Festo and Festo Didactic - Technologies and competencies for tomorrow's 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.
THE JOURNEY towards a SMART FACTORY

How to implement Industry 4.0 - An Adaptors View
NEW IT CHALLENGES

DELIVER THE DIGITAL CORE FOR EFFICIENT PRODUCTION & SMARTER PRODUCTS

FACTORY IT (INDUSTRY 4.0)

PEOPLE & COLLABORATION
FESTO DIGITALIZATION FRAMEWORK

**DIGITAL BUSINESS MODELS**
- How we generate additional revenue
  - Software as function
  - Data monetization
  - Pay per use
  - Lifecycle services

**DIGITAL PRODUCTS & SERVICES**
- What we offer to our customers
  - Products
  - Services

**DIGITAL SUPPLY CHAIN**
- How we produce and distribute in the future
  - Production
  - Logistics
  - Purchasing

**DIGITAL CUSTOMER**
- How we interact with our customers
  - Marketing
  - Consulting
  - Design
  - Sales
  - After Sales

**DIGITAL ENTERPRISE**
- How we work internally
  - Finance
  - Human resources
  - Corporate functions
  - IT
  - Digital workplace

**PEOPLE & CULTURE**
- Who we are and how we change
  - Qualification
  - Change
  - Governance
  - Organization

**IT FOUNDATION**
- How we build our IT foundation

**RESOURCES**
- Which research results do we need

**ECOSYSTEM**
- How we manage our ecosystem

**ANALYTICS**
- What insights we get and how we anticipate
  - Data lakes
  - Artificial intelligence
  - Data mining

**SOFTWARE AS FUNCTION**

**DATA MONETIZATION**

**PAY PER USE**

**LIFECYCLE SERVICES**

**CUSTOMER**

**MARKETPLACE**

**DEALER**

**STANDARDS**

**SUPPLIER**
Identify Digital Gaps

Optimization Potential on Customer Interface

Shop Floor digitally not integrated

Isolated System not talking to each other

Heterogenous Equipment requires high integration efforts

Older Equipment not ready for digital age
The digital gap needs to be closed before the shop floor can be digitized

Open Flexible MES/MOM* Platform

Support of Internet Communication Standards

Compatibility with various interface protocols for production equipment

Allow for thin clients and mobile usage scenarios

*MES/MOM = Manufacturing Execution System / Manufacturing Operation Management
MES Platform digitizes Manual Assembly Process (horizontally)
SAP MANUFACTURING EXECUTION SUITE (ME) - Computer Aided Assembly Support System

Increase efficiency in assembly for customer solution products

Pictures based on step-by-step assembly instructions

Lot Size 1 to larger series
MOBILE MAINTENANCE
SAP PM-BASED SOLUTION
FOR TABLETS

MAINTENANCE ORDERS,
DOCUMENTATION & PHOTOS
ALWAYS RIGHT AT HAND

DIRECT WAYS FROM MACHINE
TO MACHINE

INCREASED AVAILABILITY
OF MACHINERY

HIGHER DELIVERY RELIABILITY

GROWING KNOWLEDGE
REPOSITORY
Integration of different vendors is still a major hurdle for Industry 4.0

Automated assembly line for VUVG Valves in GPC Scharnhausen
SAP MANUFACTURING EXECUTION SUITE CO-INNOVATION PROJECT

Seamless vertical integration from SAP ERP to actors and sensors on the shop floor

Learning and testing on a smart factory – high speed assembly line

Plant connectivity (Pco) using standard OPC-UA

Manufacturing execution (ME) to control shop floor processes (recipes, parameters ...)

SAP MANUFACTURING EXECUTION SUITE
CO-INNOVATION PROJECT
OVERALL EQUIPMENT EFFECTIVENESS

(MS AZURE CLOUD)

Instant push messaging of operational data events from machines to the cloud

Integration of heterogeneous data sources into central cloud database

Self-service dashboards to assess overall equipment effectiveness

Cloud-based operational data capturing

Increased machine availability and productivity
Big Data automatically generate insights

- Majority Analysis of Scrap Rate by Reasons
- Outlier Analysis of Setup Times per Equipment
- Cluster Analysis for multiple variables
COLLABORATE

IT

PRODUCTION

PRODUCT DEVELOPMENT

HOUSE OF SOFTWARE
EDUCATION

EXAMPLE MAINTENANCE

SCREWDRIVER

MECHATRONICS

SOFTWARE ENGINEER

LEARNING FACTORY in Technology Plant
The learning factory at the Scharnhausen plant - overview
Support for companies – best practice from our own Scharnhausen plant

SAP ME / MII Integration
Energy Data Management
Traceability
Mobile Maintenance
Overall Equipment Effectiveness
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A big challenge mainly for SME’s - technology and skill requirement
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
• 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?
The learning factory at the Scharnhausen plant - overview

Festo - Festo Didactic - providing the right environment for skill development

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*Holistic Education* | *Technical Competences 4.0* | *Setting Standards*
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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
Festo and TUM Asia – Specialist Diploma in Advanced Digital Manufacturing
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Workplaces and manufacturing of the future.
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Festo - Festo Didactic - questions and answers