2nd European Forum on New Technologies
DIGITALISATION IN CHEMICAL ENGINEERING

A View from the Food Industry

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Fraunhofer IVV

Business Fields and Research Areas

Food

Product Performance

Packaging

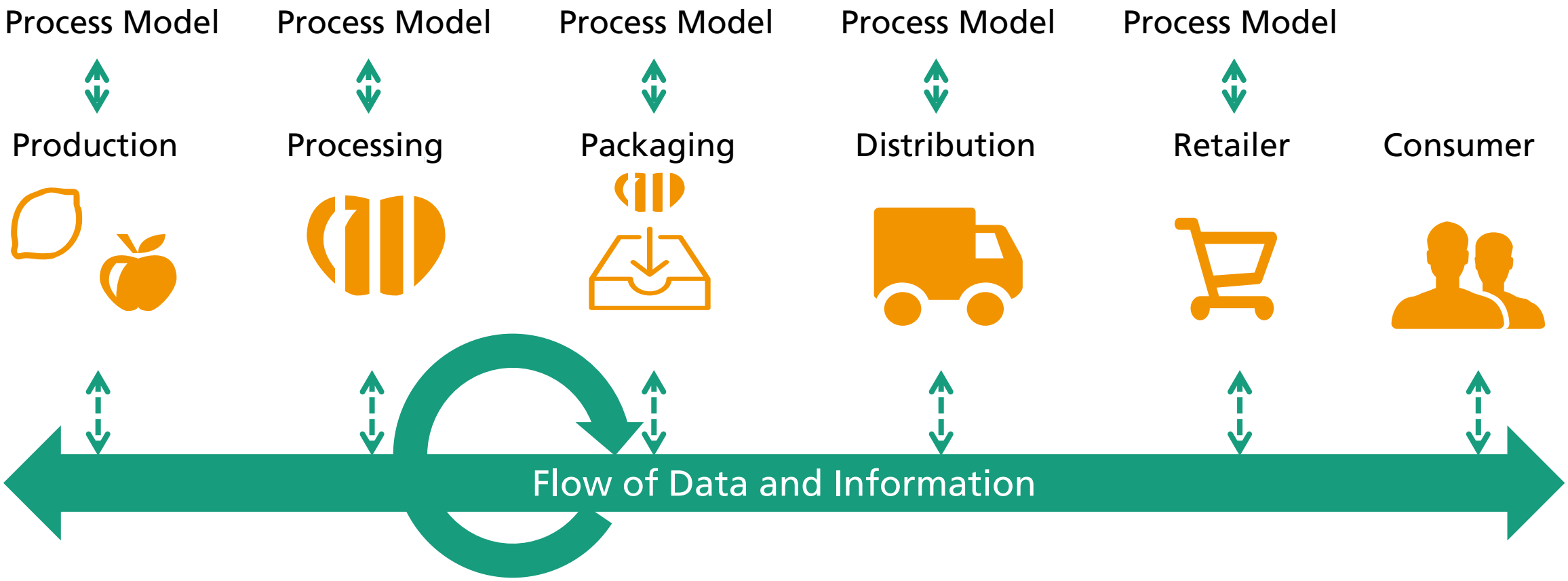
Processing Machinery

Recycling and Environment

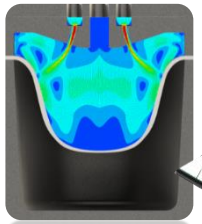
Synergies for optimal results

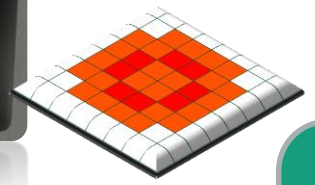
- Product Safety
- Process Efficiency

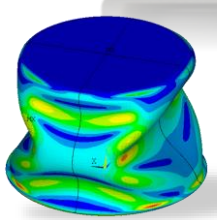
Digitalisation in Food Production
Value Chain

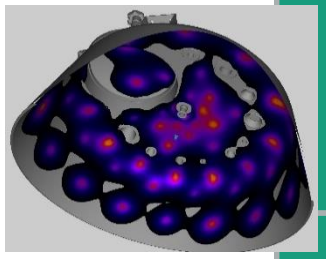


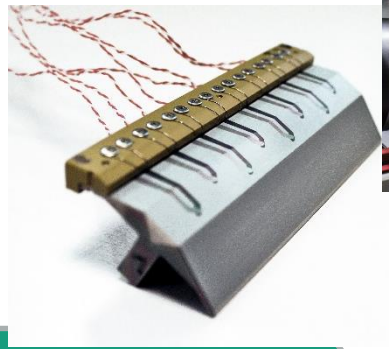
Digitalisation at Fraunhofer IVV

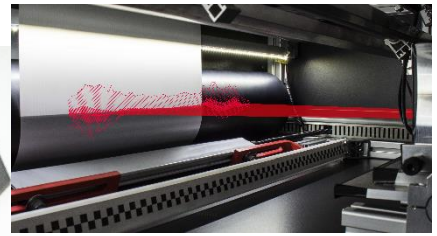


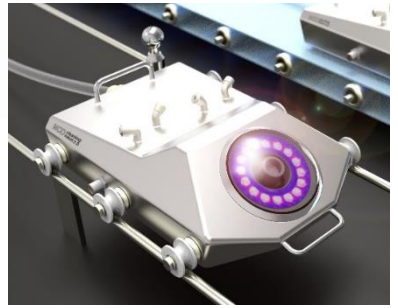












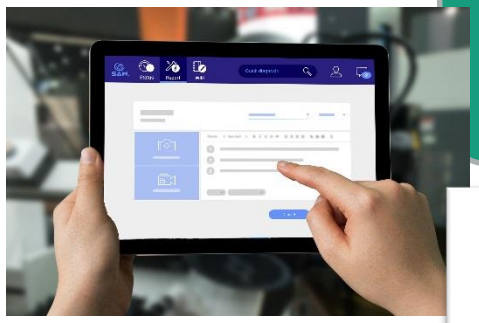
Simulation

Adaptive Processes

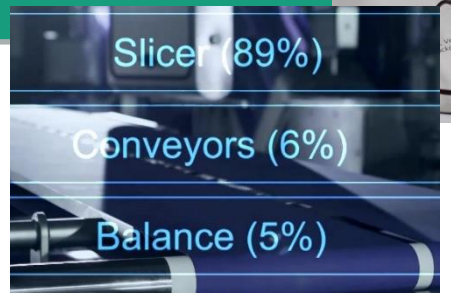
Data Modelling

Assistance Systems

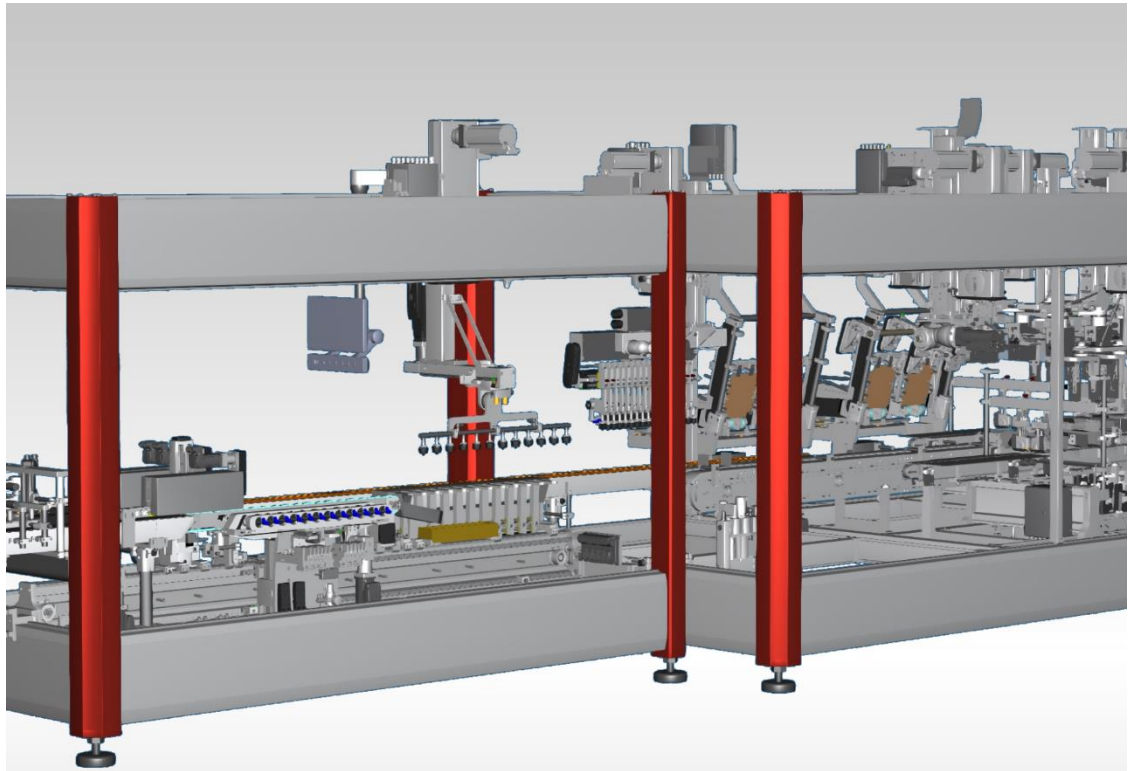
Data Analytics



Smarte Werkbank
Grafisches Assistenzsystem für produktionstechnische Systeme



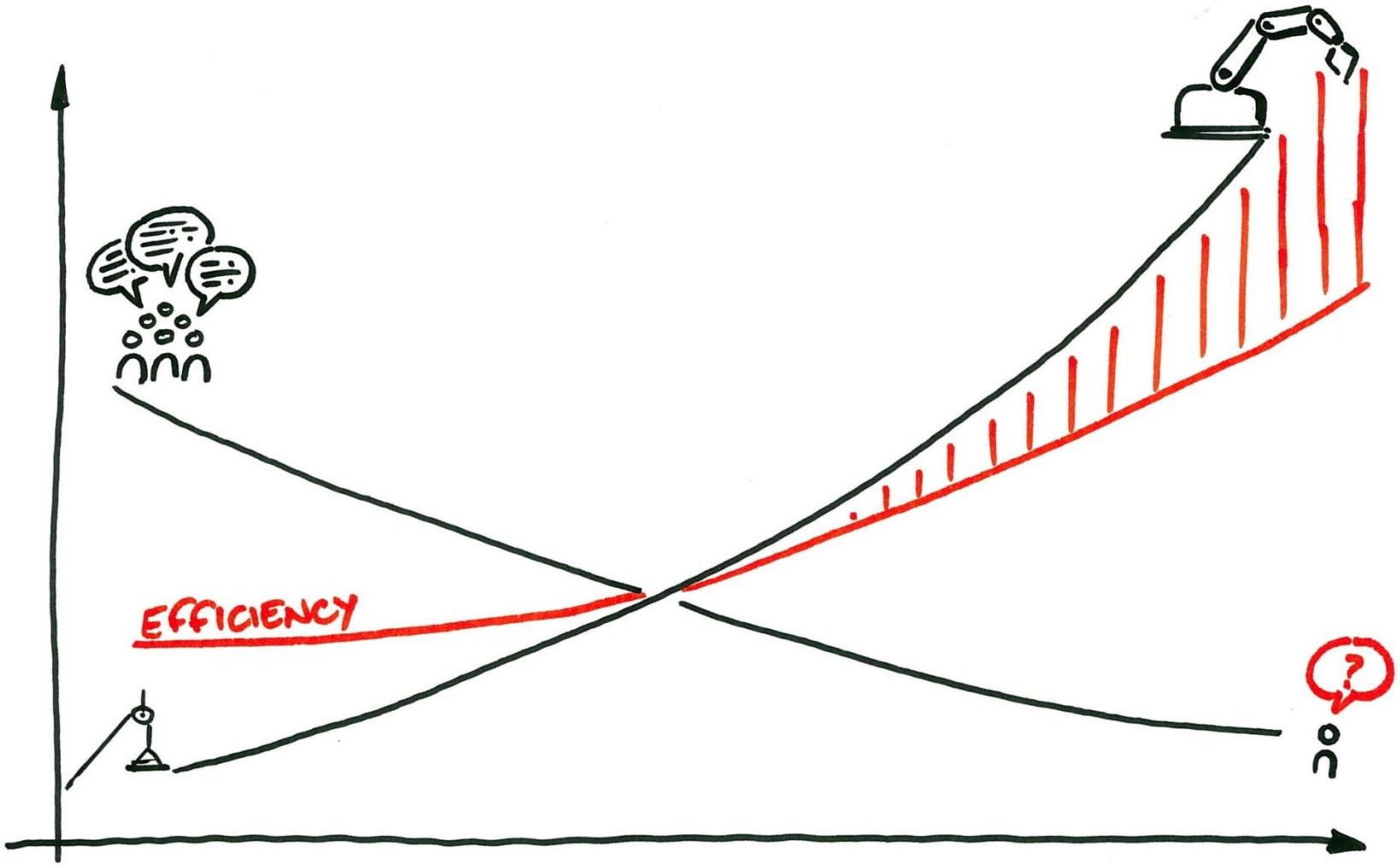
Plant Efficiency
Theory vs. Reality



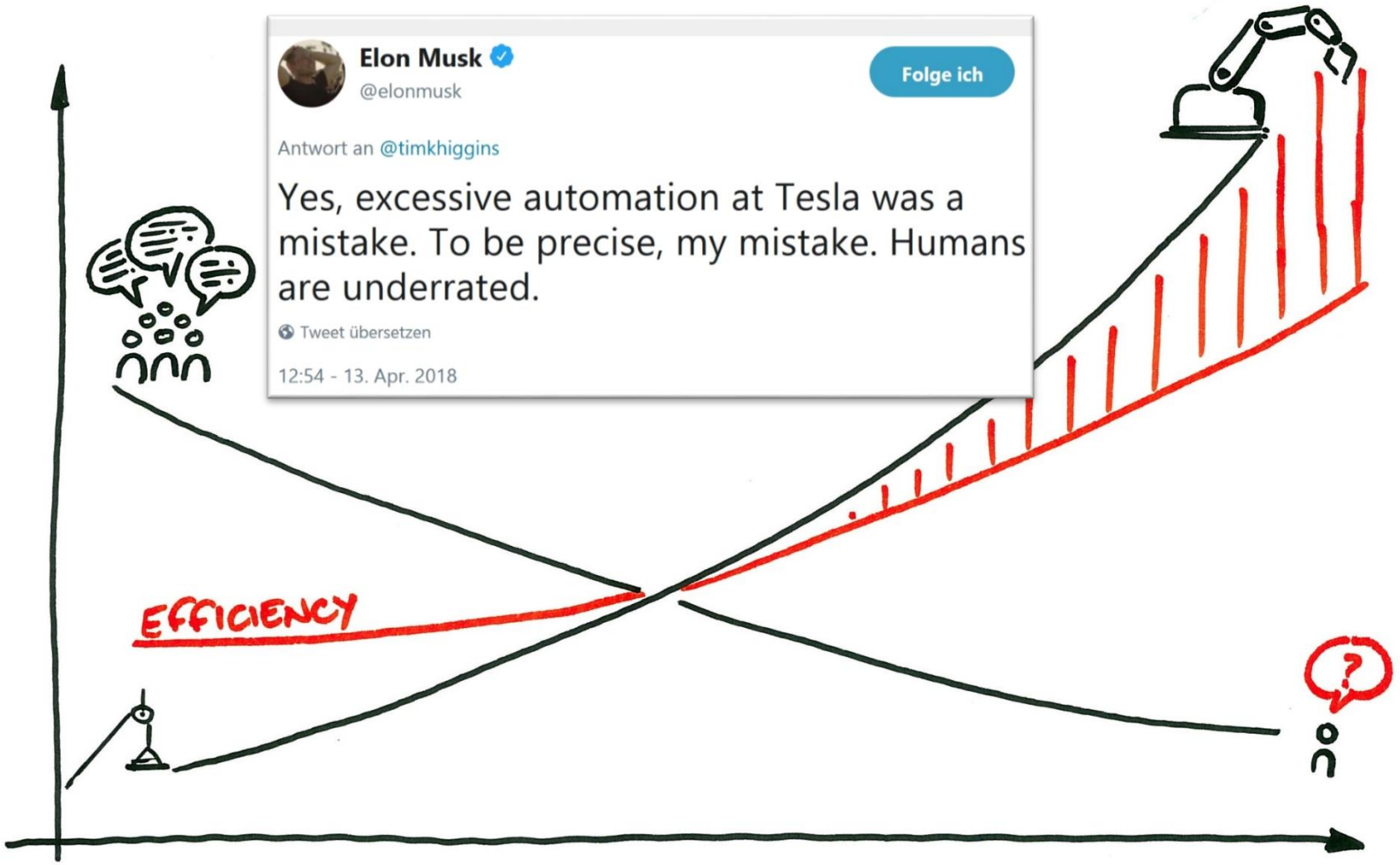
Source: www.all-electronics.de

- **Theoretically possible OEE:**
  - 95-99%
- **Real OEE:**
  - 60-70%

One Reason: Missing Process Understanding



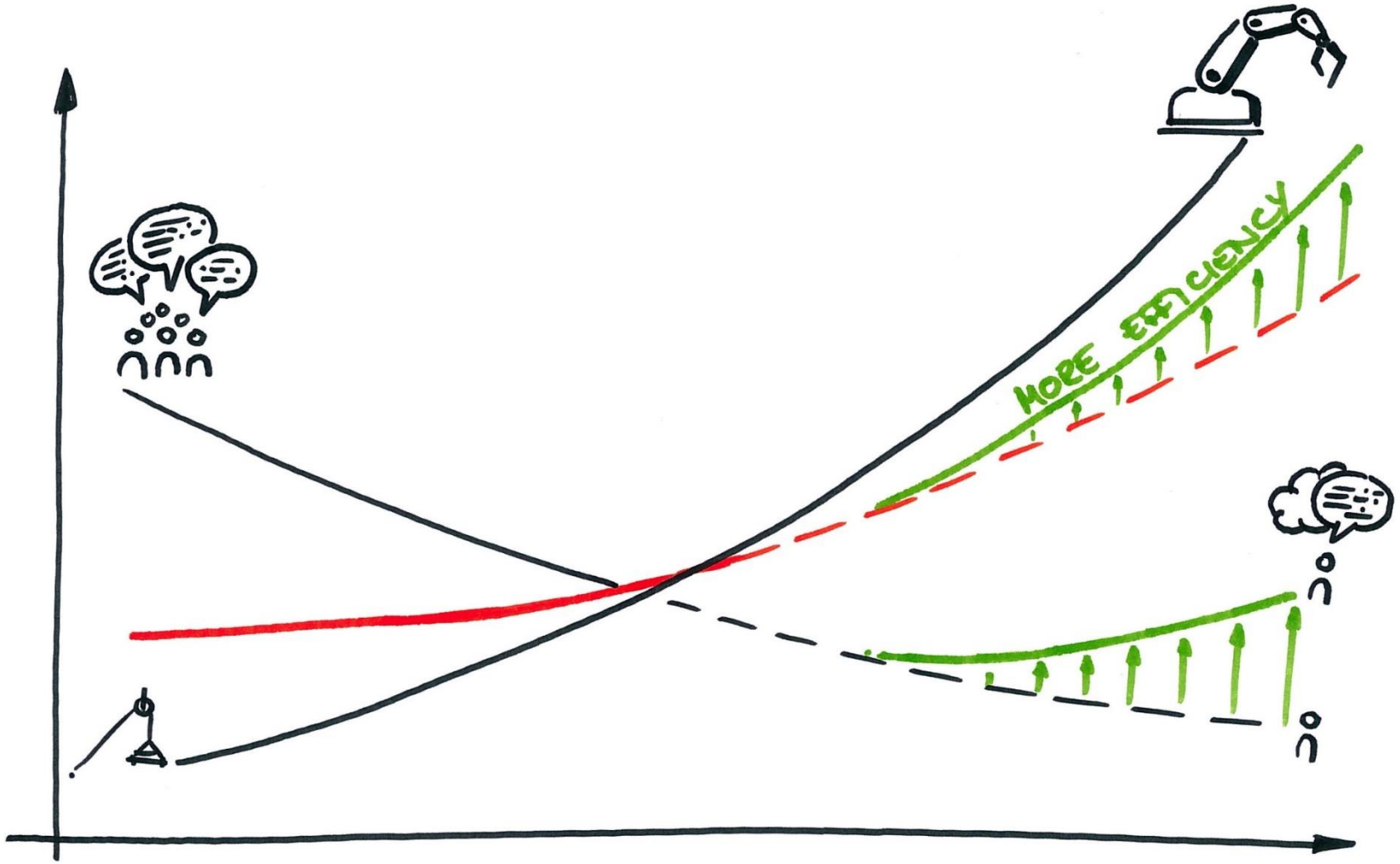
Approach #1: Automation



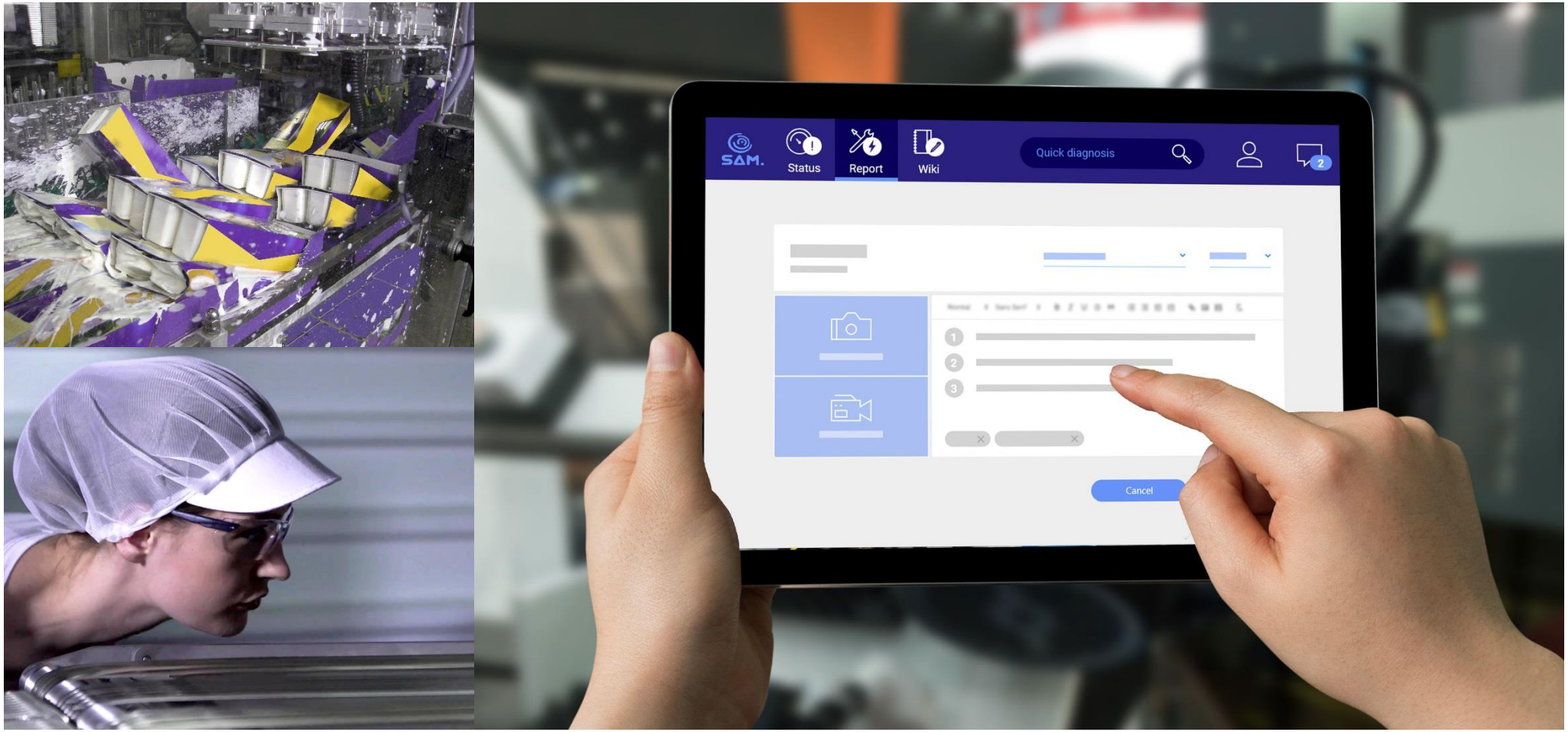
Approach #2: Empowering Unique Human Skills

- motoric
- sensoric
- cognitive

Approach #2



Self-learning Assistance System for Machine Operators



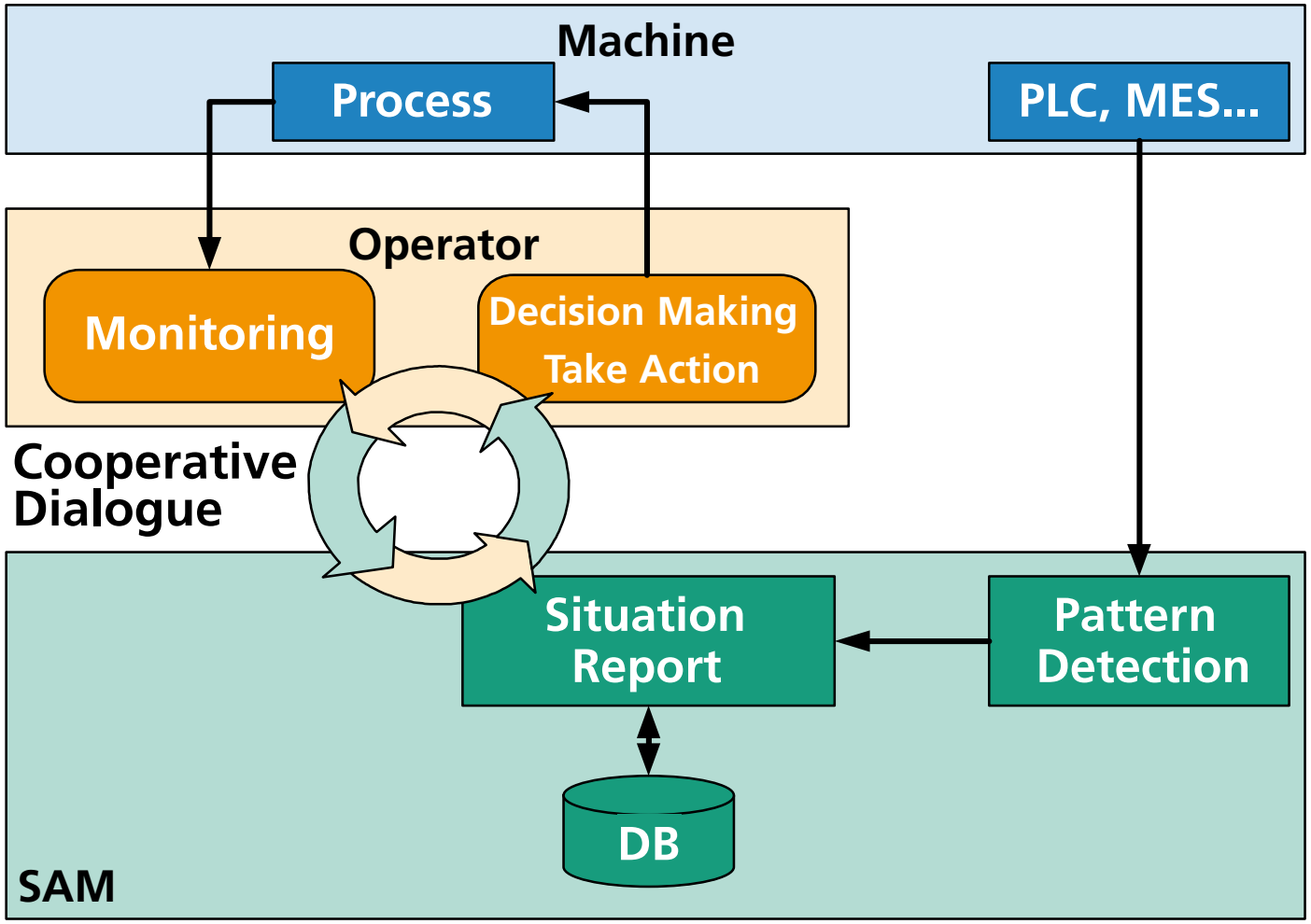
SAM - Combining Machine Learning and Human Experience

SAM.

SELF-LEARNING ASSISTANCE SYSTEM FOR MACHINERY

SAM is a software that combines
machine learning and **human experience** to
reduce disturbances in the production process.

Interaction of SAM and Operator: Dialogue System



Fraunhofer IVV

TECHNISCHE UNIVERSITÄT DRESDEN

ELCO INDUSTRIAL AUTOMATION

THEEGARTEN PACTEC smarter packaging

STORCK

Die Schokoladenfabrik

Federal Ministry of Education and Research

Dialogue System

SAM.
SELF-LEARNING ASSISTANCE SYSTEM FOR MACHINERY

Failure:
Cup is ripped

Where?
- Rim
- Wall
- …

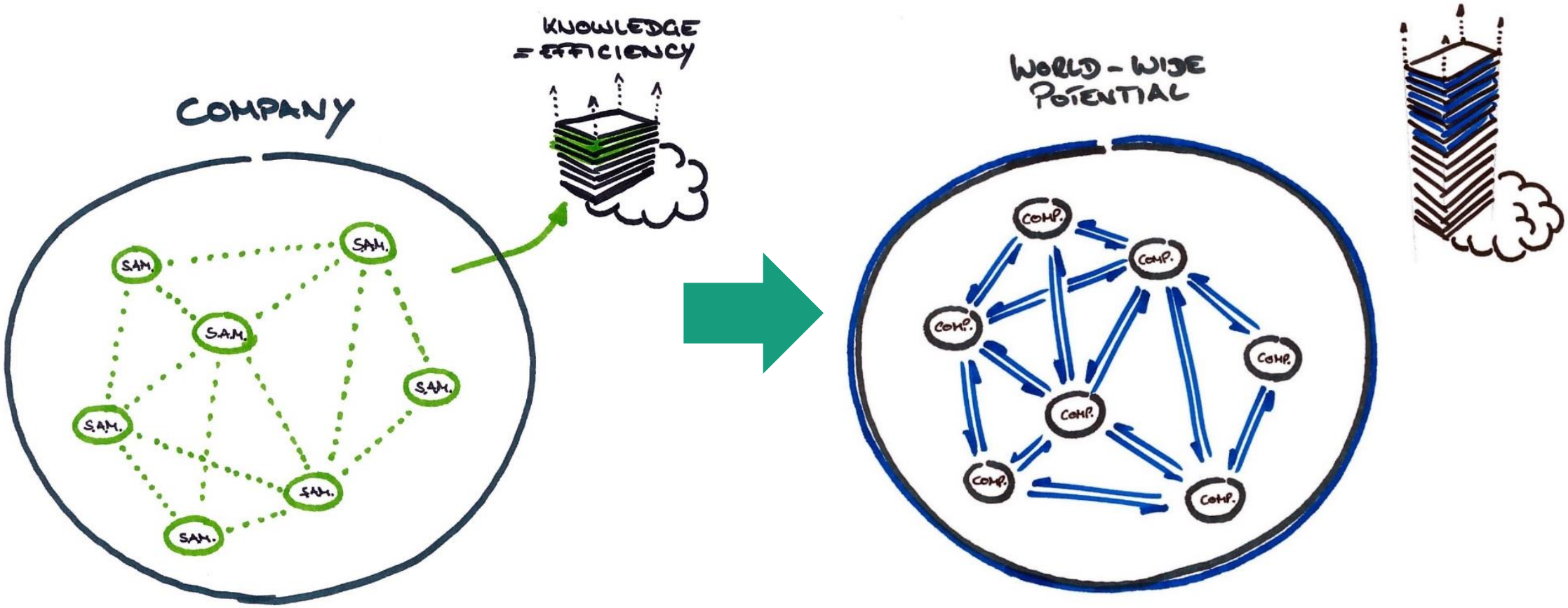
Rim

Check the punch force curve at the HMI:
Is it linearly decreasing from 900 to 600 N?

Yes

What is the drawing velocity?

Performance due to Knowledge Sharing



Want to stay informed about SAM? Feel free to contact us!

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