

# *AI Suite for HYDRA X & FEDRA*

Artificial Intelligence (AI) in the Smart Factory



Do you actually know  
how **valuable your data** is  
– in monetary terms and with regard to information?  
Take advantage of **opportunities** in your Smart Factory  
from the wealth of your data!



**Artificial intelligence (AI)** makes this possible!



Motivation





"We collect an **awful lot of data** with our manufacturing IT, but I have this uneasy feeling that we do not make the **most of it**. How can **AI** help us in this undertaking?"

"Everybody is talking about artificial intelligence but **how can we benefit in production?** We will certainly not invest because it sounds so cool."

"Artificial intelligence sounds **innovative**, but I bet it's also **extremely complicated**, right?"

Your Issue

## The AI Suite for HYDRA X & FEDRA ...

- ... provides artificial intelligence in innovative standard applications.
- ... uses data that you already have or collect.
- ... can do without a data scientist.
- ... generates new insights in a flash.
- ... supports you in daily business routines to get even better.
- ... boosts your competitiveness.
- ... safeguards your future viability.



**Our Solution**



AI Planning

AI-based  
Setup Rate  
Analysis

Predictive  
Quality

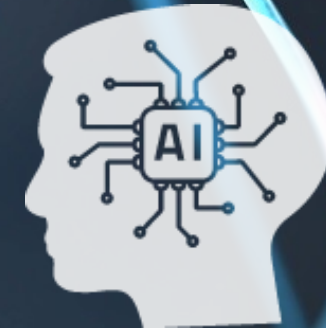
AI-based  
Capacity  
Utilization  
Analysis

AI-based  
Scrap  
Analysis

AI Workforce  
Planning

AI-based  
Resource  
Performance  
Account  
Analysis

AI-based  
Setup Time  
Prediction



## AI Suite for HYDRA X & FEDRA

Perfect production results need perfect planning!



## AI Planning



## Reduce production costs and increase on-time delivery!

- Automatically schedule orders, tools and other resources efficiently according to targets.
- Consider all boundary conditions (e.g. dependencies, bottlenecks of machines, ...).
- Set target values for optimization yourself.
- Get holistic planning results.

## Artificial intelligence at work

- Reinforcement Learning
- Optimization



AI Planning

# Counteract shortage of skilled labor!



## AI Workforce Planning



## Make optimal use of your available workforce!

- Schedule employees according to their qualifications in the best possible way.
- Automatically create deployment plans as accurate as possible.
- React quickly to changed conditions.

## Artificial intelligence at work

- Reinforcement Learning
- Optimization



# AI Workforce Planning



Realistic planning is only possible with realistic default values!



# AI-based Setup Time Prediction



## Avoid the "master data hell" and use realistic default values!

- Calculate production times (setup, cycle, ...) based on historical data.
- Analyze diverse influencing factors.
- Provide (automatic) planning with **realistic** default values.

## Artificial intelligence at work

- Unsupervised Machine Learning
- Pattern Recognition



# AI-based Setup Time Prediction

Only if you know where it's stuck, you can fix it!



# AI-based Capacity Utilization Analysis



## Understand correlations for fluctuations in capacity utilization!

- Analyze and recognize diverse influencing factors.
- Show and analyze developments over time.
- Take and validate measures.

## Artificial intelligence at work

- Unsupervised Machine Learning
- Pattern Recognition



# AI-based Capacity Utilization Analysis

Yes, setup times are unproductive, but can't be avoided!



## AI-based Setup Rate Analysis



## Understand correlations for high setup rates!

- Analyze factors influencing the setup rate.
- Optimize setup processes.
- Save time and costs.

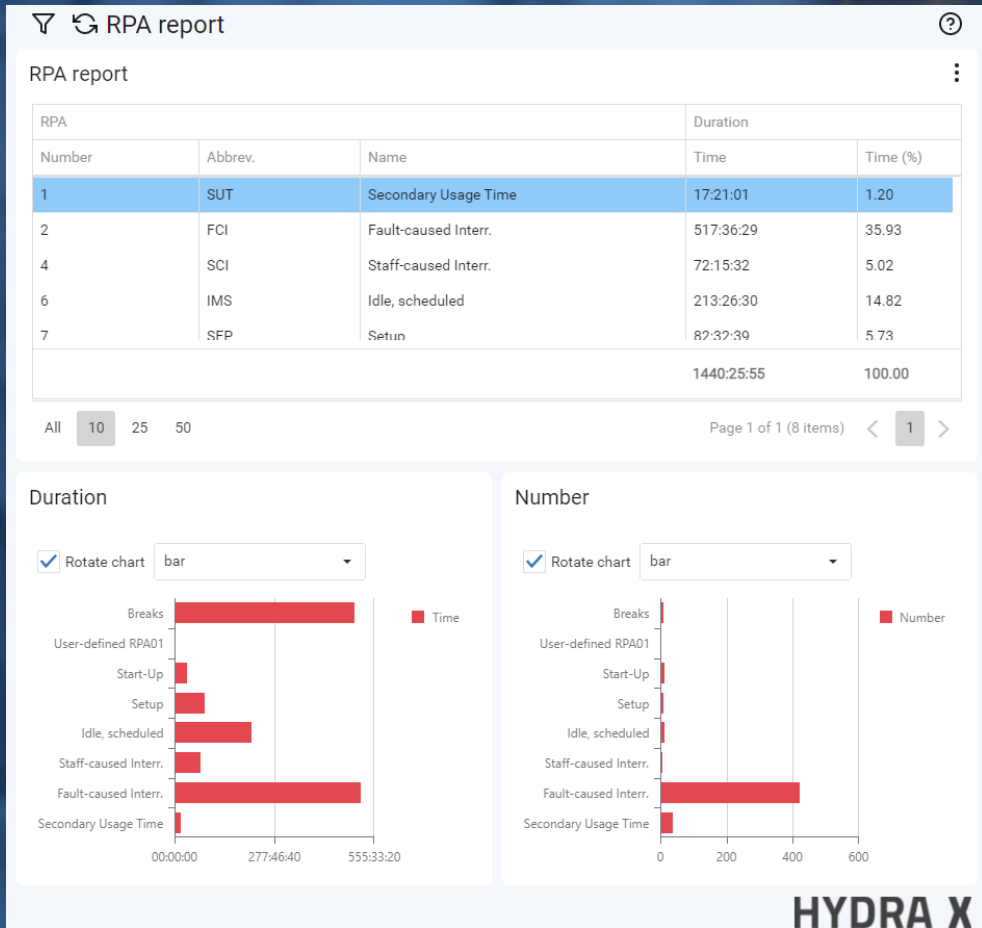
## Artificial intelligence at work

- Unsupervised Machine Learning
- Pattern Recognition



## AI-based Setup Rate Analysis

How, what, when and why – the more you know, the better it runs!



# AI-based Resource Performance Account Analysis

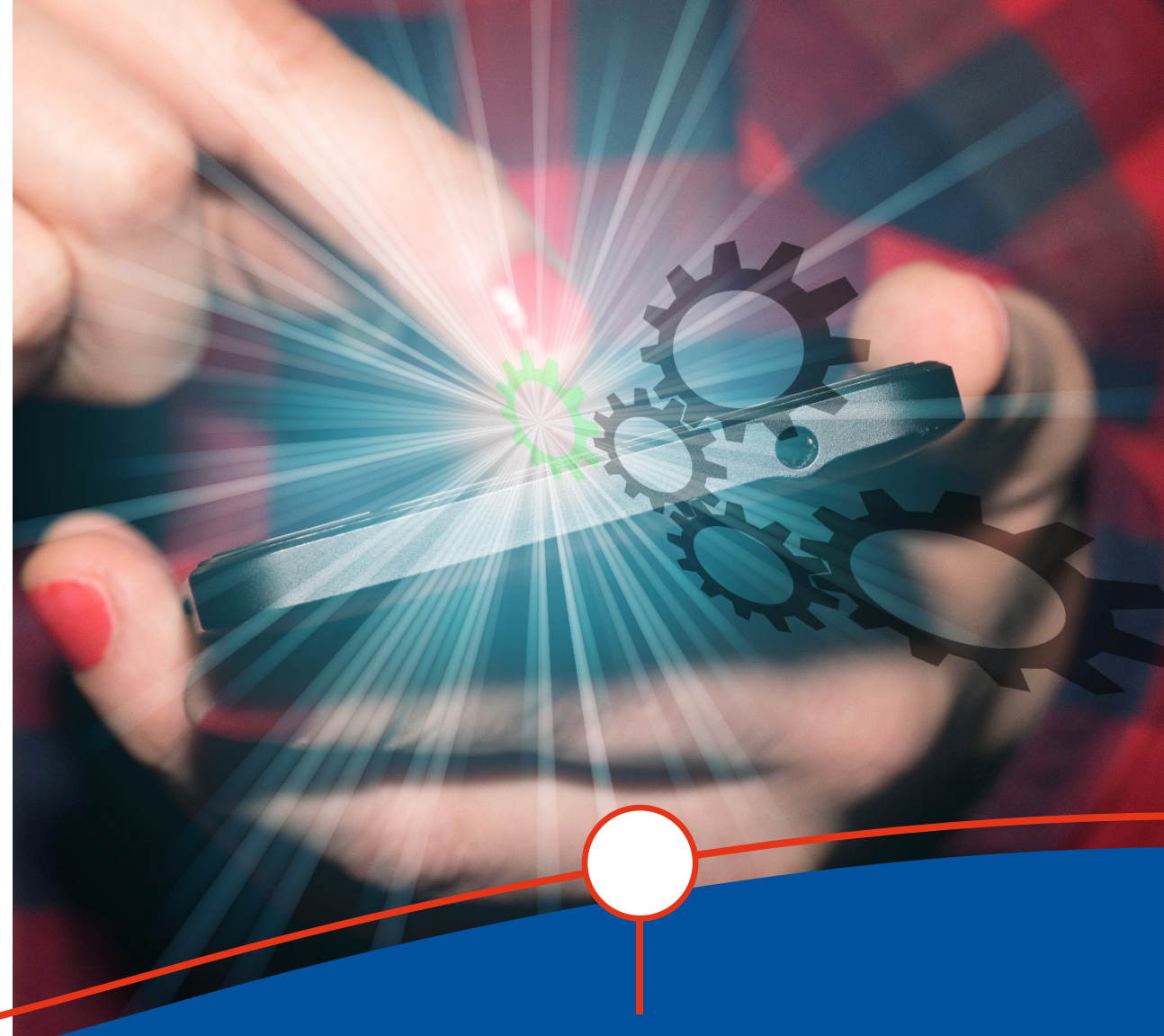


## Understand correlations why specific events occur!

- Uncover hidden dependencies.
- Recognize influencing factors and make them transparent.
- Reduce unproductive times.

## Artificial intelligence at work

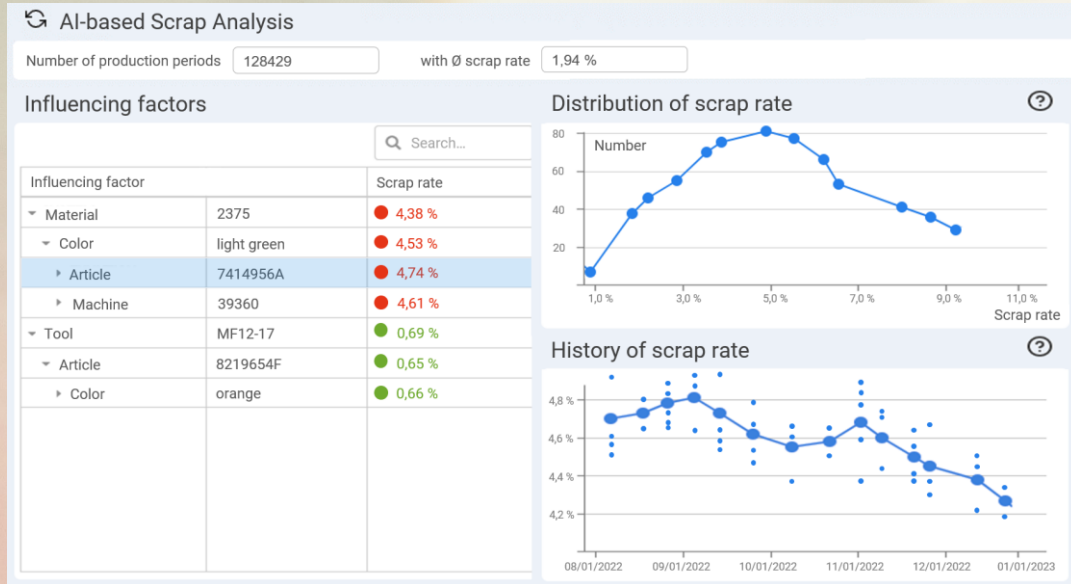
- Unsupervised Machine Learning
- Pattern Recognition



# AI-based Resource Performance Account Analysis



Learn from your mistakes and increase your quality!



# AI-based Scrap Analysis



## Understand the cause of scrap!

- Analyze diverse influencing factors.
- Recognize dependencies.
- Gain new insights and build knowledge.
- Gradually improve quality.

## Artificial intelligence at work

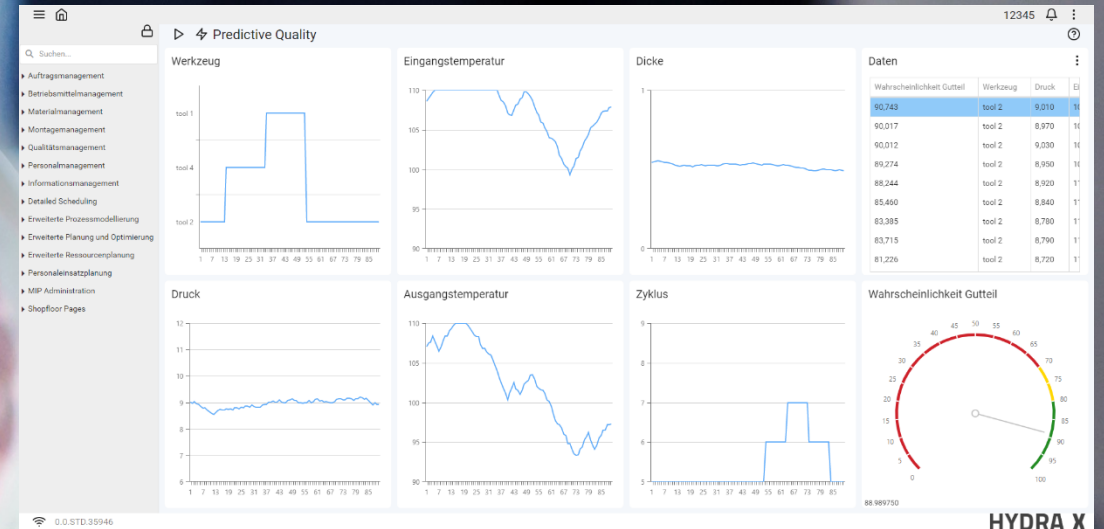
- Unsupervised Machine Learning
- Pattern Recognition



# AI-based Scrap Analysis

You can't predict the future? No worries – AI does it for you!

**PREDICTIVE  
QUALITY**



**Predictive Quality**

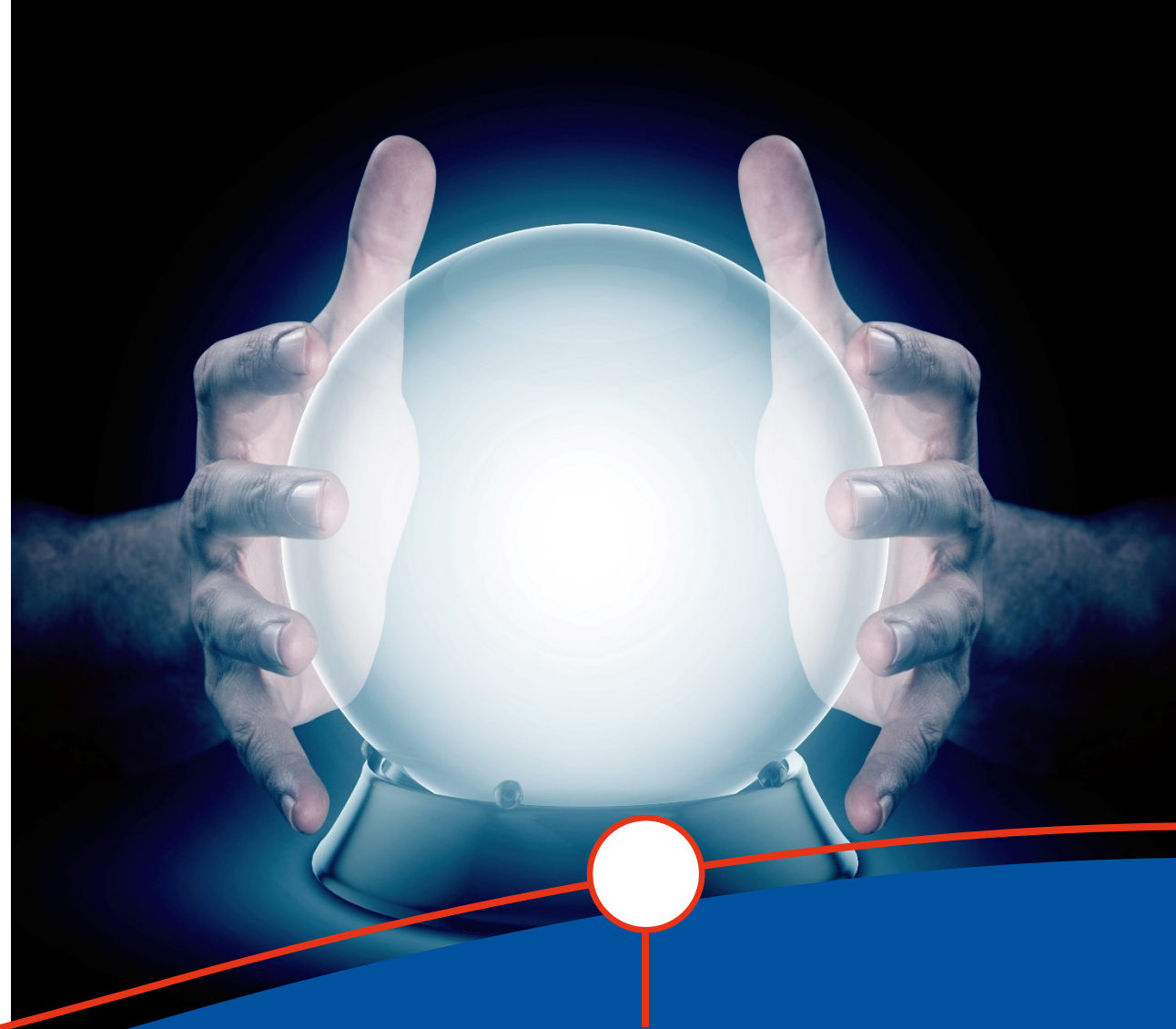


## Predict quality and evaluate workpieces without inspection!

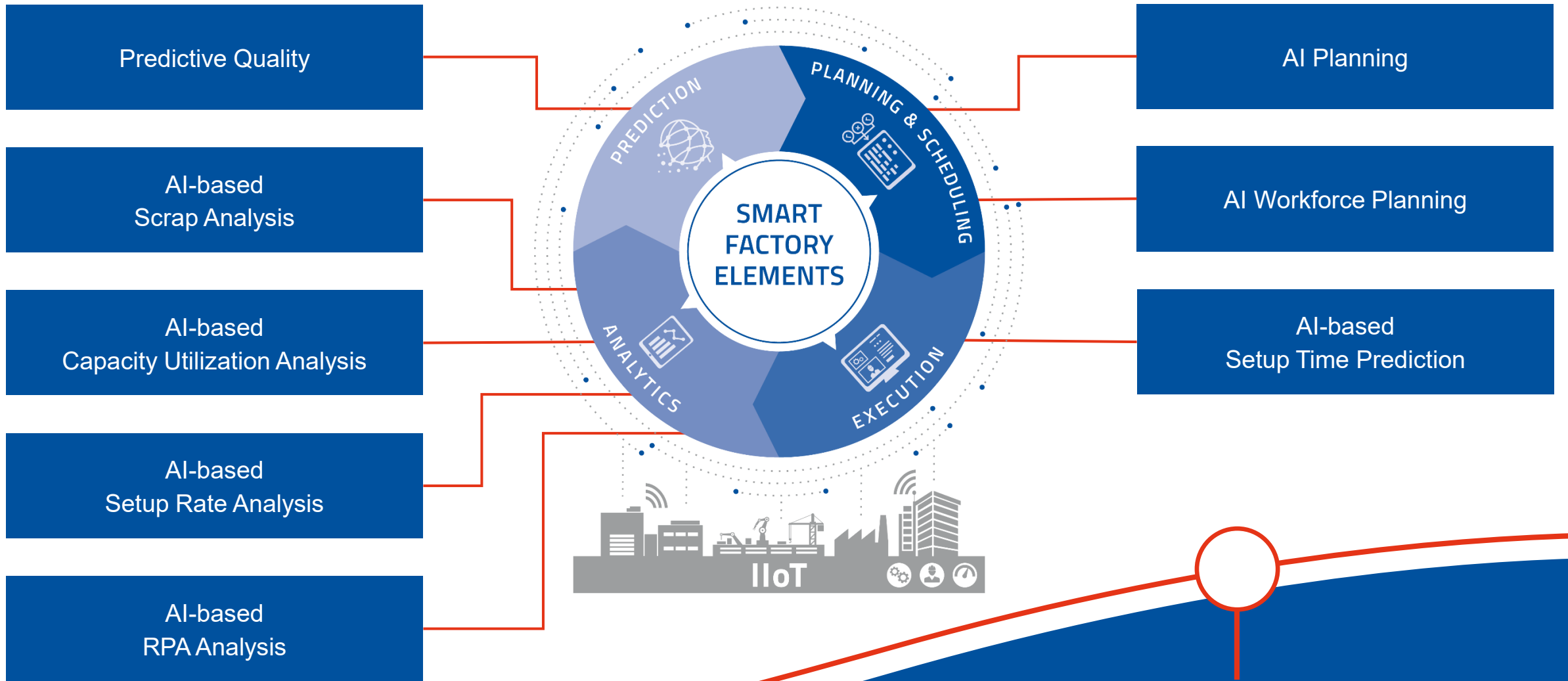
- Use historical process & quality data
- Evaluate quality of semi-finished products at an early stage.
- Evaluate products non-destructively.
- Reduce inspection efforts.

## Artificial intelligence at work

- Unsupervised Machine Learning
- Real-time prediction model



**Predictive Quality**



# AI Suite in the Control Loop of the Smart Factory



Profit from your **most valuable asset** – **your data!**

With the AI Suite for HYDRA X and FEDRA you  
safeguard your **competitiveness!**



**Profit Now!**

A photograph of a modern industrial building complex. The main building is white with blue accents and a large 'mpdv' logo on the side. To the right, a blue-roofed structure also features the 'mpdv' logo. In the foreground, there is a small pond and a paved area. The sky is blue with white clouds. A red line graphic runs across the bottom of the image, ending in a white circle.

## About MPDV

WE CREATE SMART FACTORIES







**520**  
employees



**13**  
locations  
worldwide



**45**  
years on the market  
& market leader for  
manufacturing IT



**1,100,000**  
people work with our  
solutions every day



**1,750**  
installation in  
different sectors



**73 Mio.**  
Euros group turnover

## MPDV Group in Numbers

Would you like to find out more about  
the AI Suite for HYDRA X and FEDRA?



*WE CREATE SMART FACTORIES*



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