



## RISK management in paper technology

Upgrade on the fly



# ANDRITZ AUTOMATION

## Overview

With **88** locations and **1.215** employees worldwide **ANDRITZ AUTOMATION** has developed to be a competence center for plant design and plant control systems.

**ANDRITZ AUTOMATION** supports interaction between process, mechanical design, and automation.

Therefore customers obtain an overall package of competence and experience with the automation system.

Our products and services have helped operations achieve record start-ups, increase capacity, improve efficiency, and save money.



# ANDRITZ AUTOMATION

## Products

### ANDRITZ AUTOMATION



HYDRO



PULP & PAPER



SEPARATION



METALS



FEED & BIOFUEL

Engineering

Simulation

Control Systems (DCS, QCS, SRS ...)

Training - CBT/WBT

Upgrades

# **Process Analysis → Implementation → Improvement**

## **Upgrade issues and risks**

### **1. Process analysis, status verification**

- Old, out of date and incomplete documentation
- Components end of life
- Automation & electrification out of date
- Limitations in automation system capacity, (trends, alarming, application storage)
- Expensive spare parts and maintenance
- Leak of resources, retired key people, decrease of automation suppliers support

### **2. Functional and logic diagrams**

- Process in manual control or low automation degree
- New safety requirements

### **3. Installation and startup challenges with upgrades**

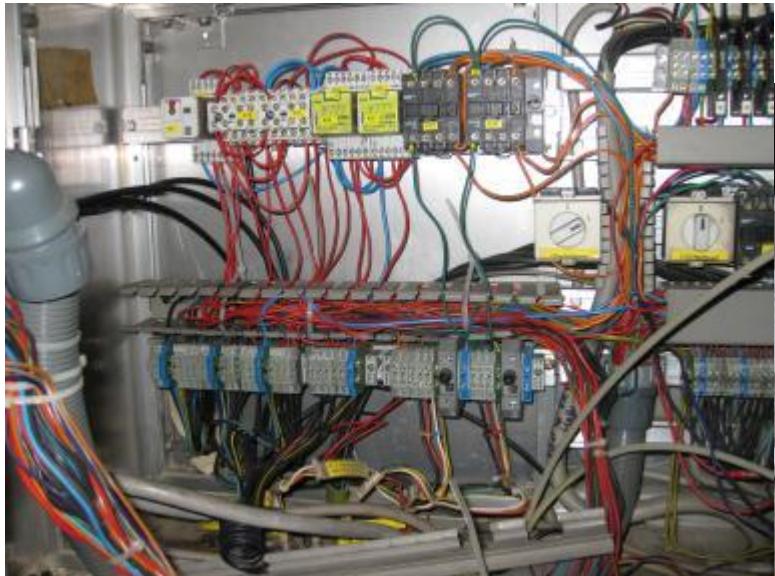
- Project on time and on budget
- Minimum production down time
- Risk evaluation

### **4. Process optimization requirements**

- Continuous request in cost, production and quality optimization.

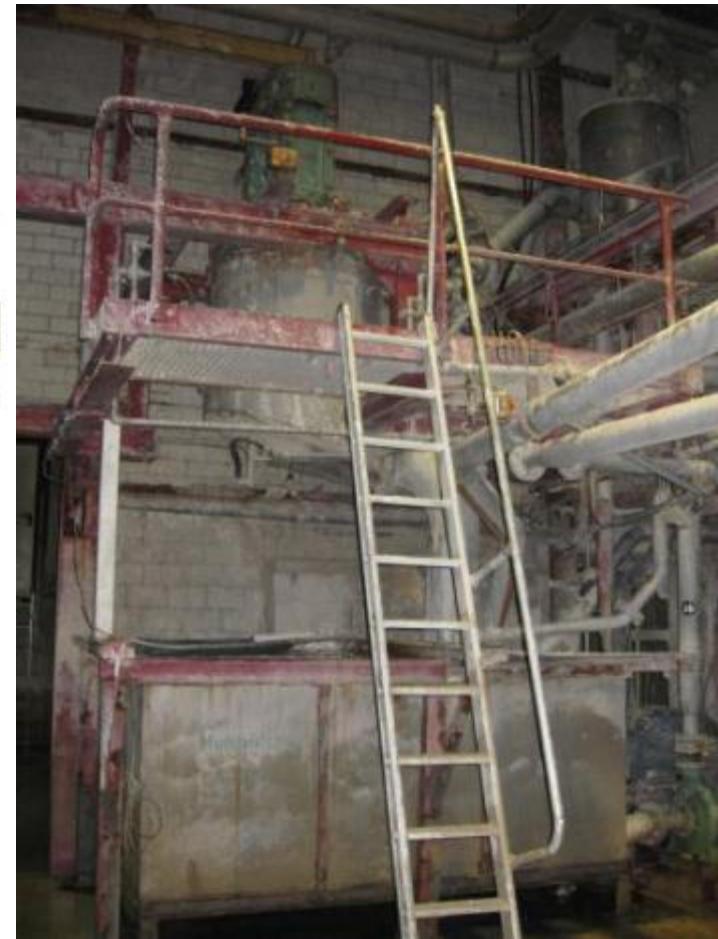
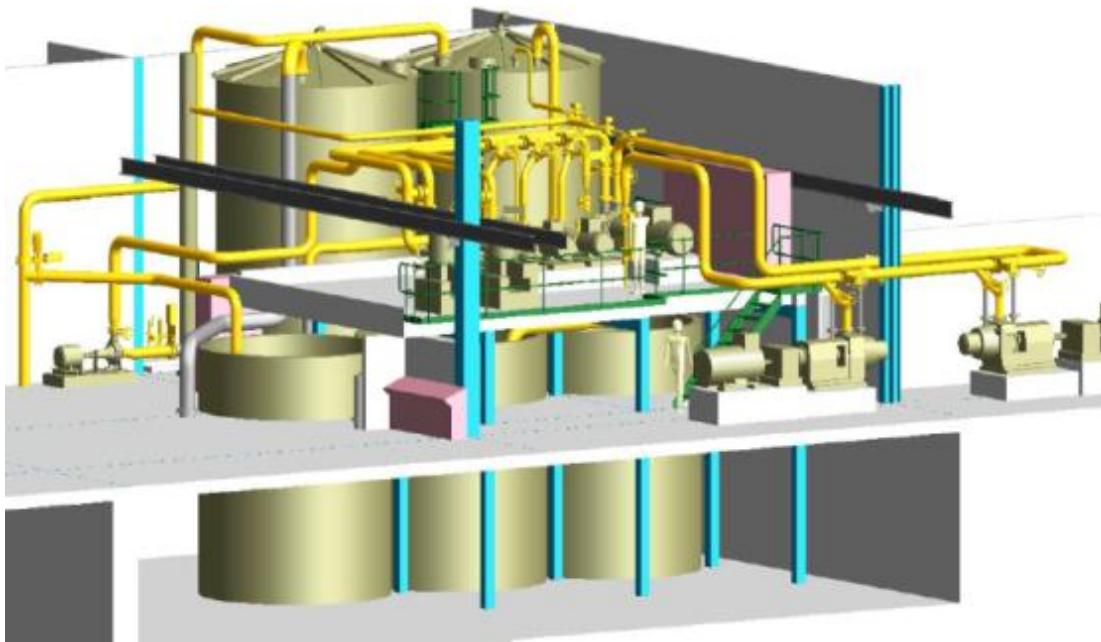
# Process Analysis → Actual State

Upgrade issues hard facts



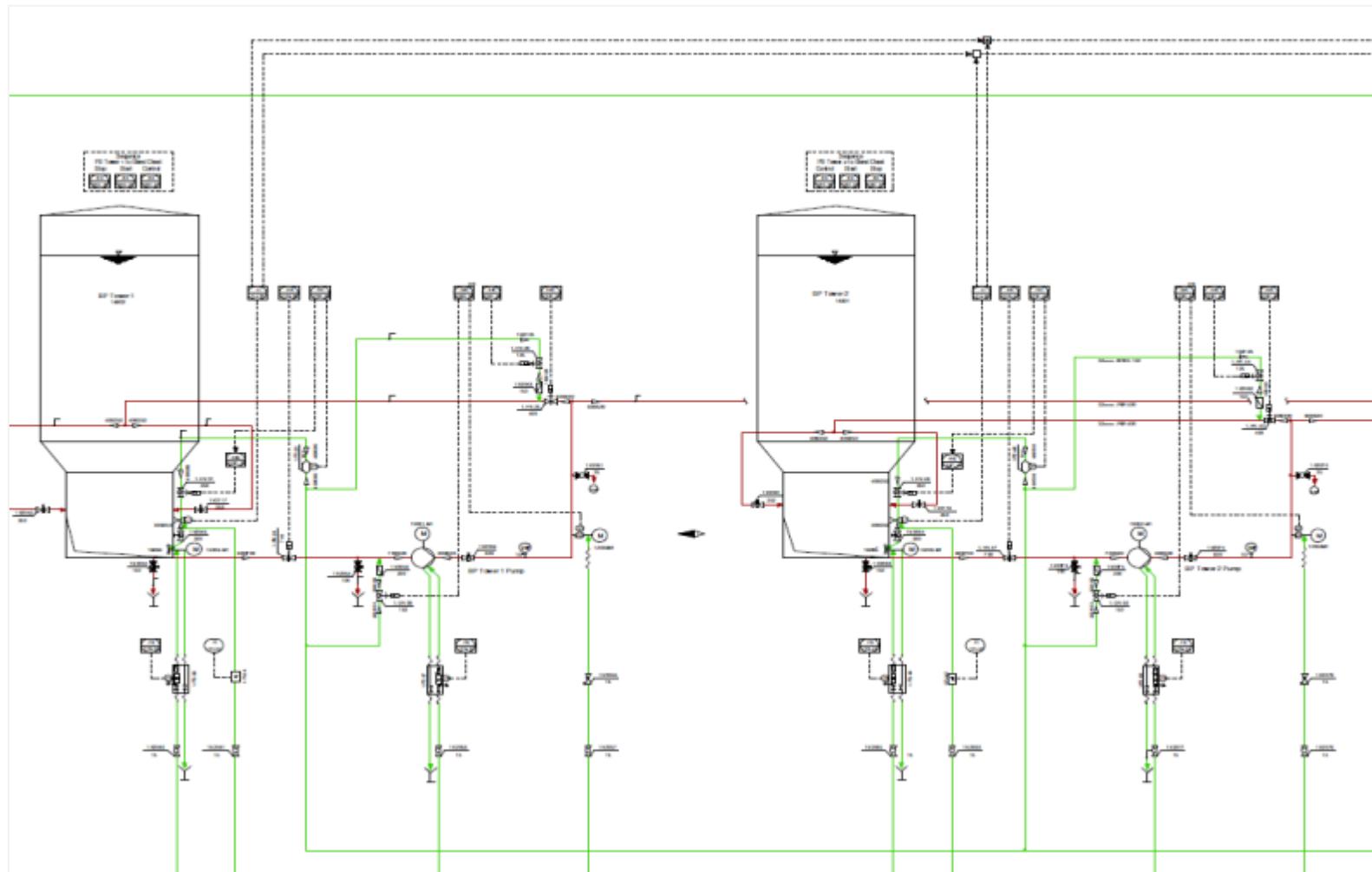
# Process to Operation ..... Mechanical Engineering

## Upgrade on the fly



# Documentation

## Flow sheet



# Documentation

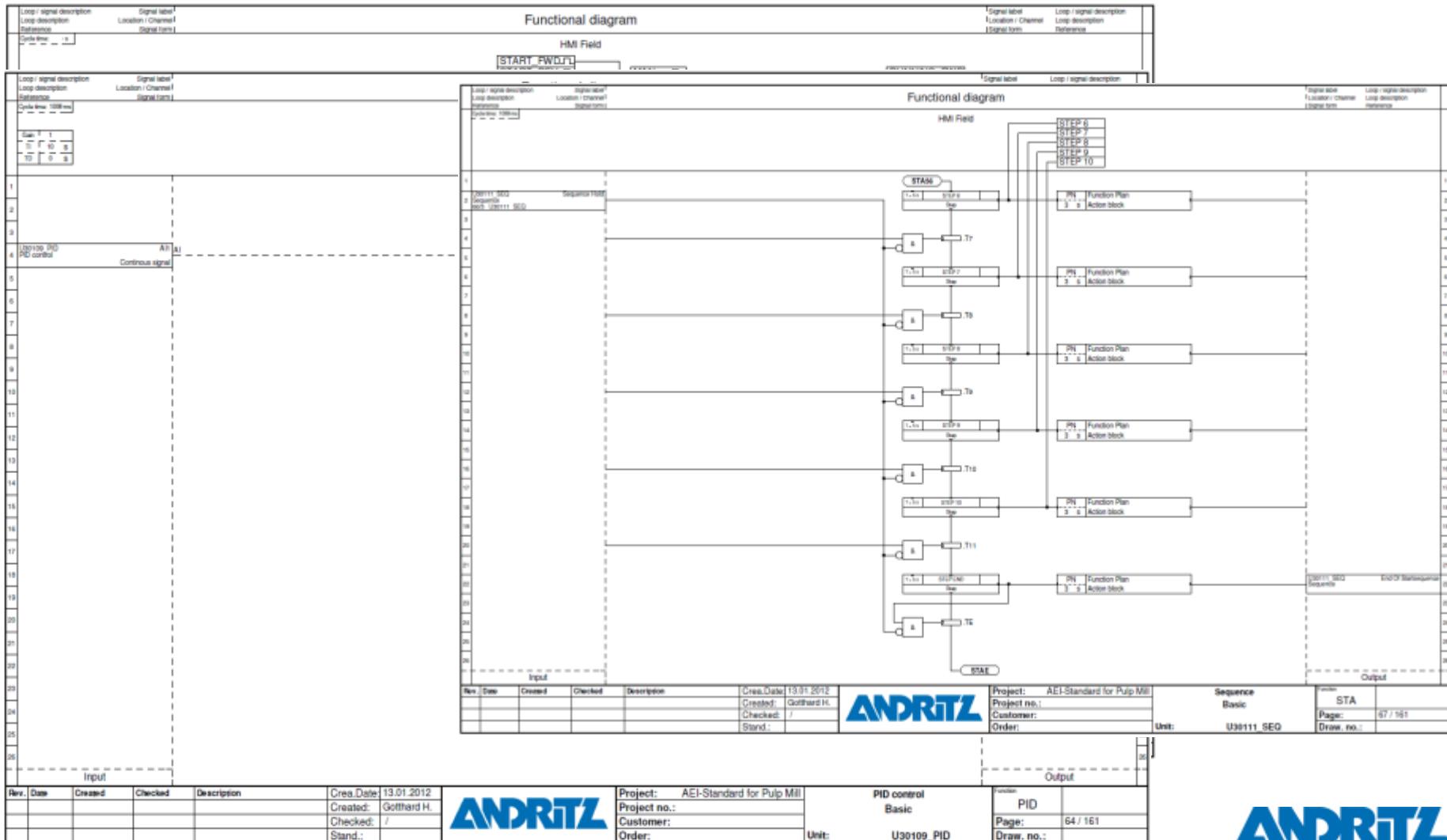
## Automation Lists (Motor, Instruments, ....)

Project ANDRITZ: AEI-Standard for Pulp Mill			Draw.no. Andritz			Motor List for P1D36 / Pulp Drying Line 1										<b>ANDRITZ</b> <b>Automation</b>	
Project no. ANDRITZ:	status:			Customer:	P1D36 / Pulp Drying Line 1										Winding protection: W1 = IP44 W2 = 1 x PTC W3 = 2 x PTC W4 = 1 x PTF100 W5 = Kitem W6 = -Kitem W7 = -3 x PTC W8 = -2 x PTC W9 = -1 x PTF100 W10 = KTY	Precision as per DIN 60030-2 Model as per DIN 60030-7	Scope of supply: A = Andrritz
CUSTOMER:	Draw.no. customer			Project No. CUSTOMER:													
Type of motor: KL = Square inductor SL = Slip ring motor SM = Synchronous SG = Servo motor GS = Direct current motor	Type of starter: 2SPD = 2-Speed 3SPD = 3-Speed DOL = Direct on-line REV = Direct online reversing circuit	IMMD_AC = Multi-motor drive AC IMMD_DC = Multi-motor drive DC MV = Main valve DOL = Direct on-line starting device	VVRU = Variable-volt. supply/pulse cont. VVRH = Variable-volt. supply/pulse cont.	Type of mounting: M1 = Side rails with fastening and foundation bolts M2 = Foundation block with fastening bolts M3 = Foundation frame with fastening bolts M4 = Bolts fastening	Coupling: D1 = Flat belt D2 = V-belt D3 = Gear coupling D4 = Greffox coupling	DS = Torque belt DE = Cover motor DF = Gearbox DG = Slip on gear	Accessories: 1 = Temperature-monitoring of bearing 2 = Vibration monitoring 3 = Differential speed measurement 4 = Anti-condensation heating	9 = Protection device 10 = Bush sealing 11 = Electric torque 12 = Liquid control									
Project ANDRITZ: AEI-Standard for Pulp Mill			Draw.no. Andritz			Instrumentlist for P1D36 / Pulp Drying Line 1										<b>ANDRITZ</b> <b>Automation</b>	
Project no. ANDRITZ:	status:			CUSTOMER:	Draw.no. customer												
P&ID NO	POSITION NO	DEVICE DESCRIPTION	LOOP DESCRIPTION	POSITION DESCRIPTION	DEVICE TYPE	MANUFACTURER	MODEL	ASSEMBLY TYPE DRAWING	PROCESS CONN.	SIZE	PRESS. CLASS	CALIBRATION RANGE	AUX Power	SCOPE OF SUPPLY	REMARKS		
211-P1-0020		Flow Gauge	Local Flow	L1 BLEND CHERT LEVEL IND.													C
211-OSV-0065		5/2-Way Valve	Deaeration	L1 PRIMARY SCREEN FEED LINE													C
211-ZSC-0055		Limit switch Close	Deaeration	L1 PRIMARY SCREEN FEED LINE	METSO-NELES	SR33											C
211-ZSC-0056		Limit switch Open	Deaeration	L1 PRIMARY SCREEN FEED LINE	METSO-NELES	SR33											C
211-PT-0066		Pressure Transmitter	Pressure	L1 DEAERATOR TO SCREEN FEED PUMP	SATRON	VG6-S425-NON-02IN-(AE-E-O)	APS2						0	6	bar	A	
211-KSV-0058		5/2-Way Valve	Flush	L1 DEAERATION LINE SCREENS													C
Project ANDRITZ: AEI-Standard for Pulp Mill			Draw.no. Andritz			On/Off Valve List for P1D36 / Pulp Drying Line 1										<b>ANDRITZ</b> <b>Automation</b>	
Project no. ANDRITZ:	status:			CUSTOMER:	Draw.no. customer												
Project No. CUSTOMER:																	
Connection Type (CT)																	
BW = Between Flanges	TF = Threaded Fittings	Value															
CP = Clamp	FM = Flange Mount	BA = Ball Valve															
FL = Flanged	WL = Welding End long	BB = Check valve															
SM = Suction Mounted	WM = Wall Mounted	BU = Butterfly Valve															
SP = Special	WS = Welding End short	DN = Diaphragm valve															
BW = Spherical	WX = Welded	FB = Full bore ball valve															
		GV = Globe valve															
		SV = Side valve															
P&ID NO	DEVICE NR.	DESCRIPTION DEVICE	FUNCTION	DESCRIPTION FUNCTION	DESCRIPTION POSITION	ASSEMBLY	VALVE	MEDIUM	MAX TEMP.	VALVE TYPE	MANUFACTURER	TYPE	REMARK	SCOPE OF SUPPLY			
P1D36D		L1 Screening															
211-CV-0055	Full Bore Ball Valve	OS	Deaeration	L1 PRIMARY SCREEN FEED LINE		FL						DA	METSO-NELES	RAA100AS-B1CU09-SR33B9HDN		C	
211-KV-0058	Full Bore Ball Valve	KS	Flush	L1 DEAERATION LINE SCREENS		BW	DN 80	10				DA	METSO-NELES	RAA080AS-B1CU09-SQXGK02HDN-CGB			
211-HV-5051	Valve	HS	Sample Valve	PULP SAMPLER AFTER L1 BLEND CHERT		TM						DA					C
211-CV-0113	Knife Gate Valve	OS	Inlet Valve	L1 PRIMARY SCREEN NO. 1 JUNK TRAP		BW						DA	ORBINOX			C	
211-CV-0114	Knife Gate Valve	OS	Outlet Valve	L1 PRIMARY SCREEN NO. 1 JUNK TRAP		BW						DA	ORBINOX			C	
211-CV-0115	Full Bore Ball Valve	OS	Flush Valve	L1 PRIMARY SCREEN NO. 1 JUNK TRAP		FL						DA	METSO-NELES			C	
211-CV-0116	Full Bore Ball Valve	OS	Deaeration Valve	L1 PRIMARY SCREEN NO. 1 JUNK TRAP		FL						DA	METSO-NELES			C	
211-CV-0163	Knife Gate Valve	OS	Inlet Valve	L1 PRIMARY SCREEN NO. 2 JUNKTRAP		BW						DA	ORBINOX			C	

**ANDRITZ**  
**Automation**

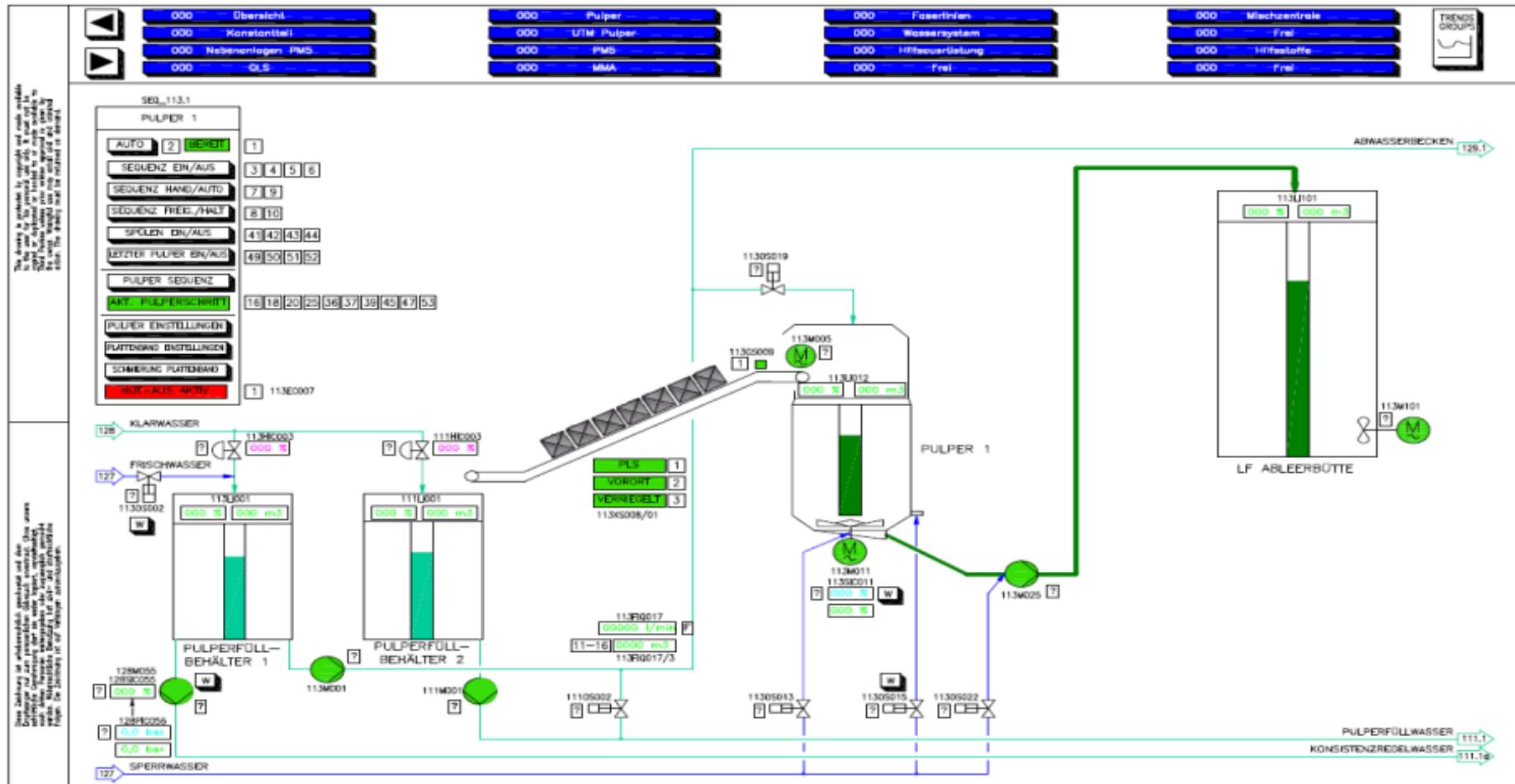
# Documentation

## Functional diagrams



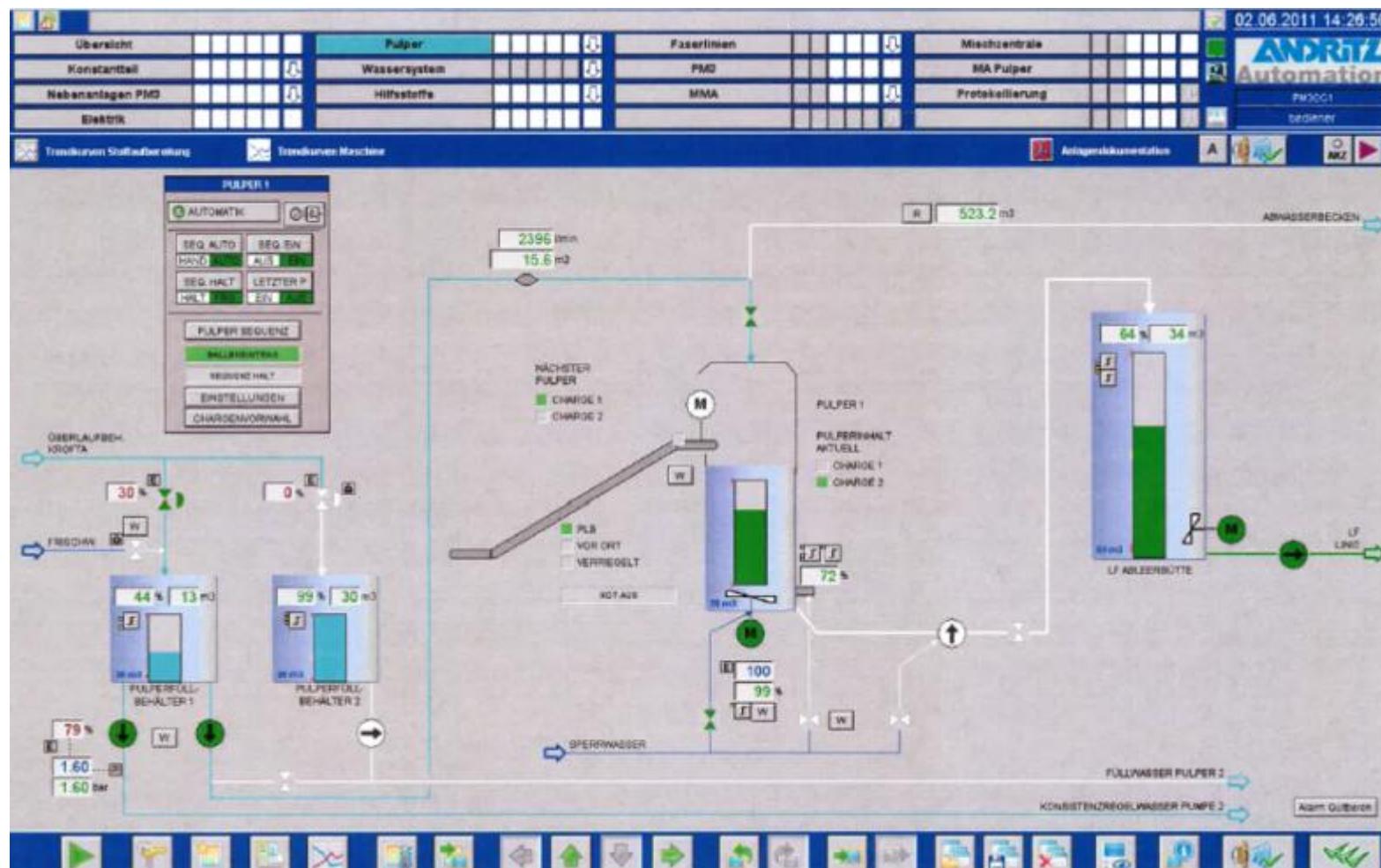
# Process to Operation ..... Process Engineering

## Upgrade on the fly



# **Process to Operation ..... Automation Implementation**

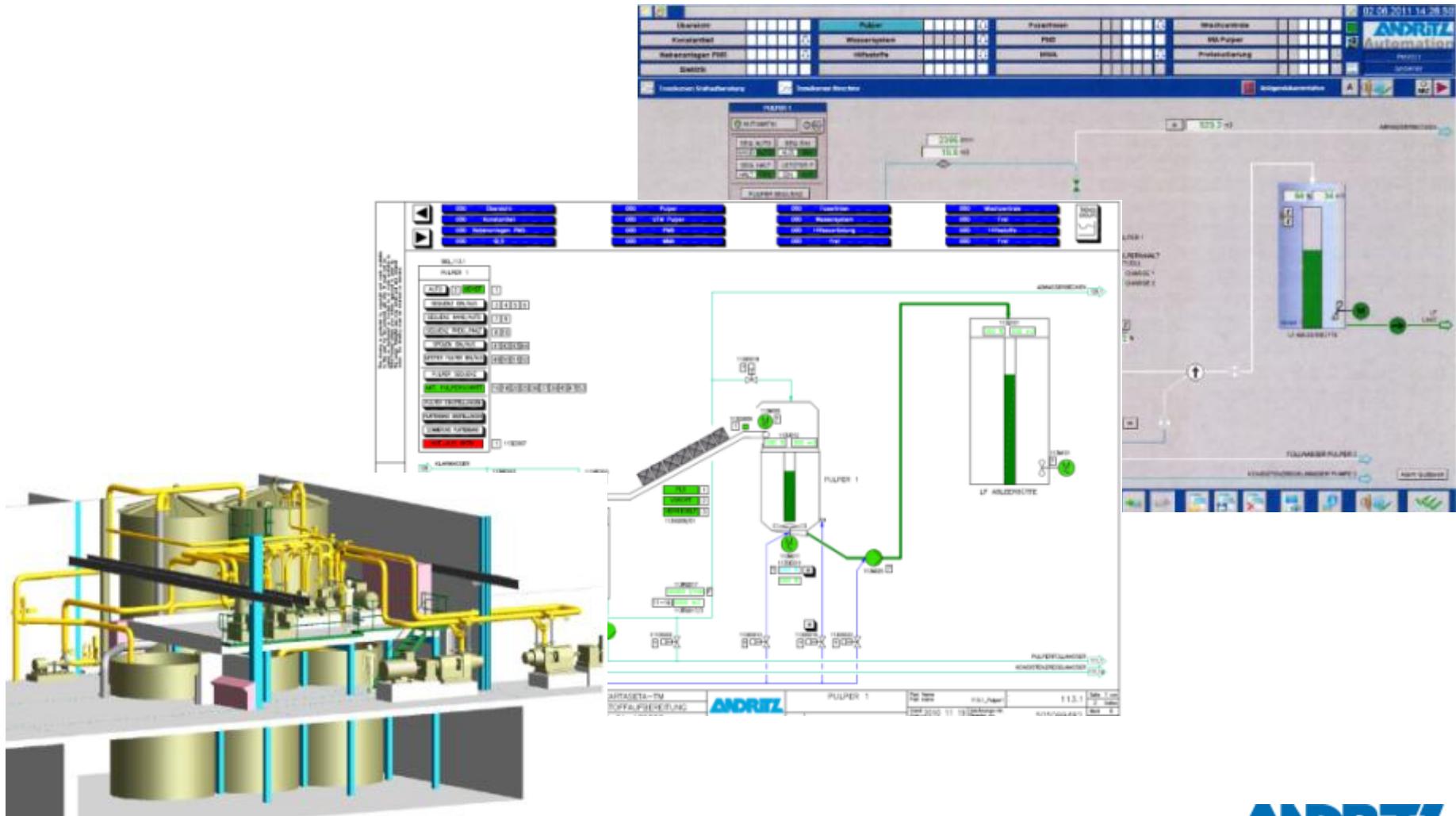
## **Upgrade on the fly**



**ANDRITZ**  
Automation

# Process to Operation ..... One Responsibility, One Partner

## Upgrade on the fly



# Benefits

## Upgrade on the fly

- Process analysis, status verification
  - Updated documentation
  - Automation & electrification proposal
- Functional and logic diagrams
  - Process improvement
- Process experienced installation and startup team
  - Project on time and on budget
  - Low risk
  - Minimum production down time
- Process optimization

**Andritz Know How**

**Andritz Know How**

**Andritz Know How**

**Andritz Know How**

# Reference List - DCS Paper Machines

## Upgrade on the fly

Project	Country	Year	Size I/O	System	Scope
PALM (DIP)	Germany	2008	1500	PCS7	Turnkey
FRIPA Stock preparation	Germany	2009	1500	PCS7	Turnkey
FRIPA Tissue	Germany	2010	1000	PCS7	Turnkey
UPM Steyrermühl TMP plant	Austria	2010/2011	3000	PCS7	Turnkey
Cartaseta Stockprep & Tissue machine	Switzerland	2010/2011	1800	PCS7	Turnkey
KAM PM7 SFT GROUP PM7+QCS	Russia	2011/2012	6000	Honeywell Experion	Turnkey
Hamburger PITTEN Stock Prep + PM3	Austria	2012/2013	4500	PCS7 V8	Turnkey

# Reference List – Large Scale Machinery

## Upgrade on the fly

Customer	Equipment	Type of upgrade	Scope of supply	Year
Papierfabrik Nettingsdorfer	1x Bauer DD 441	Refiner Control + RPS	HNC + RPS	2006
Mayer Melnhof Frohnleiten	1x Andritz S2060 HS	Refiner Control	HNC + RPS	2007
Norske Skog Follum	1x Andritz SB-170 HS	Refiner Control + RPS	HNC	2006
Holmen Paper Braviken	2x Sprout Bauer T60	Refiner Control + RPS	Siemens S7 + RPS	2006
Mondi Merebank	4x Bauer DD 485/489	Refiner Control + RPS	Siemens S7 + RPS	2007 + 2009
Perlen Papier TMP & PM4	1x Andritz T66 HS, 1x Andritz SB150, 1x Andritz S2060	Refiner Control + RPS	Siemens S7 + RPS	2008
UPM Schongau	1x Andritz T66 HS, 1x Sprout T60	Refiner Control + RPS	Siemens S7 + RPS	2006
Storaenso Hyltebruk	4x Sprout Bauer T60	Refiner Control + RPS	Siemens S7 + RPS	2009 + 2010
Port Alberni	2x Sprout Bauer T60	Refiner Control + RPS	Bernecker & Rainer + RPS	2010
IHD Dresden	1x Andritz 12-1C Laboratory Refiner	Laboratory Plant	Siemens S7	2006
WKI Braunschweig	1x Andritz 12-1C Laboratory Refiner	Laboratory Plant	Siemens S7	2007
NorskeSkog Boyer	1x Sprout Bauer 45-1B	Refiner Control	Logic	2009
Chenming Jilin	3x Andritz 50/54-1C	Refiner Control + RPS	RPS + logic	2008

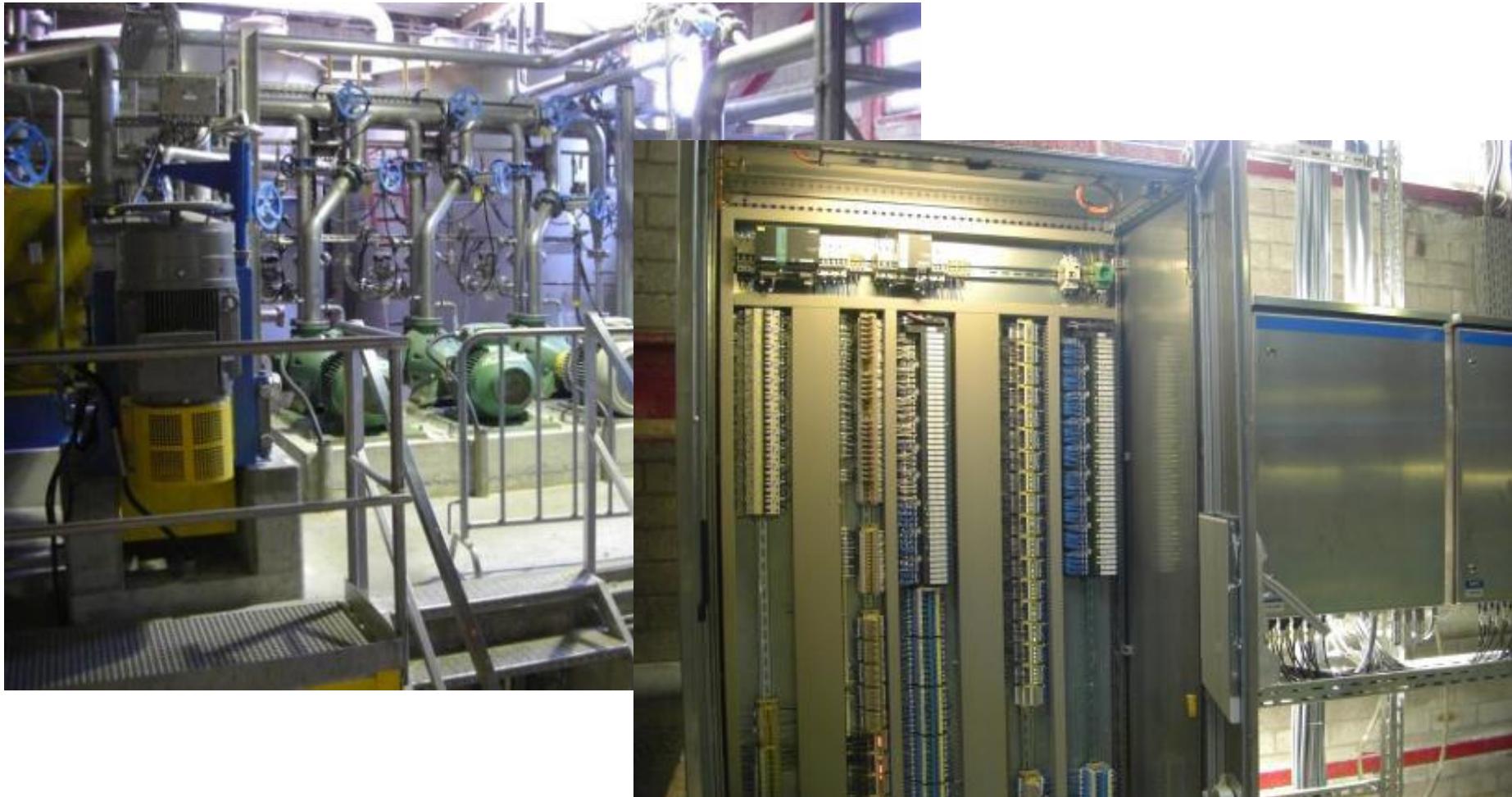
# Reference List – Large Scale Machinery

## Upgrade on the fly

Customer	Equipment	Type of upgrade	Scope of supply	Year
Natron Maglay	1x Jyhlää SD54	Refiner Control + RPS	RPS + logic	2007
Norske Skog Walsum	5x Andritz S2060, 5x Metso RGP60	RPS	RPS	2005 + 2006
Norske Skog Walsum	1x Sprout Bauer TwinFlo 42"	Refiner Control	Logic	2008
Holmen Paper Iggesund	1x Andritz SB-170 HS	RPS	RPS	2009
Norske Skog Pisa	1x Andritz T66 HS, 1x Andritz T66	RPS	RPS + logic	2010
Norske Skog Halden	4x Sprout Bauer T60, 2x Sprout Bauer SB-150	RPS	RPS	2005
Norske Skog Golbey	3x Sprout Bauer T60, 2x Sprout Bauer SB-150	RPS	RPS	2006
Smurfit Kappa Nervion	1x Sprout Bauer 50-1B	Refiner Control	Logic	2010
JSC Kama	2x Jyhlää SD62	Refiner Control + RPS	RPS + logic	2009
MD Plattling	4x Sprout Bauer TwinFlo 42"	Refiner Control	Logic	2009
Zellstoff Pöls	1x Sprout Bauer TwinFlo 34"	Refiner Control	Logic	2010
Mondi Syktyvkar	2x Andritz MC80-300	MC Pump control	Siemens S7 + control logic	2010
Esal D.O.	1x Sprout Bauer TwinFlow 26"	Refiner Control	Logic	2009

# ANDRITZ Hard Facts

## Upgrade on the fly



# Fast Start-Ups. Faster Profits.

## Upgrade on the fly



**Move up to higher reliability, smooth projects execution, higher operator effectiveness, safer operations and faster paybacks with ANDRITZ AUTOMATION.**

Why do the world's premier producers choose ANDRITZ AUTOMATION?

The best technology and process know how. We offer a full-line from initial reception to realization – technology that helps mills set world production records and also receive the fastest ROI.

For new lines or rebuilds, we can ensure state of the art automation solutions within project budget.