

ROXIA

Roxia IIoT Solutions

Cloud based system for process analytics

Industrial Internet of Things

Simo Rounela
Commercial Product Manager
Digital Solutions



EMPLOYEES

120 +



2021
TURNOVER



46 M€

Invoicing outside
Finland

74 %



OUR VALUES

PEOPLE

PASSION

PERFORMANCE

10 SUBSIDIARIES



Australia

Chile

China

Finland

Germany

Peru

South Africa

Sweden

Russia

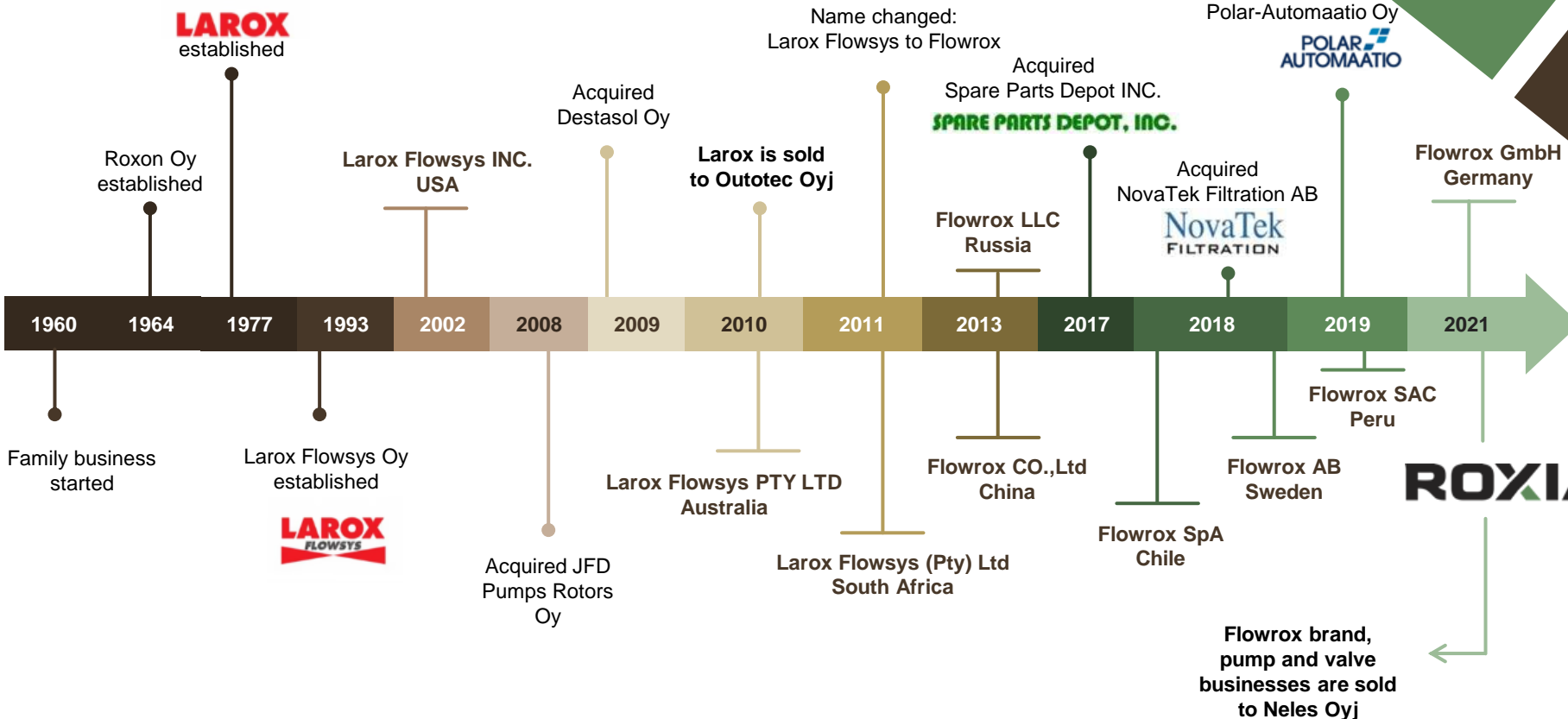
USA

3rd GENERATION
Family-owned company



FLOWROX

Name changed:
Larox Flowsys to Flowrox



LAROX
established



SPARE PARTS DEPOT, INC.



Our Focus



Dewatering



Environmental
Technologies



Industrial Automation
& Digital Solutions



Lifecycle
Support

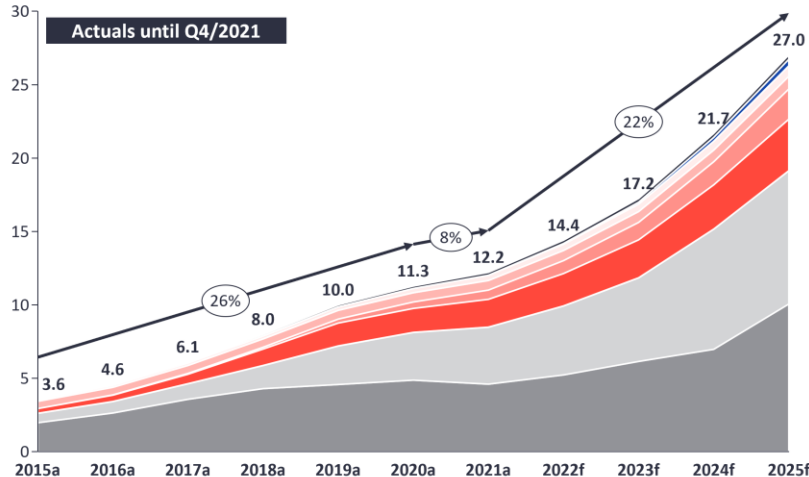
Current Global Development in IoT



Global market forecast

Global IoT Market Forecast [in billion connected IoT devices]

Number of global active IoT Connections (installed base) in Bn



CONNECTIVITY TYPE	CAGR 20-21	CAGR 21-25
Wireless Neighborhood Area Networks (WNAN)	17%	11%
5G IoT	-	159%
Other	22%	20%
Wired IoT	4%	7%
LPWA	42%	34%
Legacy Cellular (2G/3G/4G)	16%	17%
Wireless Local Area Networks (WLAN)	19%	24%
Wireless Personal Area Networks (WPAN)	-6%	22%

XX% = CAGR

Note: IoT Connections do not include any computers, laptops, fixed phones, cellphones or tablets. Counted are active nodes/devices or gateways that concentrate the end-sensors, not every sensor/actuator. Simple one-directional communications technology not considered (e.g., RFID, NFC). Wired includes Ethernet and Fieldbuses (e.g., connected industrial PLCs or I/O modules); Cellular includes 2G, 3G, 4G; LPWAN includes unlicensed and licensed low-power networks; WPAN includes Bluetooth, Zigbee, Z-Wave or similar; WLAN includes Wi-Fi and related protocols; WNAN includes non-short range mesh, such as Wi-SUN; Other includes satellite and unclassified proprietary networks with any range.

Source: IoT Analytics Research 2022. We welcome republishing of images but ask for source citation with a link to the original post and company website.

Global Market Forecast

ROXIA

- Currently about 12.2 billion connected IoT devices globally
 - 1.5 devices / globe habitant (phones & laptops not included)
- 8% annual growth from 2021
- Covid slows down development, supply chains fail, some component delivery times over 1 year
- "Consumerism" affects markets. Consumers have way better solutions available than industrial users → state of mind changes slowly but surely in Industrial Internet of Things (IIoT)

Global Market Forecast

ROXIA

IloT is coming – are you prepared?

Even you are not willing to make big projects at the moment, you should consider including IloT in long term plans



ROXIA

IIoT Project Management

Road to success

IloT Project Management

TOP 3 key points for successful, industrial grade project

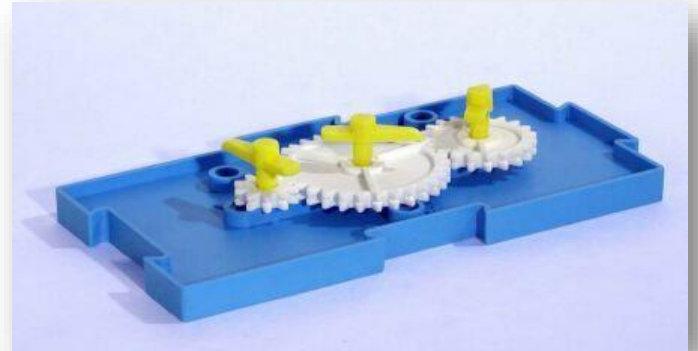
1. Know what you are looking for
2. Keep the system simplified
3. Make multi-year plans



IloT Project Management

Gadgets, gimmicks, widgets

Market is full of small devices, which will save the world or double your production. They are cheap and high-tech – but not suitable for industrial scale IloT-project.



“80% of customer data needs can be covered with existing sensors and systems - you just need to know, how to get the data into useful format”

IloT Project Management

ROXIA

Cyber Security

Lappeenranta klo 14
-6 

ETELÄ-SAIMAA

ETUSIVU | MEDIAMYNTI | ASIAKASPALVELU | KOULUT | PALAUTE | YHTEYSTIETO
Etusivu | Uutiset | Mielenpide | Kulttuuri | Sää | Taphtumakalenteri | Laivat | Lentokentät

Hakkerit iskivät lappeenrantalaisen kiinteistön pannuhuoneeseen

6.11.2016 8:14

Kuva: Matti Saarela



LAPPEENRANTA
Tustustu tästä menu -vaihtoehtoihimme!
Lappeen Ruohtim...
VIIKON LUETUIMMAT
VIIKKO | KUUKAUSI

- ▶ Hakkerit iskivät lappeenrantalaisen kiinteistön pannuhuoneeseen 6.11.8:14
- ▶ "Luottamuspuola ja työelämään kuulumattomat ilmiöt" Eksoten Salmisaaren eron syinä 4.11.15:21
- ▶ Auto ajoi päin puuta Lappeenrannassa – kuljettaja katosi paikalta 6.11.7:17
- ▶ Lappeenrannan lentoasema muuttui kelta–mustaksi – SaiPa ja fanit yhdessä Ruotsiin hakemaan jatkopaikkaa

CYBERSECURITY
Hackers Use DDoS Attack To Cut Heat To Apartments
Forbes

IloT Project Management

Cyber Security

“90% of all cyber attacks are caused by human errors or outdated systems”

- Request proof of common practices how the systems are protected from external threats
- Demand to keep the system updated
- Pay attention for user credentials protection



Example of data security certification

“What do you do with the data, if you don’t use it or analyze it?”

IIoT and Industry 4.0 is not just about collecting data – you have to analyze it

ROXIA

Roxia Malibu

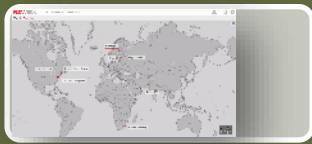


Roxia Malibu IIoT Platform

Turnkey solution for monitoring your processes & equipment remotely and to increase process efficiency



Roxia Malibu is the cloud platform for analyzing and reporting data



Malibu is suitable from a single device monitoring up to World Wide sites network



Malibu is mobile friendly without network limitations

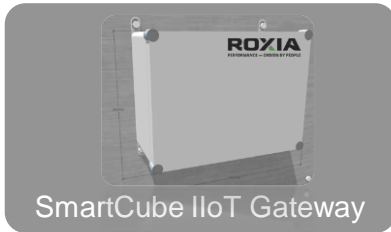
Roxia Digital Solutions

Tailored solution – pick one feature or the whole package

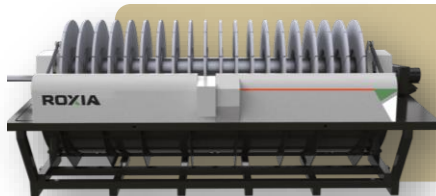
Roxia Malibu

- Real time
- Reporting & alarms
- Process optimization
- Condition monitoring
- AI

Platform
Features



Hardware



Customer process and equipment



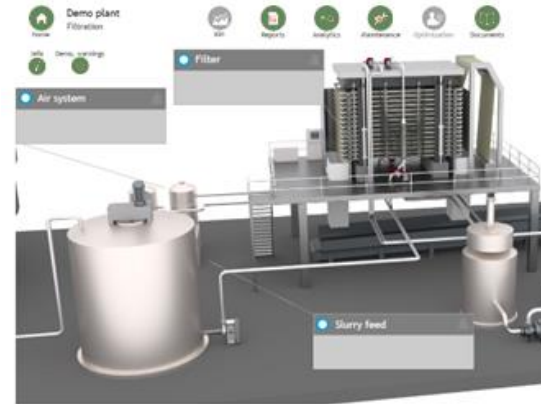
Customer

Flowrox Digital Services

**Built-in solution for Roxia Dewatering
& Environmental systems**



**Add-on solution for 3rd party
devices + Plant Monitoring**





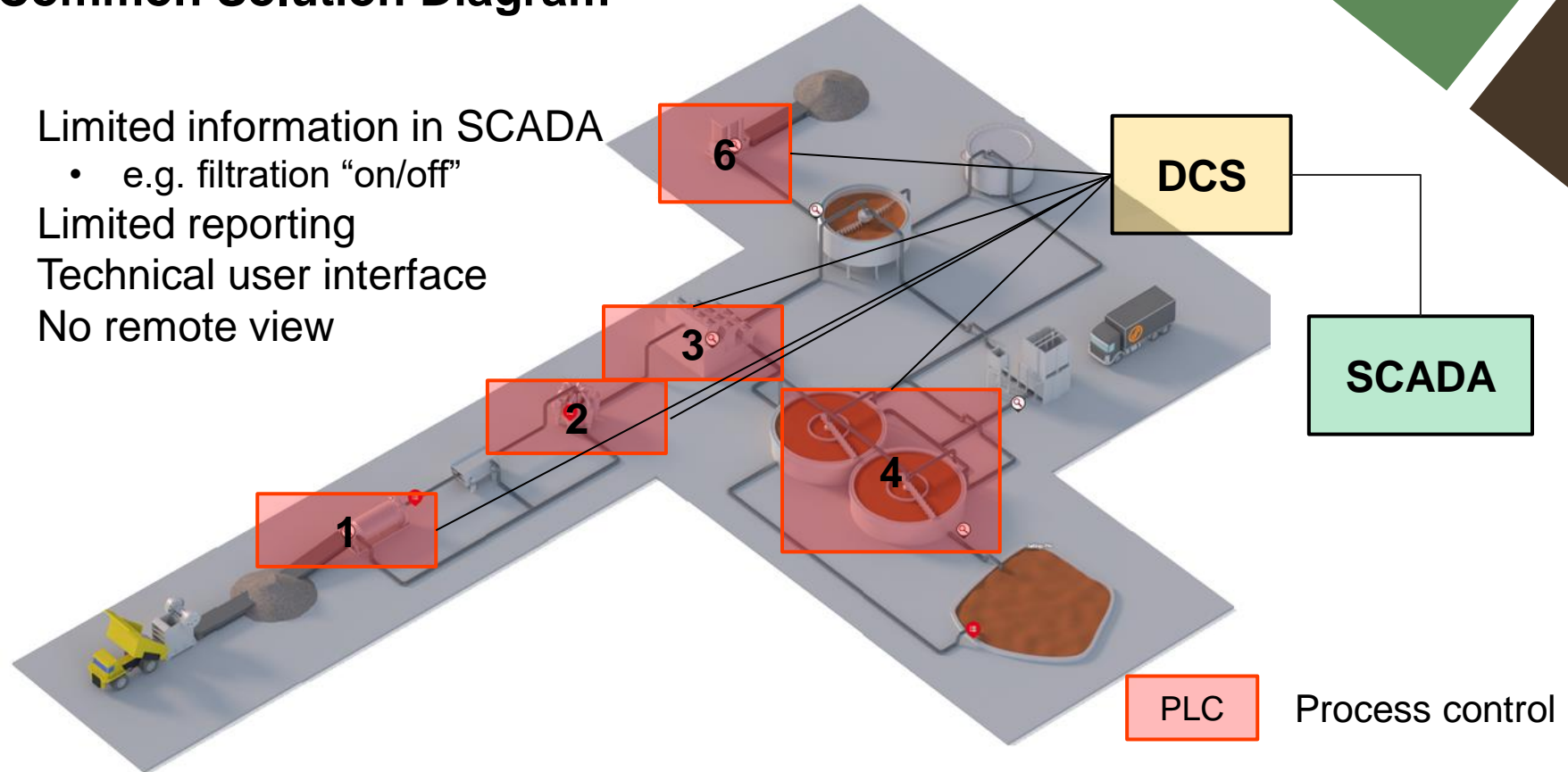
ROXIA

Roxia Plant Monitoring

Plant Control System (No Malibu)

Common Solution Diagram

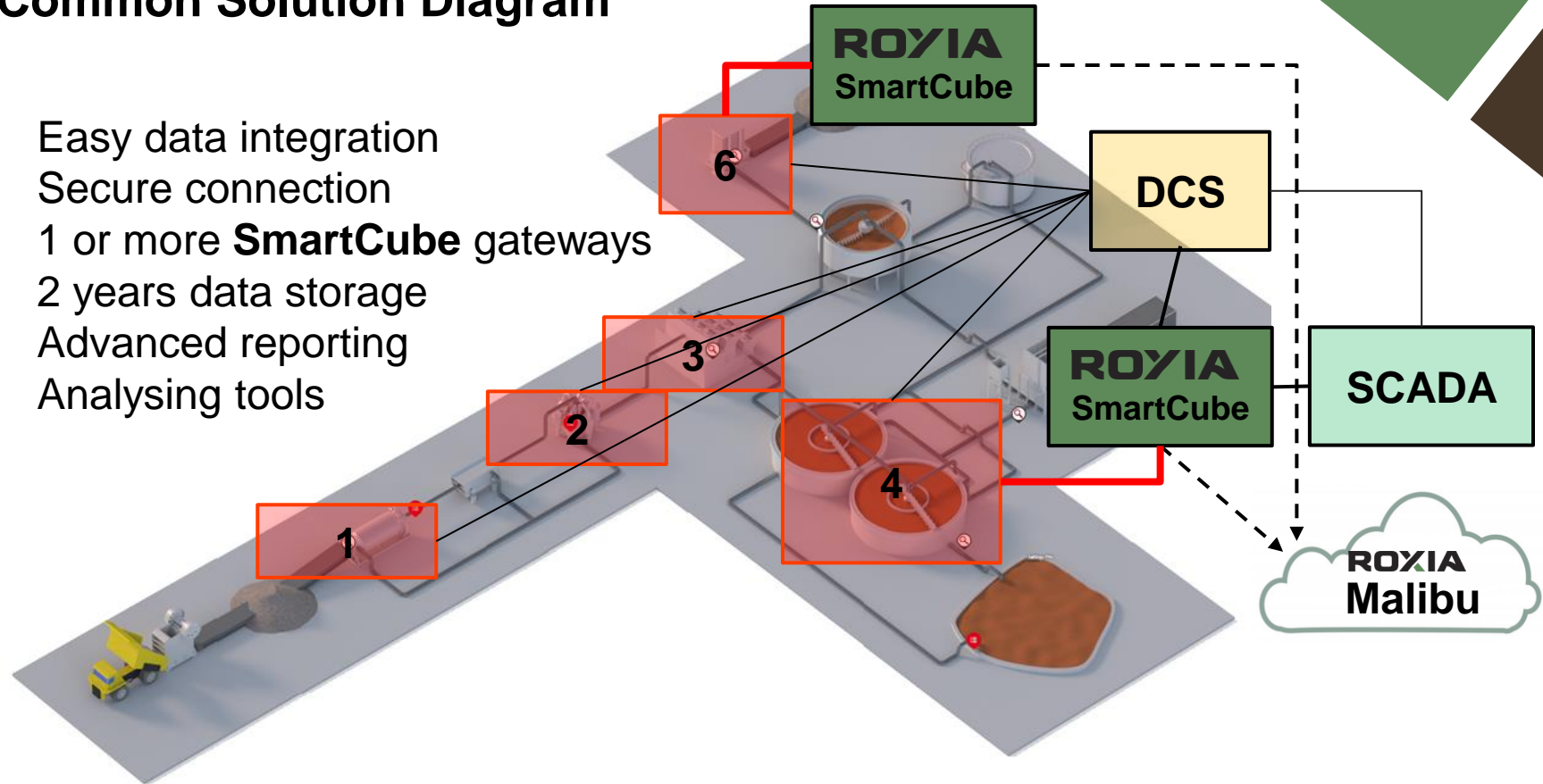
- Limited information in SCADA
 - e.g. filtration “on/off”
- Limited reporting
- Technical user interface
- No remote view



Roxia Malibu for Plant Monitoring

Common Solution Diagram

- Easy data integration
- Secure connection
- 1 or more **SmartCube** gateways
- 2 years data storage
- Advanced reporting
- Analysing tools

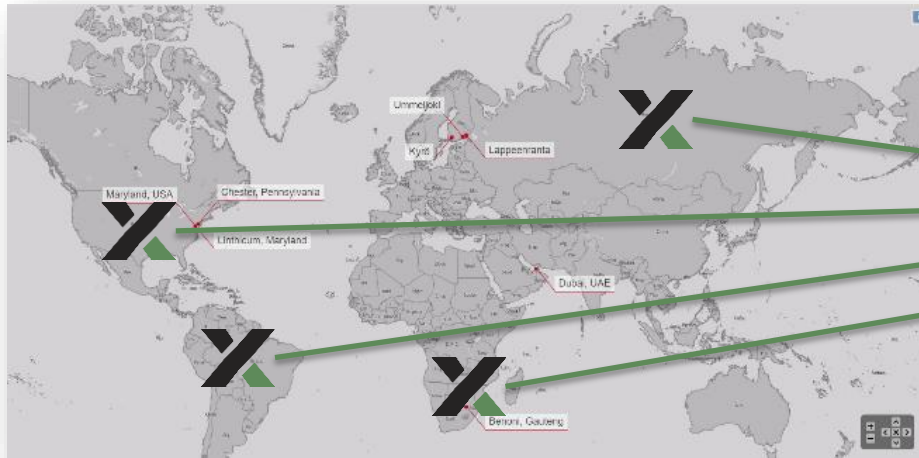


Roxia Malibu for Plant Monitoring

- Get the BIG picture for the whole plant
- Troubleshoot bottleneck issues & root cause analysis
- Different user interfaces & reports for different personnel:
 - Production, maintenance, management level
- Supports multiple site monitoring & reporting, real time
- Freely customizable interface

Global reach

- Collect data from multiple sources
- Report data from different sites



Roxia Malibu Key Elements

- **Manufacturer independent**
- **Wide support for different systems**
- **Does not replace DCS / SCADA systems**
- **No modifications or programming required**
- **Read only by default**

Dewatering process optimization & preventive maintenance

Preventive maintenance – pressure filters



Too rapid increase of compressing water pressure

Broken membrane(s)



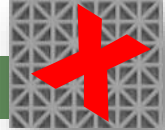
**Additional maintenance
DOWNTIME 2 hours**

Increased water consumption



Additional costs

Clogged grids



**Additional maintenance
DOWNTIME 2 hours**

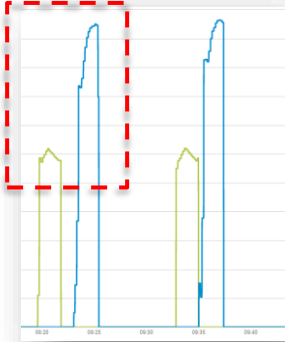
Plate(s) bending



**Additional maintenance
DOWNTIME 6 hours**

EXAMPLE 1

Preventive maintenance – pressure filters



Too rapid increase of compressing water pressure

Broken membrane(s)

Lost production: 14 000 kg concentrate

Increased water consumption

Additional costs

**Total lost production:
70 000 kg**

Clogged grids

Lost production: 14 000 kg concentrate

Plate(s) bending

Lost production: 42 000 kg concentrate

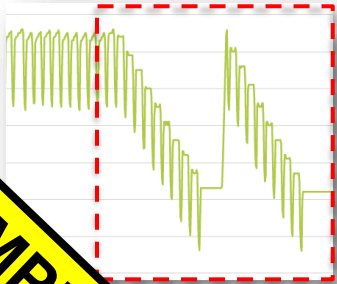
EXAMPLE 1

Preventive maintenance – pressure filters

ROXIA

Lost production	10 hours / 70 tons	1 100 € / t	77 000 €
New membranes	3 pcs	2 500 € / pcs	7 500 €
Plate repairs	3 pcs	1 500 € / pcs	4 500 €

Total losses 89 000€



EXAMPLE 1

Roxia Smart Filtration service is capable of detecting membrane damages

Most of the damages and downtime can be prevented.

Process optimization example

Zinc pressure filtration – dry cake, long wash

Current filter cycle time	16 mins	
Current cake moisture	11%	
Average cake weight / cycle	2400kg	
Utilization rate	80%	(3 cycles per hour)
Production	7 200kg / hour	(6408kg dry concentrate)

Optimize cycle time

- Prevent over drying → decrease drying time -60 seconds.
- Excessive pipe washing → decrease washing time -15 seconds.

→ New performance:	3.25 cycles / hour	+9%	}
→ New cake moisture	13%	+2 %-units	
→ New cake production	7 800kg / hour	(6 786kg dry concentrate)	

+6%

**+272 000 kg
per month**

**+3200 tons
per year**

EXAMPLE 2

Success stories

Are You in – or out?

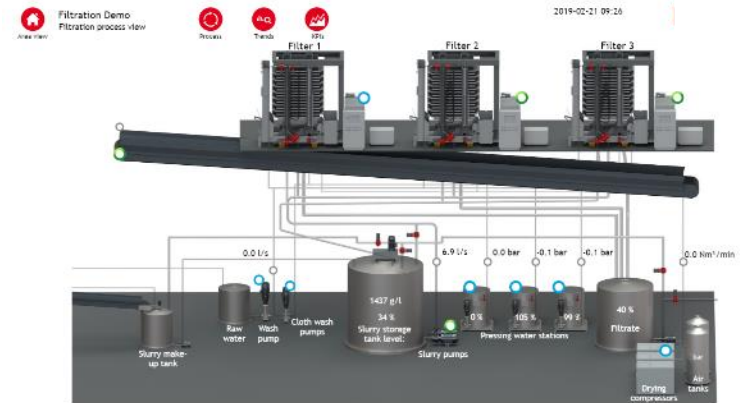
Smart Filtration

reference case

Terrafame

Industrial dewatering monitoring and analyzing tool

- System analyzes about 100 inputs from each filter, each second + 100 DCS measurements = 400 data points per second
- Only existing sensors and meters were used
- Easy and fast integration with 1 only cable
- Benefits
 - Better and faster production
 - Preventive condition monitoring, savings on spare parts
 - Decreased compressed air, water and electricity consumption

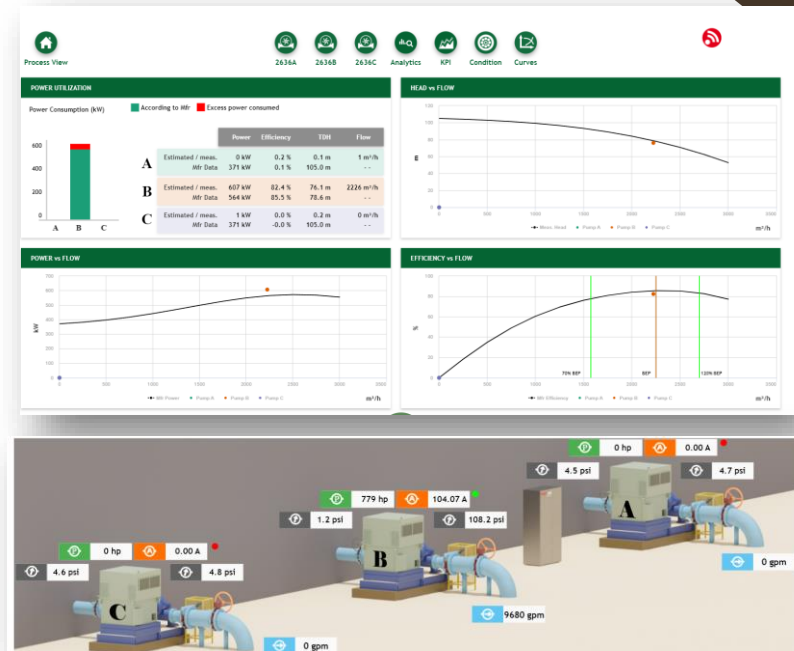


Condition Monitoring

reference case

Steel Plant monitoring

- Customer has over 300 pumps without condition monitoring
- New sensors installed for first pumps
- Real time pump curves, bearing FFT-analytics and process values
- Benefits
 - Pump maintenance planning
 - Costs down
 - Example: Single pump was using too much electricity, value over 61 000 eur annually
 - No physical wear visible



Roxia Digital Services

Why Roxia?

We're not just the software house or platform operator.

We are professionals in dewatering & Automation.

We know how to take care of Your equipment and how to really use the data.