Advanced Analytics with Seeq and PI System

From the Seeq Team:

Jon Peterson, VP Customers

©2018 OSIsoft, LLC

Agenda

- Seeq Intro
- Working with the PI System
- Use Case 1: Heat Exchanger Fouling
- Demo 1
- Use Case 2: Water Hammer
- Demo 2

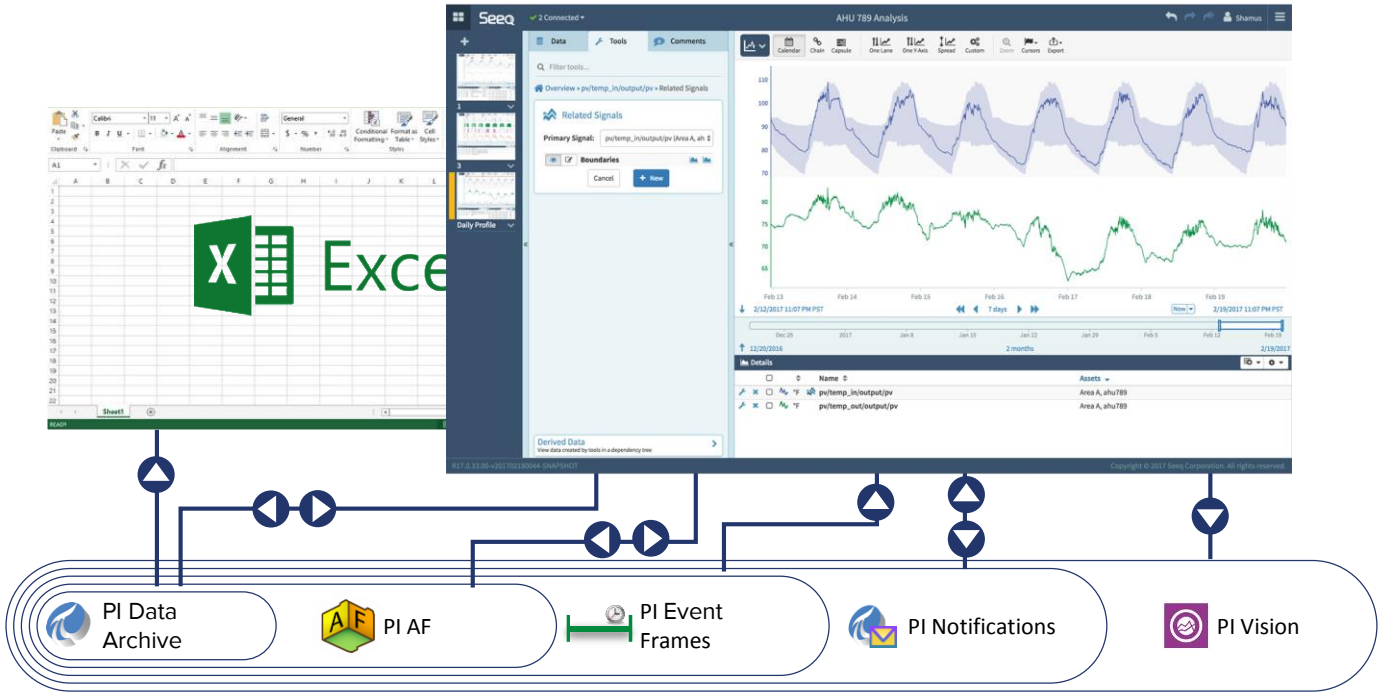
©2018 OSIsoft, LLC

Seeq

- Founded May 2013
- Funding:
  - Altira Group
  - Second Avenue Partners
  - next47
  - And various angels
- About 40 employees
- 100+ companies

©2018 OSIsoft, LLC

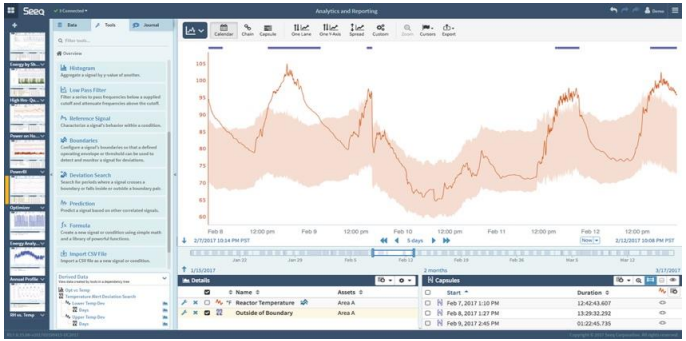
OSIsoft and Seeq



©2018 OSIsoft, LLC

Seeq Architecture

Seeq Workbench



Seeq Organizer

Seeq Server

OSIsoft. OSIsoft. OSIsoft. OSIsoft.

OSIsoft. OSIsoft. OSIsoft.

Server | Cluster | Cloud

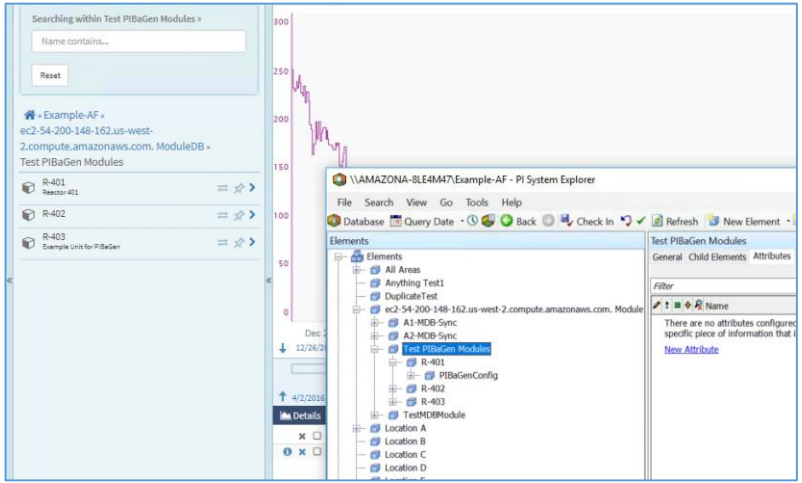
1 or Many | 10M+ tags

Data Stays in PI

©2018 OSIsoft, LLC

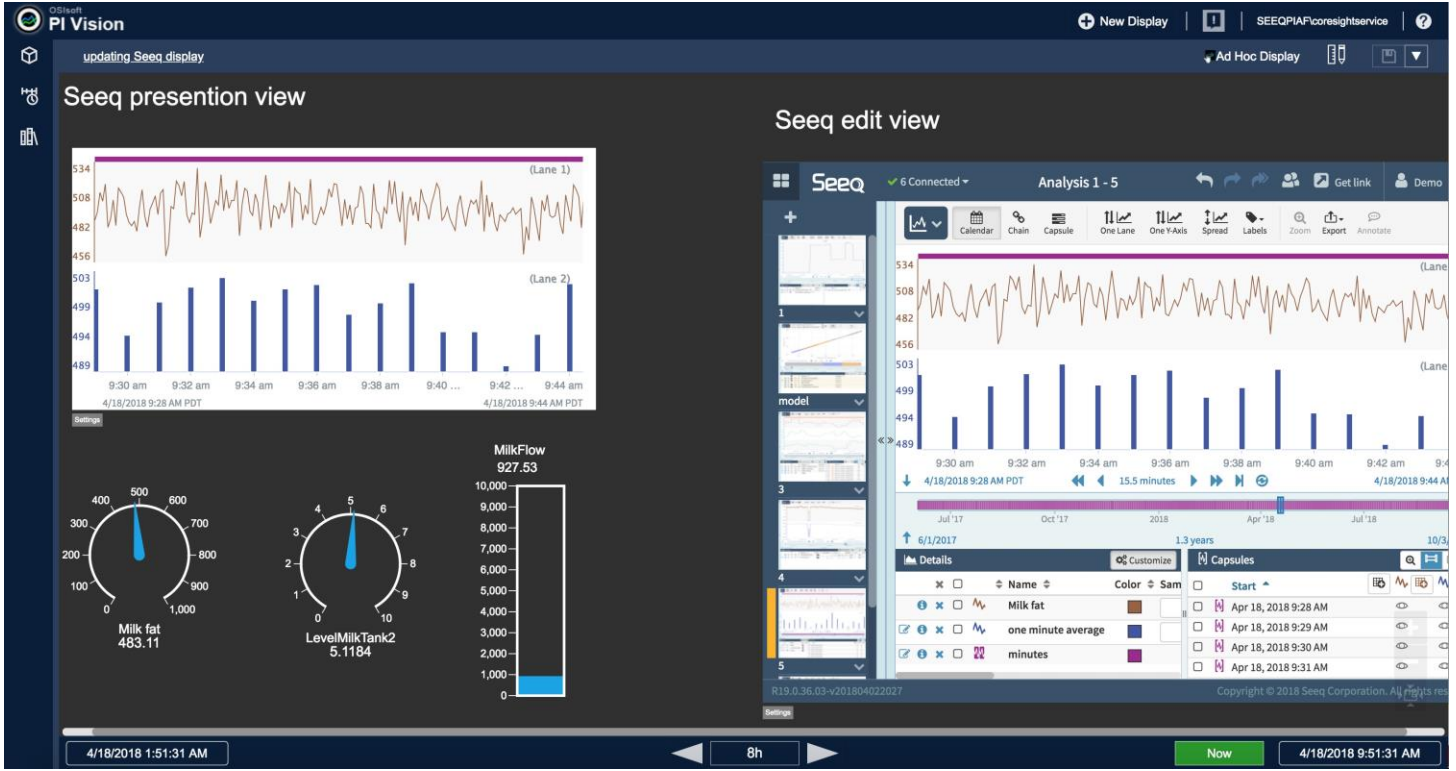
Asset Framework

- Yes✓
- Seeq supports Asset Framework in analytics and UI
- Asset Framework Data Reference allows access Seeq from PI



©2018 OSIsoft, LLC

PI Vision

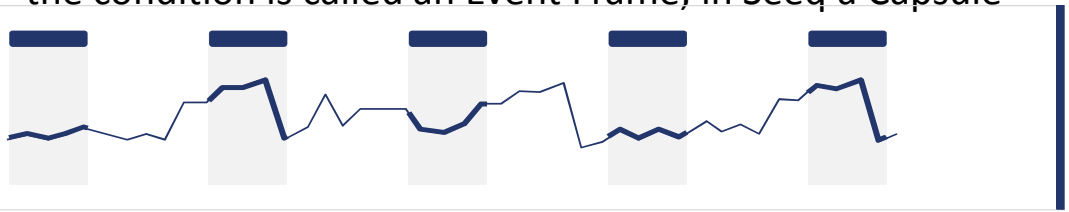


©2018 OSIsoft, LLC

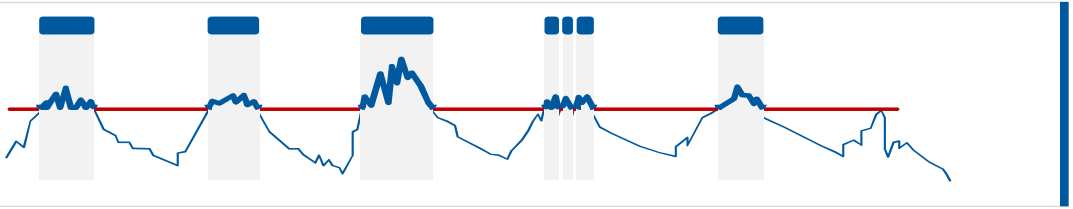
Event Frames

“Conditions” define when a state exists, and each instance of the condition is called an Event Frame, in Seeq a Capsule

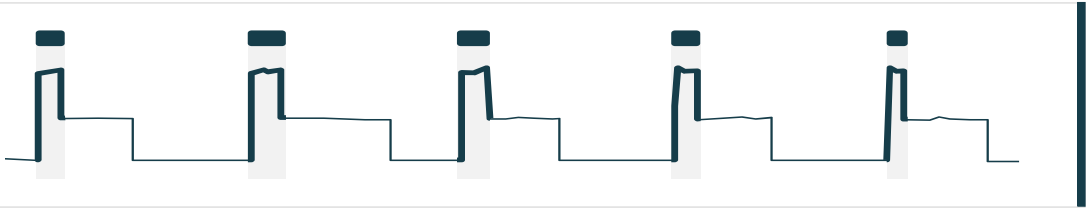
Define by **Time**



Define by **Limit**



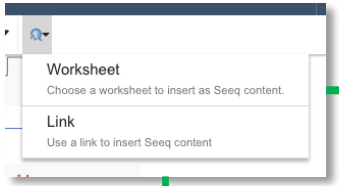
Define by **Pattern**

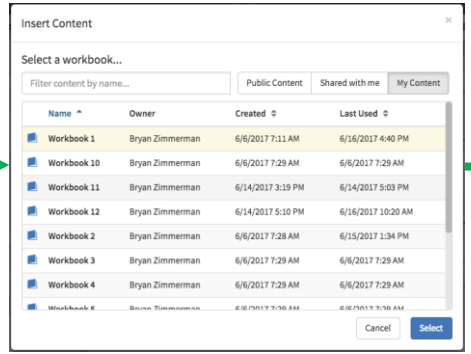


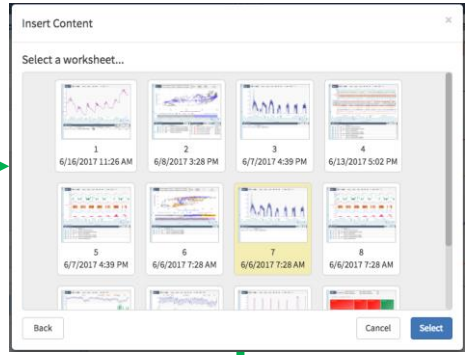
©2018 OSIsoft, LLC

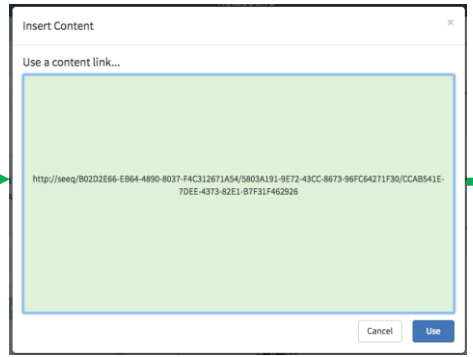
Analytics aren’t Enough: Publish and Collaborate

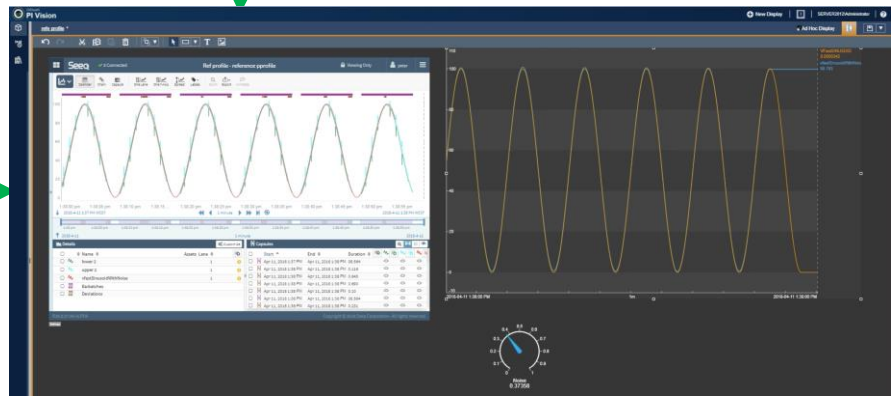
Insert new content







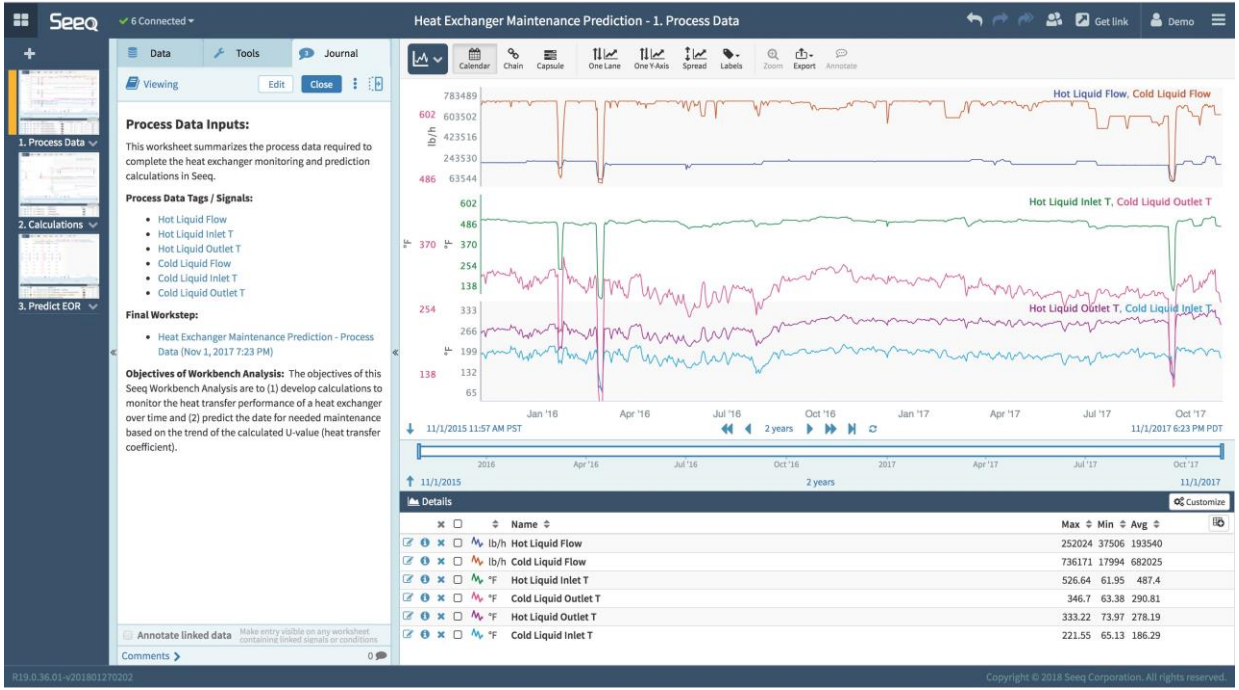




PI Vision

©2018 OSIsoft, LLC

Heat Exchanger Fouling



©2018 OSIsoft, LLC

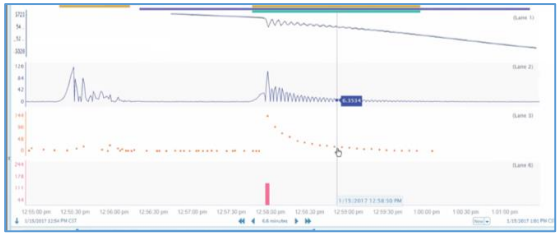
Demonstration

©2018 OSIsoft, LLC

O&G Asset Reliability

Seeq

Increase productivity of upstream assets and exceed environment and safety requirements.



CHALLENGE

Oil collection ESD causes pipe hammer which leads to more reliability issues

- Trip results in rapid valve closure and water hammer
- Improve system design to avoid water hammer

SOLUTION

Leverage value search to identify events. Use capsules and event frames to identify

- Quantify water hammer duration, amplitude, and decay.
- Correlate with ESD events
- Replicate across assets defined in AF
- Monitor improvements over time & document

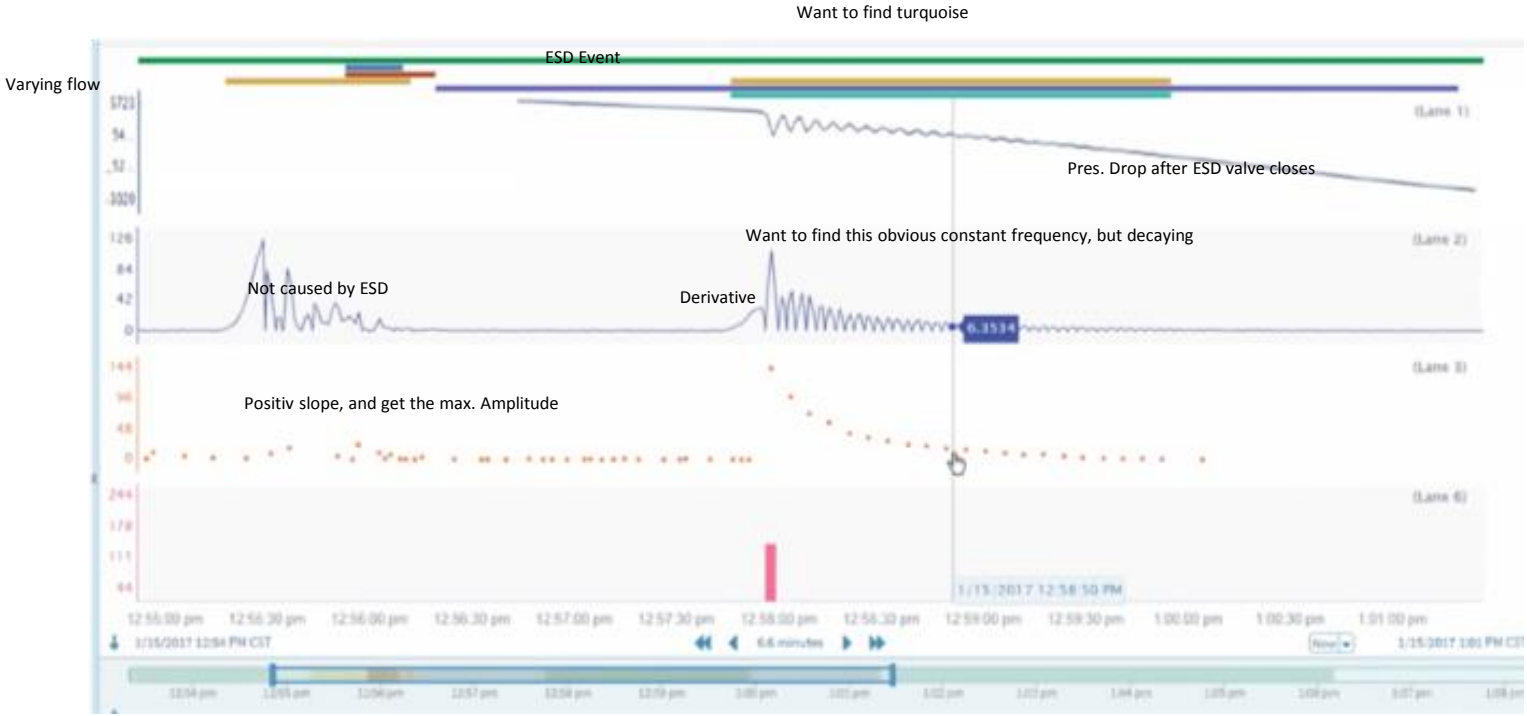
RESULTS

Focusing on engineering solution results in long term improvements

- Reduced production loss, savings of ~$2M/year
- Less engineering time per event
- ESD “detection” is important and will be used to address other issues

©2018 OSIsoft, LLC

ESD/Water Hammer



©2018 OSIsoft, LLC

Demonstration

©2018 OSIsoft, LLC

Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please remember to…

Complete the Online Survey for this session

©2018 OSIsoft, LLC

Merci

谢谢

Danke

Спасибо

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado

Optional: Click to add a takeaway you wish the audience to leave with.

©2018 OSIsoft, LLC

Presentation Template Brief

- A Style Tips and Best Practices document accompanies this template.
- This template was developed for presenters to insert their company template between the introduction slide and summary slide.
- One of the slides suggests topics to consider including in your presentation. **Feel free to adapt it for your work.**
- Please delete these instruction slides once you build your presentation.

©2018 OSIsoft, LLC

Slides and videos must be in 16:9 aspect ratio

©2018 OSIsoft, LLC

Conference Theme & Keywords

©2018 OSIsoft, LLC

Framing slides for you to insert into your deck

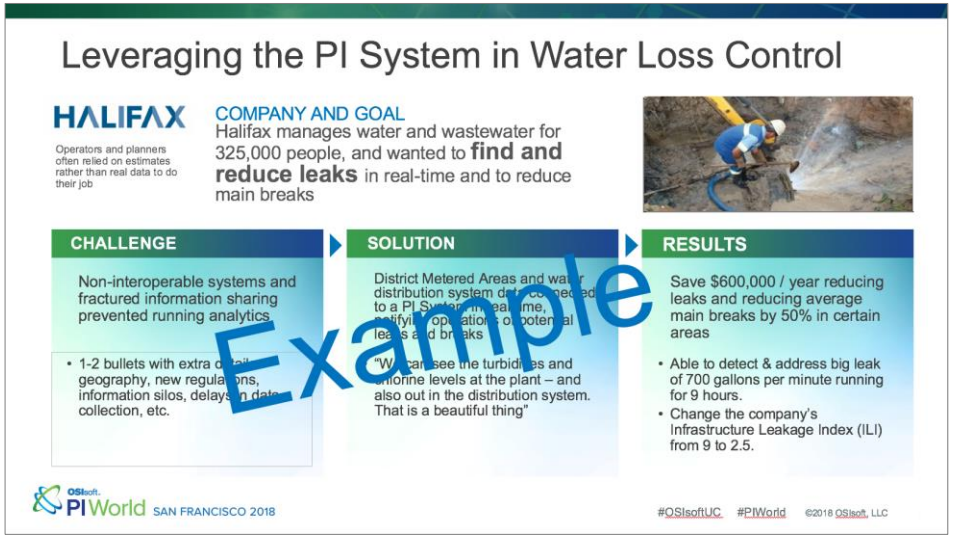
©2018 OSIsoft, LLC

Recommended Flow of Topics in Agenda

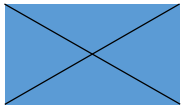
- About Your Company
- Business Challenge
- Applications and Use Case / How the PI System was Applied
- Implementation Details
- How Individual Product Capabilities Solved Your Business Challenge
- Results Obtained and Business Impact
- Other suggested talks/labs/booths/events at the UC
- Conclusion

©2018 OSIsoft, LLC

Example Summary Slide



Summary Slide Template is located on the next slide or by creating a new slide and selecting the "Summary Slide" layout (See end of slide deck for examples)



CHALLENGE

SOLUTION

RESULTS

©2018 OSIsoft, LLC

- **Speaker's Name**
- email@company.com
- Speaker's Title
- Company Name
- **Speaker's Name**
- email@company.com
- Speaker's Title
- Company Name

©2018 OSIsoft, LLC

Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please remember to…

Complete the Online Survey for this session

©2018 OSIsoft, LLC

Merci

谢谢

Danke

Спасибо

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado

Optional: Click to add a takeaway you wish the audience to leave with.

©2018 OSIsoft, LLC

Leveraging the PI System in Water Loss Control

HALIFAX

Operators and planners often relied on estimates rather than real data to do their job

COMPANY AND GOAL

Halifax manages water and wastewater for 325,000 people, and wanted to **find and reduce leaks** in real-time and to reduce main breaks

CHALLENGE

Non-interoperable systems and fractured information sharing prevented running analytics

SOLUTION

District Metered Areas and water distribution system data connected to a PI System in real time, notifying operations of potential leaks and breaks

"We can see the turbidities and chlorine levels at the plant – and also out in the distribution system. That is a beautiful thing"

RESULTS

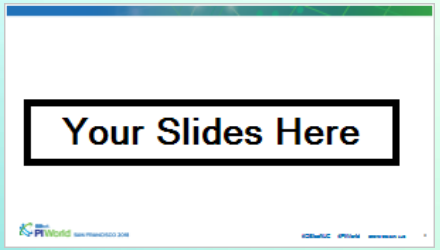
Save $600,000 / year reducing leaks and reducing average main breaks by 50% in certain areas

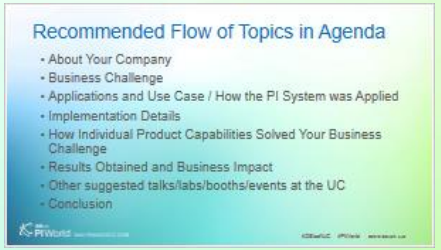
- Able to detect & address big leak of 700 gallons per minute running for 9 hours.
- Change the company's Infrastructure Leakage Index (ILI) from 9 to 2.5.

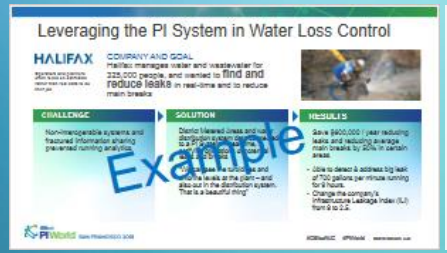
Example

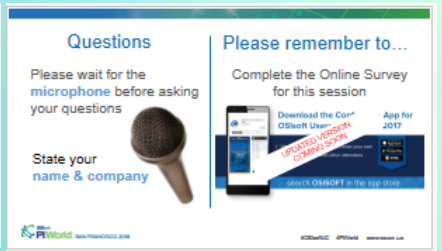
©2018 OSIsoft, LLC

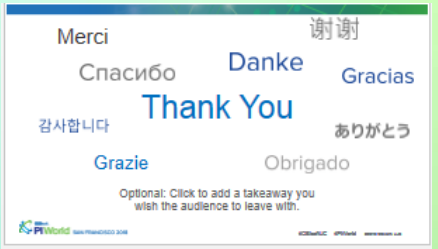
Typical Presentation – Order of slides











©2018 OSIsoft, LLC