



# Predictive Maintenance for Heat Treatment Furnaces

Dennis Miller, IVA Schmetz GmbH  
Head of Digital Service & IT  
[Dennis.Miller@iva-schmetz.de](mailto:Dennis.Miller@iva-schmetz.de)



# Agenda

1. Industrial (R)evolution
2. IVA Schmetz's Digital Story
3. Predictive Maintenance
  - i. What does it mean?
  - ii. Artificial Intelligence
  - iii. Benefits
4. Key takeaways



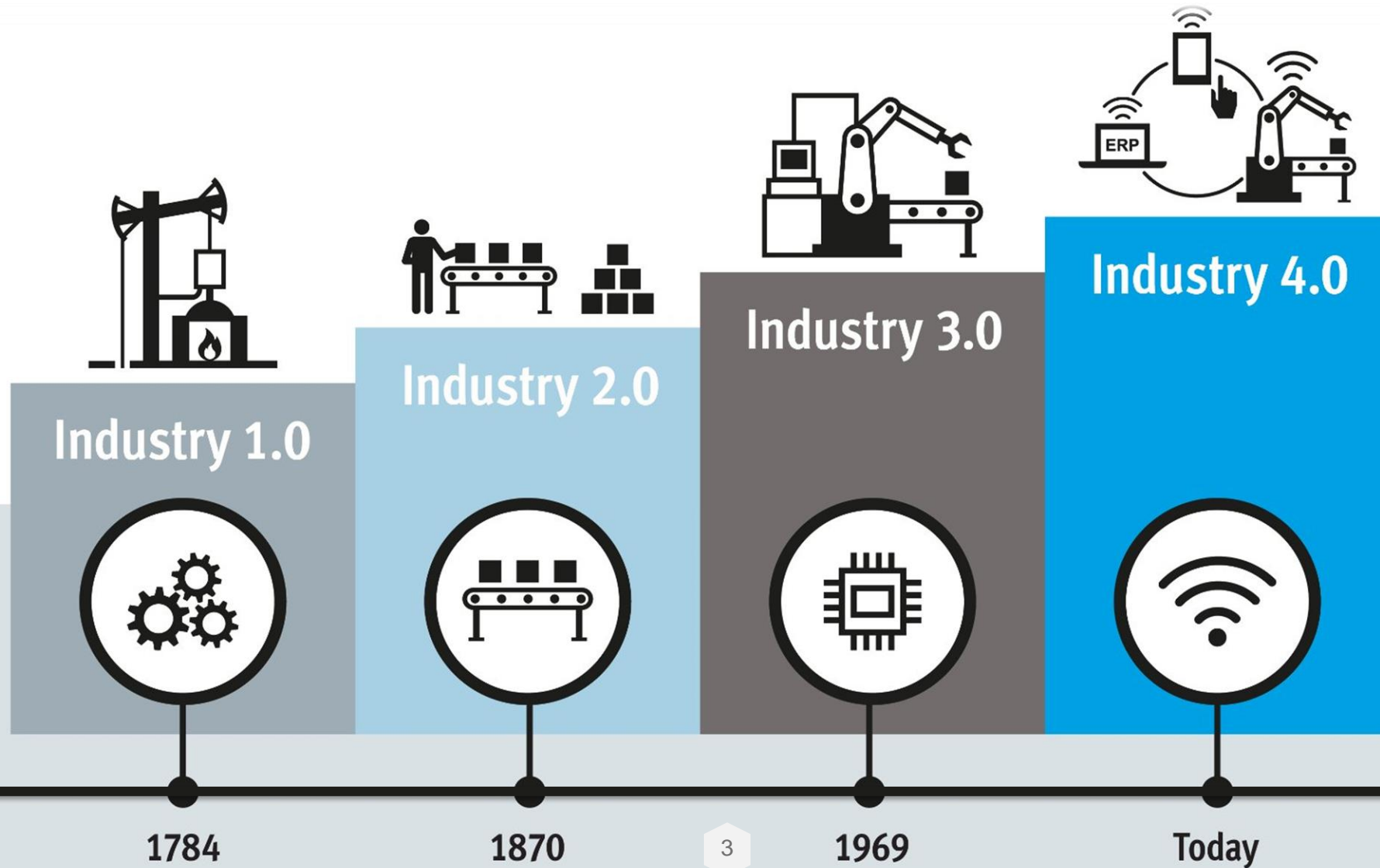
# Industry 4.0

## Introduction

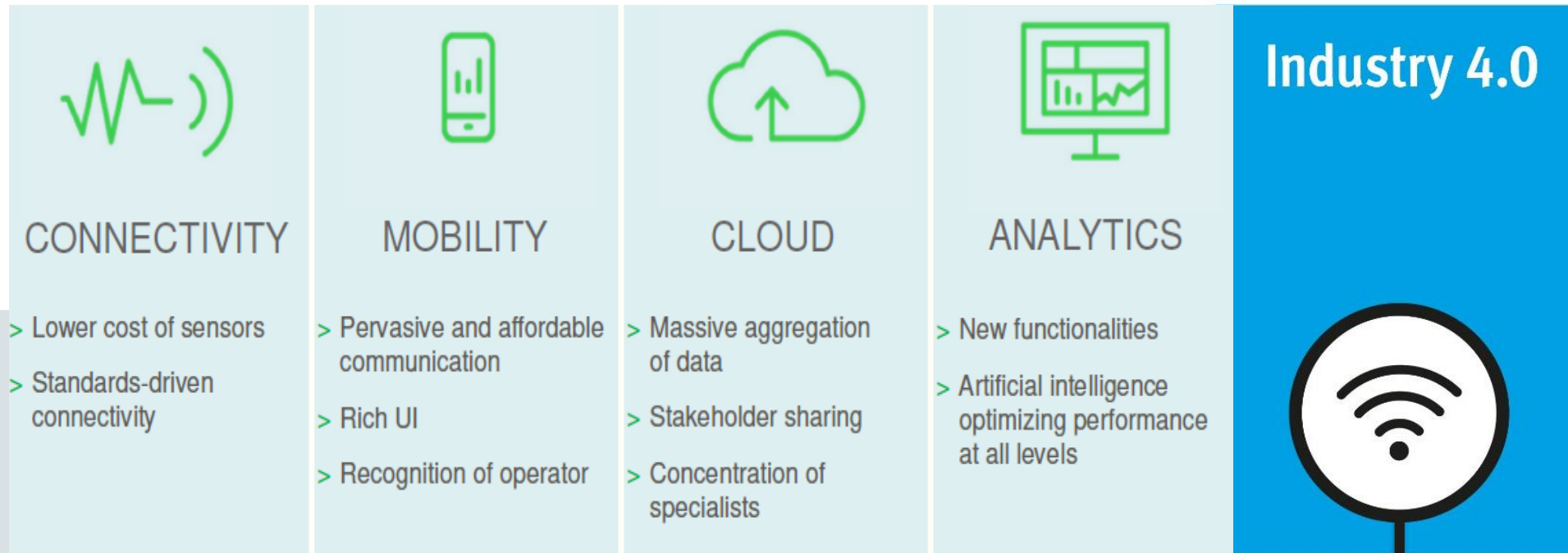




# Digital Transformation



# 4 pillars of Industry 4.0



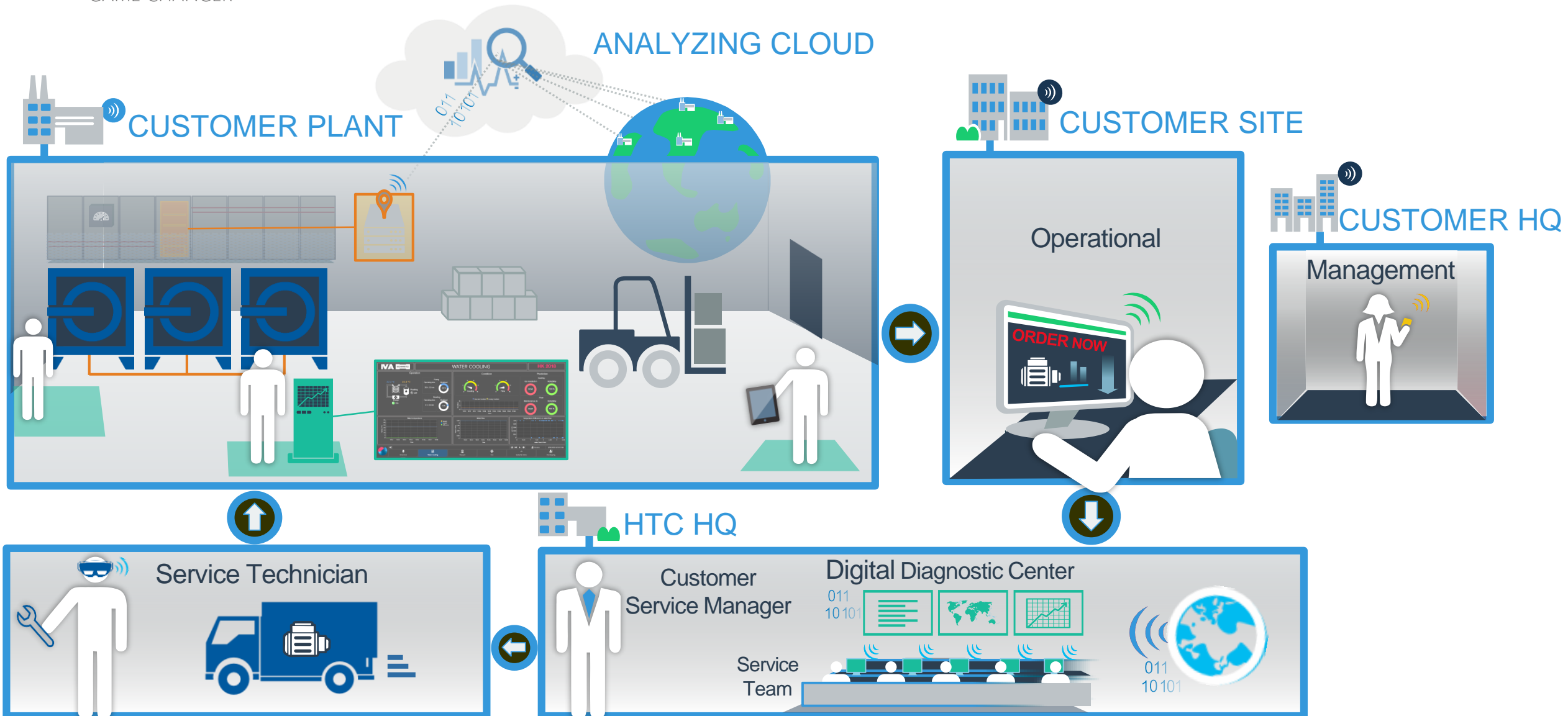
# Digital Story

of IVA Schmetz



# Predictive maintenance & remote assistance

GAME CHANGER





# Predictive Maintenance

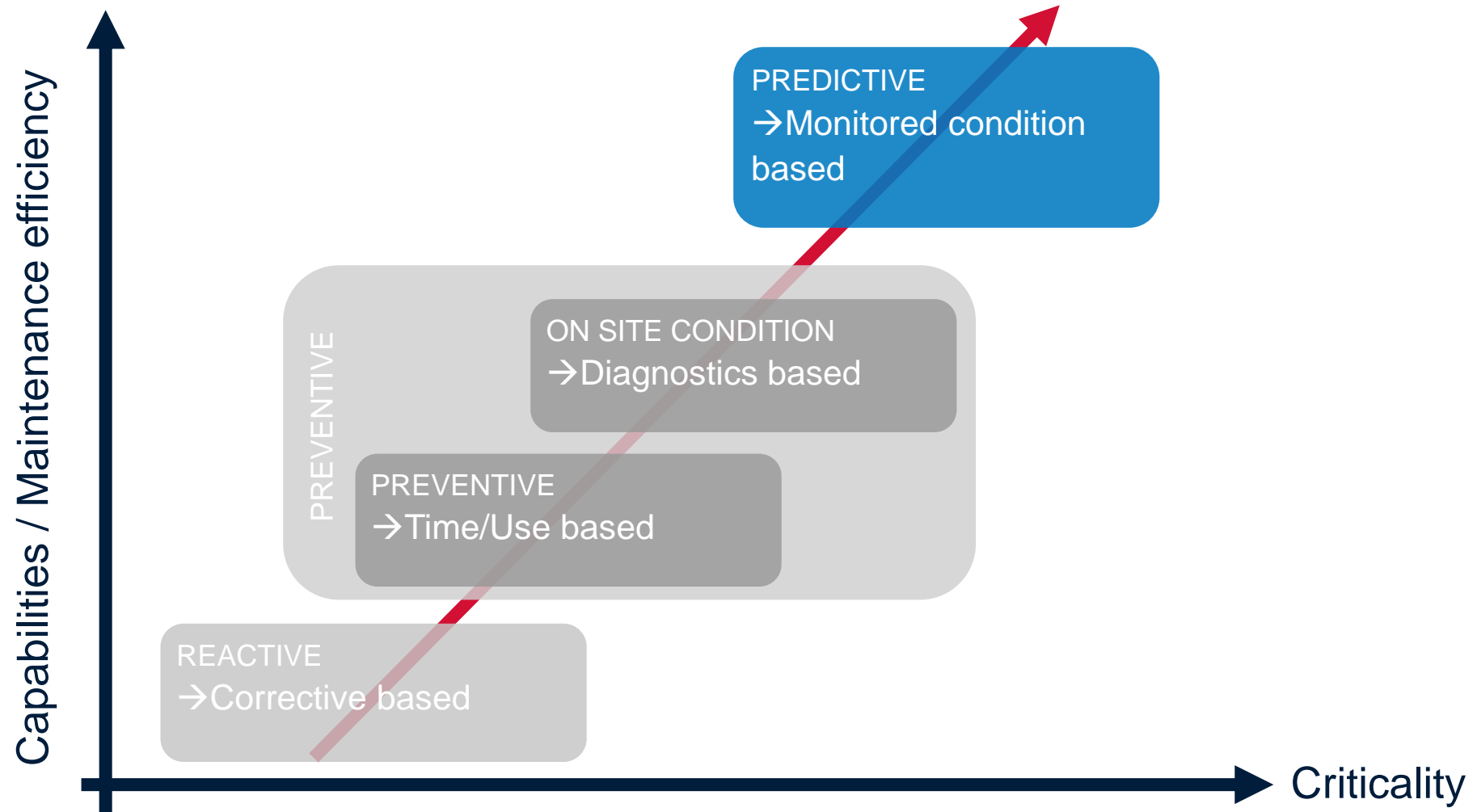
— What does it mean?





# What is Predictive Maintenance?

STAGES OF MAINTENANCE

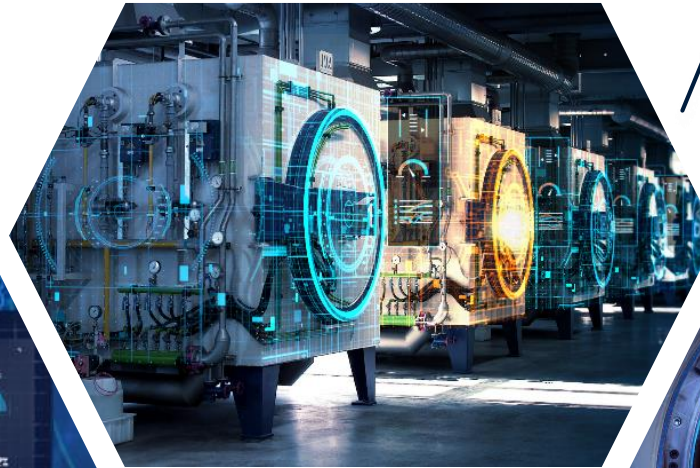


# Potentials

OF PREDICTIVE MAINTENANCE



Planability ↗



Downtime ↘



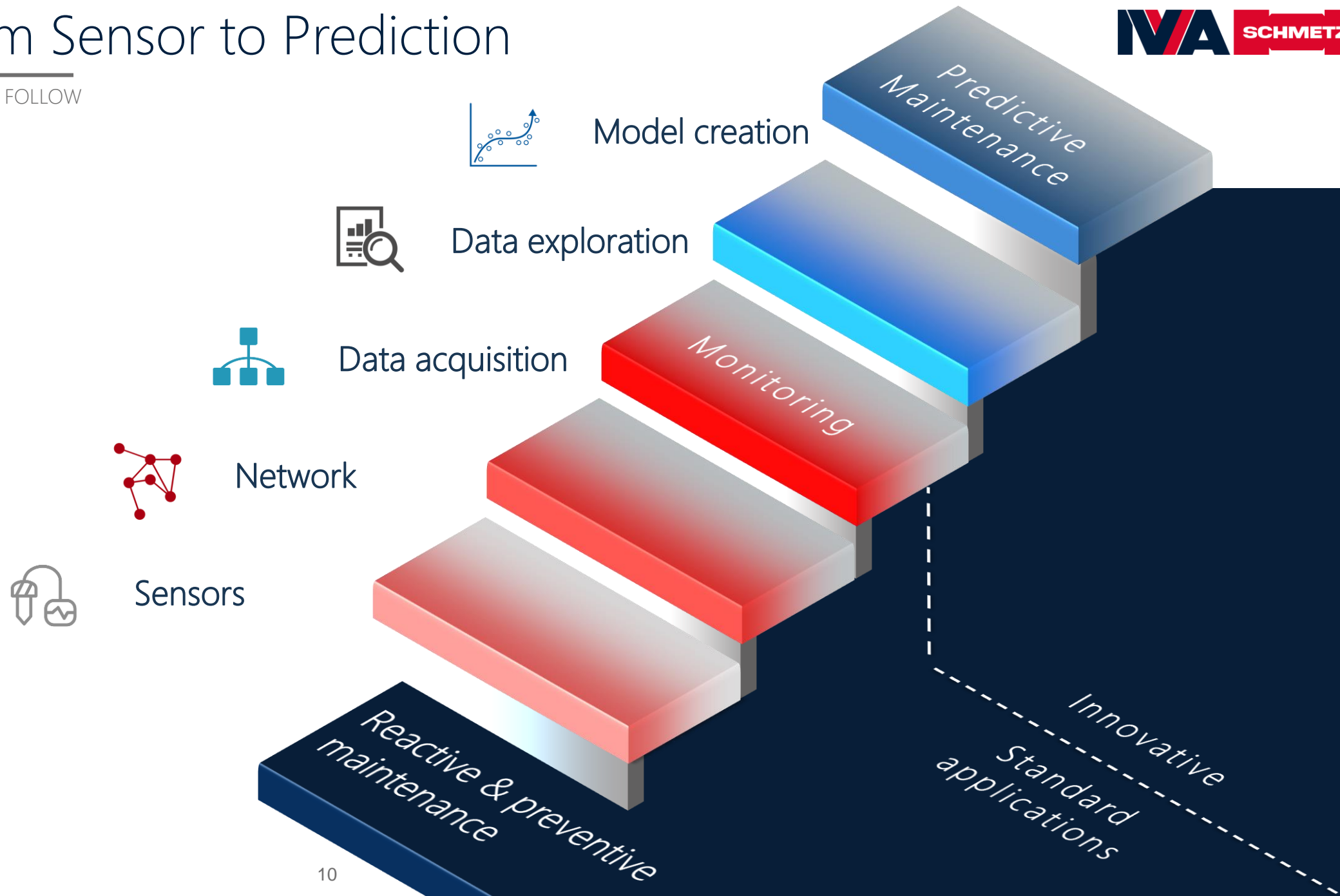
Transparency ↗



Costs ↘

# From Sensor to Prediction

STEPS TO FOLLOW





# Condition Monitoring

WHAT DATA IS COLLECTED



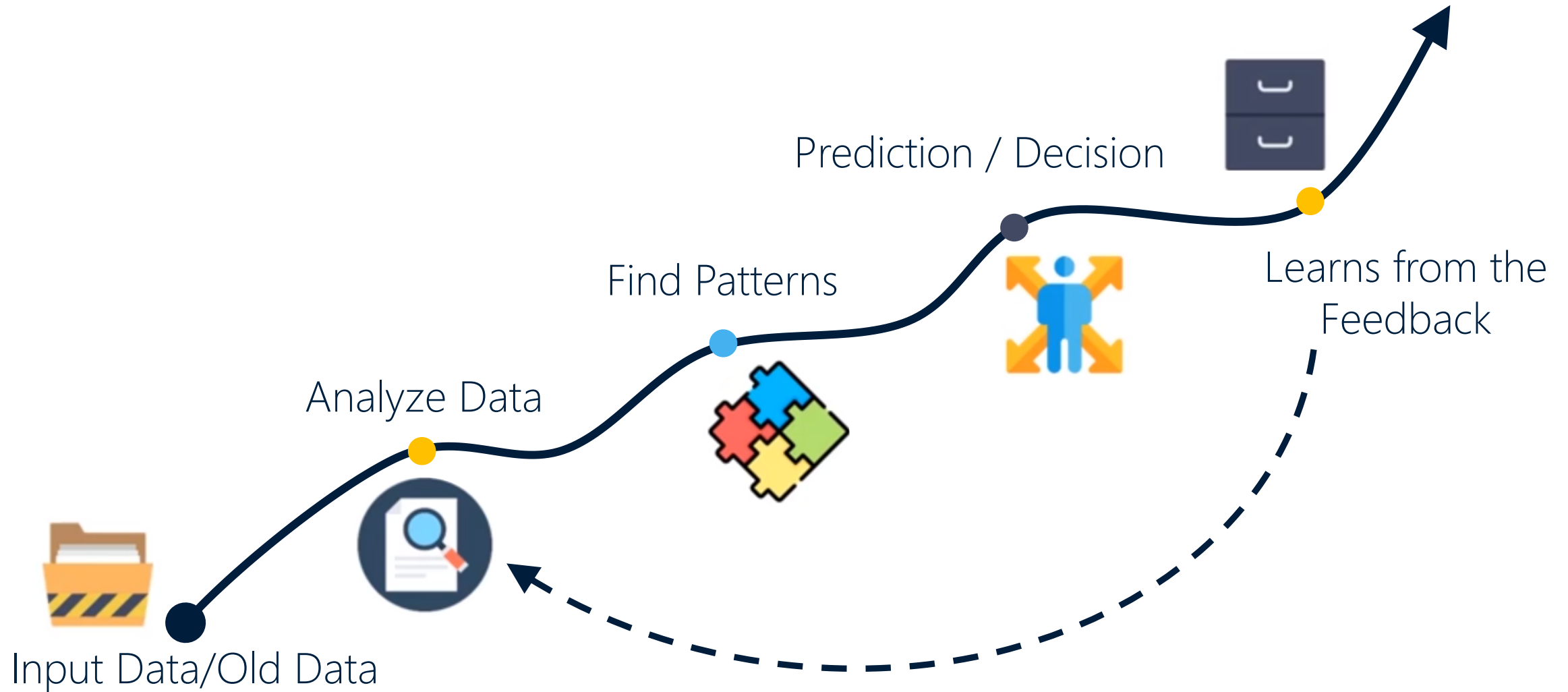


# Artificial Intelligence

Predictive Maintenance



# Machine learning process





# Machine Learning

THREE METHODS



Unsupervised Learning  
Non-labeled training data



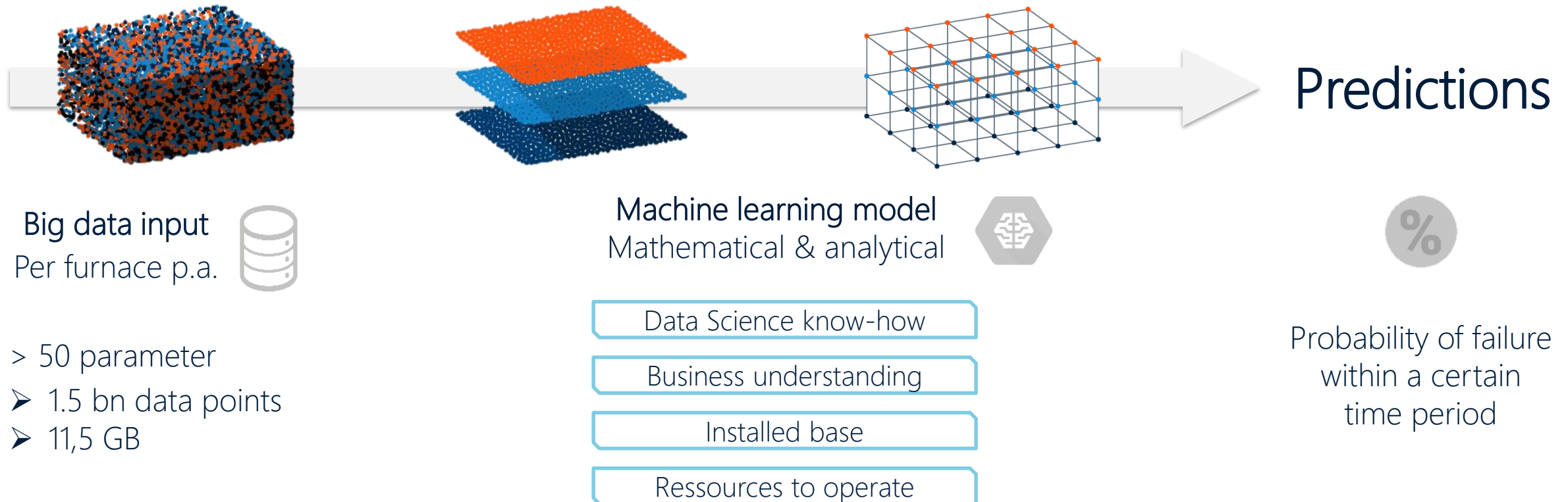
Supervised Learning  
The machine learns from  
the training data that is  
labeled



Reinforcement Learning  
The machine learns on  
its own

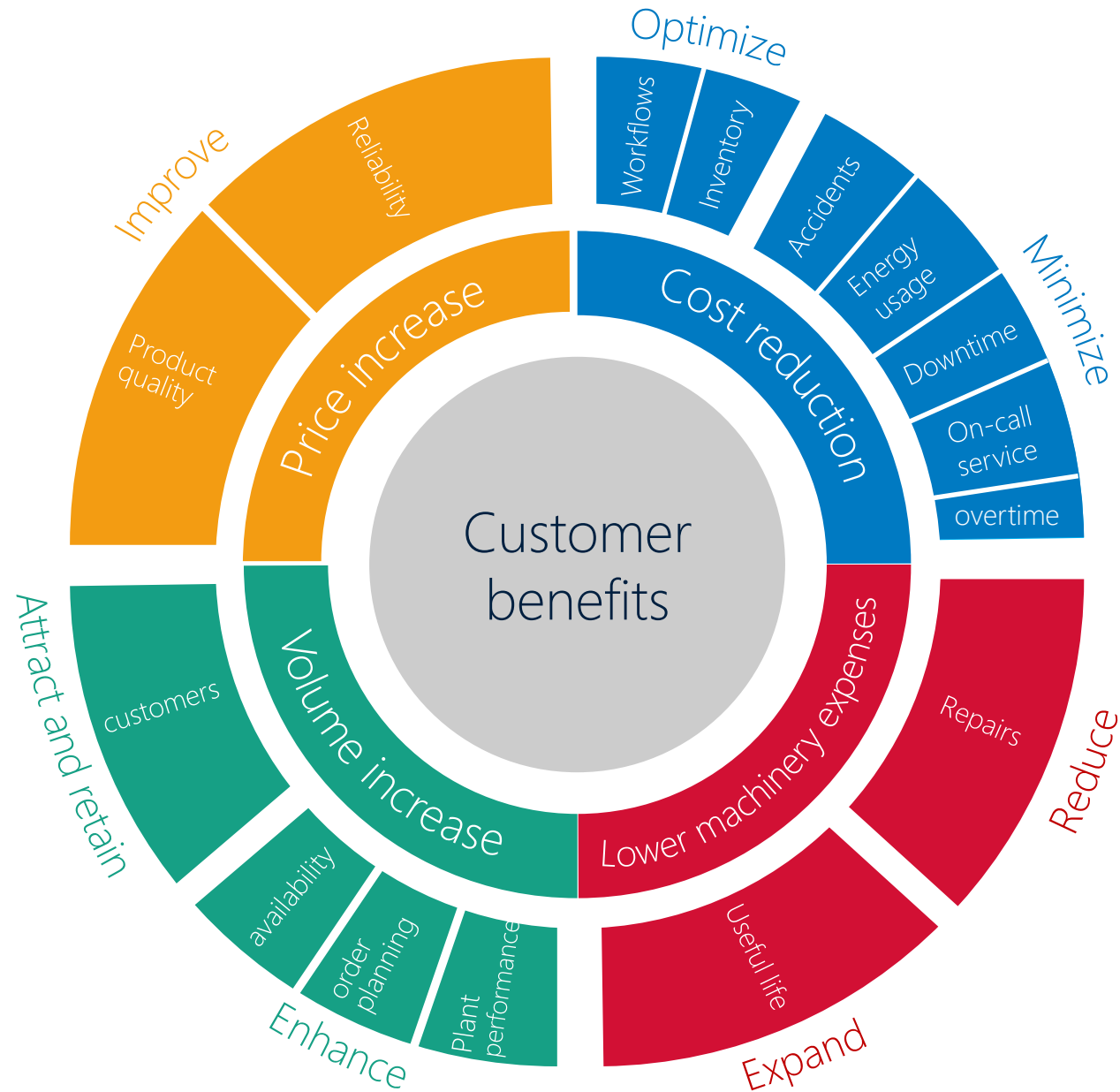
# Big data and analytical machine learning models

FOR SOPHISTICATED PREDICTIVE MAINTENANCE



# Ihre Vorteile

Predictive Maintenance





# Key takeaways

DIGITAL SERVICE



## Predictive Maintenance for

- # high availability
- # sustainability
- # cost cutting
- # plannability

## Machine Learning

releases the potential

Thresholds are not enough

No theory!

It's working

Industry 4.0 is around us

## Outlook

- # Support simply and transfer information with Mixed Reality
- # Integrate in Customer Portals

# IVA Schmetz Digital Service

CHALLENGES, SOLUTION, BENEFITS



## Challenges

- Maintenance and repair costs
- Downtime costs
- Manufacturing performance

## Solution

- Remote Condition Monitoring
- Predictive Maintenance to prevent issues
- Simple visualization of KPIs

## Benefits

- Increased availability
- Transparency & plannability
- Cost cutting



*I am convinced that it will be a game changer for the entire industry. [...] with Digital Service we have now achieved a breakthrough. The difference here is clearly made by artificial intelligence – Peter Lankes, CEO at IVA Schmetz*





Reliable and innovative products  
for the heat treatment industry

Dennis Miller

Head of Digital Service & IT

Mail: Dennis.Miller@iva-schmetz.de

Follow us online

<https://www.schmetz.de/>

or on

