Welcome to ABB Turbocharging Supplier Day Europe March 8th, 2016
Emergency information
Power Tower

What to do in an emergency in the Power Tower

**Fire**
- **Alarm**
  - Stay calm
  - Press hand button or alarm the fire department. Phone 112 internal or (0) 118 external
- **Rescue and warn**
  - Provide assistance
  - Warn people exposed to danger
  - Rescue disabled or injured people
- **Extinguish Fire**
  - Do not endanger yourself!
  - Use a fire extinguisher / hose reel for fire fighting
- **Close**
  - Close windows and doors when leaving the building (to prevent the spread of fire and smoke)
- **Attention!**
  - Do not use elevators!
  - Leave the building using the stairs and go directly to the meeting point

**Evacuation**
- **Alarm**
  - In case of an audible alarm in the Power Tower you have to leave the building immediately in a calm manner using the marked emergency exits
- **Follow**
  - Follow the instructions of the security responsibilities and info sheets
  - Never use elevators
  - Help injured and disabled people
- **Meet**
  - Meeting point on the Trafo Platz
  - Do not leave without the permission of the operational command

**First Aid**
- **Principle**
  - Look (Review the situation)
  - Think (Recognize follow-on hazards)
  - Act (Protect yourself, secure the location)
- **Rescue**
  - Protect yourself (gloves)
  - Do not endanger yourself!
  - Rescue injured people from the hazard zone
- **Emergency call**
  - Alarm internal Phone 114
  - Ambulance external Phone (0)144
  - What is the location of the emergency?
  - Who is calling?
  - What happened?
  - When did the accident happen?
  - How many people are involved / hurt?
  - Anything else?
- **Assistance**
  - Care for injured individuals until medical aid arrives (first aid)
  - Familiarize, help and support rescue parties
- **Location Defibrillator**
  - Block B, ground floor main stairway
  - Block B, 1st floor emergency stairway

Contact: Bruno Bonelli 5 85 09 | Patrick Eichenberger 5 70 00
## Supplier Day Europe Agenda March 8, 2016

<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>13.30-15.00</td>
<td>Factory &amp; Service Center Tour</td>
<td>Kurt Deppeler</td>
<td>GCM Iron Castings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Martin Rohr Ralf Hock</td>
<td>GCM Components</td>
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<td></td>
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<td></td>
<td>GM Manufacturing Technologies</td>
</tr>
<tr>
<td>15.15-15.30</td>
<td>Inventory Management</td>
<td>Marc Schweickardt</td>
<td>Value Chain Planning Manager</td>
</tr>
<tr>
<td>15.30-15.45</td>
<td>Trade Compliance</td>
<td>René Eberle</td>
<td>Trade Compliance Manager</td>
</tr>
<tr>
<td>15.45-16.00</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.00-16.30</td>
<td>Continuous Improvement</td>
<td>Guest speaker:</td>
<td>Group Senior Vice President Quality &amp; Operational Excellence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bill Black ABB Management Services Ltd.</td>
<td></td>
</tr>
<tr>
<td>16.30-17.00</td>
<td>Q &amp; A and closing</td>
<td></td>
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</tr>
<tr>
<td>17.00-17.30</td>
<td>Transfer to Restaurant Casino</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>at Haselstrasse 2, Baden</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Walking distance from venue</td>
<td></td>
<td></td>
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<tr>
<td>17.30–21.30</td>
<td>Apéro and dinner</td>
<td></td>
<td></td>
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</tbody>
</table>
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</tr>
<tr>
<td></td>
<td>- Medium &amp; Low Speed Turbocharger</td>
<td>Markus Kahi</td>
<td>Senior General Manager</td>
</tr>
<tr>
<td></td>
<td>- High Speed Turbocharger</td>
<td>Remo Kissling</td>
<td>General Manager</td>
</tr>
<tr>
<td></td>
<td>- Service Turbocharger</td>
<td></td>
<td>Service Spare Parts</td>
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Supplier Day Europe
Overview
Market- / Business Environment
Market- / Business Environment

- Global production of engines >500 kW back to a level of the years 2004/2005, before the booming years
- Still overcapacity in marine industry, highest level of idling fleet since 5 years (6% idle TEU)
- Current freight rates below the rates during the financial crises in 2009
- Commodity and oil / gas prices historically low
- Power generation markets impacted by continued macroeconomic uncertainty and slower global growth projections
Requests from our suppliers ....

.... Alignment with the needs from our customers

- Requested on time delivery >95%
- Step change in quality <500 ppm, support ABB’s initiative
- Reduced lead times to enable “make to order”
- Continuous productivity increase of at least 5% p.a.
# Supplier Day Europe

## Agenda March 8, 2016

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</table>
Product Group Low Speed, Medium Speed and Rail

What we do and what we need….from you
World of applications
<table>
<thead>
<tr>
<th>OEM Sales &amp; Application Engineering</th>
<th>Products</th>
<th>Supply &amp; Production</th>
<th>Product Line</th>
<th>Product Line</th>
<th>Controlling and Commercial Mgmt</th>
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<tbody>
<tr>
<td>OEM Sales &amp; Application Eng. Europe</td>
<td>Product Development and Care Martin Thiele</td>
<td>Plant Baden Urs Völlmin</td>
<td>Sales Arie Smits</td>
<td>Sales &amp; Application Engineering Pierre Jacoby</td>
<td>Controlling Adrian Grossenbacher</td>
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<tr>
<td>Marco Burgwal</td>
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</tr>
<tr>
<td>OEM Sales &amp; Application Eng. Korea</td>
<td>Product Management Niklas Sievers</td>
<td>Plant Jiangjin Shi Jing</td>
<td>Product Management Jochen Kappler</td>
<td>Life Cycle Management Christoph Schneider</td>
<td>Commercial &amp; Demand Management Marcel Stingelin</td>
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<tr>
<td>Sang-Ho Shin</td>
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<tr>
<td>OEM Sales &amp; Application Eng. Japan</td>
<td>Applied Turbocharging Christoph Rofka a.i.</td>
<td>Plant Vadodara Nishesh Shah</td>
<td>Product Development and Care Fabian Schön bächler</td>
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<tr>
<td>Ryoya Nakamura</td>
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</tr>
<tr>
<td>OEM Sales &amp; Application Eng. China</td>
<td>Logistics &amp; Order Processing Adrian Kammerl</td>
<td></td>
<td>Quality Management Marco Dörig</td>
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<tr>
<td>Henri Xu</td>
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March 10, 2016 | Slide 15
Develop leading turbocharging solutions adding true value to our customers’ businesses in the fuel and reliability segments

Establish strategic cooperations with key players and market & technology leaders to increase market penetration and customer value of our offerings

Fast and first time right product development enabling concurrent engineering with lead customers

Highly cost competitive production capable to support volatile demand with complex portfolio

Grow after market share by 25% with targeted value added life-cycle offerings (Upgrades) and attractive loyalty offerings

Customer proximity with best in class support and consultancy
Increased market shares at HHI (60%, due to close cooperation & cost reductions) and at Doosan.

- Growth in China with WinGD (preferred TC-solution)
- Growth in Japan, Mitsui and competitive pricing at Hitz & Makita.
- From ~2018 on premium products with competitive advantages kick in.
## PL Medium Speed

### Summary - product business

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share</td>
<td>50%</td>
<td>50%</td>
<td>53%</td>
</tr>
<tr>
<td>Delivered output [GW]</td>
<td>9.0</td>
<td>8.9</td>
<td>9.5</td>
</tr>
<tr>
<td>DV/kW [USD/kW]</td>
<td>9.7</td>
<td>8.4</td>
<td>7.6</td>
</tr>
<tr>
<td>R&amp;D in % of Rev.</td>
<td>7.0%</td>
<td>6.5%</td>
<td>6.6%</td>
</tr>
</tbody>
</table>
PL Medium Speed
Product mix, cost and price quality

USD/kW

Year

Product mix as % of revenues

2014 2020 2025

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

1-stage + 2-stage

DV/kW

Rev/kW

TPS/TPL65-A; 67-C

TPL71; 76-C

A100-M axial

A100-M radial

New gen. 1-stage

Power2

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Drive global competitiveness and achieve highest productivity in a highly volatile market

- Continue to drive productivity, quality and cost competitiveness
- Optimize value chain according product line needs over life cycle
- Increase capital utilization
- Manage market volatility and improve agility
- People development and investment
- External focus and differentiation through innovation and industrialization

M Move
Move to save

I Improve
Improve productivity

P Perform
Perform deliveries

E Explore
Explore new technologies & processes
Market review 2015
Marine – Contracting & Newbuilding Prices Down

- Year on year contracting activities declined 45% in numbers (-37% in $)
- Newbuilding prices continue to be under pressure based on continued overcapacity and low ordering volumes

Source: Clarksons 02/2016
Ordering activity particularly weak in bulk carriers (-75%) and offshore (-71%)

Containers (93%) and tankers (19%) are up

Newbuilding activity in recent months driven in part by the upcoming deadline for NOx Tier III compliance

Source: Clarksons 02/2016
The idle containership fleet has reached its highest level in five years, with over 1 Mteu of vessel capacity (5.3% of capacity)

Despite drastic capacity cuts, carriers have not been able to reverse the slump in freight rates. Spot rates from Shanghai to North Europe have fallen to $409/teu

Source: Alphaliner November 2015
Earning index for bulkers is declining further and stands at 318, which is ca. 40% below previous historic low.

Note: The Baltic Dry Index (replaces the Baltic Freight Index): A composite of the Baltic Capesize, Panamax, Handysize and Supramax indices. The index is designed as the successor to the Baltic Freight Index and was first published on January 4 1985 at 1000 points. Last day of trading yr - Christmas Eve
Source: http://www.bloomberg.com/quote/BDIY:IND

Baltic Dry Index: demand for shipping capacity versus supply of dry bulk carriers
Market Outlook Marine

- Forecast further reduced since spring 2015

**Source:** Clarksons 09/2015
Longterm Perspective for TC-Prices…
… requires Continuous Productivity Increase

Historical data (Source BFS, OECD)
- CH consumer price: +1.6% p.a.
- CH Mfg. price: -0.1% p.a.
- US$ / CHF: +1.8% p.a.
- US Mfg. price: +2.2% p.a.

Expectations 2020
- Price erosion: 3.0% p.a.
- CHF appreciation: 1.5% p.a.

Productivity targets
- technology: 2% p.a.
- sourcing and mfg.: 2% p.a.
- application efficiency: 1% p.a.
So .... what do we need from you ....

- Continuous Cost Reduction >5% p.a.
- Reduced Lead Times supporting our Customer Lead Times
- Small Delivery Lot Sizes matching our needs
- >95% On-Time Delivery Performance
- <500 ppm Quality Performance
Power and productivity for a better world™
Supplier Day Europe
Product Group High Speed
**Market:** High Speed Engines

Engines builders’ view

- Stand By & Emergency PG
- Distributed PG
- Supply Vessel
- Prime Peak shaving PG
- Continuous PG
- Gas Compression
- Barges & Pushers
- Loco
- Tugs
- AHTS
- Mine Excavator & Loaders
- Mine Trucks
- Frac Rigs
- Fishing Vessels
- Shunters
- Drilling Shallow Waters
- Drilling Deep Waters

**Volume Market**

- Oil & Gas
- Traction
- Marine
- Power Gen

**Premium Market**

- Market: High Speed Engines
- Engines builders’ view
- ABB Turbocharging Supplier Day Europe
- Supply & Value Chain Excellence

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Market: HS is everywhere
EPG (Electric Power Generation)
**Market:** HS is everywhere

**Marine**
Market: HS is everywhere
Oil & Gas
Quality: What is high speed diesel reliability?
Example Mining: Cat LMT 797F
Quality: Mining Applications
Why reliability is key
Customer expectation: 500 ppm
Level 2015: approx. 4’000 ppm
Cost

CHF/kW


Actual  Target

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Market characteristics

- Cyclic markets with fast increase and decrease of volumes
- Large number of engine variants with different turbocharger specifications
- Forecasts from our customers are not reliable
- Orders often come 4…6 weeks before delivery
- Some projects are only realised if delivery deadlines can be met

Impact on our business

- A lot of material required “on stock”
- Risk of wrong/obsolete materials “on stock”
- Risk of increasing stock levels during downturns and delivery problems during upturns

Target: 4 weeks from customer order to delivery.
Power and productivity for a better world™
Supplier Day Europe Service
Service Business
Introduction

- Service Excellence in Action → Video

Service is strategic focus

35% NEW Business

65% SERVICE Business
Service Business
Introduction

75% power
10% costs
Service Business
Introduction
Service Business
Facts and Challenges

- Down time is expensive for our customers

  98% availability against customer wish
  > 20% of all orders are delivered the same day
  > 40% of all orders are delivered within a week
Service Business Facts and Challenges

- Service life cycle

  25…40 years

- Large portfolio of spare parts

  47,000 different parts in portfolio
  12,000 different parts on stock
  7,500 different parts sold in 2015
  3 new stock outs every day
To be successful today we need

On time delivery
Quality <500ppm
To be successful tomorrow we are looking after following suppliers taking full responsibility for entire value chain with innovative solutions to reduce inventories by shortening lead times.
Power and productivity for a better world™
Break
Please be back at 11.00
Supplier Day Europe
Supply Chain Management
Supply and Value Chain Excellence

Contents

- Value Chain Strategy
  - Influence and expectation towards suppliers

- Supplier qualification

- Implementation of Make or Buy Strategy for Iron Castings

- Service Business
  - Part availability through service part provider

- Close cooperation in innovation
Challenges & Business Requirements Summary

Economic Challenges

- World economy slow down (especially China)
- Drastic oil and commodity price decline
- Swiss Franc appreciation

Business Challenges & Requests for the Turbocharging Business

- All market segments are down
- Overcapacity in the market
- Highly volatile markets
- High cost competitive markets

- Short time to market
- Short lead times & small lot sizes
- High OTD and quality
- Yearly productivity increase

Our answer: Drive global competitiveness through the entire value chain
Market & Business Impact

Market growth
0 - 4% p.a.

Price erosion
-3% per KW p.a.

Strengthening of CHF
1.5% p.a.

Productivity Increase

Yearly productivity increase of 5% is a «MUST», regionally differentiated

5% reduction on material cost p.a.

Optimization of current and fixed assets to reduce capital employed in the whole value chain

Achieve highest productivity in a highly volatile market
Value Chain Strategy
Main Strategic Actions

Increase cost, quality and delivery competitiveness

Material group focused & optimized «end-to-end» value streams

Reduce capital employed and optimize current & fixed assets

Synchronization of strategic suppliers to optimize lead time in line with the requested customer delivery time

Material group focused & optimized «end-to-end» value streams

Synchronization of strategic suppliers to optimize lead time in line with the requested customer delivery time

Improved asset utilization and supplier performance to achieve an OEE (Overall Equipment Effectiveness) on a global benchmark level

Extended or reduce «horizontal and vertical integration» to improve agility, through-put and lead time

Optimize value chains according to «Make or Buy» core portfolio and enter strategic partnerships to guarantee deliveries over the entire life cycle
### Influence on Suppliers of Main Strategic Actions

**Expected Supplier Performance & Development**

<table>
<thead>
<tr>
<th>Category</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On Time Delivery</strong></td>
<td>&gt; 95% ROTD</td>
</tr>
<tr>
<td></td>
<td>78.3% ROTD</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>2700 PPM</td>
</tr>
<tr>
<td></td>
<td>&lt;500 PPM</td>
</tr>
<tr>
<td><strong>Lead Time</strong></td>
<td>Supplier Lead Time</td>
</tr>
<tr>
<td></td>
<td>Customer Lead Time</td>
</tr>
<tr>
<td><strong>Material Productivity</strong></td>
<td>+ 5% p.a.</td>
</tr>
</tbody>
</table>

**Focus on entire Value Chain**

**ABB Turbocharging Supplier Day Europe**

**Supply & Value Chain Excellence**

**ROTĐ = Requested On Time Delivery**
Influence on Suppliers of Main Strategic Actions
Where do we stand today concerning ROTD?

ROTDD Distribution of present suppliers 2015

~10% on target level

ROTDD = Requested On Time Delivery
Influence on Suppliers of Main Strategic Actions

Where do we stand today concerning Quality?

PPM Distribution of present suppliers 2015

~35% on target level

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### Summary of Targets

#### Supporting Initiatives

#### Target

- Increase of productivity
- Minimizing of current & fixed assets

#### Supporting Initiatives

- Zero Defect program
- NWC reduction program
- PRIM_2020

#### Supporting Initiatives

- Supplier development programs with key suppliers
- Optimization of supply base

---

**ABB Turbocharging Supplier Day Europe**

Supply & Value Chain Excellence

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March 10, 2016 | Slide 60

**On Time Delivery**
- > 95% ROTD
  - 78.3% ROTD

**Quality**
- 2700 PPM

**Lead Time**
- Supplier Lead Time
  - 500 PPM
  - Customer Lead Time

**Material Productivity**
- + 5% p.a.
  - Focus on entire Value Chain

**ROTD** = Requested On Time Delivery
Path Forward

Your support is needed

- Provide the actions you will take to support our targets
- Inform about improvements we can implement
- Provide your answers by end of April 2016

Target

- Increase of productivity
- Minimizing of current & fixed assets

- On Time Delivery: > 95% ROTD
- Quality: 2700 PPM
- Lead Time: Supplier Lead Time
- Material Productivity: + 5% p.a.

Focus on entire Value Chain
Supplier Day Europe
New supplier qualification process
General overview
Implementation of Value Chain Strategy
New Supplier Qualification Process

• The bigger picture / Why a new process?
• Qualification versus Classification
• Classification levels
• Qualification process
• Next steps
• Useful links
Part of a bigger picture.... Supply Base Management
Implementation of Value Chain Strategy

The bigger picture / Why a new process?

http://new.abb.com/about/supplying/doing-business-with-abb
Part of a bigger picture… Supply Base Management
From a Qualified to a Classified Supplier Base
Part of a bigger picture…. Supply Base Management From Qualification to Classification

• **Supplier Qualification:**
  - Risk mitigation to secure that a supplier has the *basics* in place and satisfies **ABB minimum requirements**
  - Process Output: A qualified supplier base, *Drivers license* to supply to ABB

• **Supplier Classification:**
  - Qualification status + Category strategy + actual performance are the basis for Classification
    - Strong performance and low price is not enough to reach a high classification level
    - Category strategy is key: supply base consolidation, strategic suppliers etc.
    - Emphasis on strategic relationship with supplier
Part of a bigger picture…. Supply Base Management
From a Qualified to a Classified Supplier Base

From today

One category of suppliers

To tomorrow

Classified category of suppliers
- Preferred
- Approved
- Conditionally Approved
- Not classified

Desourced
Part of a bigger picture…. Supply Base Management
From a Qualified to a Classified Supplier Base

<table>
<thead>
<tr>
<th>Preferred</th>
<th>“KEEP”</th>
</tr>
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<tbody>
<tr>
<td>Already Approved.</td>
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</tr>
<tr>
<td>Best, mostly strategic suppliers, SPE&gt;80%</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Identified as strategic supplier in category strategy</td>
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<tr>
<td>Fully compliant and Qualified, SPE&gt;70%, etc.</td>
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<table>
<thead>
<tr>
<th>Conditionally approved</th>
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<tr>
<td>Not fully fulfilling ‘Approved’ level</td>
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<tr>
<th>Not classified</th>
<th>“WATCH”</th>
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<tbody>
<tr>
<td>Low spend or one time supplier</td>
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<table>
<thead>
<tr>
<th>Substantial under-performing</th>
<th>“LOOSE”</th>
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<tr>
<td>Does not meet Compliance requirements</td>
<td></td>
</tr>
<tr>
<td>Startegic alignment, change portfolio</td>
<td></td>
</tr>
</tbody>
</table>

To tomorrow

- Preferred
- Approved
- Conditionally Approved
- Not classified

Desourced
Part of a bigger picture…. Supply Base Management

1. Supplier identification
2. Qualification
3. Onboarding
4. Performance evaluation
5. Classification
6a. Development
6b. De-sourcing

CIPS

© ABB Group
March 10, 2016 | Slide 73
Why a new Qualification Process?

Supplier Qualification is a key process within the Supply Base Management framework.
The new supplier qualification process is designed to better:

Secure ABB minimum requirements
- Provide a ‘driver’s license’ to supply to ABB
- Full compliance to all legal (for example “Conflict Minerals”) and ABB specific requirements (for example “Code of Conduct”)
- Excellent quality and delivery performance

Reduce risks
- Provide risk guidelines to qualifying ABB units
- Identify and avoid suppliers with high risks
- Provide standardized quality tools to resolve potential supply chain risks

Optimize resources
- Less duplications of supplier qualifications and assessments
- Increased sharing of the best suppliers
- Full online global availability of supplier information
Supplier Company Qualification

Key steps

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<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tr>
<td>Blocked or restricted supplier?</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
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<tr>
<td>Achilles Stage 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achilles Stage 2</td>
<td></td>
<td></td>
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<tr>
<td>Financial risk evaluation *</td>
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<tr>
<td>Desktop assessments</td>
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<tr>
<td>Onsite assessments (audit)</td>
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<td></td>
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</tr>
<tr>
<td>Final Decision**</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ProSupply updated</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Financial: Special risk criteria's
** Final decision: Qualified, Conditionally qualified, Disqualified
What regulation is coming next?

- **Stage 1**: all suppliers
- **Stage 2**: High/Medium risk suppliers. Default if global yearly ABB spend > USD 100K.

### Examples of supplier questions:

- **General data**: Company name, address, contact persons, parent organization
- **Finance**: Annual turnover, pre-tax profit, total assets. Details on Ultimate parent company and associated companies. Financial Analysis Module, ...
- **Compliance**: Tax and Social Security compliance, Insurance coverage, Internal policies, ...
- **Quality**: 9001 certification and quality management, process improvement process, ...
- **Corporate social responsibility**: Working practices, labor standards/laws, CSR policy, Social and ethical standards, Child/forced labor, ...
- **Environment/Climate Change**: ISO 14001, Waste management, required legal permits, ...
- **Health and Safety**: ISO 18001, REACH/RoHS, accidents, induction/training, use of PPE, ...
- **Products and Services**: Detailed products and services area, product description and areas of supply. Contacts, references and product accreditations, ...

**Stage 1a) Conflict minerals**
Supplier Invitation Process

- ABB unit notify supplier to Achilles
- Achilles contacts each supplier to start process, by invitation letter and Telefon. Upload in ProSupply.
- Annually, Achilles contacts supplier for up-date information
- Achilles upload in ProSupply
Supplier Benefits

Potential for more business by increased exposure:

- ABB globally via substantial info in ABB global database ProSupply
- Opportunity for good suppliers / Threat for bad suppliers
- By showing compliance to ABB requirements, increased chance to stay in business with ABB

Only one registration process and pre-qualification, covering all of ABB

- Earlier many suppliers had to fill in the SIS/SQQ etc. for multiple ABB entities – With information provided via Achilles, it is instantly globally available via ProSupply
Sample of Achilles Customers
Part of a bigger picture…. Supply Base Management
Next Steps towards Qualified Supplier Base…….

- Qualification Step 1 & Step 2 by Achilles
  - Starting supplier invitation process: Achilles contact supplier
  - For those with no or incomplete response: ABB contact supplier
  - Provide ABB minimum requirements standards information to requesting unit (Conflict Minerals, Code of Conduct, etc)

- Financial risk evaluation by Rapid Rating:
  - For Public companies: Direct access to required financial information by Rapid Rating
  - For Private companies: ABB inform supplier, Rapid Rating send input template

- Annual up-date
- Annual Supplier Performance Evaluation (Supplier Rating) by ABB unit
Part of a bigger picture…. Supply Base Management

More Information / Links

Suppliers to ABB
Here you will find useful information for current and future suppliers.

Doing Business with ABB
Learn how ABB is geared towards building supplier relationships.

Becoming a Supplier
Information on ABB’s registration and pre-qualification process.

eSourcing tool
ABB’s tool for managing tenders and negotiations with suppliers.

ABB General Terms & Conditions for Purchase
Suppliers can download ABB’s General Terms and Conditions for Purchase here.

Sustainability & Integrity in the Supply Chain
Sustainability and integrity are a key part of ABB’s Supply Chain Management strategy. Discover more here!

Sustainability in ABB - Video
This animated story illustrates the importance of the ABB Supplier Code of Conduct.

ABB Supplier Code of Conduct

Supplier Sustainability Development Program (SSDP)

Material Compliance
Conflict minerals and hazardous substances

Integrity at ABB
Visit our integrity portal

Link
abb.com/Supplying to ABB
Supplier Day Europe
Global Category Iron Casting
Global Category Iron Casting

Agenda

- Implementation of Make or Buy Strategy for Iron Castings
- Service Business
  - Part Availability through Service Part Provider
- Close Cooperation in Innovation
Global Category Iron Casting

Agenda

- Implementation of Make or Buy Strategy for Iron Castings
  - Service Business
    - Part Availability through Service Part Provider
  - Close Cooperation in innovation
Global Category Iron Casting
Key Approach: «Make or Buy»

Collaborate (improve)

- Make
  - Rotor & Bearings
  - Matching (Diffuser & Wall Insert)
  - SB Casings

- Buy
  - Flanges, Covers
  - Components
  - Standards
  - NB Casings

- Exploit (improve)

Criticality

ABB Turbocharging Supplier Day Europe
Supply & Value Chain Excellence
### Portfolio transfer

- Transfer portfolio from a capacity focused approach into material groups
- Transfer material groups to a competitive supplier base

<table>
<thead>
<tr>
<th>Machine Type</th>
<th>Material Groups</th>
<th>Recourse</th>
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<tbody>
<tr>
<td>Combi Plus</td>
<td>Axial Bearings</td>
<td>Supplier I</td>
</tr>
<tr>
<td>Mazak Spirit</td>
<td>Bearing Casing</td>
<td>Supplier II</td>
</tr>
<tr>
<td>Mazak Dragon</td>
<td>Castings</td>
<td>Supplier III</td>
</tr>
<tr>
<td>Poly Plus</td>
<td>Compr. Casing</td>
<td>Supplier IV</td>
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<td>Piccolo</td>
<td>GI Casing</td>
<td>Internal</td>
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<td>Mammut</td>
<td>GO Casing</td>
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<td>Evolution</td>
<td>Turbine Casing</td>
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<tr>
<td>Aquila</td>
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<tr>
<td>WFL 1 &amp; 2</td>
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<tr>
<td>MAZAK I CN</td>
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<td>MAZAK n CN</td>
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**Recourse**
- Supplier I
- Supplier II
- Supplier III
- Supplier IV

**Portfolio transfer**

- Transfer portfolio from a capacity focused approach into material groups
- Transfer material groups to a competitive supplier base
Global Category Iron Casting
Transfer Execution

Implement finishing process with the casting supplier

Supplier of machined part

Finishing Process

Pressure * Test
Washing
CL 2 Test *
Part Category I - IV
Assembly *
Packing Labeling
Stock / Ship

* Only if required

ABB

Supply & Value Chain Excellence
Global Category Iron Casting
Transfer Execution

Past

- Supplier
  - Raw material purchased to stock
  - Raw material produced to forecast keep internal stock.
  - Agreement for raw material stock management to be made.

Future

- Supplier
  - Purchase to order machined by supplier
  - Manage variants with reasonable stock in-house

Lead-time reduction potential
Global Category Iron Casting
Transfer Execution

Transfer from ABB internal machine to the supplier

Shutdown procedure

Make

Buy

x - time frame

y - time frame

sampling an release at the supplier after release create quotes in the system

shutdown starting

disinvestment date

# parts internally

# parts externally
Global Category Iron Casting

Agenda

- Implementation of Make or Buy Strategy for Iron Castings
- Service Business
  - Part Availability through Service Part Provider
- Close Cooperation in innovation
The product life cycle of a typical TC-generation is around 10 to 25 years.
Global Category Iron Casting
Service Partner Model

Technologische Anforderung
Hohe technologische Anforderung betreffend Materialvielfalt und Komplexität

Seriengrösse
Herstellung von Kleinserien mit unregelmässigen Bedarf

Geschäftsbeziehung
Langfristige Geschäftsbeziehung ist Grundvoraussetzung

Verfügbarkeit
Teileverfügbarkeit über 10 – 25 Jahre muss garantiert werden

Market
Kontinuierliches gesamt Volumen

Projektmanagement
Schnelle Einführung von Bauteilen First Time Right ohne 3D Daten

Flexibilität
Hohe Flexibilität in der Handhabung grösster Variantenvielfalt

Liefertreue und Qualität
Trotz hoher Variantenvielfalt, höchste Liefertreue und Qualität

Volume / year

New Business

Service Business

Introduction

5 10 15 20 25 30 35 40 45

Year
Global Category Iron Casting
Agenda

- Implementation of Make or Buy Strategy for Iron Castings
- Service Business
  - Part Availability through Service Part Provider
- Close Cooperation in innovation
1966
Japan started to enter the global passenger car market with low price products.
The German car manufacturer started to panic.

Today
Germany is still one of the leading car manufacturer in the world.
Global Category Iron Casting
Close Cooperation in Innovation

Goals:
- > 95% ROTD Achievement
- Zero Defect
- Most Competitive Costs

Our customer order Turbocharger within this lead-time!

Align your lead-time to the customer!
In view of total cost calculation:

- Create added value for the customer
- Act faster than the competitor
- Use/develop technologies to save cost (down sizing)
- Create a world leading position
Global Category Iron Casting
Close Cooperation in Innovation

Design of new parts to best experience by the customer, than let the manufacturer (supplier) make suggestions for cost optimization.

- Manufacturing Technology
- Alternative Material
- Design
How to buy a new digital camera?

- Go to a specialized dealer in town and get all the information about the camera you need.
- Go back home and order the camera in the internet.

There must be more added value for the customer otherwise this dealer will not survive!
Power and productivity for a better world™
Wearing safety equipment during the factory tour is mandatory.

Please note during our factory tour:
Lunchtime
Please be back at 13.30

Please be back here at 13.30 for a group picture and factory tour.

Enjoy your meal.
Welcome back to ABB Turbocharging Supplier Day Europe March 8th, 2016
# Supplier Day Europe
## Agenda March 8, 2016

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<td></td>
<td>Bill Black</td>
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<td>ABB Management Services Ltd.</td>
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<td></td>
<td>Haselstrasse 2, Baden</td>
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<td></td>
<td>Walking distance from venue</td>
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<tr>
<td>17.30-21.30</td>
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### Agenda March 8, 2016

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Supplier Day Europe
Inventory Optimization
Supplier Day Europe
Huge Gap in Inventory Turns

- Benchmark ITO is 3 times higher than ABB Turbocharging’s ITO
- ABB’s competitors improve at a significantly higher rate
- Improvement visible in 2015, but significant acceleration needed

ITO Benchmark and Trends

+30% in 3 years

3 times Turbo’s ITO

ITO: Inventory Turnover
Supplier Day Europe
Levers to Boost Inventory Turns

Analytics
- Benchmarking
- Value Stream Analysis

Tactics
- Lead time
- Planning procedures

Strategies
- Product design
- Make-or-buy

Leadership
- Roles & Responsibilities
- Accountability & Training
Half of our inventory is material as purchased from suppliers
- We’re buffering performance far-off benchmark level (lead time, OTD, Q)

OTD: On-time delivery, Q: Quality
Supplier Day Europe
What could you do?

Gain speed
(for shorter lead times)

Improve OTD
(for less safety stock)

Innovate PO process
(allowing late specification)

Support product design
(for less variants)

Add your own ideas!

OTD: On-time delivery
Power and productivity for a better world™
# Supplier Day Europe Agenda March 8, 2016

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Supplier Day Europe
Value Chain Excellence through Trade Compliance

Value Chain Excellence, R. Eberle, March 8, 2016
PATU - Trade Compliance Excellence Agenda

- Trade Compliance Value Chain PATU
  - Key approach
  - Switzerland’s FTA Network
  - Mechanism and interdependence of Trade Compliance in Value Chain
    - Scope, roles and responsibilities
    - Must requirements for the individual process member
- Trade Compliance improvement project and program
  - Required improvements in inbound logistics
  - Conflict Minerals

PATU: Process Automation Turbocharging
PATU - Trade Compliance Excellence

Key Approach

- Trade Compliance Excellence in **Value Chain PATU** (end-to-end)
  - Close cooperation with our supplier- and logistic partners
  - In close alignment with KPI requirements
    - e.g. response, OTD, productivity

- Compliance with **customs regulations** and **embargos/ sanctions**
  - Cost avoidance through compliance with legal requirements
  - Convincing with integrity towards customers and authorities

- Utilizing the budgeted saving potential through **FTA opportunities**
  - Contributing to customer’s competitiveness

**FTA**: Free Trade Agreement
**PG**: Product Group
**KPI**: Key Performance Indicator
**OTD**: On Time Delivery
- 30 Free Trade Agreements in force
  - Offering important saving opportunities to the benefit of our customer’s competitiveness
PATU - Trade Compliance Excellence Mechanism and Interdependence in Value Chain

Supply & Value Chain Excellence

ABB Turbocharging Supplier Day Europe
PATU - Trade Compliance Excellence
Accountability of our Customer

- **Responsibility** for import declaration lies with the customer
  - Customer using customs data from ABB and ABB’s supplier partners
  - Wrong customs declaration causing penalties, a damage in reputation (with backlash to ABB/ supplier) and a delay in processing

- **Must requirements for our customer**
  - The customer needs to timely submit all documents/ data complying with customs regulations
    - In order to benefit from preferential treatment the documents/ data need to fully comply with the applicable FTA requirements
  - In case of routine customs investigations the customer needs to be able to provide full evidence on his declaration
    - In case of insufficient presentation the preferential treatment will be rejected
Responsibility for import declaration lies with ABB

- ABB using customs data from its supplier partners
- Wrong customs declaration causing penalties, a damage in reputation (with backlash to supplier) and a delay in processing

Must requirements for ABB

- Goods deliveries need to be declared with specific product customs data
  - HS code, origin, clear description, correct weight
  - Submission of customs- or invoice document, including a certified declaration of origin (or certificate of origin/ EUR.1) in case of an applicable FTA
- Delivery’s customs value and applicable Incoterm to be in line with commercial agreement (customer<>ABB)
Responsibility for export declaration lies with the exporter/supplier.

- Declared product customs data will be used throughout value chain PATU

Must requirements for our supplier partner:

- Traceability of goods origin to be ensured
- Goods deliveries to be declared with specific product customs data
  - HS code, origin, clear description, correct weight
  - Submission of customs- or invoice document, including a certified declaration of origin (or certificate of origin/ EUR.1) in case of an applicable FTA
- Delivery's customs value and applicable Incoterm to be in line with commercial agreement (supplier partner<>ABB)
PATU - Trade Compliance Excellence
Required Improvements in Inbound Logistics

- **Increased alignment with our supplier partner**
  - Specific product (customs-) master data
    - HS code, origin, clear description, correct weight
  - Scope of documents, labels including content/declaration
    - Introduction of new standard label and labelling of individual good
      (label accessible through ASCC)
  - Use/handling of Incoterms and good’s customs value

- **Increased integration of our forwarding partner**
  - Early involvement of forwarder to ensure OTD requirements
    - And to ensure most efficient mode of transport, incl. consolidation of shipments

*Project kicked off*
ABB’s strategy to ensure to not have Conflict Minerals sourced from Conflict Mines

- Based on the ‘Dodd-Frank Act Section 1502’
- Scope: tin, tantalum, tungsten, gold. Mined in conditions of war. Covered Countries = DRC + 9 adjoining countries*

Supplier’s data verification and validation currently handled through ACHILLES (service provider ABB)

- Required completion date for our supplier partner: March 31, 2016
- Any required corrective action for our supplier partner will be coordinated through PATU
  - Required completion date based on complexity of action. All actions to be completed by E Nov 2016

*Achilles: Supplier information and pre-qualification service

* Angola; Burundi; Central African Republic; the Republic of the Congo; Rwanda; South Sudan; Tanzania; Uganda, Zambia
In case of any uncertainty in terms of Trade Compliance please feel free to get in touch with your contact at SCM in ABB Turbo Systems Ltd.

Thank you

- for your continuous engagement and
- strong contribution to the benefit of our business and competitiveness of our customers
Power and productivity for a better world™
Break
Please be back at 16.00
# Supplier Day Europe Agenda March 8, 2016

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</table>
ABB Quality and OPEX: Approach to Continual Improvement

Mar 8th, 2016, Bill Black
Quality Improvement is a never ending challenge

“A relentless barrage of ‘why’s’ is the best way to prepare your mind to pierce the clouded veil of thinking caused by the status quo. Use it often.” — Shigeo Shingo

Continuous improvement is better than delayed perfection.

~ Mark Twain

It is not necessary to change. Survival is not mandatory.

— W. Edwards Deming —

“All improvement happens project by project and in no other way.” — Joseph Juran
Innovation, passion and diversity are hallmarks of ABB

“As a global leader in power and automation technologies, ABB is continuously pioneering reliable, cleaner and more efficient energy and automation solutions, helping its customers increase the productivity of their industrial and infrastructure operations.”

CEO Ulrich Spiesshofer
Driving Excellence - Golden Rules Checklist

1. Can we measure Customers level of satisfaction with our company to a level of robustness that is accepted by the CEO and EC ??  
   Yes    No

2. Can we quantify the cost of waste in our company, in $$’s, to a level of robustness that is accepted by the CEO and EC ??  
   Yes    No

3. Is there a department, with full time people, reporting to the CEO or EC, with responsibility to lead improvements in performance, customer satisfaction and OPQ ??  
   Yes    No

4. Is that department supported by a competent network of Q&OPEX people across the company who share the responsibility to drive real operational performance improvements ??  
   Yes    No

5. Does our company have an “own brand” performance improvement methodology, toolkit, training & coaching program to build widespread capability in systematic performance improvements ??  
   Yes    No
Golden Rules No. 1
Capture Customer satisfaction - NPS

On average per respondent;
Red cards decreasing
Green cards increasing

NPS score increasing consistently
Golden Rules - No. 2
Identify and quantify internal waste

<table>
<thead>
<tr>
<th>Main OPQ Categories and Sub-categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPQ 1 Sales</strong></td>
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<tr>
<td>OPQ 1.1 Cost difference at handover</td>
</tr>
<tr>
<td><strong>OPQ 2 Engineering</strong></td>
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<tr>
<td>OPQ 2.1 Engineering negative variances</td>
</tr>
<tr>
<td><strong>OPQ 3 Manufacturing / Production</strong></td>
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<tr>
<td>OPQ 3.1 Manufacturing negative variances</td>
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<tr>
<td>OPQ 3.2 Excess / obsolete inventory</td>
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<td><strong>OPQ 4 SCM</strong></td>
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<tr>
<td>OPQ 4.1 Project materials negative variances</td>
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<td>OPQ 4.2 Supplier non performance (internal &amp; external)</td>
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<td>OPQ 4.3 Transportation excess cost</td>
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<td><strong>OPQ 5 Site work</strong></td>
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<td>OPQ 5.1 Site Works negative variances</td>
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<tr>
<td><strong>OPQ 6 Project Management</strong></td>
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<tr>
<td>OPQ 6.1 Managing projects - negative variances</td>
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<tr>
<td>OPQ 6.2 Customer concessions</td>
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<td>OPQ 6.3 Contingencies and provisions utilized</td>
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<tr>
<td><strong>OPQ 7 Support Processes</strong></td>
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<tr>
<td>OPQ 7.1 Infrastructure failures cost</td>
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<td>OPQ 7.2 OHS additional cost</td>
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<td>OPQ 7.3 Non-compliance cost</td>
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<td>OPQ 7.4 Account receivables past due</td>
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<td>OPQ 7.5 Underabsorption</td>
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<td><strong>OPQ 8 Aftersales</strong></td>
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<tr>
<td>OPQ 8.1 Warranty</td>
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<tr>
<td>OPQ 8.2 Resolving customer issues</td>
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<tr>
<td>OPQ 8.3 Cost to remedy software errors</td>
</tr>
</tbody>
</table>
Golden Rules - No. 3 & 4
Build a dedicated team – Business Function Q&Opex

Operating Model;
ABB Group level Core Team
Functional teams in Divisions/BU’s
Functional teams in Countries

Leadership through;
Quality & OpEx Council
Project & Site Mgt Councils
Engineering Council
Value Chain Council
Country Quality & OpEx Teams

Communities of interest;
- Quality & OpEx Community >3,500 people
- Project Mgt Community >7,000 people
- Engineering Community >18,000 people
- Manufacturing Community >45,000 people

4 Divisions
22 Business Units
>100 Countries
Golden Rule No. 5 – Own brand Improvement
ABB Branded 4Q Improvement Methodology

4Q Process

Q1 - Measure
- Define opportunity
- Investigate to understand the current state in detail.

Q2 - Analyze
- Identify and confirm root causes of the problem.

Q3 - Improve
- Develop, pilot, and implement solutions that eliminate root causes.

Q4 - Sustain
- Maintain the improvements by standardizing the work methods or processes.

Leadership
Resources, Involvement, Motivation, Recognition

Input Triggers
Customer NPS / ITPS
OPQ cost of waste

Results
Customer satisfaction
EBIT improvement
Safety improvement

Skills in applying ABB OPEX Tools and Techniques

Continuous Improvement of ABB 4Q
ABB Quality Policy
A foundation for all Quality related work and actions
Foundation – Process Maturity Assessments
Continuously assessing and improving operational performance

1. Create a list of best practices in a generic perfect functional organization

2. Define maturity levels for each element
   1 – nothing happens, ..., 5 – improving constantly

3. Launch self-assessment to identify gaps

4a. Functional Best Practice Framework

4b. Trigger actions to eliminate/reduce gaps

5. Repeat steps 3 and 4 at least once a year
A maturity level assessment provides the following benefits:

- Ability for the LPG to compare their Maturity Level with other LPGs, by PG/BU or by country
- Available best practices frameworks for LBUs to benchmark for improvement
- BUs support LBU’s improvement

Criteria:
- The lowest «theme» score is defining the unit maturity level

### Theme Criteria Ave Ave

<table>
<thead>
<tr>
<th>Theme</th>
<th>Criteria</th>
<th>Maturity</th>
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<td>3.Visual Management Systems</td>
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<td>4.Gemba Daily Meetings</td>
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<td>5.Problem Solving</td>
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<td>7.Measurement Systems</td>
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<td>8.Fault Prevention (Poka-Yoke &amp; FMEA)</td>
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<td>9.Incoming Quality</td>
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<td>10.Process Control</td>
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<td>11.Constraints TOC</td>
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<td>12.Flow analysis / Design</td>
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<td>14.Part / Supplier Strategy</td>
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<td>18.Recognition of improvement initiative</td>
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<td>21.Order Execution</td>
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<td>22.Sales &amp; Operations Planning</td>
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<td>23.Customer Issue Resolution</td>
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<td>24.On Time Delivery</td>
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<td>25.Cost Savings</td>
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<td>26.Employee satisfaction</td>
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<td>27.Cost Opportunity of Poor Quality</td>
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</tbody>
</table>

**UNIT Maturity score** = minimum of average theme score
- 2.0

**average of average theme score**
- 3.1

**maximum of average theme score**
- 4.0

**sum of average theme scores**
- 19

**Sum of maturity scores**
- 86

**Sales Operations**
- 21.Order Execution
- 23.Customer Issue Resolution
- 24.On Time Delivery
- 25.Cost Savings
- 26.Employee satisfaction
- 27.Cost Opportunity of Poor Quality

**Performance**
- 24.On Time Delivery
- 25.Cost Savings
- 26.Employee satisfaction
- 27.Cost Opportunity of Poor Quality
Foundation – People Development
Functional Competency Assessments and Training

1. Strengthen QO: 4Q Basic, 4Q TC, Q&Opex Training, Knowledge Mapping

2. Support other Business Functions – Building skills in the operations

3. 2017 – Continuous learning, all Functions improving their people

QO Role -
Help set expectations
- Model behavior – develop QO
- Discuss with local HRBP & Functional Managers

Support with assessment tools
- Assist with identifying respective applications

Encourage Development Actions
- Establish expectation of constant learning

Ensure feedback on results
- Focus on results, not assessment

Cycle of improving, 4Q for Learning
- Assess and Repeat

How People Really Learn
- Off the job 10%
- Along the job 20%
- On the job 70%
Foundation - Customer Loyalty Improvement Process

Responsibilities of key actors to improve NPS

### Account Managers
- Lead the “Capture” and “Communication” steps of CLIP
- Follow up progress in the “Problem Resolution” step of CLIP for their customers
- Escalate as needed to assure a timely response

### Local units
- Lead the “Problem Resolution” step of CLIP for their customers
- Apply 4Q Root Cause Analysis for sustainable resolution
- Support the “Capture” and “Communication” steps of CLIP

### Q and OPEX Managers
- Train and coach all actors engaged in the CLIP
- Support / facilitate units to achieve sustainable resolution
- Continuously improve processes methods and tools
Foundation – Recognition of Best Practice
CEO Excellence award

Simple entry process

Awards
- Bronze
- Silver
- Gold

Categories
- Customer Loyalty
- ROTD/OQD
- OPQ Realised
- EHS

Assessment
- Process
- Criteria

Award management and governance by BF-QO

Categories reflect Q&OPEX strategy

Applications screened and evaluated against criteria, recognising “what” has been achieved and “how” results were achieved

Submitted entries are evaluated and recognized as they are submitted

No limit on numbers of awards

Any employee can nominate themselves, a colleague or project

Commend

Customer Loyalty

ROTD/OQD

OPQ Realised

EHS
Quality 1000 day Program – Accelerate Performance
Our objectives contribute to ABB end goals 2020

End Goals

- Revenue
  - Customer Loyalty
- COS
  - Known OPQ
  - Newly Identified OPQ
- SG&A
  - New Opex Project $
- Outstanding Shares

EPS

CROIC

- Inventory
- Receivables
- Payables
- Advances

- 1000d Working Capital Program

What Quality 1000d program must do?

- Customer focused Quality behaviour
- Process and Tools Quality, Maturity
- People skills and competencies
- Products and Solutions Quality, Timeliness

Program objectives

1. Embed customer focused Quality behaviour
2. Run process improvement in customer value chain
3. Design and implement an ABB Operating System
4. Build a critical mass of problem solving capability across ABB
5. Develop individual functional skills in business functions
6. Improve time to market from R&D to product delivery
7. Optimise supply footprint
8. Double rate of Opex savings projects
9. Improve Product Quality from design through delivery

Lead indicator

- OTD
- PMA score
- Coverage by Fn. & Bus. type
- Certified 4Q per roof
- Coverage by Fn. & business
- Lead time
- Asset turns
- Savings $
- ITPS

Outcome KPIs
Quality 1000d Program
Quality survey executed in Q2 2015

The Quality Culture Survey is a key driver for the 1,000 Day Quality Program, this external benchmark tells us how our ABB Quality Culture compares with other companies.

Over 20,000 respondents from 88 countries, shows that ABB people are deeply interested in the subject of Quality.

To improve our customers’ experience, we need to raise Quality to the same level attention as Integrity and Safety.
Quality 1000 day Program
Immediate actions we have initiated in the Q1000dP

Implement TOP 5 Quality Issues process across ABB
Product Quality initiatives in all BU’s
Develop and deploy Quality training & coaching across the organisation
Accelerate ABB 4Q problem solving training, coaching and application
Quality 1000 day Program – Top 5 Quality Issues
Embedding ‘Voice of Customers’ into daily operations

Geographic line - driven by Account Mgmt
- Inputs from GAM/SAM’s
- Customer-in viewpoint, not ABB-out
- Any quality issue that can impact customer loyalty
- Priority item in all Region and Country management reviews

Business line - driven within Divisions
- Inputs from LPG’s + every level up to BU/Div
- Any quality issue likely to impact business performance
- Priority item in all business line management reviews
Quality 1000 day Program – Product Quality
All Business Units have a Quality Improvement Framework
Launched 3 phase program to cover 145,000 ABB employees by 2017.
# Quality 1000 day Program - Quality Training

Accelerate ABB 4Q problem solving capabilities: eLearning (2016)

<table>
<thead>
<tr>
<th>Item #</th>
<th>Working title</th>
<th>Est. duration / modality</th>
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</thead>
<tbody>
<tr>
<td>Curriculum Design</td>
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</tr>
<tr>
<td>1</td>
<td>Introduction to 4Q Methodology</td>
<td>1.5 hrs WBT</td>
</tr>
<tr>
<td>2</td>
<td>4Q Project Creation</td>
<td>1 hr WBT</td>
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<td>3</td>
<td>4Q Project Kickoff</td>
<td>1.5 hrs ILT / VILT</td>
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<td>4</td>
<td>Q1 Measure Q2 Analyze</td>
<td>1 hr WBT 1 hr WBT</td>
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<td>5</td>
<td>Apply Q1-Q2 Tools</td>
<td>1.5 hrs ILT / VILT</td>
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<td>7</td>
<td>Lean and Waste Q3 Improve Q4 Sustain</td>
<td>0.3 hr WBT 0.3 hr WBT 0.3 hr WBT</td>
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<td>10</td>
<td>Apply Q3-Q4 Tools</td>
<td>1 hr ILT / VILT</td>
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Note: Program structure, modalities, and titles may change as the overall design is completed

WBT = Web-based Training; ILT = Instructor-led Training; VILT = Virtual Instructor-led Training

From 17’000+ people trained in “4Q” now to 70’000+ by 2020
Power and productivity for a better world™
## Supplier Day Europe
### Agenda March 8, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Subject</th>
<th>Presenter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.30-15.00</td>
<td>Factory &amp; Service Center Tour</td>
<td>Kurt Deppeler, Martin Rohr, Ralf Hock</td>
<td>GCM Iron Castings, GCM Components, GM Manufacturing Technologies</td>
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<td>René Eberle</td>
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<tr>
<td>15.45-16.00</td>
<td>Break</td>
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<tr>
<td>16.00-16.30</td>
<td>Continuous Improvement</td>
<td>Guest speaker: Bill Black</td>
<td>Group Senior Vice President Quality &amp; Operational Excellence</td>
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<td>Q &amp; A and closing</td>
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<td>17.00-17.30</td>
<td>Transfer to Restaurant Casino at Haselstrasse 2, Baden Walking distance from venue</td>
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<td>17.30–21.30</td>
<td>Apéro and dinner</td>
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Do you have any questions?
Summary of Targets
Supporting Initiatives

<table>
<thead>
<tr>
<th>Target</th>
<th>Supporting Initiatives</th>
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<tbody>
<tr>
<td>Increase of productivity</td>
<td>• Zero Defect program</td>
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<tr>
<td>Reduction of NWC</td>
<td>• NWC reduction program</td>
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<tr>
<td>Minimizing of fixed &amp; current assets</td>
<td>• PRIM_2020</td>
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### Target

- **On Time Delivery**:
  - > 95% ROTD
  - 78.3% ROTD

- **Quality**:
  - 2700 PPM

- **Lead Time**:
  - Supplier Lead Time
  - 500 PPM
  - Customer Lead Time

- **Material Productivity**:
  - + 5% p.a.
  - Focus on entire Value Chain

**ROTD = Requested On Time Delivery**

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March 10, 2016 | Slide 154
Path Forward

Your support is needed

- Provide the actions you will take to support our targets
- Inform about improvements we can implement
- Provide your answers by end of April 2016

Target

- Increase of productivity
- Reduction of NWC
- Minimizing of fixed & current assets

<table>
<thead>
<tr>
<th>On Time Delivery</th>
<th>Quality</th>
<th>Lead Time</th>
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<tr>
<td>17.30–21.30</td>
<td>Apéro and dinner</td>
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Apéro and Dinner starts at 17.30
Restaurant Grand Casino Baden
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