



Valve App

Direct insights in Control Valve Health

Speaker : Jules Oudmans

@Ureason : Responsible for APM Deliveries

Background : Applied Physics, Mechanical Engineering & Computer Science

AI/Ind 4.0 : >25 Years/ > 8 Years

Motto : "Digital, What Else?"



About UReason

- Asset Performance Management Software
 - On Device / Edge / On-Premise and Cloud
 - As Suite and Specific Asset Apps
- 20+ Years in Business
 - Monitoring and optimization of components, assets and processes with data
- Industry Know-How
 - Industry, Maintenance, Data, Data Science, OT and IT

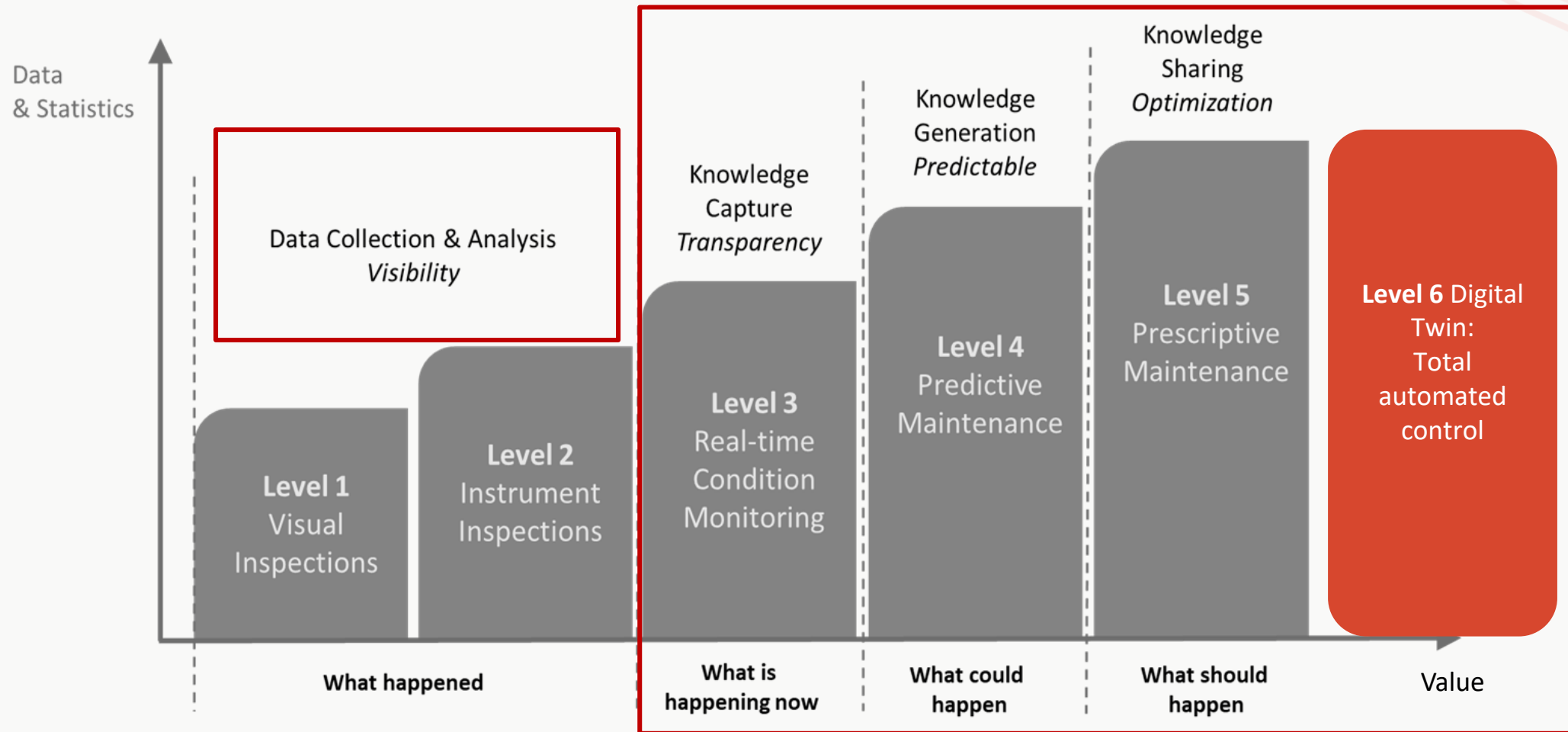


We allow **U** to **Reason** with your data



Our Field of Operation

Starting at Different Points



Our Solutions

APM Suite or Asset Focused Apps

- ✓ **Condition Based Monitoring**
- ✓ **Predictive Maintenance**
- ✓ **Digital Twin**
- ✓ **Advanced Alarm Management**



Low Code Development
Platform



Asset Apps by
UReason (valve,
pump, motor etc.)

- ✓ **Low Code**
- ✓ **High accuracy by combining causal models with Machine Learning**
- ✓ **Scalable to 000.000's of devices**



Traditional

Control Valve Asset Management



- Inspection: Interval based inspection to assess the health of the control valve
- Risk Based Inspection (RBI): Inspection method to assess the likelihood of valve failure and impact
- Failure Mode, Effects & Criticality Analysis (FMECA): Effective method to identify the potential failures and effects allowing you to focus on actions to reduce potential failures
- Root Cause Failure Analysis: “post-mortem” identifying root-causes of valve failure



Problems

Staying Traditional

Time consuming

Skill and expertise required to do the right assessment

You may have a backlog in inspections and analysis

Issues go unnoticed



How We Differ

Using Data Already Present

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Data You Store

- Setpoint
- Position or Controlled Flow/Pressure/Temperature/Level



How We Differ

Using Data Already Present

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Running Models for

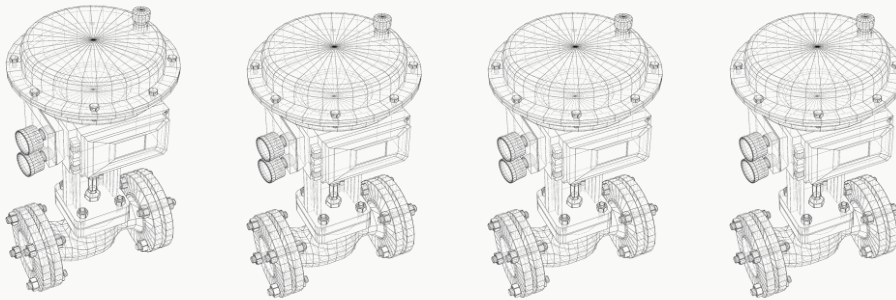
- Control Performance
- Valve Performance
- Valve Health



Allowing You To Continuously Monitor

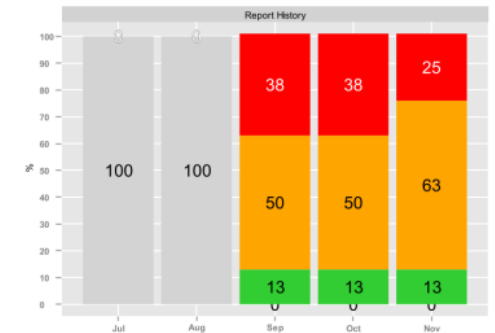
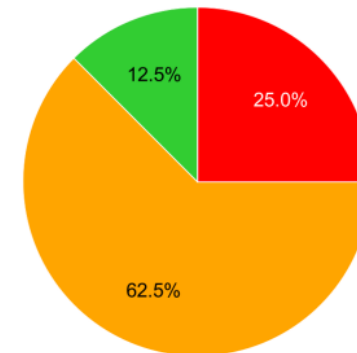
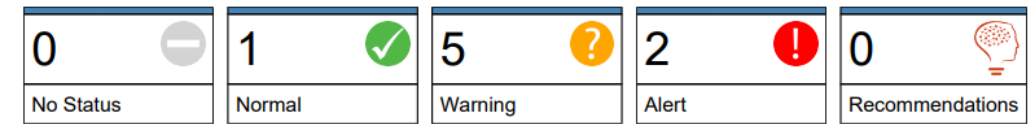
With one consistent (automated) view

- Large asset base
- Multiple types and vendors
- At multiple sites and remote



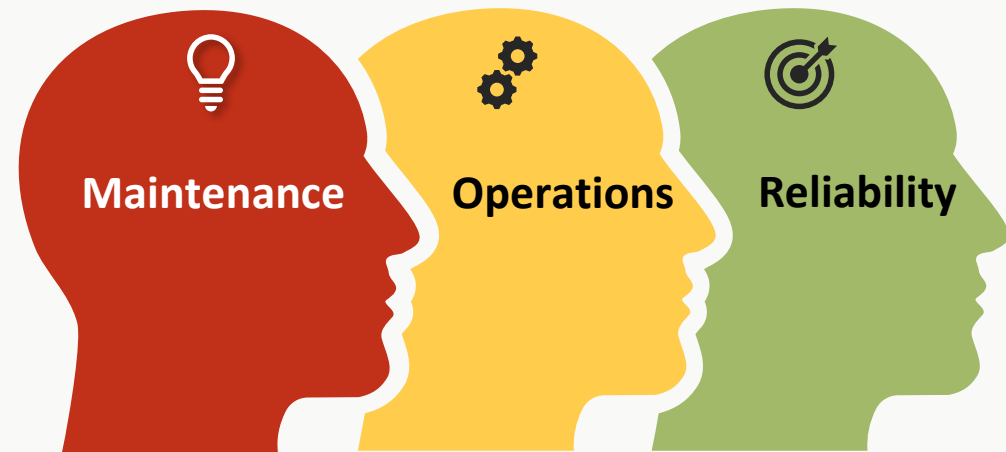
Identifying:

- Control issues
- Actuator issues
- Energy/product Losses



Providing Significant Value

- ✓ Reduce energy/product losses
- ✓ Reduce emissions
- ✓ Accurate investment planning
- ✓ Maintenance planning for shutdowns
- ✓ Reduce on-site inspections
- ✓ Lower risk due to early warning
Resulting in $< \text{MTTR}$ and $> \text{MTBF}$

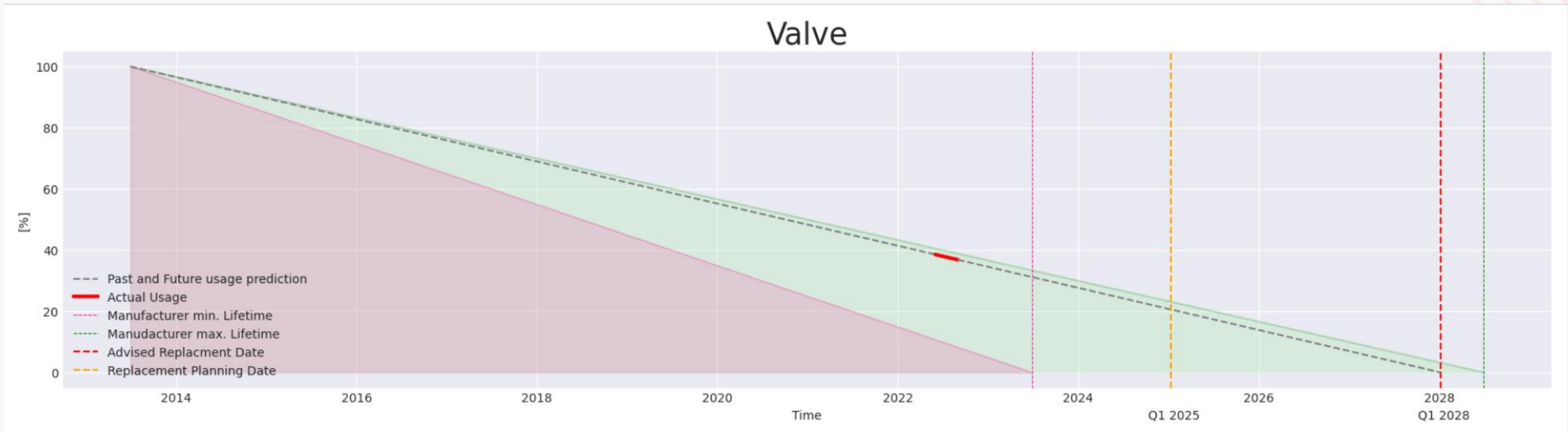


For all involved with the control valves
saving time



RUL

Remaining Useful Lifetime

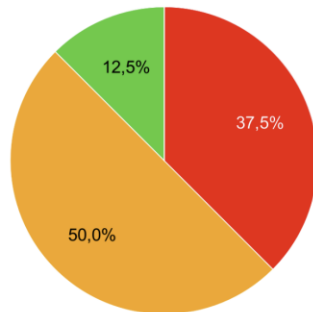


An Example Of Outputs of the Valve App

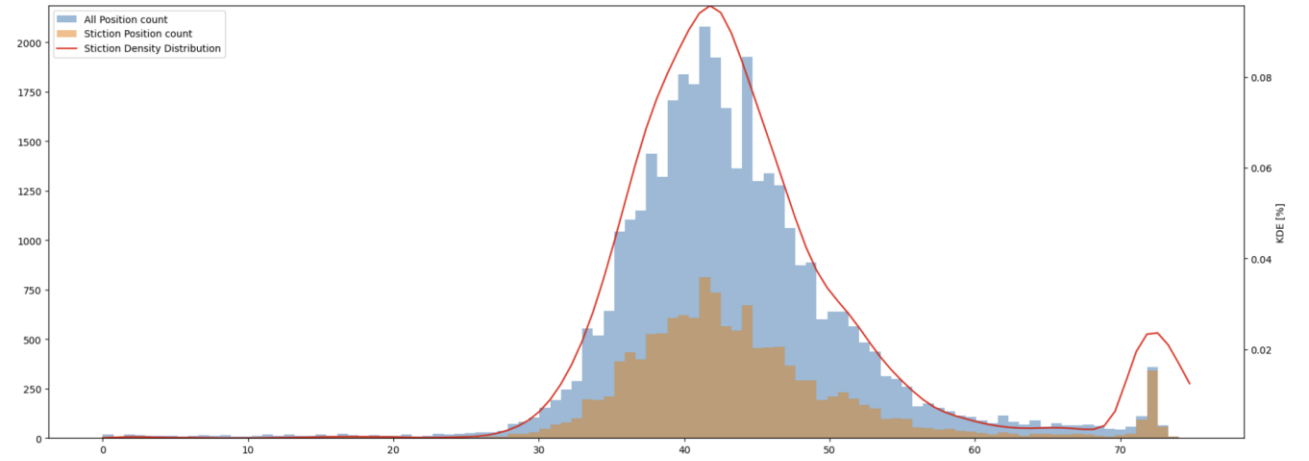


Asset Health Overview

0	1	4	3
No Status	Normal	Warning	Alert
			Recommendations



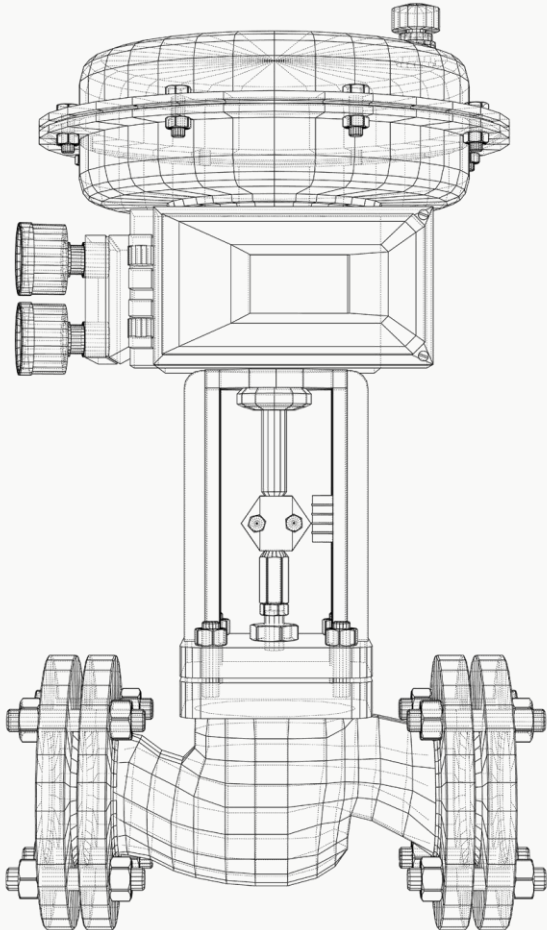
Stiction Indicators



This graph shows the distribution of the Stiction Indicator across the operating range as well as its density distribution (red line). Areas of the valve range where the majority of stiction was found can be seen with a increased peak of the red line. This does not have to result in a high stiction value, this can be seen from the ratio of blue to orange bars. If the blue bar is visible then stiction is low, if only orange bar is visible then stiction is high in that area of the operating range.



Data Required By the Valve App



Data Requirements:

- Setpoint
- Position or Controlled Variable

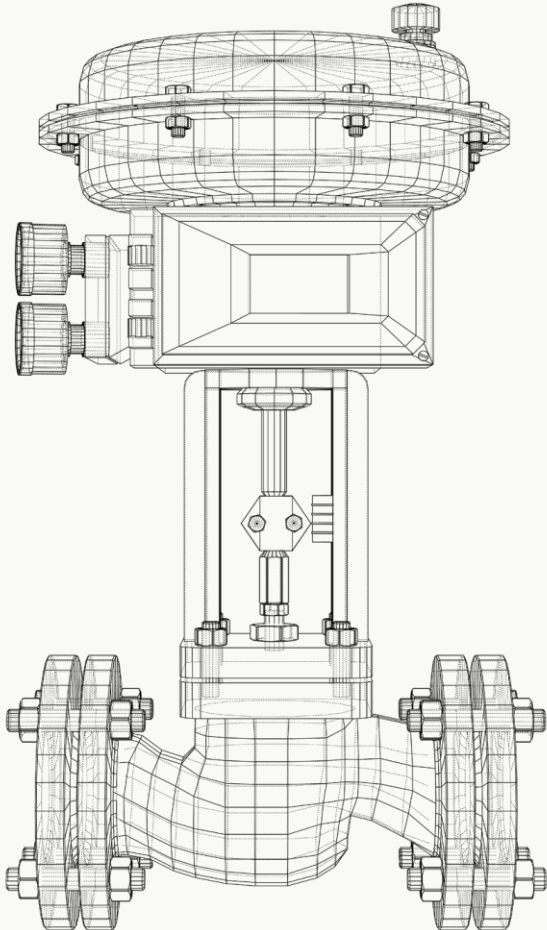
Actuator/Valve:

- Type/Model
- Installation Date



Outputs

By the Valve App



**No additional
sensors needed!**



Your input:
Setpoint
Valve Position
/Controlled Variable

Auto Diagnostic Models:
UReason Controller and
Valve Performance
AI Models

Output:
Recommendations
Report, Dashboards,
Job orders to CMMS



Pricing

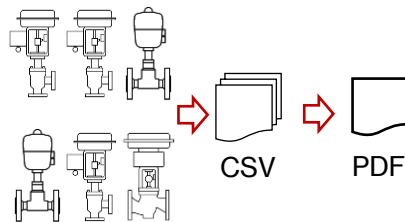
Valve App Basic

From

8,- euro

per valve per month,

Based on **batch** data and
automated monthly
reporting (pdf)



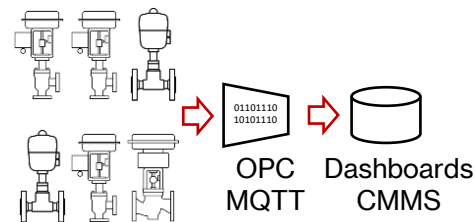
Valve App Premium

From

12,- euro

per valve per month,

Based on **historical** or
streaming data (cloud) and
integration in CMMS/ERP
systems (REST API)



Valve App Enterprise

Request for quote

Options:

- On edge or on premise
- Combinations of equipment
- Integration with other systems
- Additional Sensors
- Monthly reviews with SMEs



Specific Markets

And Extensions of the Valve App

Utilities & District Heating



extended use cases:

Significantly reduce
energy usage

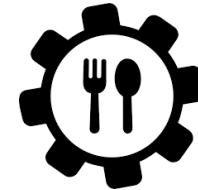
Chemicals & Pharma



extended use cases:

Reduce product losses
Avoid contamination

Food

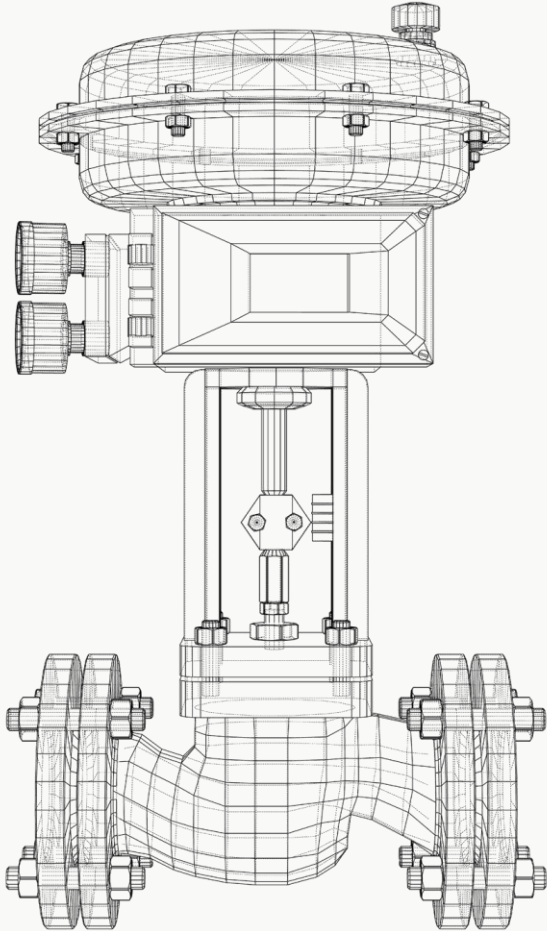


extended use cases:

Improve temperature
and dosing control
Avoid product loss and
recycle



Summarizing The Valve App



- → Plug and Play
- → Supports Air/Electrical/Electro-Hydraulic Actuators
- → Provides Actionable insights
- → Generates Work Orders/Inspection Reports
- → Benchmarks Valve Performance



For Maintenance
& Reliability
Engineers



For Operations



Start Today

With a Free Trial



Send us your data: 10 control-valves 1 month

You Get:

- ✓ Valve App Report
- ✓ Meeting with SMEs to discuss the results

