



Festo and Festo Didactic - Technologies and competencies for tomorrows' companies



Mr. Volker Schmid
Head of Asia Pacific, Festo Didactic SE

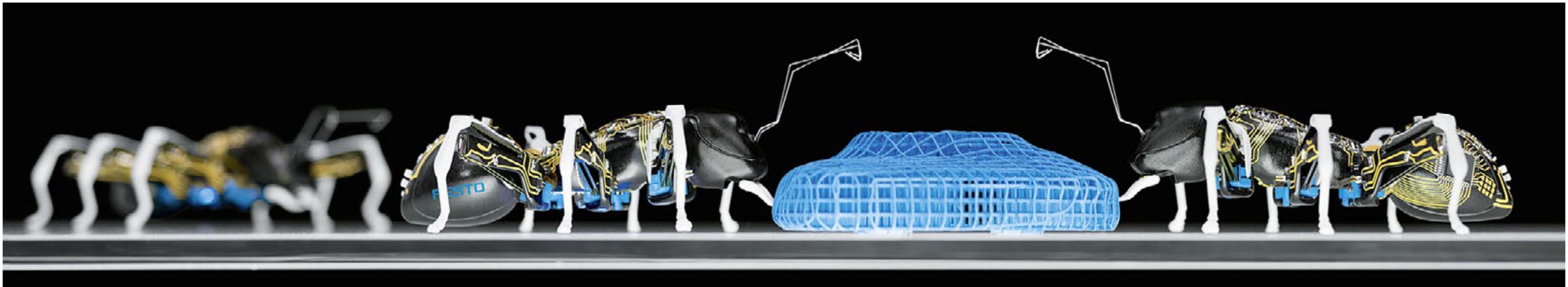


Festo and Festo Didactic - Technologies and competencies for tomorrows' companies

How digitalization changes enterprises and business models.

Why the industry should care about Industry 4.0.

How to foster future skills and competencies.





Festo and Festo Didactic - Technologies and competencies for tomorrows' companies

Festo - an independent family owned company



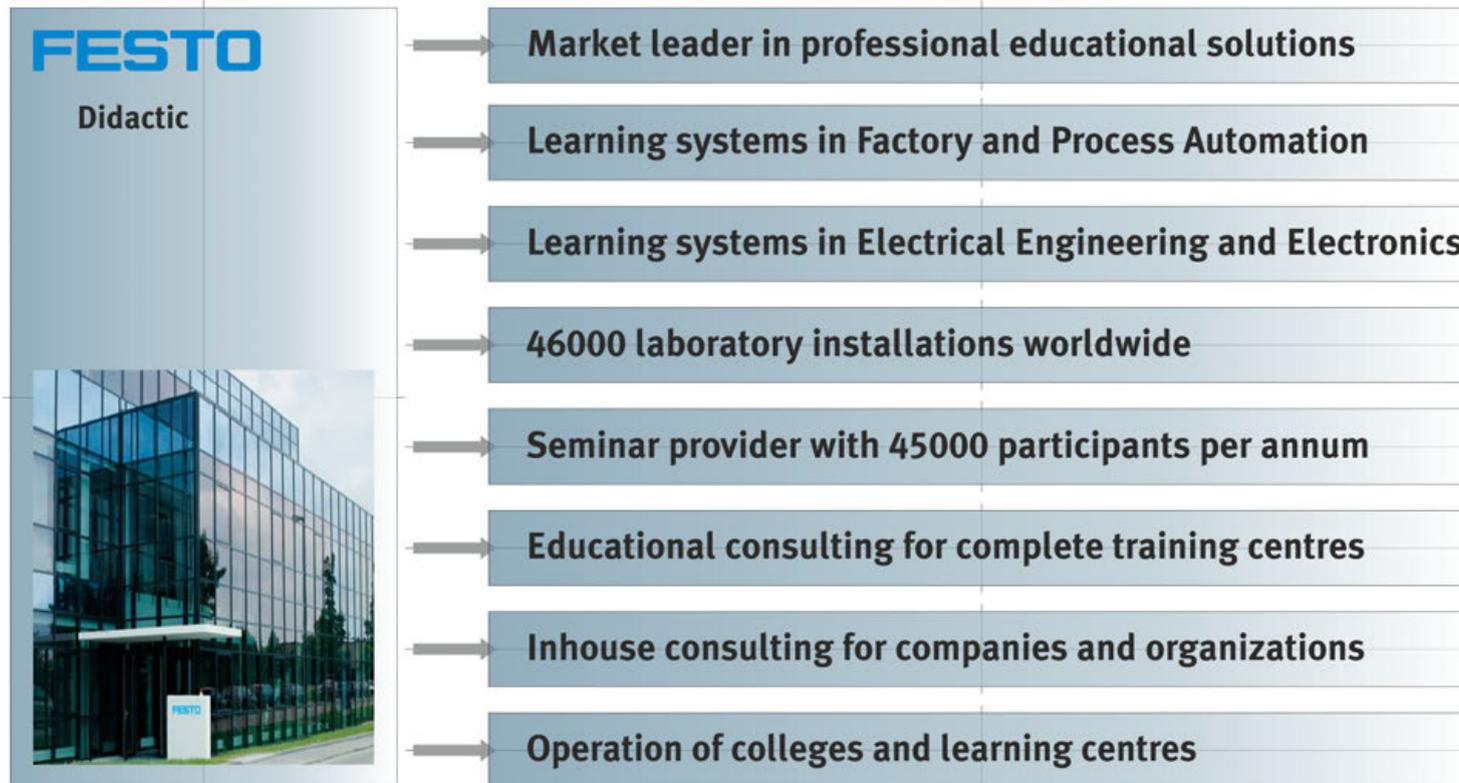
- Worldwide leader in Factory- and Process Automation
- Founded in 1925 and still family owned up till now
- Headquarter in Esslingen, Germany
- At present 62 independant companies worldwide
- Currently more than 20000 employees worldwide
- At present more than 2800 patent rights
- Investment into research around 8.5% of total turnover
- More than 300000 customers in around 176 countries





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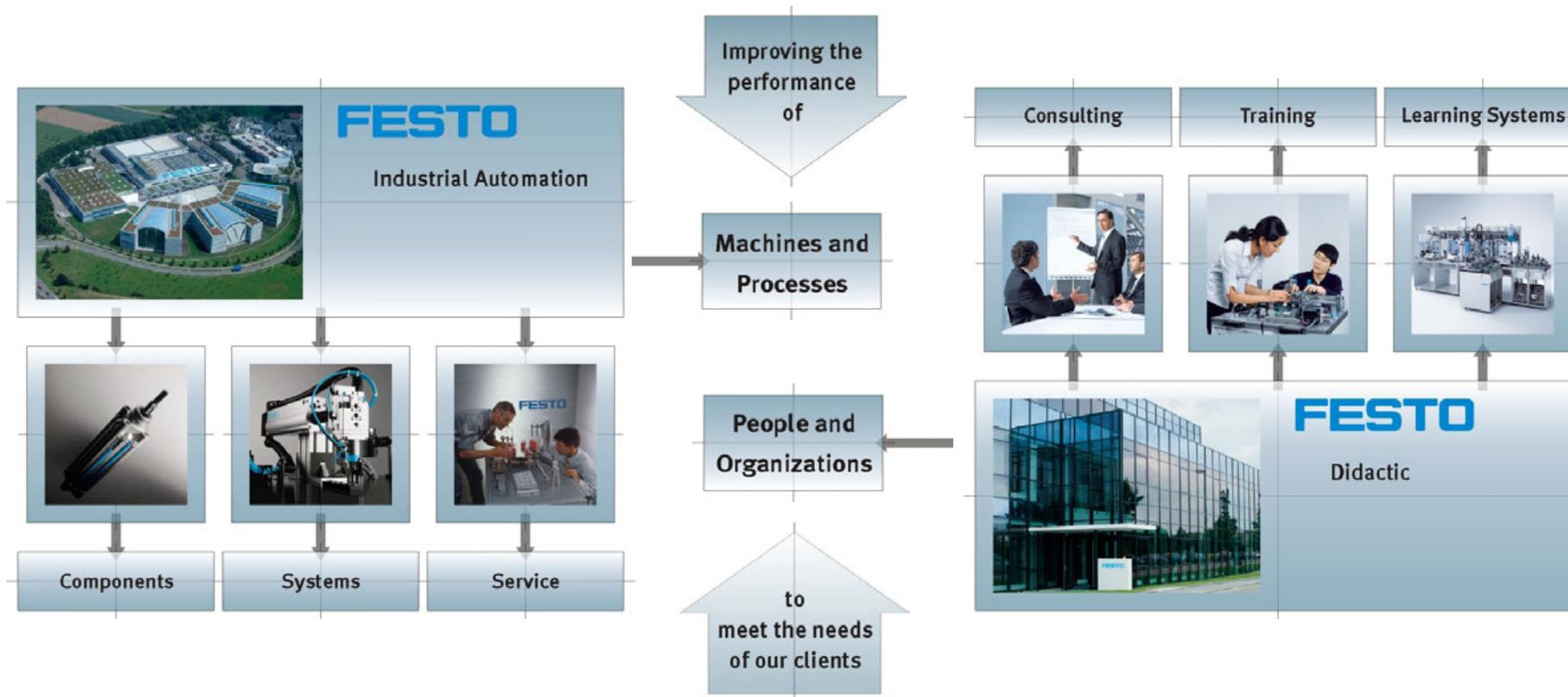
Festo - Festo Didactic





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Festo - Festo Didactic - understanding the symbioses of industry and qualification





The Megatrend - Industry 4.0

“Independently from Water and Wind power!”

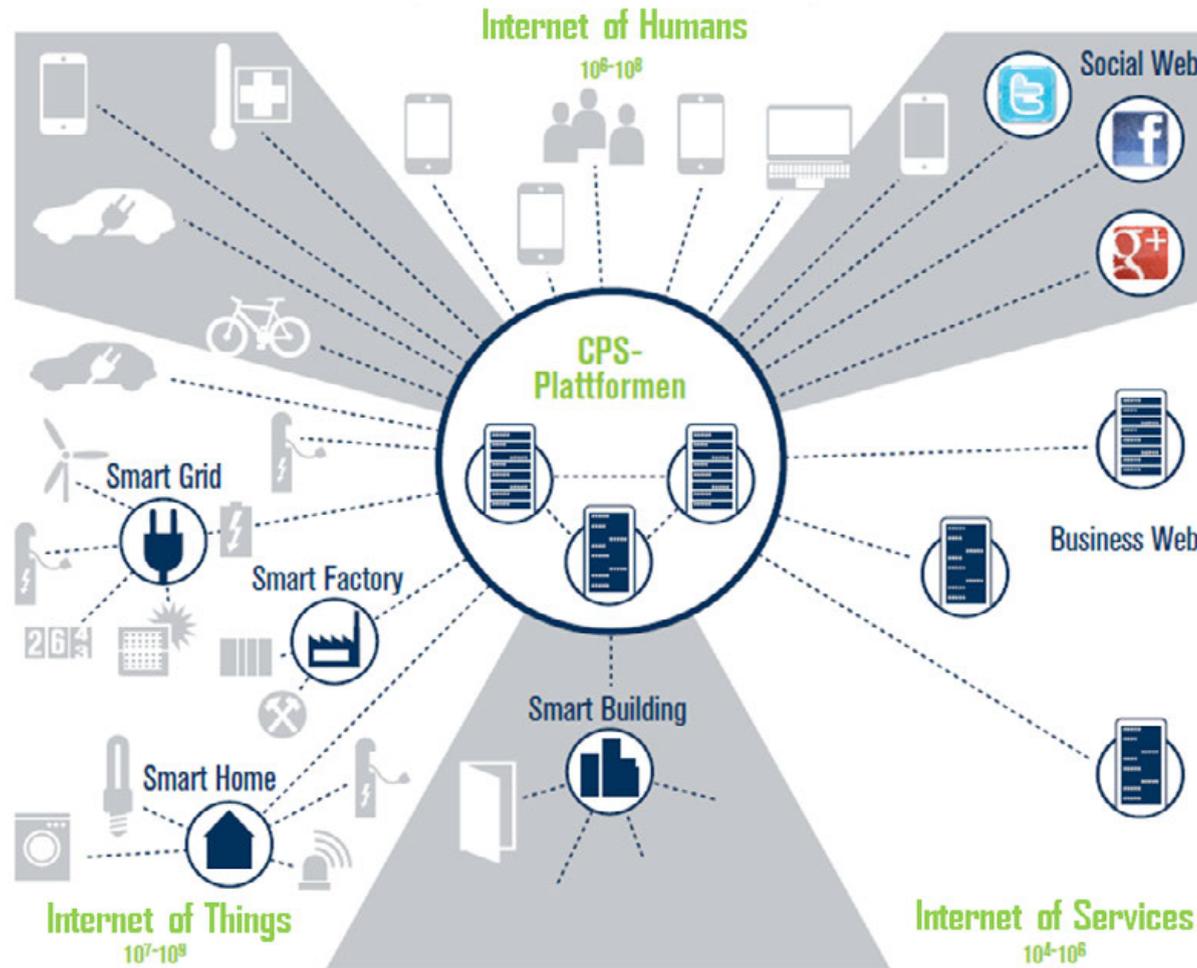
Mechanisation::
Mechanical production

“First organisation than automation!”

Industrialisation:
Mass production

“Process thinking instead local result thinking!”

Automation:
Electric automation



Future requirements:

- A strong individualisation of products related to the conditions of high flexible (mass) production.
- A broad integration of customers and partners into business and value creation processes.
- Connection between production and high-quality services

“The first revolution which announced itself!”

Source: Syska/Lièvre “Illusion 4.0”



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Festo - Festo Didactic - support for companies - why digitalization matters

„Everything that can be digitalized will be digitalized!“

„Everything that can be connected will be connected!“

„Everything that can be automated will be automated!“



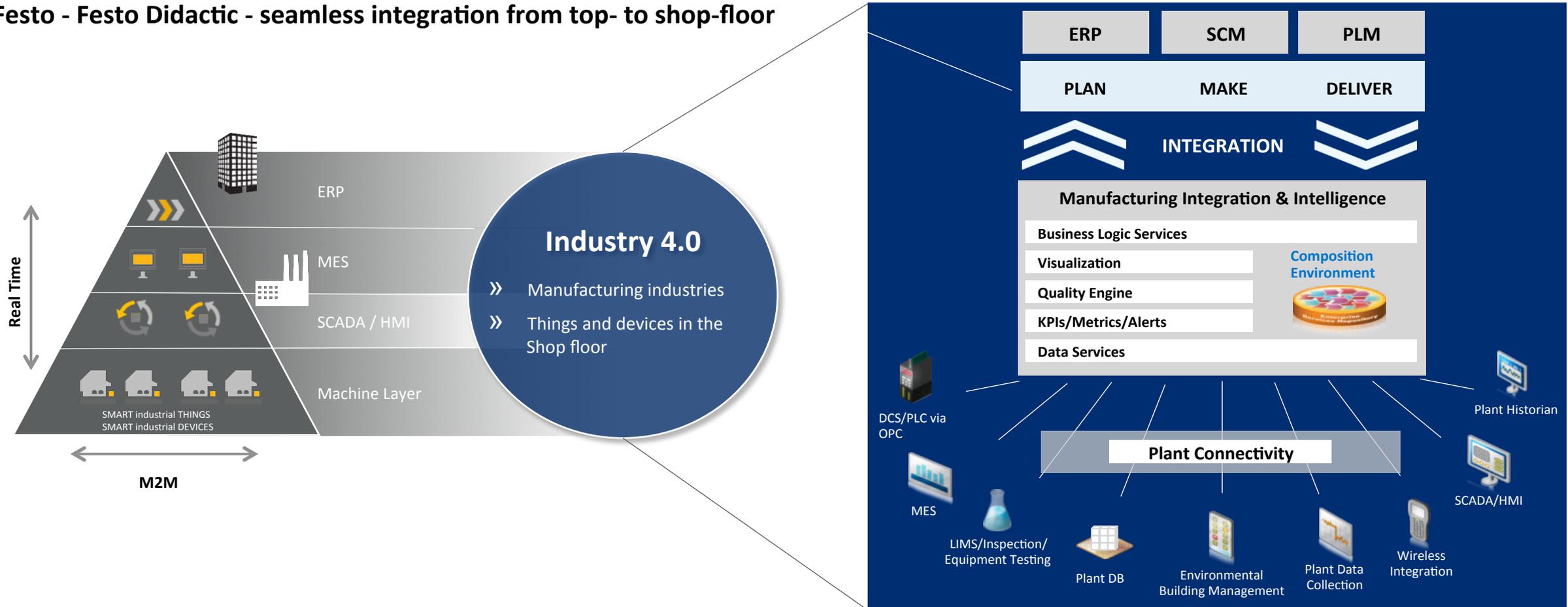
Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

Source: Karl Heinz Land | Study „Dematerialisierung – Executive Summary 2016“



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Festo - Festo Didactic - seamless integration from top- to shop-floor



C L O U D

SUPPLIER

DIGITAL SHADOW

customer Specific
FROM LOT SIZE 1
MAXIMUM
Productivity & Adaptability \$\$\$



INDUSTRY 4.0



Goals
PPM → σ
Quality Standards

TRAINING



CUSTOMER



CONNECTION

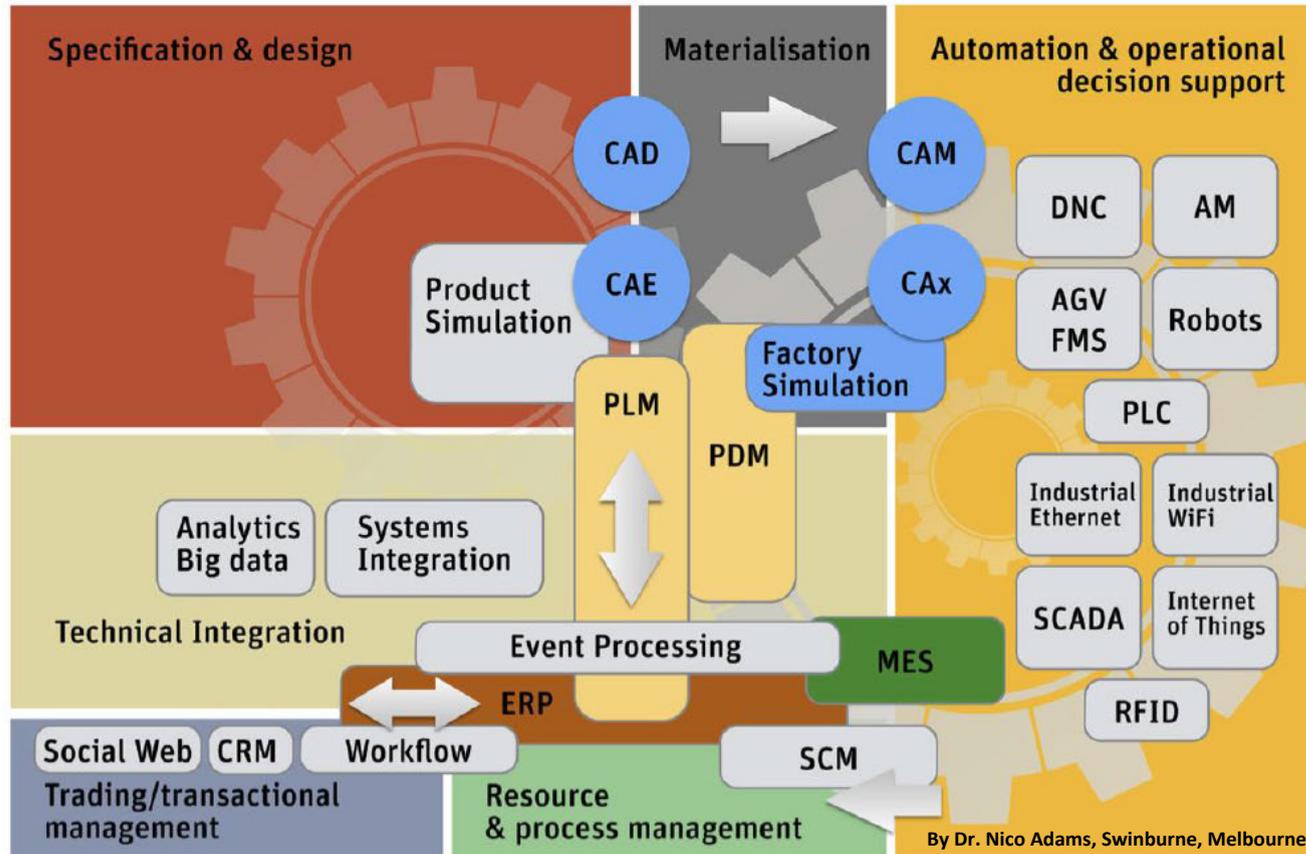
VERTICAL INTEGRATION / OPC UA

HORIZONTAL INTEGRATION / OPC UA

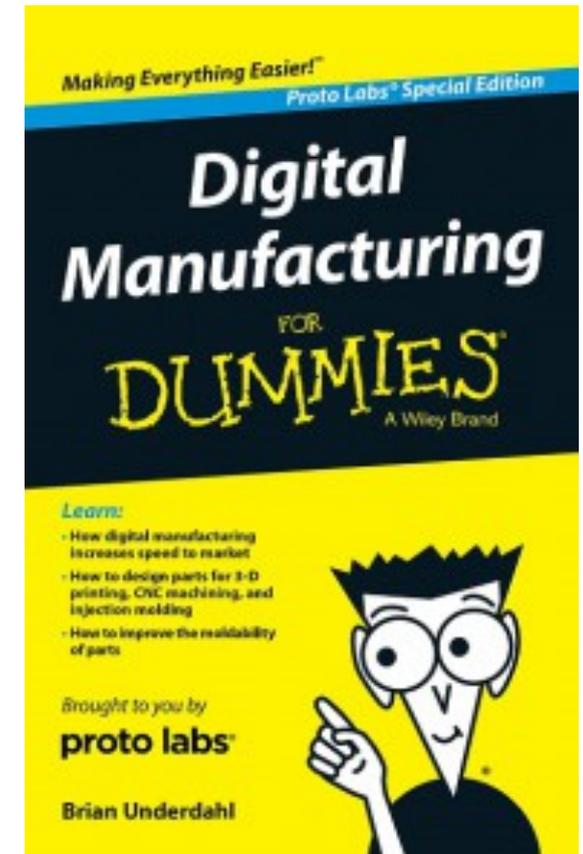


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A big challenge mainly for SME's - technology and skill requirement



By Dr. Nico Adams, Swinburne, Melbourne





If you apply digital to a broken thing

you will have a digital broken thing

Source: David Chuter, Managing Director at the Innovative Manufacturing CRC (IMCRC), Australia

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Festo and Festo Didactic - best practice from our own Scharnhausen plant

**Automated and
flexible**

**Flexible,
flowing production**

**Optimized energy
consumption**

**Learning taken
for granted**



Highly flexible, energy-efficient assembly lines



An optimized flow of information and materials



Energy network for buildings and production processes



Training factory as practical, integral constituent



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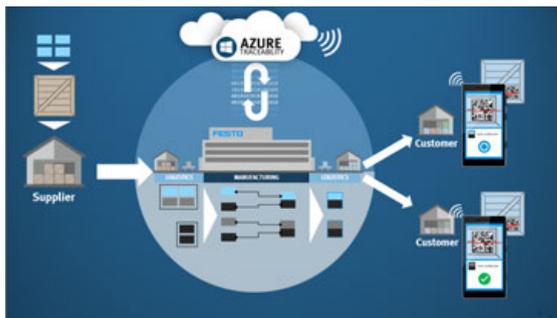
Festo and Festo Didactic - best practice from our own Scharnhausen plant



SAP ME / MII Integration



Energy Data Management



Traceability



Mobile Maintenance



Overall Equipment Effectiveness



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Further and continuous training measures at Festo – digital platforms for easy access

Trainingskatalog und Anmeldung

[Training](#)
[Trainingsdetails](#)
[Termin](#)
[Raum](#)
[Anmeldung](#)

[Title : Automatisierung \(2\)](#)
[Title : Elektronikfertigung \(13\)](#)
[Title : Energie und Umwelt \(2\)](#)
[Title : Festo Produkte \(1\)](#)
[Title : FVP und Prozesse \(16\)](#)
[Title : Mechanische Bearbeitung \(2\)](#)
[Title : Montage \(9\)](#)
[Title : Standortbezogene Trainings \(11\)](#)

Newsfeed

It's pretty quiet here. [Invite](#) more people to the site.

FESTO

Lernfabrik Scharnhausen | Aktuelles Trainingsangebot

| | | | |
|---|--|--|---|
| <h4>1 Mechanische Bearbeitung</h4> <ul style="list-style-type: none"> Manuelles Entgraten Professionelles Entgraten  | <h4>2 Montage</h4> <ul style="list-style-type: none"> Bedienung von Schraubern Einstellen von Schraubern Empfindlichkeitszeichen Qualifizierungsprogramm für Montageplaner Modul 1 - 4 Einführung in die Systemmontage Zeichnungslesen | <h4>3 Elektronikfertigung</h4> <ul style="list-style-type: none"> Grundlagentraining Löten Schnuppertraining Löten ESD – Training  | <h4>4 Automatisierung</h4> <ul style="list-style-type: none"> Übersicht zum Automatisierungskonzept Lesen & verstehen der Berichte  |
| <h4>5 FVP und Prozesse</h4> <ul style="list-style-type: none"> 5S – Ordnung und Sauberkeit 7 Arten der Verschwendung Planspiel ProBest Erste Hilfe Grund- und Fortbildungskurs STAR-Methodenspezialist | <h4>6 Energie und Umwelt</h4> <ul style="list-style-type: none"> Energieeffizienz Schallschutz  | <h4>7 Festo Produkte</h4> <ul style="list-style-type: none"> Produkttraining VTSA  | <h4>8 Standortbezogenes</h4> <ul style="list-style-type: none"> Einführungstraining für neue Mitarbeiter Guide-Schulung „Besucherrundgang“ Modul 1 - 2 SVEa Modul 1 – 3 Train-the-Trainer |

DA-P\Volker Schmid

Training for the Future - Tomorrows' Competencies

Created: 9/5/2017

Modified: 9/5/2017

15



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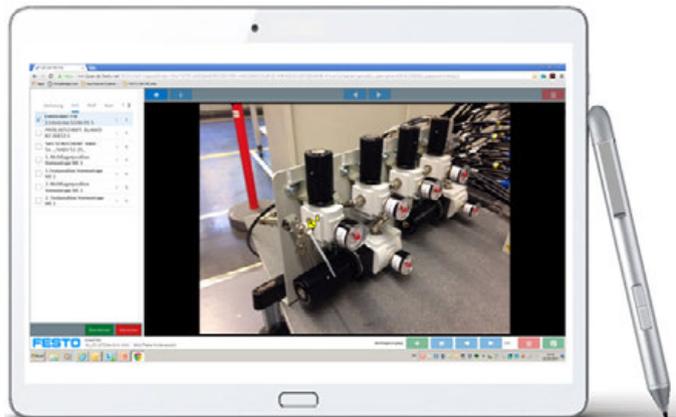
Further and continuous training measures at Festo – example maintenance

SCREWDRIVER

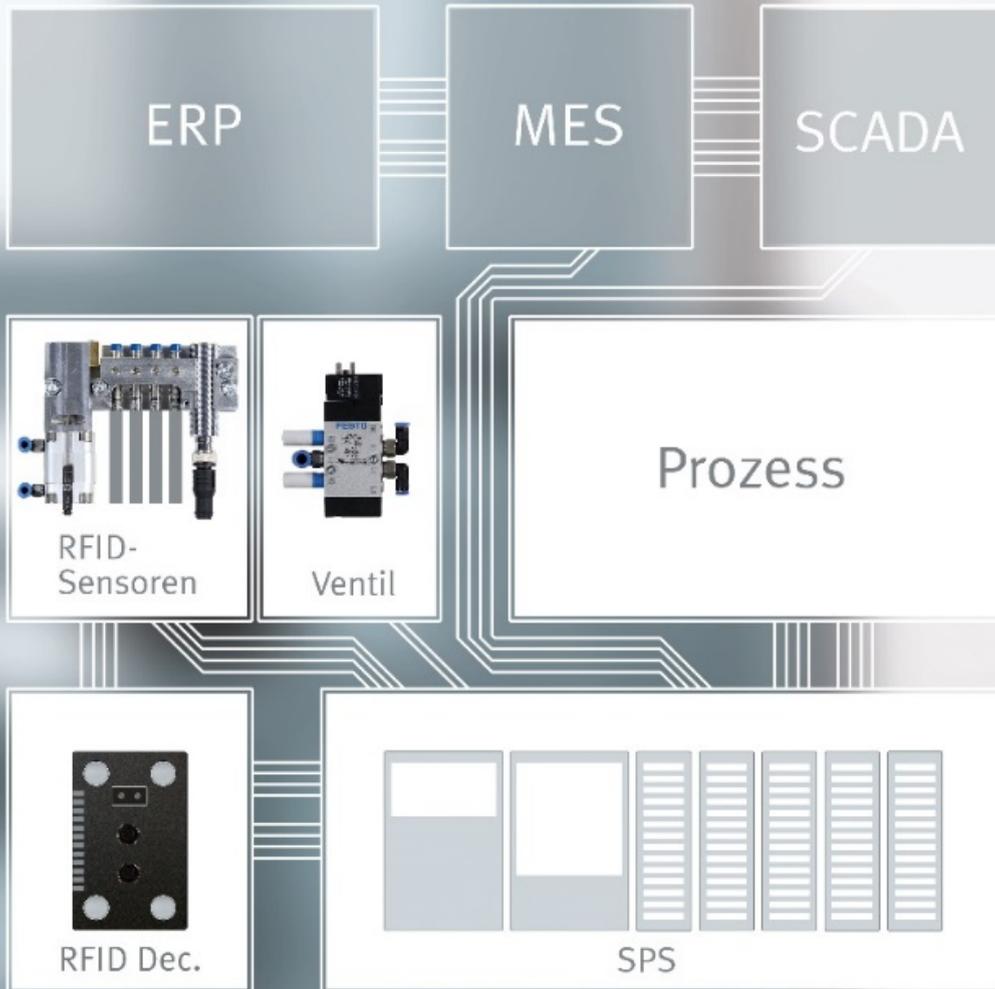
MECHATRONICS

SOFTWARE ENGINEER

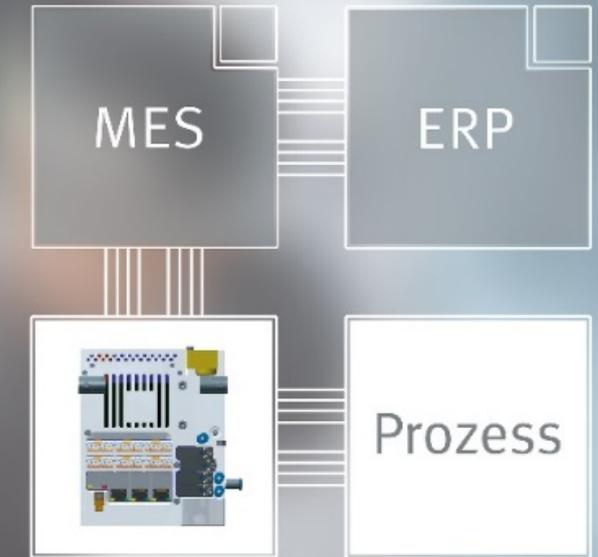
LEARNING FACTORY in
Technology Plant



3.0



4.0



- Industry 4.0 and the impact on the labor market
- Consequences for the vocational and advanced training
- Characteristics of Industry 4.0
- Opportunities for implementation
- Outlook on new job descriptions
- Research oriented topics
- From entry level to top class solutions
- Festo Didactic as partner for Industry 4.0 support



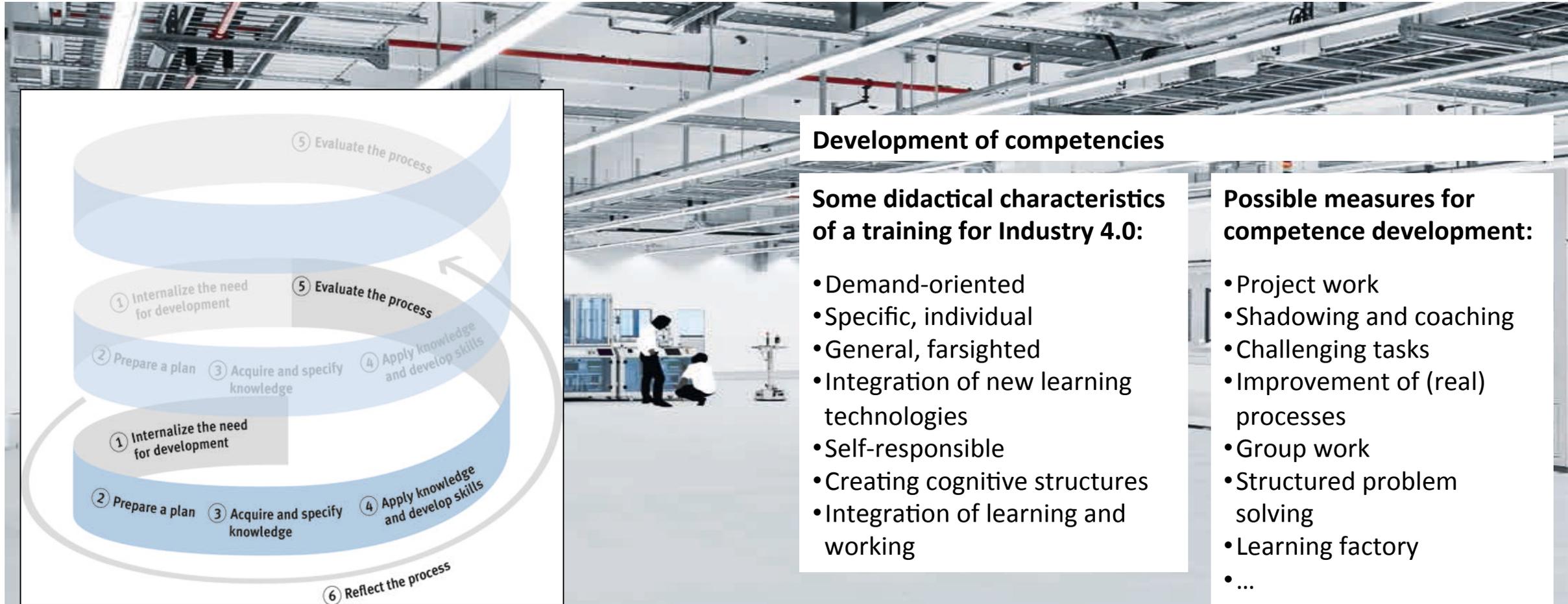
The Dilemma of Technical Qualification

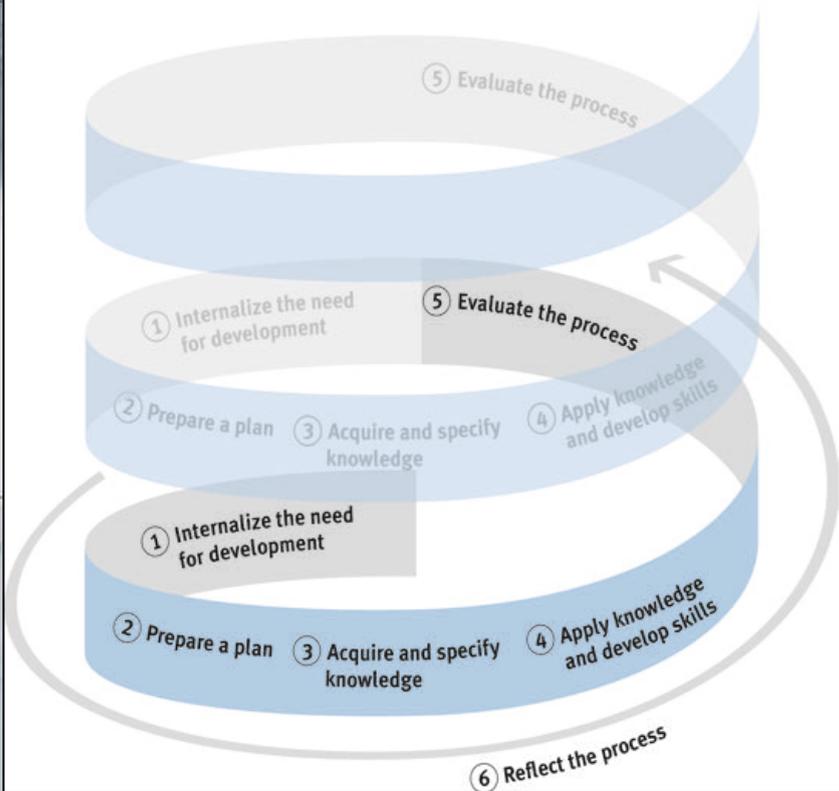


- **What is behind the term Industry 4.0?**
- **Which developments are relevant for the work duties and requirements?**
- **How to integrate new products and technologies?**
- **Which qualifications are needed?**
- **How long will they be valid?**



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① Internalize the need for development

② Prepare a plan

③ Acquire and specify knowledge

④ Apply knowledge and develop skills

⑤ Evaluate the process

⑥ Reflect the process

Development of competencies

Some didactical characteristics of a training for Industry 4.0:

- Demand-oriented
- Specific, individual
- General, farsighted
- Integration of new learning technologies
- Self-responsible
- Creating cognitive structures
- Integration of learning and working

Possible measures for competence development:

- Project work
- Shadowing and coaching
- Challenging tasks
- Improvement of (real) processes
- Group work
- Structured problem solving
- Learning factory
- ...

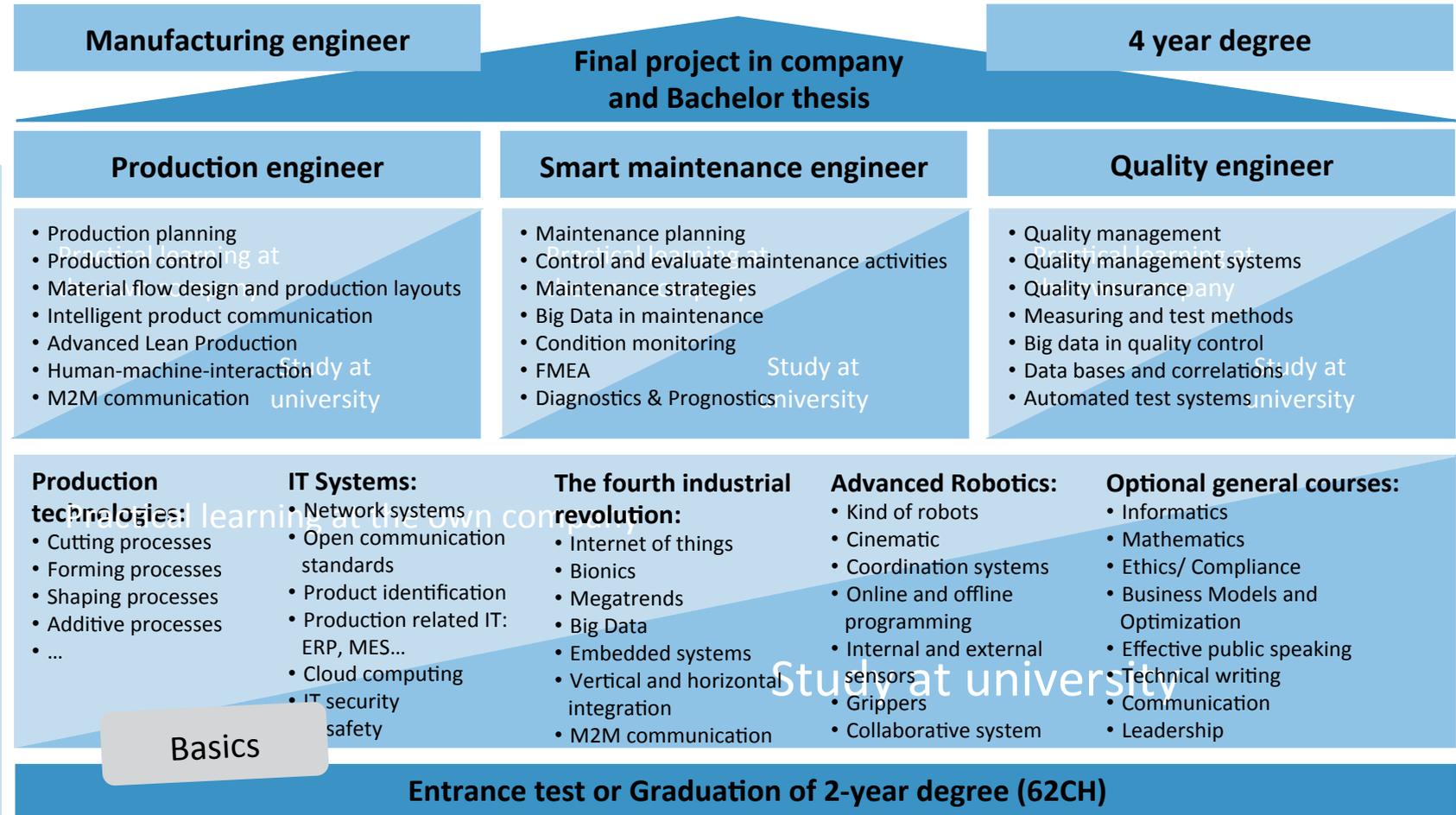


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Curriculum example:
Dual Bachelor Program -
Advanced Industry 4.0
Manufacturing (120CH)

Role specific qualification

Soft skills, like work planning, Quality management, working laws, communications, safety, environment, work protection, team work... will be taught as continuous process.





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Examples of Basic Training Courses





Festo and TUM Asia – Specialist Diploma in Advanced Digital Manufacturing

- Six modules with altogether 240 hours of theory, practical parts and project work
- Offered by TUM Asia with support of Festo and SkillsFuture Singapore
- Post Diploma in Advanced and Digital Manufacturing



Get qualified and learn from the key drivers of Industrie 4.0

Specialist Diploma in Advanced Digital Manufacturing

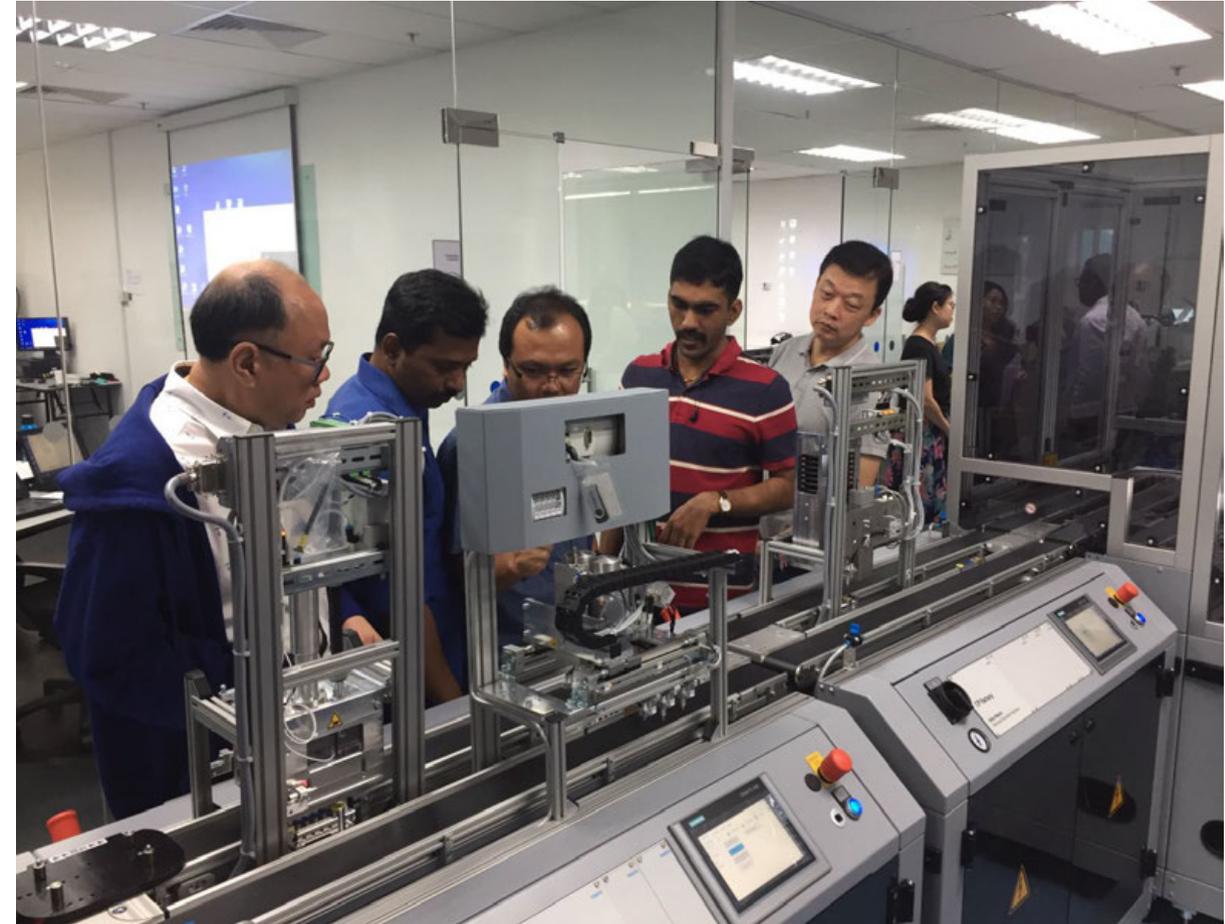
January 2018 - September 2018



- First Industrie 4.0 Specialist Diploma being offered in Singapore
- Up to 90% course fee funding for Singaporeans and Permanent Residents
- Post-Specialist Diploma On-Site Project under experts' mentorship

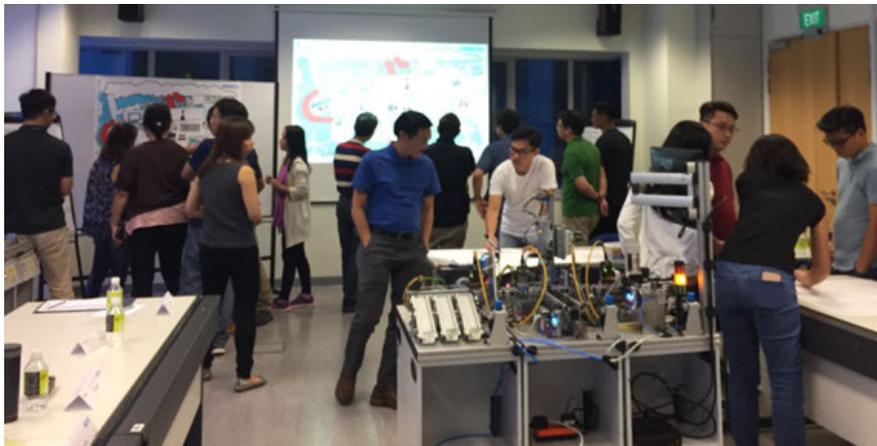


Festo and TUM Asia – Specialist Diploma in Advanced Digital Manufacturing





Festo and Temasek Polytechnic – Smart Manufacturing



Smart Manufacturing with Product Identification System






RFID Development Courses

Product controlled manufacturing

RFID Modules

With the advancements of digital technologies driving towards Advanced Manufacturing System, the need for batch size one or mass customization production at the cost of mass production is increasing. As a result, a high degree of production flexibility & adaptability is required.

This is achievable with the use of object identification system particularly the Radio Frequency Identification (RFID). An integral part of a smart factory that enables decentralized control of the production processes.

Objective
To learn the fundamentals of RFID technology & its benefits and applying it in manufacturing to enhance the flexibility in production configuration.

Content

- Fundamentals of object identification system
- Selection of Radio Frequency Identification (RFID) system
- Getting familiar with reading and writing of RFID tag and the data format
- Identify the benefits of using RFID in production
- Applying RFID in manufacturing processes

Target group
Technician and engineer

Pre-requisite
Basic industrial automation knowledge

Course duration
3 days

Course fee
S\$1200 exclusive of GST

Course dates

- 05-07 Sep 2018
- 18-16 Nov 2018
- 20-22 Feb 2019

Details
Course offered in partnership with Temasek Polytechnic - joint certification by Festo and Temasek Polytechnic upon completion of the course

Venue
Temasek Polytechnic, 21 Tampines Avenue 1, Singapore 529757

| Full Course fee per person excluding GST | | WTS (up to 95%) | | Singapore Citizens (up to 90%)* | | | | Singapore Citizens & Permanent Residents | | | | |
|--|----------|-----------------|-------|---------------------------------|--------|------------|-------|--|--------|------------|-------|--------|
| before GST | GST | before GST | GST | Less Additional Top-up Subsidy | Total | before GST | GST | Less Additional Top-up Subsidy | Total | before GST | GST | Total |
| 1,200.00 | 1,284.00 | 360.00 | 25.20 | | 385.20 | 360.00 | 25.20 | 240.00 | 145.20 | 360.00 | 25.20 | 385.20 |

* Singapore Citizens aged 40 & above (MS-Career Enhanced Subsidy) / SME-employed Singapore Citizens (Enhanced Training Support for SMEs) - up to 90%

To register, please email your name, company name, and contact number to singhuck@tp.edu.sg (Email Subject: **Smart Manufacturing with Product Identification System**); or call Mr. Ng Sing Hock Victor @ 6780 3000

Temasek SkillsFuture Academy (TSA)
21 Temasek Polytechnic, East Wing Block 1A
Level 2 Unit 01, Singapore 529757

Website www.tp.edu.sg/tsa
Email tsa@tp.edu.sg
Tel +65 6780 1212

Operating Hours
Mondays to Fridays - 8:30am to 7:00pm
Closed on Saturdays, Sundays and Public Holidays



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Festo - Festo Didactic - questions and answers



Thank you...



www.festo-didactic.com