Asset Qualification Monitoring By Exception

A Seeq Vantage use case for Industrial enterprise monitoring

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Agenda

- Introduction: Who we are
- AQM Overview
- Problem Statement
- Approach: AQM By Exception
- Seeq Vantage for AQM
- Case Study
- Future Work

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Our Purpose + Values

Lilly unites caring with discovery to create medicines that make life better for people around the world.

OUR VALUES

- Integrity
- Excellence
- Respect for People

Global Fast Facts

A heritage 149 years strong, founded on May 10, 1876

Headquarters located in Indianapolis, Indiana, U.S.A.

More than 46,913 employees worldwide

Approximately 11,169 employees engaged in research and development

Clinical research conducted in more than 55 countries

Research and development facilities located in 8 countries

Manufacturing plants located in 9 countries

Products marketed in approximately 105 countries

Lilly Pipeline Strategy

Our fundamental strategy is predicated on discovering new medicines.

Lilly currently has one of the most robust mid-to-late stage pipelines in its history.

2

MOLECULES AND INDICATIONS IN REGULATORY REVIEW

20

MOLECULES AND INDICATIONS IN PHASE 3 CLINICAL DEVELOPMENT

24

MOLECULES AND INDICATIONS IN PHASE 2 TESTING

23

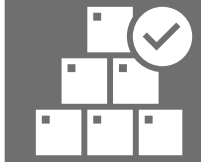
MOLECULES AND INDICATIONS IN PHASE 1 TESTING

Are your Assets operating in a Qualified State?

Prove it!!!
Show its qualified at consistent frequency?

Asset Qualification Monitoring

Overview



Asset Qualification Monitoring (AQM): Performed to ensure that Lilly direct impact assets are operating in a qualified state and are fit for use.

Lilly Quality Practices: Outlines the minimum requirements for an AQM Strategy (AQMS) that sites need to meet.

Sites currently have different processes and strategies for AQM that fall under Lilly Quality Practices (i.e. different CQP attributes and monitoring frequencies).

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Asset Qualification Monitoring

What is monitored?

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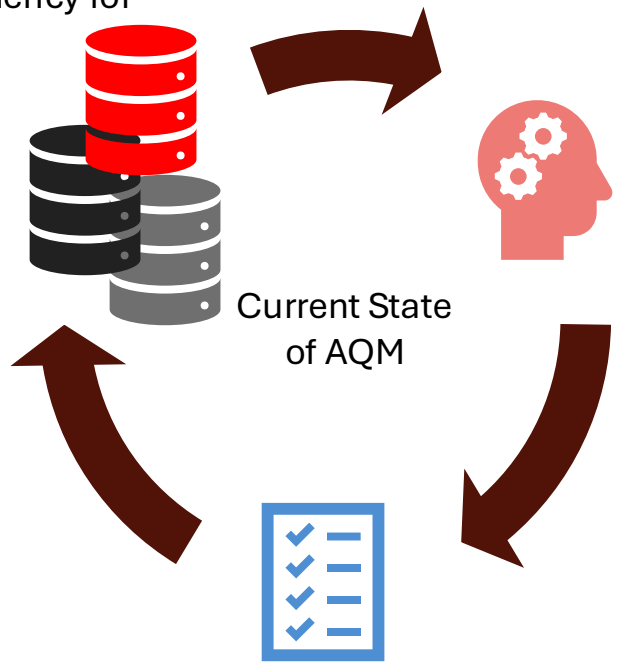
Asset Qualification Monitoring

How is it done today?

Data is compiled by engineer by hand at a set frequency for review



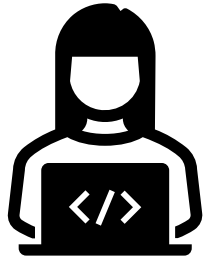
Current State of AQM

Data is manually reviewed for all trends and all analysis is conducted by hand

Based on data, engineer confirms if asset is still in a qualified state

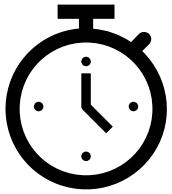
Areas of Improvement

No standardized effort or global solution across sites



Manual effort for process engineers – less time for higher-priority initiatives

Redundant effort as issues are already resolved or none are found when reports are made



Not done in real-time as reports are always done after the fact

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Problem Statement

Improving the AQM process for Engineering

PROBLEM STATEMENT SUMMARY

Challenges

Process engineers still extract data from multiple data sources manually and analyze them by hand, with the AQM process being done after the issue has been resolved

- Not comprehensive for real-time monitoring
- Extreme manual effort and time consumed
- Lower productivity and inconsistency

Goal Statement

A solution that compiles and analyzes data in real-time using a robust analytics framework

- Automated solution for constant monitoring
- Empower process to focus solely on the detected exceptions of their asset
- Analyze by exception
- Easy reporting and notification for asset alerts

Business Impact

Increase Productivity and Efficiencies.

- Reduce hours spent compiling the AQM Report
- Increase operational and maintenance efficiency
- Catch issues early leading to cost avoidance.

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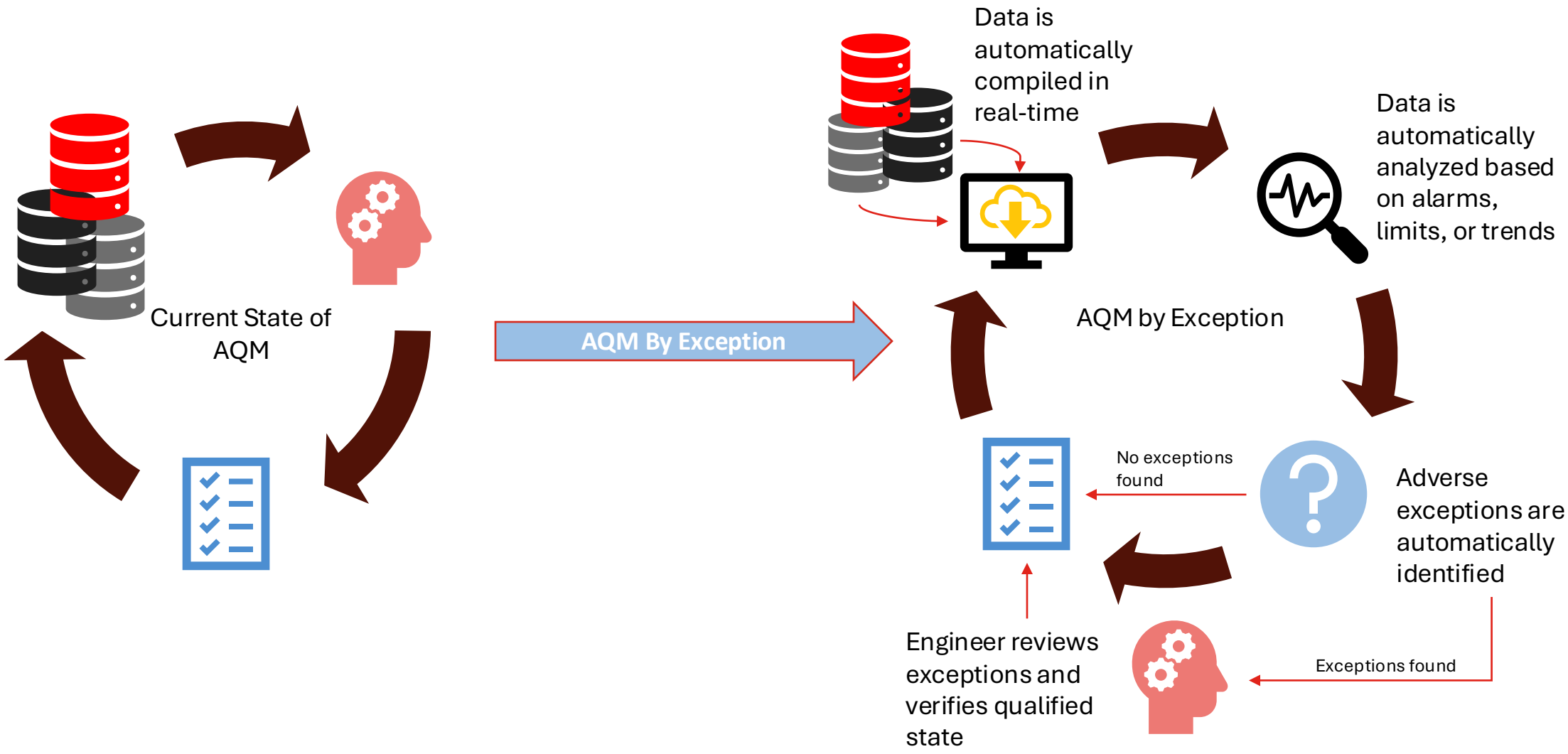
Asset Qualification Monitoring By Exception

Approach



AQM BY EXCEPTION USING Seeq® VANTAGE

"Putting the *vantage* in advantage"

Seeq Vantage is the newest application in the Seeq Platform, built for large-scale **industrial enterprise monitoring**. It enables streamlined workflows and scalable, exception-based surveillance strategies.

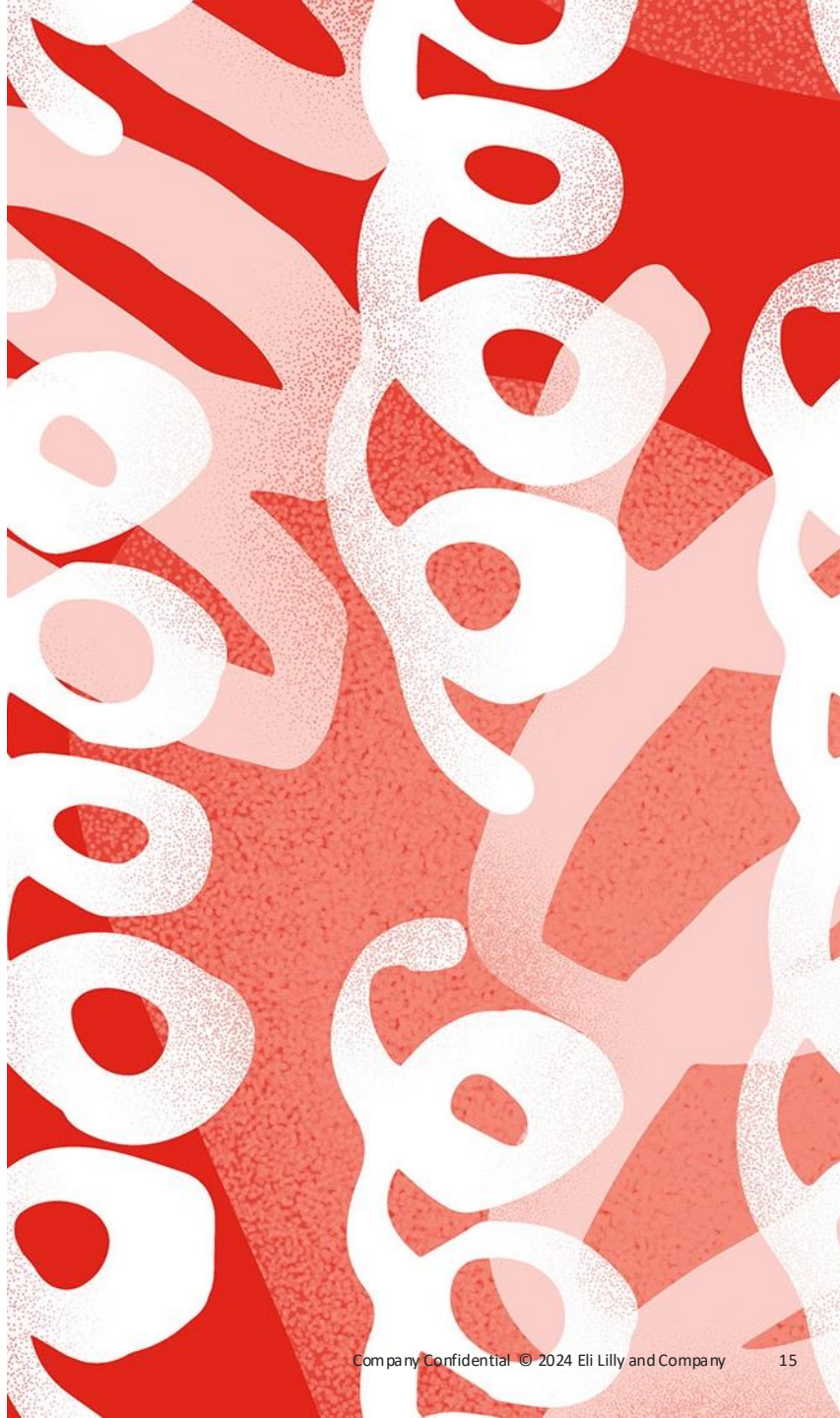
- Ideal for analyzing data from thousands of sensors and assets
- Helps engineers and operations teams rapidly triage and diagnose events
- Supports documentation of insights for continuous improvement

Case Study: High Purity Water System

High Purity Water system of Utilities Integrating real-time data and historical data:

Case Study Scope:

- ***Traditional AQM monitoring***
  - Critical Alarms
  - CPP alarms
  - Sample data
  - Work orders, deviations
- ***Improvements using seeq analytics***
  - Alarm trends (counts and historical drifts)
  - Work order and deviation trends (counts)
  - Process data trends (drifts from baseline and historical values



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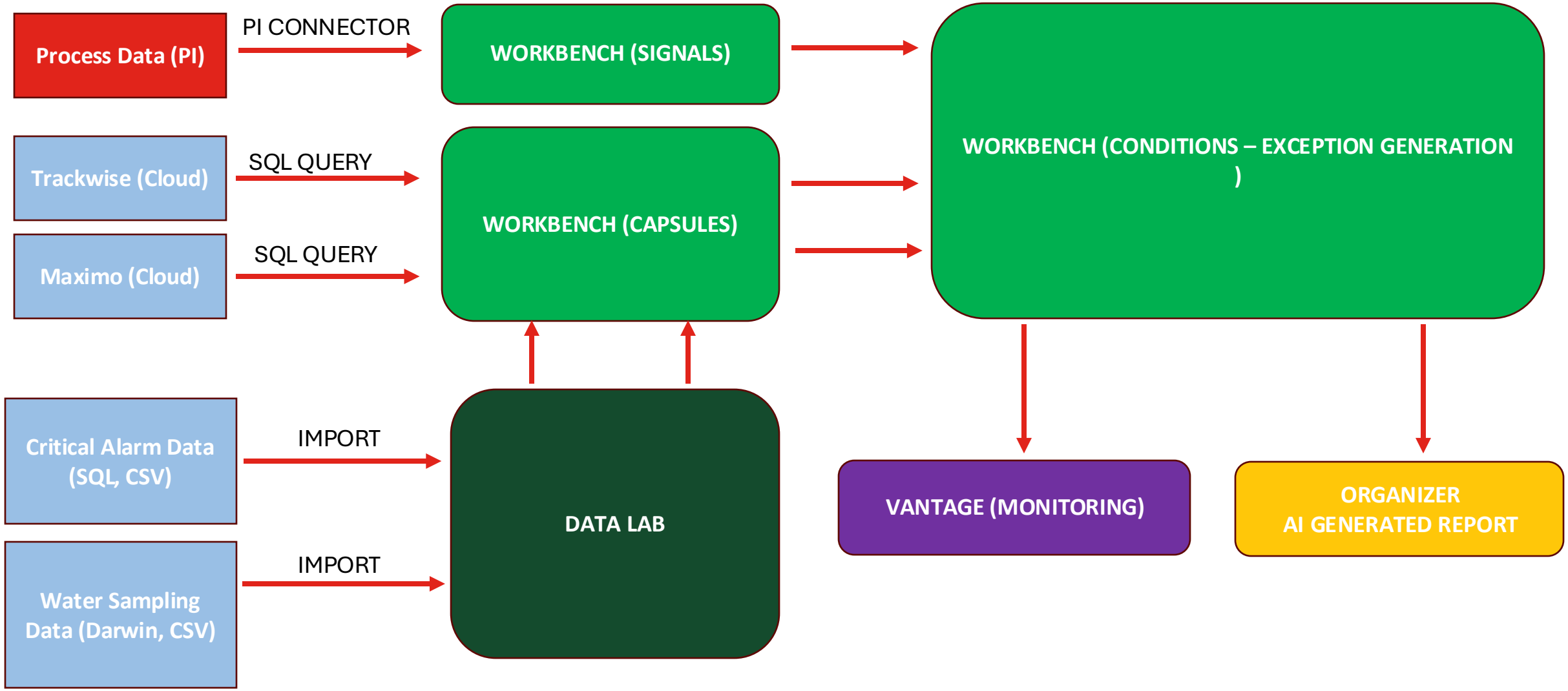
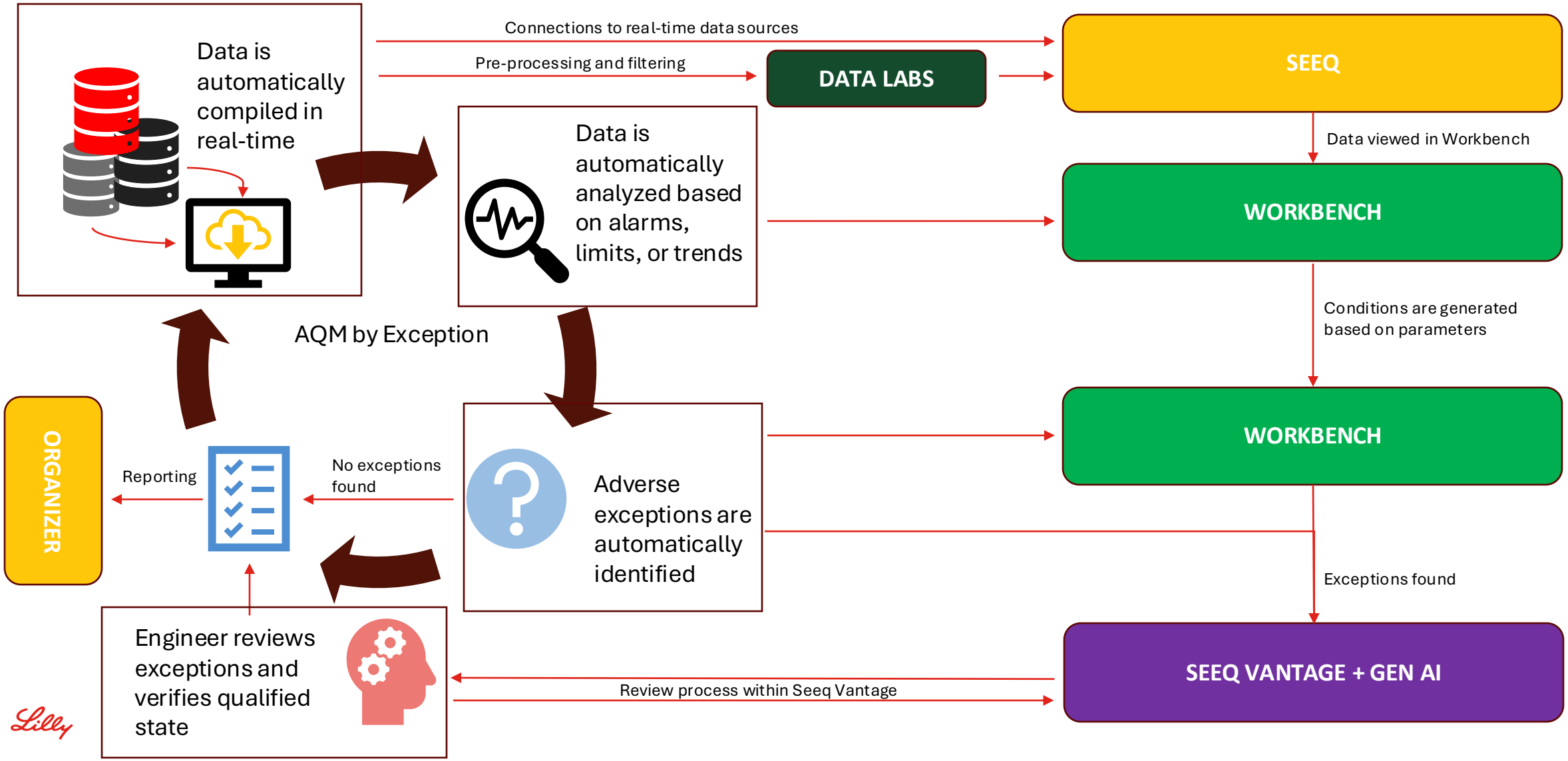
LEVERAGING CORE SEEQ FUNCTIONALITY

Data Flow



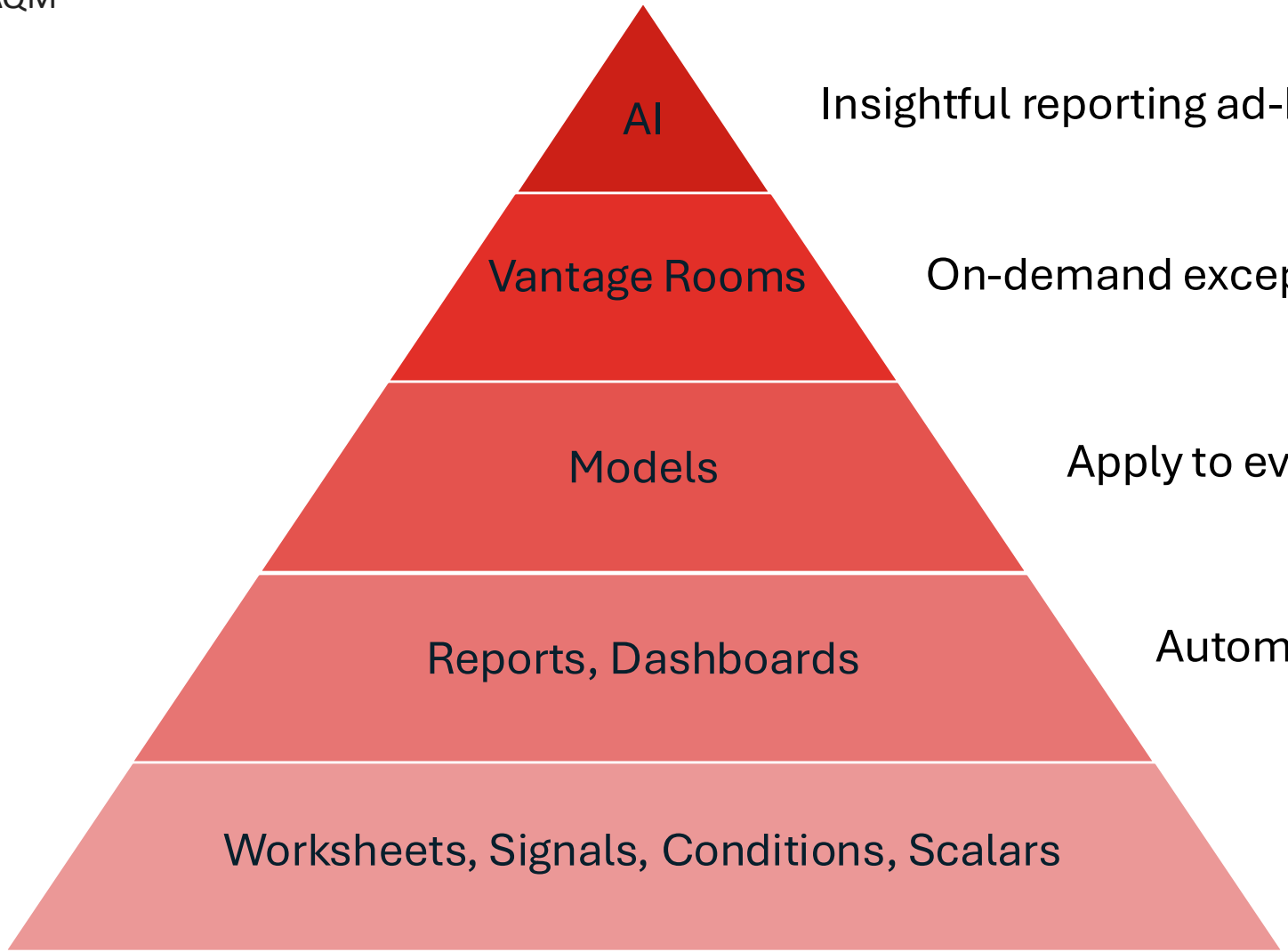
SEEQ SOLUTION OVERVIEW

How it works



The Knowledge Pyramid

AQM



Insightful reporting ad-hoc or on a schedule

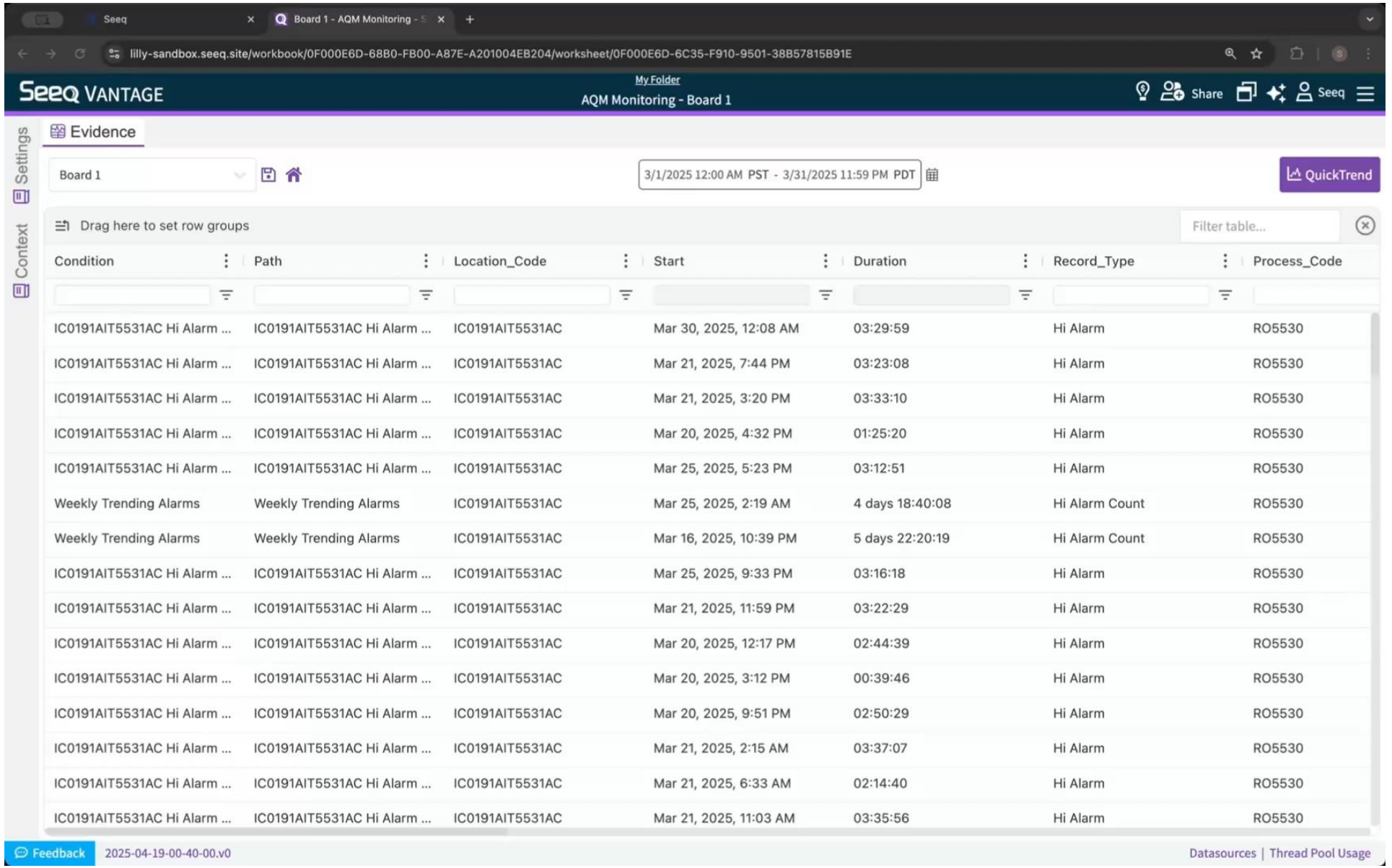
On-demand exception documentation

Apply to every asset

Automate exception identification

Create a condition to identify an alarm for an asset

Demo: Seeq Vantage + AI Solution for AQM by Exception



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Asset Qualification Monitoring By Exception

Benefits

AQM BY EXCEPTION BENEFITS

Operational Efficiency Improvement

Implementing our solution will optimize internal processes, reducing both time and operational costs.

Increased Productivity

By automating repetitive tasks, our team can focus on higher-value activities, thereby boosting overall productivity.

Enhanced Decision-Making

The solution will provide near real-time data and advanced analytics, facilitating more informed and accurate decision-making.

Error Reduction

Automation and digitization of processes will minimize human errors, ensuring greater accuracy and reliability in our operations

Scalability

The solution is designed to grow with us, allowing for easy adaptation and expansion as our needs evolve.

Standardization & Regulatory Compliance

Implementing the solution will ensure we comply with all current regulations and standards, ensuring coherence across the different areas.

Vantage + Gen AI Benefits

- Improved workflow: Integrated alerts from multiple data sources into a single tool
- Contextualization: Ability to add context to the capsules in Vantage via comments.
- Customizability: show different screens for engineers, operations, etc.
- Easy integration: sitting on top of the Core Seeq functionality enables data analytics and exception monitoring all in one tool
- Built-in AI tool for analysis
  - Provides key summaries and insights to streamline root-cause analysis
  - Provides data

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Conclusion

Key Takeaways

Improved Efficiency

By reducing time spent on data pre-processing, Seeq improved efficiency and accelerated insight generation—freeing engineers to focus on higher-value tasks and driving cost avoidance.

Estimated Results

Seeq enabled a 10% FTE time savings by reducing 4 hours monthly and 80 hours annually from AQM processes, eliminating 128 hours of manual effort previously required for standard and periodic reviews.

Standardization + Compliance

Seeq helped ensure compliance and standardization across AQM processes, creating a more streamlined, repeatable workflow that reduces variability and supports consistent regulatory readiness.

Acknowledgements

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Thank you

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THE VANTAGE IN ADVANTAGE

Vantage Room