Advanced Analytics for Optimizing Asset Performance in the Energy Industry

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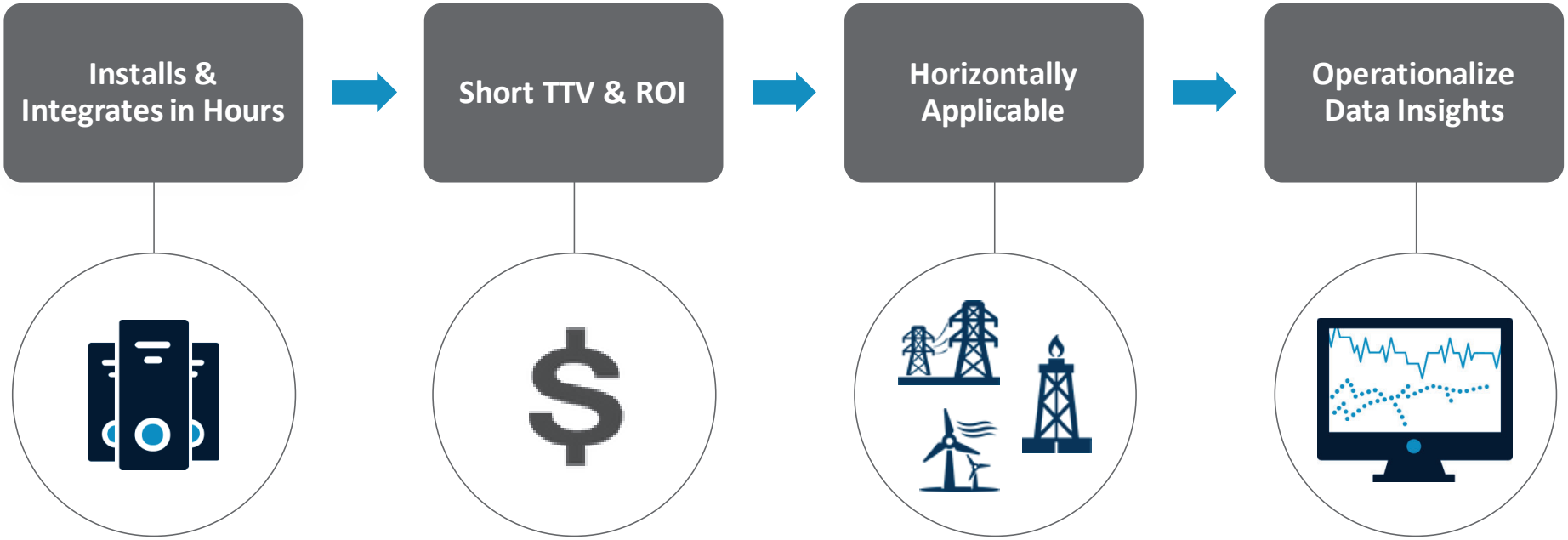
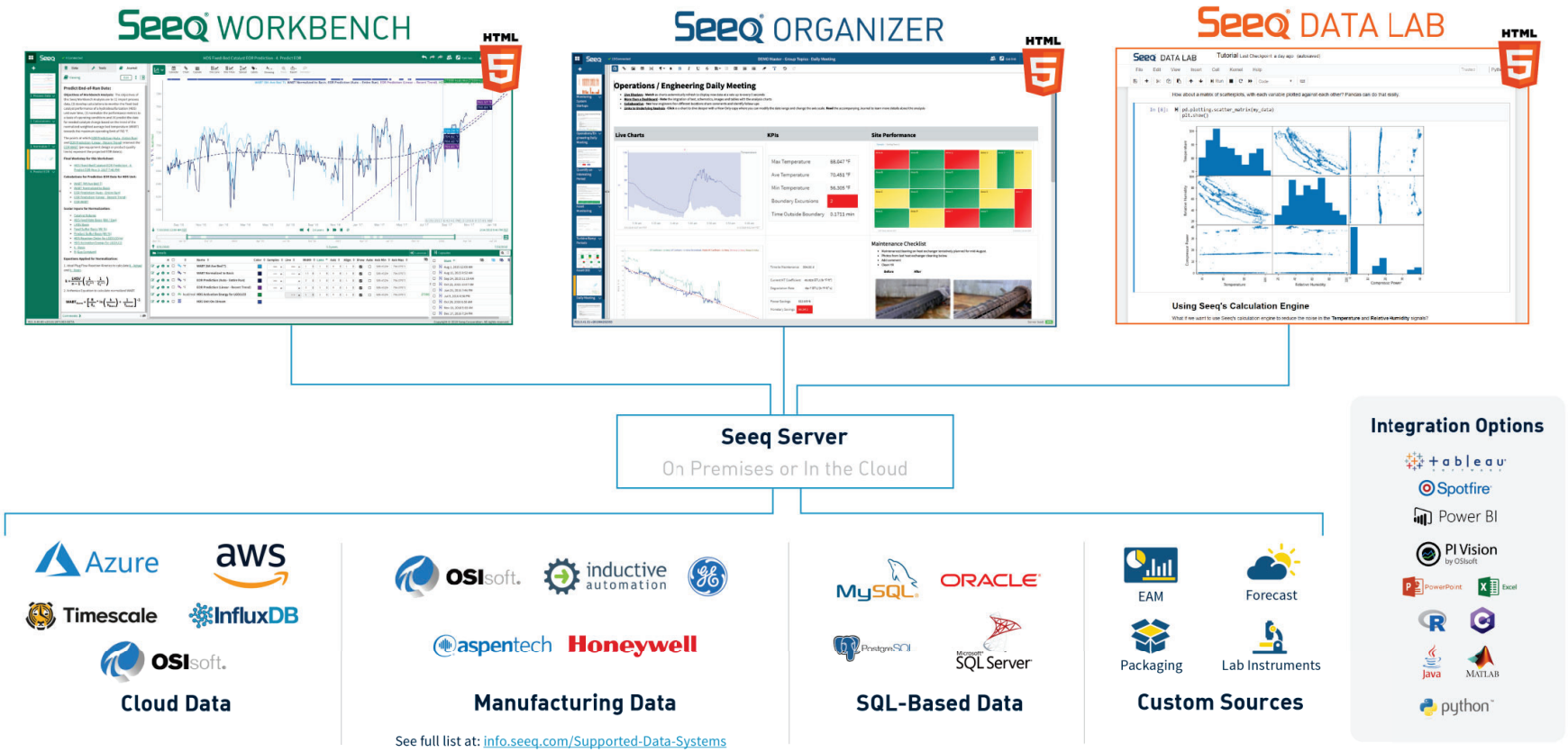
What is Seeq

Seeq is an advanced analytics application purpose-built for time-series data that empowers engineers and other SMEs with self-service tools to improve operational performance

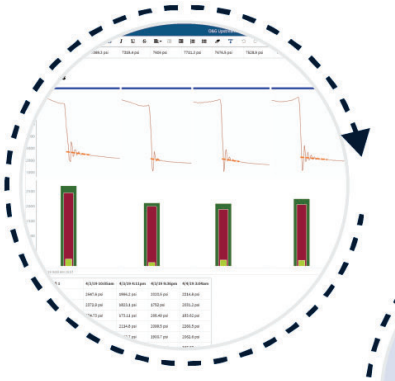


Seeq Architecture



Seeq Advanced Analytics

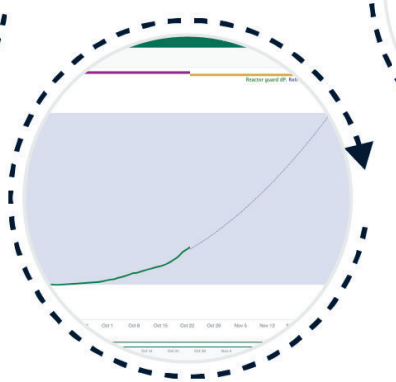
Diagnostic
Why did it happen?



Benefits

Root cause investigations on/of historical data sets

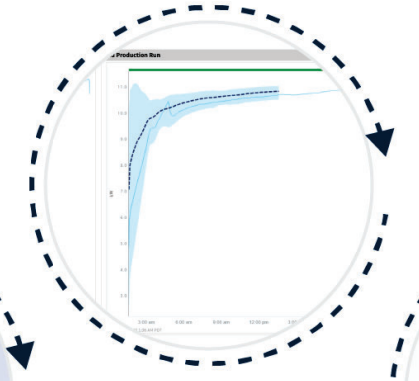
Predictive
What will happen?



Benefits

Increase asset availability and improve batch outcomes

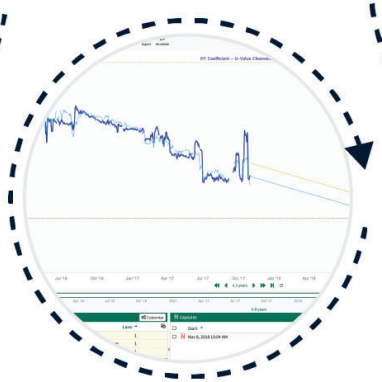
Monitoring
What is happening?



Benefits

Advisory real-time and prediction view of process and asset status

Prescriptive
What should happen?



Benefits

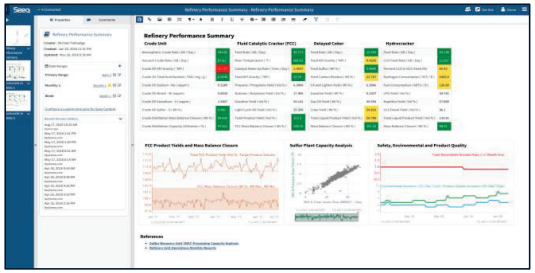
Evaluate options to make decisions that optimize outcomes

Descriptive
What happened?

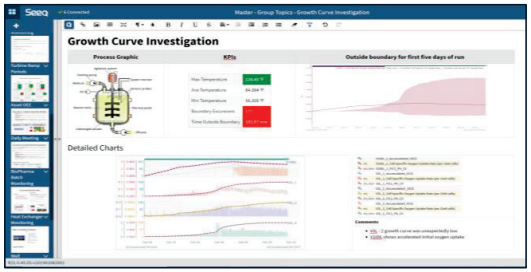
Benefits

Create and share insights to inform decisions plant wide

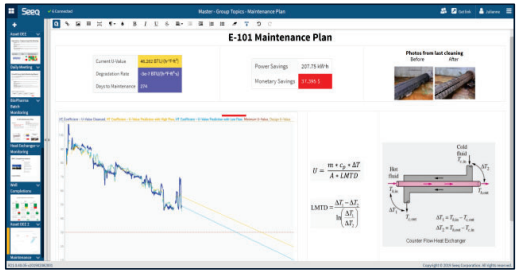
Organizer



Monitoring and Optimization Dashboards



Summary and Incident Reports

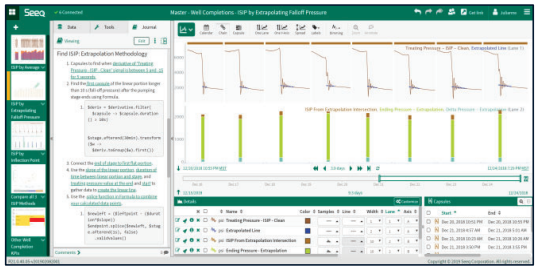


Planning and Long-Term Optimization Reports

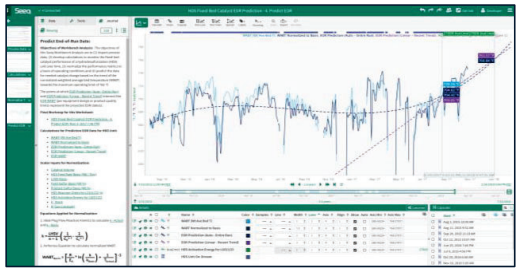
Workbench

Define Targets and Operating Windows

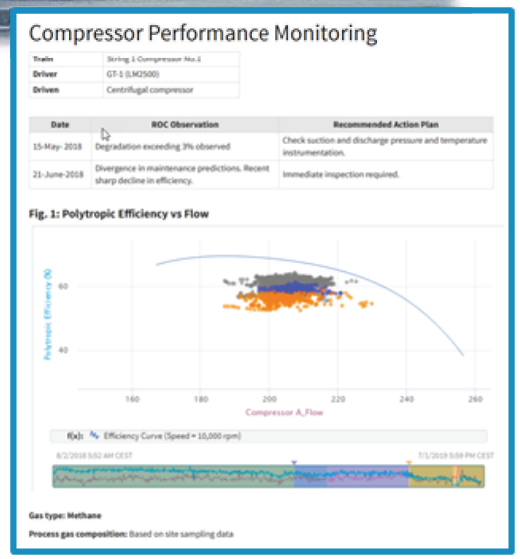
Investigate Root Cause



Predict and Analyze Scenarios



Compressor Health Monitoring and Maintenance



Compressor Performance Monitoring

Train	String 1 Compressor No.1
Driver	GT-1 (LM2500)
Driven	Centrifugal compressor

Date	ROC Observation	Recommended Action Plan
15-May- 2018	Degradation exceeding 3% observed	Check suction and discharge pressure and temperature instrumentation.
21-June-2018	Divergence in maintenance predictions. Recent sharp decline in efficiency.	Immediate inspection required.

Fig. 1: Polytropic Efficiency vs Flow

Gas type: Methane

Process gas composition: Based on site sampling data

CHALLENGE

- Inability to detect and anticipate compressor performance issues can lead to unplanned shutdowns, loss of revenue, and environmental/safety threats

SOLUTION

- Identify leading and lagging indicators of compressor health
- Continuously monitor multiple compressor health variables to detect poor performance and mechanical degradation

RESULTS

- Enables proactive engineering assessments
- Helps to identify risks and prioritize maintenance activities
- Reduces likelihood of catastrophic failure, saving costs due to lost production and engineering time