Zmile

Zehnder’s Journey of Lean Learning

Ian Bergman
Head Operational Excellence
UK Lean Summit 2016
What are your expectations?
The Journey
Structure

Zehnder & Zmile

- Products
- Locations
- Key Facts Figures & Challenges
- Philosophy

Learning to Zmile

Zmile Successes & Lessons Learnt
Zehnder Products

Design Radiators

Indoor Ventilation & Heat Recovery

Cooling & Heating Ceiling Panels

Clean Air solutions
Our Locations in Europe

- PLA Lenham UK
- PVA Vaux Andigny F
- PCH Châlons F
- PZW Zwolle NL
- PDE Reinsdorf D
- PMO Motala S
- PBO Boleslawiecz PL
- PGR Gränichen CH
- PMA Manisa TR
Our North American & Chinese Locations

- RNA (Runtal North America)
  Ward Hill (near Boston)

- PDA Dachang
  (near Beijing)

- Nather Air
  Shanghai

- dpoint Vancouver

- Verkauf
- Produktion R&D

- HNA (Hydro Air North America)
  *Rittling North America*
  Buffalo
Key Facts & Figures & Challenges

Established 1911
Zehnder family
still main shareholder

Approx 3000
employees

Swiss

Approx € 500 M
Turnover p.a

Challenges

Radiator market in decline (underfloor heating)
More than 30% increase in Swiss Franc
New product development
Stock levels
Profit
Growing Complexity
SAP / New value Flow
Employee turnover / downsizing
Costs
What is Zmile

Agility
Zehnder’s Values & Principles (Culture)

Quick Response Manufacturing
Kaizen

Simplicity
Work more intelligently rather than harder

A philosophy of good can always be made better

What we do to make our employees & customers Zmile
Structure

Zehnder & Zmile

Learning to Zmile

- First Steps
- Roadmap
- Train the Trainers
- A chance to Experience the Zmile Spirit
- More than Kaizen
- The Journey continues

Zmile Successes & Lessons Learnt
The First Steps

Audits & all Production Sites with external consultant

Kick Off Event with Senior Management with external consultant

Local co-ordinator defined for all production sites (1 FTE per 200 employees)

Local Kick Off for local Management Team with external consultant
Train the Trainer Philosophy

<table>
<thead>
<tr>
<th>Objective</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase Productivity</td>
<td>5%</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>Reduce Error costs (internal &amp; External)</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>Reduce Inventory</td>
<td></td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Reduce Scrap costs</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Cost Saving Focus

Expert → Local Co-ordinator → Facilitator → Workforce

Initial Local Workshops From external consultants
Simulations used extensively at all levels

A chance to experience our Approach for two volunteers
5S is about Improving Efficiency not Cleaning

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of pcs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Zmile is More than Kaizen

To internalise the programme & add additional concepts such as Agility & QRM (Quick Response Manufacturing) a workshop was held with the top 60 managers within the Group to find a name for the Zehnder initiative.
The Zmile Journey Continues...

Zmile launched in Administration in January 2015 (Kick Off, Local Co-ordinators, 10 days training)

Local Steering Committee meetings each month

Flyers distributed to every employee in local language each quarter to maintain momentum & sell successes (with prize draws for Zmile promotional gifts)

3 co-ordinator development events per year (1 product, 1 administration, 1 combined)

Audits at each production site every 2 years by Group co-ordinator & member of the board to monitor progress & define local objectives

Benchmarking started with Bosch, Swiss Railways & Georg Fischer

Current Group Objectives in additional to local goals

- Process mapping or MCT mapping of major processes
- Zero accidents each month with a display of number of accident free days in each facility
- An inventory turn in Europe of no more than 75 days. It is obviously that not all functions can influence inventory turn, but an awareness of the cost of inventory & how this key performance indicator is developing is certainly relevant to display on Zmile boards
- Set up a system to capture and implement improvement proposals
- Introduce regular start-up meetings (huddles) to improve communication and transparency.

MCT Manufacturing Critical Path Time
# Group Training Concept

<table>
<thead>
<tr>
<th>12 stage model</th>
<th>New 5 Why</th>
<th>Kobetsu Project</th>
<th>Kobetsu Kaizen</th>
<th>Flipchart presentation</th>
<th>Zmile Board</th>
<th>Zmile Facilitator</th>
<th>Lead a VSM Workshop</th>
<th>VSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice Breakers</td>
<td>Simulation</td>
<td>Resistance to change</td>
<td>DICE</td>
<td>Future State Map</td>
<td>Practical Application</td>
<td>Lead Time</td>
<td>Savings estimation</td>
<td>KPI &amp; Finance</td>
</tr>
<tr>
<td>Processing Time</td>
<td>Cycle Time</td>
<td>Lead Time</td>
<td>MUDA Elimination</td>
<td>Current State Map</td>
<td>Practical Application</td>
<td>Lead Time</td>
<td>Savings estimation</td>
<td>KPI &amp; Finance</td>
</tr>
<tr>
<td>Simulation</td>
<td>FTR</td>
<td>OEE</td>
<td>Complaints</td>
<td>LTA</td>
<td>OTIF</td>
<td>Lead Time</td>
<td>Savings estimation</td>
<td>KPI &amp; Finance</td>
</tr>
<tr>
<td>Inventory Justification</td>
<td>Cost of Inventory</td>
<td>Inventory Turn</td>
<td>Simulation</td>
<td>KanBan</td>
<td>Supermarket</td>
<td>Line Balancing</td>
<td>Takt /Pull</td>
<td>TFM</td>
</tr>
<tr>
<td>OEE</td>
<td>MTBF</td>
<td>Autonomous Maintenance</td>
<td>8 Pillars</td>
<td>7 Steps</td>
<td>Cleaning Literature Checking</td>
<td>Practical TPM</td>
<td>TPM</td>
<td></td>
</tr>
<tr>
<td>Advantages Quick Changeover</td>
<td>Workshop Evaluation</td>
<td>Practical Application</td>
<td>SMED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCT Definition</td>
<td>Value of Time</td>
<td>Touch Time</td>
<td>White &amp; Grey space</td>
<td>Effect of Inventory</td>
<td>MCT v VSM Mapping</td>
<td>Reducing MCT</td>
<td>Partake in MCT Mapping</td>
<td>MCT</td>
</tr>
<tr>
<td>Processing Time</td>
<td>Cycle Time</td>
<td>Lead Time</td>
<td>MUDA Elimination</td>
<td>Current State Map</td>
<td>Future State Map</td>
<td>Practical Application</td>
<td>Process Mapping</td>
<td></td>
</tr>
<tr>
<td>Zmile in Admin</td>
<td>Time Thieves</td>
<td>SIPOC</td>
<td>Internal Suppliers/Customers</td>
<td>6 Level Model</td>
<td>20 second Rule</td>
<td>Process Maping</td>
<td>TSM</td>
<td></td>
</tr>
<tr>
<td>Fallacy of Inspection</td>
<td>Standards</td>
<td>Statistics</td>
<td>Pareto</td>
<td>Ischikawa</td>
<td>FMEA</td>
<td>8D</td>
<td>Poka Yoke</td>
<td>TQM</td>
</tr>
<tr>
<td>Zmile Philosophy</td>
<td>5S</td>
<td>MUDA</td>
<td>One Point Lesson</td>
<td>Numbers Data Facts</td>
<td>PDCA</td>
<td>5 Why</td>
<td>PSS</td>
<td></td>
</tr>
</tbody>
</table>

**ZMILE CO-ORDINATOR**
- Written theory exam, Project with significant saving (5 X practioner project), design & run a Zmile workshop

**ZMILE FACILITATOR**
- 3 from 7 course completed.
- And project with significant savings

**BASIC**
- OPL & PSS Completed
Structure

Zehnder & Zmile

Learning to Zmile

Zmile Successes & Lessons Learnt

• Achievements
• Lessons Learnt
Zmile Achievements

- Approx 20000 Improvement Suggestions Generated
- 60 days reduction in inventory
- 47% Improvement in Internal Customer Satisfaction
- 15% less Loss Time Accidents
Lessons Learnt

• Only successful where there is clear local management support

• Impossible to make progress when other major change processes are being undertaken (SAP implementation / New Value Flow)

• Too much focus on cost savings damages employee commitment to improvement

• Roadmaps, targets and steering committees continue to be needed after initial introduction

• Local coordinators will leave the company (> 25% Turnover)

• Train the trainer philosophy not always effective

• More difficult in administration (lack of visibility & targets)

• Internal training programme & certification very difficult to establish

• Simulations more effective than Powerpoint
Questions & Answers
Were your expectations met?