

FOCUS Expert Workshop Brussels 2016

# “EUROPEAN –MANUFUTURE PERSPECTIVE ON INTELLIGENT MANUFACTURING”

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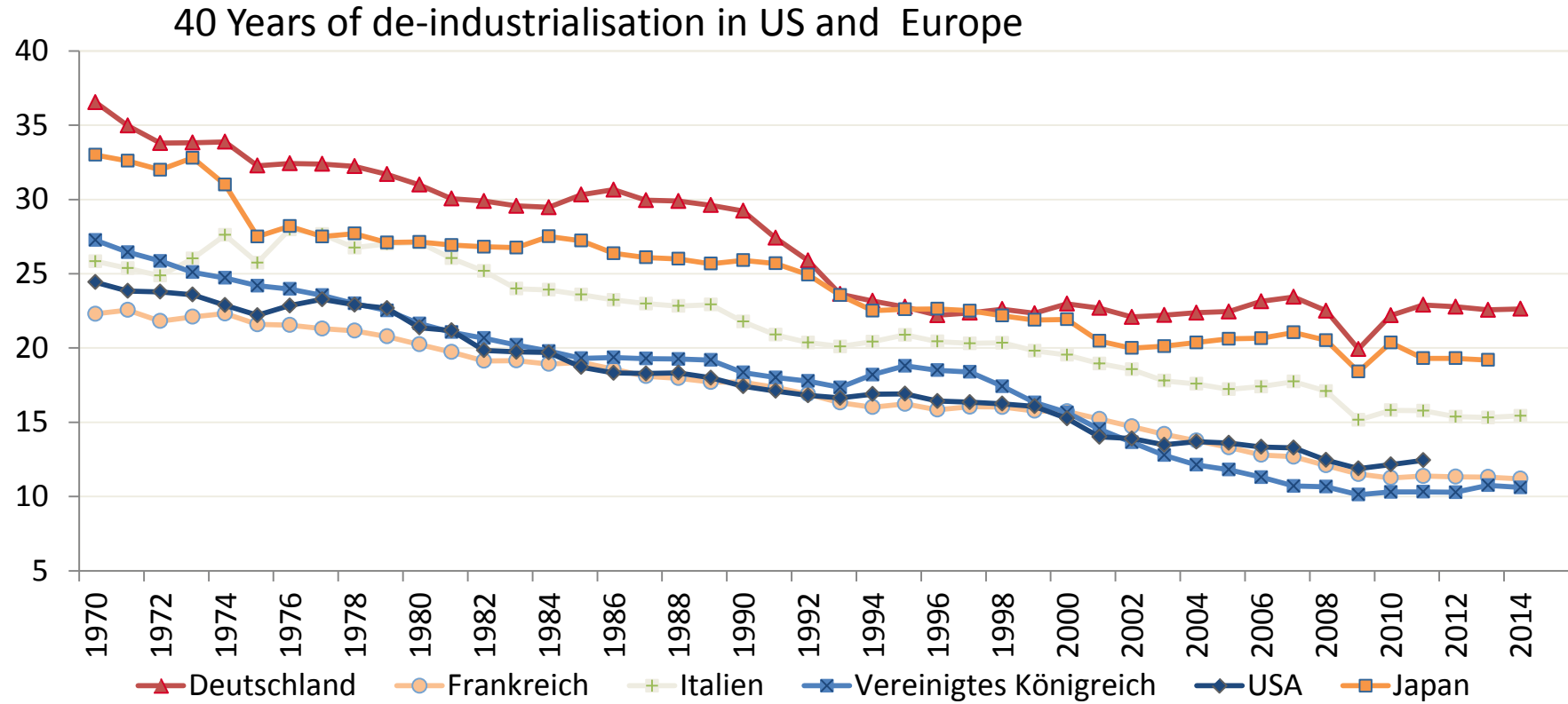
EU High Level Groupe TP ManuFuture

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# Share of Manufacturing of the national GDP



Datenquelle: Ameco, CEP, eigene Berechnung

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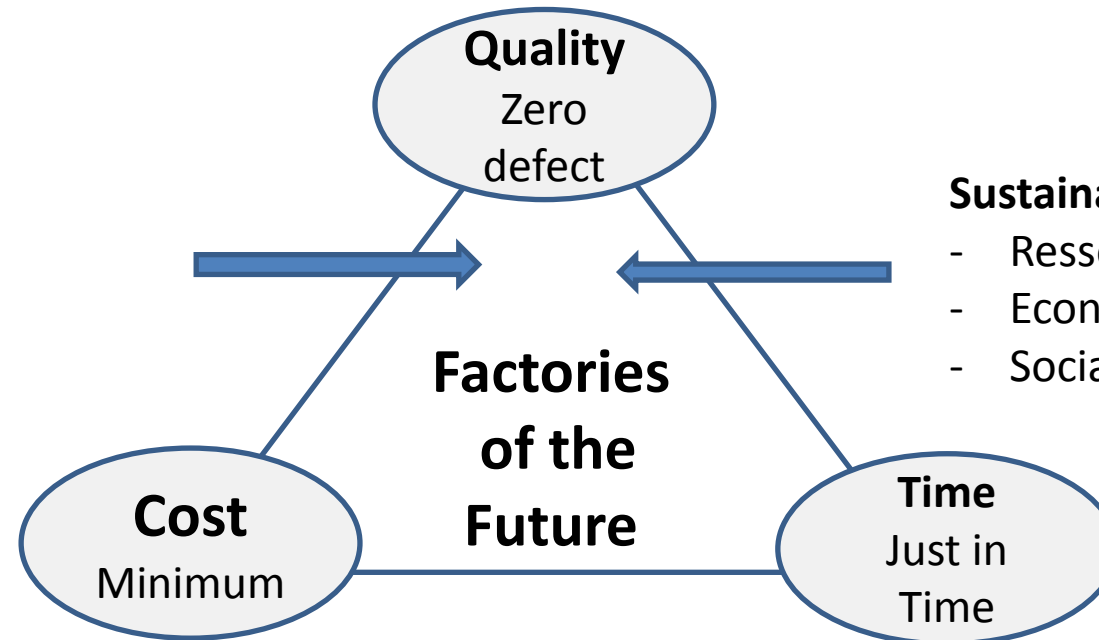
Globalization

Migration of Production and Consumption to lower developed countries

# Central Objectives of Manufacturing

## Individualism

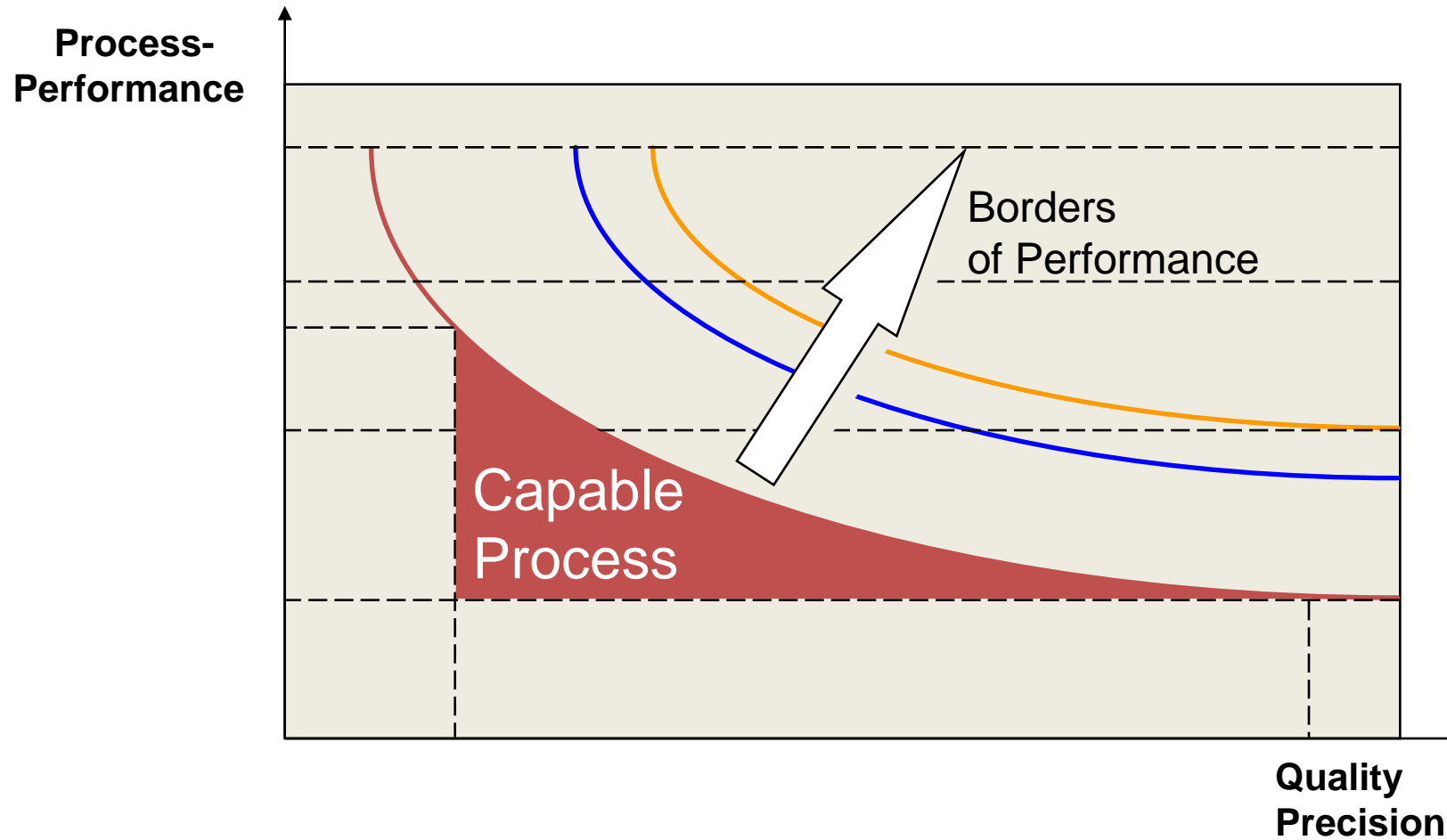
- Customisation
- Variant Products
- Variants in Processes
- Flexibility
- Productivity
- Quality
- Life Cycle Services



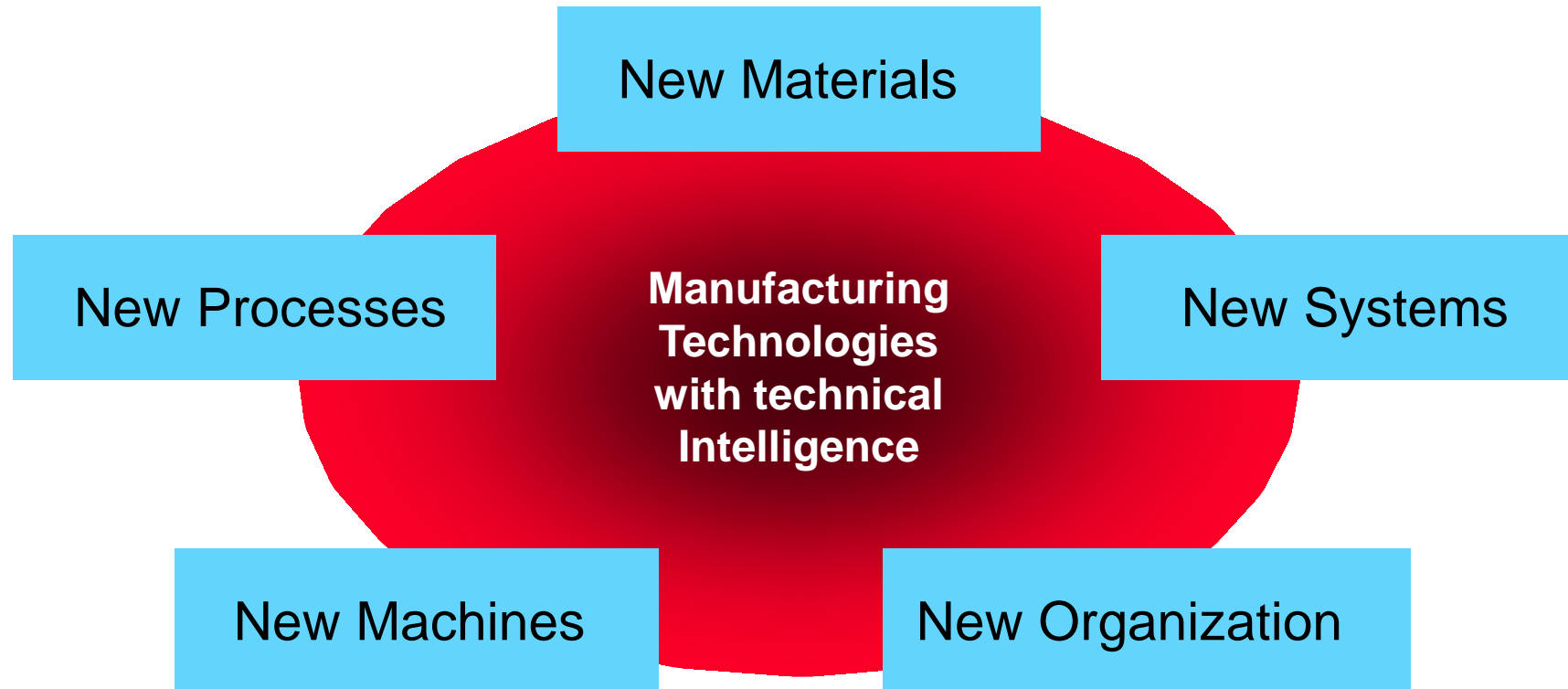
## Sustainability

- Ressource Efficiency
- Economic Resilience
- Social Efficiency

# Performance and Capability



# Fields of Innovation in Manufacturing Technologies



# Manufacturing continuous Innovation beyond Borders in all steps of the Value Chain

## High Performance

cost, time, quality

## Dimensions

micro- and nanoscale

## Environmental

clean, sustainable

## Generative Processes

additive technologies

## Adaptive Processes

self-organisation

## Energy Efficiency

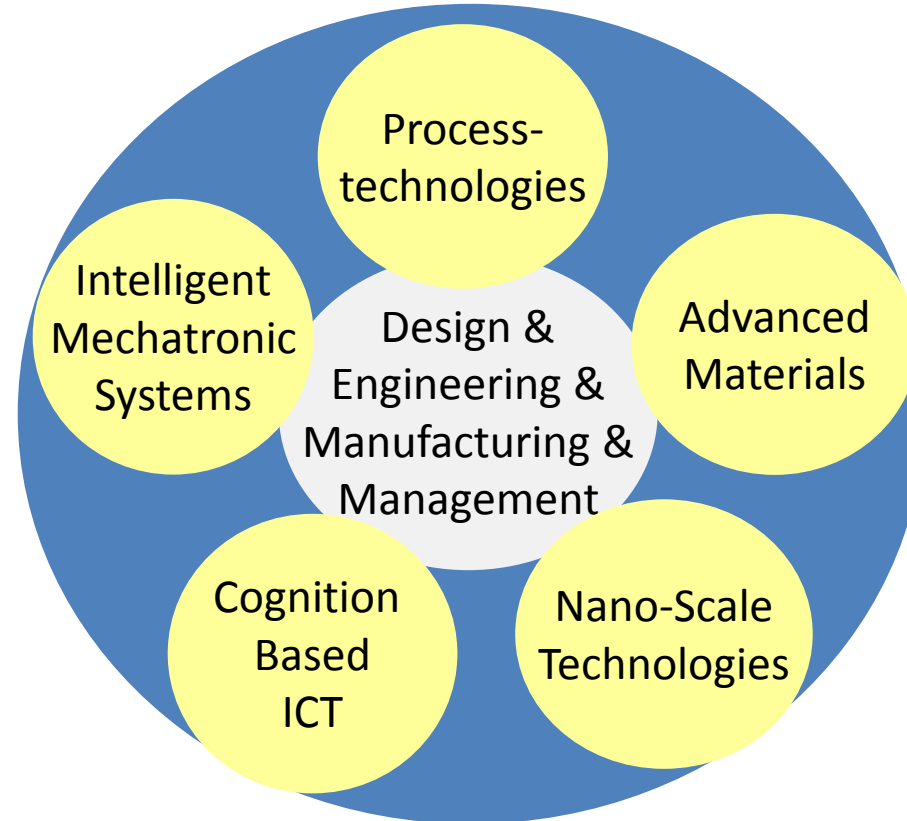
electric, heat,

## Material Efficiency

material, air, oil,...

## Management Efficiency

organization, optimisation



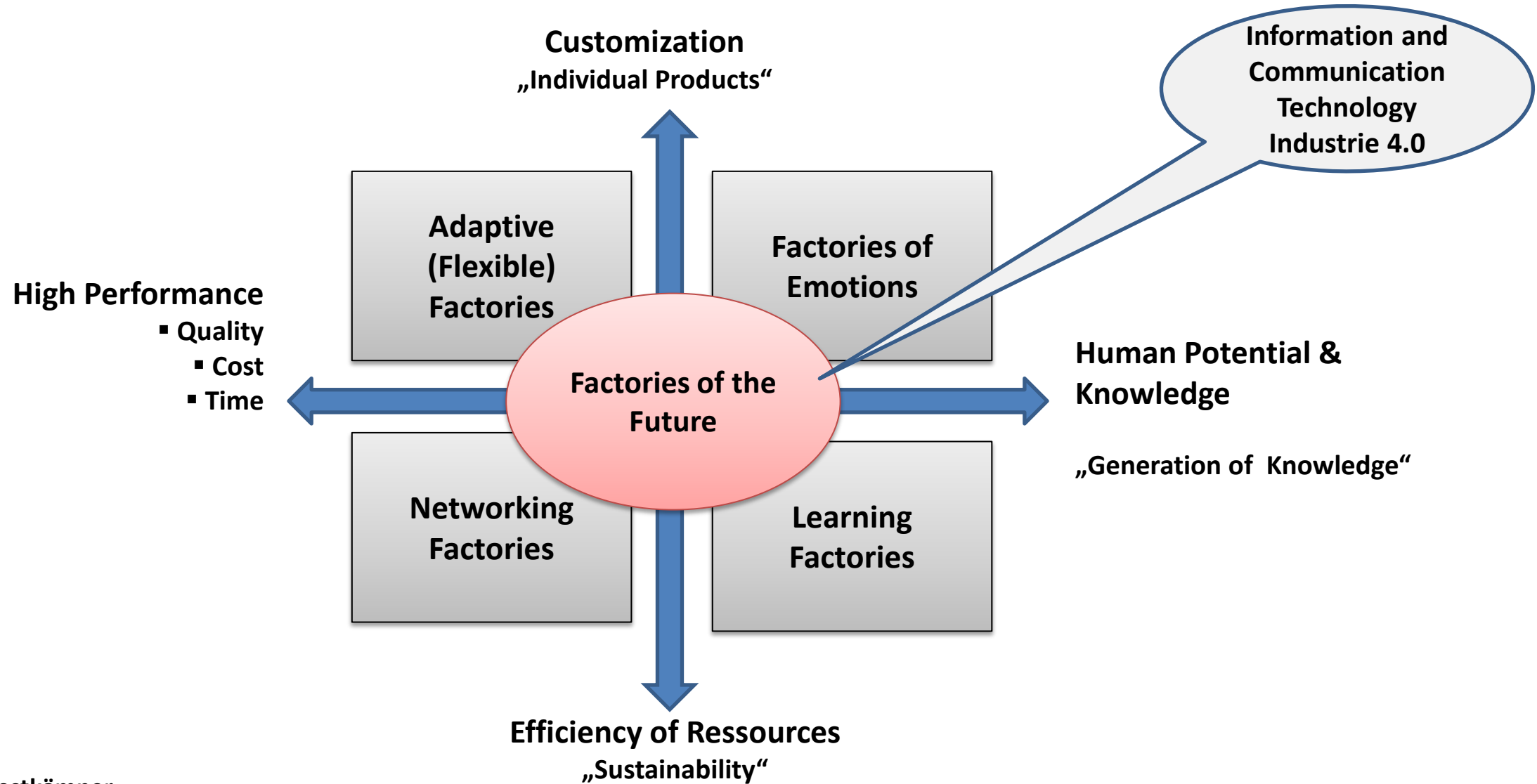
## Holistic System view of manufacturing:

System of Elements and Relations

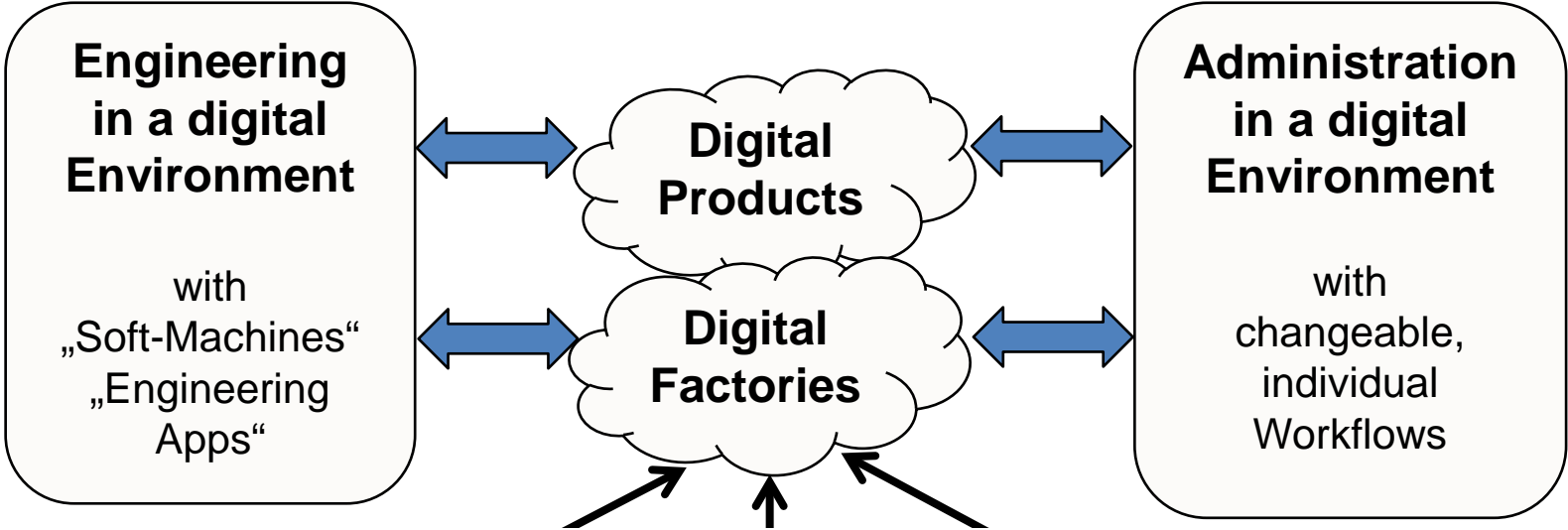
- People
- Material
- Machines
- Information

System Optimization by Implementation of technical intelligence

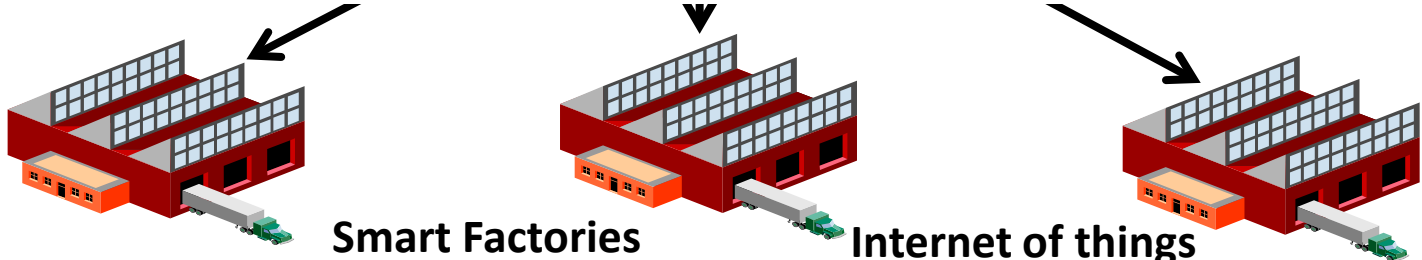
# Visions of Future Factories



# Vision: Manufacturing in the digital Age



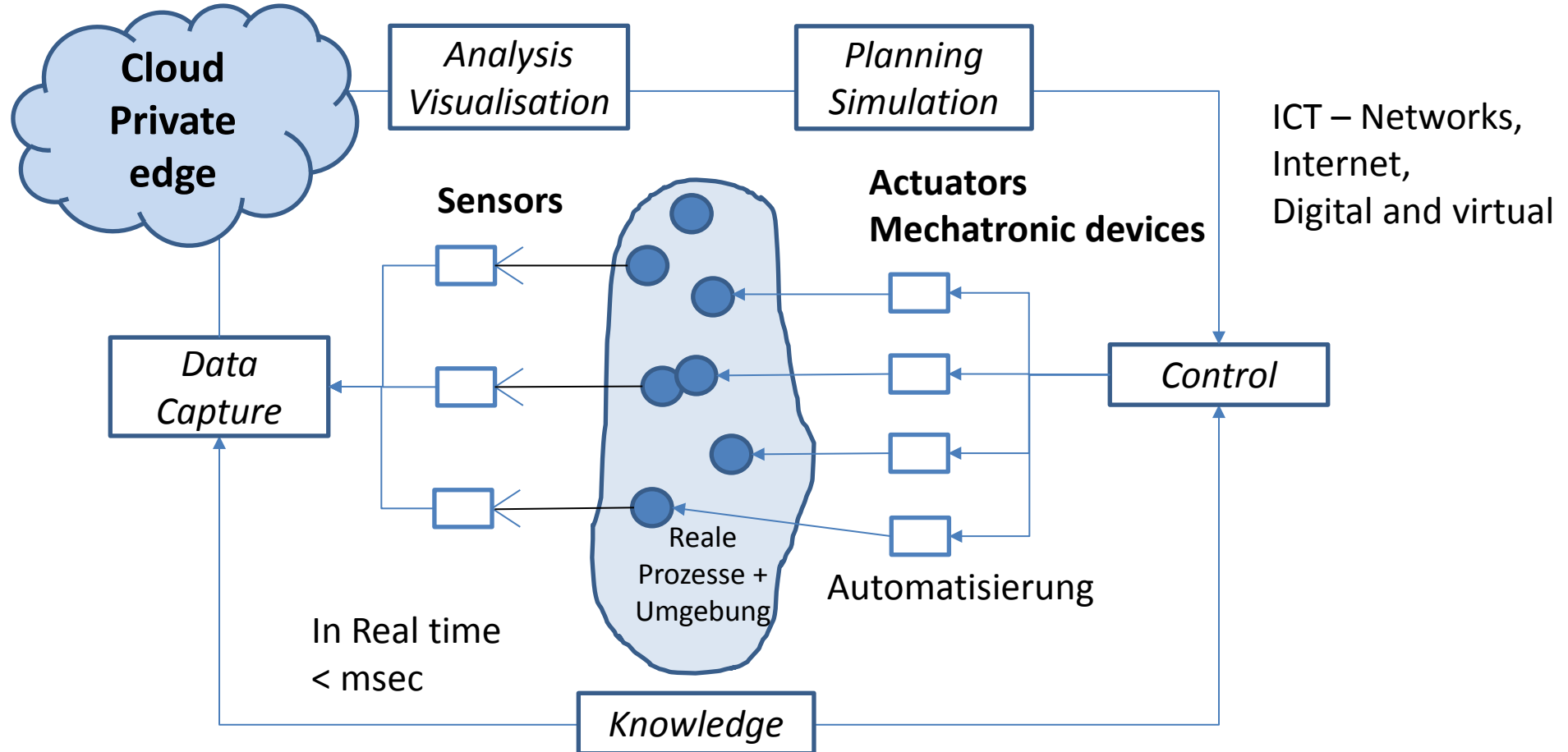
Global ICT - Networks – Product Life-Cycle Management – real time IT



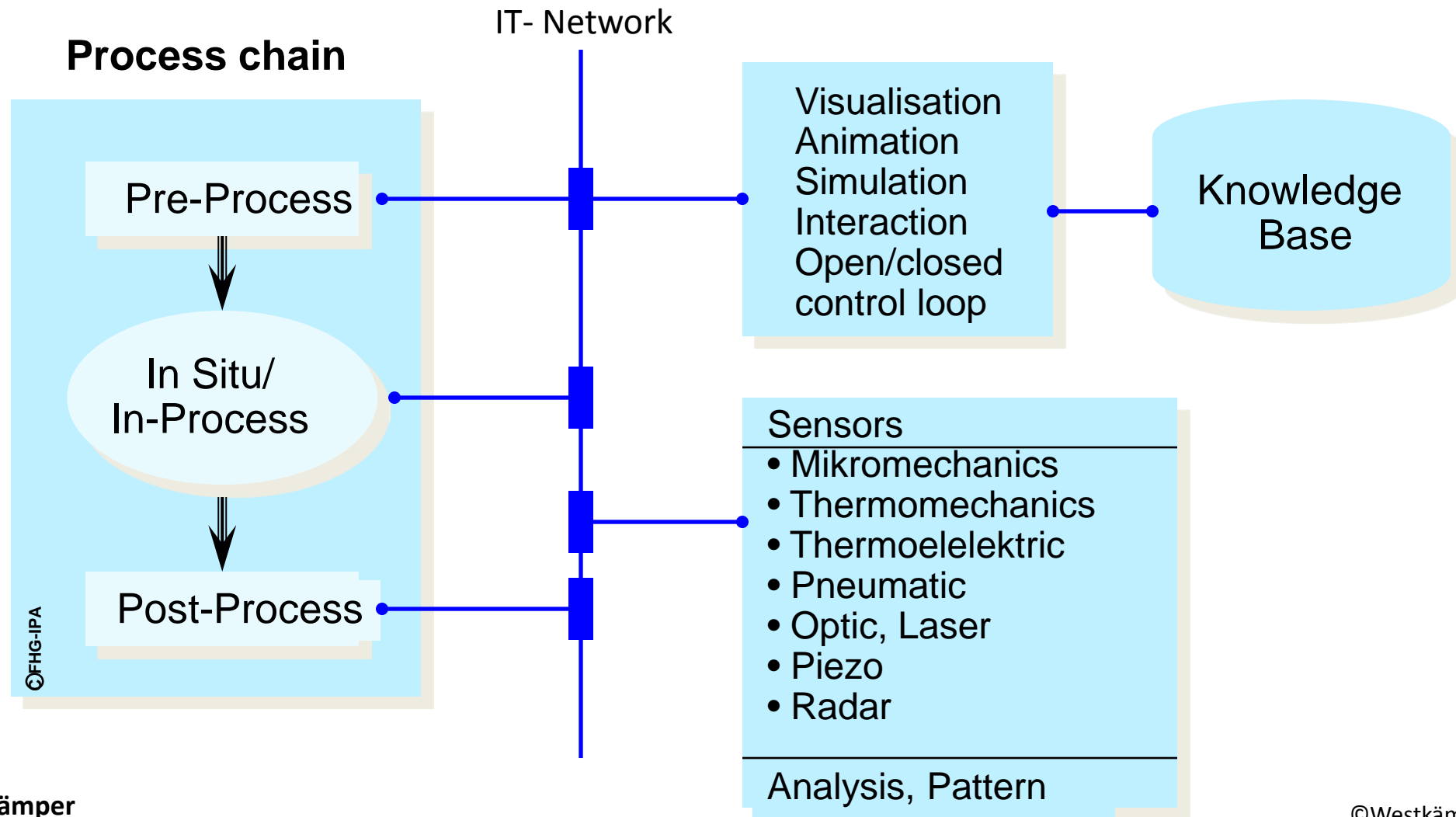


# Cyber-Physical-Systems „Industrie 4.0“

single-sign on  
look + feel  
everywhere - anytime

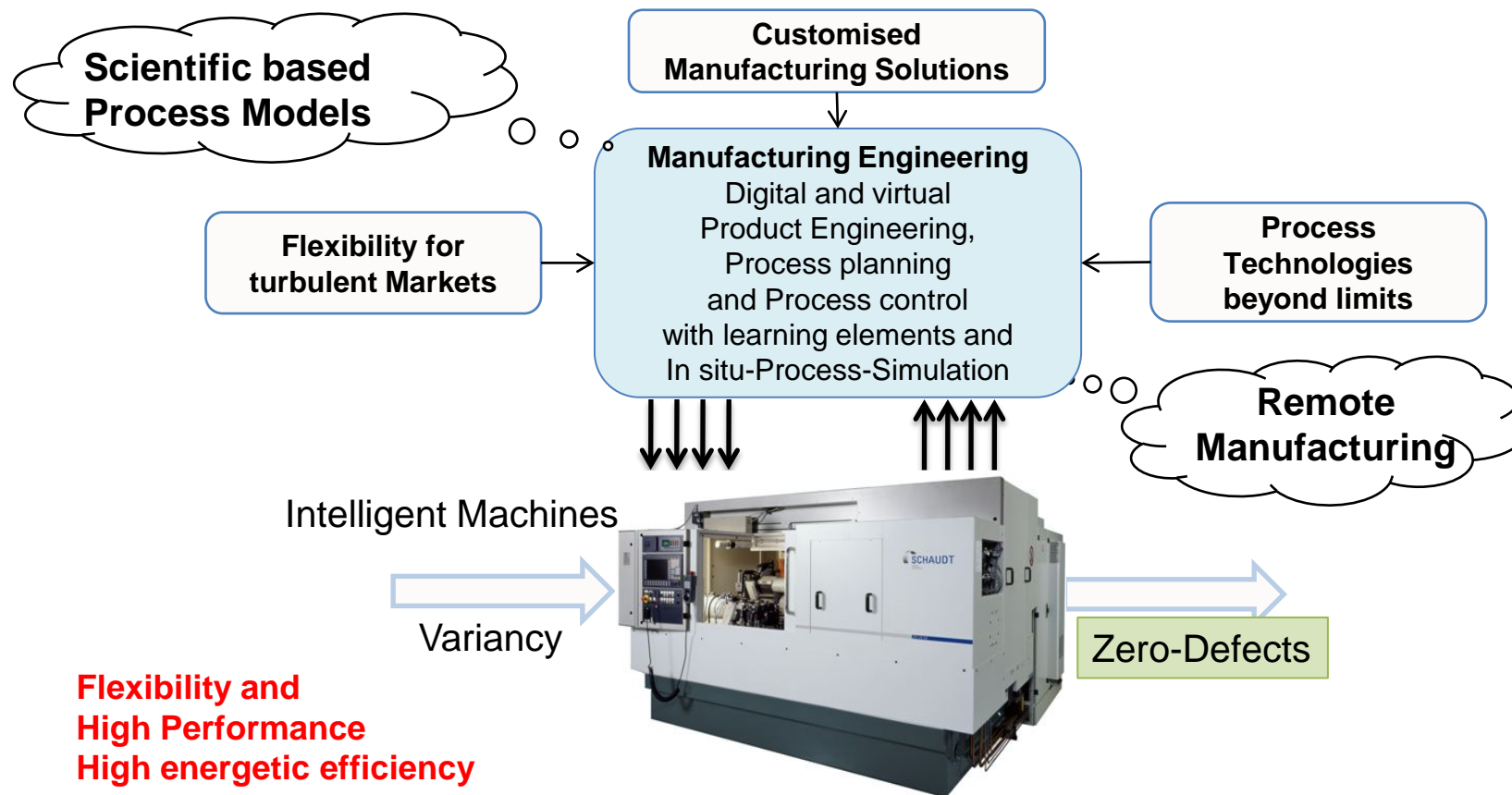


# Sensors for real time process control and process monitoring



# Implementation of Technical Intelligence Manufacturing Systems

Increasing the quality and efficiency of manufacturing engineering



# Modelling and Simulation

