B. Braun Production System

Production Systems

1867 – Tuttlingen, Germany

2001 – Tuttlingen, Benchmark Factory

1993 – Chaumont, France

1973 – Penang, Malaysia

1991 – Nowy Tomysl, Poland
The B. Braun Group brings four Divisions together under one roof

Aesculap: implants, sutures, surgical instruments, power systems and a unique package of services

Hospital Care: infusion, irrigation, nutrition and volume replacement solutions, products for anaesthesia, infusion technologies and accessories

Out Patient Market (OPM): products and services outside the hospital, enteral and parenteral nutrition, wound treatment and diabetic care products

Avitum: dialysis systems

Turnover in 2006: € 3.3 billion
> 31,000 employees

- Aesculap € 0.95 billion (= 28.9%)
- Avitum € 0.29 billion (= 8.8%)
- OPM € 0.46 billion (= 14 %)
- Hospital Care € 1.58 billion (= 47.7 %)
- Braun Others € 0.02 billion (= 0.6%)
**B. Braun Aesculap and its products**

- Acculan: motors for all disciplines
- PrimeLine sterile container - the original
- Atraumatic forceps – a highlight in surgical technology
- Instruments and sutures – all you need for wound closure
- Coroflex Please – a coronary stent
- Orthopilot – navigated implant positioning
- PrimeLine sterile container - the original
- Implant systems
- Orthopilot – navigated implant positioning
The system modules structure methods according to their application.

Methods are standardized and defined LEAN strategies to solve problems or optimize processes. Each method has an owner.

Tools and techniques which can be universally applied

Check shows the implementation status of methods

BPS KPIs show how successfully methods are implemented
# B. Braun Production System

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
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<tbody>
<tr>
<td>TPM - Total Productive Maintenance</td>
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<td>FMEA - Failure Mode Effect Analysis</td>
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<td>Standardised Visual Management</td>
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<tr>
<td>5S - Order and Cleanliness</td>
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<td>3P - Production Preparation Process</td>
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<td>BOOM - Stock optimisation without material shortages</td>
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<td>BPMS - Braun Performance Management System</td>
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<td>Six Sigma</td>
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<td>SWS - Standard Work Systems</td>
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<td>Just-in-Time</td>
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<td>Work Factory</td>
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<td>SMED - Single Minute Equipment Change of Die</td>
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<tr>
<td>PSM - Problem Solving Method</td>
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<td>ATS - Analysis Tools</td>
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*Aesculap Division Dr. Joachim Schulz/PT – 23.01.08/kaz*
Implementation strategy
First BPS Check

Team (max. 7 members):
- production manager
- SCM / MRP controller / production control
- quality manager
- engineering
- production controlling
- BPS office
- shop floor worker

1. Requested information before meeting on site:
   KPIs:
   - production costs
   - lead times
   - article families / article spectrum
   - articles
   - number of employees
   - organizational chart

2. Overview of practiced methods

3. Short kick-off training – The 7 types of waste (MUDA)

4. MUDA walk according to guideline → SWOT analysis

Definition of SWOTs

<table>
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<th>Helpful in achieving objectives</th>
<th>Harmful in achieving objectives</th>
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<tbody>
<tr>
<td><strong>Internal</strong></td>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
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<td>(attributes of the organization)</td>
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<tr>
<td><strong>External</strong></td>
<td><strong>Opportunities</strong></td>
<td><strong>Threats</strong></td>
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<td>(attributes of the environment)</td>
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</table>
5. BPS office proposes 5-10 methods to start implementation → method proposals depend on production technology and type (e.g. high, medium or low automation).

6. Evaluation of the impact on relevant KPIs and feasibility of implementing proposed methods.

→ 5 key methods will be selected to be implemented in a defined time frame!
Questions to the scientific community / to CIRP
TPS is the most frequently copied role model

- Companies are confronted with an army of consultants but there is very little scientific evidence or research
- In recent years the number of scientific publications about XPS has increased

TPS = Toyota Production System
XPS = The Production System of any company on a plant or a plant network level
Questions

➢ Can you categorize XPS?
➢ Can you derive from this a type of XPS that is best suited to your particular production?
➢ In Germany there is a strong emphasis on methods within XPS. Is this purely a German phenomenon and simply the wrong approach?
➢ Is there a best way to implement XPS?
➢ What is the best way of providing the staff involved with the necessary knowledge?
➢ Mistakes made by copying and interpreting TPS?
➢ How to continue optimizing the XPS?
➢ What comes after XPS/TPS?
➢ What role does the Theory of Constraints (E. Goldratt) play in the LEAN world?
➢ …..