



A way towards Factory Competence Tools and methods for the qualification process

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Page 1



Festo – a success story



Festo was founded in 1925 in Esslingen by
Gottlieb Stoll

- **Founding mission**
To develop, produce and sell high-quality
woodworking machinery
- **1955**
Festo is one of the first companies to recognise
the potential of pneumatics and begins work on
the development, production and sales of
pneumatic components, thus opening up a new
era
- **1965**
Development of a new division for learning
materials and seminars (Festo Didactic)

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Page 2



Festo – an independent family company



Festo AG –
Industrial Automation and Didactic divisions
 1.65 billion € turnover in 2007
 internationally in 176 countries
Innovative
 2800 patents world-wide
 Approx. 100 innovations each year
 Research and development budget 6.5% of turnover
A learning company
 12,800 staff world-wide
 Training budget 1.5% of turnover
Committed to the environment and to quality
 Quality and environmental certificates
 (ISO 9001, VDA 6.1/6.4, ISO 14001)

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Page 3



Festo – a company with global operations



Festo Industrial Automation

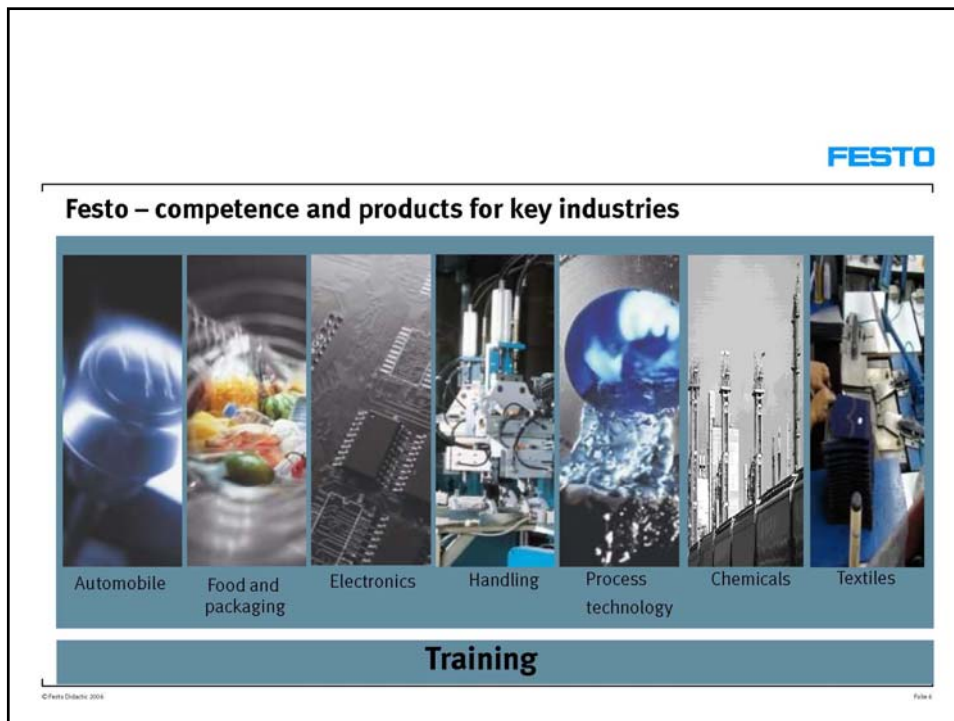
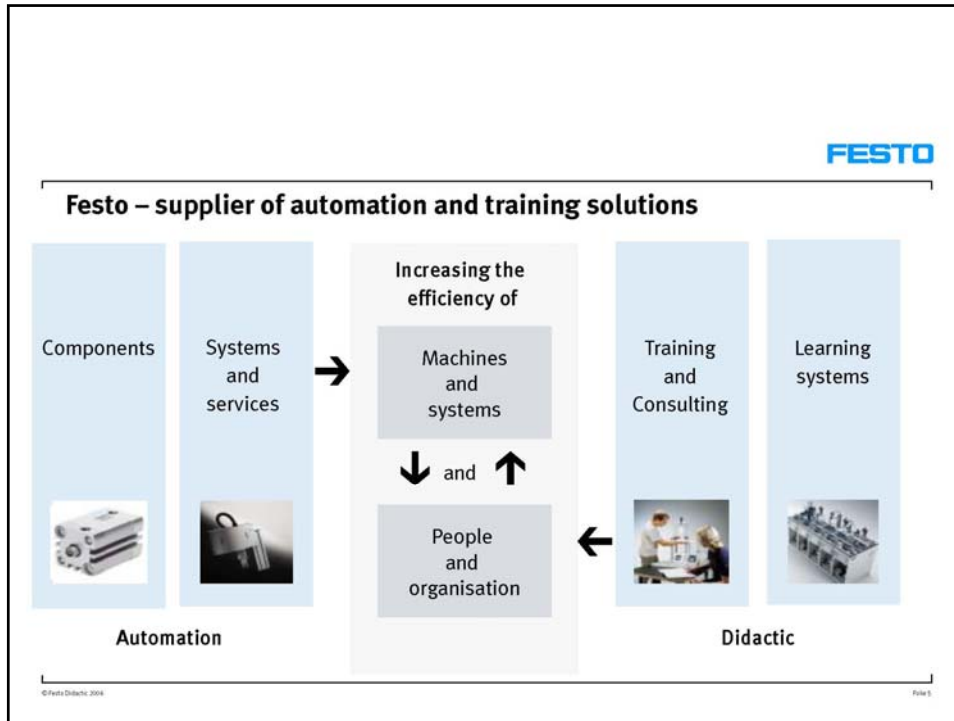
- A leader in industrial automation with pneumatic and electrical drives
- Strong industrial background with numerous production locations world-wide
- Recognised for its corporate culture which promotes education, learning and knowledge

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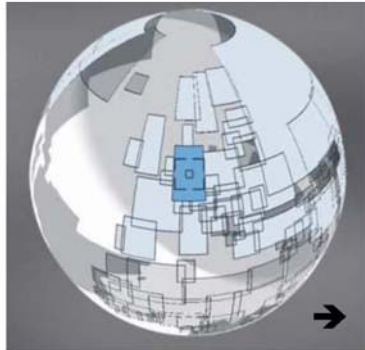
- Member of the Festo Group
- Training and consultancy for manufacturing industrial companies
- Training equipment for institutes providing basic and vocational training

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Page 4



Festo – limitless and individual



- Partner for more productivity
- With 57 companies, world-wide in over 176 countries and 250 locations
- Over 1,000 sales and project engineers
- Consultancy and service
- Online shops
- Web portal with tools

The challenges of industrial production

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Global market



A global network is coming into being

- Explosion in communications and data availability
- Intensive cultural exchange through travel opportunities and media
- Free trade in good and services
- Amalgamation of companies to form global units
- Internationally-operating private-enterprise capital market

Global but individual competition

- Production processes are changing
- Mass customisation instead of mass production

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Automated production



Automation

- From economy of scale to economy of scope
- Flexible production with highly-automated equipment
- Labour-intensive production is relocated or automated
- Boosting productivity through training and knowledge
- Training as an effective tool to boost competitiveness

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Page 10

The productivity challenge

Costs
Production and maintenance costs, economic efficiency and reliability

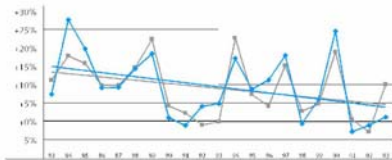
Quality
Product and service quality

Time
Delivery times, throughput times, flexibility with product and quantity changes

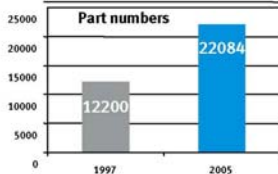
- Costs, quality and time are the factors governing genuine productivity increase.
- Training is the key to successful automation.

The market is changing for Festo as well

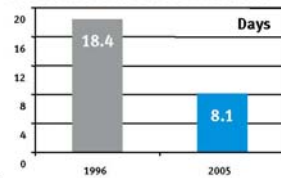
Slower growth rates (market potential)



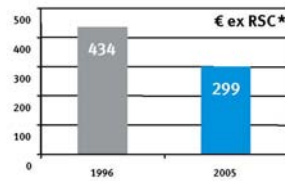
Larger product range (catalogue products)



Fewer orders on hand




Smaller orders (order value)




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Global production network of Festo



Sao Paulo, Brazil



Bangalore, India




Shanghai, China

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Festo Value Production



Continuous improvement and cost reduction

- FVP Targets
- Principles, Methods and Tools
- FVP Organisation
- FVP Core Team
- Value Production Coaches
- Best Practice Solutions
- Knowledge Network FVP
- Fit for FVP Qualification Program
- FVP Roll Out 2008

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Festo Value Production

A production system describes the methods to use in production and the standards on which these are based.



global:

In our world-wide production- and logistics network we can make allowance for regional requirements and offer our customers extremely short delivery times.



sustainable:

With a continuous improvement process, we create standards and continuously develop these further. In this way, we are able to design today our processes for the products of tomorrow.



holistic:

„The whole is greater than the sum of its parts “. FVP places its methods in a meaningful context in order to optimise our value-creation chain.

Targets

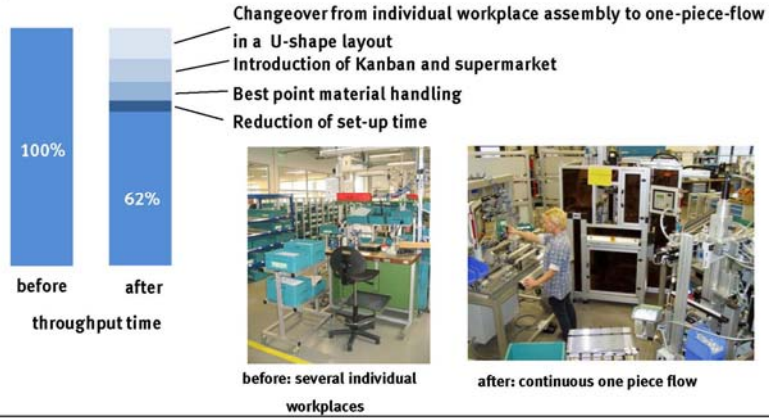
By the use of a production standard for all GPCs, RSCs and NSCs we can globally achieve a high process efficiency and uniform product quality. This standard is defined as the 'Festo Value Production' FVP.

- **Continuous improvement** of our production processes regarding quality, costs and time
- **Best of class** in market supply for highest customer satisfaction
- **Motivation** of our employees to reach a world class production
- **Comparability and transfer** of production sequences within the global network
- **Stay ahead** of competition at a global level

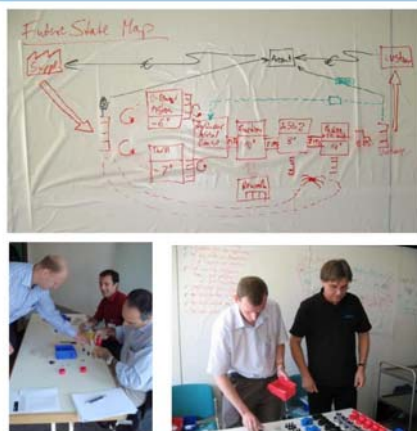


Methods & Tools

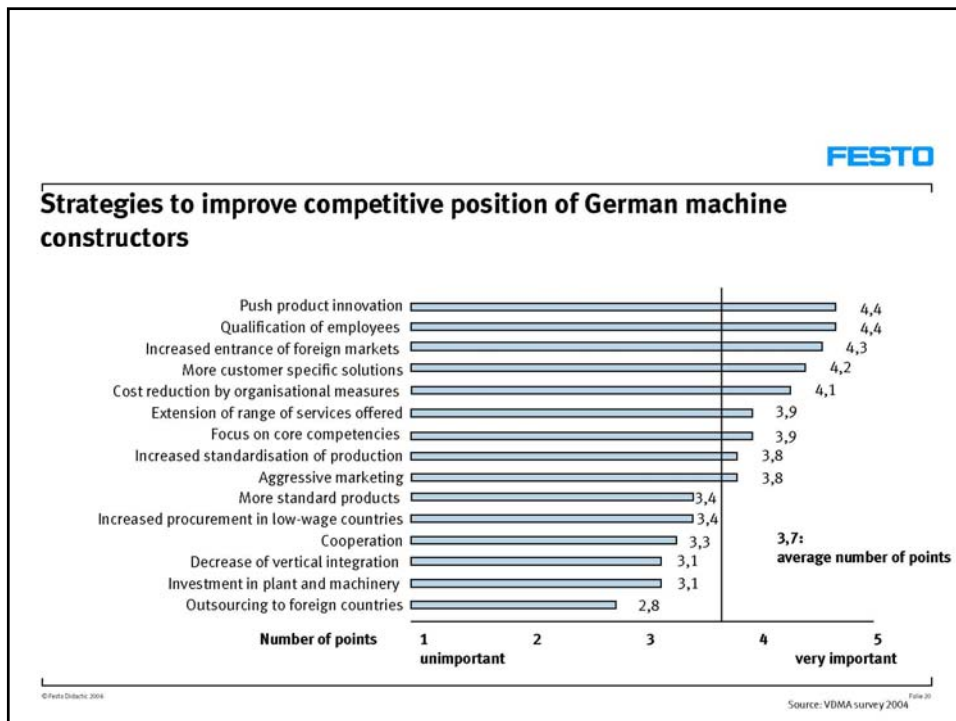
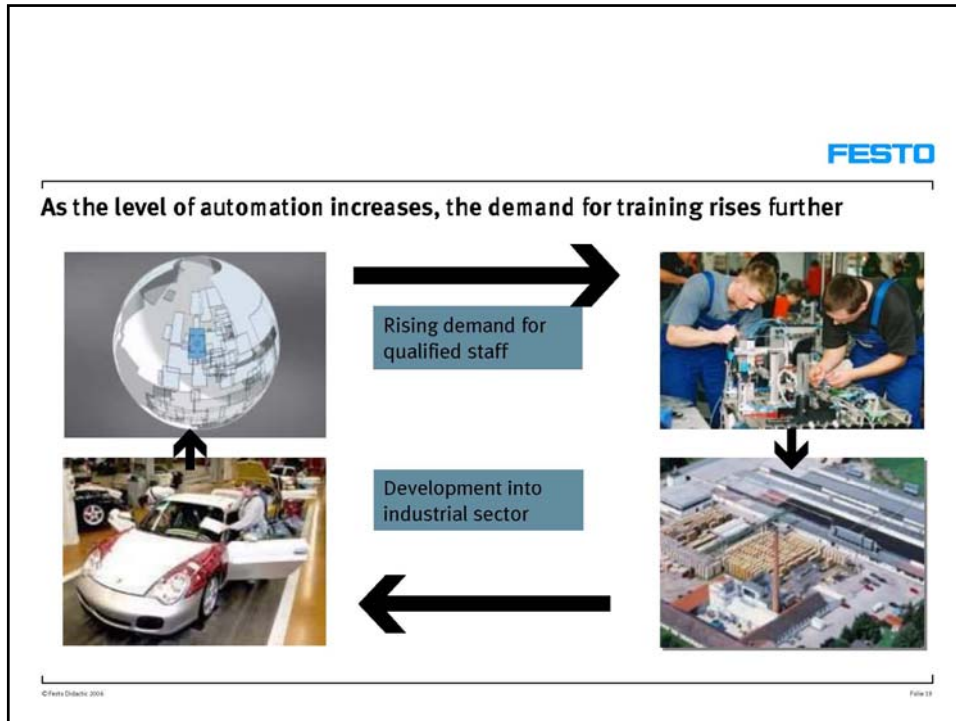
Example:



Fit for FVP training program



e.g. workshop: value stream mapping



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Training in order to safeguard competitiveness

4 factors

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Training in order to safeguard competitiveness

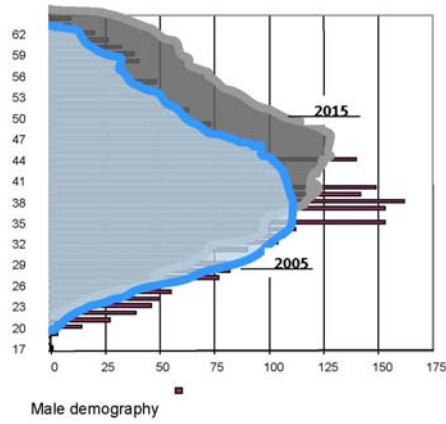


Factors:

- 1. Demographic change**
- 2. Life-long learning**
- 3. Knowledge as a competitive factor**
- 4. The key to success: Learning transfer**

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Factor 1 – Demographic change



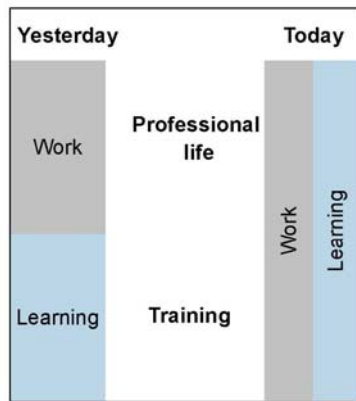
- Demographic change (in certain regions) is leading to new demands for staff training

Demographic development at Festo AG & Co. KG 2005-2015

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Factor 2 – Life-long learning



- Business processes must support life-long learning, or in other words in-service learning as an accompaniment to work.
- 2-phase biographies are a thing of the past.

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Factor 2 – Life-long learning



The competence areas that count today are as follows:

- Capacity for autonomous action
- Learning how to learn
- Problem-solving
- Cooperation/teamwork
- Communication
- Accepting/bearing responsibility

Factor 3

Knowledge is becoming competitive factor #1



Factor 3 – Increasing productivity through ...

... mechanisation



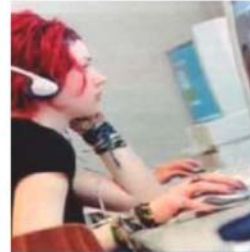
Agrarian society
(tradition, land)

... industrial automation



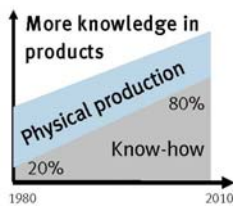
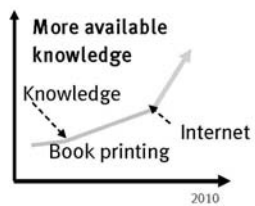
Industrial society
(performance, machines)

... training and knowledge



Knowledge society,
values, knowledge, skills)

Factor 3 – The demand for knowledge is increasing



Factor 4



Boosting learning transfer efficiency is the key to the training process

Factor 4 – In-service learning (learn and work)



Maximum learning success at competitive cost

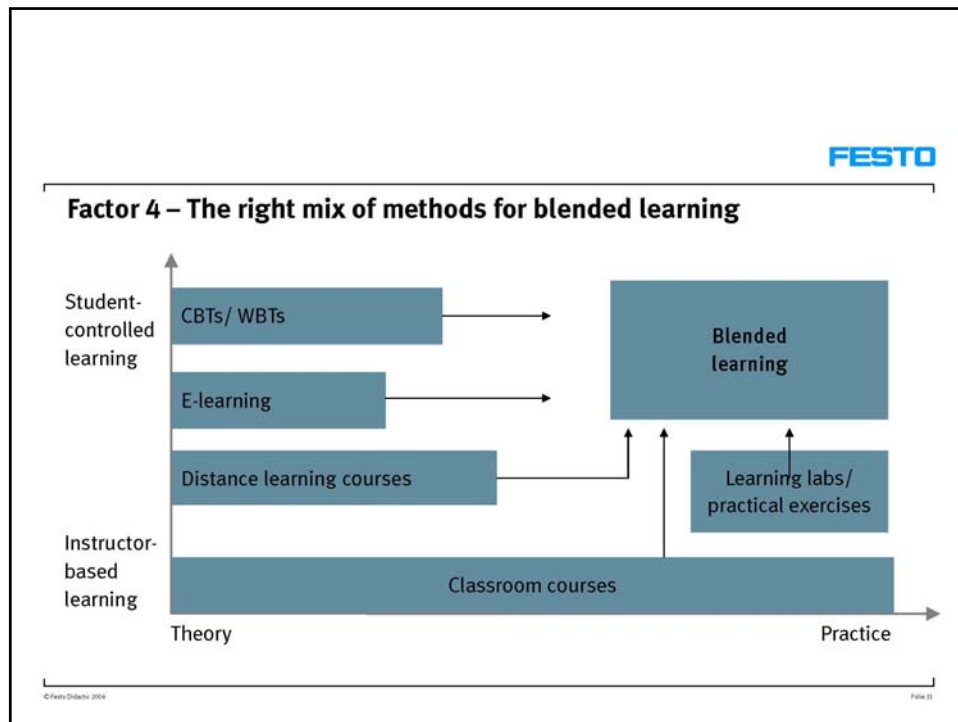
$$\text{Efficiency} = \frac{\text{Learning success}}{\text{Investment (time + money)}}$$

+

Large practical component

=

Optimum preparation for excellent performance in everyday professional life through blended learning concepts



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The things that really count ...

- Technology and innovation are the twin foundations of our industrial future
- It is only through innovation that we can create new products, customers and markets
- Innovation starts in our heads! – This means with training
- Knowledge and training– our most important resources if we are to further enhance our position of technological leadership

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The things that really count ...



Training: Festo's offer towards Factory Competence



- More than 100,000 training days per year in more than 2,900 seminars
- Qualified Festo trainers offer modular and quality assured training content in more than 30 languages

People:

Problem solving techniques, moderation of teams, efficient communication, intercultural competence

Technology:

Pneumatics, hydraulics, control systems, PLC/SPC technology, robotics, sensors

Organisation:

Process optimisation, Kanban, Set-up time reduction, Value stream analysis, Lean Design

33

The things that really count ...



Industrial Consulting: Helping Industry to higher Productivity



- More than 230 consulting projects with 150 customers
- Know-how and experience with the Festo production system

Lean Production:

Introduction of a new production system, value stream analysis, set-up offensive, segmentation, bottleneck-oriented production control

Purchasing and logistic:

Storage and delivery strategy, supplier assessment and development, make or buy, purchasing strategy and organisation









Sustainable improvement culture:

Reduction of wastes, problem solving techniques, management and employee CIP, anchorage of the new innovative approaches within the company

34


The things that really count ... **FESTO**

Consulting References


	Management development for general business		Introduction of a professional training system
	Qualification for automation technology		Development of senior management
	Implementation of a synchronous production system		Introduction of a personnel development concept
	MPS qualification program for foremen		Qualification of internal consultants

The things that really count ... **FESTO**


Learning Systems for Training in Factory Automation and Mechatronics




Actuators and sensors




System modelling



Signals and systems



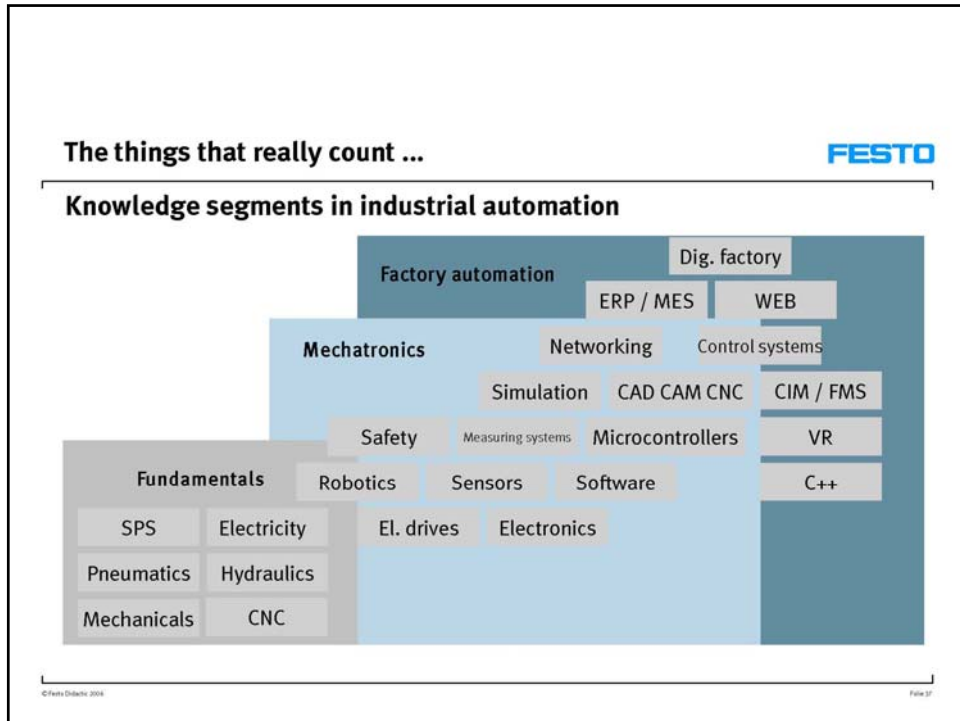
Software and data management



Computer, networks and logic systems

Integrated approach

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Our aim: To boost our customers' learning success

our basic principles

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Basic principle 1 – Better understanding

From the whole to a part
Job driven learning – Motivation & stimulation

1. Production line



2. Modules



3. Technologies



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Folie 38



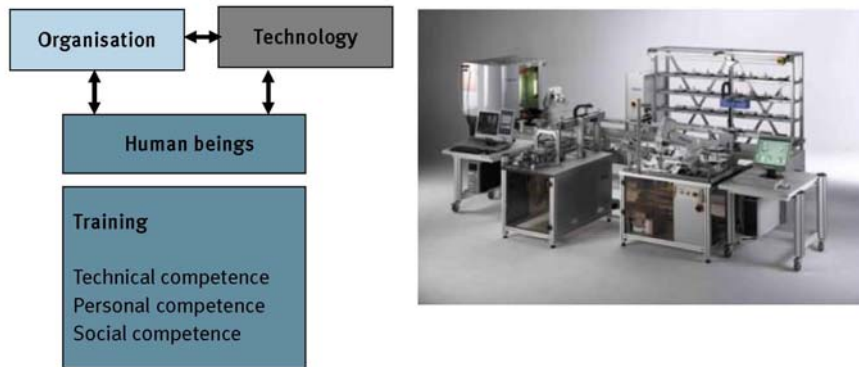
Basic principle 1 – Learning factory solutions



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Folie 40

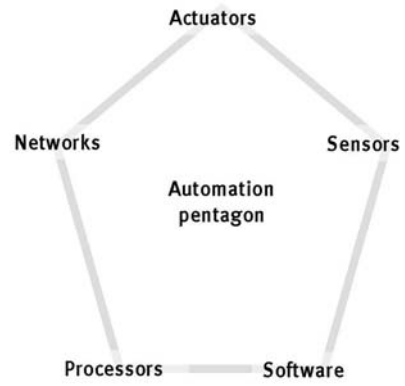
Basic principle 1 – Learning Factory Solutions



Basic principle 1 – Success models

<p>MPS®/MPS® 500</p> <ul style="list-style-type: none"> • Based on MPS® • Flexible materials flow 	<p>MPS® /microFMS</p> <ul style="list-style-type: none"> • Introduction to FMS • Robotics • CNC integration 	<p>iCIM</p> <ul style="list-style-type: none"> • Learning factory • Production management 	<p>Process & Hybrid Automation</p> <ul style="list-style-type: none"> • MPS PA • Compact Workstation • AFB solutions
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Basic principle 1 – Technologies in industrial automation



Basic principle 2 – Action-oriented learning with industrial components



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Basic principle 3 – The right media mix is important




- Textbooks
- Trainers
- Self-initiated
- CBT/WBT
- Video, DVD
- Simulation software
- Workshops
- Exercises
- Practical tasks
-

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Basic principle 4 – The web will permanently change the world of learning



- 24 hours a day
- Available anywhere
- Any time
- Covers all subjects
- Cooperative principle
- PC-based
- E-learning
- Corporate universities

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Basic principle 8 – Matched to the required training level

Plant manager Technician Engineer

Basic training Vocational training Technical universities

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Training systems support the following competence areas:

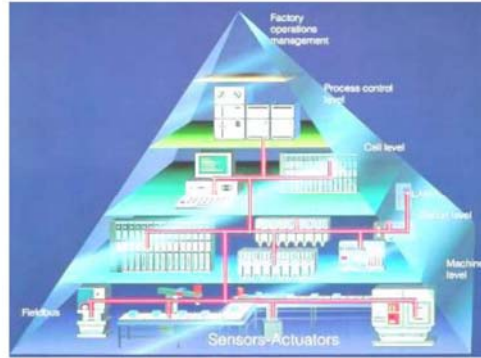
- Capacity for autonomous action
- Learning how to learn
- Problem-solving
- Cooperation/teamwork
- Communication
- Accepting/bearing responsibility

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... with the aim:

to understand the real world of industrial automation

... and reach the professional
Factory Competence!



Many thanks for your attention!

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