Hugo David Herrmann

2002

BSc Computer Science
Excellence Scholarship

2003

Partner Readiness
Corporate Coord.
Mexico

2004

Corporate Strategy Planning Mgr.
Value Realization Sr. Mgr.
Process Mgr.

2006

Master Eng. & MBA
Operational Excellence

2012

OPEX
Lean Manufacturing &
Continuous
Improvement
Global

2018

CAMEXA
Transfer Technology
Trainee

2019

Stagiere in
Mexico and
Brussels

2024

MSc Technology and Innovation Management
ALBAN Programme holder– high scholarships for Latinamerica

2025

Corporate Strategy Planning Director

Strategy Planning, IT and After-sales Director (Housing Division)

Operational Excellence
Smart Factory
Industry 4.0
Europe & Asia

SFN AG
Lerchenfeldstrasse 3
9014 Sankt Gallen
Switzerland

SMART FACTORY NAVIGATOR
MATCHING INDUSTRY & IT

HSG Spin Off
University of St.Gallen

People + Data + Technology:
Building the Human-Centric Smart Factory

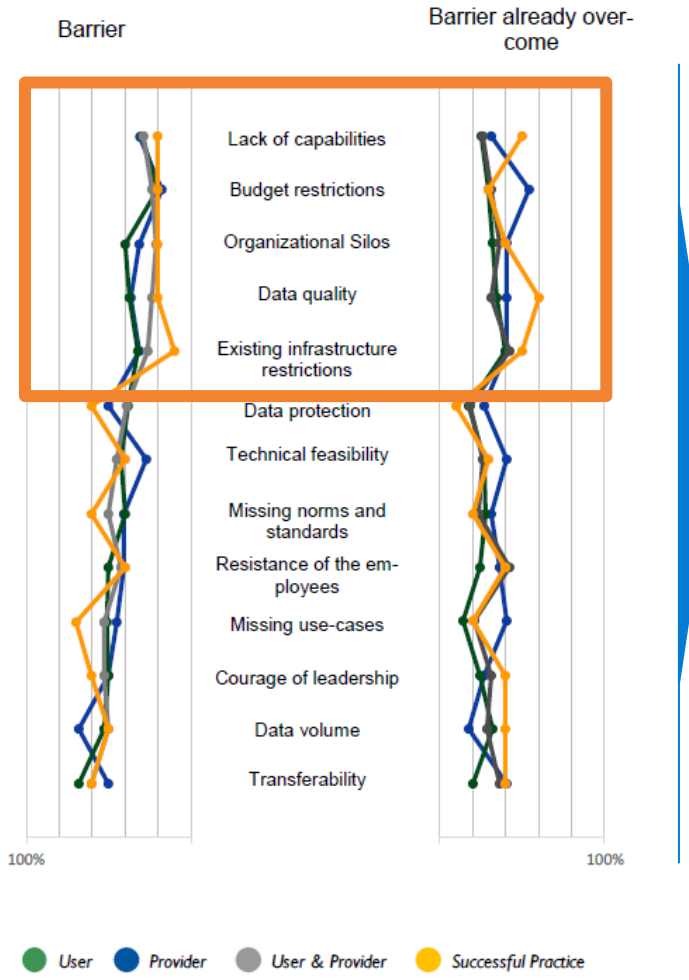
IndustryX Talk EU

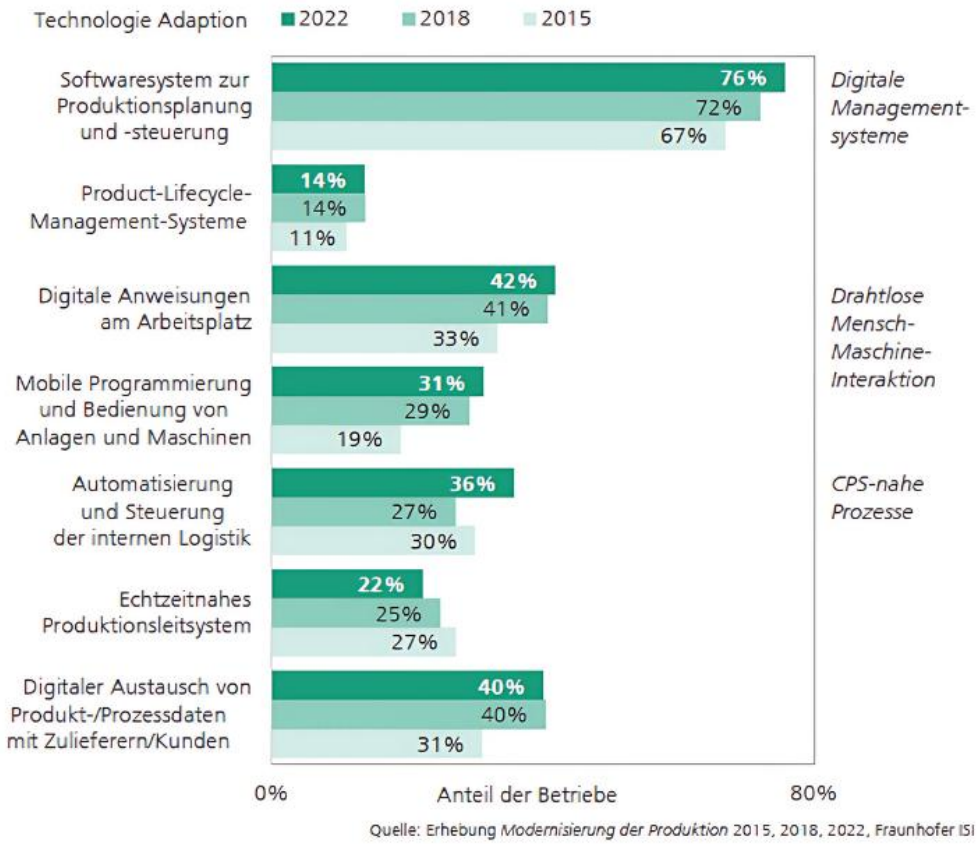
21st November 2025

Barcelona, Spain

Hurdles of digital transformation – The main challenges companies face

TOP 5 barriers:
the **lack of capabilities, organizational silos, data quality** and **existing infrastructures.**





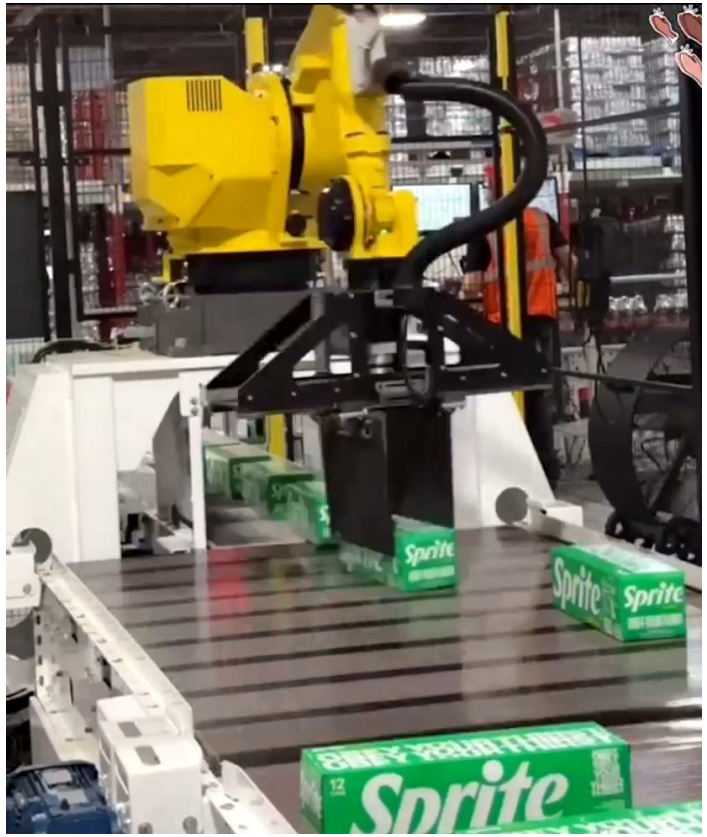
Quelle: Erhebung *Modernisierung der Produktion* 2015, 2018, 2022, Fraunhofer ISI

Source: University of St.Gallen (2019/2020):
Survey «digital technology benchmarking» project of the Institute of Technology Management

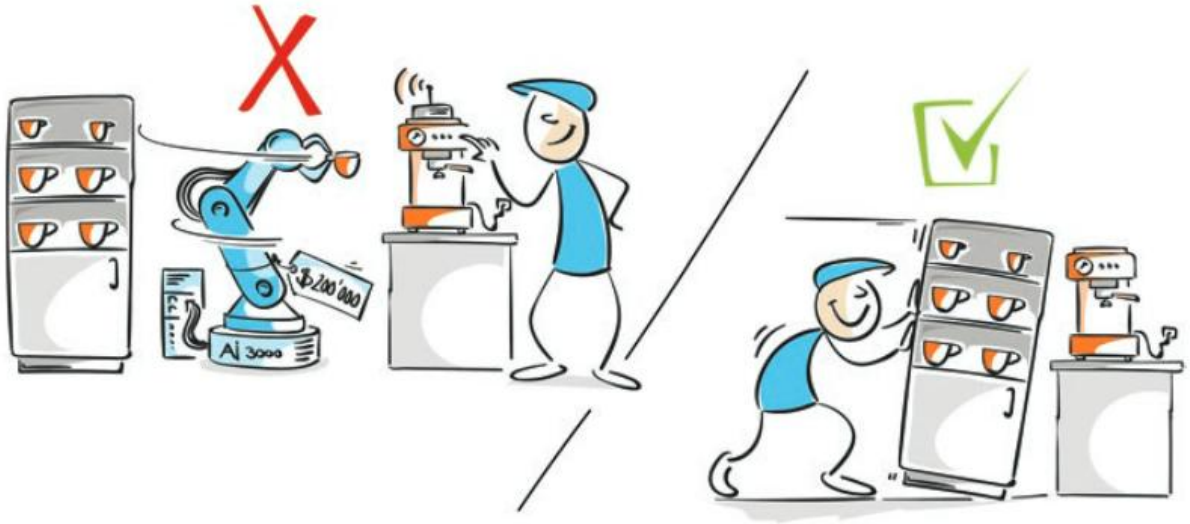
Source: Frauenhofer ISI (2022)

Hurdles to digital transformation - the most important challenges facing companies

Today, there are "endless" possibilities for "improving" existing production processes



However, what is technically feasible is not always the best (or most sustainable) solution

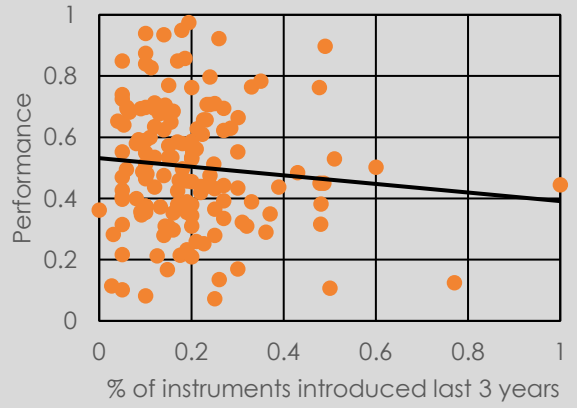


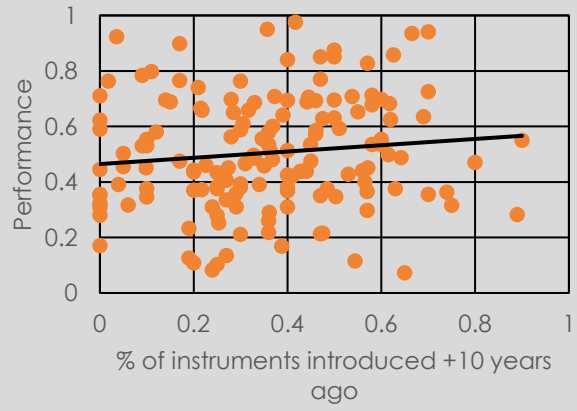
"Now everyone says '**We have to do it with digitization**.' And it's exactly the same problem as it was with ***tools that look for the problems***" *(Head of Production System, Home appliance company)*

Qualle: Toyota Production System Learning Hub (LinkedIn, 2024); Hänggi et al. (2022)

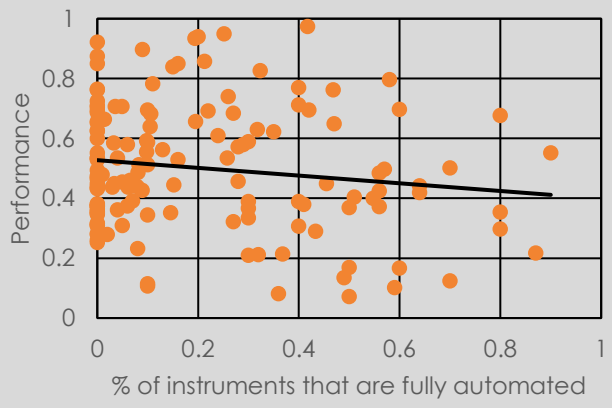
“Being digital” sometimes does not make a difference, even worse, it can negatively affect process performance - Insights from St.Gallen QC Lab Benchmarking

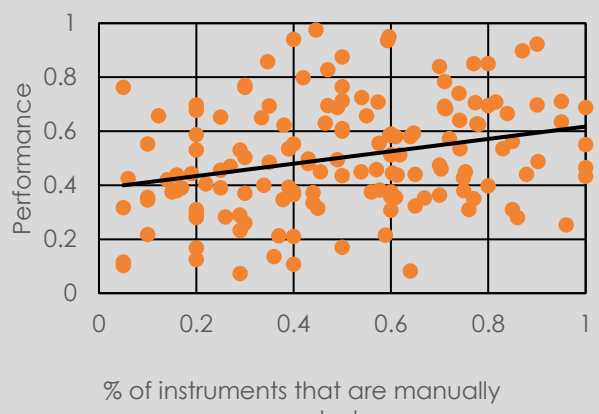
Technology “Newness”





Level of Automatization





Qualle: St.Gallen QC benchmarking database (2024)

Digitalization for the sake of digitalization

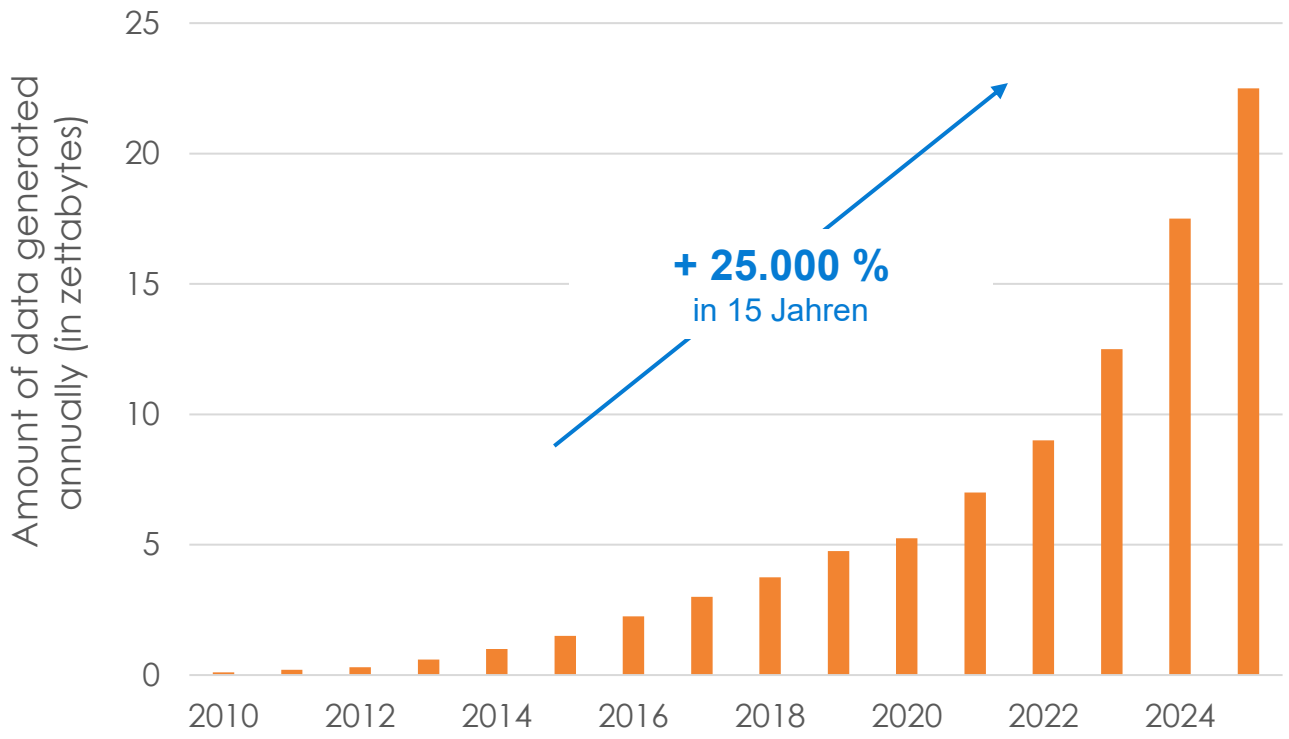
70%

Of all digital transformations fail

Key to performance is an extensive knowledge about processes, and not cutting-edge technology per se

MIT Media Lab’s finding that 95% of generative AI investments have produced no measurable returns

Data growth is increasing rapidly, especially in production – Welcome to the digital age



22,5 Zettabytes equal

NETFLIX

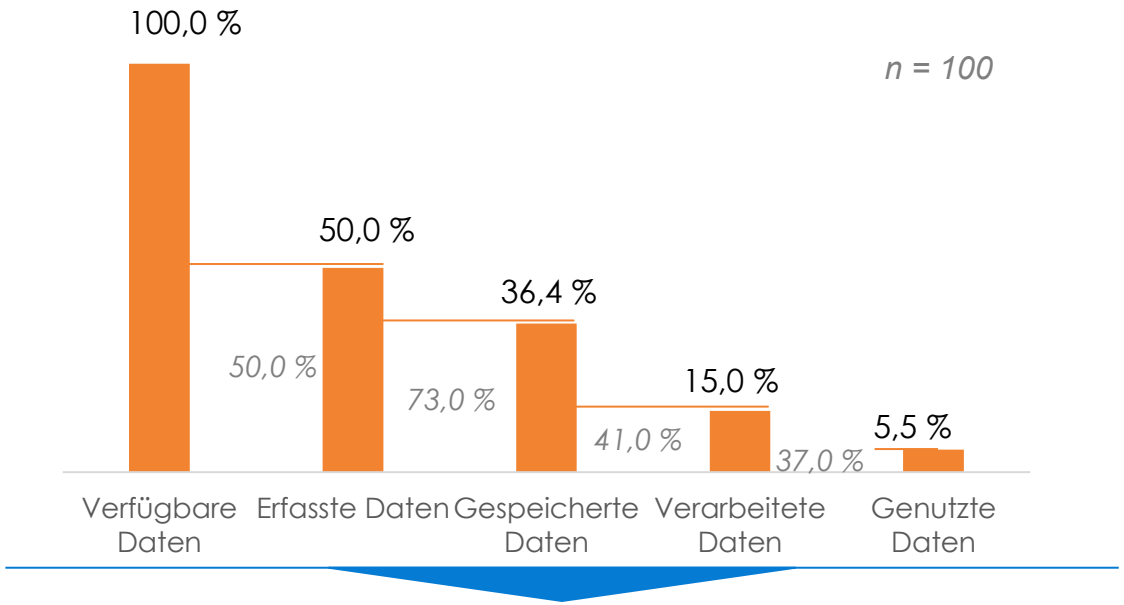
watch the entire Netflix media library 70,000,000 times

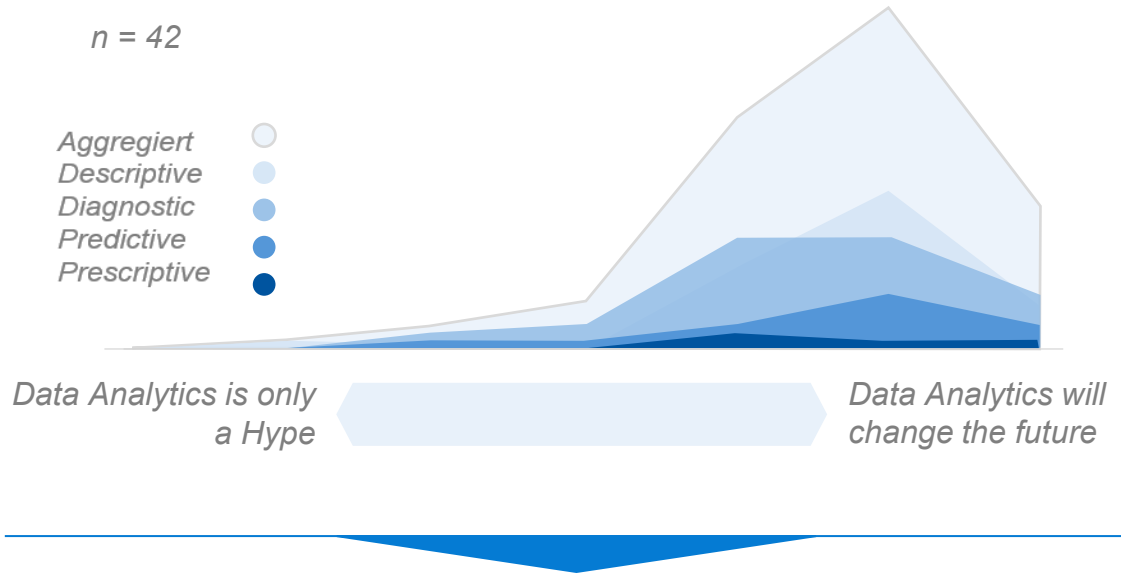
DVD TM

Or the storage from 5.500.000.000.000 DVDs

Quelle: Data Manufacturing Analytics (2018), WZL,ITEM-HSG

There is untapped but already recognized potential – Where companies currently are



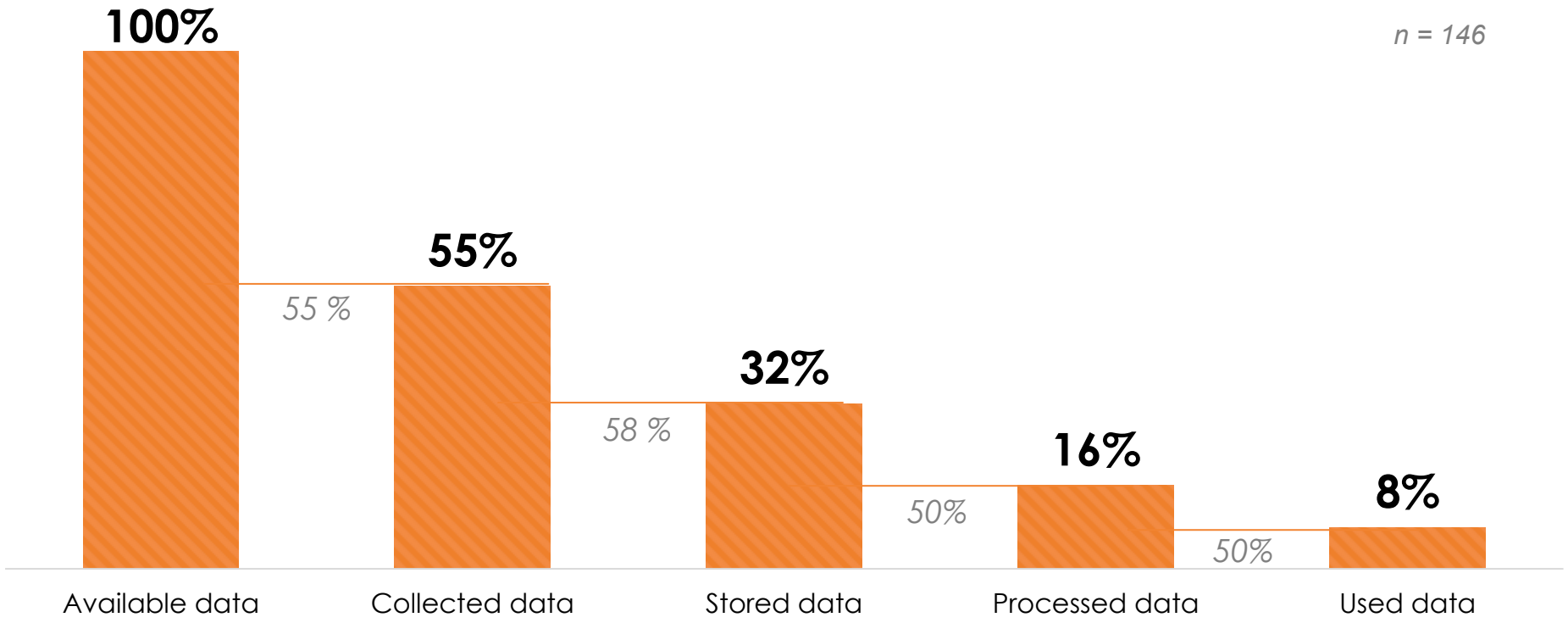


Future goal: Increase data analytics efficiency for significant business success.

Over 90% of participants see considerable potential in the fact that data analytics will significantly change production in the future.

Quelle: Data Manufacturing Analytics (2018), WZL,ITEM-HSG

After 5 years, only 3% more data used - *wasted potential or missed opportunity?*



Future goal: Increase the use and efficiency of data analysis to ensure sustainable business success. According to the same study, only 5% of available data was actively used in 2018.

Quelle: Quelle: Beckschulte, Sebastian; Padrón Hinrichs, Marcos; Pirrone, Lorenzo; Grothkopp, Mark; Sohnius, Felix; Schmitt, Robert; Friedli, Thomas (Hg.) (2023): Manufacturing data analytics study 2023. Empirical industry study. Apprimus Verlag. 1. Auflage. Aachen: Apprimus Verlag. & Data Manufacturing Analytics (2018), WZL,ITEM-HSG

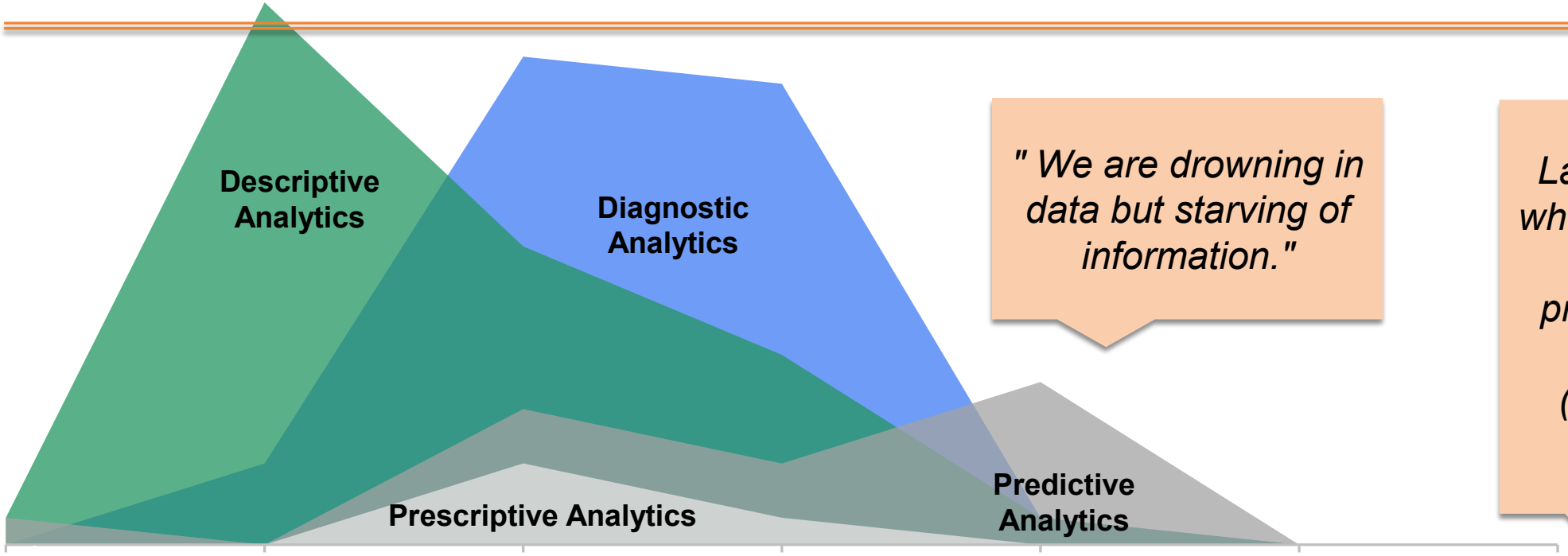
How to transform data into value? – From descriptive to prescriptive analytics

Descriptive Analytics
"What happened?"

Diagnostic Analytics
"Why did it happen?"

Predictive Analytics
"What is likely to happen?"

Prescriptive Analytics
"What should be done?"

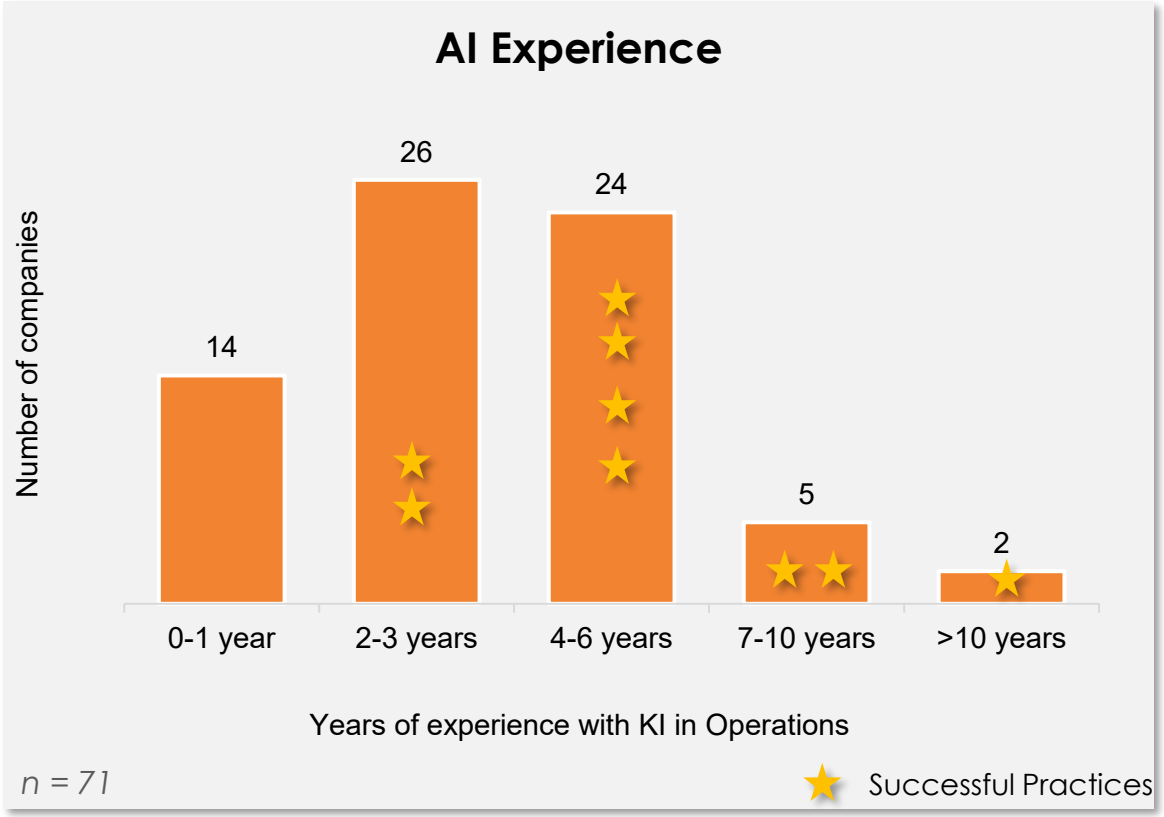


" We are drowning in data but starving of information."

Lack of employees who understand both the production processes and the digital tools (Technical Skills Gap)

Source: University of St.Gallen (2017) | n=100 | 1 = Data analytics in manufacturing is not used / 7 = Data analytics is extensively used

The industry is only starting about learning and leveraging AI – Experience with AI



25 years

of experience with AI

"We work in a highly standardized production environment. Starting with **early ML algorithms**, moving on to **advanced data analytics**, we have been developing increasingly **complex, intelligent algorithms** for process optimization for several years."

Most companies in our sample started their AI activities in the last couple of years.

Quelle: Benchmarking Project AI in Operations (2022) ITEM HSG,GPMC, WZL RWTH Aachen

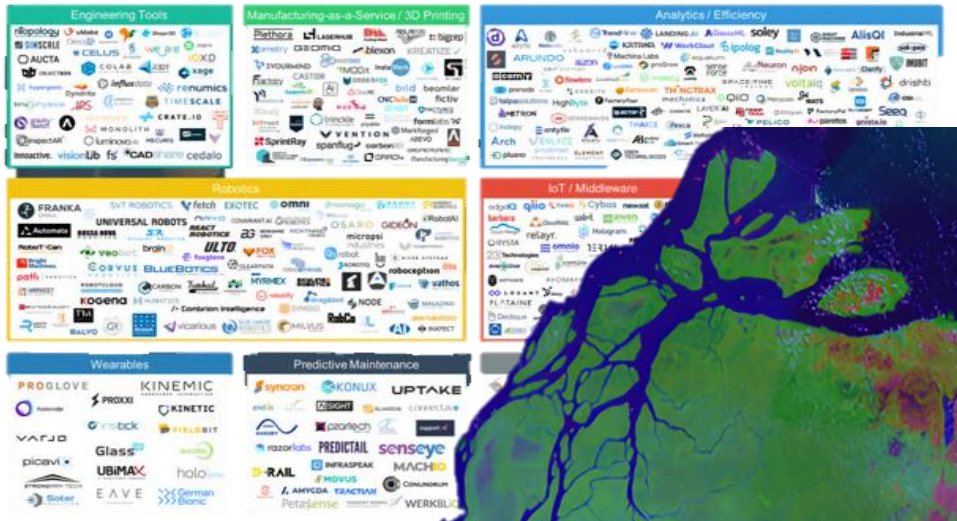
80% of all Smart Factory projects fail to deliver the expected results or outright fail

Quelle: publish industry Verlag (Hrsg.). (2020). Darum scheitern 80 Prozent der mittelständischen Digitalisierungsprojekte,
THOMAS RINN, PATRICK VOLLMER & EBERHARD VEIT (Accenture, Hrsg.). (2020). EIN NEUER WECKRUF ZUR DIGITALISIERUNG. Wie deutsche Unternehmen mit der Digitalisierung richtig vorankommen.

The challenge for customers

How does a company find the right use cases and solutions?

! Thousands of solutions



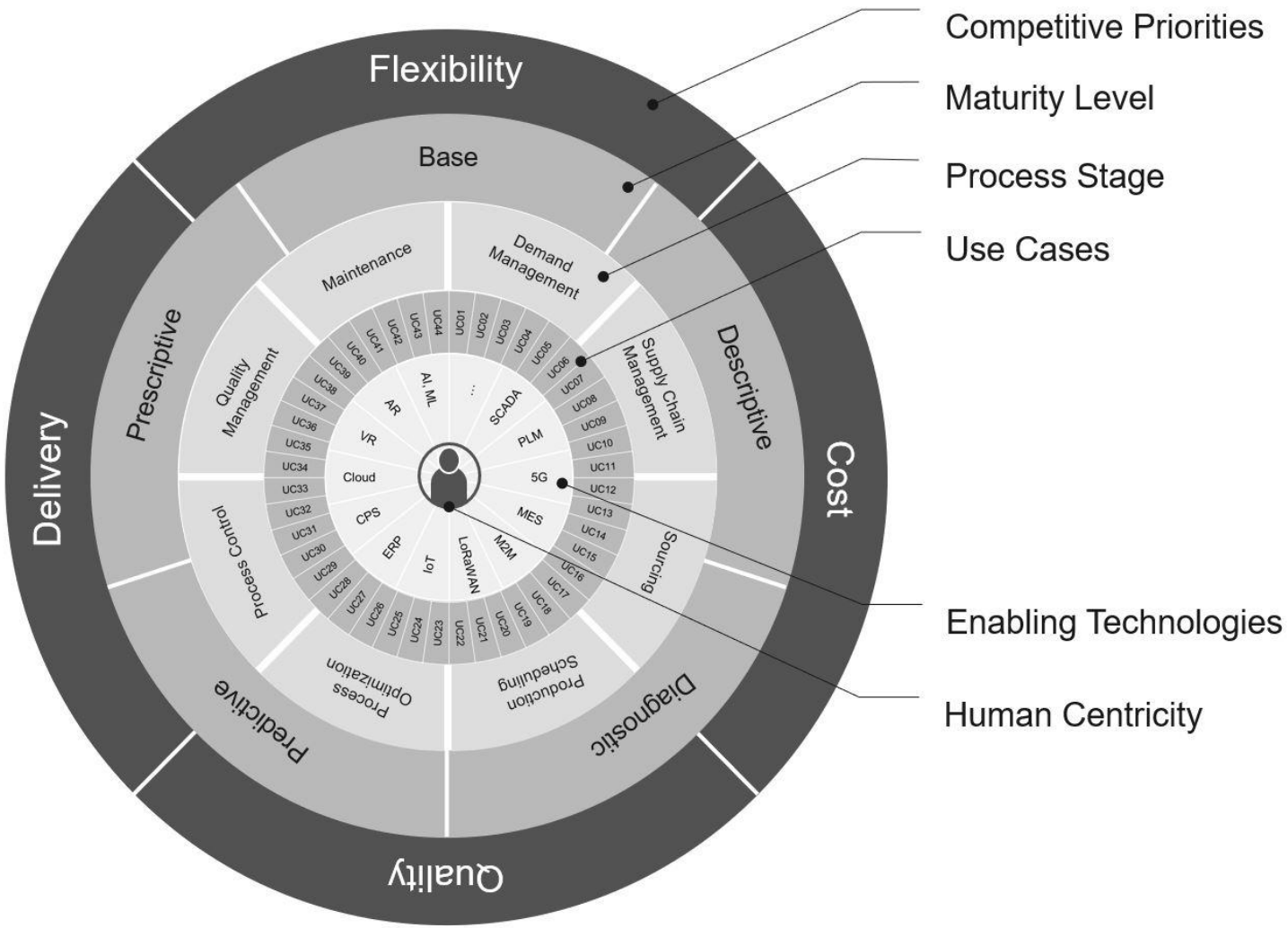
Source: Industry 4.0 — Reinventing the Factory Stack
Robin Dechant

! Jungle of Use-Cases

! Many, unclear dependencies

! Large investments

The Smart Factory Navigator



The HSG and OST developed the 'Smart Factory Navigator' over five years as a guide for Smart Factory implementation

Universität St.Gallen

OST Ostschweizer Fachhochschule

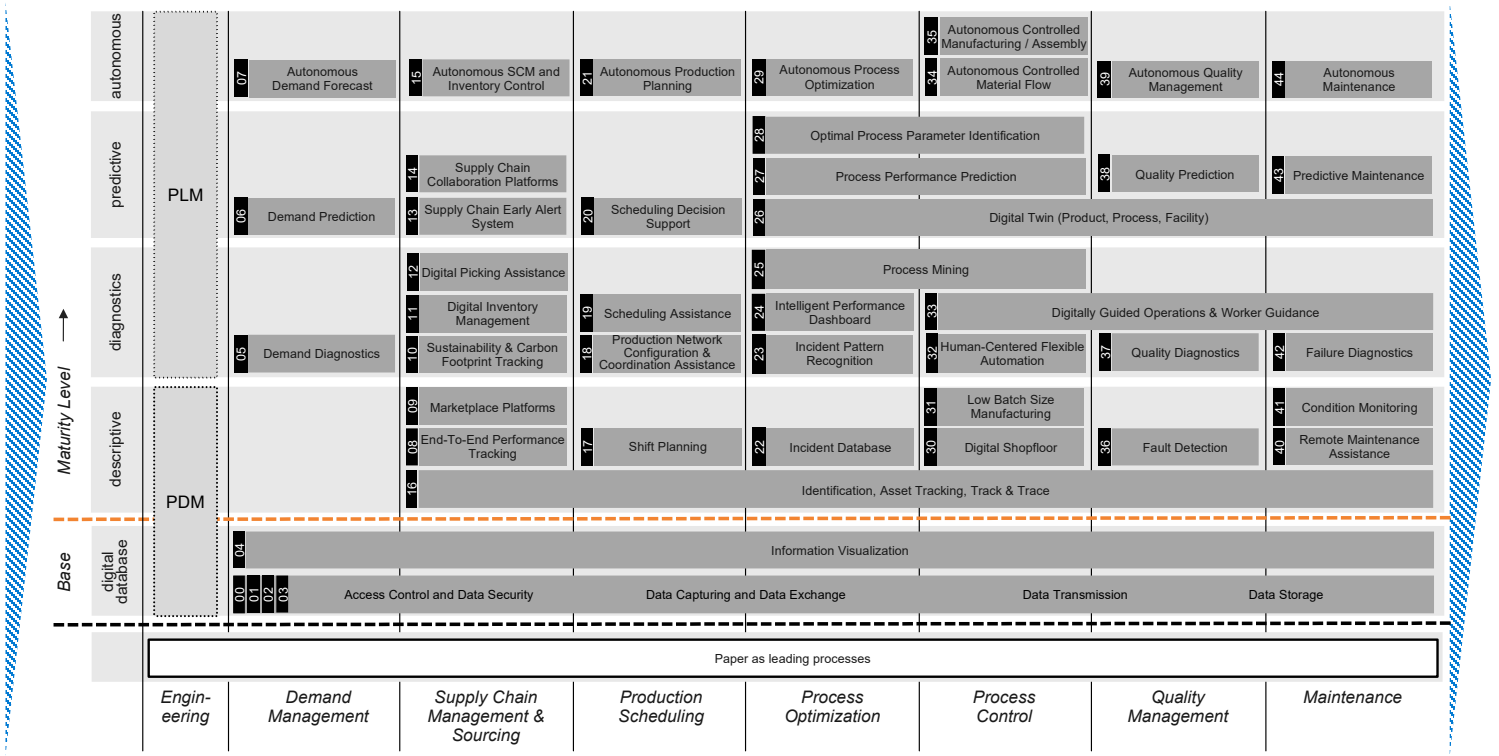
900+ analyzed use cases from > 20 industries

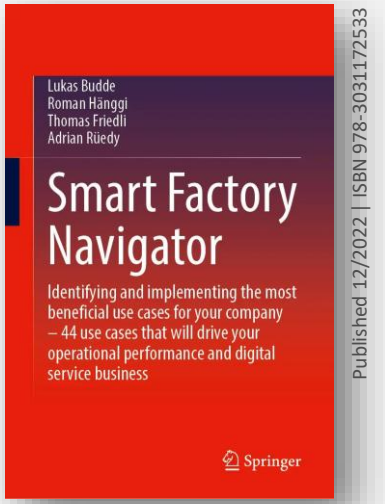
44 generic use cases

1 process to identify the most important use cases

Technology mapping of the use cases

Smart Factory Framework





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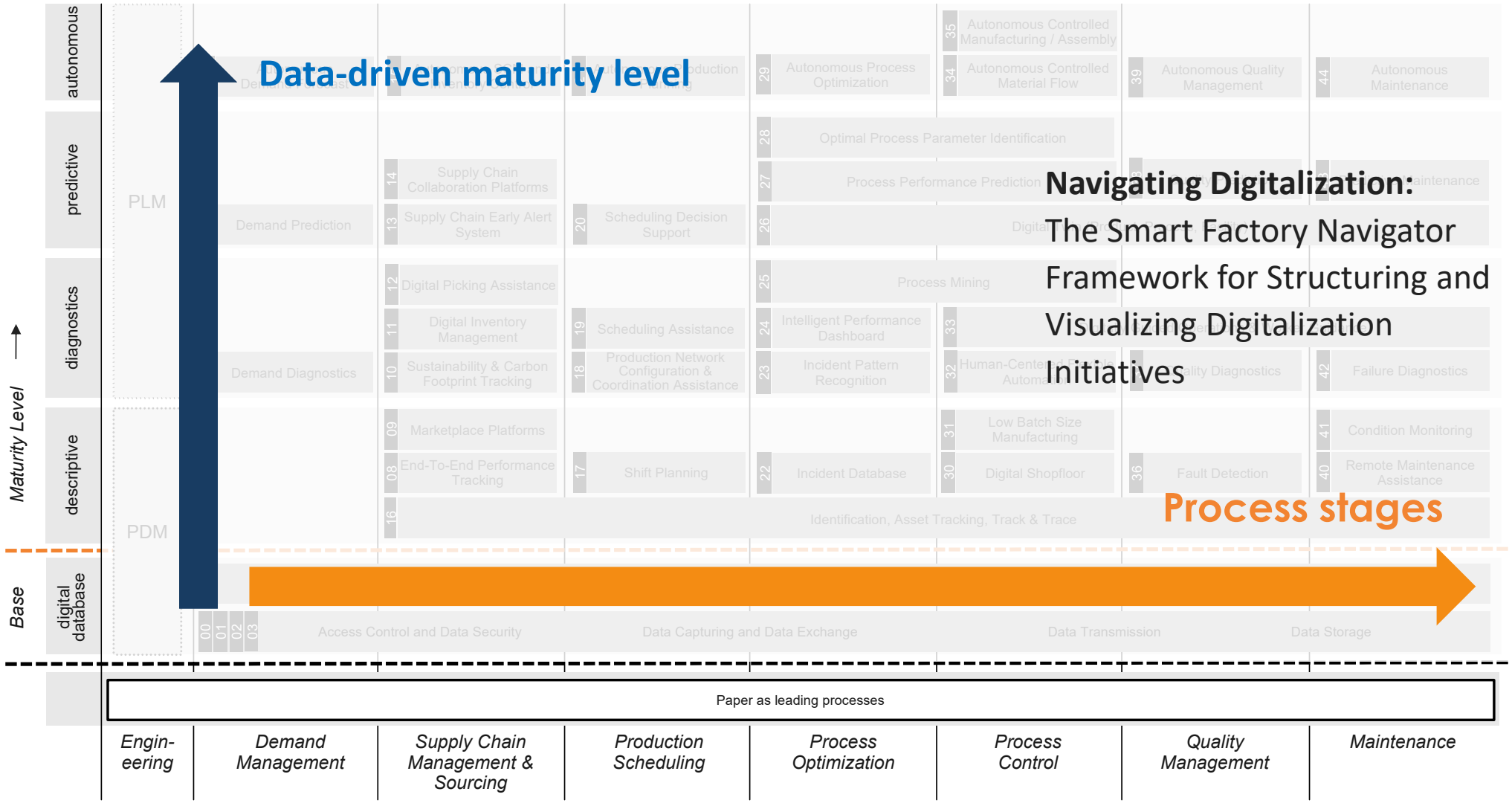
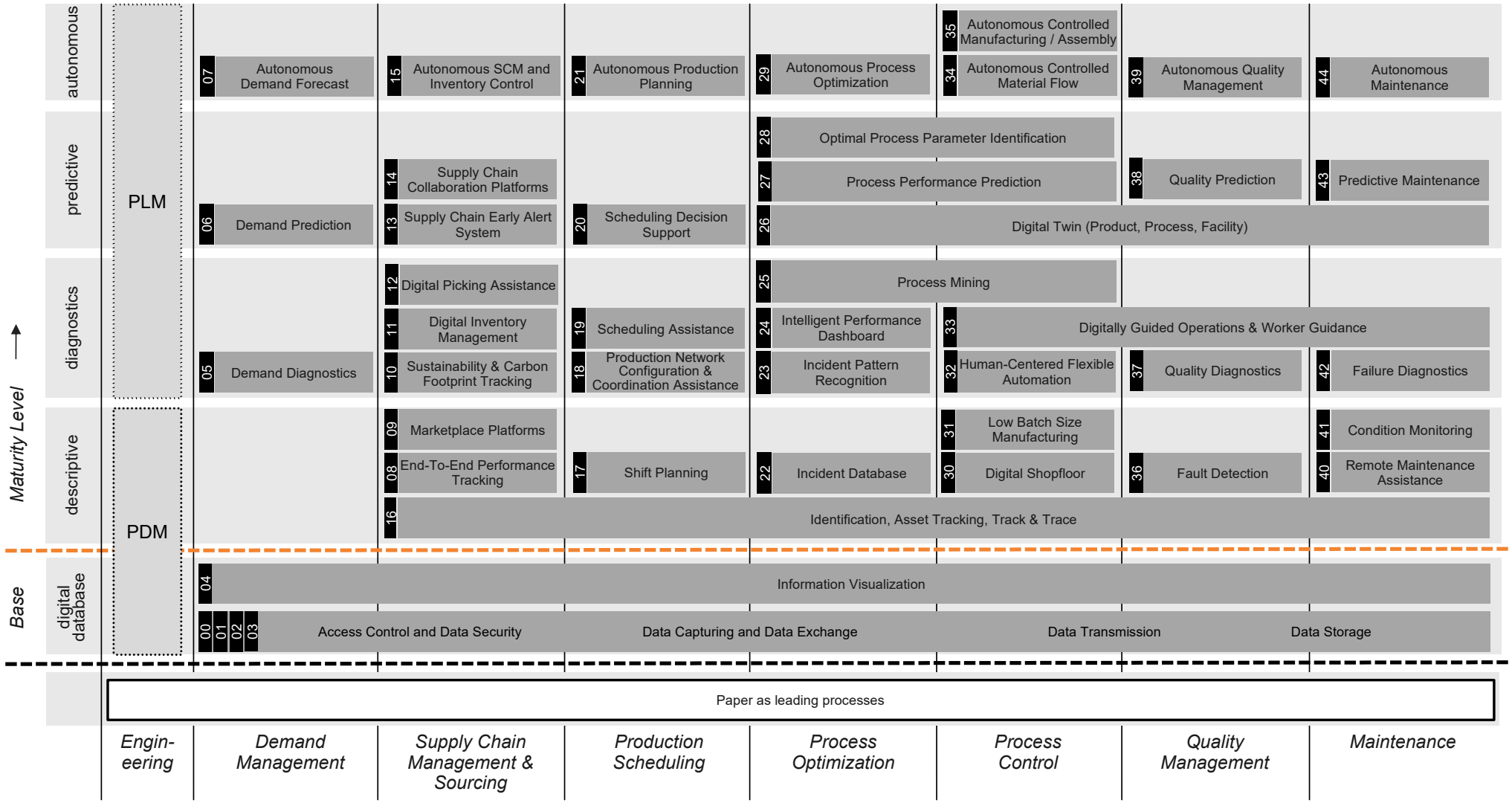
SMART FACTORY NAVIGATOR
MATCHING INDUSTRY & IT

HSG Spin Off University of St.Gallen

The "Smart Factory Framework" is a central element of the Navigator



The "Smart Factory Framework" is a central element of the Navigator



https://www.smartfactorynavigator.com/

Online Assessment

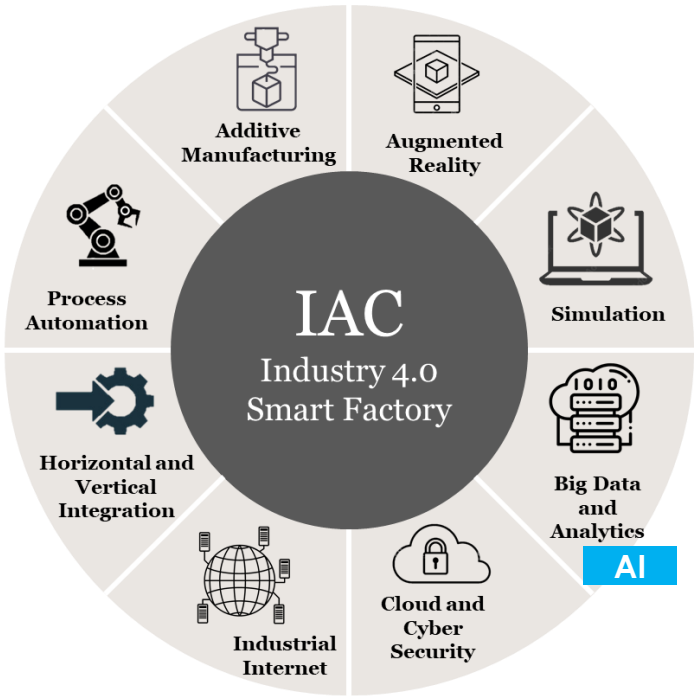
Objective: Representation of a company's current state in comparison to the industry.

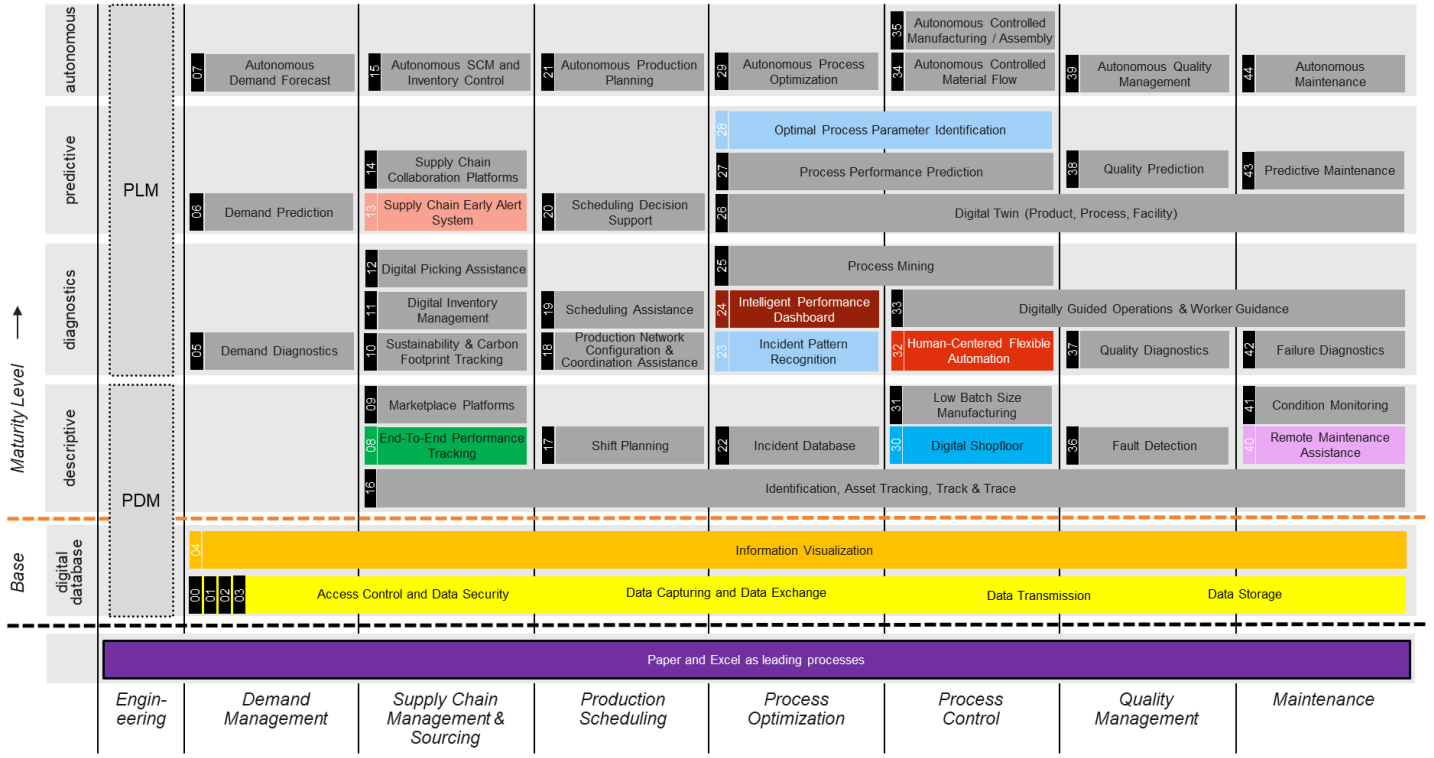
1. **Challeanges:**
   - Analysis of key challenges and obstacles within the company
   - Identification of processes with the highest potential for optimization
   - Focus on specific areas such as SCM, warehousing & logistics, planning, production, and processes
2. **Strategic Priorities:** Determining the company's strategic direction.
3. **Identified Use Cases:**
   - Automatic assignment of relevant use cases based on the company's initial situation and provided information

The report provides a clear overview of the status quo and offers concrete recommendations for optimization and digital transformation.

https://www.smartfactorynavigator.com/

IAC Journey to the Smart Factory





What are companies working on for the future?
Vision

Securing process / employee knowledge through the use of AI

Where is the focus today?

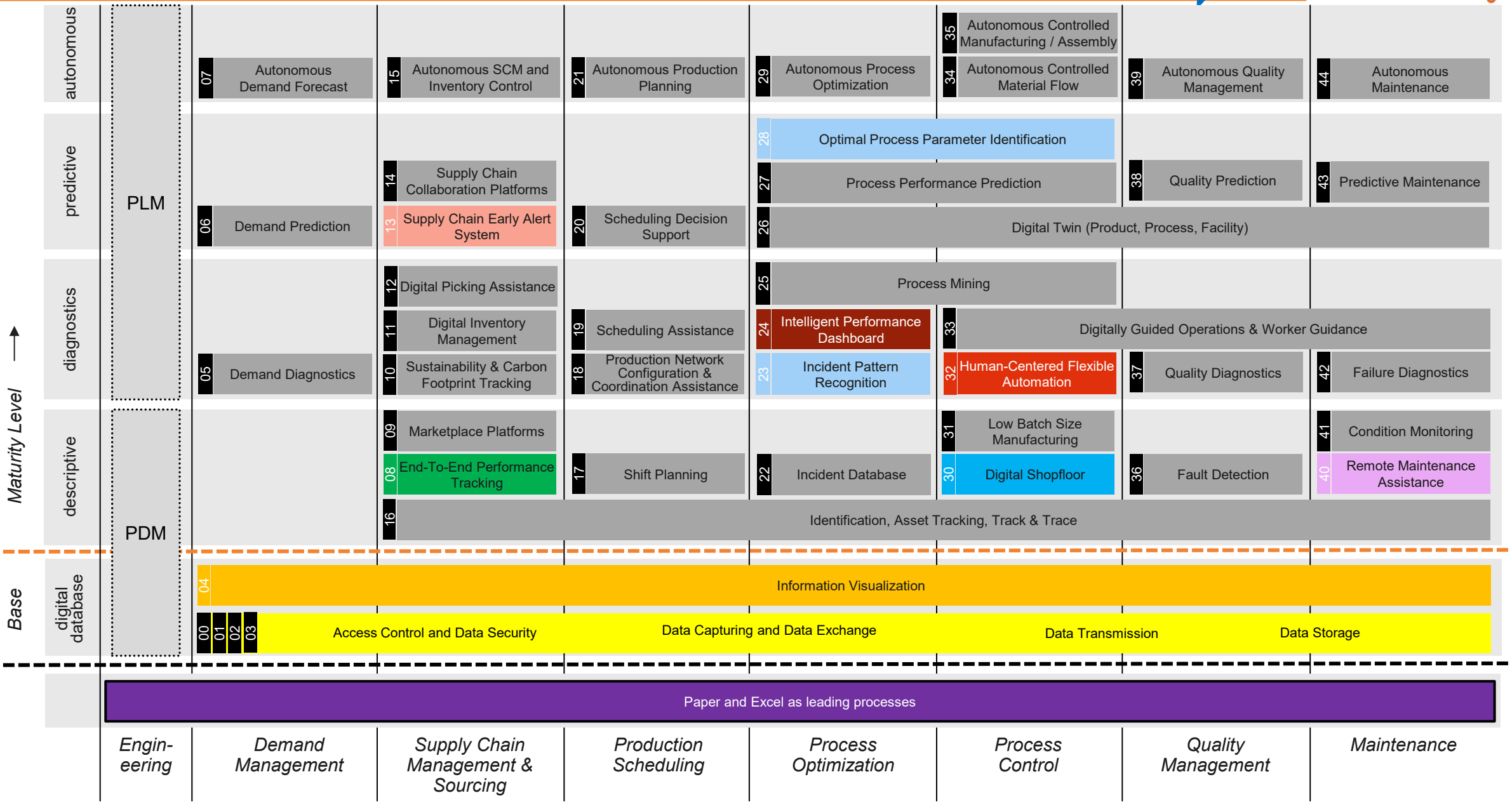
Use of data to increase efficiency, secure knowledge, planning

What are the challenges?

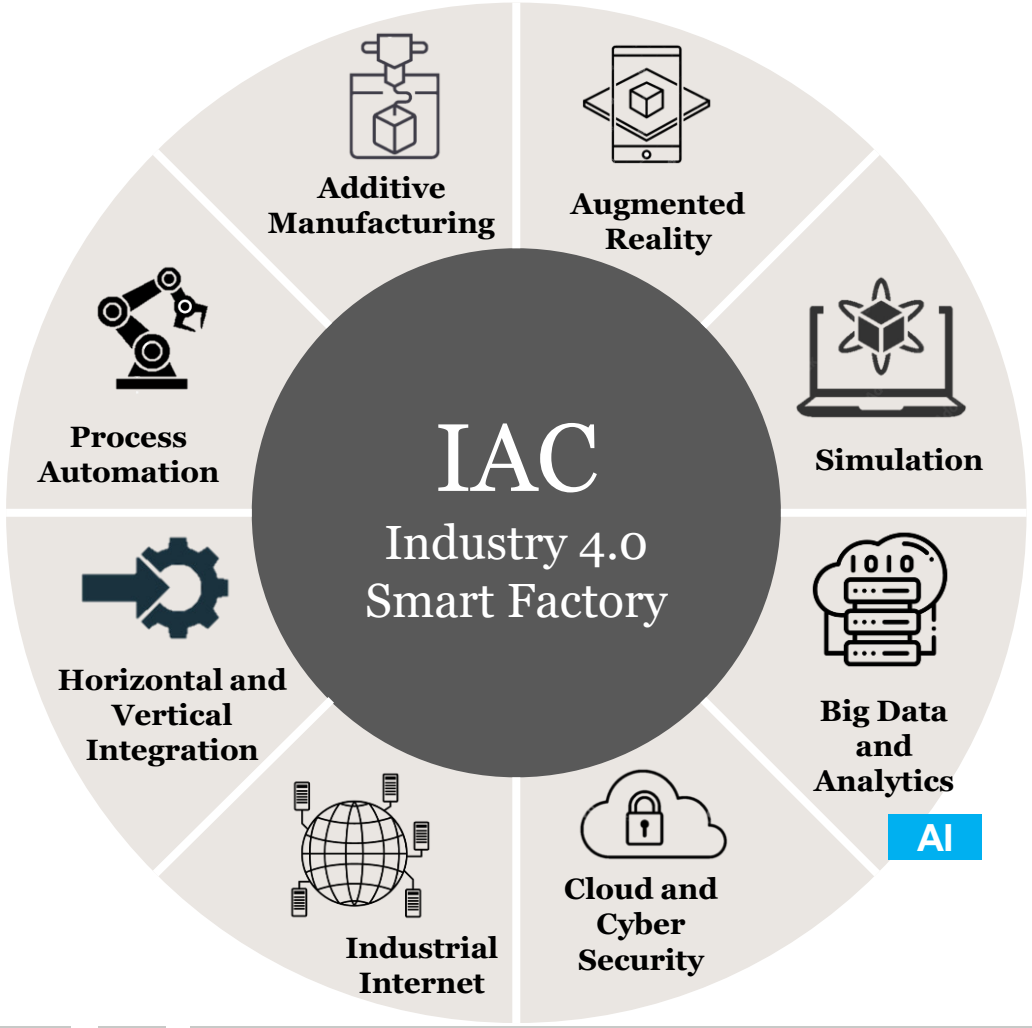
Handling and using the database, tool landscape and ensuring transparency

Smart Factory Navigator - Framework

Use Case



IAC Journey to the Smart Factory



First Step: be Lean in Operations

Modular Flexible Manuacturing

Change Management

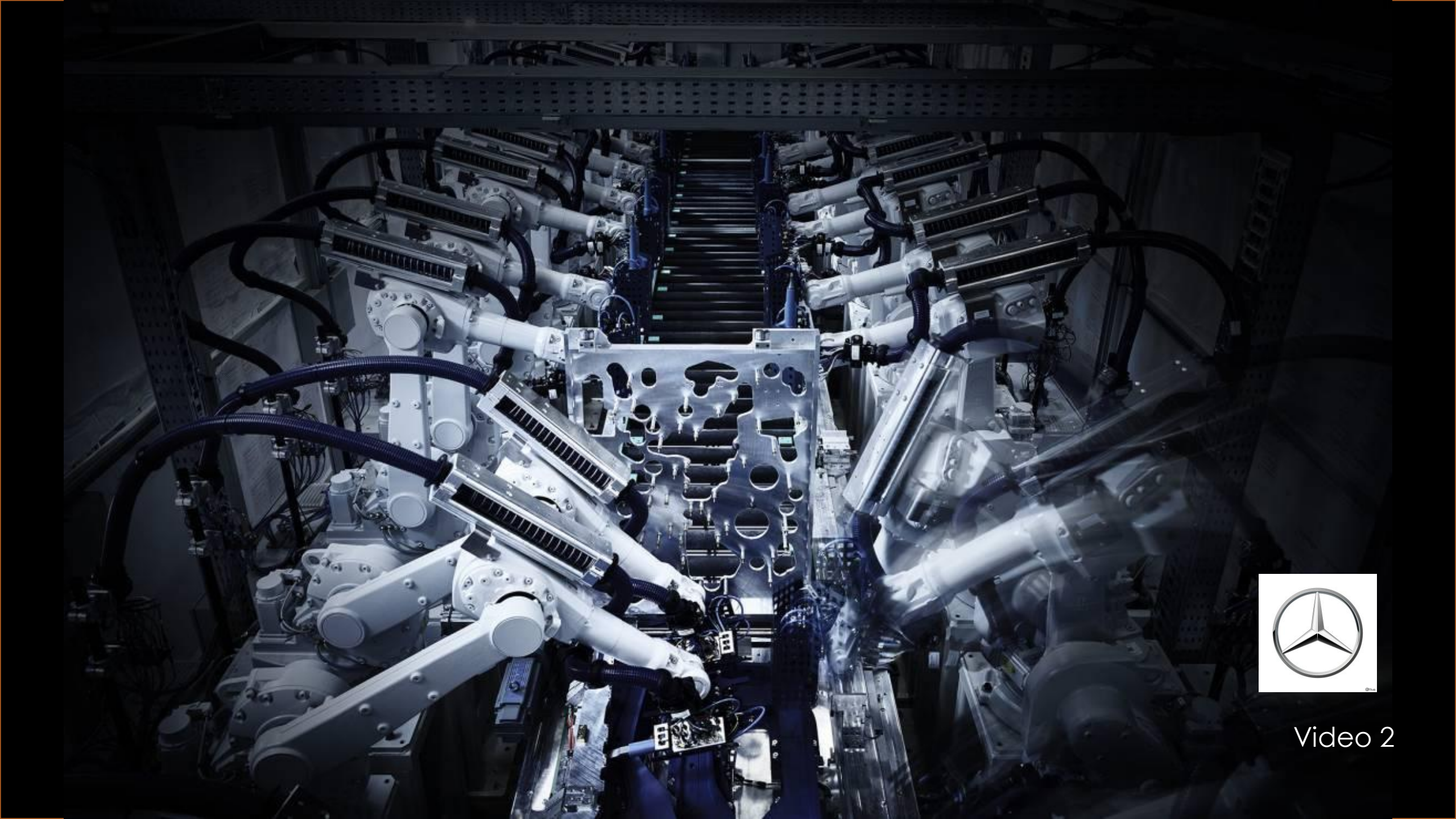
Flexibility

Modular Automation

Our customers required us to undertake this journey.

Porsche Smart Factory & IIoT

Different technologies, different customers, different products in One Line



Video 2

CASE STUDY
when the strategy and leadership didn't attend to the Lecture!

Global footprint → Standardisation

CULTURE IS KEY

Data-driven problem solving (beyond dashboards)

A before and after glance

We are a Global Company

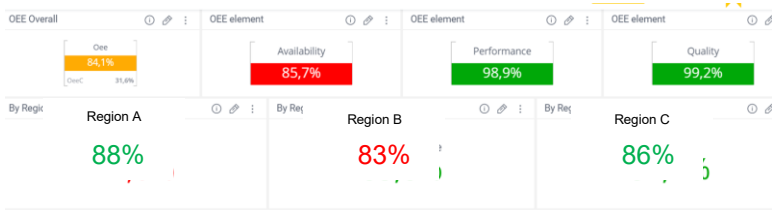
DATE: FEB 24, 2015 SHIFT: DAY LINE: 9

HOUR	TARGET	ACTUAL	SHIFT TARGET	SHIFT ACTUAL	COMMENTS
1	210	210	210	210	☺
2	210	150	420	360	
3	210	210	630	570	☺
4	210	216	840	786	☺
5	210	186	1050	972	LUNCH BREAK
6	210	127	1260	1099	20 MINUTES MAINT
7	210	210	1470	1309	☺
8	210	113	1680	1422	

Machines Europe

Machines Americas

Machines China

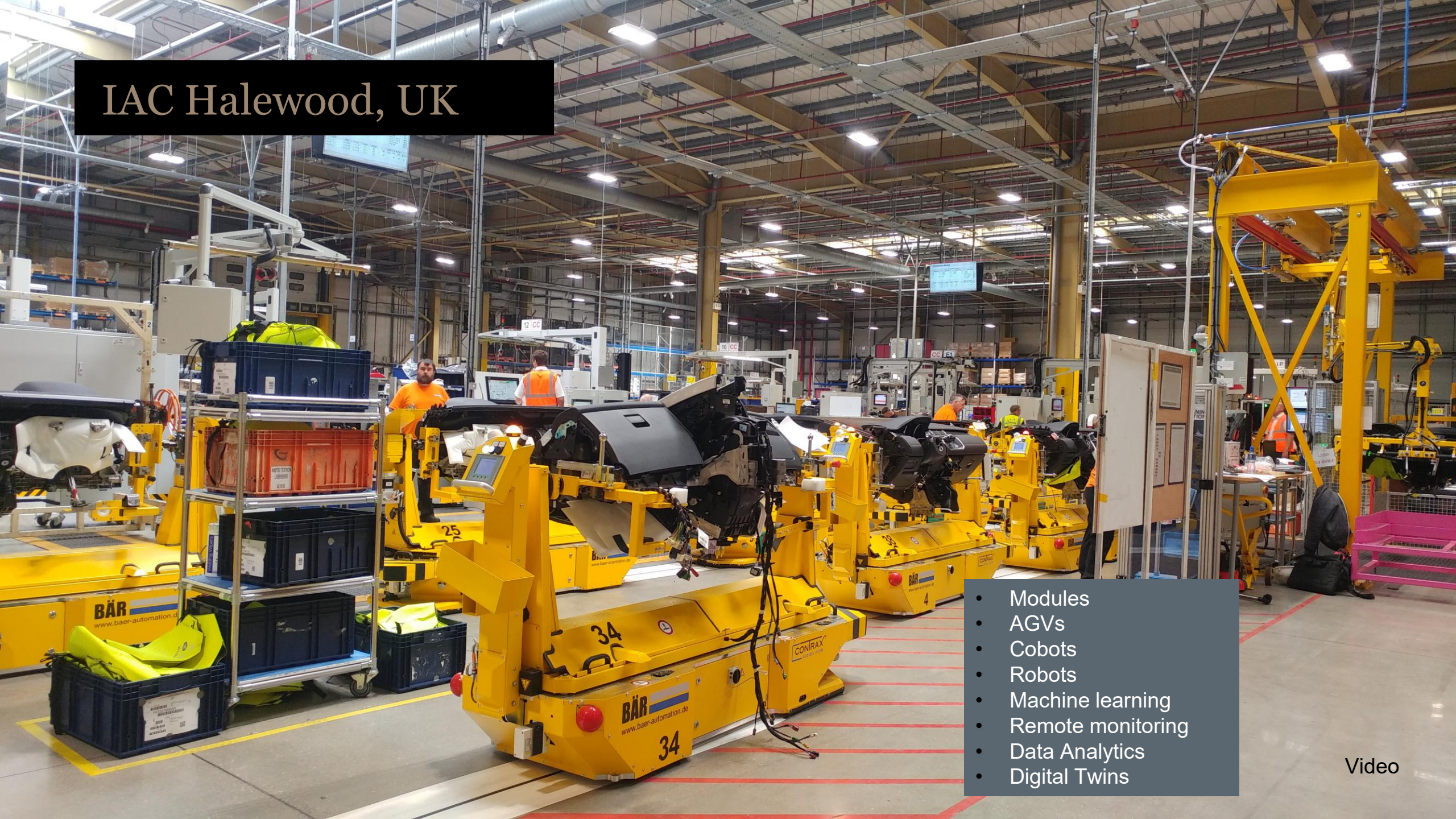


- Data collection (sensors and Big Data) → optimize processes & reduce downtimes
- Remote monitoring
- OEE (increase in 2%)
- Downtimes (MTBF / MTTR)
- Scrap (reduce significantly)
- Predictive Maintenance → **our objective**

Illustrative

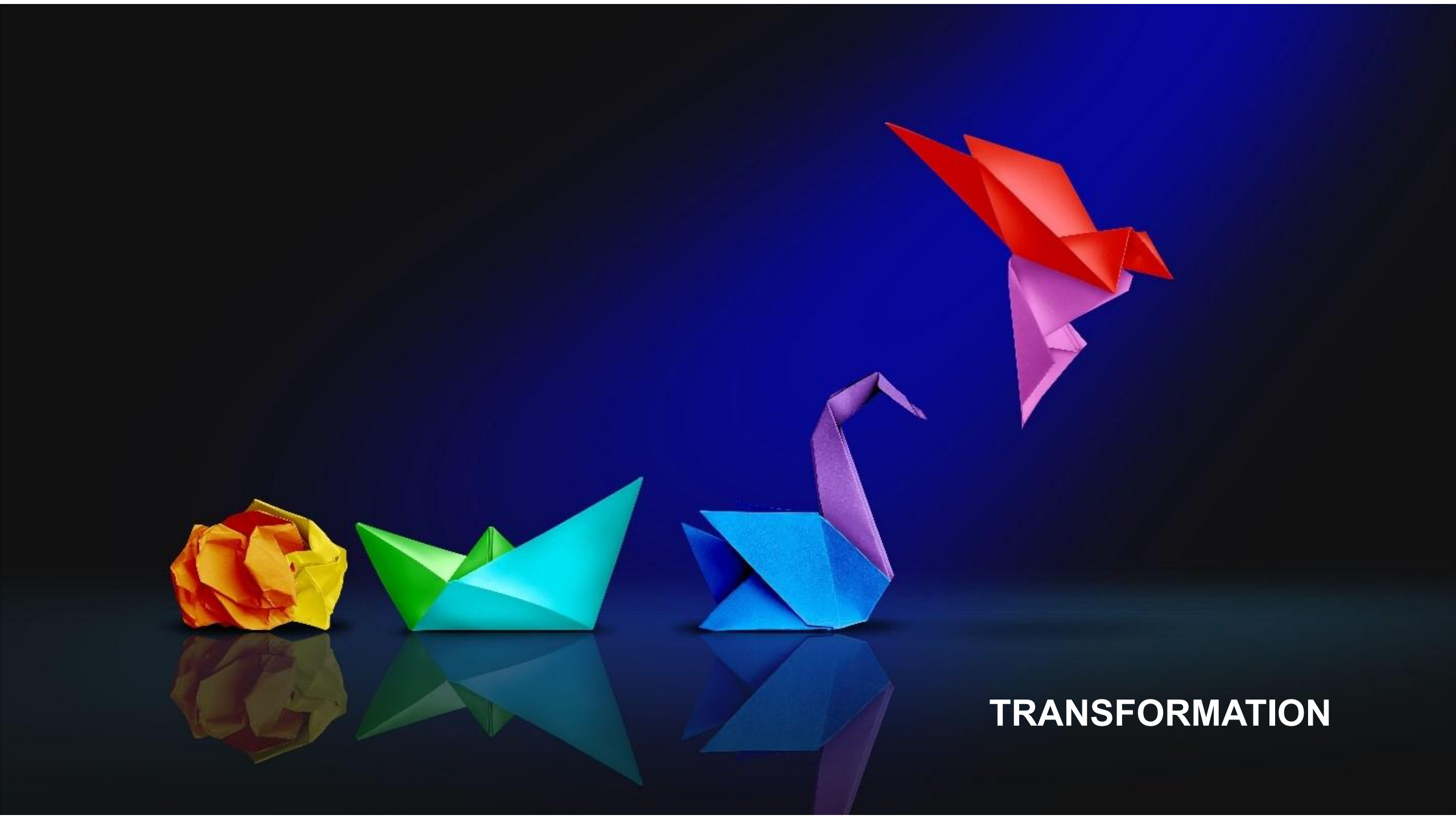
Do not forget the most important ...
our people in the Shopfloor

IAC Halewood, UK



- Modules
- AGVs
- Cobots
- Robots
- Machine learning
- Remote monitoring
- Data Analytics
- Digital Twins

Video


TRANSFORMATION

Hugo David Herrmann

Strategy & Transformation Management
Operational Excellence, Smart Factory,
Industry 4.0

hugo.herrmann@berlin.de

https://www.smartfactorynavigator.com/