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## **TAKEOFF for Intelligent Industry**

Innovation, Talent and Competence Development for Industry 4.0

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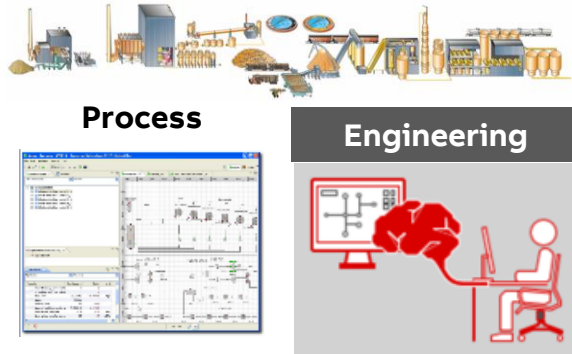
Antti Lukkari, Project Coordinator, ABB Oy



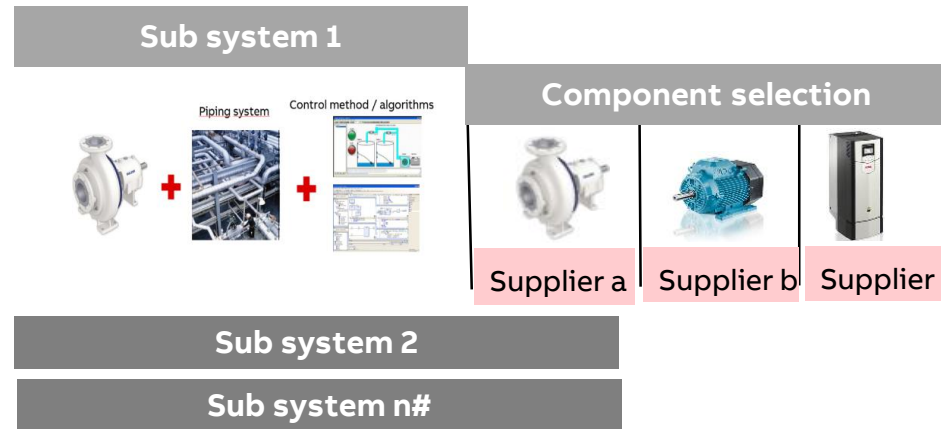
# Why traditional way of working is not good enough?

Total system design rigid and inefficient due to system silos and stacking of the safety margins

## Process design / System design



## Sub system Design / component selection / dimensioning



## Manufacturing components / Building the system

## Running the systems

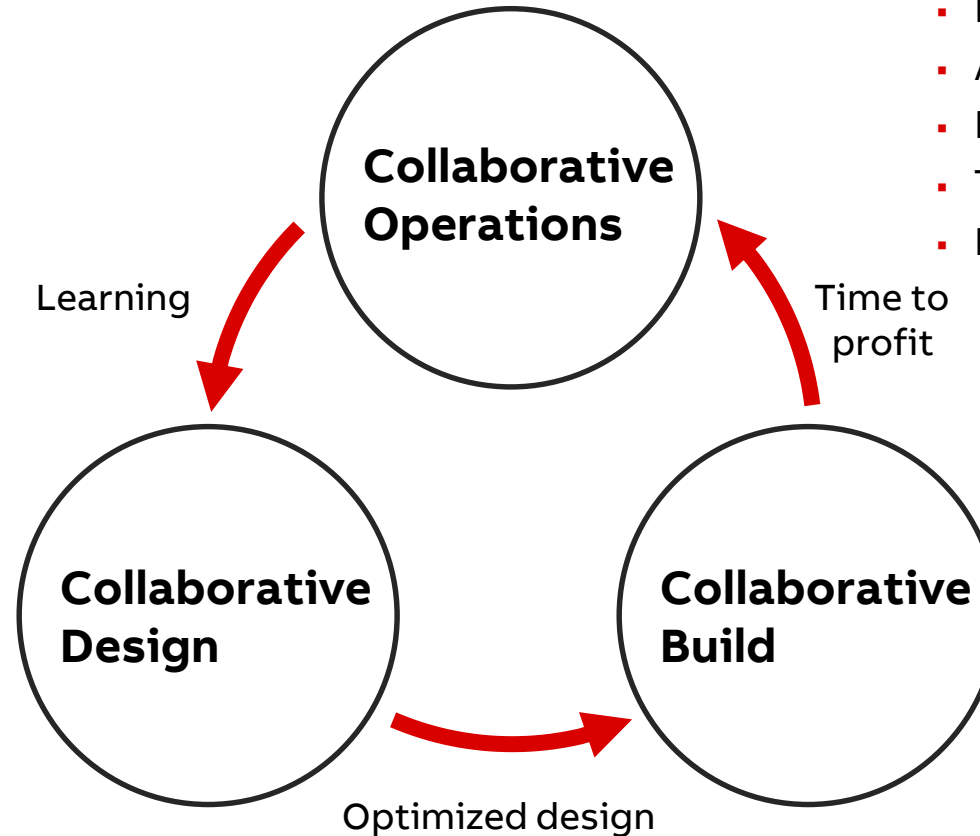
**Detailed design**  
Design of subsystems  
Selection of components



**System design:**  
Selection of main concepts,  
process equipment , overall  
control principles etc.

# New way: Collaborative Design-Build-Operate ecosystem

Optimization throughout the lifecycle



- Overall optimization
- Functional integration
- Project management
- Supply management
- Change management

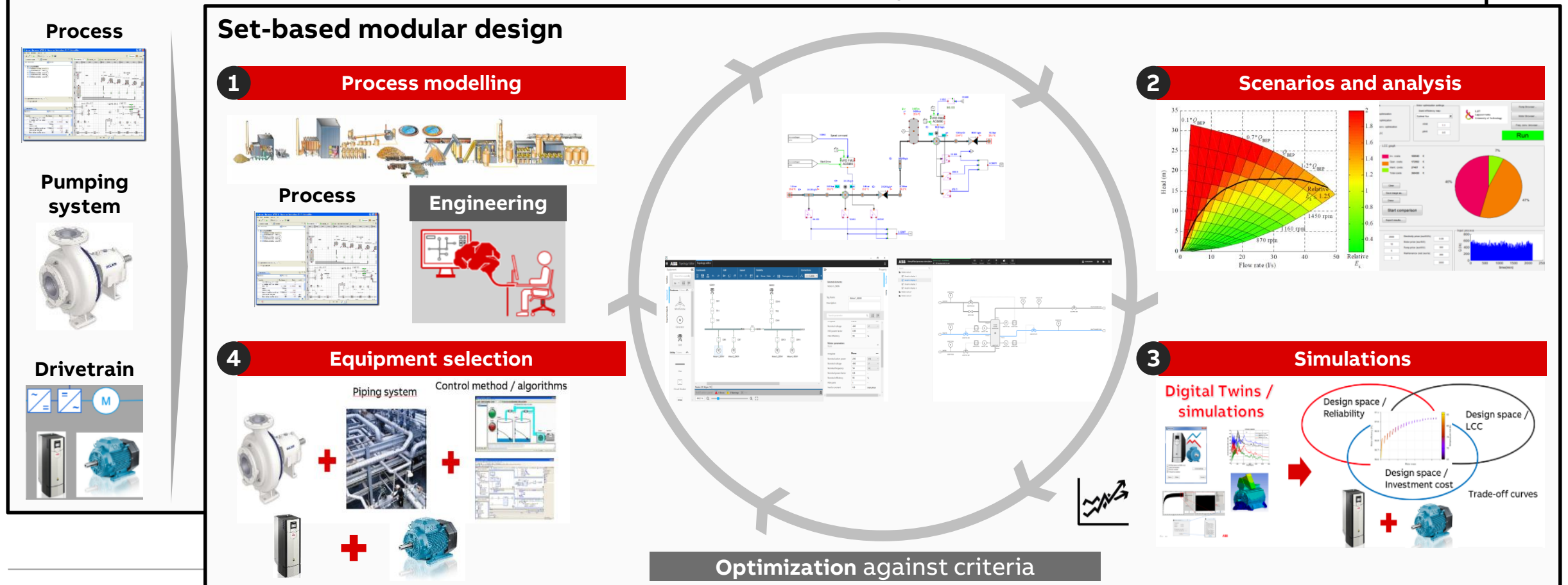
- Process and yield optimization
- Asset Management
- Energy Management
- Troubleshooting
- Performance and knowledge support

- Site management
- Supply logistics
- Equipment installation
- Commissioning and Start-up
- Accelerated ramp-up

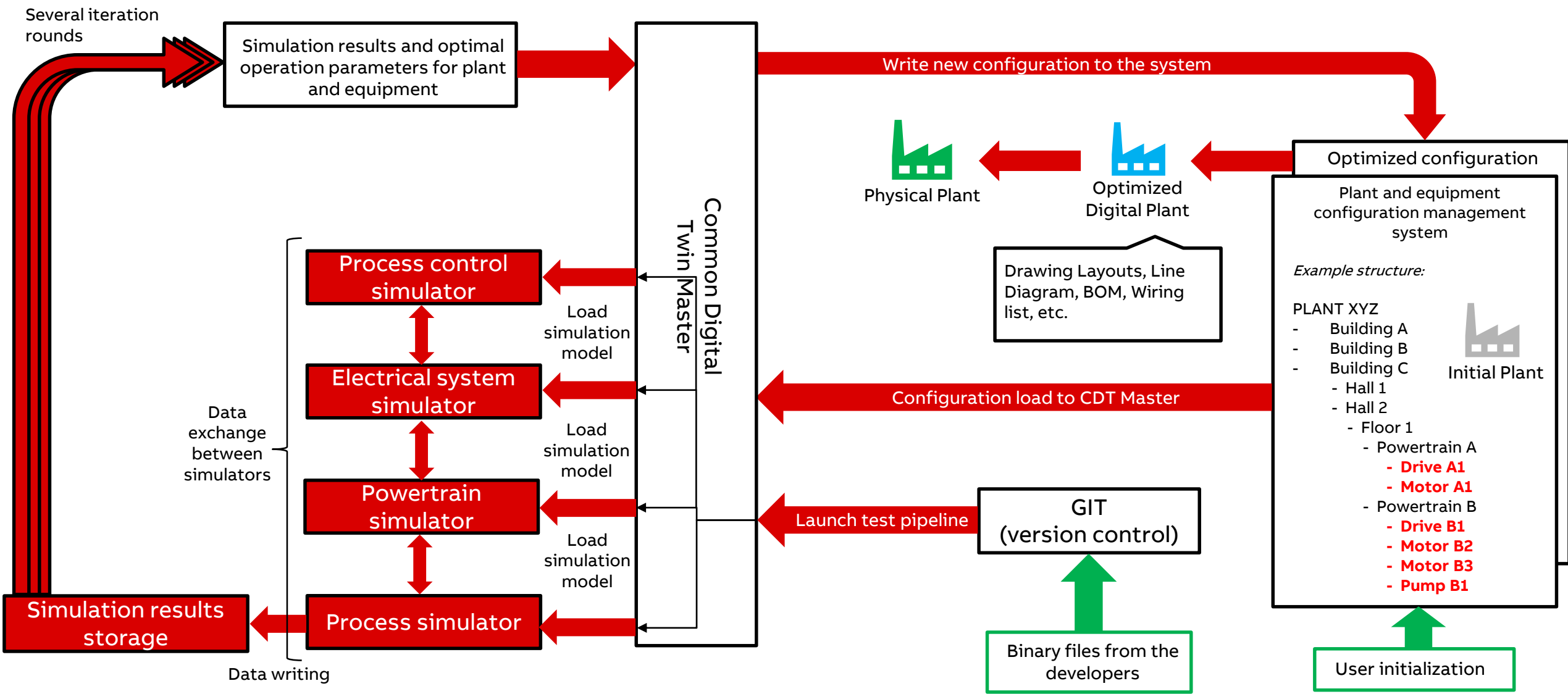
# New way: Collaborative Design-Build-Operate ecosystem

Digital twins enable simulation for optimal system and component design

## Simultaneous optimization of process, electrical and automation systems



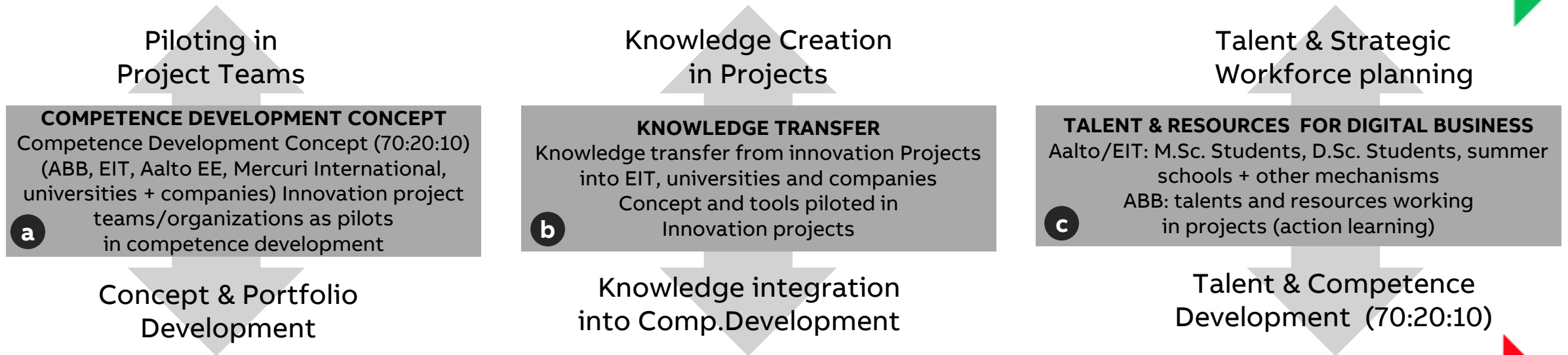




# TAKEOFF – Innovation, Talent and Competence Development in Industry 4.0

EIT Digital - Innovation projects for digital platform innovations

## 1 TAKEOFF Intelligent Process Industry – Future Process Plants Partners: Aalto and Semantum



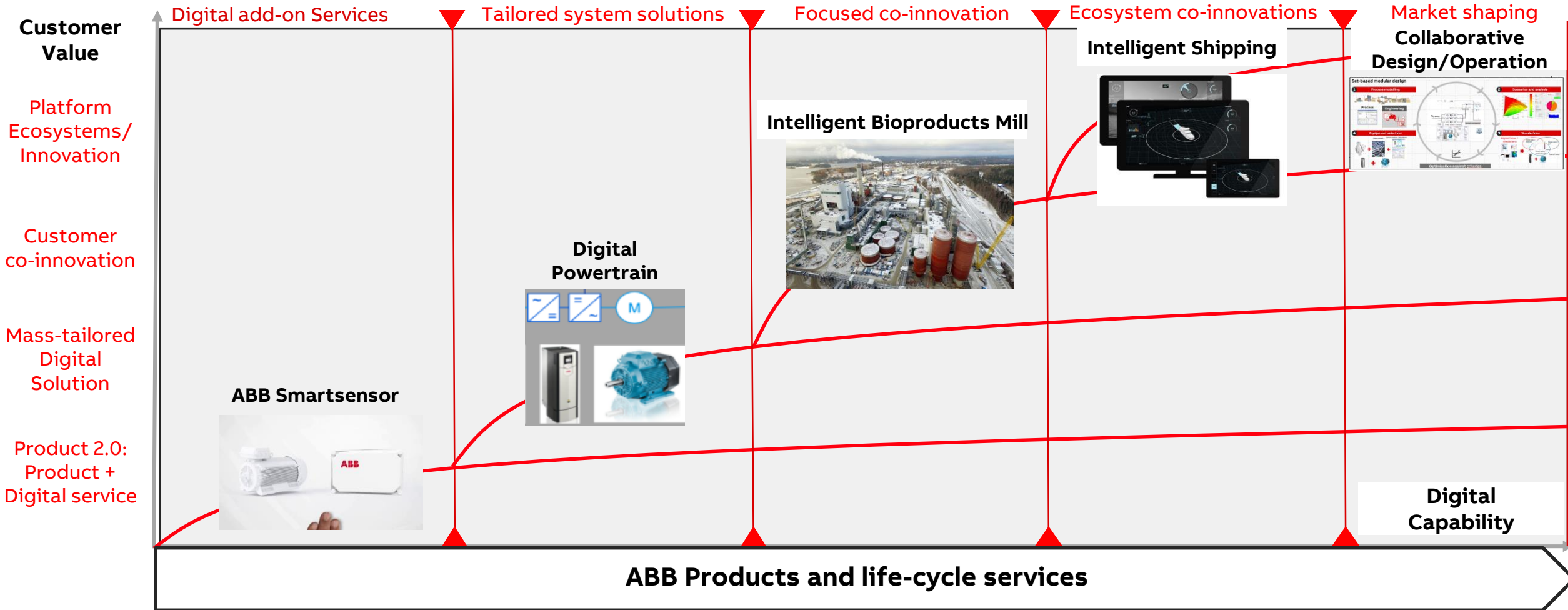
## 2 Upskilling Digital Workforce 2019

## 3 Upskilling Digital Workforce 2020 to be decided

Talent & Competence Dev. for Digital Business & Innovation (ABB+EIT+Aalto+AaltoEE+UCLA/Berkeley)

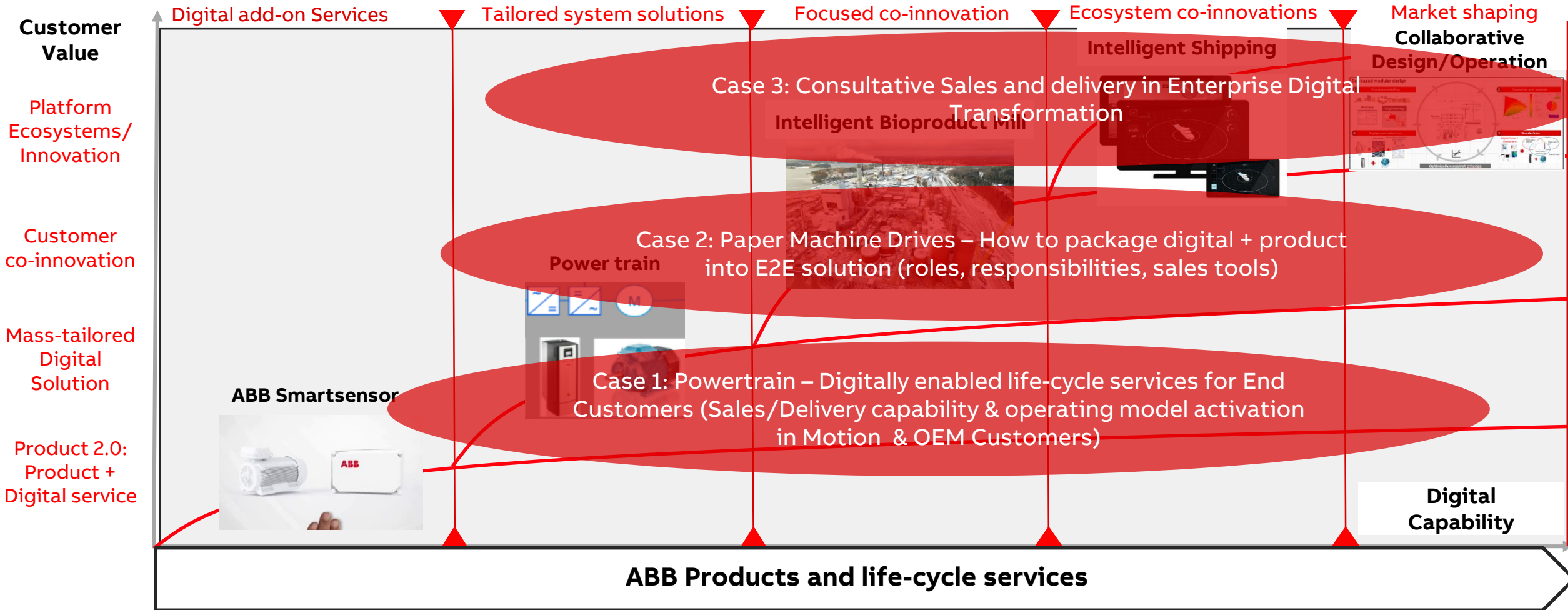
# Ramp-up of Digital Business Capabilities

From extended products into platform ecosystem innovations



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From extended products into platform ecosystem innovations





**ABB**