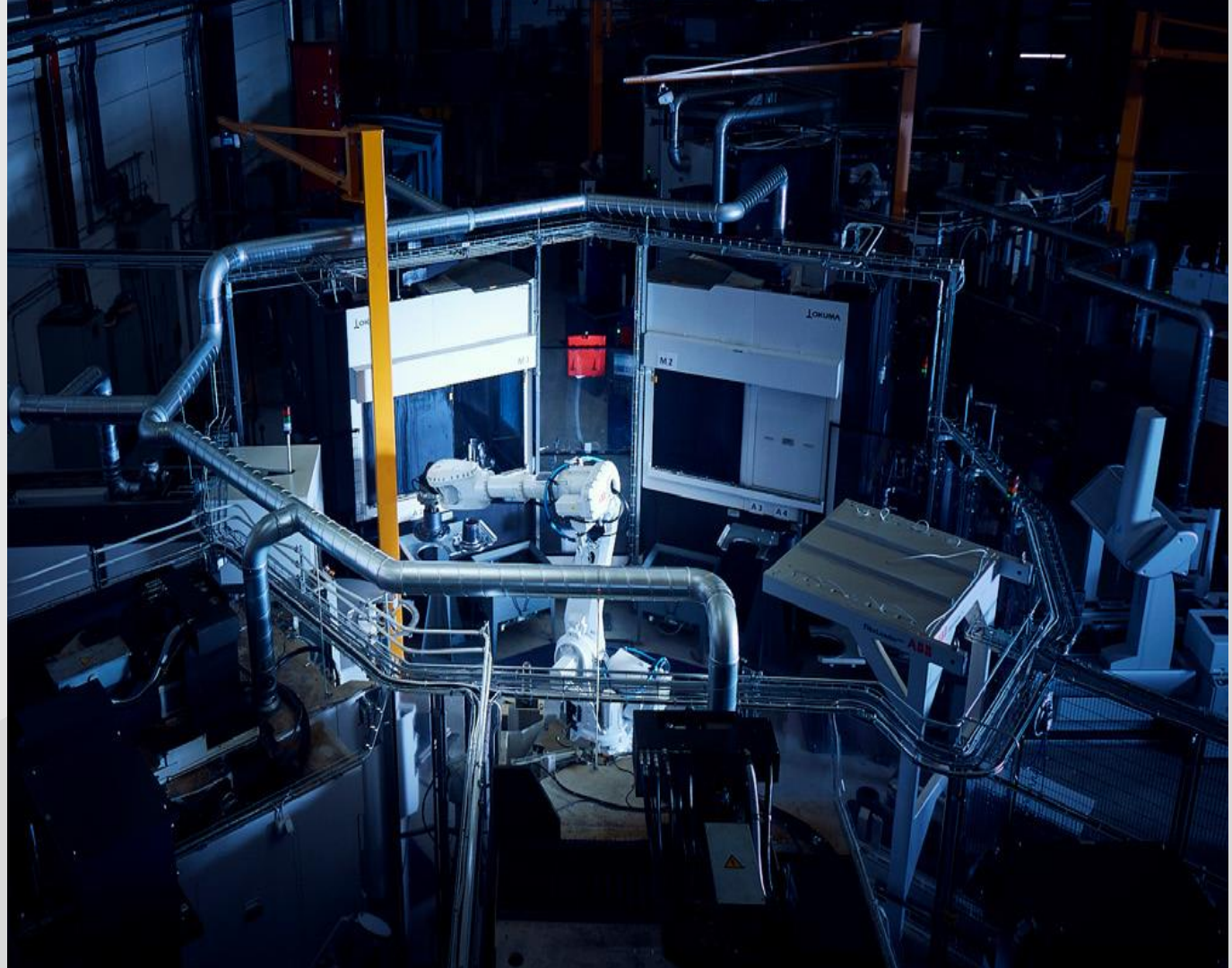
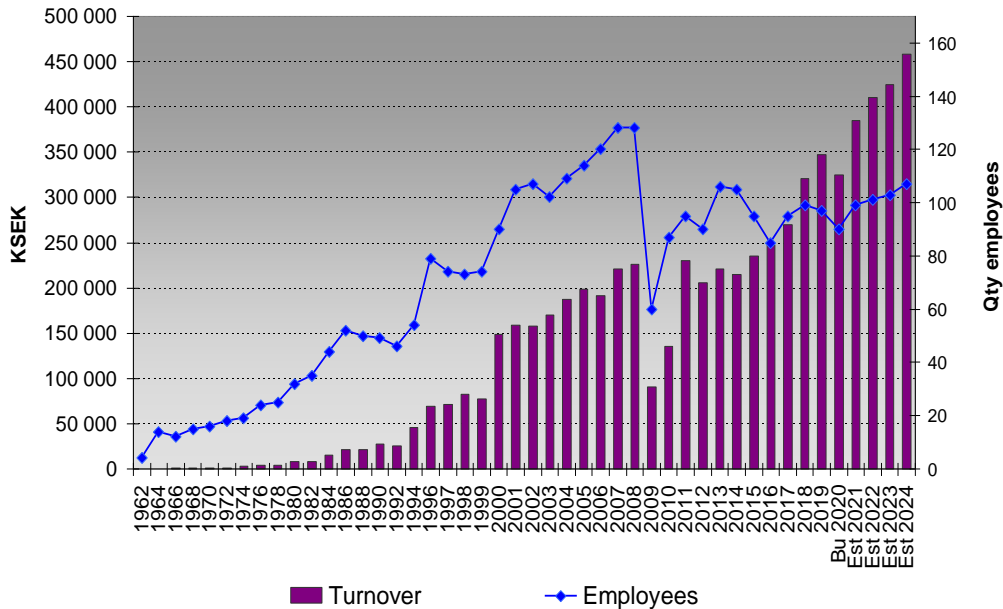


Bror Tonsjö AB

The journey



- Founded in 1962
- Family owned by the 3rd generation Tonsjö
- Turnover 350 msek, 100 employees
- Machining and assembly
- Production area 6000 m²

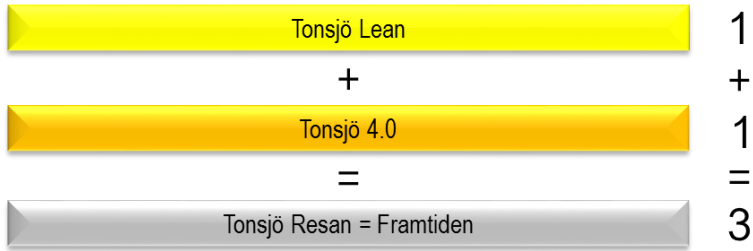


Key data

TONSJÖ

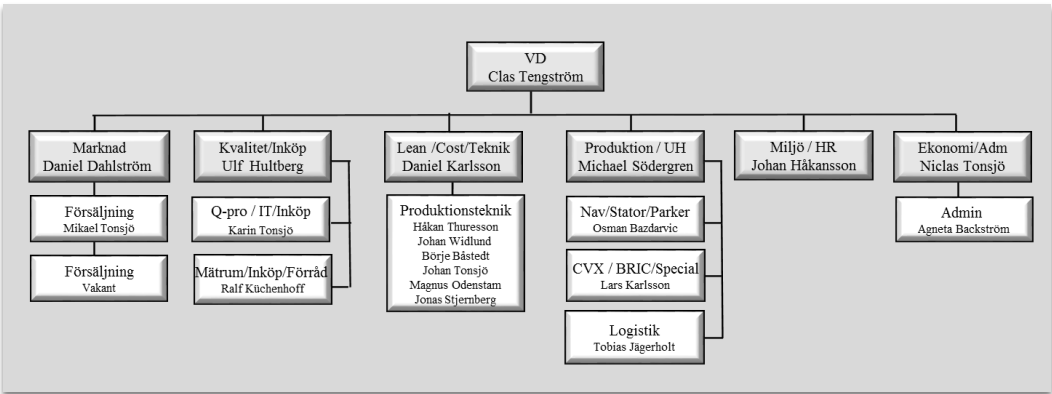
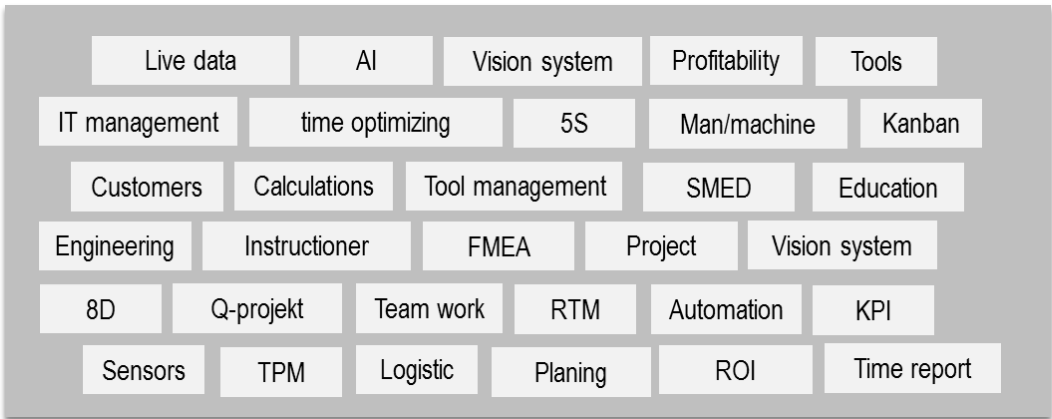
Tonsjö journey 4.0

- Management team "brainstorm" meeting. February 2017
Analyze: where are we today, profitability, lean, competence, organization, future business, footprint, etc



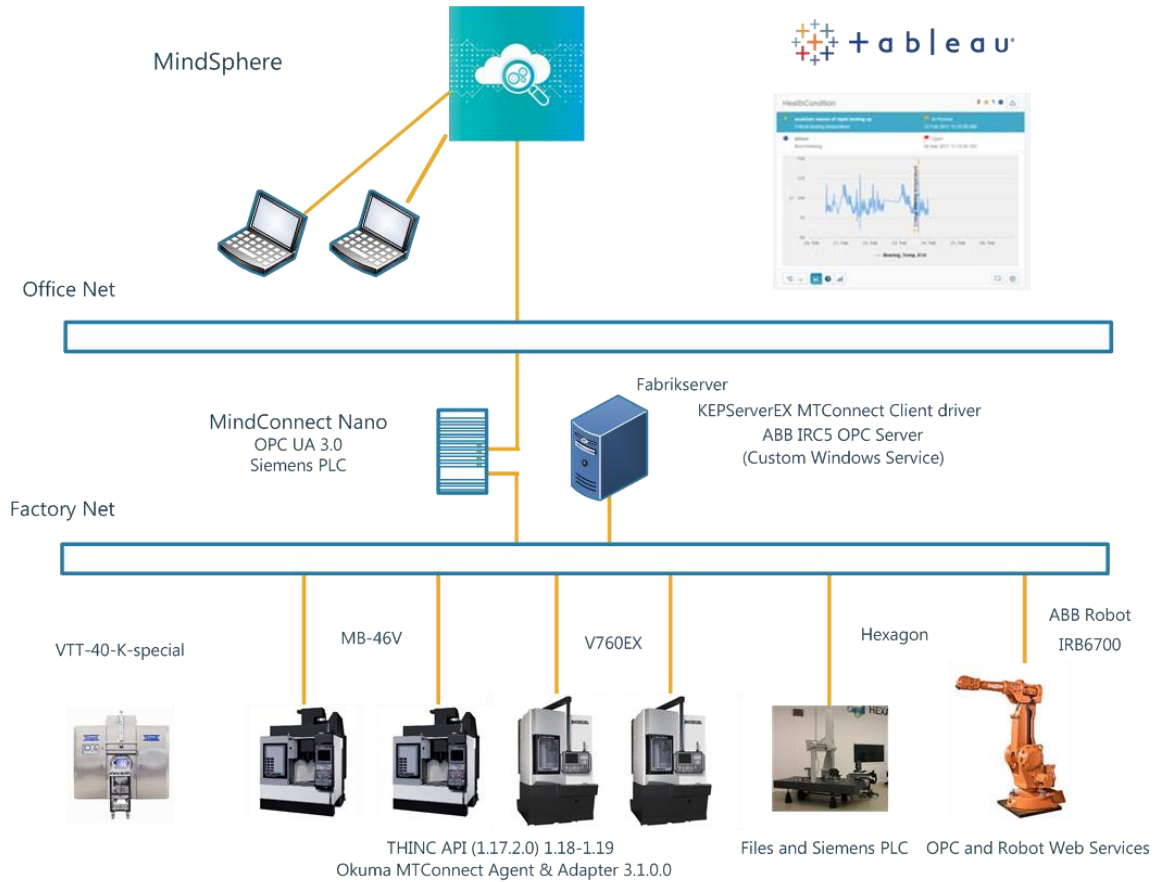
- Officially decision from the board to start "Tonsjö 4.0" April 2017, it's the **total** journey.



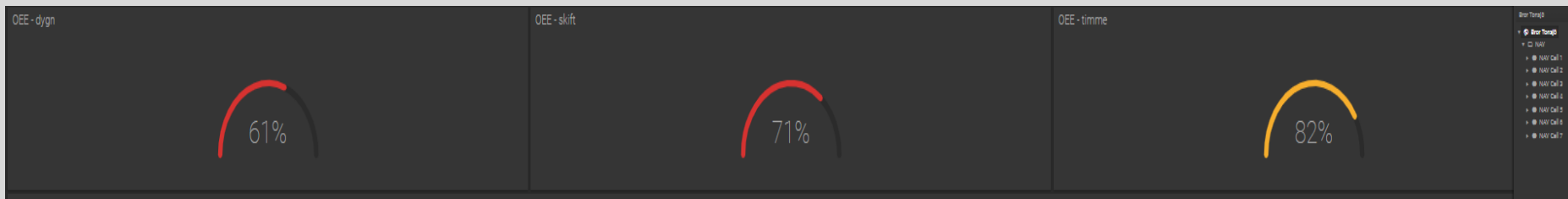


Different key area

TONSJÖ

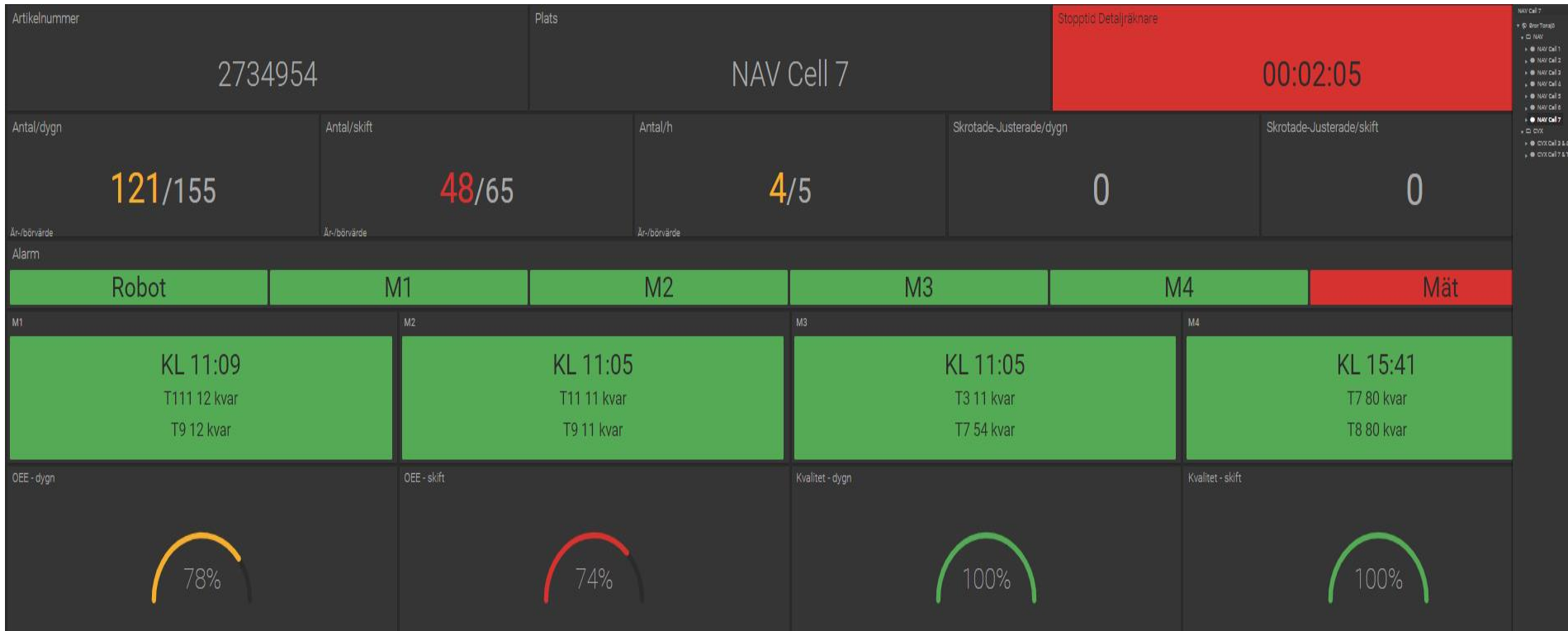


Total production

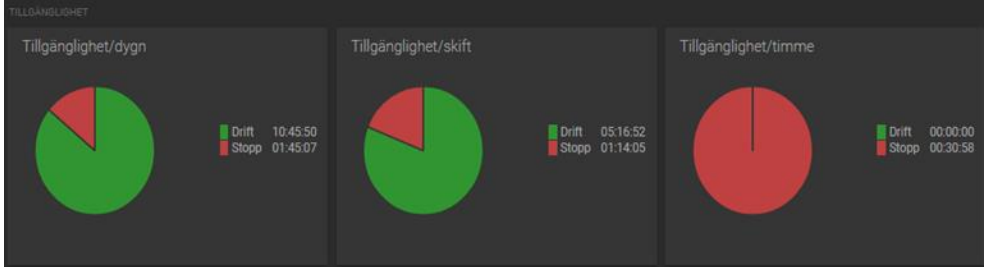


Total production NAV 1-7





- NAV Cell 7
- Star Torsd
- NAV
- NAV Cell 1
- NAV Cell 2
- NAV Cell 3
- NAV Cell 4
- NAV Cell 5
- NAV Cell 6
- NAV Cell 7
- OXX Cell 3.1
- OXX Cell 7.1



LARM

Larmtider/dygn

A 00:01:20
B 01:43:47
C 00:00:00

Larm

Typ	Start	Stop	Vareldighet
Fault:2410-1 ALARM_B B	Idag 11:50:43	Pågående	00:40:14
Fault:2410-1 ALARM_B 3	Idag 07:01:58	Idag 07:35:49	00:33:50
Fault:1770 ALARM_A 4	Idag 02:57:13	Idag 02:58:33	00:01:20
Fault:2410-1 ALARM_B B	Idag 02:20:33	Idag 02:50:15	00:29:41

DEBUG

Senaste meddelanden

Timestamp (UTC)	Id	Value
2018-09-05T09:50:43.421Z	SystemMessage	Fault:2410-1 ALARM_B B
2018-09-05T09:50:40.413Z	SystemMessage	Warning:4055-20 ALARM_D
2018-09-05T09:50:34.413Z	SystemMessage	Normal
2018-09-05T09:50:32.413Z	SystemMessage	Warning:4055-20 ALARM_D
2018-09-05T09:42:30.639Z	SystemMessage	Normal
2018-09-05T09:42:29.639Z	SystemMessage	Warning:4055-20 ALARM_D
2018-09-05T09:42:21.636Z	SystemMessage	Normal
2018-09-05T09:42:13.636Z	SystemMessage	Warning:4055-20 ALARM_D
2018-09-05T09:33:30.823Z	SystemMessage	Normal
2018-09-05T09:33:48.813Z	SystemMessage	Warning:4055-20 ALARM_D
2018-09-05T09:33:40.808Z	SystemMessage	Normal

- Dashboard 1
- Bror Tonsjö
 - NAV
 - NAV Cell 6
 - Robot
 - Svarv 1
 - Svarv 2
 - FlerOp 1
 - FlerOp 2
 - Mätmaskin
 - NAV Cell 7
 - Robot
 - Svarv 1**
 - Svarv 2
 - FlerOp 1
 - FlerOp 2
 - Mätmaskin

Stop and error cod, Nav 7, turning machine 1

Next step



Develop “pulsroom 4,0”

Daily KPI, 8D, green cross, etc



Connect

Machines, IT software, Sensors, etc



TPM Integration

Alarm prio, maintains dept and operator level, AI



Integrate intelligent to support operator, prio

-Tool change

-Deliveries -> actions

-Instruction´s, activities, tailor-made



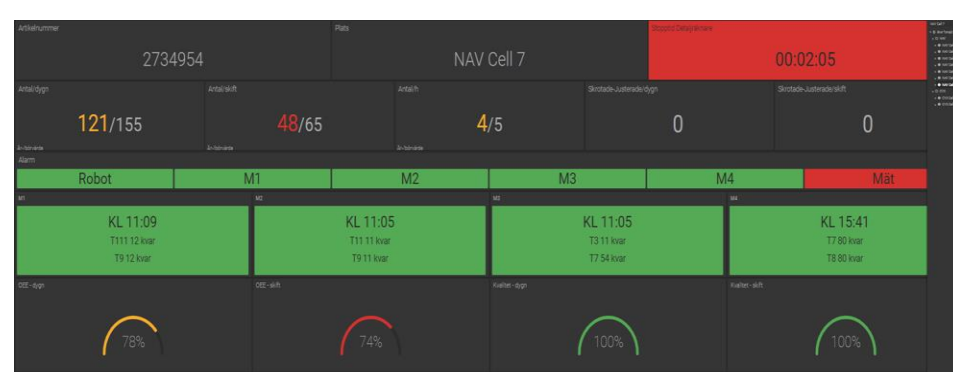
Stena metal, project to collect steel-cheeps

-Environmental impact



How does the blue / white color personnel handle all info 24/7.

-Research project with RISE /Swerea



Summering

Lean – 4.0 what is the different.....

✓ Lean

- ✓ **85% driven by the own company**
- ✓ **10% coaching of external "Lean consultant"**
- ✓ **5% external support of specialist**

Cost

- ✓ **75% internal cost of salaries**
- ✓ **15% material cost of whiteboards, etc, etc**
- ✓ **10% training/education**

✓ 4.0

- ✓ **15% driven by the own company (lean-4.0)**
- ✓ **85% external support from IT specialist**
- ✓ **00% coach ??**

Cost

- ✓ **10% internal cost of salaries**
- ✓ **70% SW development**
- ✓ **20% HW investments**



Summery

- ✓ Be honest, be critical, what is important for your company
- ✓ Where is the business today and the future.
- ✓ Management & organization
- ✓ Start in one machine (area)
 - ✓ Run the project in a "small team" ->inform
- ✓ Find a strong development partner, (it's a long journey)
- ✓ High cost, "plan today-harvest tomorrow"
 - ✓ Difficult to estimate the cost SW/HW
 - ✓ Difficult to estimate revenues
- ✓ Human (operator) is the key
 - ✓ Competence / attitude / empower
- ✓ You need to built the overall foundation, 4.0 doesn't solve any problem, but it create opportunity's for the future.



A black and white photograph capturing a dynamic moment inside a washing machine. The central drum is filled with laundry, heavily coated in white suds. Water is splashing out from the top of the drum, creating a spray of droplets and streams that catch the light. The background shows the dark interior of the machine and some mechanical parts. In the bottom left corner, the word "Thanks" is written in a clean, white, sans-serif font.

Thanks