

# Turning Data into Value

Going beyond the promise of the IIoT

# ▶ HYPE : data is the new gold

- ▶ **IIoT**
- Sensors**
- NB-IoT**
- LoRa & Sigfox**
- Big Data**
- Data Lake**
- Historian**

- Industry 4.0**
- KPI Dashboard**
- Reporting**
- Artificial Intelligence**
- Machine Learning**
- Edge Computing**
- Anomaly Detection**

# ▶ REALITY :

a little less conversation, a little more action...

► **Interest, but...**

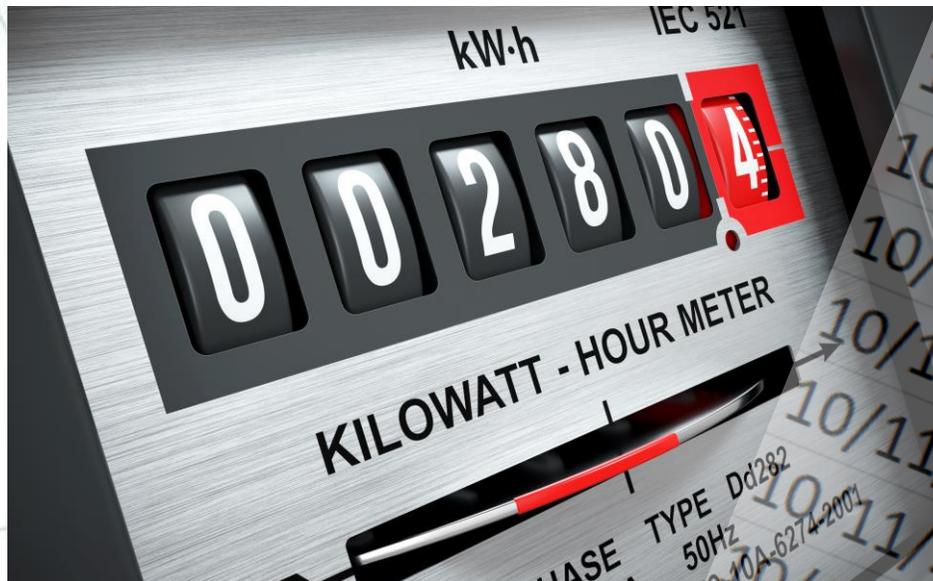
**no time  
no budget  
no priority  
stuck at PoC  
fail to scale**

▶ **REASON :**  
**technology focus => failure to create value**

- ▶ **“You can have data without information, but you cannot have information without data.”**

(Daniel Keys Moran)

▶ **DATA :**  
**capture the RIGHT data**



10/11/2020	0:40:00	615896	4,33
10/11/2020	0:50:00	610774,667	4,33
10/11/2020	1:00:00	619236	4,33
10/11/2020	1:10:00	565350,667	4,33
10/11/2020	1:20:00	537294,667	4,33
10/11/2020	1:30:00	535068	4,33
10/11/2020	1:40:00	560897,333	4,33
10/11/2020	1:50:00	615673,333	4,33
10/11/2020	2:00:00	699396	4,33
10/11/2020	2:10:00	602758,667	4,33
10/11/2020	2:20:00	568468	4,33
10/11/2020	2:30:00	596524	4,33
10/11/2020	2:40:00	617009,333	4,33
10/11/2020	2:50:00	628588	4,33
10/11/2020	3:00:00		
10/11/2020	3:10:00		

INFORMATION :  
add the RIGHT context





**INSIGHT :**  
provide information to the **RIGHT** stakeholder

▶ **“Insight without action is worthless”**

(Marie Forleo)



**ACTION :**  
**confirm, question or change direction**

**CREATE VALUE :**  
**lower costs & increase revenue**  
**by achieving strategic goals**



# ▶ EVALUATE :

question your current way of working

- ▶ **What do you do & why do you do it?**  
**How do you do this?**  
**How often do you do this?**  
**How does it impact your strategic goals?**  
**How much does it cost?**  
**How much value does it create?**  
**What could we change for the better?**  
**Why don't we change?**  
**What do we need to be able to change?**

# ▶ EVALUATE :

## maintenance activities

► **What do you do?**

**Corrective / Reactive maintenance**  
**Preventive maintenance**  
**Condition-based maintenance**  
**Predictive maintenance**

► **Why do you do this?**

**Safety**

**Reliable & effective operations**

**Regulations**

► **How do you do this?**

**Inspect**  
**Service**  
**Fix**  
**Replace**

► **How often do you do this?**

**Whenever it breaks**

**Yearly**

**After x hours**

**In line with safety requirements / legislation**

**After every shift**

**When we have time**

► **How does it impact your strategic goals?**

**Safety requirements**

**Costs vs. Profits**

**Product quality**

**Customer service**

**Corporate competition**

► **How much does it cost?**

**Labor**

**Spare parts**

**Opportunity cost**

**Fines & penalties**

► **How much value does it create?**

**Increased productivity**  
**Increased quality**  
**Increased safety**  
**Increased flexibility**

► **What could we change for the better?**

**More maintenance?**

**More often?**

**Less maintenance?**

**Spare parts stock management?**

**Maintenance planning?**

**Suppliers & partners?**

► **Why don't we change?**

**We've always done it this way, and it works**

**Too risky**

**No data**

**Data but no context**

**Assumptions not validated**

**Legislation won't allow change**

► **What do we need to be able to change?**

**Risk reduction**

**Clear benefit / What's in it for me?**

**Data to support decisions**

# EXAMPLE :

## Pressure Safety Valves (PSV)



► **What do you do?**

**Preventive maintenance  
(Corrective / Reactive maintenance)**

► **Why do you do this?**

**Legal safety requirements**

**Corporate safety requirements**

**Increased risk of leakage after pop**

**Increased risk of malfunctioning after pop**

**Non-connected field devices => no feedback on pop**

**Risk of penalties in case of spills**

► **How do you do this?**

**Visual inspections**  
**Remove**  
**Test**  
**Fix or replace**  
**Install**

▶ **How often do you do this?**

**Every 2~5 years**

**in line with (or in excess of) safety requirements**

**In case of detected problems**

▶ **How does it impact your strategic goals?**

**Reduces, but does not eliminate all (safety) risks**  
**Reduces equipment availability**  
**Maintenance staff not available for other needs**  
**Costs for often unnecessary activities**

▶ **How much does it cost?**

**Labor**

**Spare parts**

**Opportunity cost**

**Fines & penalties**

▶ **How much value does it create?**

**Very little**

► **What could we change for the better?**

**Reduce inspection frequency**  
**Detect & fix problems immediately**  
**Avoid fines & penalties**

► **Why don't we change?**

**Problems go undetected**

**Reducing inspection frequency increases risk of undetected problems**

**=> increases safety risks**

**=> increases risk of environmental penalties**

► **What do we need to be able to change?**

**Feedback from PSVs in case of pop or leakage  
Changes to policy on inspection frequency**

► **Use case: Liquid bulk storage terminal, 500 PSVs**

**IIoT “pop & leak” sensor on each device**

**Reduced inspection frequency: 5 => 7,5 years**

**(> Legal requirement: every 10 years)**

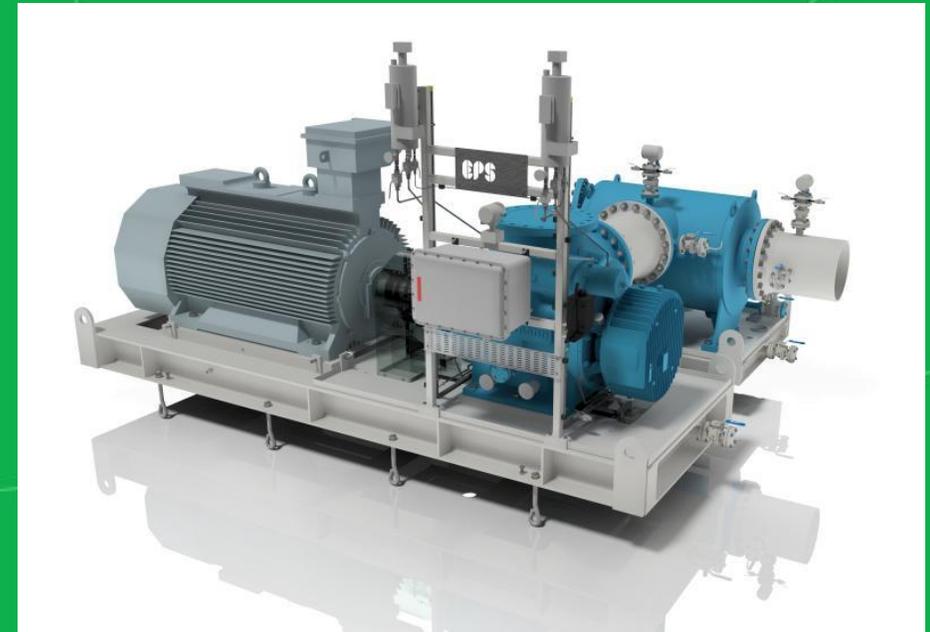
**Faster leak detection => reduced penalties**

**Average checks per year: +/- 100 => 75 PSVs**

**Labor cost: 2 => 1,5 FTEs**

# EXAMPLE :

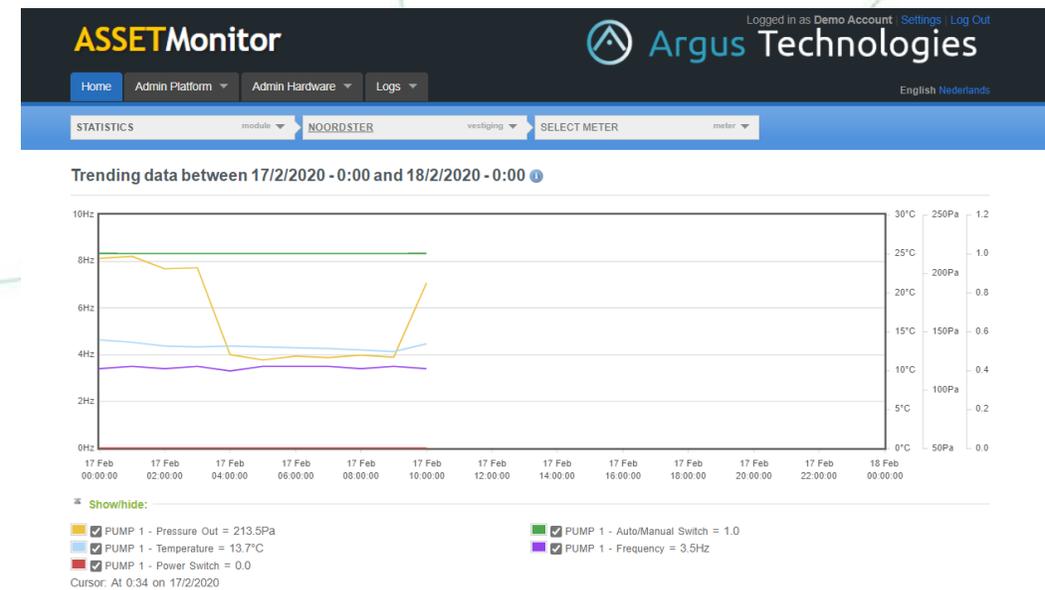
## Pump monitoring



▶ Value for the manufacturer / distributor:

World-wide condition monitoring of assets  
 Higher service level = market differentiation

Vessel	Location	Detail	Status	IP	Most recent value	Most recent event	# events in 72h	# events	Events
NOORDSTER			🔴			"Short start/stop" frequency too high	3	1	
EUPHORY			🔴			Temperature critical	5	5	
STADT ASCHAFFENBURG			🔴			Pressure spike/drop	1	1	
MAXINE DEYMANN			🟡			Temperature high	8	3	
SOMTRANS XXI			🟡			Pressure high	2	1	
GASCHEM BREMEN			🟡			Frequency high	1	1	
ELISABETH SCHULTE			🟢			Pump 2 active	2	2	
SLOMAN THETIS			🟢			Pump 6 active	1	1	
ASTREA			🟢			Pump 1 active	1	1	

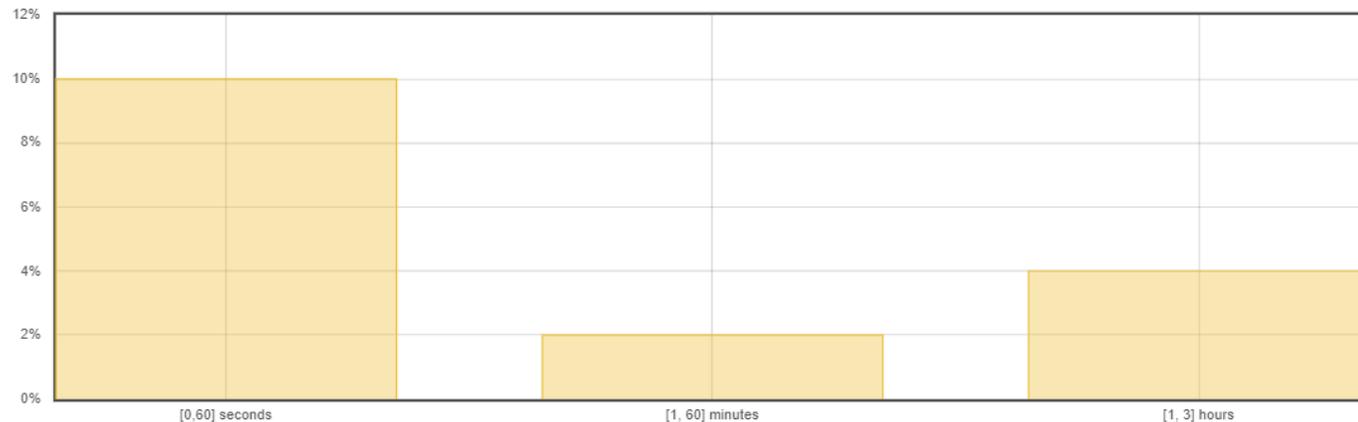


► Value for the manufacturer / distributor

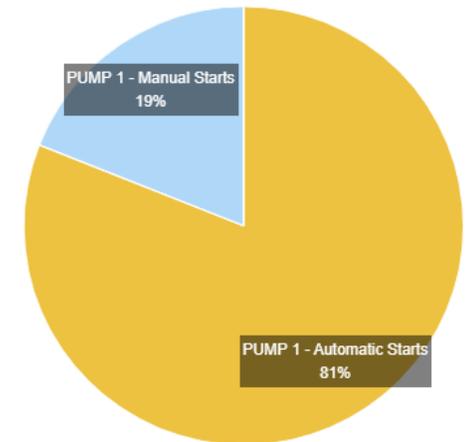
Contextual data for analysis of warranty claims  
Valuable feedback for both service and R&D

Start/Stop Interval Histogram

1 Visualises the (short) intervals between (re)starts and stops of the pump, too much fast restarts can cause critical damage!  
+3 hour start/stop intervals are to be expected and are therefore not included in this graph.

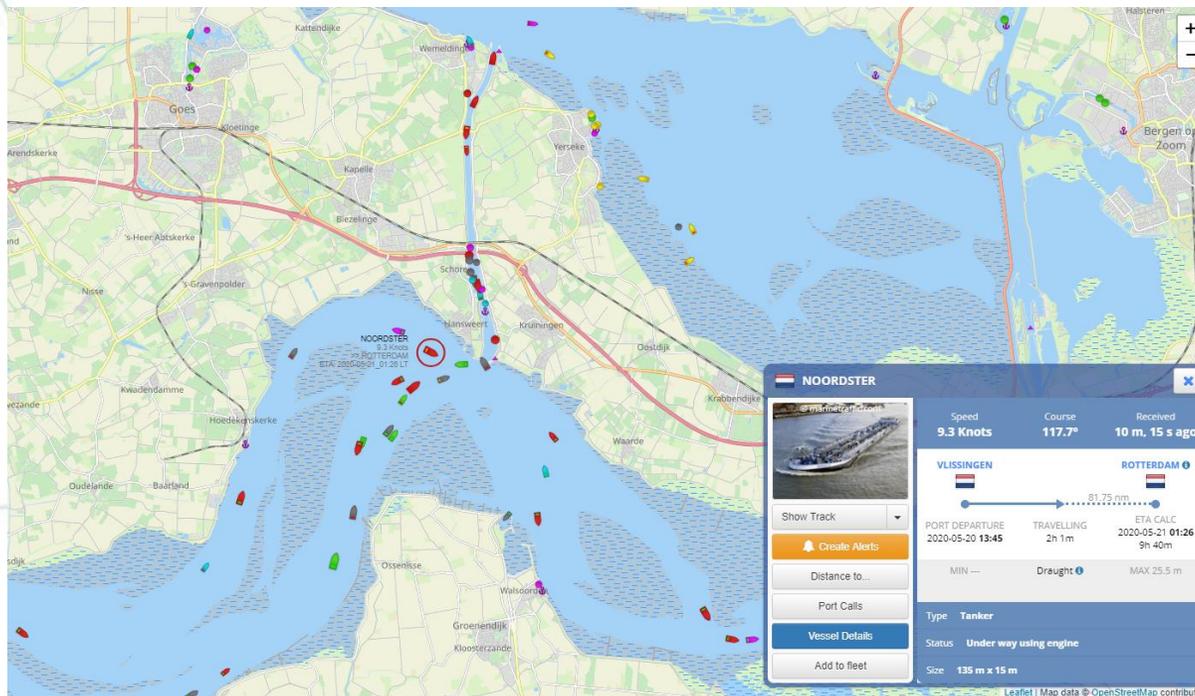


Manual vs Automatic Starts



▶ Value for the manufacturer / distributor

Additional revenue from reporting service



▶ **Value for the end user**

**Increased asset reliability & availability**

**Increased pump efficiency**

**Increased operational efficiency**

**detailed reporting per shift, operator, terminal, ship...**

**Location-based event reporting**

**e.g. start/stop sequence helps prevent product theft**

▶ **FACT :**

**data is everywhere and cheaper than ever**

# Your assets contain tons of data...

Energy consumption

Power

Pressure

Temperature

Flow

Running hours

Cycle rate

On / Off

Location

Leakage

DCS / SCADA

Frequency drives

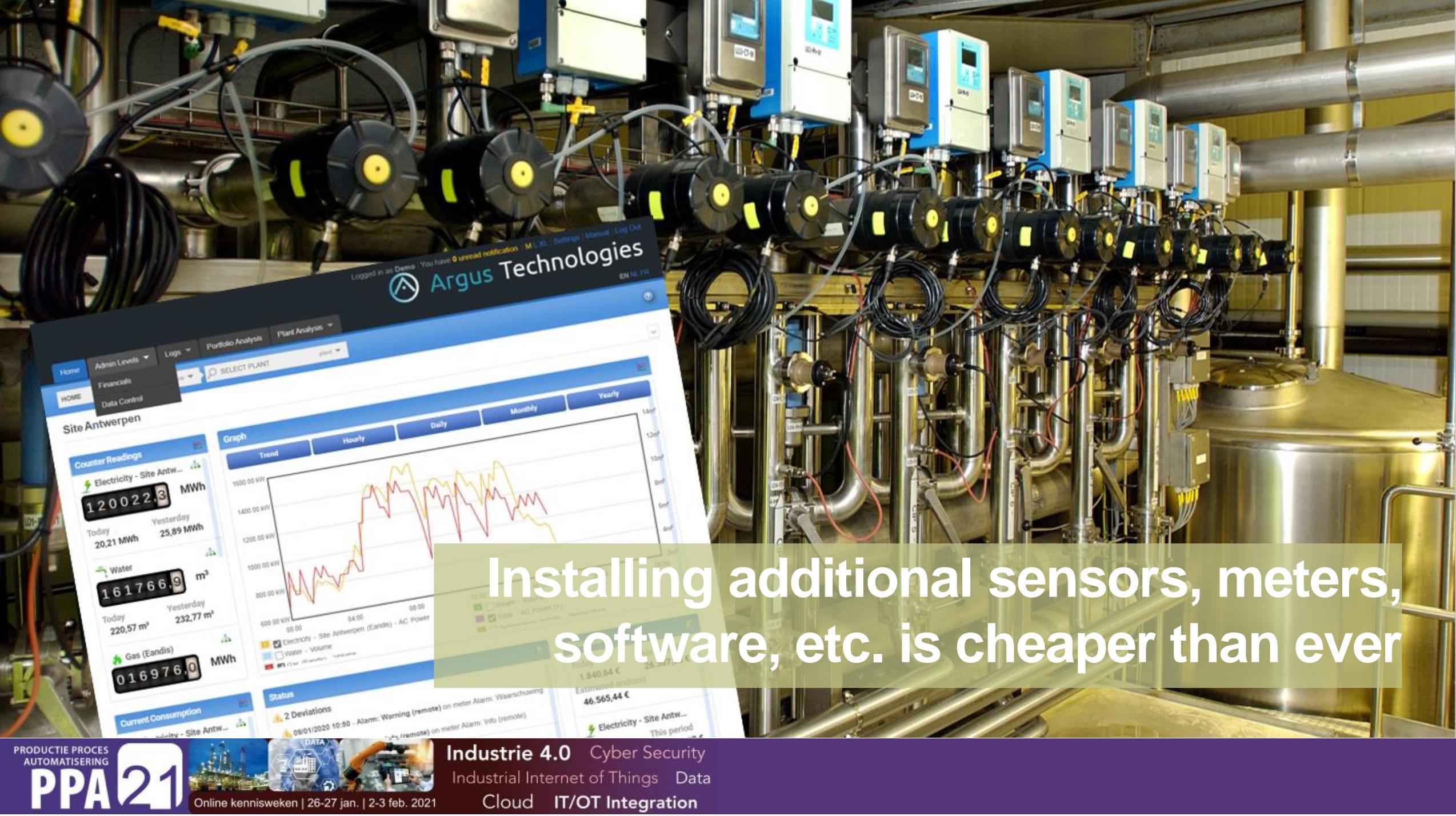
Pumps

PLCs

MES

ERP

...



Argus Technologies

Logged in as Demo - You have 0 unread notifications M.L.X. Settings Manual Log Out

Home Admin Levels Logs Portfolio Analysis Plant Analysis

HOME Financials Data Control

SELECT PLANT

### Site Antwerpen

Counter Readings

- Electricity - Site Antw...  
120022.3 MWh  
Today 20.21 MWh Yesterday 25.89 MWh
- Water  
161766.9 m³  
Today 220.57 m³ Yesterday 232.77 m³
- Gas (Eandis)  
016976.0 MWh

Graph

Trend Hourly Monthly Yearly

1800 00 kWh  
1600 00 kWh  
1400 00 kWh  
1200 00 kWh  
1000 00 kWh  
800 00 kWh  
600 00 kWh

00:00 04:00 08:00

Electricity - Site Antwerpen (Eandis) - AC Power  
Water - Volume  
Gas - Volume

Status

2 Deviations

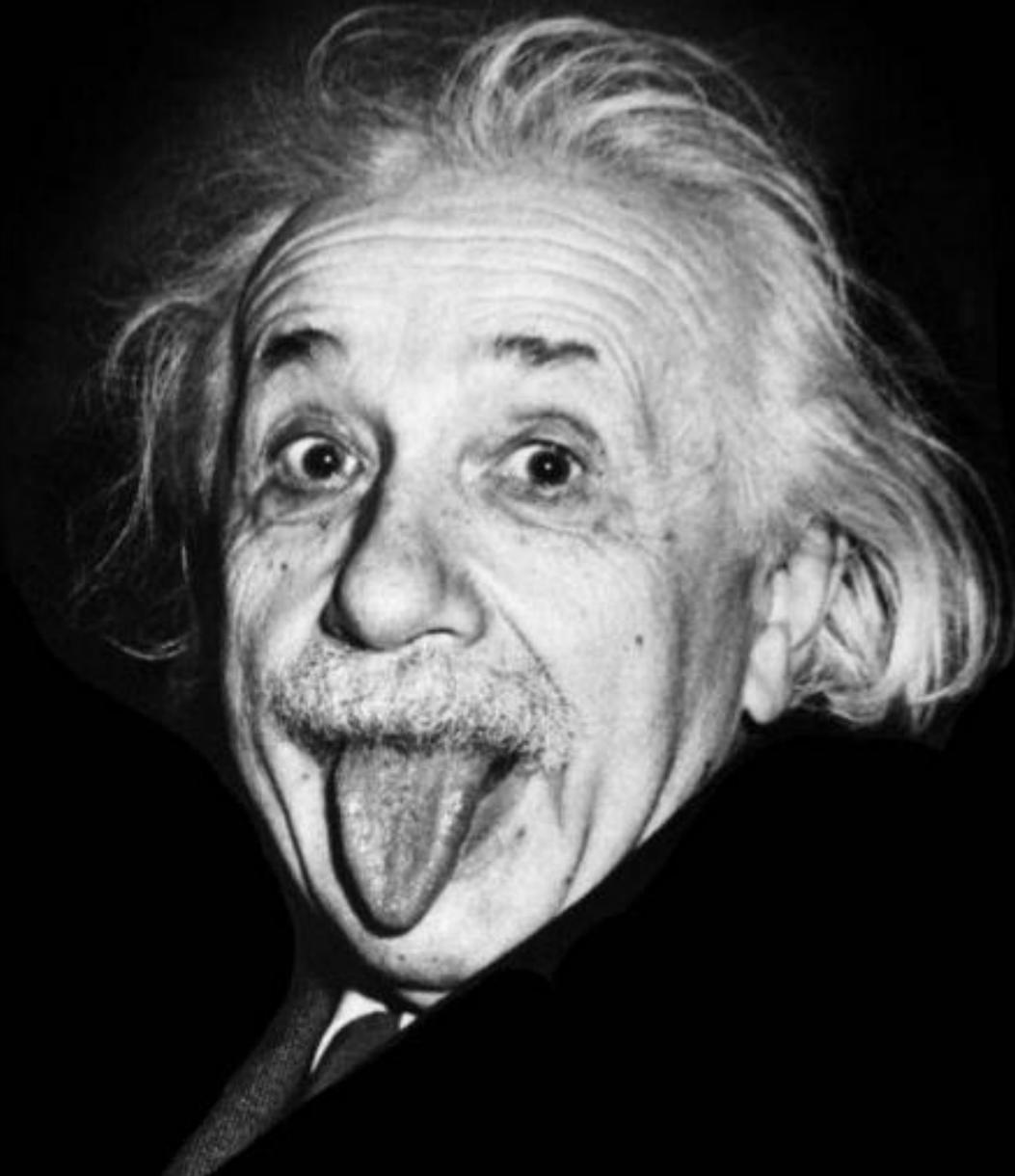
09/01/2020 10:50 - Alarm: Warning (remote) on meter Alarm: Waarschuwng  
09/01/2020 10:50 - Alarm: Warning (remote) on meter Alarm: Info (remote)

Electricity - Site Antw...  
This period  
1.840,64 €  
Estimated and/or  
46.565,44 €

Installing additional sensors, meters, software, etc. is cheaper than ever

If I had  
**1 HOUR**  
to solve a problem,

I'd spend  
**55 MINUTES**  
thinking about the  
**PROBLEM**



and  
**5 MINUTES**  
thinking about  
**SOLUTIONS**

# START :

value over technology

► **Agidens**  
**www.agidens.com**  
**info@agidens.com**  
**+31 183 64 33 44**



**Tom Capiou**  
**innovation manager**  
**tom.capiou@agidens.com**  
**+32 3 800 73 84**

