SIMEA

Siemens Industrial Manufacturing, Engineering and Applications

Automation versus human resources – Finding the right balance in operations
1. Products & Figures

2. Lean Production – two examples

3. Business & Processes – how do we do it

4. Business & Processes – the challenges
### SIMEA products

<table>
<thead>
<tr>
<th>A&amp;D LD</th>
<th>A&amp;D SE</th>
<th>I&amp;C / TTI</th>
<th>EDS</th>
<th>RCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drives</td>
<td>Power supply units</td>
<td>Industry and Communication</td>
<td>Automotive, domestic appliances</td>
<td>Switchgear</td>
</tr>
<tr>
<td>SIMOREG DC-Master 6RA70</td>
<td>SITOP 24 V (SITOP modular)</td>
<td>LCD-TV</td>
<td>N/O Steuerung</td>
<td>MS-Schaltfelder C1</td>
</tr>
<tr>
<td>SIMOREG Schaltschränke</td>
<td>SITOP 24 V (SITOP smart)</td>
<td>TETRA</td>
<td>FX</td>
<td>MS-Schaltfelder D1</td>
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<tr>
<td>E- u. E/R-Einheiten SIMOVERT Master Drives</td>
<td>LOGO!Power Mininetzgeräte</td>
<td>EWSD</td>
<td>FV Bedienteil</td>
<td>NS-Schaltanlagen</td>
</tr>
<tr>
<td>SINAMICS S120 LC</td>
<td>SITOP Solar</td>
<td>ATC 300</td>
<td>F20 Leistungsteil</td>
<td>Netzstationen</td>
</tr>
</tbody>
</table>
A Glimpse on Business Figures of the SIMEA Divisions

<table>
<thead>
<tr>
<th></th>
<th>Business Division 1</th>
<th>Business Division 2</th>
<th>Business Division 3</th>
<th>Business Division 4</th>
<th>Business Division 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>+++</td>
<td>+</td>
<td>0</td>
<td>-0</td>
<td>+0</td>
</tr>
<tr>
<td>Net Capital Employed</td>
<td>+0</td>
<td>+0</td>
<td>+</td>
<td>+++</td>
<td>-0</td>
</tr>
<tr>
<td>Cash Balance</td>
<td>+++</td>
<td>+</td>
<td>+0</td>
<td>-</td>
<td>+0</td>
</tr>
<tr>
<td>Manufacturing Costs (in % of Turn Over)</td>
<td>6%</td>
<td>12%</td>
<td>14%</td>
<td>30%</td>
<td>34%</td>
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</tbody>
</table>
1. Products & Figures

2. Lean Production – two examples: Assembly Line Drives

3. Business & Processes – how do we do it

4. Business & Processes – the challenges
1. Generation Assembly Line - Make-to-stock production

**Workflow**
- Defined batch sizes
- Piecework
- Complete production of standard devices on several assembly sites
- Intermediate products stored in P-store
- Storing of finished products in dispatch store

**Material supply**
- Order-related removal by logistics in the storing area
- Transport by production staff
- Workplace-related material assignment by assembly staff

**Problems**
- No economic individual make-to-order production for customers possible
- High stock of materials in the assembly area
- A lot of non-productive activities
- No integration of options during the assembly process
2. Generation Assembly Line - Make-to-order production

Organisation
- Teamwork
- Lean Production Principles

Workflow
- Production in assembly steps
- Customer-specific assembly, testing and packaging during the assembly workflow
- Dispatch to the customer

Material supply
- Material in the production area (Kanban)
- Commissioning initiative by production staff
- Material transport by logistics

Pre-assembly
- Demand-controlled

By changing the methods used and introducing teamwork, the group was able to raise productivity to such a level that it was possible to entirely cancel the second shift, in spite of additional options being provided to the customer.
Assembly is done in accordance with the one-piece flow concept in vehicles, which are moved by the assemblers from station to station.

Reserve area for new products available

Sufficient provisioning areas for all required materials

Assembly is done in the sequence of customer orders.
## Summary - Assembly Lines

<table>
<thead>
<tr>
<th></th>
<th>Inventory</th>
<th>Skill Level</th>
<th>Flexibility</th>
<th>Automation Level</th>
<th>Lead Time</th>
<th>Productivity</th>
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<tbody>
<tr>
<td>1. Gen</td>
<td></td>
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<tr>
<td>2. Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+10%</td>
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</table>
1. Products & Figures

2. Lean Production – two examples
   Assembly Line SITOP LOGO!

3. Business & Processes – how do we do it
4. Business & Processes – the challenges
Material Flow SITOP LOGO!
Starting Point
Material Flow SITOP LOGO!
Optimization – First Step
Material Flow SITOP LOGO!
Current Status
Lead Time Reduction SITOP LOGO!

Inventory Optimization through Lead Time Reduction

Start

Lead Time without Storing:

~23d

Total Added Value LOGO

Actual

Goal

< 3d

4-6d

„Deliver, don’t Stockpile!“

€ 190.000,-
(Average Inventory)

Warehouse H16

~1-3 Wo

Assembly

~3d

SMD
Manual Placement
18d
Assembly

~3d
1. Products & Figures
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4. Business & Processes – the challenges
Linking the Company Functions
Transfer of the Porter Model in a customer oriented End-to-End Process
Siemens Reference Process House
Binding Standard for Process Management / Standardization

Management Processes

- Strategic Planning & Controlling
- Financial Planning & Controlling
- Enterprise Governance
- Internal Audit

Customer Relationship Management (CRM)

- Plan
- Understand
- Sell
- Care

Supply Chain Management (SCM)

- Plan
- Source
- Make
- Deliver
- Return

Product Lifecycle Management (PLM)

- Plan
- Product Portf. Management
- Define
- Realize
- Commercialize/Operate
- Phase out

Support Processes

- Quality Mgmt.
- Environment, Health & Safety
- Intellectual Capital Mgmt.
- Human Resources
- Financial Mgmt.
- Procurement
- Process & Information Mgmt.
- Communication
- Real Estate Mgmt.
- Administration & Infrastructure
- Operating Rules
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4. Business & Processes – the challenges
Process Support through „Tools“

Management Processes

- Strategic Planning & Controlling
- Financial Planning & Controlling
- Enterprise Governance
- Internal Audit

Customer Relationship Management (CRM)
- CONCORD (SAP-CRM)
- SAP

Product Lifecycle Management (PLM)
- DOORS
- PDM
- SAP

Support Processes
- AZM
- SAP
- FIS
- PI

Issues
- Environment, Health & Safety
- Intellectual Capital Management
- Procurement
- Communication
- Real Estate Management

Support Processes
- Intranet
- Intranet

CONCORD (SAP-CRM)
- Plan
- Source
- Define
- Realize
- Operational
- Commercialize
- Operate
- Source
- Make
- Deliver
- Operate
- Commercialize
- Operate
- Return

Plan
- Source
- Define
- Realize
- Operate
- Commercialize
- Operate
- Return

Plan
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- Make
- Deliver
- Operate
- Commercialize
- Operate
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Plan
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- Deliver
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- Operate
- Return

Plan
- Source
- Make
- Deliver
- Operate
- Commercialize
- Operate
- Return
A Simple Requirement – A Big Customer Benefit

Information about the Final Location of a Product

Benefits:
• Availability of Spare Parts
• Optimized Network of Repair Shops
• Reaction Time on Failures
• Optimization of Inventories

Material Flow

Factory → Logistic Center → Carrier 1 → Carrier 2 → Customer → End User

Trackable Information Flow

Factory → Logistic Center → Carrier 1 → Carrier 2 → Customer → End User
The Actual Requirement of Process and Information Management

- Standardization
- A strong and capable backbone (information highway(s))
- Permeable interfaces
- Keep it as Complex as Necessary – but as Simple as Possible
- Design for Humans, not for "Tools"
We live in a time of perfect means and confusion of objectives.

*Albert Einstein*