Innovative Consulting Company
or
Innovator in Production Software

„**IPS Engineers** becomes **IPSO Facto**“

Dr.-Ing. Dipl. Wirt.-Ing. Julian Schallow

IPS engineers
Industrial Production Systems

ipsoFacto

IPS Engineers - Introducing the core Team

profound. innovative. operative.

M.A.
Peter Kenneth Willats

Stakeholder

Marketing and Sales

Dipl. Wirt.-Ing.
Julian Schallow

CEO

Management and Strategy

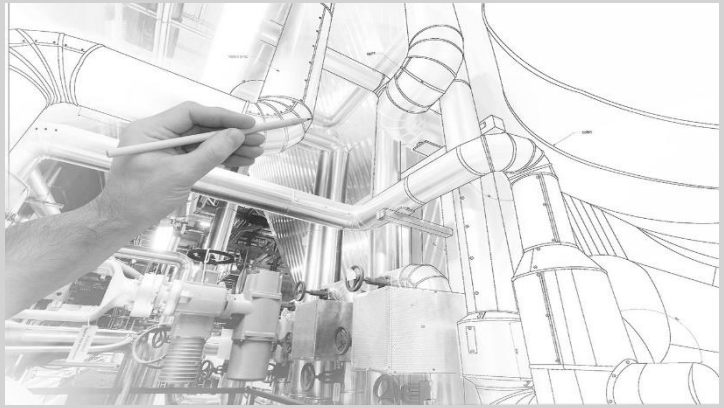
Univ.-Prof. Dr.-Ing.
Jochen Deuse

Stakeholder

Innovation and product development

IPS Engineers – Subject areas and expertise

Industrial Engineering



Advanced Lean Production

Digital Manufacturing

Industrial Data Science

IPS Engineers – Service Modules and Solutions

Ergonomic Workplace Design

Simultaneous Engineering

Qualification and Competence Development

Time Data Management

Technical Cleanliness

Line Balancing

Data Analytics

Industrial Information Technology

Simulation Studies

Time Data Management Service Module - detailed view

Introduction of time data management

- Development and design of roadmaps for the introduction of time data management
- Individual adaptation to corporate goals and general conditions
- Extensive partner network for optimized coordination of activities

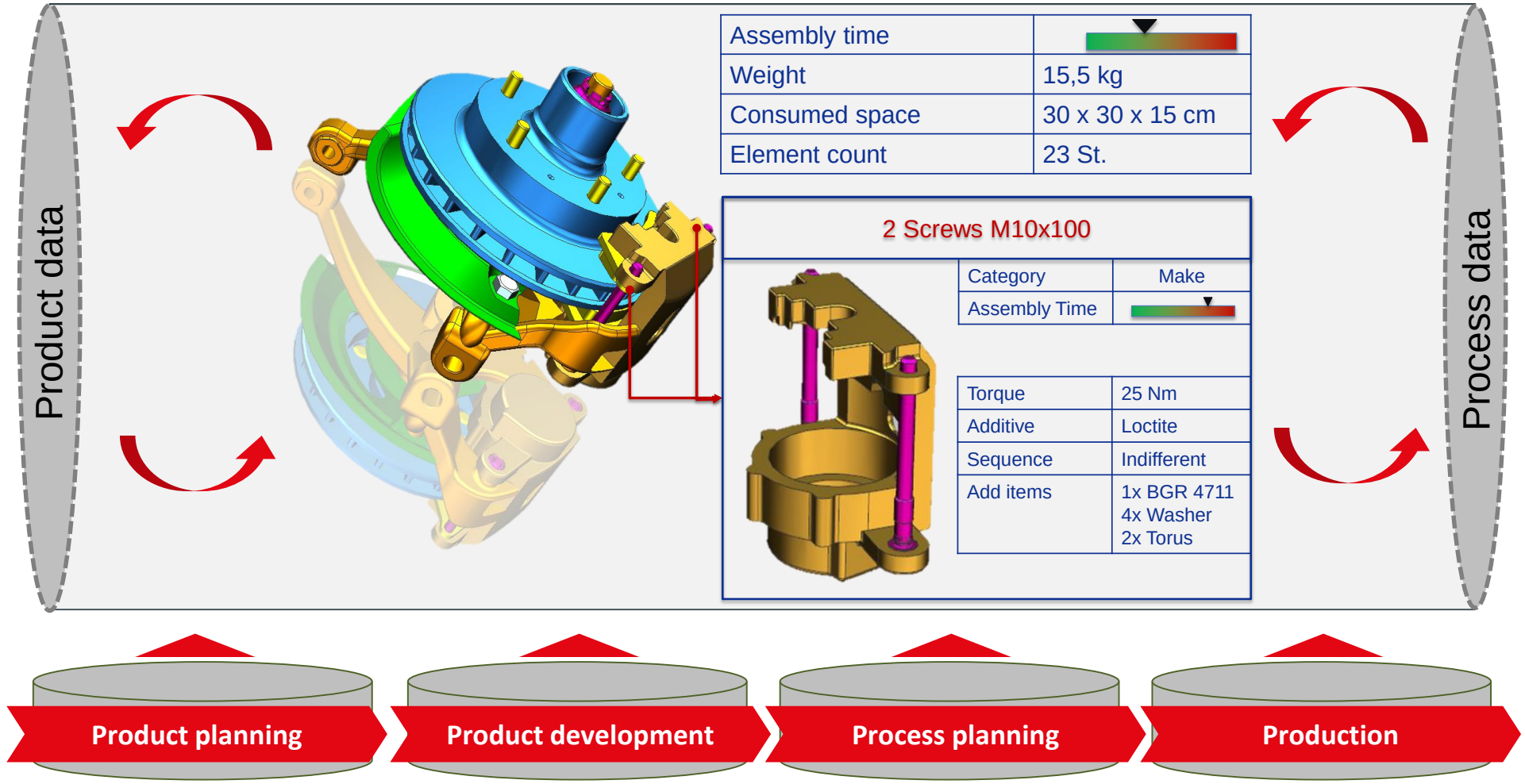
Process studies and mapping

- Performing REFA time and motion studies and MTM analyses
- Development of time data management and competences
- Process analysis as a core element of time studies

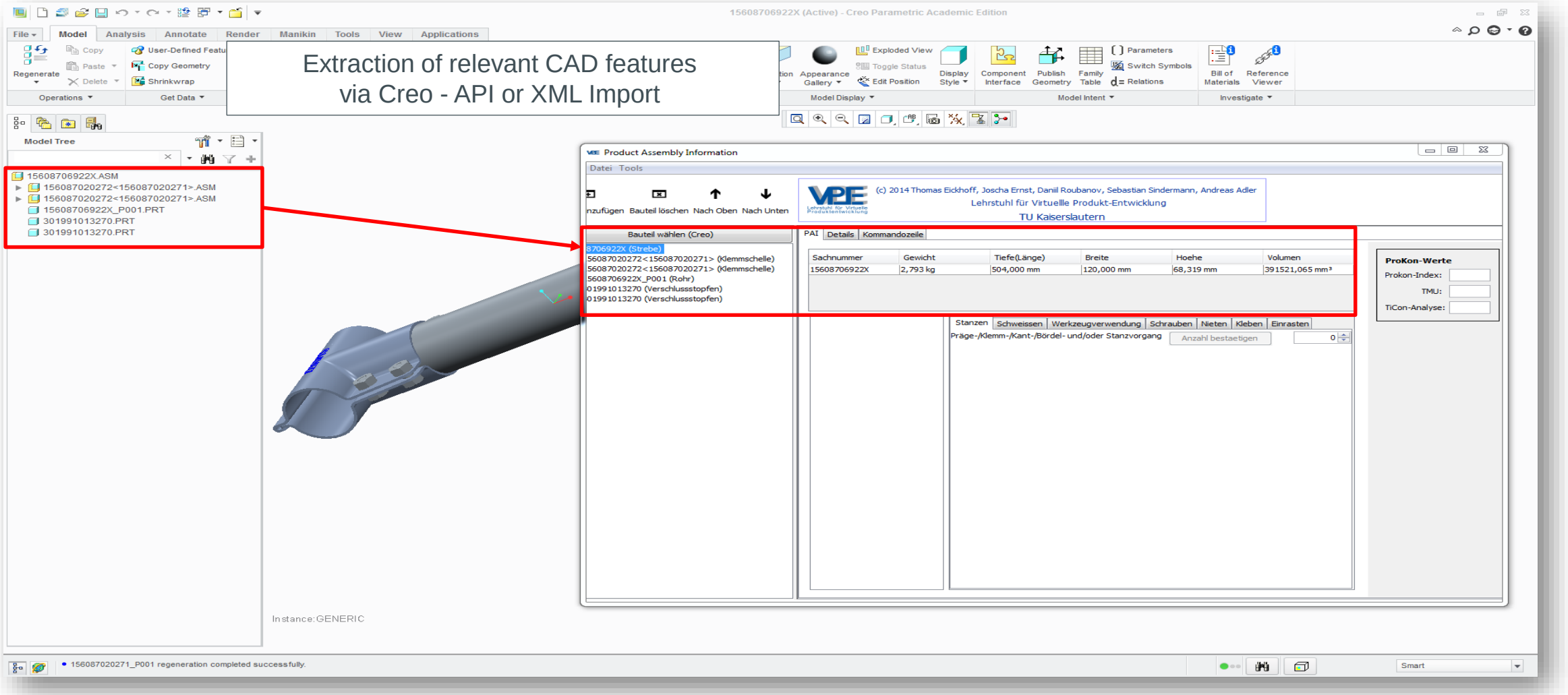
Digital time management and tool selection

- Digital mapping of processes through modern software
- Application and further development of established system solutions
- Analysis of IT developments in process planning

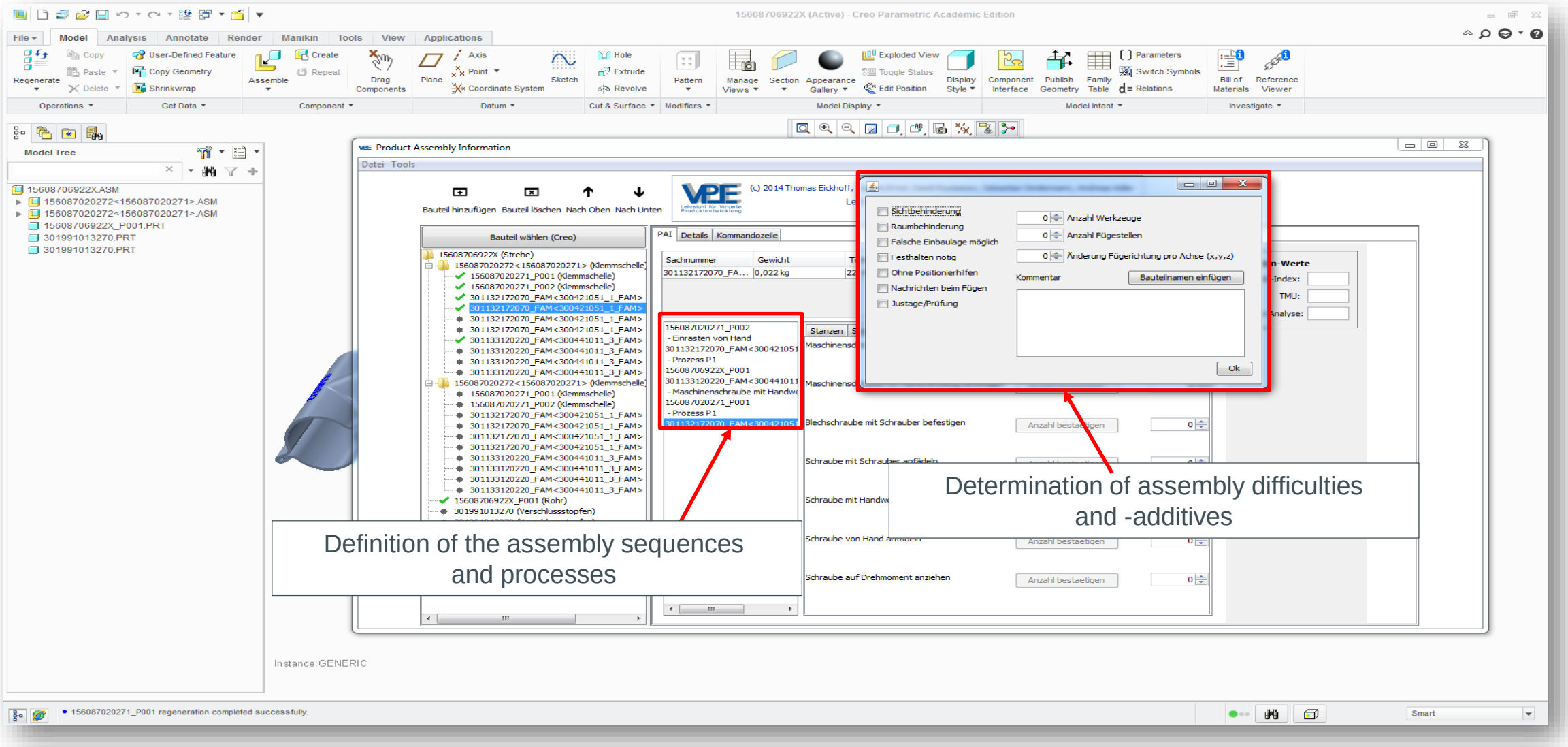
CAD-based Determination of Assembly Work Contents



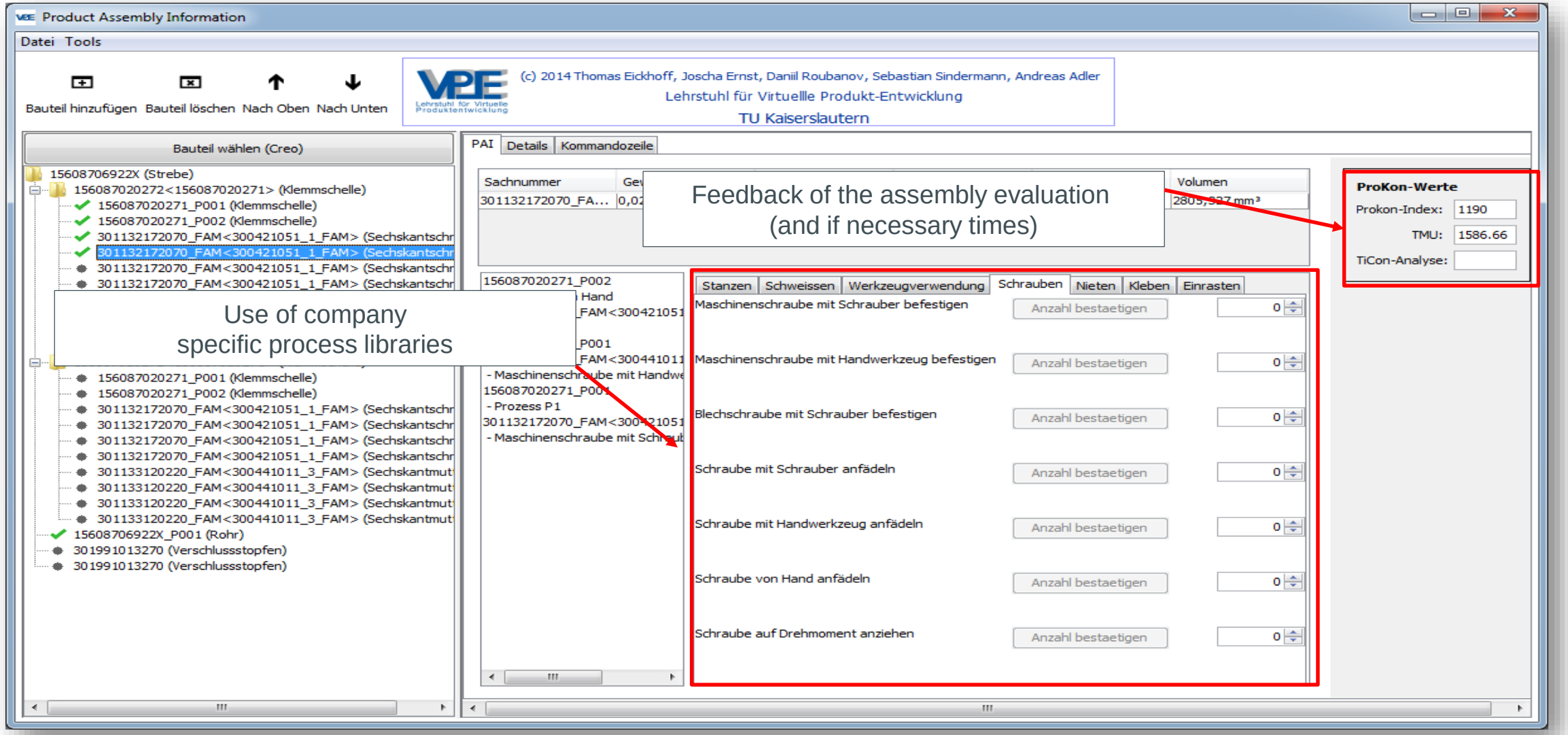
Integration of CAD and Product Assembly Assistant



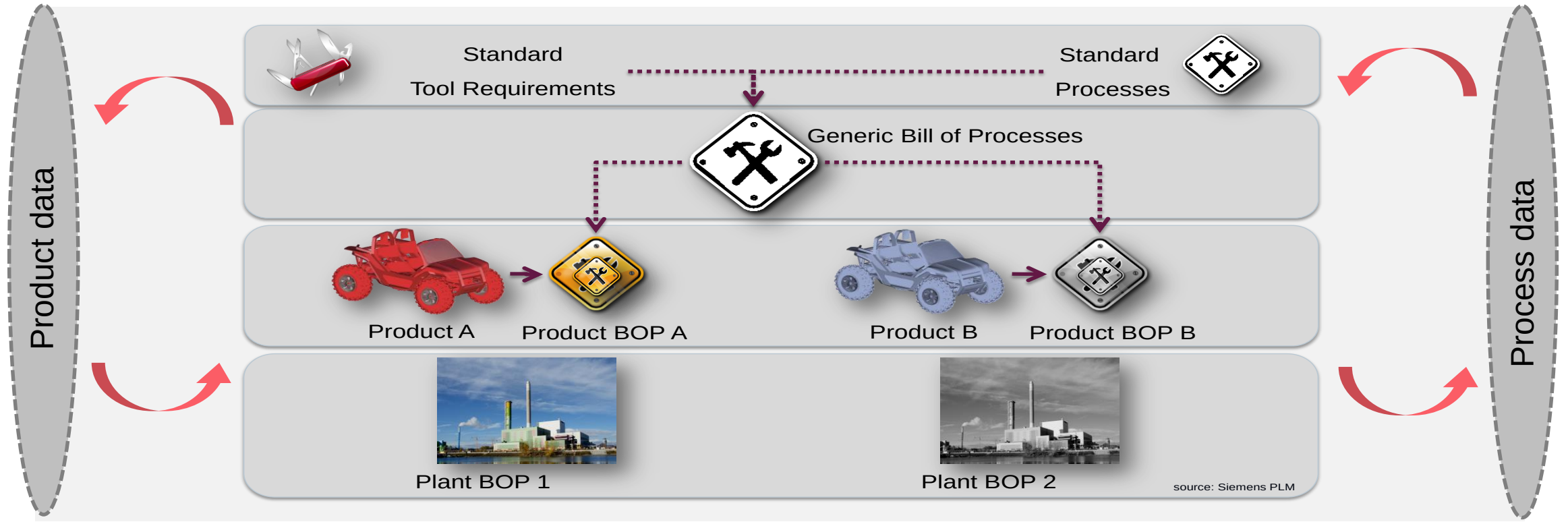
Product Assembly Information - Key Features

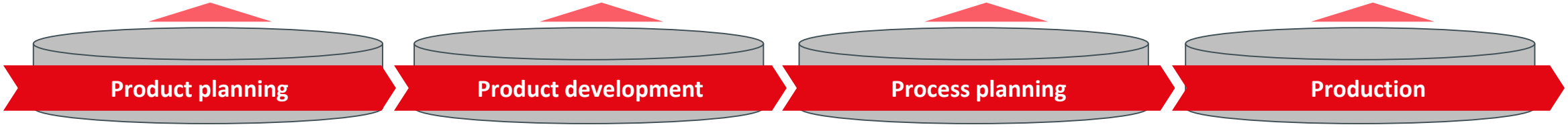


Assembly Evaluation

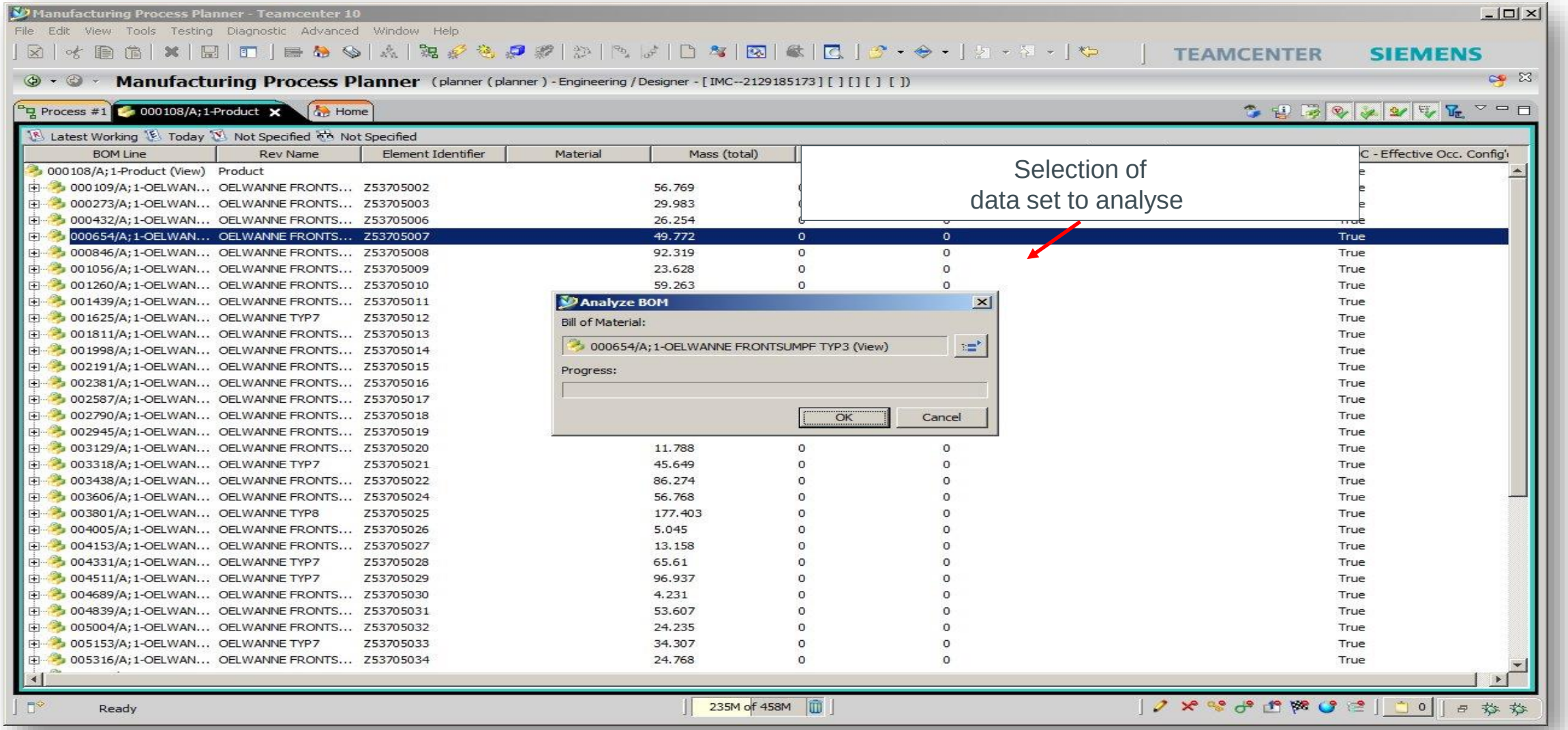


Semi-automated Process Planning in Global Networks

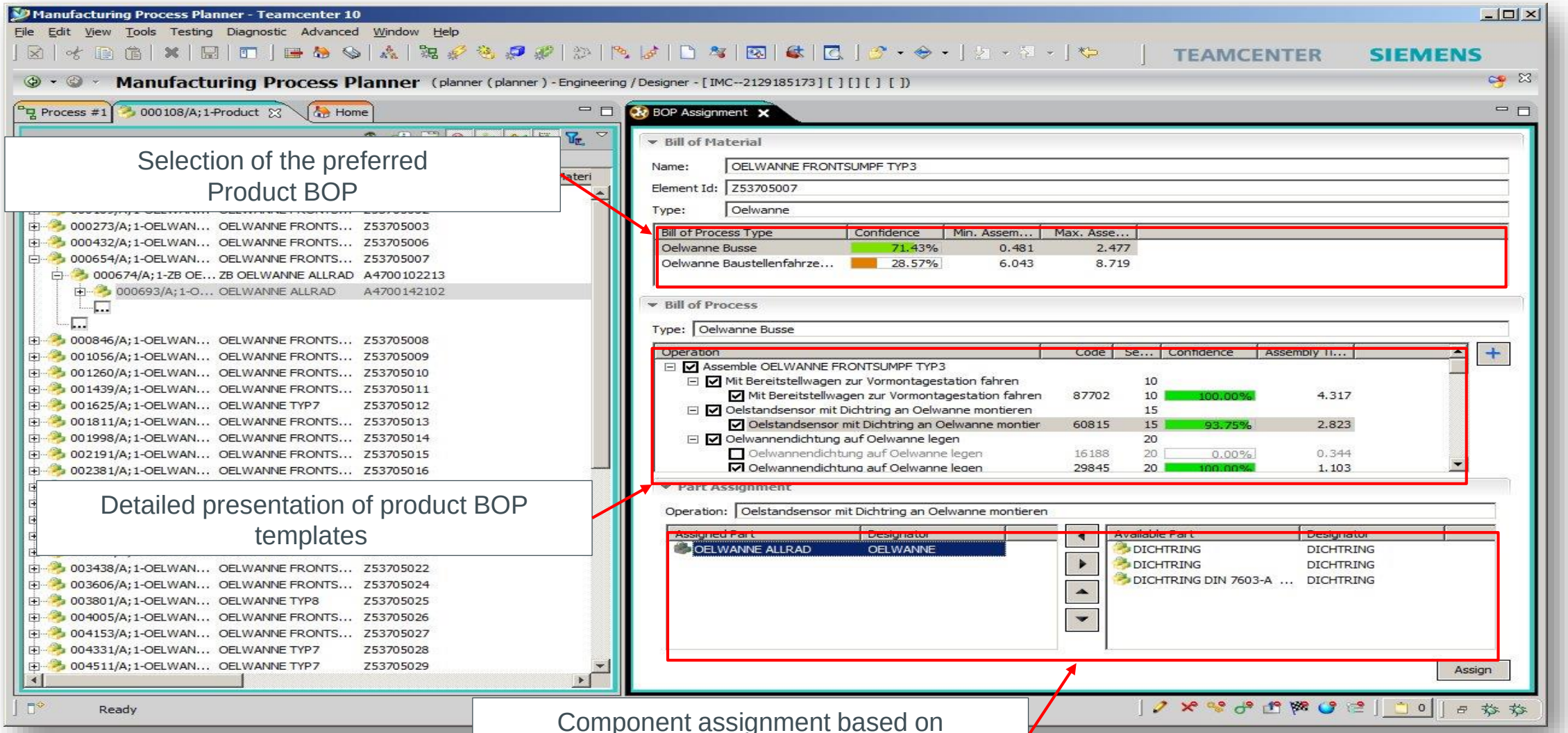




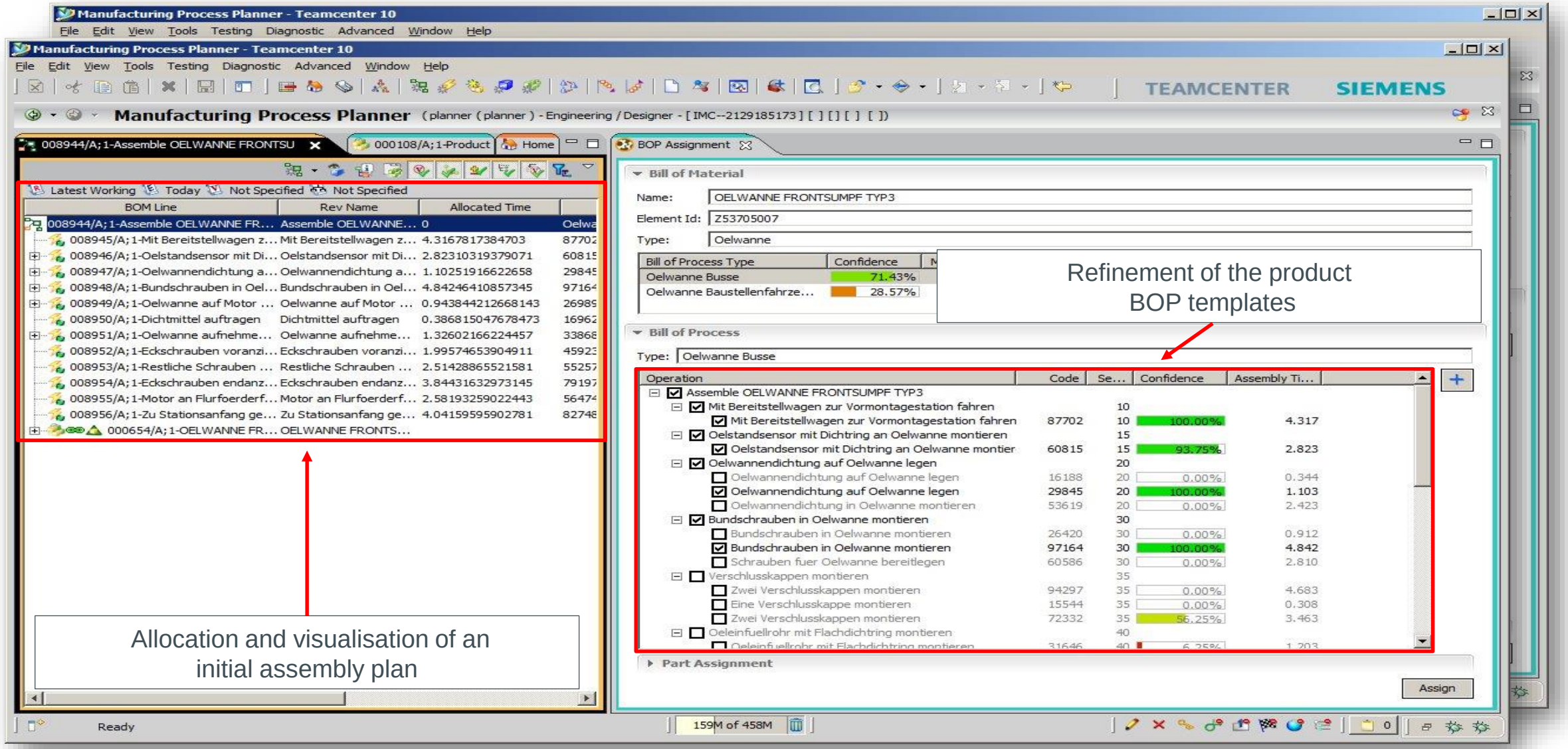
Analysis of Product Data



Selection of Product Bill of Processes (BOP)



Generation of an initial Assembly Plan



Dynamic Value Stream Analysis - Advanced Lean Functions

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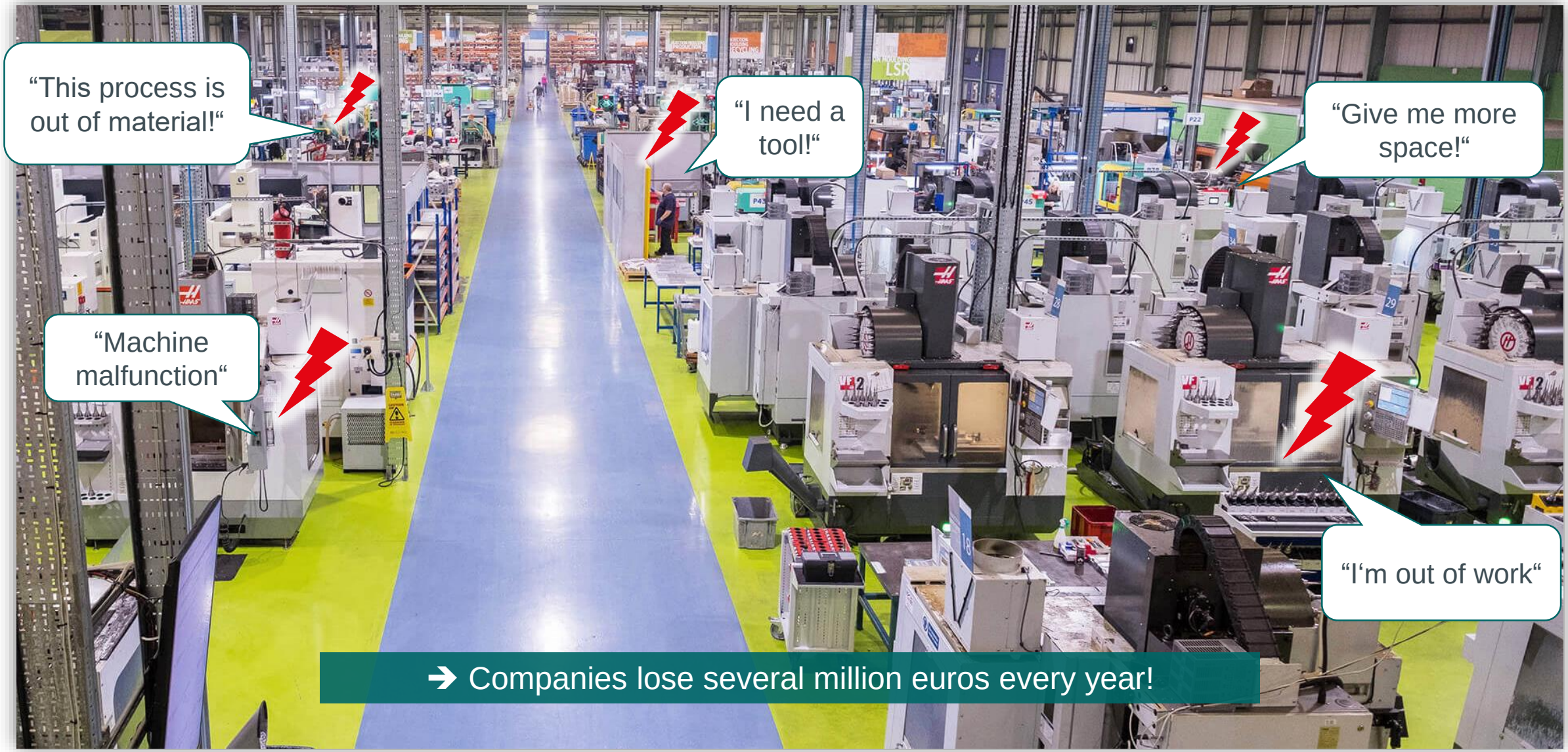
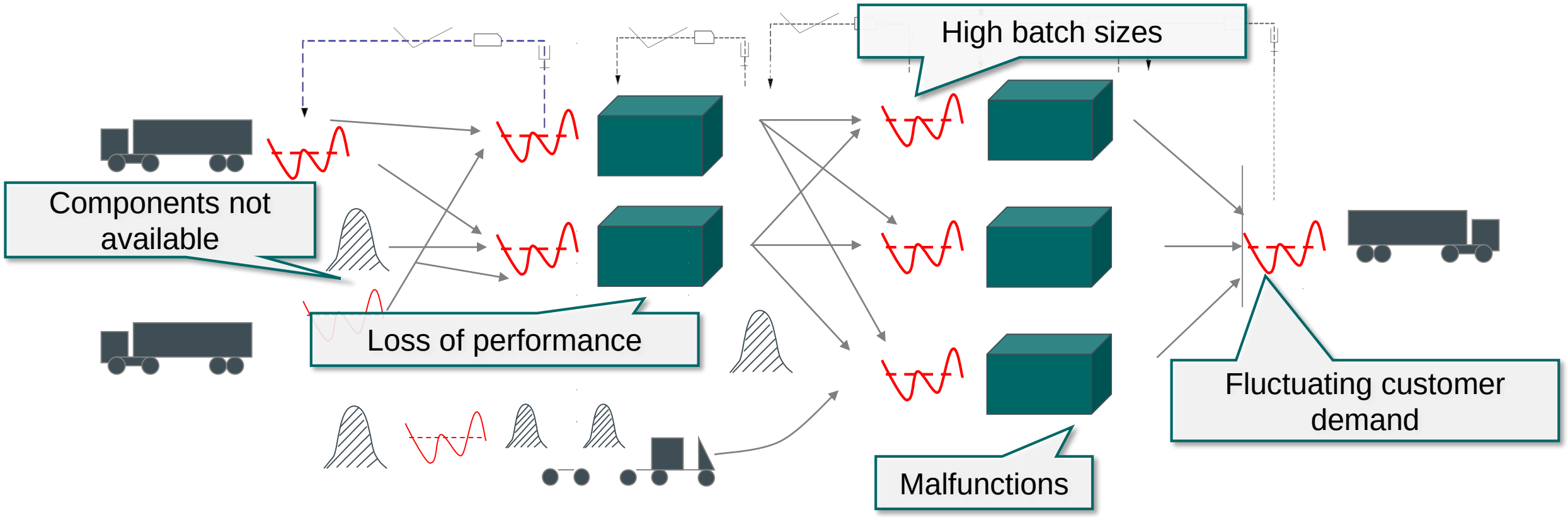
Overcoming challenges in discrete production systems



Production dynamics and characteristic losses

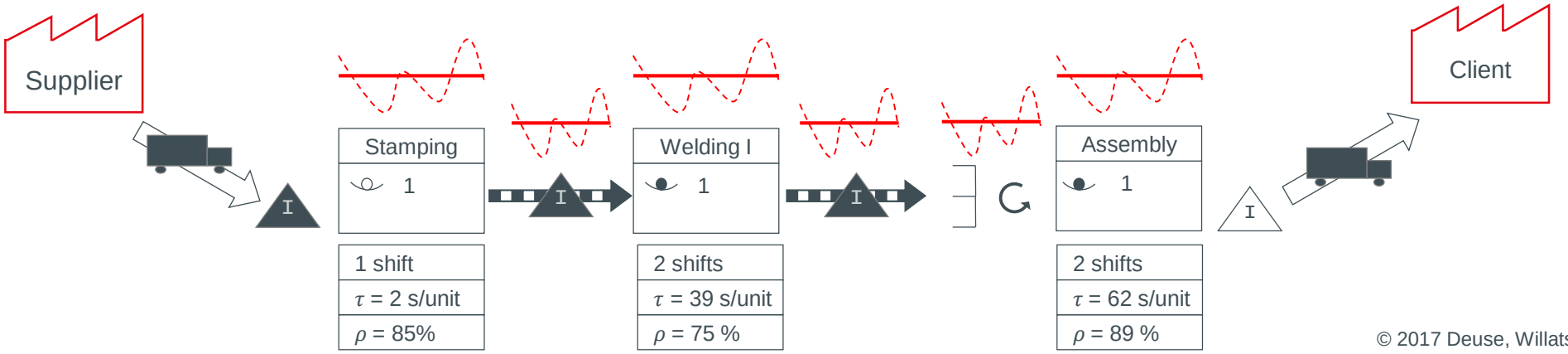


Shortcomings of Value Stream Analysis (VSA)

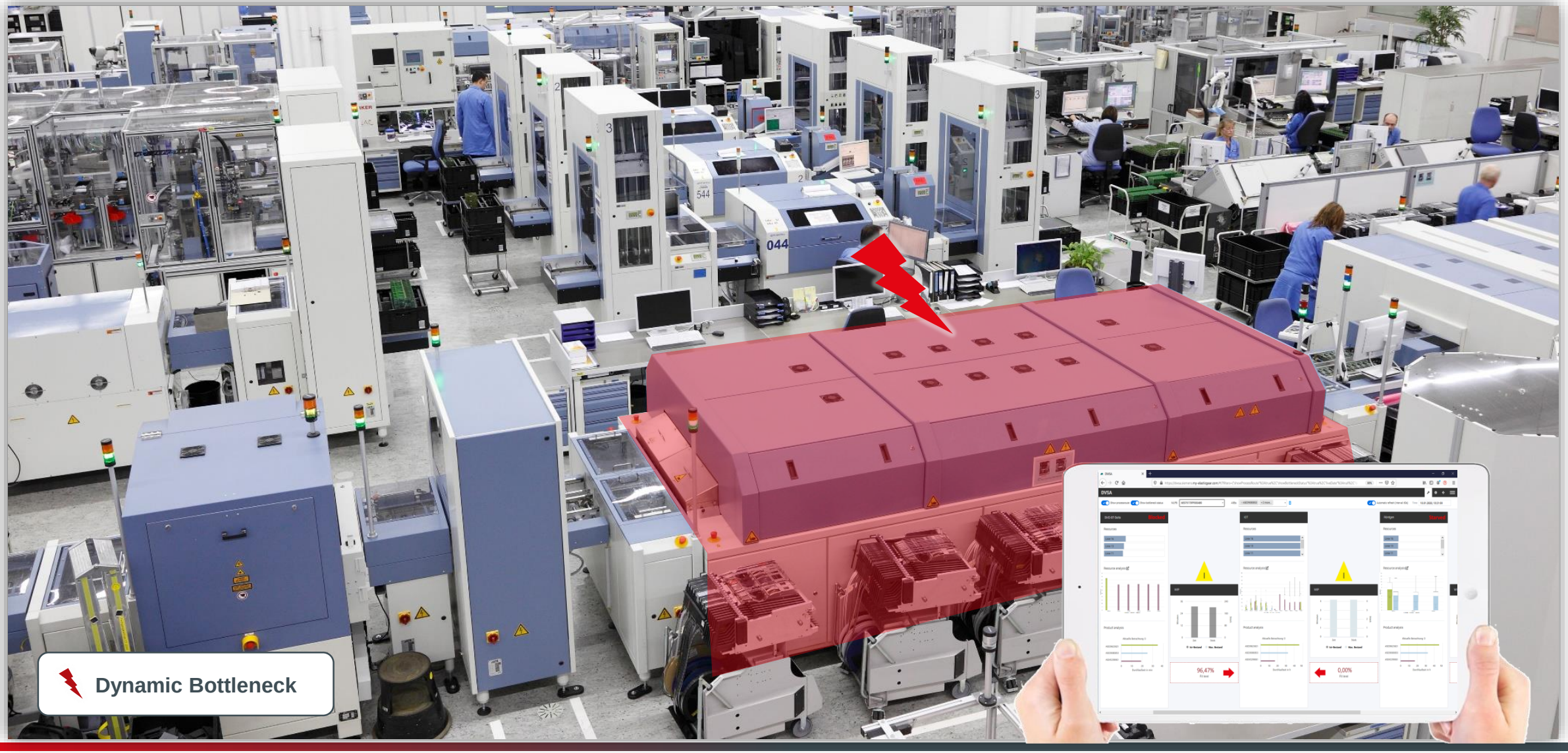
- Isolated investigation of one product group
- Working with averages (e.g. takt)
- Time-intensive, therefore only snapshots (e.g. safety stocks)

- Consequently, no sufficient data basis for:
  - Recording of variability
  - Identification of changing bottlenecks
  - Consideration of value stream dynamics

➢ **Lack of opportunity for effective improvement and lean stock design**



Digitization enables a Dynamic Value Stream Analysis (DVSA)



Scalability of DVSA approach

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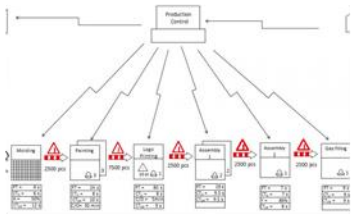
Application Breadth

Analytical Depth

	station	line	sector	site	network
delivery and value streams					 **„Buffer Stock Dimensioning“**
zones and bottlenecks		 **„Dynamic Bottleneck Identification“**			
Parameters and utilization	 **„Cycle Time Analysis“**				

Absorption of variability through **Buffer Stocks Dimensioning**

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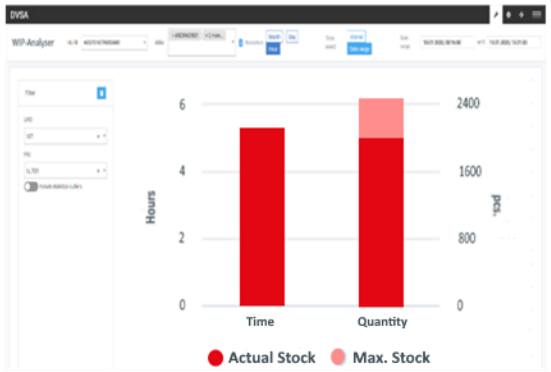
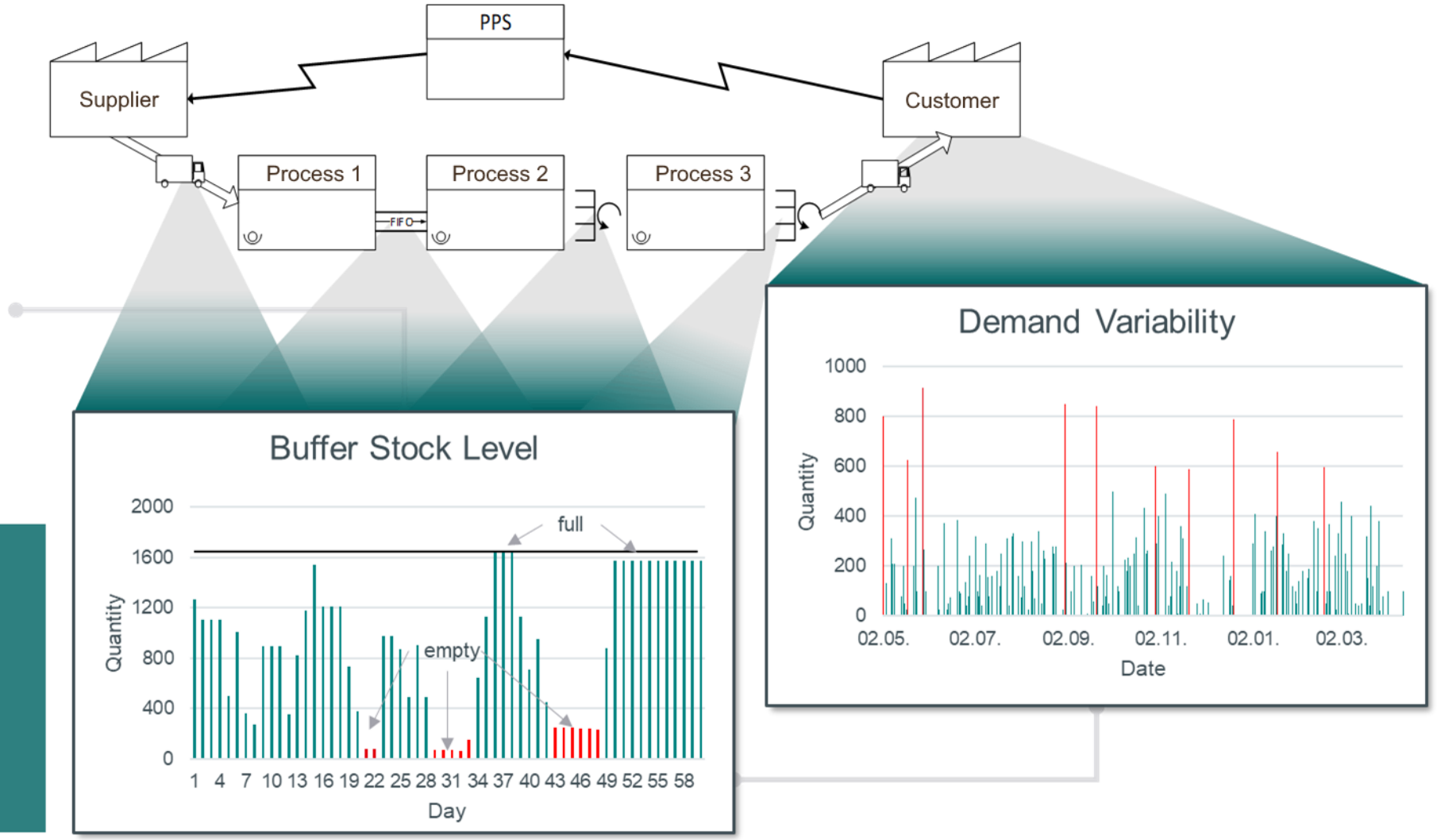
Dynamic buffer stock analysis for product groups and types

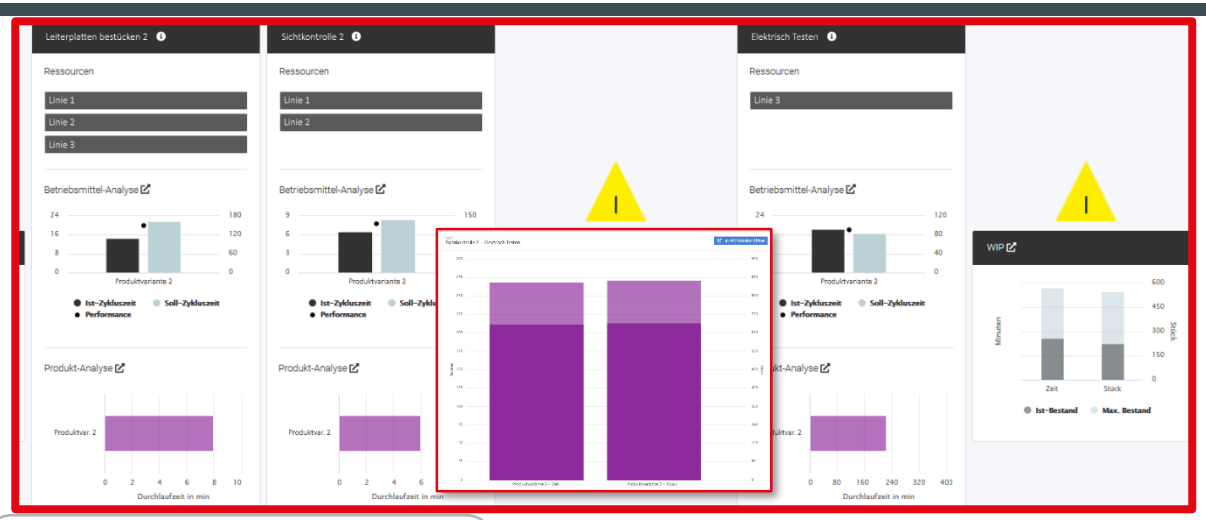


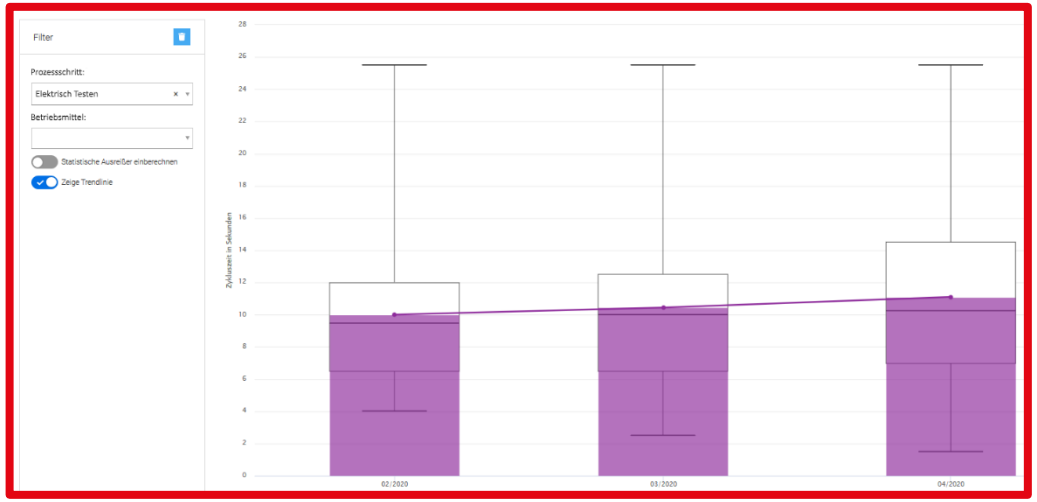
Design approaches:

- Analysis of historical data for buffer stock design
- Selection of continuous improvement areas
- …



User Story – Analysing Dynamic Work in Process (WIP)





Material accumulates in front of the electrical tester.

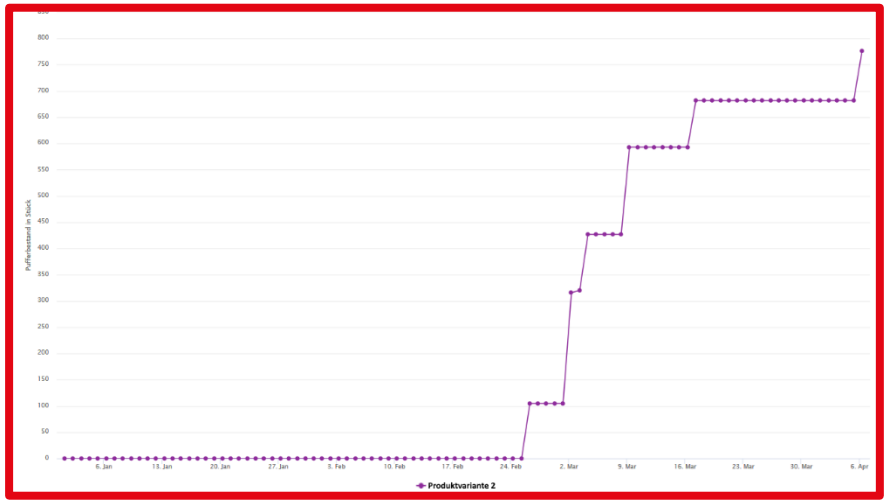
Jim (Process Engineer)

High WIP

Rising stock since mid February

Increasing cycle time and spread

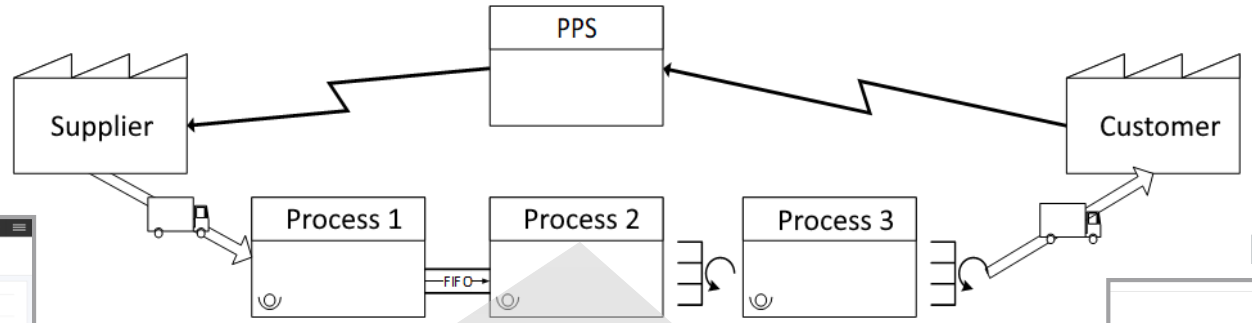
CIP actions



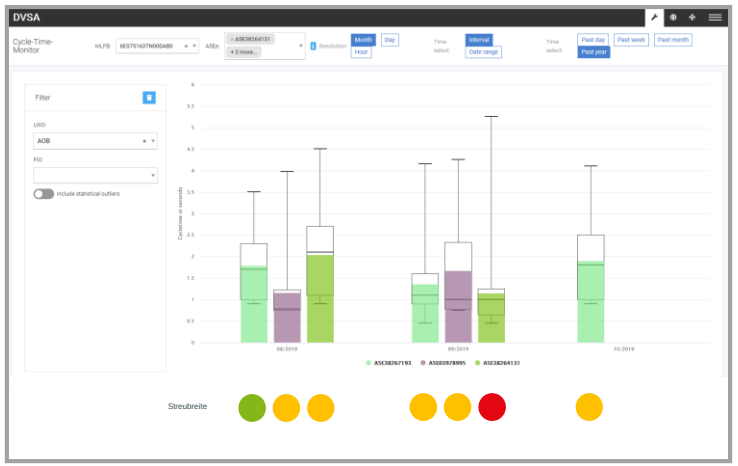
Savings

- Reduced stocks
- Reduced cycle times
- Increased Output
- Less overload

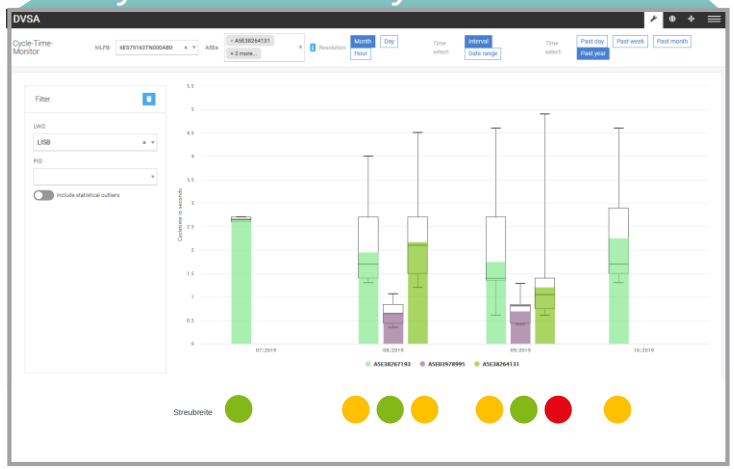
Visualization of process variability through **Cycle Time Analysis**



Cycle Time Analysis Process 1



Cycle Time Analysis Process 2



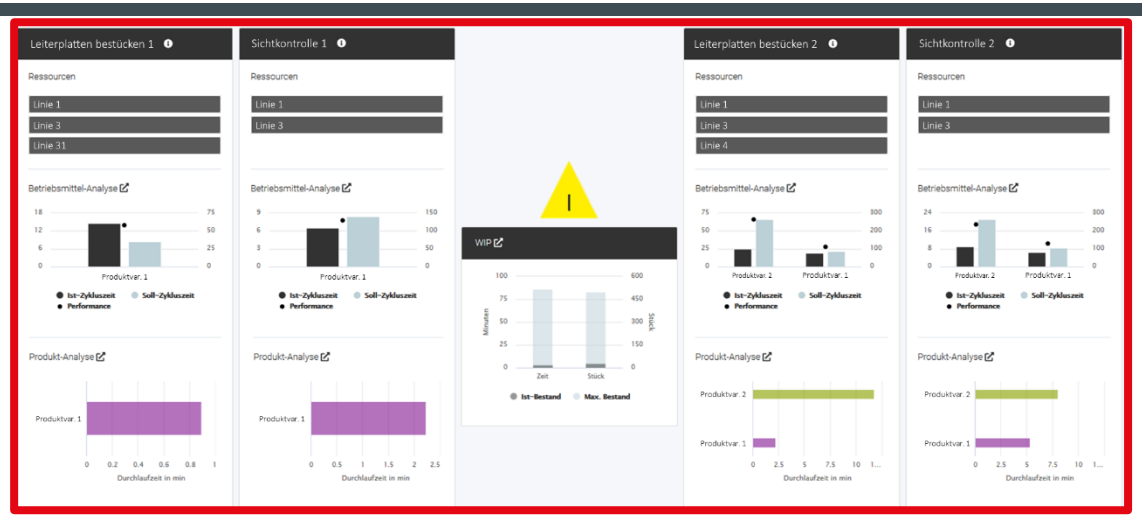
Boxplot

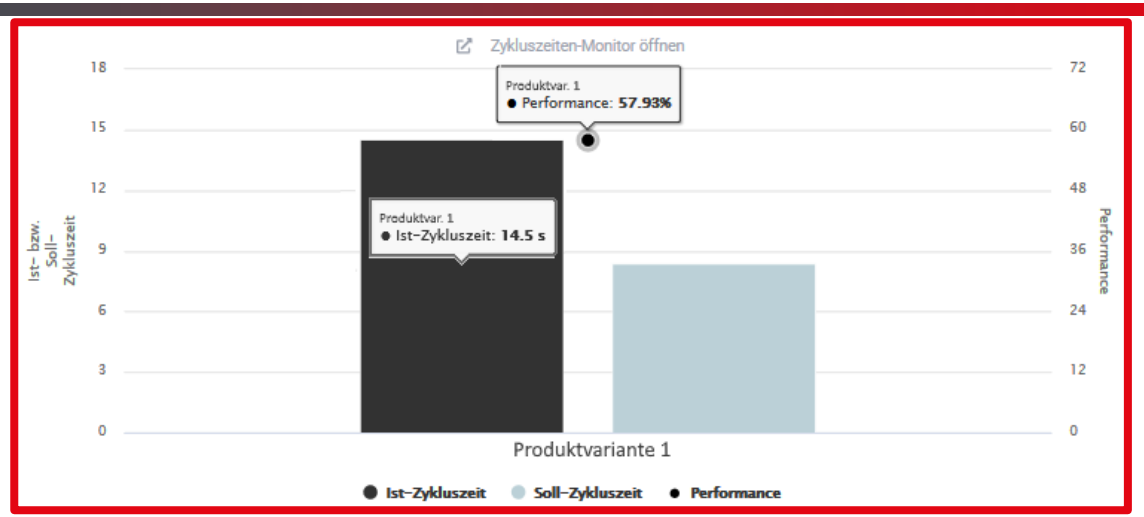
Visualization of variability through boxplots and color codes

Design approaches:

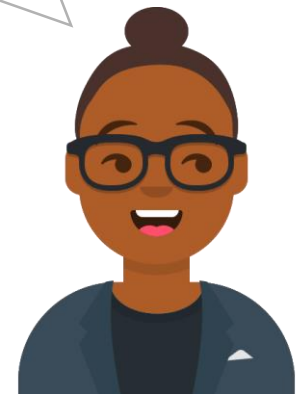
- Standardization of individual processes
- Stability improvement of value streams
- Product mix design
- …

User Story – Updating Work Schedules





Are our planned times up-to-date?

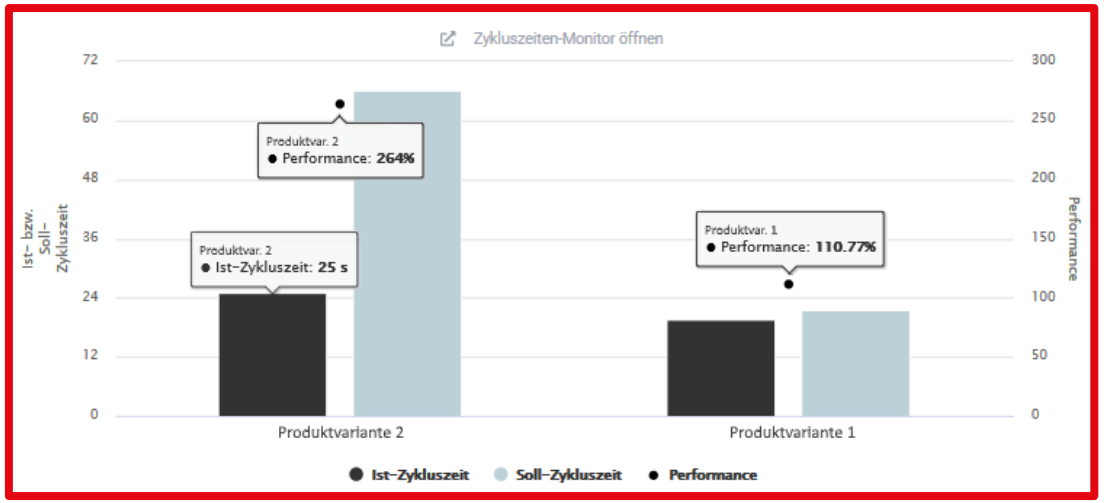


Kelly (Production Planner)

Circuit board assembly 2
Performance ≥ 100%

Circuit board assembly 1
Performance < 60%

Adaptation of work plans necessary



Savings

- More accurate cost calculation
- Reduced throughput times

Dynamic Bottleneck Identification through buffer stock analysis

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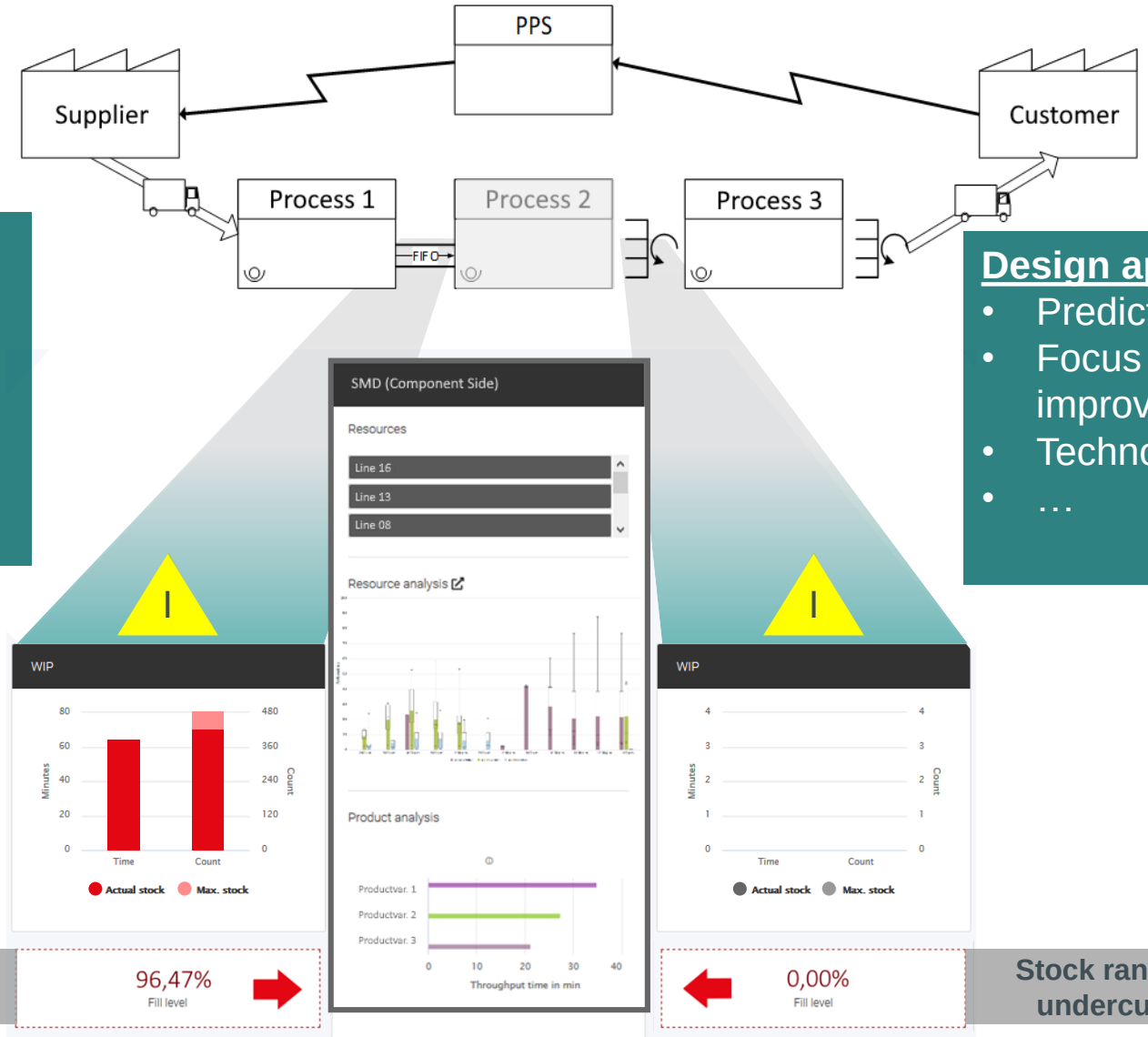
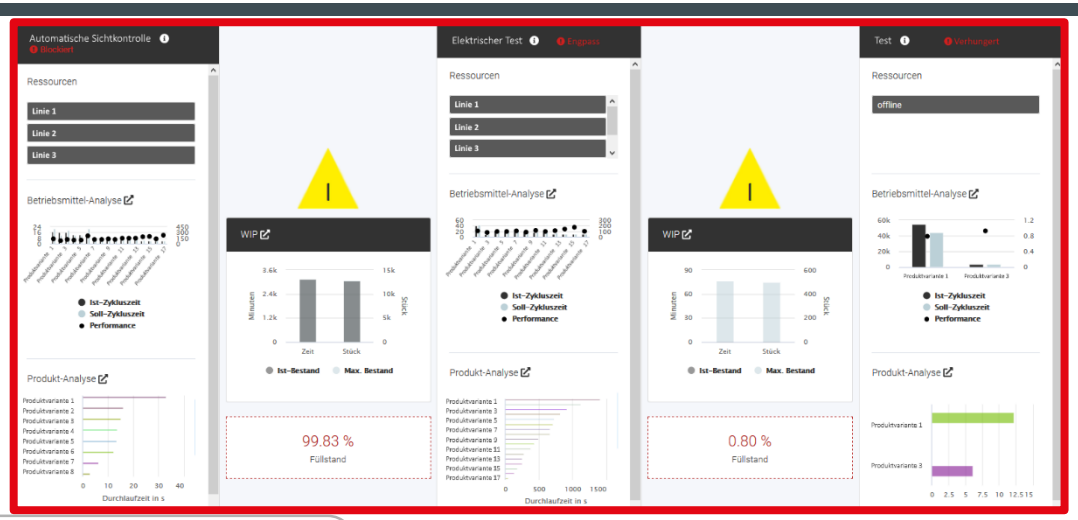
Design approaches (reactive):
- Identification of current bottlenecks
- Focus on troubleshooting and maintenance
- Product mix control
- …

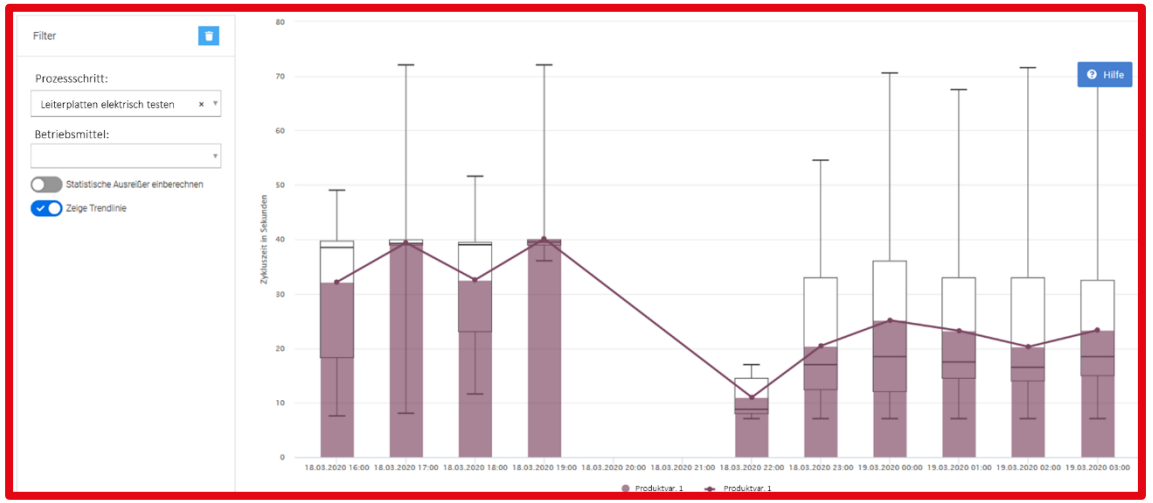


Design approaches (predictive):
- Prediction of future bottlenecks
- Focus on standardization and improvement
- Technology design
- …

Blocked processes | **Stock range exceeded** | **Stock range undercut** | **Starved processes**

User Story – Working on Dynamic Bottlenecks





Our production stopped

Bottleneck identified

High process performance

High process fluctuation

Stabilize cycle times

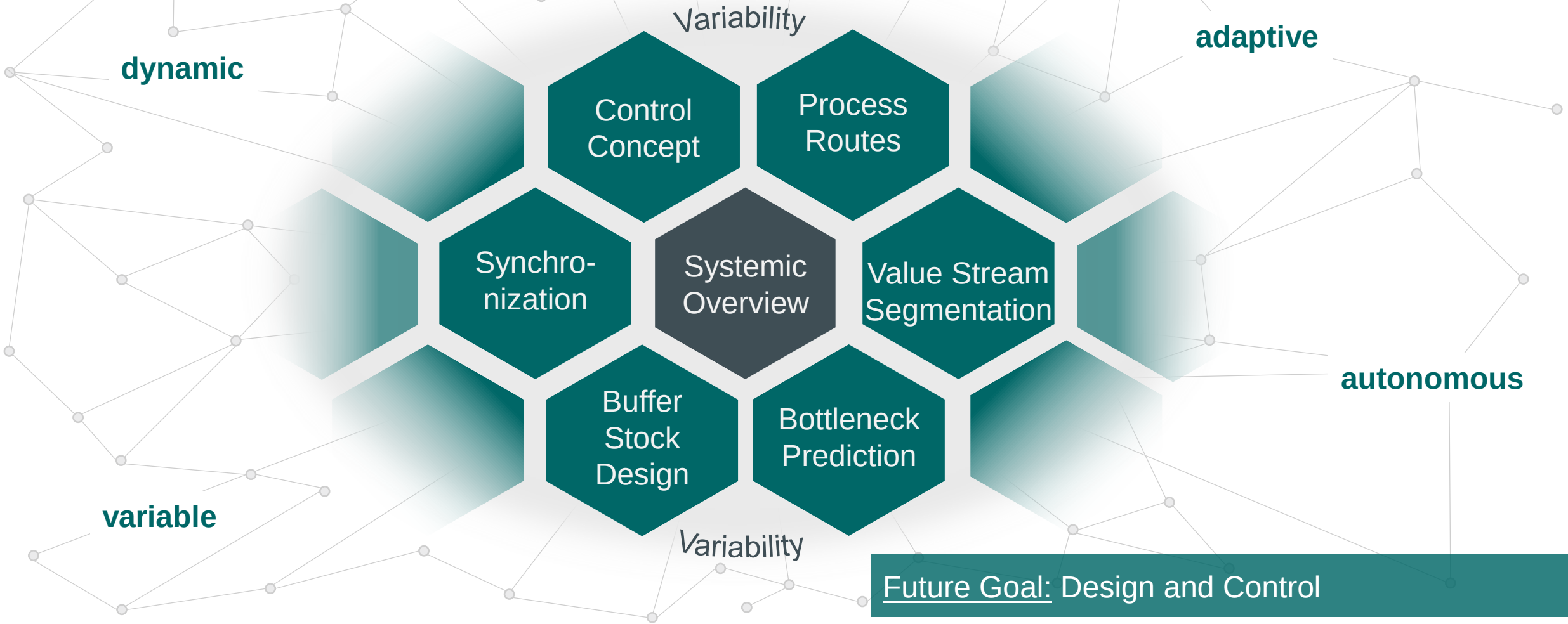
Michael (Production Manager)

Savings

- Improved process stability
- Reduced throughput time
- Increased output
- Improved OEE

Functions for the Future Value Stream Design

Current Goal: **Transparency and Analysis**



Future Goal: Design and Control

IPS engineers
Industrial Production Systems

Understanding and Designing Production Systems

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