

SeeQ®

connect

PRODUCT KEYNOTE

RE-IMAGINING MONITORING IN THE AGE OF AI

OUR SPEAKERS



Brian Parsonnet
Corporate Fellow & Founder



Mark Derbecker
Chief Product Officer



Joanna Zinsli
Group Product Manager



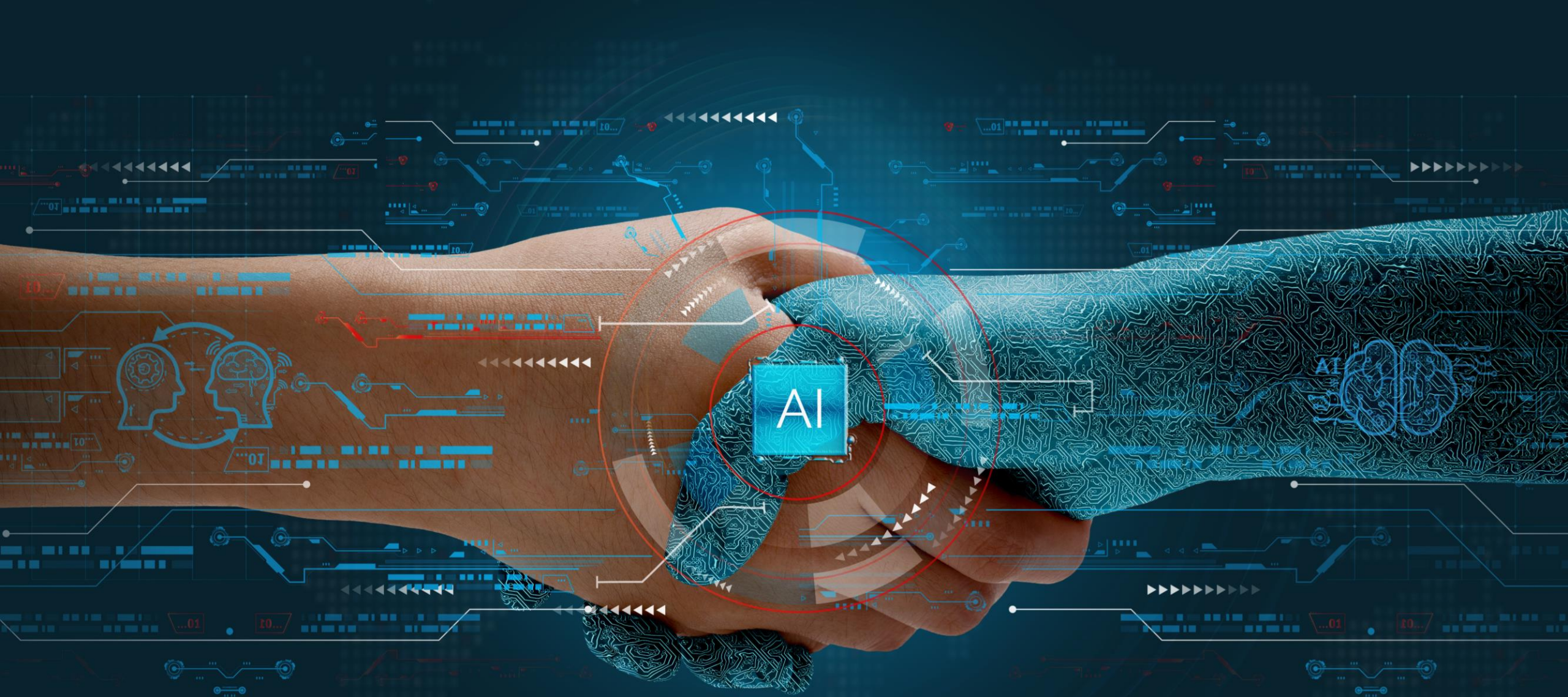


IT'S COMPLEX

connect

An aerial photograph of a large-scale construction project, likely a multi-story building. The ground is covered with a dense grid of steel reinforcement bars (rebar) laid out on wooden formwork. Numerous construction workers, wearing hard hats and high-visibility vests, are scattered across the site, engaged in various tasks. A tall, yellow tower crane stands prominently in the center-left area. The overall scene depicts a busy and organized construction environment.

A NEW FOUNDATION



OUR PARTNERSHIP WITH AI

A night photograph of a desert road with the Milky Way galaxy in the sky. The road is a two-lane asphalt highway with a white dashed center line and yellow solid edge lines. It stretches into the distance towards a horizon of dark mountains. The sky is filled with stars, and the Milky Way is clearly visible as a bright, hazy band of light. The text "OUR PATH FORWARD" is centered in the upper half of the image.

OUR PATH FORWARD



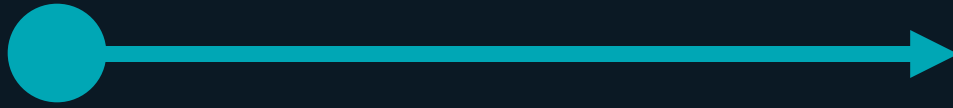
SELF-SERVICE ANALYTICS



Self-Service Analytics

SeeQ® WORKBENCH

SeeQ® ORGANIZER



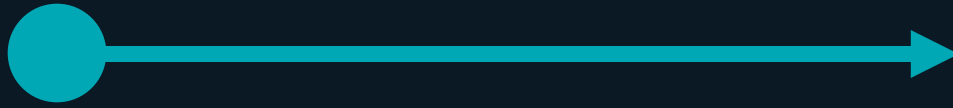
Self-Service Analytics

Scale Across Assets

SeeQ® WORKBENCH

SeeQ® DATA LAB

SeeQ® ORGANIZER



Self-Service Analytics

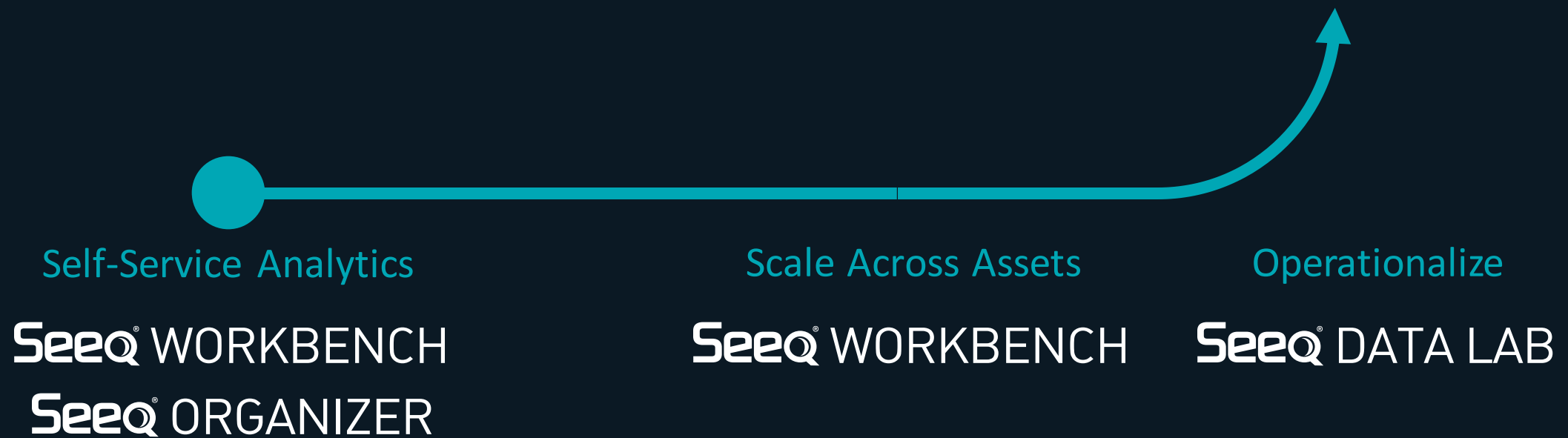
Scale Across Assets

SeeQ® WORKBENCH

SeeQ® ORGANIZER

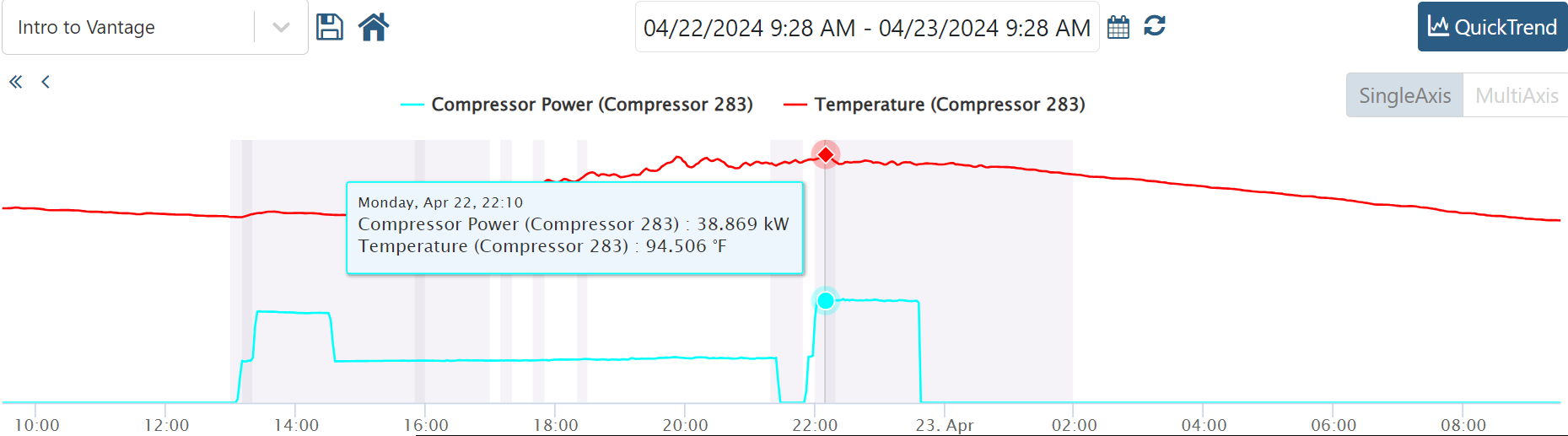
SeeQ® WORKBENCH

SeeQ® DATA BENCH









Seeq® VANTAGE

Site Asset

Flagged	Site	Asset	Start	End
			mm/dd/yyyy	mm/dd/yyyy
	Site OZA (397)		4/22/2024, 4:00:00 AM	4/23/2024, 9:28 AM
		Compressor 283 (40)	4/22/2024, 9:30:00 AM	4/23/2024, 9:28 AM
		Temperature Oscillation (6)	4/22/2024, 1:10:00 PM	4/22/2024, 9:28 AM
		Relative Humidity Oscillation (3)	4/22/2024, 3:50:00 PM	4/23/2024, 9:28 AM
		Compressor Power Step Change (3)	4/22/2024, 1:00:00 PM	4/23/2024, 9:28 AM
		Relative Humidity Step Change (3)	4/23/2024, 3:50:00 AM	4/23/2024, 9:28 AM
		Compressor 544 (39)	4/22/2024, 8:20:00 AM	4/23/2024, 9:28 AM
		Compressor 164 (30)	4/22/2024, 9:00:00 AM	4/23/2024, 9:28 AM

Currently Selected : 2 Conditions

History

Search Context...

Today at 9:15 AM
Christopher Orr
Condition : Temperature Oscillation
should keep an eye on this. Ops said they're running C283 a bit differently before TAR

Today at 11:04 AM
Site Operator
Condition : Temperature Oscillation
These temperature swings are normal this time of year. Good to close out, but I'll put a note in today's shift

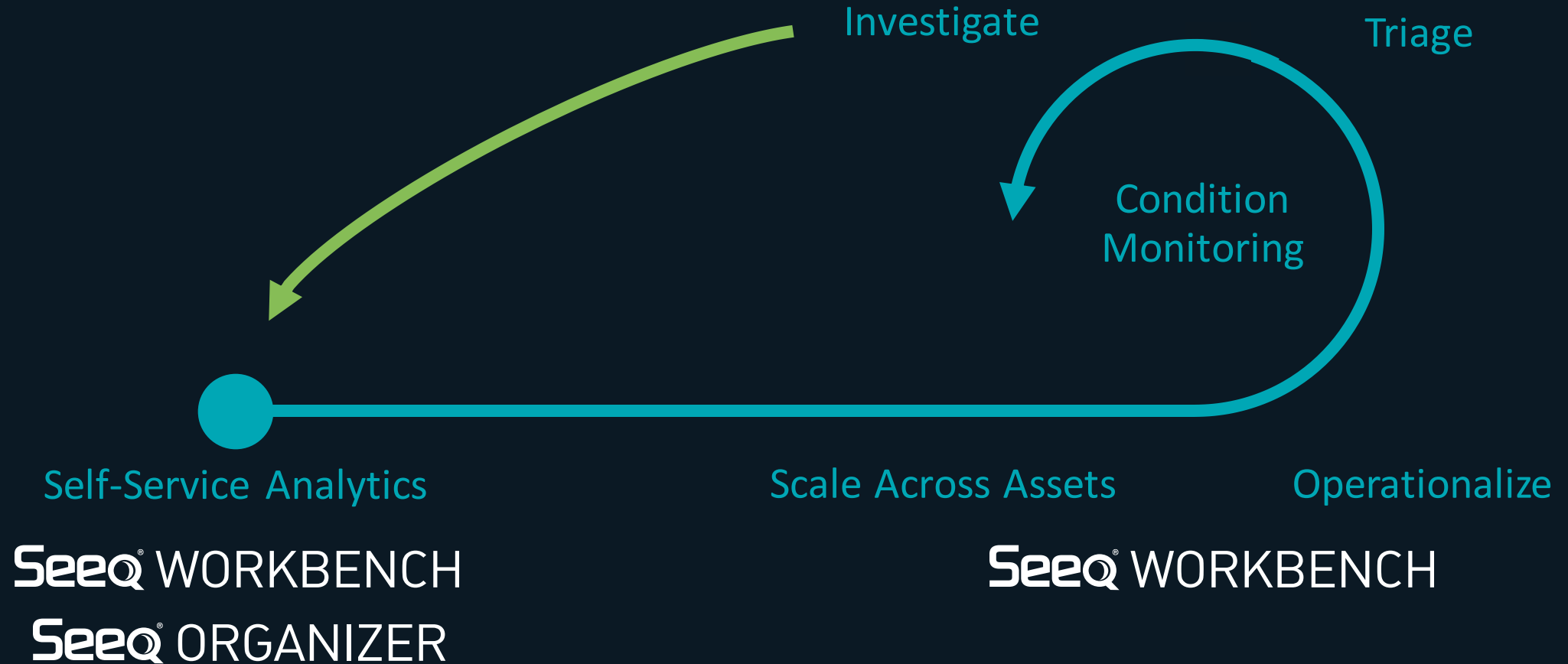
Today at 11:04 AM
Site Operator
Condition : Temperature Oscillation
Got confirmation from ops this is normal oscillation. Will mark as reviewed, but keep flagged in case it gets worse.

Flag Review Label Reason codes Suppress

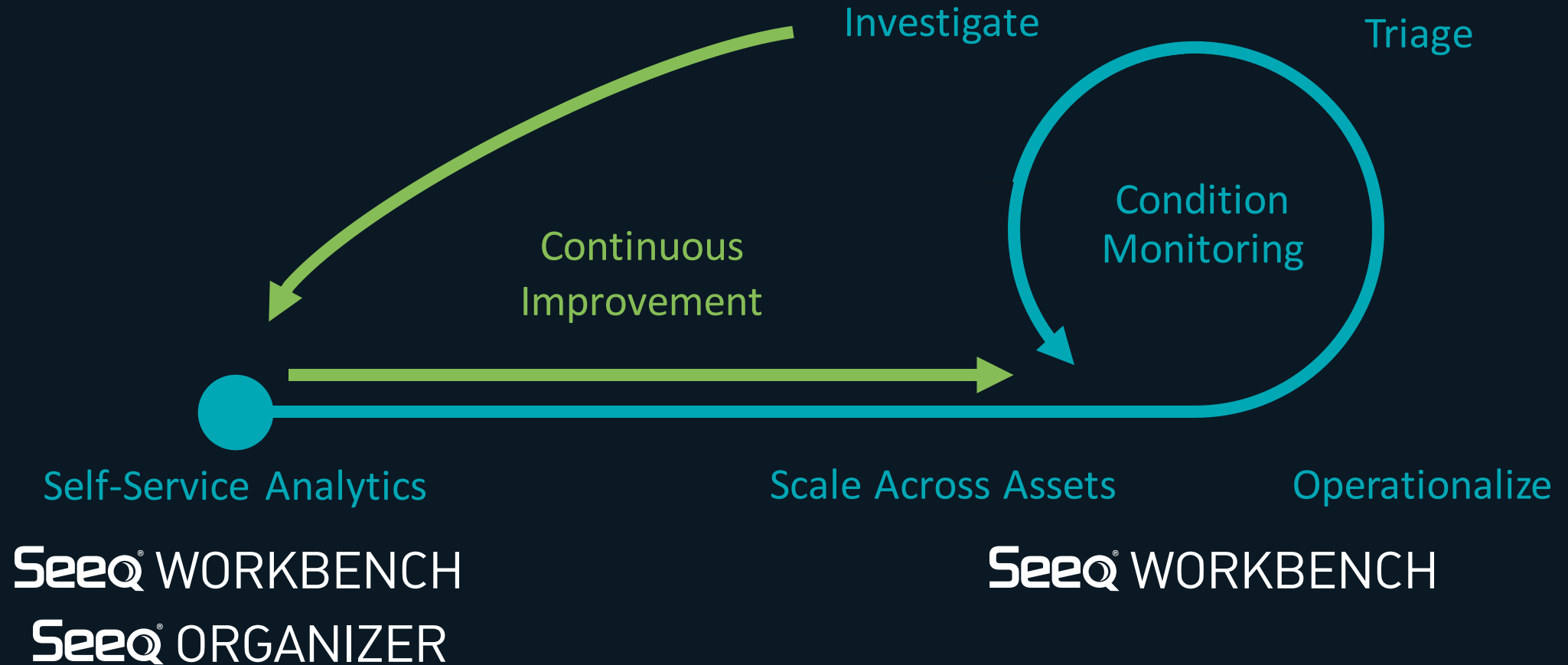
Enter a note by typing here...

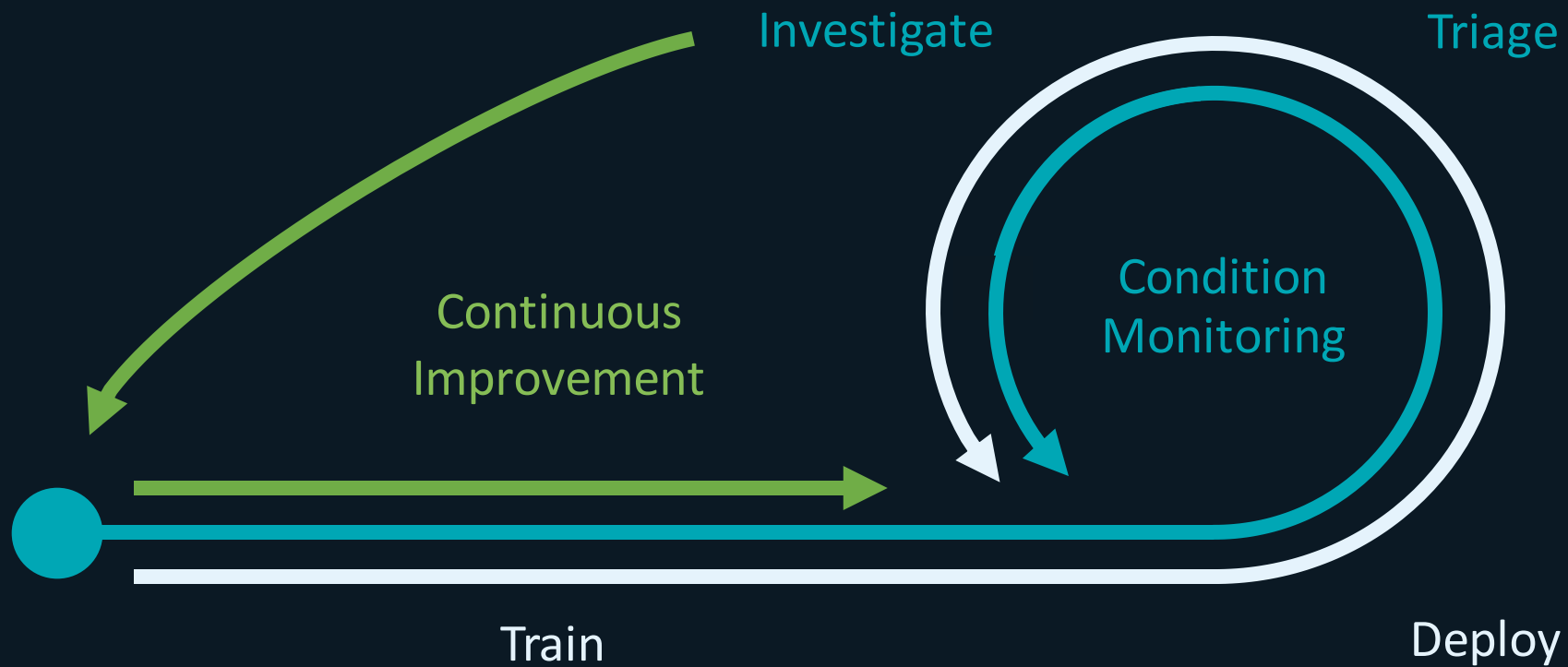
Submit

SeeQ® VANTAGE



SeeQ® VANTAGE





ML ALGORITHMS

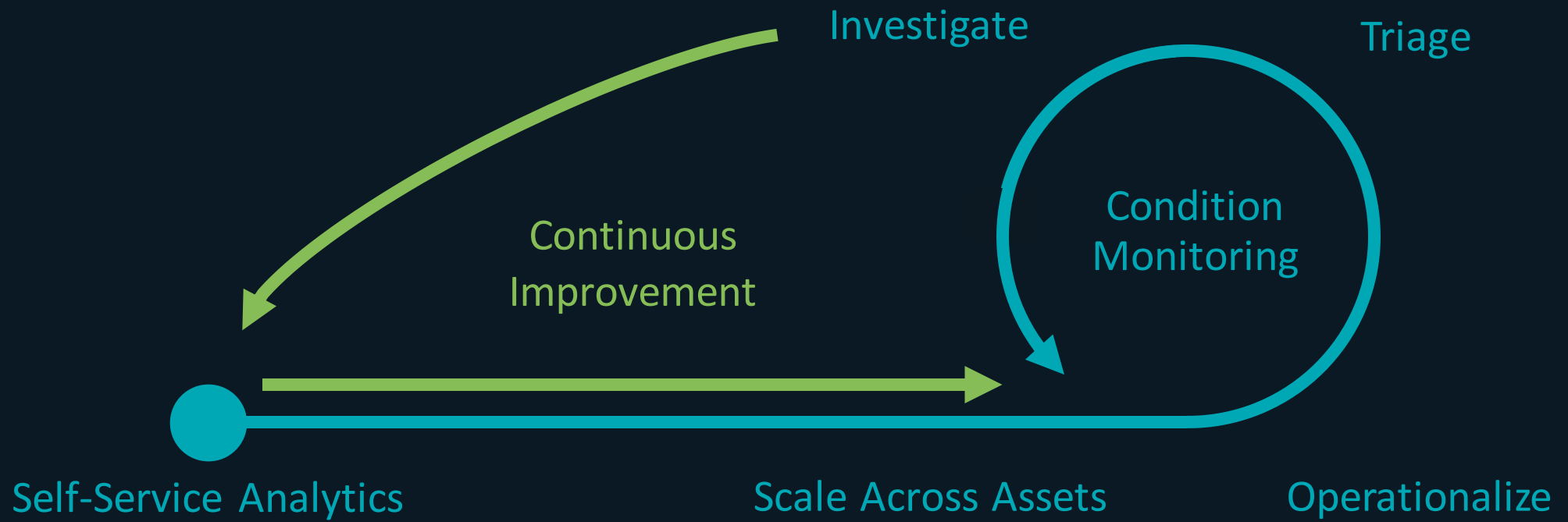
**SUBJECT MATTER EXPERTS
EMPOWERED TO DRIVE
CONTINUOUS IMPROVEMENT
ACROSS THE ENTIRE
INDUSTRIAL ENTERPRISE**

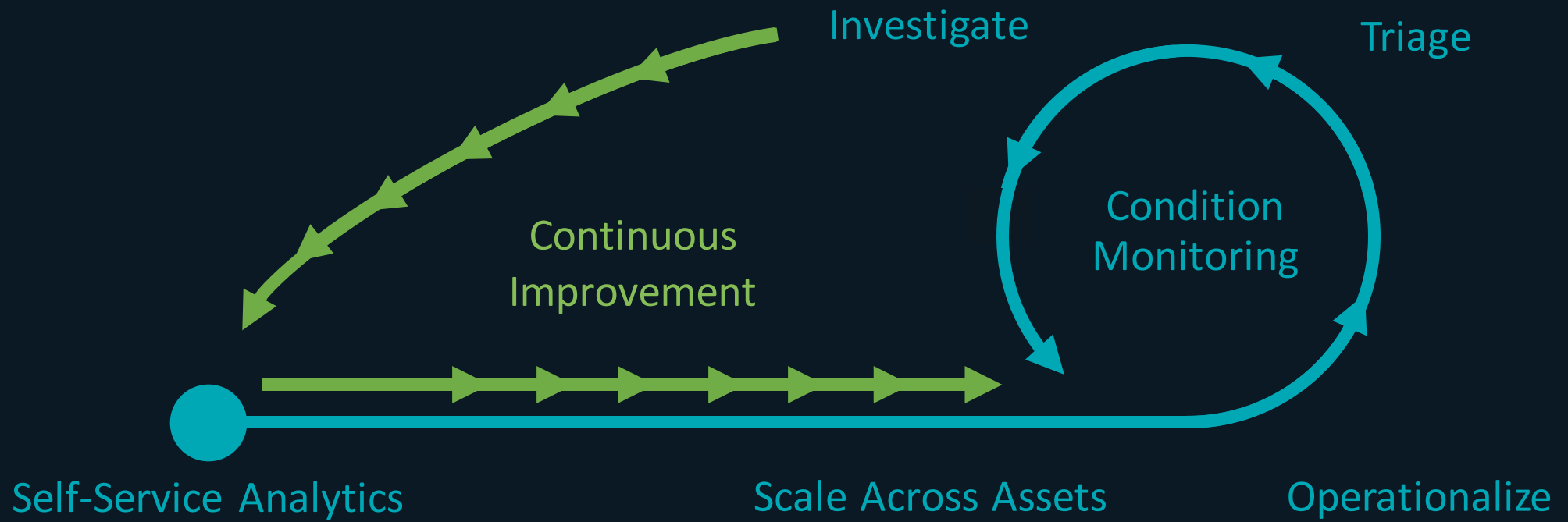


INDUSTRIAL ENTERPRISE MONITORING

Seeq Virtual Office

February 15, 2023





WITH AI ASSISTANT

WELCOME JOANNA ZINSLI
GROUP PRODUCT MANAGER

Data Tools Journal

Calendar Chain Capsule Compare One Lane One Y-Axis Reset Labels Gridlines Summary Dimming Certainty Zoom Annotate

Name contains...

☐ Exact Match

Reset

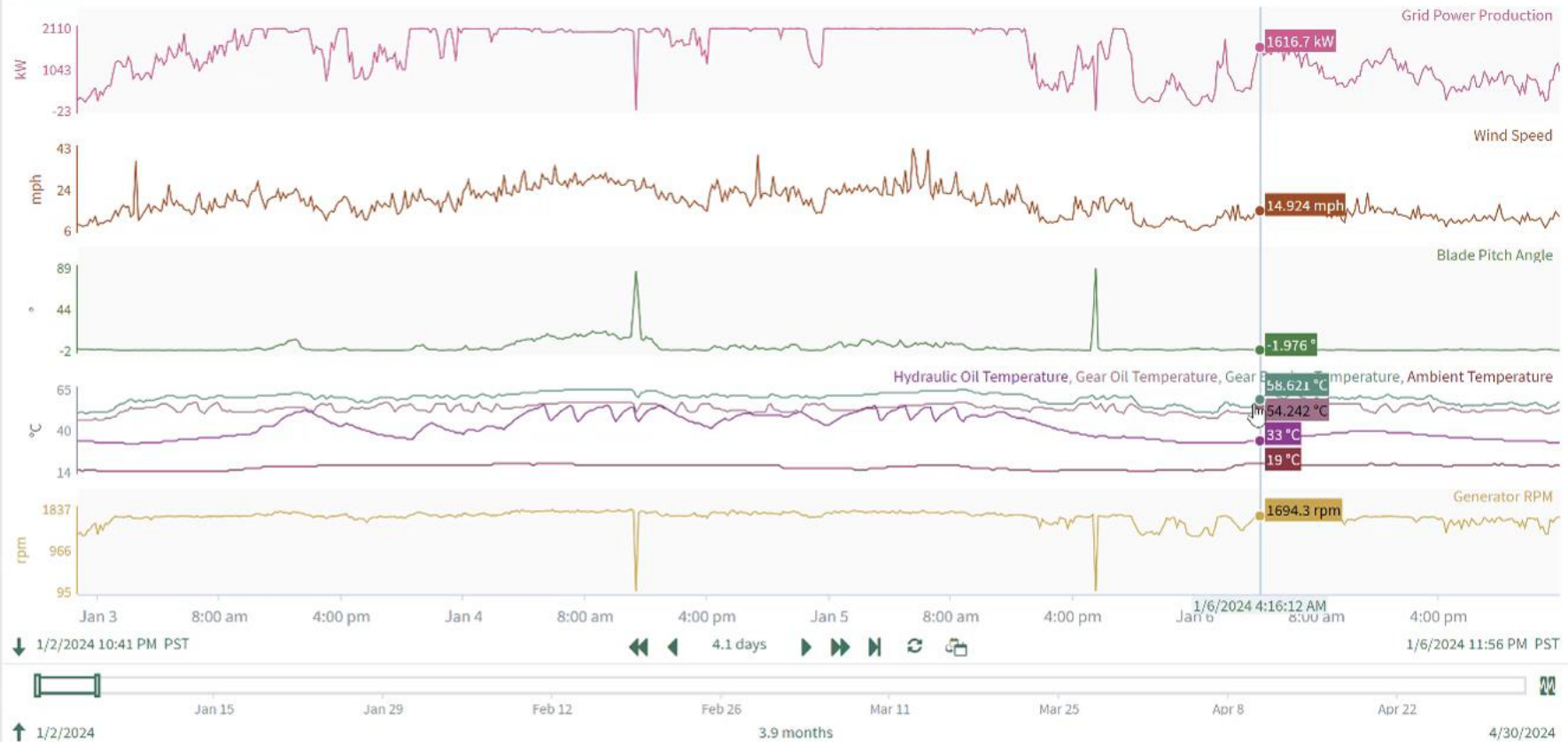
Filter and Sort

Search

All Turbines

☐ Select All

- ☐ Turbine 01
- ☐ Turbine 02
- ☐ Turbine 03
- ☐ Turbine 04
- ☐ Turbine 05
- ☐ Turbine 06
- ☐ Turbine 07
- ☐ Turbine 08
- ☐ Turbine 09
- ☐ Turbine 10
- ☐ Turbine 11
- ☐ Turbine 12



Details

Jan 6, 2024 4:16 AM Customize

	Name	Asset	Lane	
	Grid Power Production	Turbine 01	1	1616.7
	Wind Speed	Turbine 01	2	14.924
	Blade Pitch Angle	Turbine 01	3	-1.976
	Hydraulic Oil Temperature	Turbine 01	4	33
	Gear Oil Temperature	Turbine 01	4	54.242
	Gear Bearing Temperature	Turbine 01	4	58.621
	Ambient Temperature	Turbine 01	4	19
	Generator RPM	Turbine 01	5	1694.3

Overview » Cleanse

Signal Smoothing
Reduce high frequency noise from signals using a variety of methods

Digital Signal Filtering
Remove target frequency bands or oscillations from a signal



Details

	Name	Asset	Lane
kW	Grid Power Production	Turbine 01	1
mph	Wind Speed	Turbine 01	2
°	Blade Pitch Angle	Turbine 01	3

AI Assistant

Identifying the bad data points and then remove them using `$signal.remove($BadData)`. Alternatively, you can use the `$signal.splice($signal2, $BadData)` function in Formula to replace the bad data with a replacement signal or scalar during the bad data condition.

4. Smooth or Filter the Signal:

- Use the **Signal Smoothing Tool** to reduce high-frequency variability. You can try the 'Agile Filter' algorithm with a smoothing window appropriate for your data, such as 1 hour, to start. This can be found in the Cleanse section of the Tools Tab in Seeq Workbench.
- If you need to remove specific frequency bands or oscillations, you can use the **Digital Signal Filtering Tool** with a Low Pass, High Pass, Band Pass, or Band Stop filter, depending on your requirements.

5. Apply the Cleansing Method:

- After selecting the appropriate tool and configuring the parameters (such as the algorithm, smoothing window, cutoffs, etc.), apply the cleansing method to the wind speed signal.
- Place the cleansed data onto the same lane and axis as the original signal by clicking the "One Lane" and "One Y-Axis" buttons for comparison.

6. Review and Adjust: Review the cleansed signal to ensure it meets your requirements. You can always click the 'Edit' button by the smoothed signal in the Details Pane to change the parameters and reapply the cleansing method if necessary.

For more detailed guidance on using the Signal Smoothing and Digital Signal Filtering tools, you can refer to the Knowledge Base articles on [Signal Smoothing](#) and [Digital Signal Filtering](#).



Worksheets

Data Tools Journal

Name contains...

☐ Exact Match

Reset

Filter and Sort

Search

All Turbines

☐ Select All

Turbine 01

ⓘ ↺ ⚙️ >

Turbine 02

ⓘ ↺ ⚙️ >

Turbine 03

ⓘ ↺ ⚙️ >

Turbine 04

ⓘ ↺ ⚙️ >

Turbine 05

ⓘ ↺ ⚙️ >

Turbine 06

ⓘ ↺ ⚙️ >

Turbine 07

ⓘ ↺ ⚙️ >

Turbine 08

ⓘ ↺ ⚙️ >

Turbine 09

ⓘ ↺ ⚙️ >

Turbine 10

ⓘ ↺ ⚙️ >

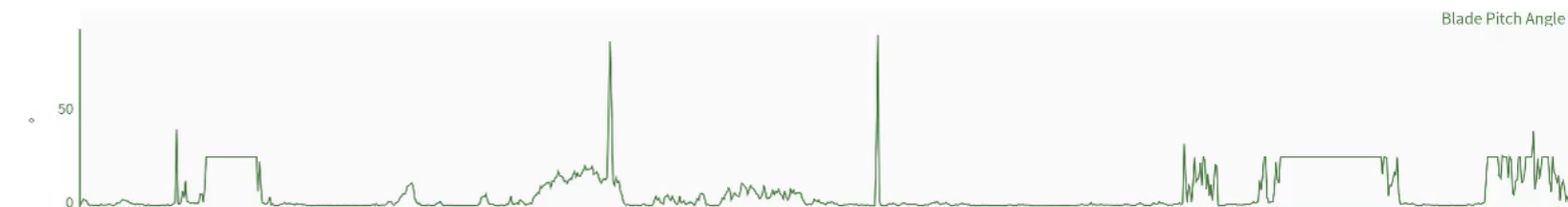
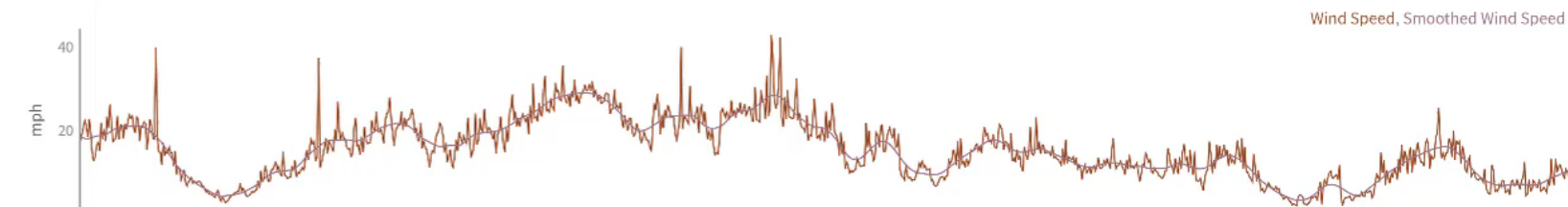
Turbine 11

ⓘ ↺ ⚙️ >

Turbine 12

ⓘ ↺ ⚙️ >

Trend



1/1/2024 11:40 PM PST

7 days

1/8/2024 11:44 PM PST

Jan 8 Jan 22 Feb 5 Feb 19 Mar 4 Mar 18 Apr 1 Apr 15 Apr 29

1/1/2024

3.9 months

4/30/2024

Details

Capsules

Customize

				Name	Asset	Lan
✎	ⓘ	×	□	kW Grid Power Production	Turbine 01	
✎	ⓘ	×	□	kW Grid Power Production Model 2	Turbine 01	
✎	ⓘ	×	□	Grid Power Production Model 2 Exceeds Grid Power Production	Turbine 01	
✎	ⓘ	×	□	mph Wind Speed	Turbine 01	
✎	ⓘ	×	□	mph Smoothed Wind Speed	Turbine 01	
✎	ⓘ	×	□	° Blade Pitch Angle	Turbine 01	

	Start	Duration
□	Jan 2, 2024 12:47 AM	00:12:33.335
□	Jan 2, 2024 7:08 AM	00:01:42.448
□	Jan 4, 2024 3:57 PM	00:04:01.549
□	Jan 8, 2024 7:49 AM	00:00:27.525
□	Jan 8, 2024 8:13 AM	00:12:43.307

Page: 1

1

Select view...

19/04/2024, 04:30 pm - 24/04/2024, 04:30 pm

QuickTrend

Drag here to set row groups

Filter table...

Asset	Condition	Start	End	Duration ↓	Flagged	Re
<div></div>	<div></div>	<div>mm/dd/yyyy</div>	<div>mm/dd/yyyy</div>	<div></div>	<div></div>	<div></div>
Turbine 08	No Production (wind incl...	19/04/2024, 12:19:54 am	20/04/2024, 06:46:50 am	30:26:55		
Turbine 06	No Production (wind incl...	23/04/2024, 12:35:47 pm	24/04/2024, 07:40:11 am	19:04:23		
Turbine 01	No Production (wind incl...	23/04/2024, 07:29:39 pm	24/04/2024, 02:19:59 pm	18:50:20		
Turbine 02	No Production (wind incl...	21/04/2024, 12:15:59 am	21/04/2024, 02:20:30 pm	14:04:30		
Turbine 04	No Production (wind incl...	21/04/2024, 08:49:16 am	21/04/2024, 10:50:04 pm	14:00:47		
Turbine 12	No Production (wind incl...	21/04/2024, 02:05:27 am	21/04/2024, 03:04:01 pm	12:58:34		
Turbine 09	No Production (wind incl...	21/04/2024, 09:29:23 am	21/04/2024, 10:16:13 pm	12:46:49		
Turbine 09	No Production (wind incl...	19/04/2024, 07:54:43 am	19/04/2024, 08:34:36 pm	12:39:53		
Turbine 05	No Production (wind incl...	22/04/2024, 04:49:24 am	22/04/2024, 05:10:08 pm	12:20:43		
Turbine 03	No Production (wind incl...	21/04/2024, 10:51:12 am	21/04/2024, 10:19:08 pm	11:27:56		
Turbine 05	No Production (wind incl...	21/04/2024, 07:28:03 am	21/04/2024, 06:40:10 pm	11:12:07		
Turbine 04	No Production (wind incl...	20/04/2024, 10:06:42 am	20/04/2024, 09:10:05 pm	11:03:22		
Turbine 06	No Production (wind incl...	19/04/2024, 11:39:51 pm	20/04/2024, 10:40:10 am	11:00:19		
Turbine 06	No Production (wind incl...	21/04/2024, 07:29:23 pm	22/04/2024, 06:20:11 am	10:50:47		
Turbine 09	No Production (wind incl...	20/04/2024, 10:37:36 am	20/04/2024, 09:04:35 pm	10:26:58		
Turbine 02	No Production (wind incl...	22/04/2024, 12:10:19 am	22/04/2024, 10:10:07 am	09:59:47		
Turbine 11	No Production (wind incl...	21/04/2024, 07:28:19 pm	22/04/2024, 05:02:04 am	09:33:45		
Turbine 01	No Production (wind incl...	22/04/2024, 02:23:10 am	22/04/2024, 11:33:49 am	09:10:39		
Turbine 07	No Production (wind incl...	22/04/2024, 02:28:22 am	22/04/2024, 11:22:16 am	08:53:54		

Currently Selected : 1 Capsule

History

Search Context...

The selected items have no context.

Flag

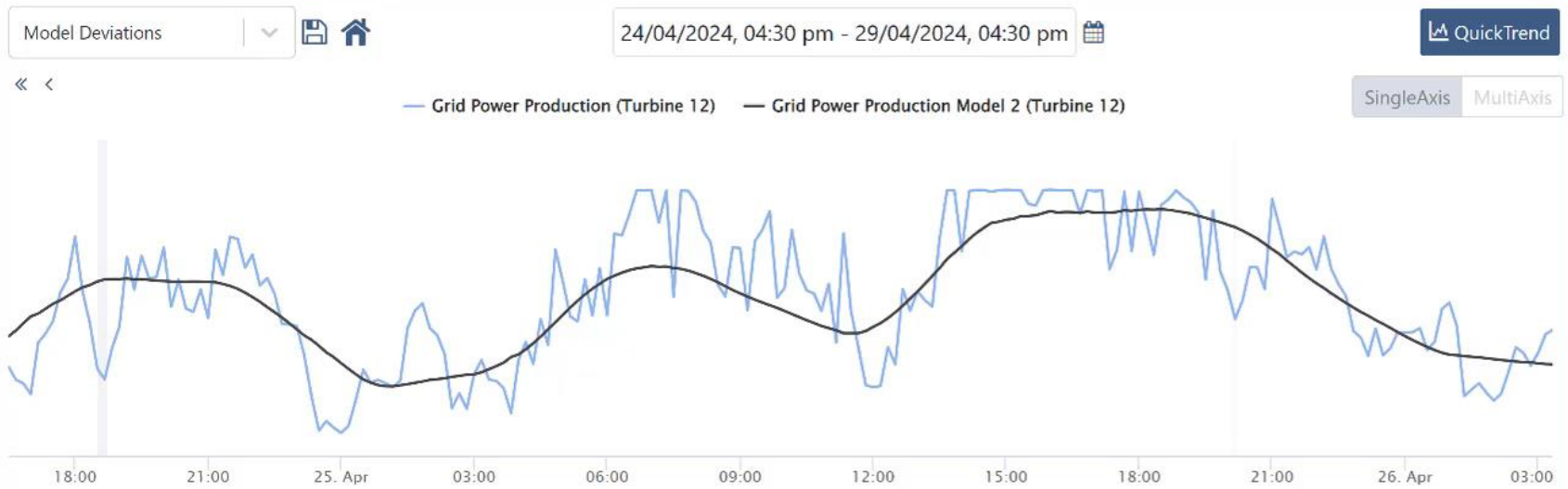
Review

Label

Suppress

Enter a note by typing here...

Submit



Asset

Filter table...

Asset	Condition	Start	End	Duration	Flagged	Re
	model	mm/dd/yyyy	mm/dd/yyyy			
> Turbine 07 (40)	*multiple values*	24/04/2024, 04:19:26 pm	28/04/2024, 03:02:12 pm	23:55:32		
> Turbine 01 (48)	*multiple values*	24/04/2024, 04:14:30 pm	28/04/2024, 03:44:43 pm	19:53:54		
> Turbine 04 (3)	*multiple values*	24/04/2024, 04:38:03 pm	28/04/2024, 10:30:00 am	18:00:04		
> Turbine 12 (2)	Power Straying from Mo...	24/04/2024, 06:31:12 pm	25/04/2024, 08:11:30 pm	00:15:16		

Currently Selected : 1 Asset

History

Search Context...




Last Wednesday
Joanna Zinsli
Condition
This model needs to be re-evaluated as it has frequent deviations.

Last Friday
Remote Engineer
Condition
Model was updated April 25 with a new base training period. Deviations are reduced significantly.


Flag Review Label Suppress

Enter a note by typing here...

Submit

 Asset 

Filter table...






Asset	Condition ▾	Start	End	Duration ↓	Flagged	Re
<input type="text"/>	<input type="text" value="model"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>	<input type="text"/>	
> Turbine 07 (40)	*multiple values*	24/04/2024, 04:19:26 pm	28/04/2024, 03:02:12 pm	23:55:32		
> Turbine 01 (48)	*multiple values*	24/04/2024, 04:14:30 pm	28/04/2024, 03:44:43 pm	19:53:54		
> Turbine 04 (3)	*multiple values*	24/04/2024, 04:38:03 pm	28/04/2024, 10:30:00 am	18:00:04		
> Turbine 12 (2)	Power Straying from Mo...	24/04/2024, 06:31:12 pm	25/04/2024, 08:11:30 pm	00:15:16		

Currently Selected : 1 Downtime Reason

▼ History

The selected items have no context.

Flag Review Label Suppress

Enter a note by typing here...

Submit



Amanda Thomas

Digital Applications and
Advanced Analytics Leader
Indorama

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LIFE SCIENCES CHALLENGES



MEET DEMAND

Drug Shortages
nearing an
all-time high ¹



INCREASE THROUGHPUT OF QUALITY PRODUCTS

Yield ↓ 30%
due to quality issues ²



ENSURE PATIENT SAFETY

Recalls ↑ 35% ³

¹ ASHP, ² McKinsey, ³ Sedgwick

OUR IMPACT IN LIFE SCIENCES

+500k

Units of Short
Supply Medication

Yield

↑ 1-10%

(varies by facility)

Faulty Batches ↓

Cycle Time

↓ 8min

Revenue

↑ \$1.7M



GRANULAR ACCESS CONTROL



GRANULAR ACCESS CONTROL



CONTENT VERSIONING & ARCHIVING



GRANULAR ACCESS CONTROL



CONTENT VERSIONING & ARCHIVING



TIME-BOUND DATA SHARING

▶ **INDUSTRIAL ENTERPRISE MONITORING**
now with Seeq VANTAGE!

- ▶ **INDUSTRIAL ENTERPRISE MONITORING**
now with Seeq VANTAGE!
- ▶ **AI ASSISTANT**

- ▶ **INDUSTRIAL ENTERPRISE MONITORING**
now with Seeq VANTAGE!
- ▶ **AI ASSISTANT**
- ▶ **LIFE SCIENCES FOCUS**

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THANK YOU