

# **SIMATIC PCS 7 V9.1**

## **Room for New Perspectives**

### **in Process Automation**

# Industry - Chemical

## Growth Forecast

 Growth ~ 11% to 12% CAGR

## Market Dynamics, Key Trends & Drivers

## Growth Forecast

 Growth ~ 9% to 10% CAGR

### Segment - Market Summary

#### Food & Beverages

- F&B Sector's contribution is ~3% to India's GDP and growing with CAGR of 11%-12%. Current level of food processing to total agricultural produce stands at 10%. GOI has set target to increase the share to 25% by 2025-26.
- FMCG Sector growing at 14.9% CAGR and valued at US\$ 110Bio. Expected to value at US\$ 220Bio by 2025-26.
- Positive Focus on F&B Market Development through various Govt. Initiatives
- The govt. has also announced a PLI scheme for the food processing sector with an incentive outlay of Rs 10,900 crore over a period of six years from FY22.

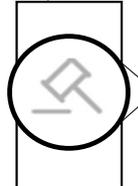
#### Levers :



**Growing Demand**  
Rising digital connectivity in cities and rural areas is driving the demand for FMCG (through e-commerce portals).



**Opportunities**  
Make in India Initiatives  
11K Crore PLI scheme for Organized Sustainable supply chain



Simplified tax structure after GST.  
FSSAI more active  
100% FDI permitted.



Young Population. Growing demand for new & innovative products.  
Growing Rural demand..

#### Pharma

- India is the largest provider of generic drugs globally and is known for its affordable vaccines and generic medications. The Indian Pharmaceutical industry is currently ranked third in pharmaceutical production by volume after evolving over time into a thriving industry growing at a CAGR of 9.43%
- Low cost of production and R&D boosts efficiency of Indian pharma companies, leading to competitive exports.

#### Levers :



**Cost Efficiency**  
Low cost of production and R&D



**Opportunities**  
Economic growth along with increasing penetration of health insurance  
Local requirement of 2<sup>nd</sup> largest population country



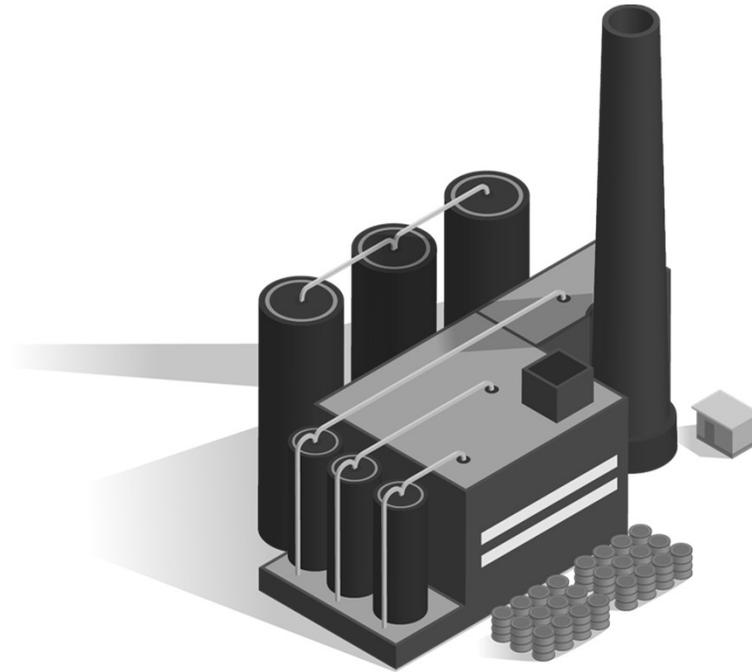
**Policy Support**  
PLI Scheme of Rs. 197,000 crore



**Increasing investment and spendings.**  
-Healthy FDI Inflow

# Challenges

in the process industry?

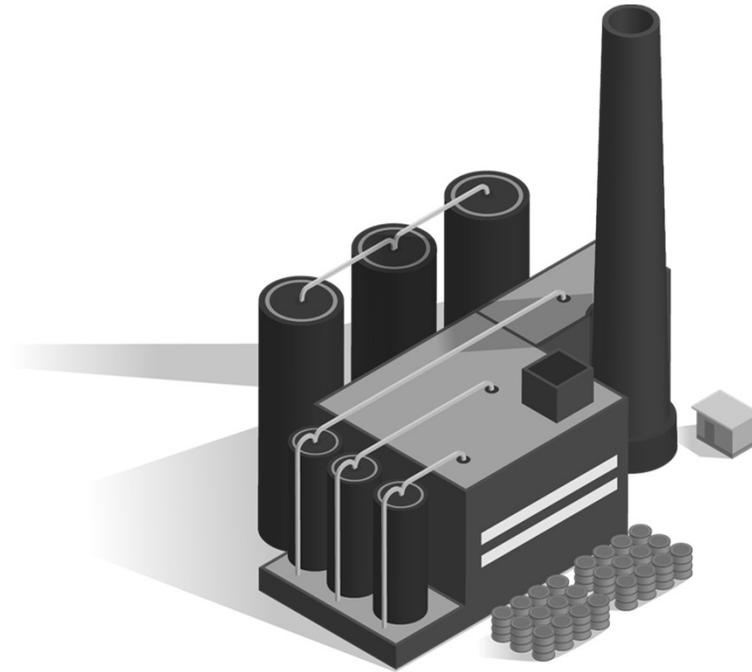


# Challenges

in the process industry?



Fast commissioning

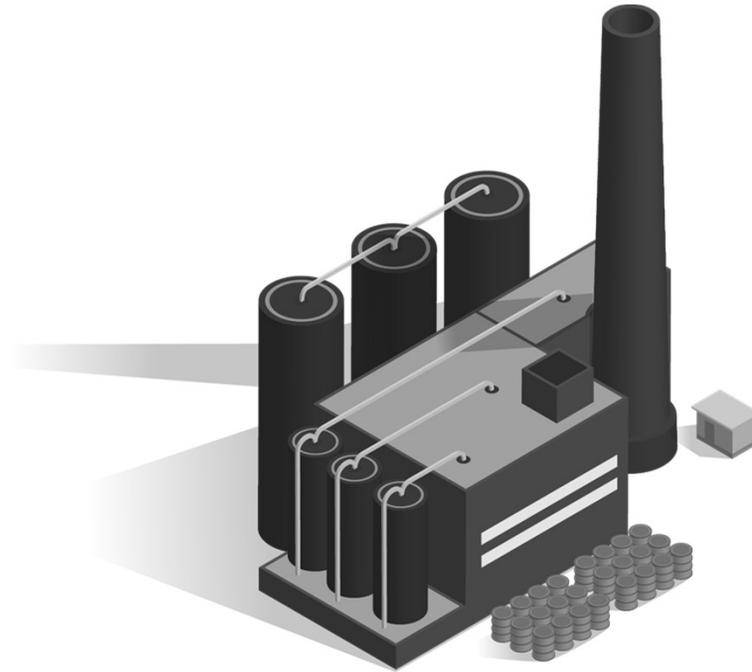


# Challenges

in the process industry?



Uninterrupted  
operation

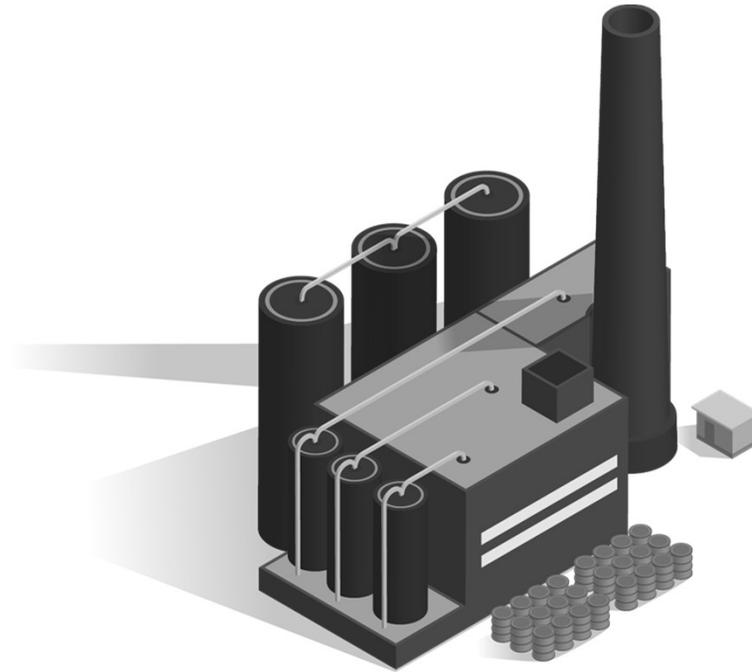


# Challenges

in the process industry?



Effective condition  
assessment

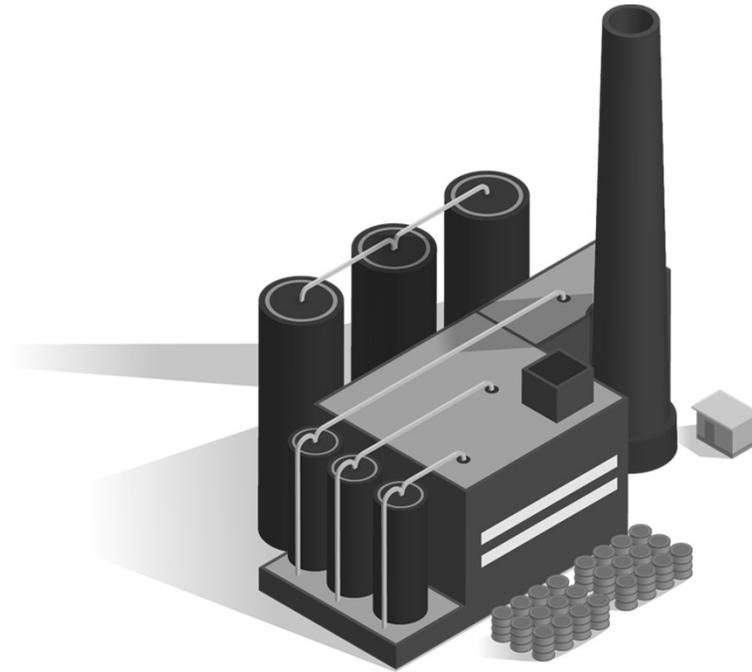


# Challenges

in the process industry?



Investment protection

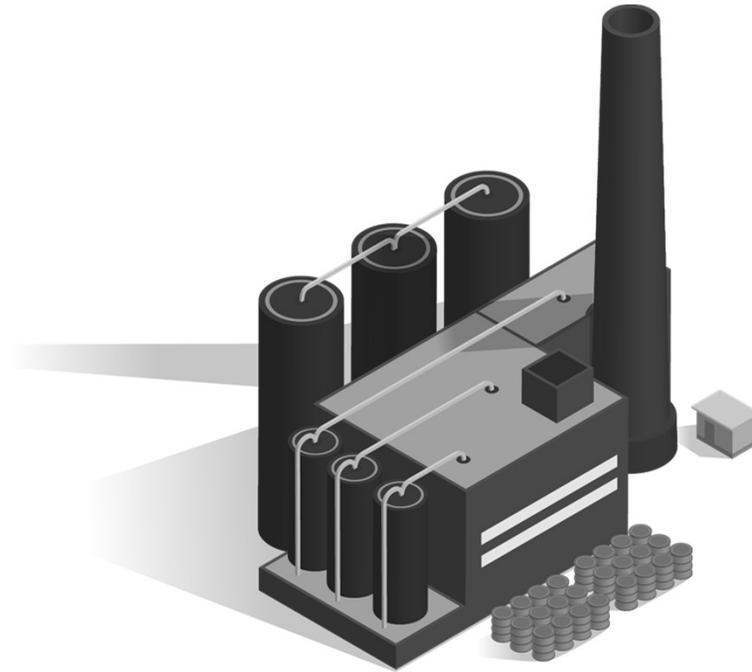


# Challenges

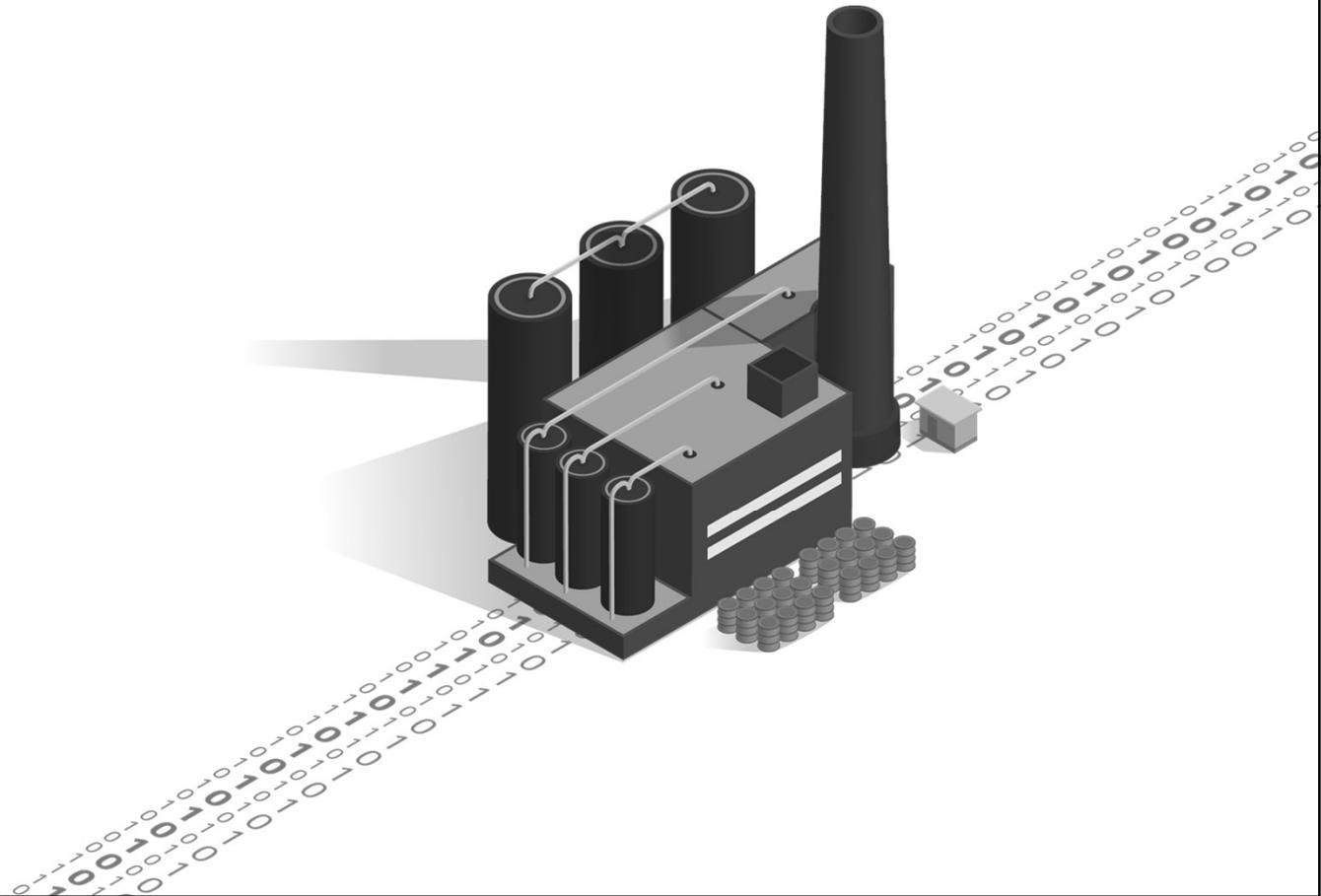
in the process industry?



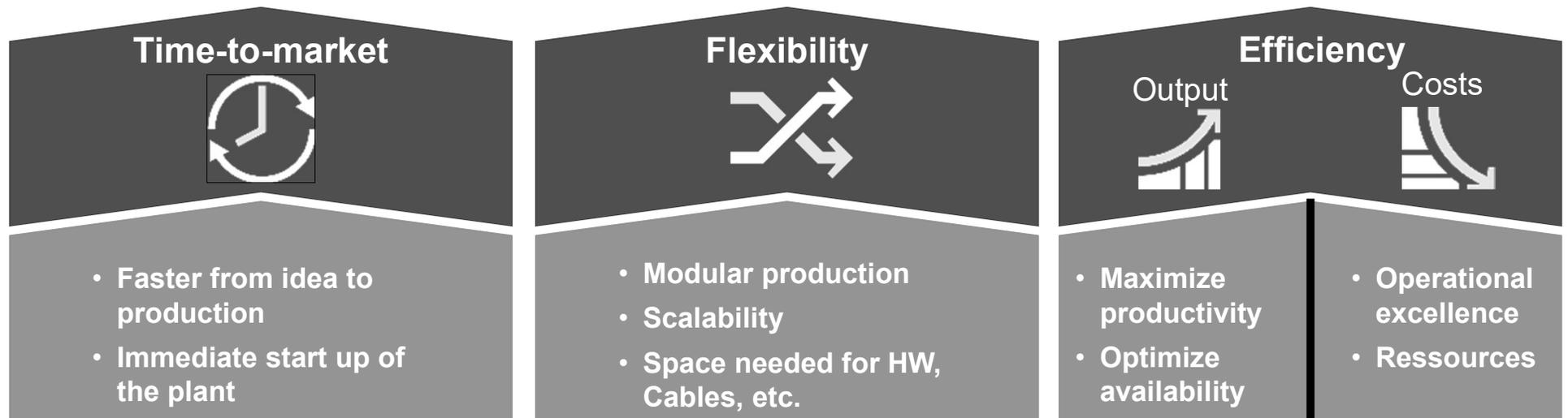
**Flexibility**



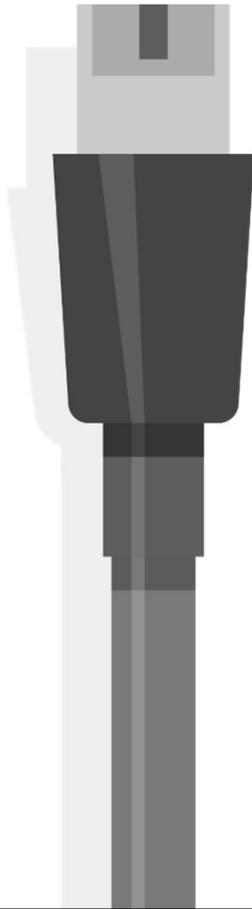
Digitalization is the answer!



## Digitalization is the answer!



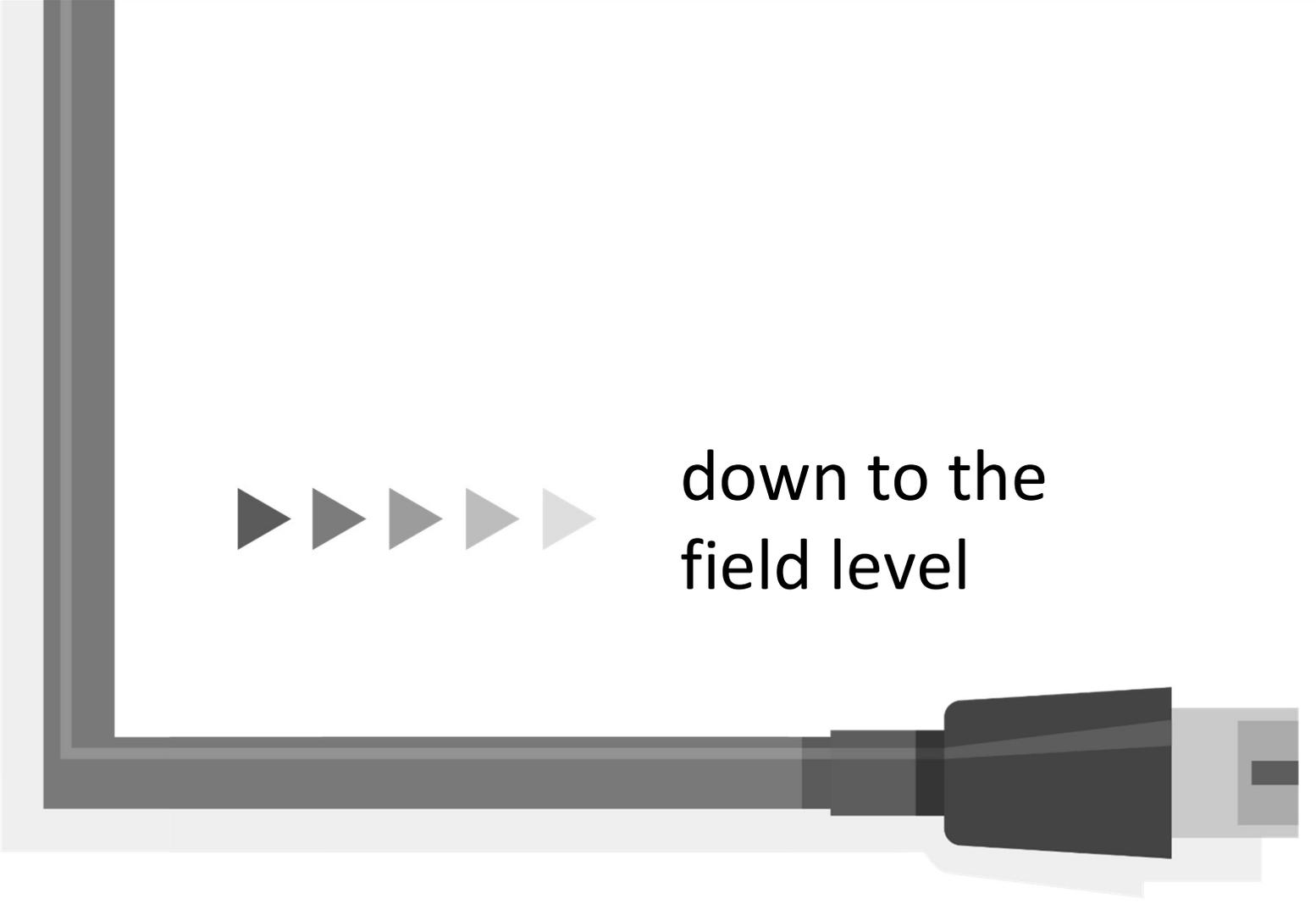
- **Long plant lifecycle** (> 30 years) with a highly **fragmented data landscape**
- **Continuous, safe and reliable plant operations**
- **Brownfield** projects (modernization or expansions) gain importance
- **Lack of highly educated staff and „Digital Natives“** as the next generation



**PROFINET –  
the enabler  
of digitalization**

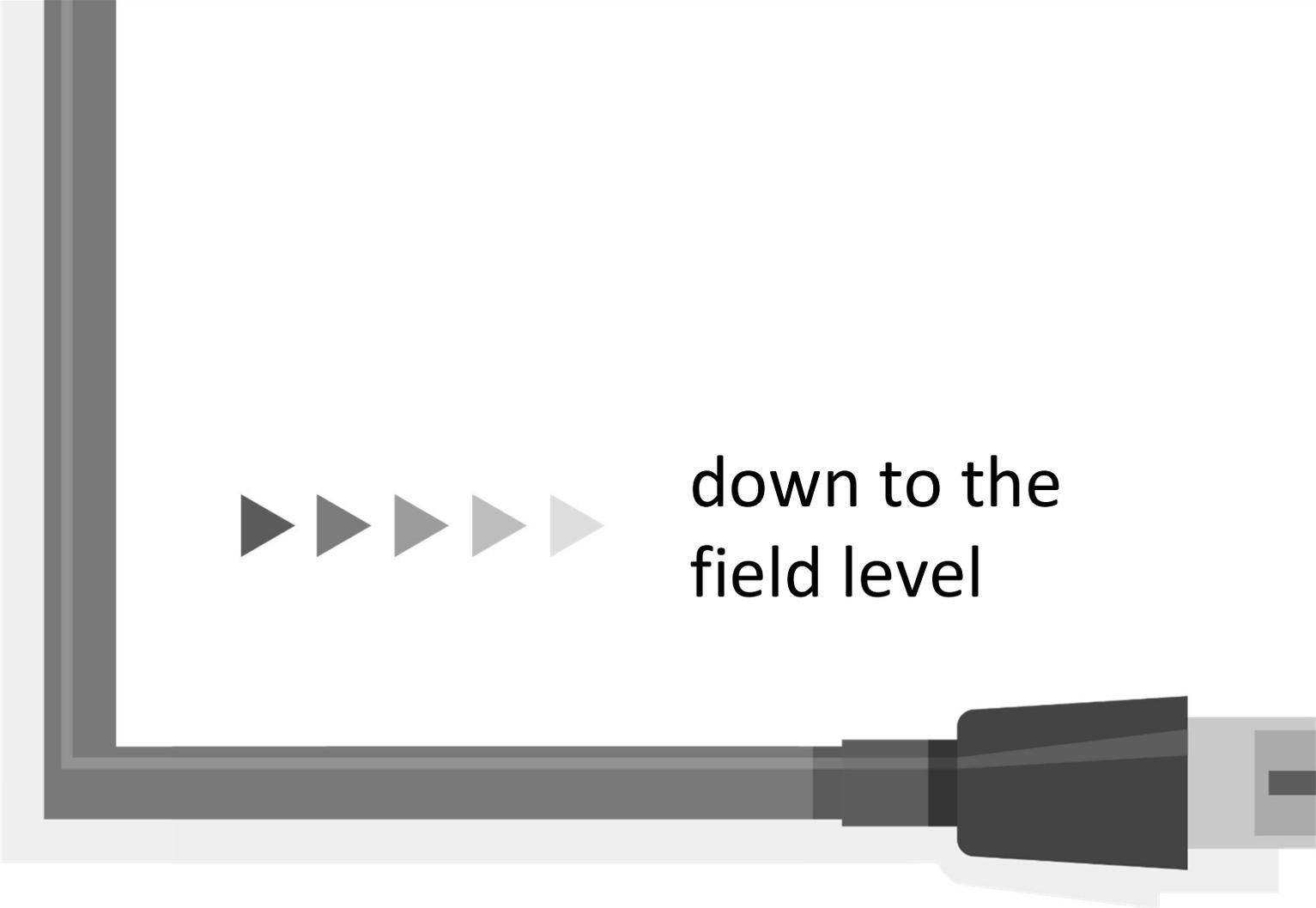


down to the  
field level



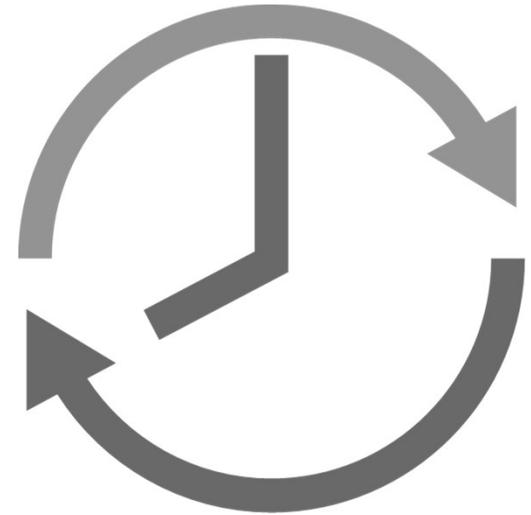


down to the  
field level

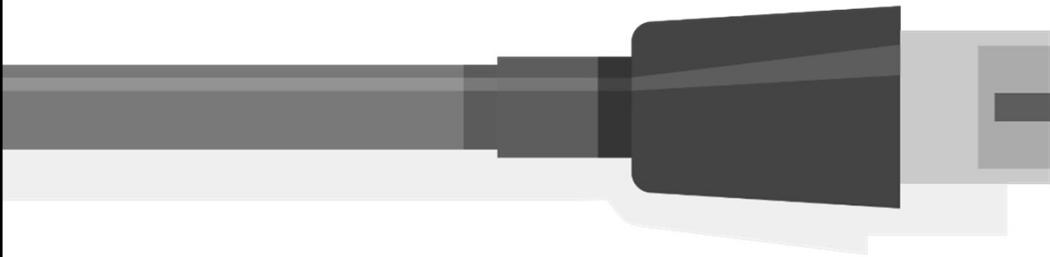


# PROFINET

provides powerful communication

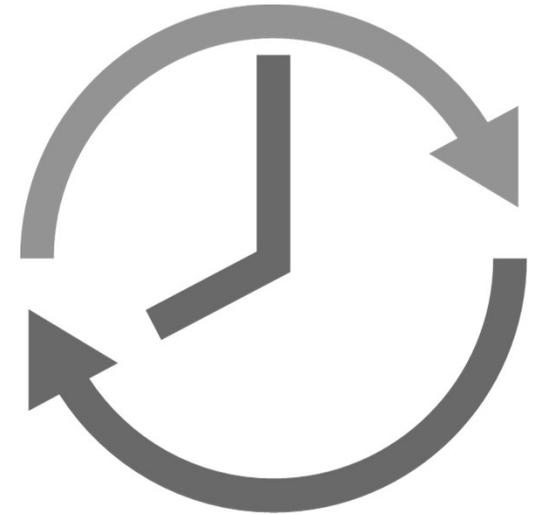


in real-time

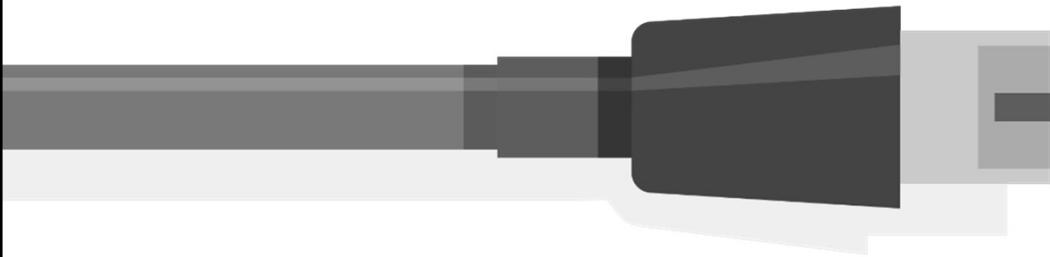


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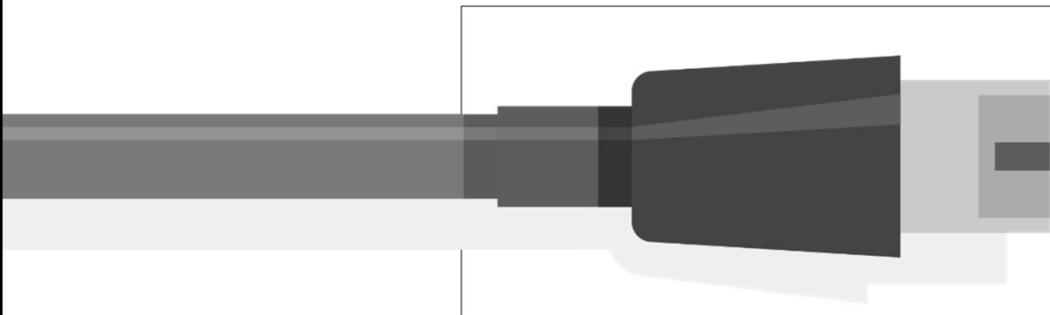
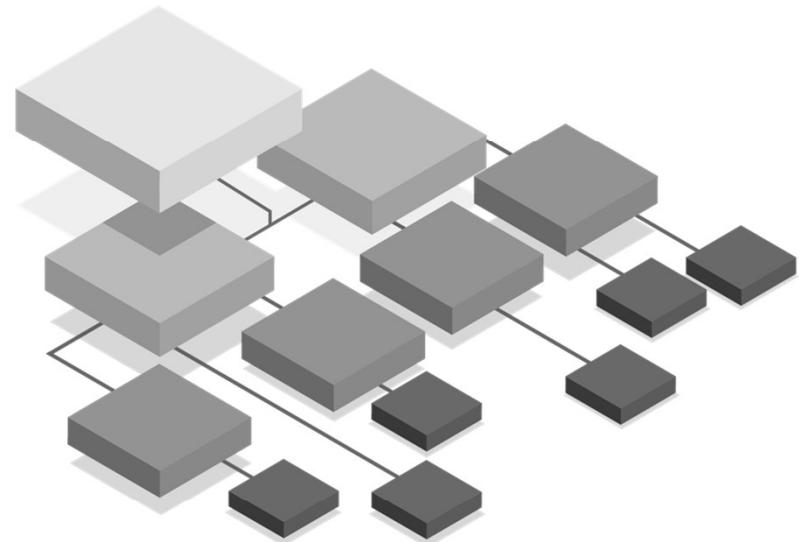


in real-time



# PROFINET

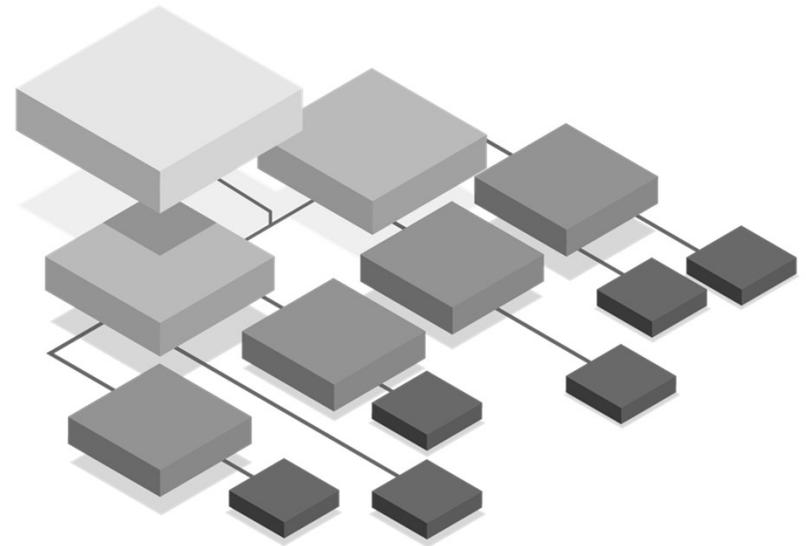
provides powerful communication



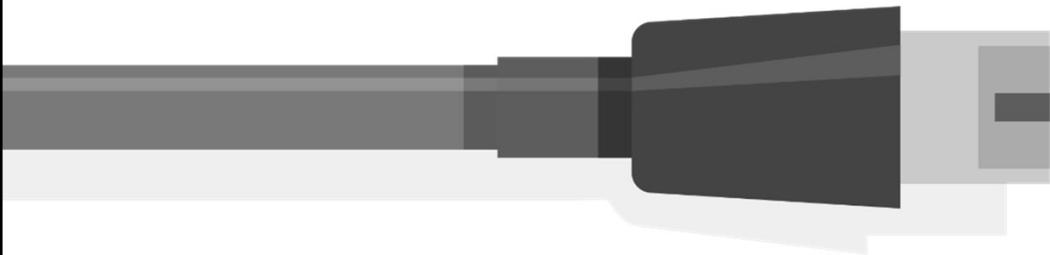
Flexible, high-performance, and scalable  
**network structures**

# PROFINET

provides powerful communication



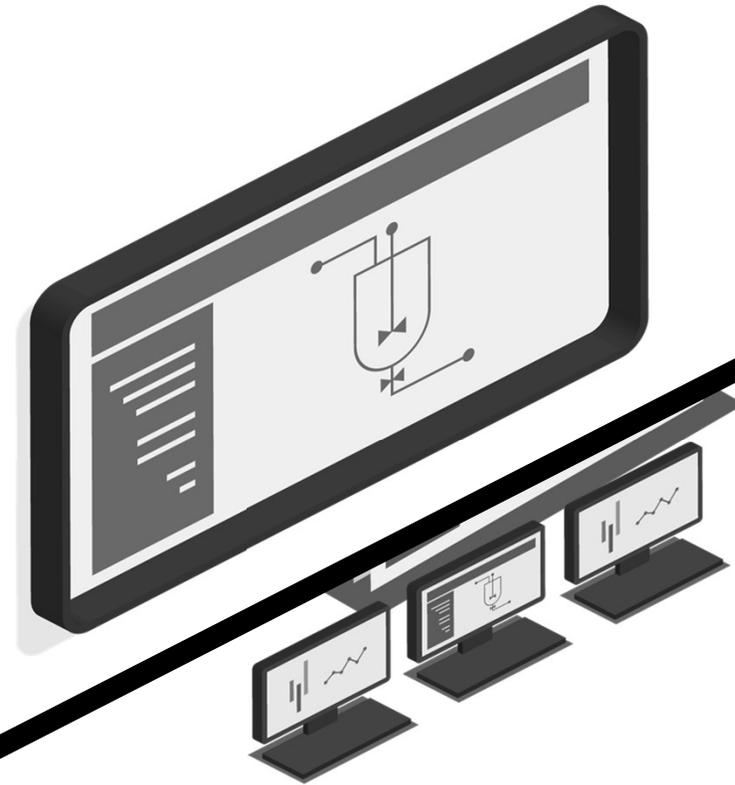
Flexible, high-performance, and scalable  
**network structures**



SIMATIC PCS 7 V9.1

# Room for new perspectives

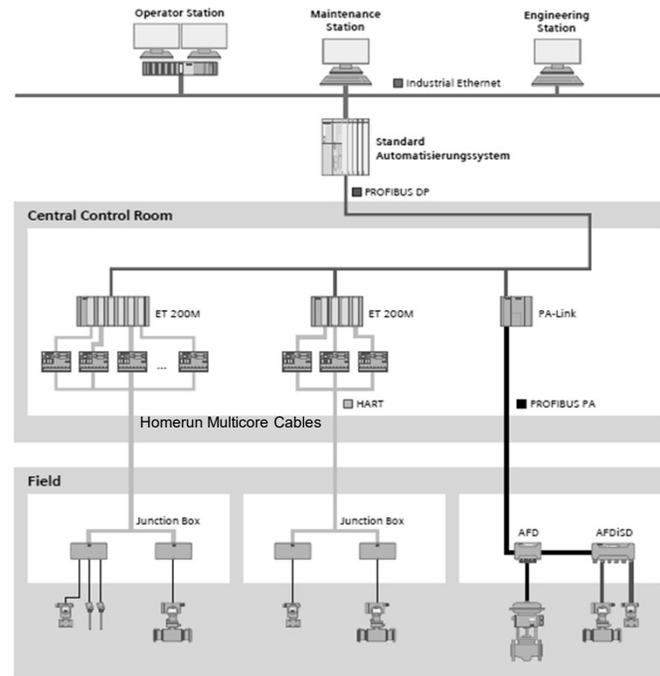
in process automation



## Overcoming the limitations of the traditional I/O approach

Various components required  
Spares need to be prepared  
(e.g. for plant expansion)

Extremely rigid project execution  
High effort of field device integration



Large number of cabinets – Each customer engineered  
Marshalling cabinets required to simplify field wiring

Large number of copper cables and terminations  
Fault-prone wiring:  
Full HW-FAT required to validate assembly

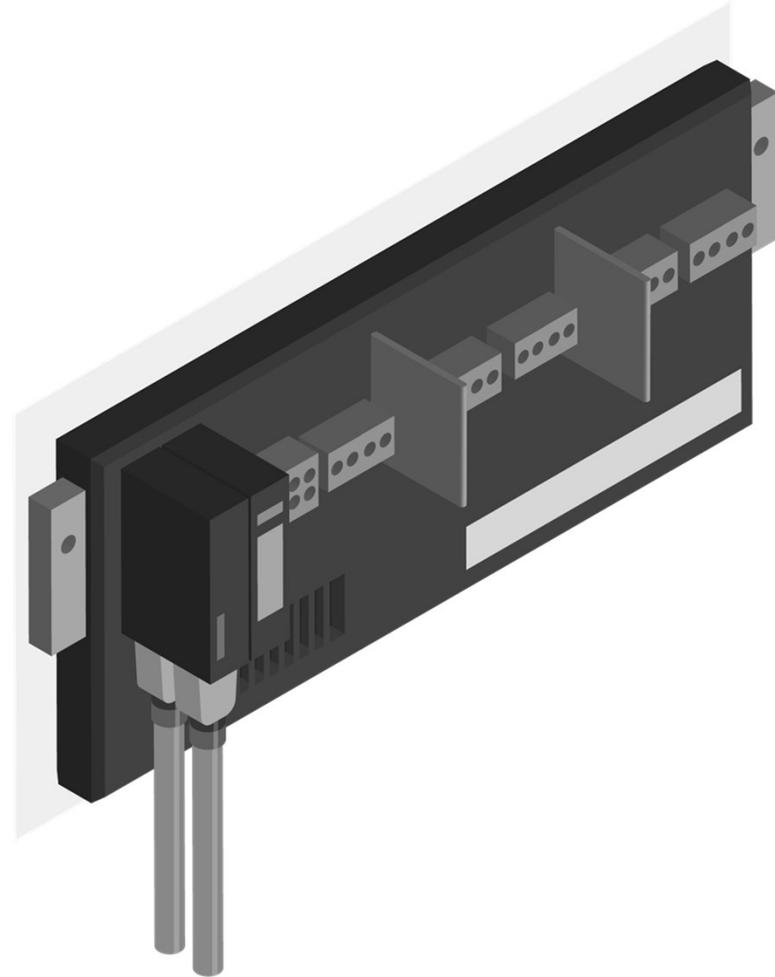
Goal: Reduce overall I/O system footprint, increase flexibility and usability



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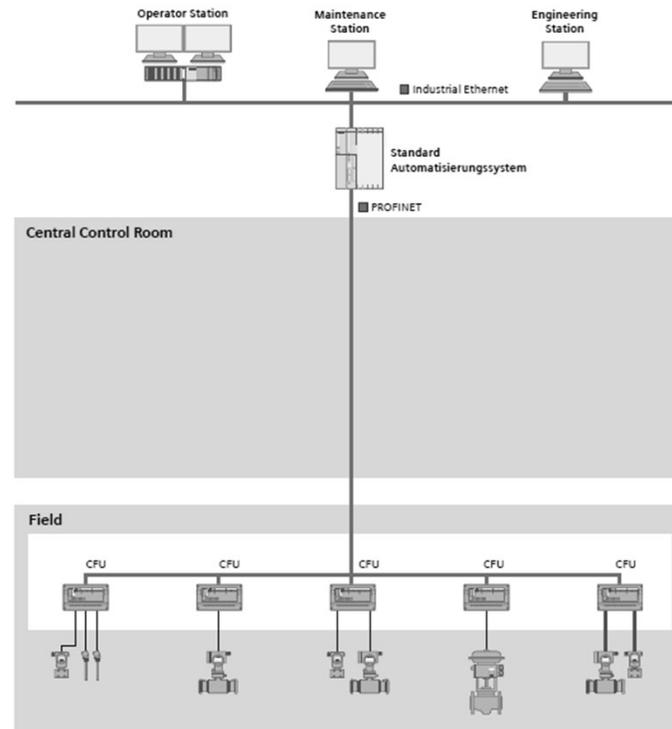
# SIMATIC COMPACT FIELD UNIT

Decentralization Approach



## SIMATIC Compact Field Unit

Our vision for a new plant I/O-design



From a centralized to a decentralized I/O approach:  
Achieve highest flexibility through modularization of your plant!

From static to freely-configurable I/O:  
Benefit from highly comfortable software wiring – late signal binding!

From complex to simple device integration:  
Plug-and-produce instead of trial-and-error!

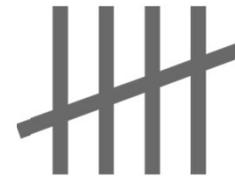
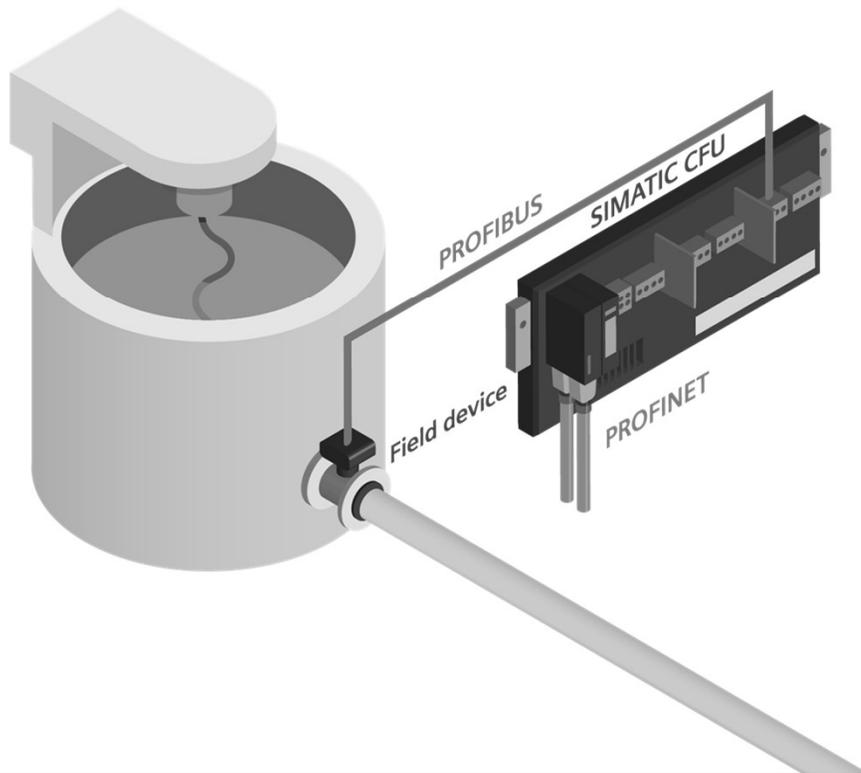
From specific to standardized solutions:  
Allows full cost control over the whole plant lifecycle!

**SIMATIC Compact Field Unit: Lay the cornerstone for digitalization at the field level**

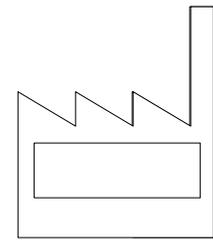
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# Decentralization

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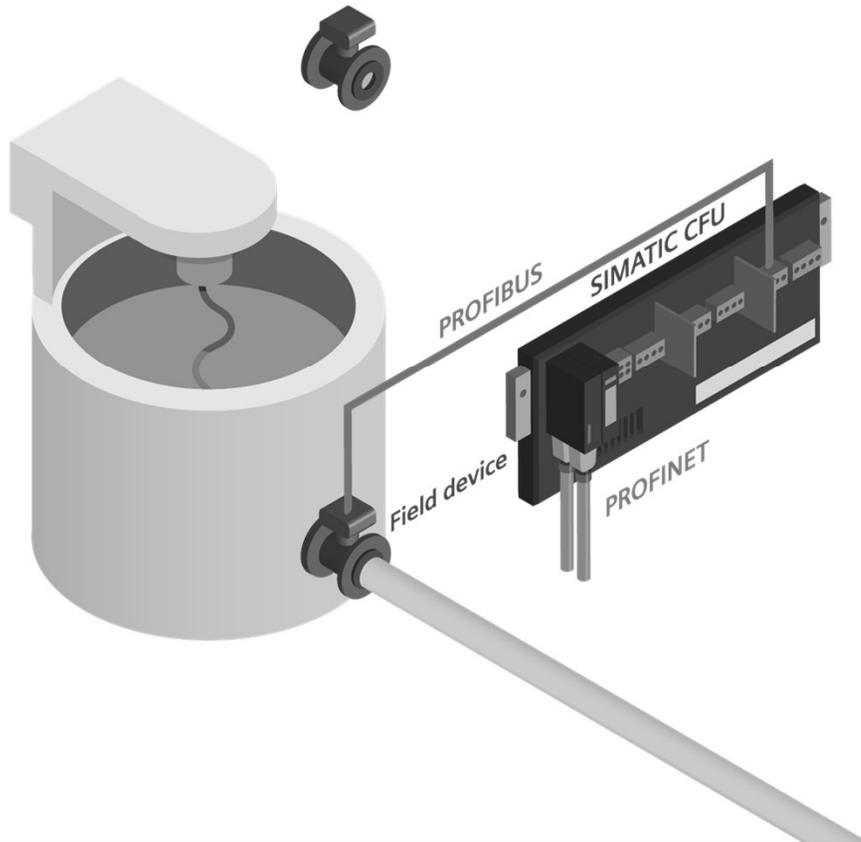
Fewer cables



Plant extension

# Device integration

SIMATIC CFU



  
Field device  
Exchange  
initialized  
Flowmeter  
Flowmeter X3-Z4500-XX

# Benefits

SIMATIC CFU



Flexibility

Time savings



Cost savings

# Asset Performance Management

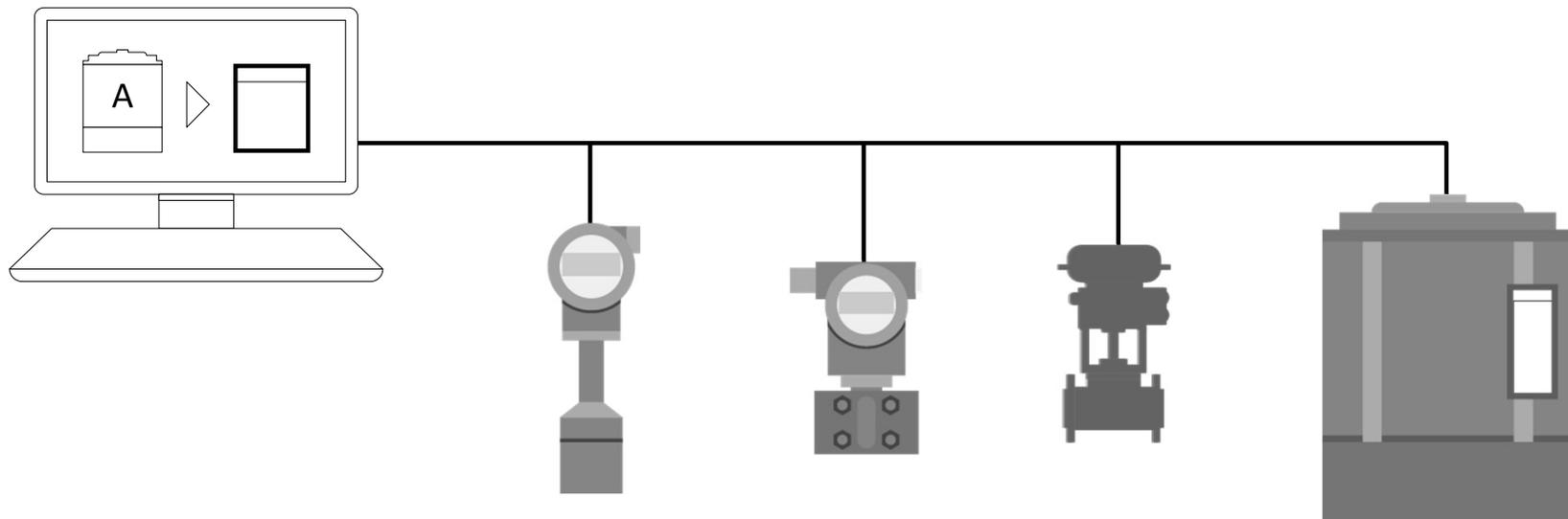


Effective condition assessment

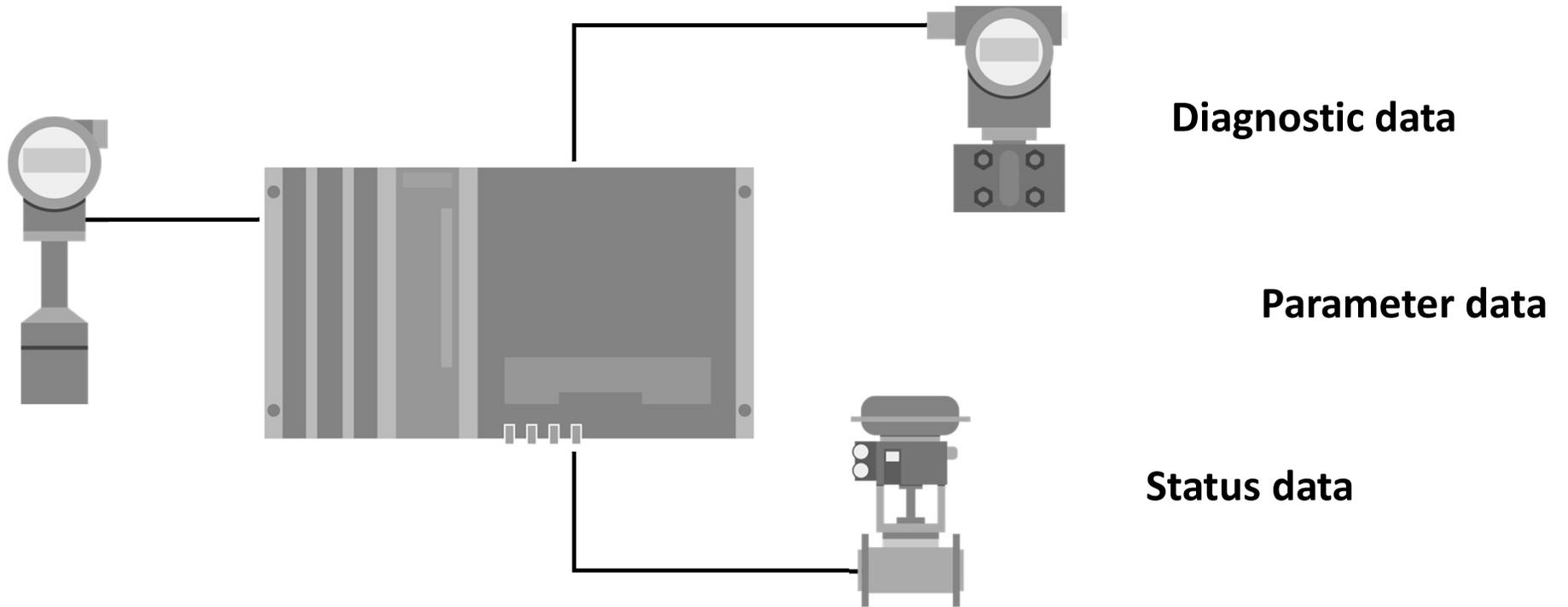
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# Assessment of plant field devices?

can cause massive disruptions



# Intelligent Field Devices



# System Integration for Digital Pathway

## HART Data Travel and Application Installations



Valve Monitoring



Pump Monitoring



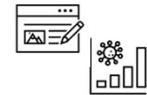
Control Performance



Energy Monitoring

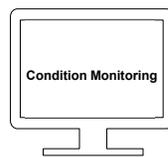
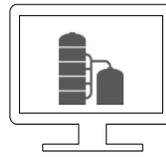


PCS myExpert



Asset Performance

### Operator Station and Condition Monitoring



### Maintenance Station



### Automation System CPU+HART IO Modules

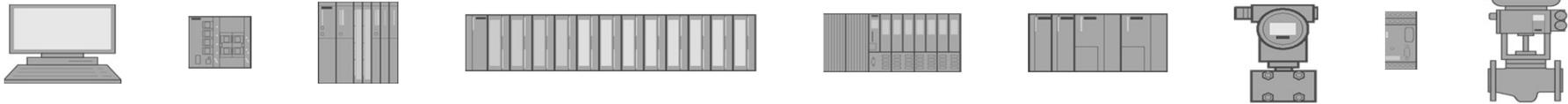
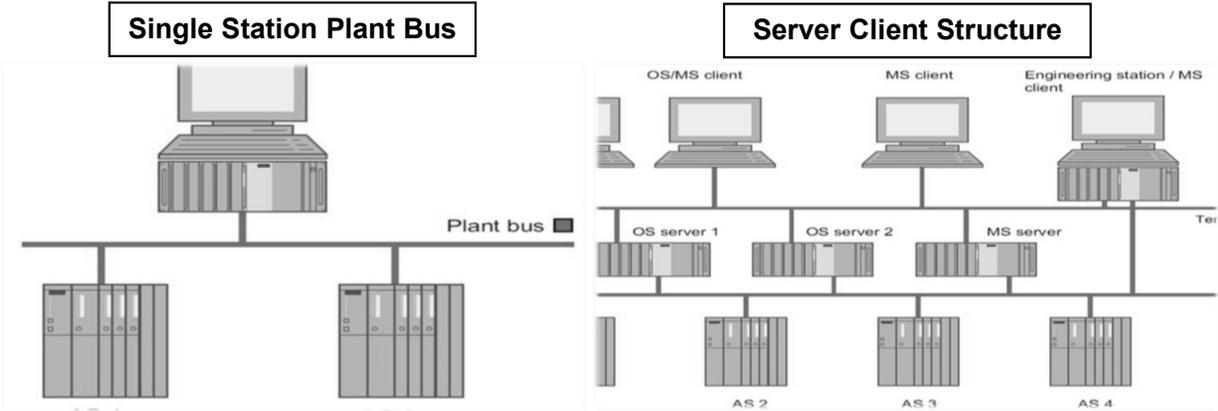
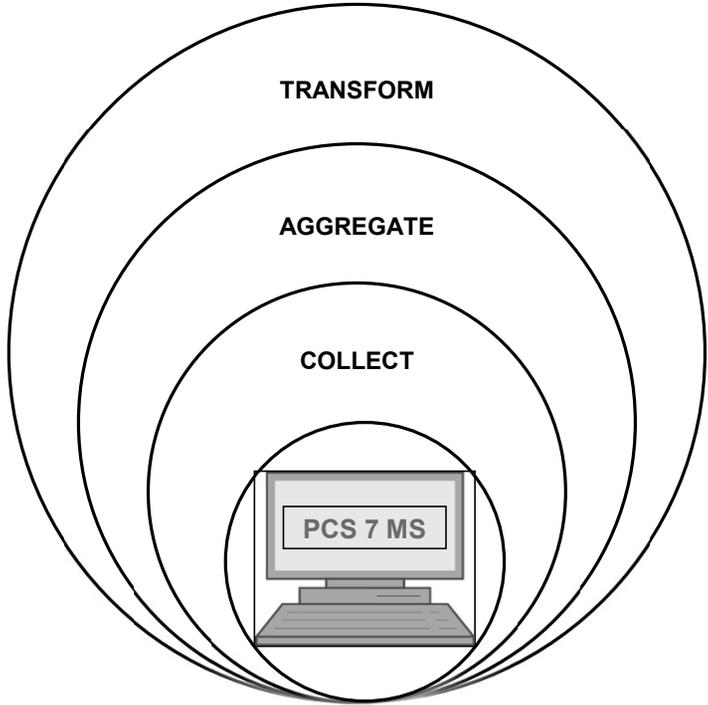


### Smart Field Instruments



# SIMATIC PCS 7 Maintenance Station

## Diagnostic and Service for Components of the Distributed Control System



# **Digital Twin with SIMIT**

virtual commissioning – operator training system

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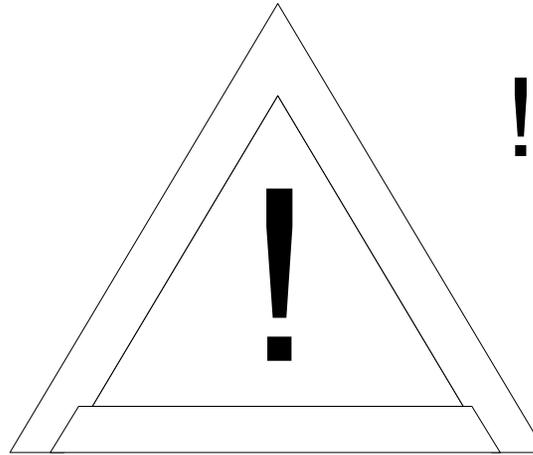
## Challenges in Conventional Method of Automation

### Challenges in commissioning

! | Efforts for real commissioning difficult to calculate

! | Unclear requirements

! | Real hardware necessary for testing



**Complex  
commissioning**

### Challenges in Operator Training

! | Involves cost on real plant

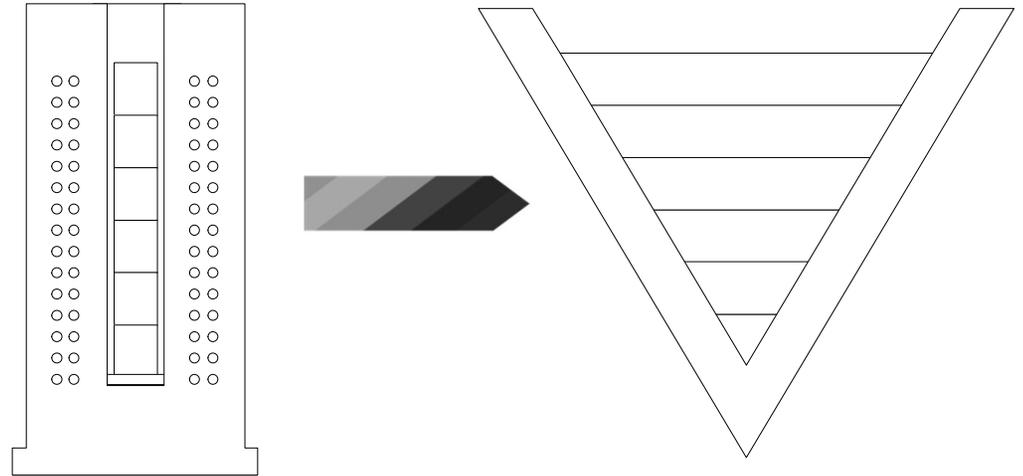
! | Training Critical scenario

! | Repeatable operation

! | Training with Abnormalities and Errors

**The solution: Real testing in virtual plant**

**Testing and optimization  
performed in a  
completely virtual  
environment**



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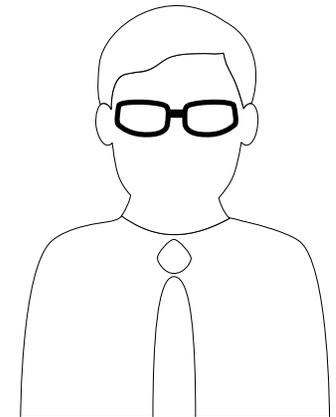
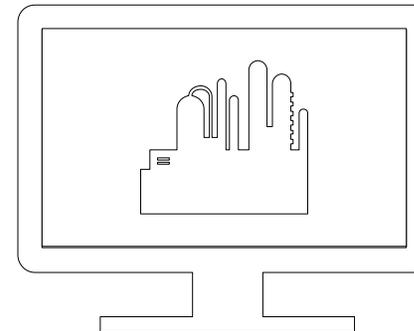
Train your operator

# Effective operator training

Training in a virtual environment,  
with a simulator and long-term  
experience

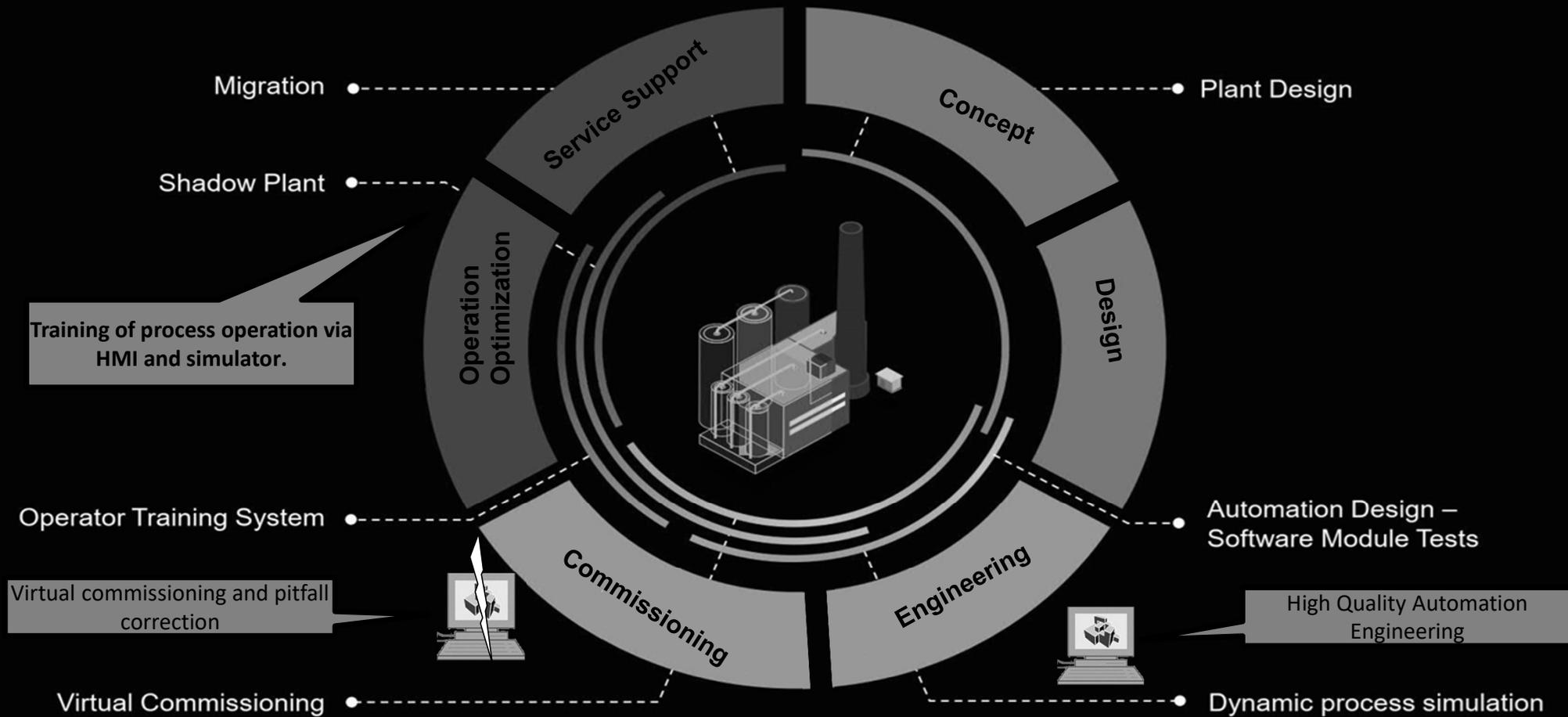
Training

SIMIT



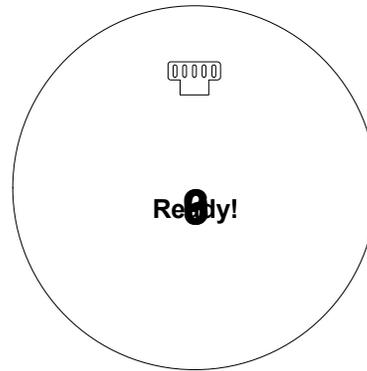
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# Let's talk about challenges in perspective to Process Industry.

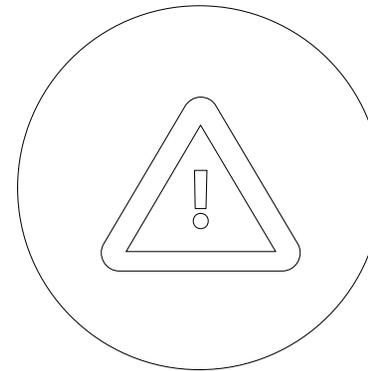


Clever combination: testing and training of automation projects

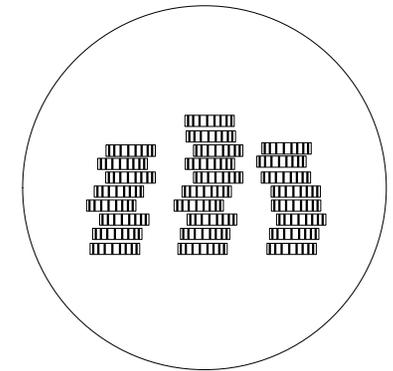
## Your benefits with SIMIT



**Up to 80%  
time savings**



**Significantly  
reduced risk for  
errors and accidents**

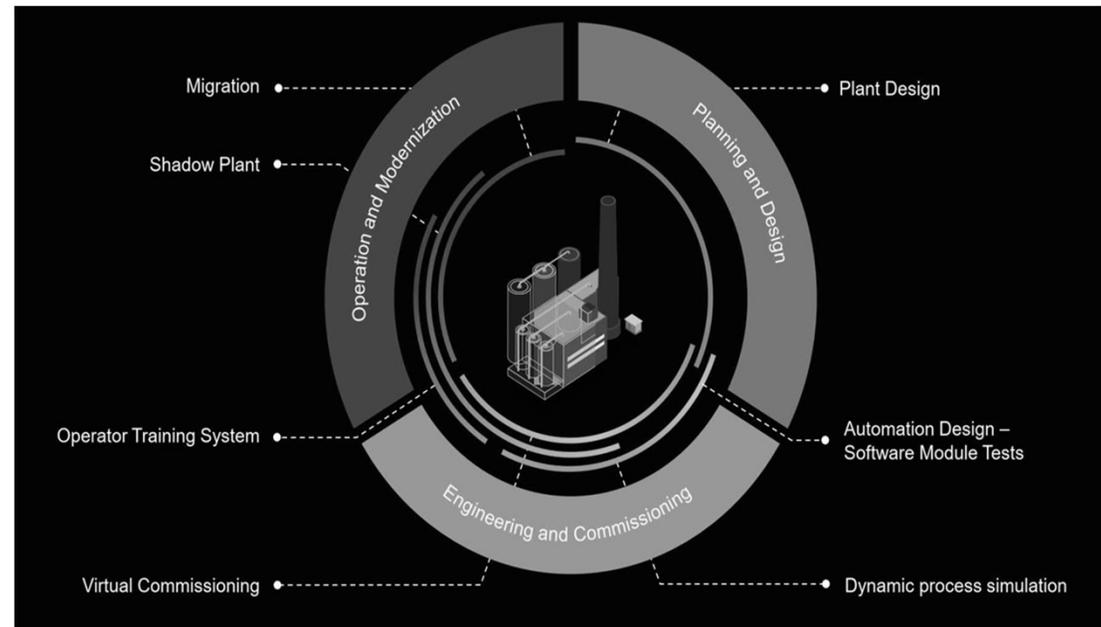


**Substantial  
cost savings**

## Clever combination: testing and training of automation projects

# Advance use case with SIMULATION

- Life Cycle Management
- Combination of AI and Simulation
- Process Optimization and Maintenance
- Virtual Sensor concept.



# I Thank You

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