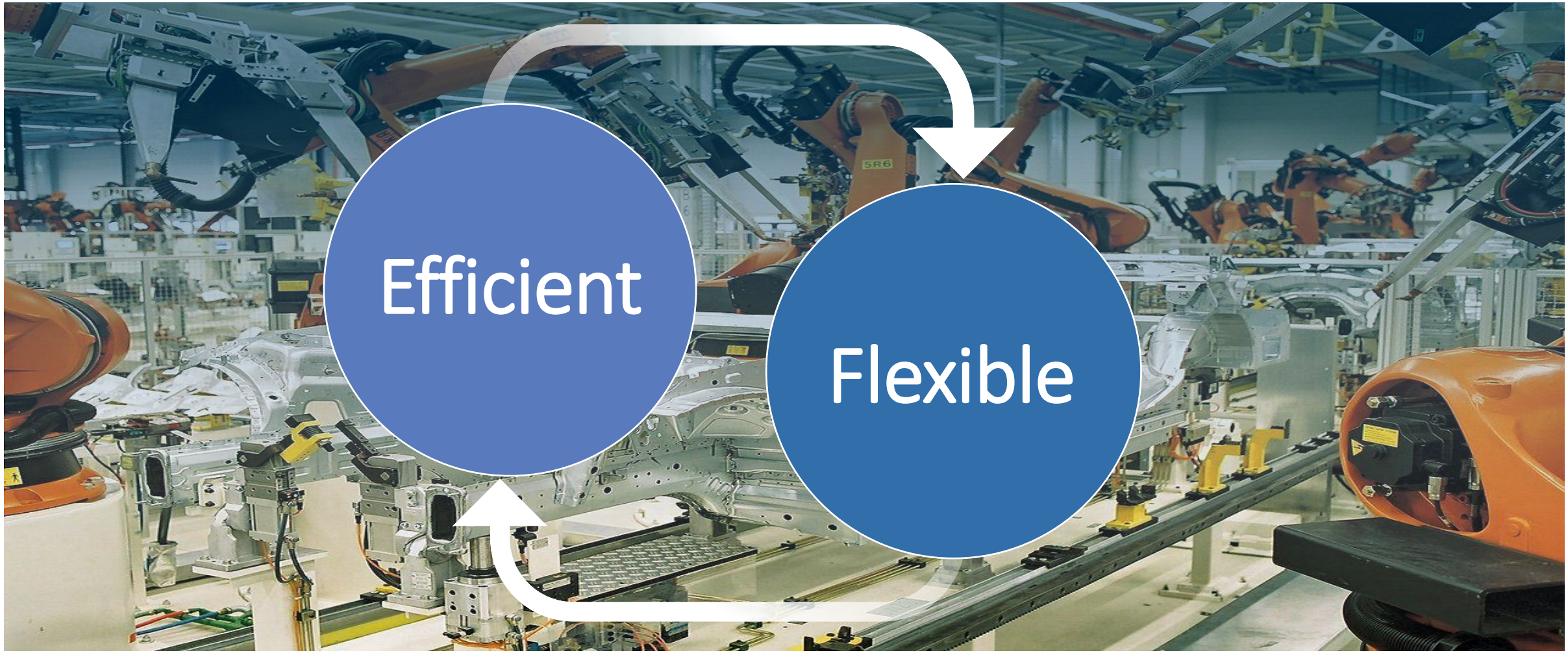
TWO ATTRIBUTES



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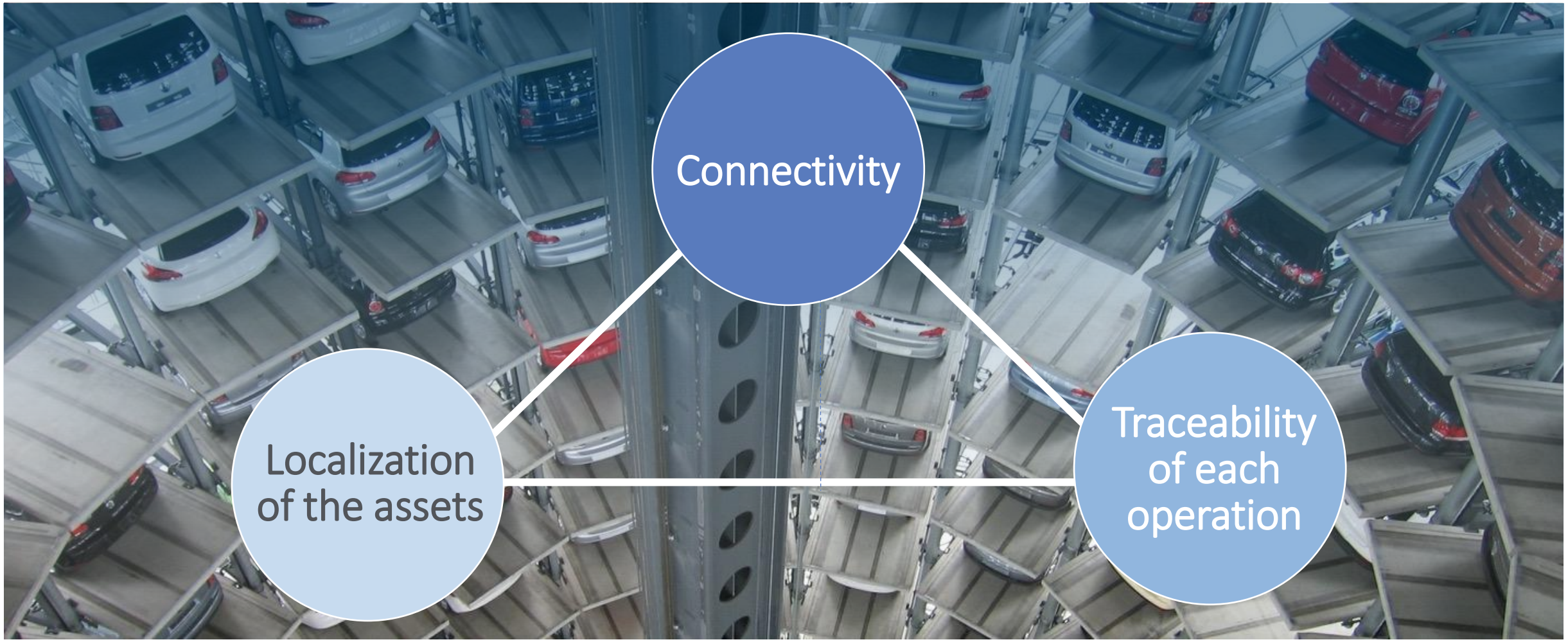
THREE PILLARS



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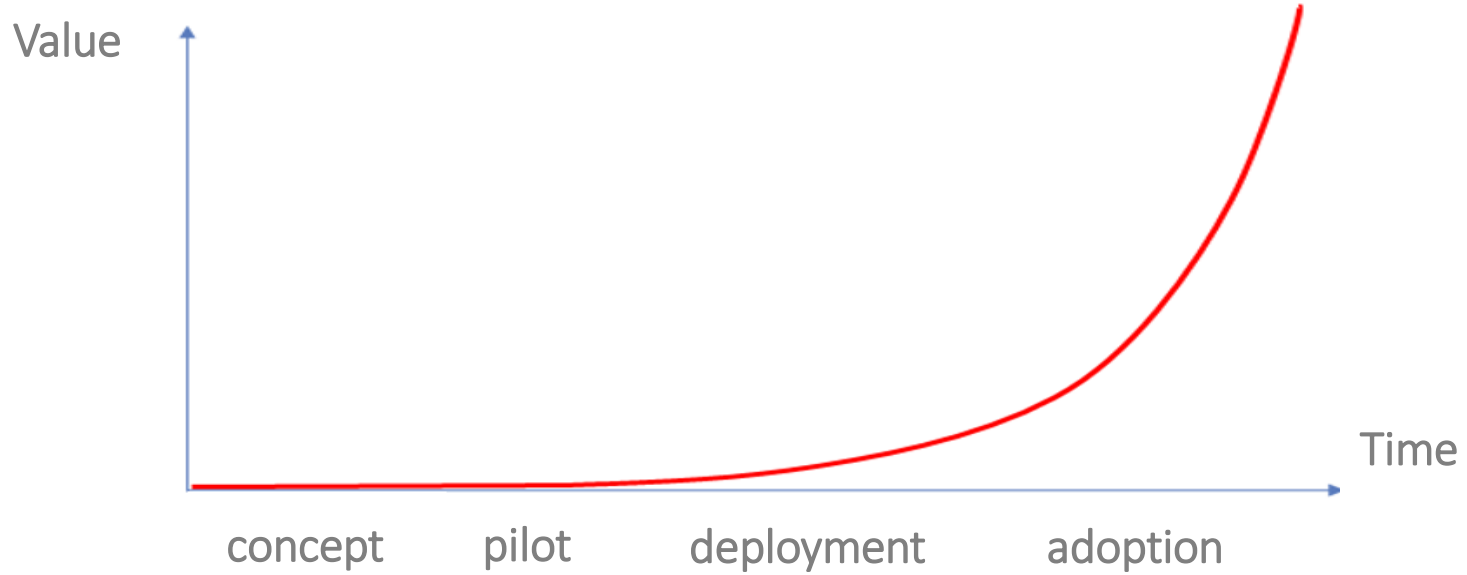
Working on pilot projects with a cross-cutting approach

Necessary to have a baseline to extend the project to other production lines and areas

Solve technical issues. Evaluate external partners capabilities

Each pilot has its own management approach



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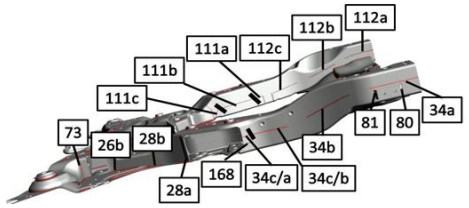
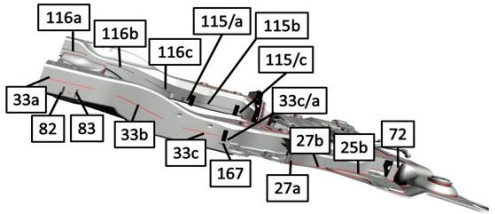
THE CHALLENGE

Exceed Quality expectations as part of our commitment with our clients

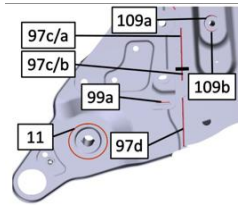
Human Safety Critical features

Complex production process





Demanding Quality Requirements



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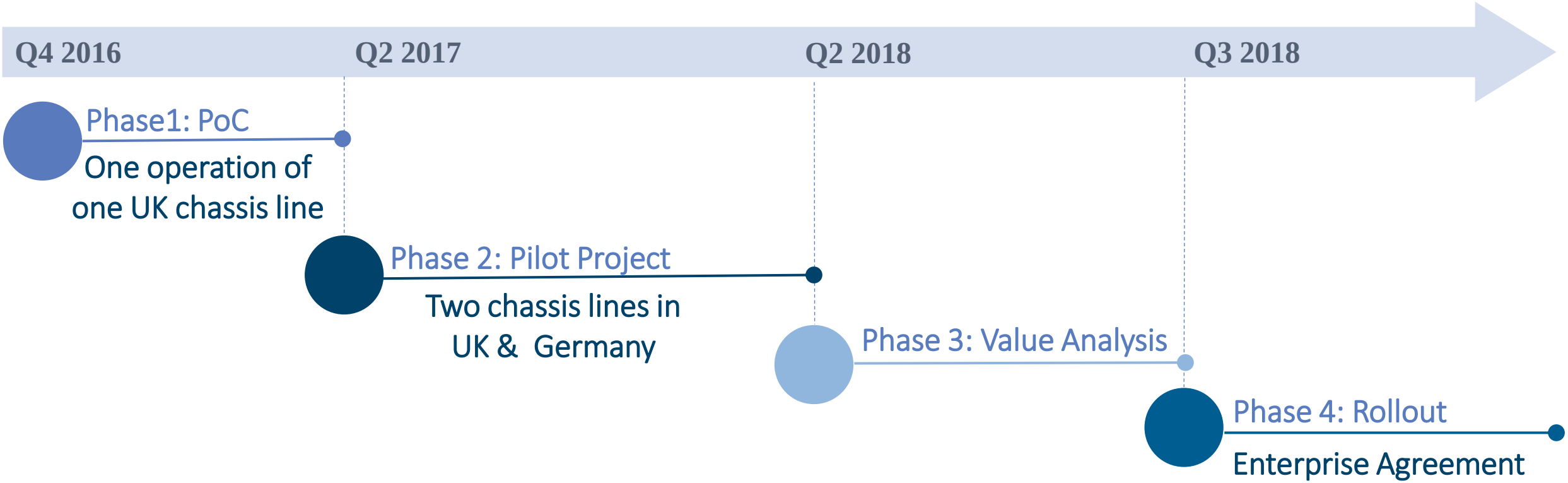
Requirements

ROBUST IoT PLATFORM

HISTORIZE, VISUALIZE and MONITOR REAL-TIME ANALYTICS OF DATA STREAM

OSIsoft.



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Chassis project overview

More than **8,000 variables** per welding line

Frequencies of up to **40ms**

By end of 2020: **68 lines connected**

Global platform: **19 plants** from **10 countries**

ARCHITECTURE

PI SYSTEM

- Applications
- Reports
- Digital Quality Certificate

ADVANCED ANALYTICS

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DQC – Digital Quality Certificate

- **Every** significant process detail of **each part** is now known, stored & analyzed
- **Summarized information** stored in certificate
- Process raw data available to:
  - Everyone
  - Everywhere
- Global Database
- Full Control
- **In-line anti-error checks for quality certificate**

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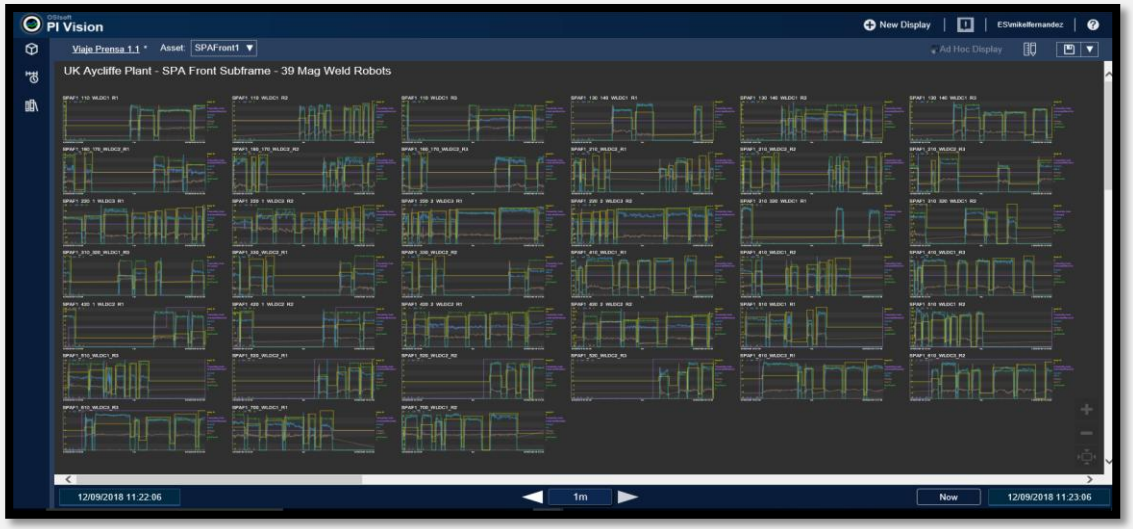
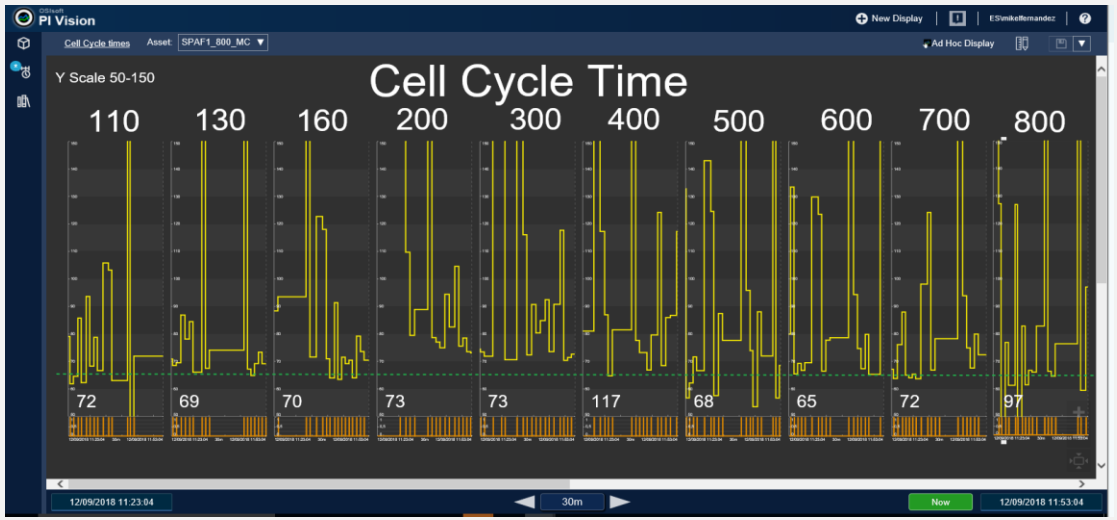
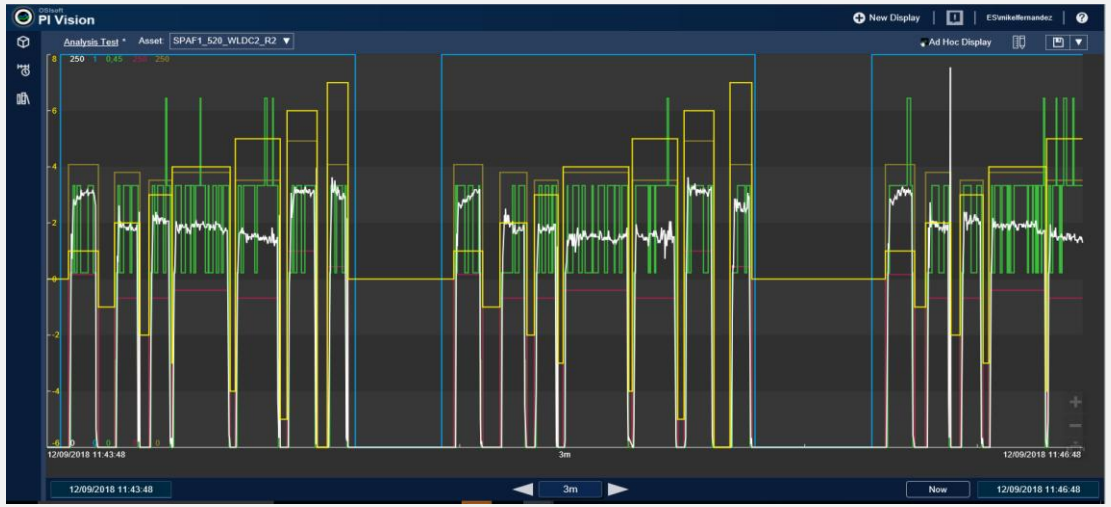
Visualization



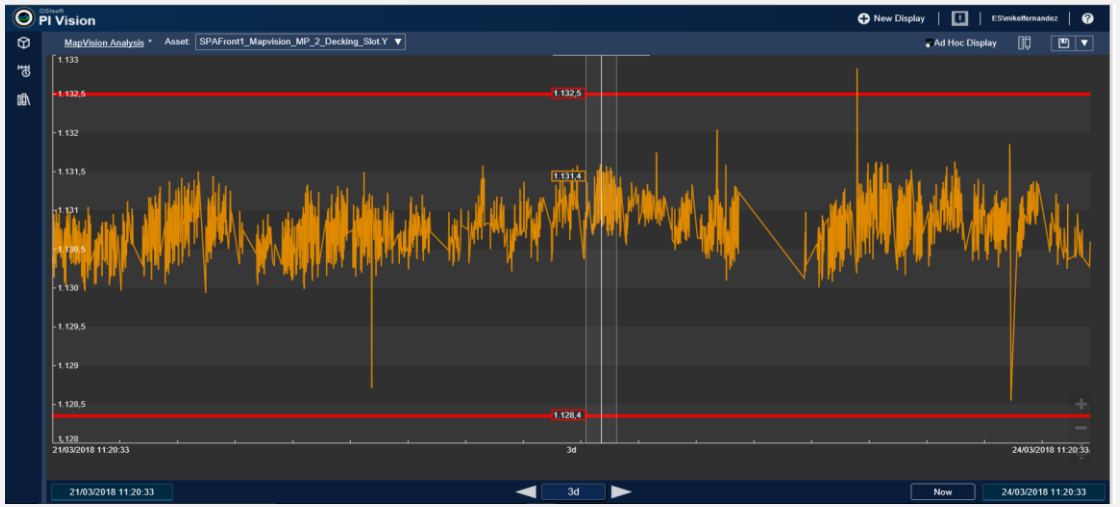
Full welding line robots



Line performance



Welding controller signals



Control of parameters

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Why?...Value!!!

- less scrap generation
- less dedicated resources
- less investment to ensure quality

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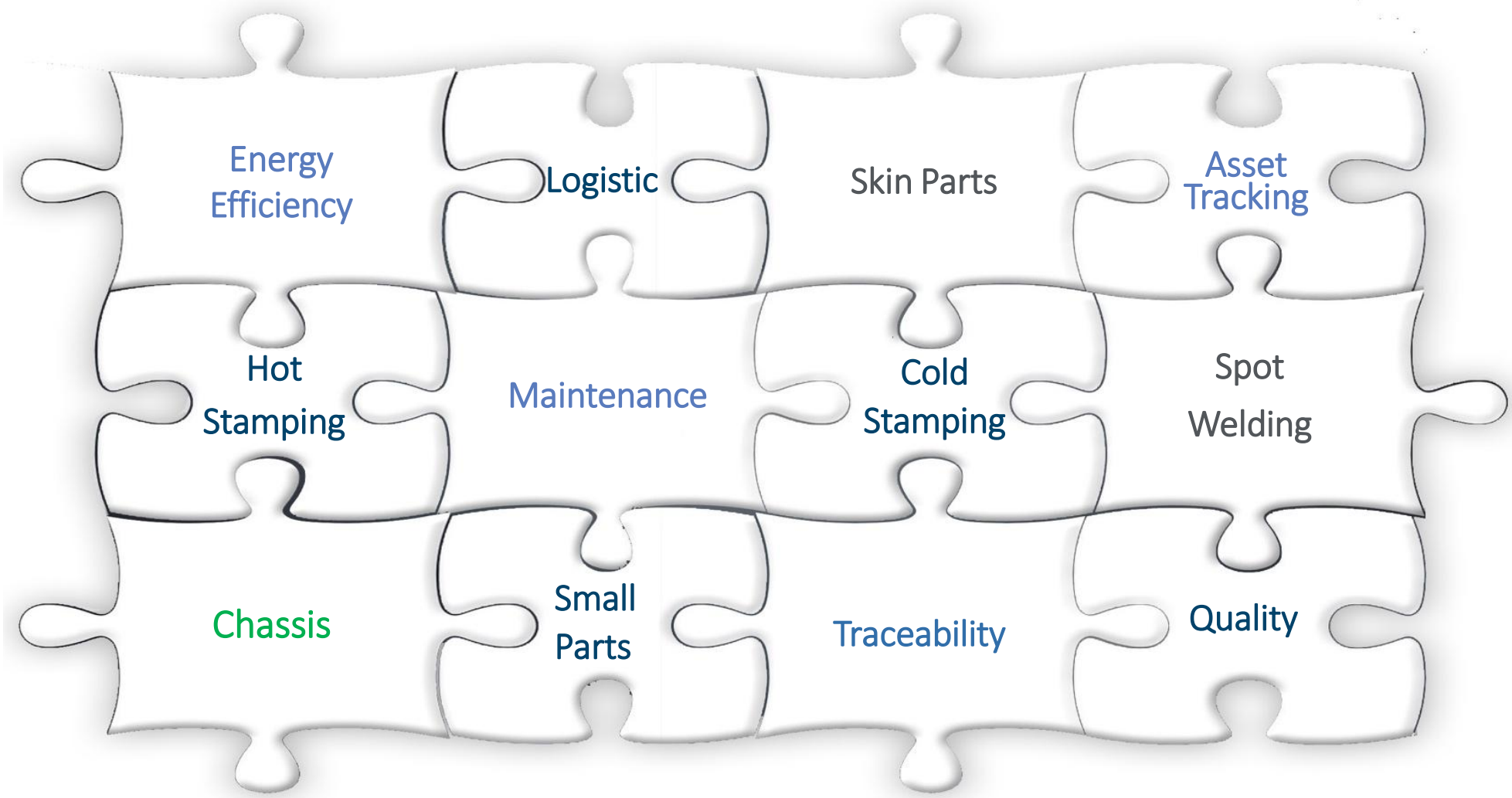
ON-GOING PROJECTS



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Industry 4.0 – Keys to success

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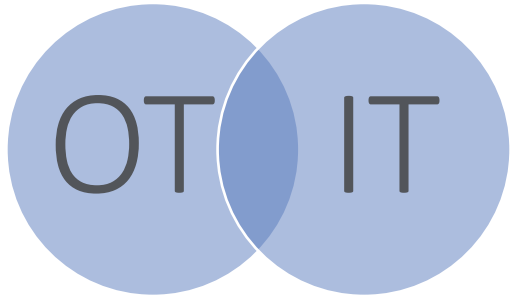
Industry 4.0 – Keys to success

Internal team

Advanced Manufacturing

Information Technologies

Technical	Project Manager	Project Manager	Project Manager	Project Manager	Architecture Cybersecurity
Advanced Analytics	Energy Efficiency	Hot Stamping	Chassis	Traceability	Developers
R&D	Smart Logistic	Spot Welding	Skin parts	Asset Tracking	IT Infrastructure
Technical Team	Maintenance	Small parts	Cold Stamping	Quality	IT Support



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Partners

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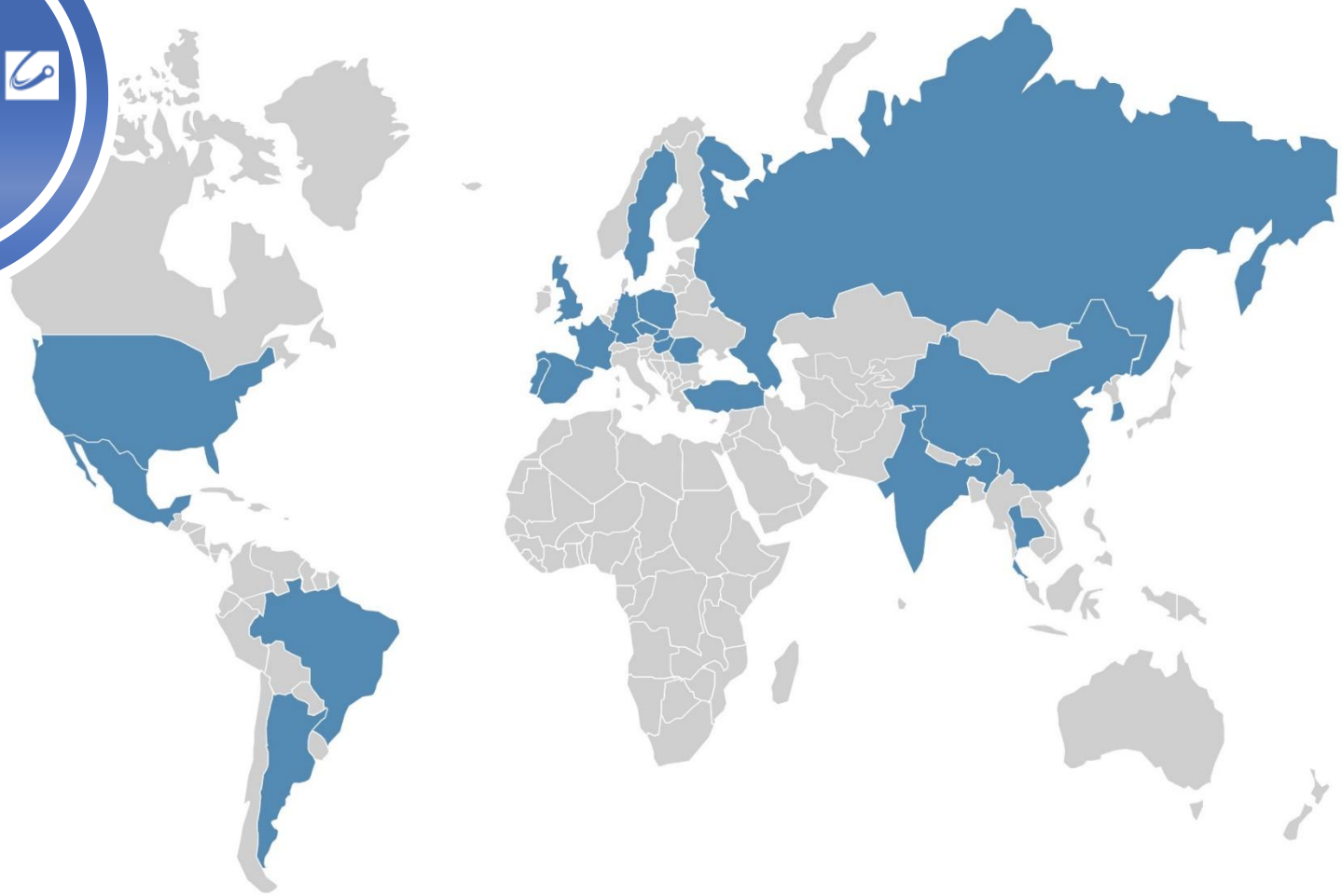
Group



21
Countries

More than
100 Plants

41.000
Employees

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Why?...Value!!!

Increase Productivity

Traceability

Staff Support

Reduce Down-time

Quality Control

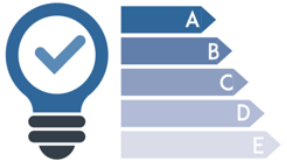
Reduce Stock

Predictive Maintenance

Optimized Setup Time

Shop floor Transparency

Flow Optimization



Energy Efficiency

Paperless Shop floor

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SMART FACTORY

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Working for a Safer and Lighter Car

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