Introduction to Asset Monitoring and Condition-based Maintenance with the PI System

Jeremy Korman – Product Marketing Manager

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Where are we in our PI Basics Journey

Landscape

The PI System & the Greater Technology Landscape

Crash Course

Get the most out of PI World

Asset Monitoring

Intro to condition based maintenance with the PI System

Analytics

Introduction to Analytics in the PI System

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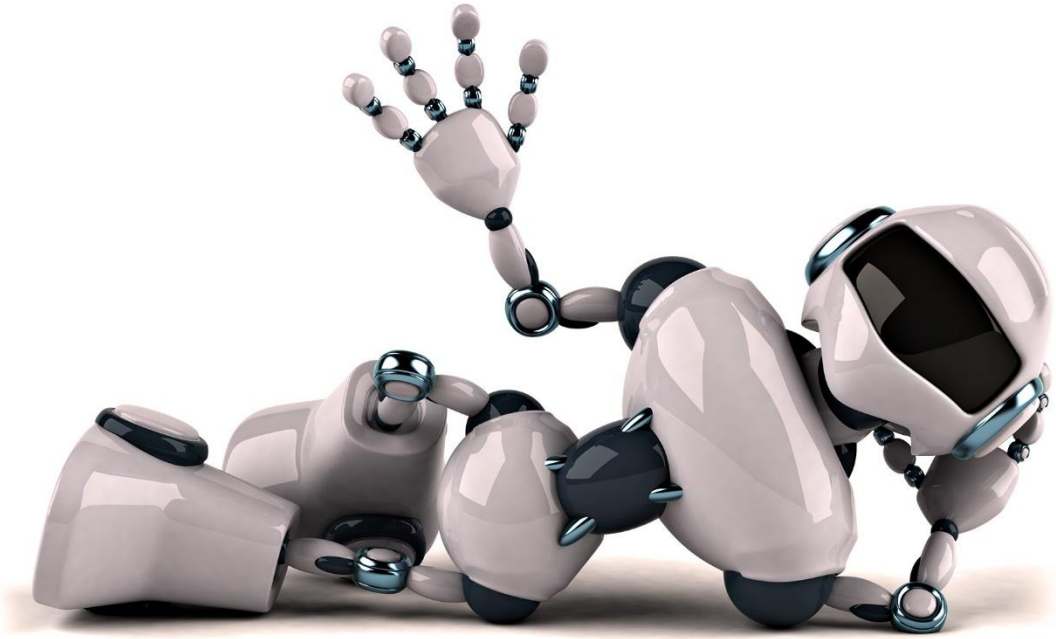
Put your robot to use



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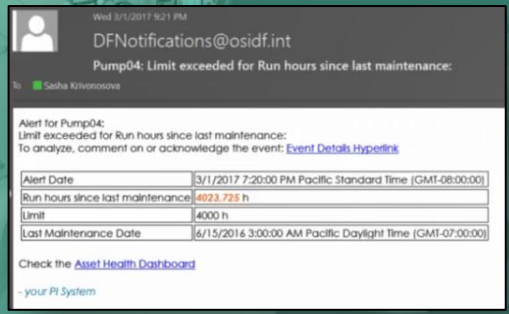
Before & After?

Pump #3 is down! Hotshot a part out here!

Check your email…We'll need to schedule some maintenance soon.


Wed 3/1/2017 9:21 PM

DFNotifications@osidf.int

Pump04: Limit exceeded for Run hours since last maintenance:

To Sasha Krivonosova

Alert for Pump04:
Limit exceeded for Run hours since last maintenance:
To analyze, comment on or acknowledge the event: Event Details Hyperlink

Alert Date	3/1/2017 7:20:00 PM Pacific Standard Time (GMT-08:00:00)
Run hours since last maintenance	4023.725 h
Limit	4000 h
Last Maintenance Date	6/15/2016 3:00:00 AM Pacific Daylight Time (GMT-07:00:00)

Check the Asset Health Dashboard

- your PI System

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Sections We'll Cover

1) Maintenance Options

2) A Framework for CBM

3) Additional Resources

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Maintenance Options

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What are our maintenance options?

Reactive

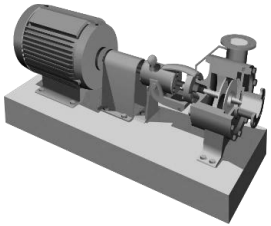
"Break-Fix"
Run to failure

Preventative

Calendar-based

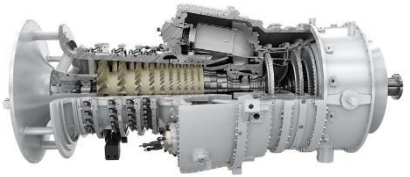
Condition Based

Repair based on insight



Predictive

Advanced Pattern Recognition



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CBM Is the Goldilocks Zone

Reactive

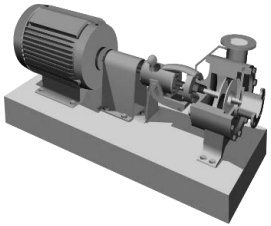
"Break-Fix"
Run to failure

Preventative

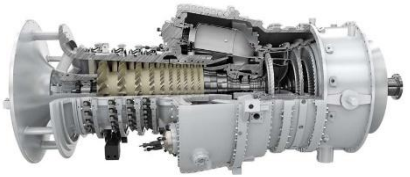
Calendar-based

Condition Based

Repair based on insight



Predictive



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A Framework for CBM

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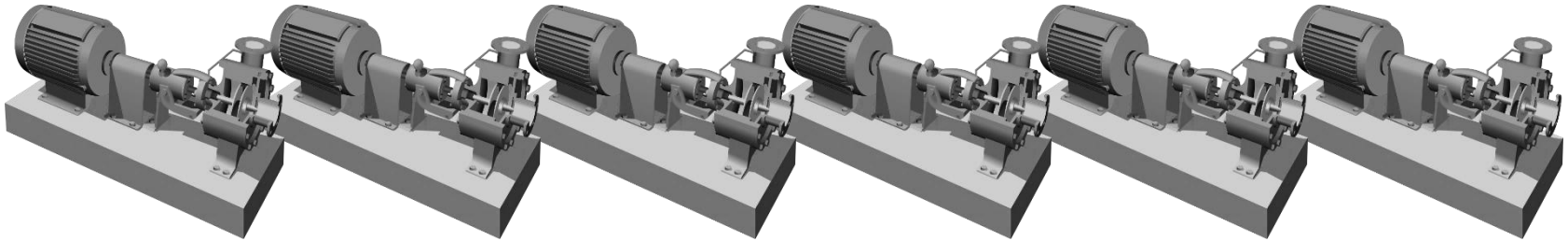
Are all of my pumps healthy today?



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5 Steps of CBM

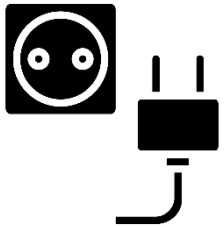
Connect
Collect & Store

Assign Context

Execute
Condition Logic

Alert and Notify

Visualize



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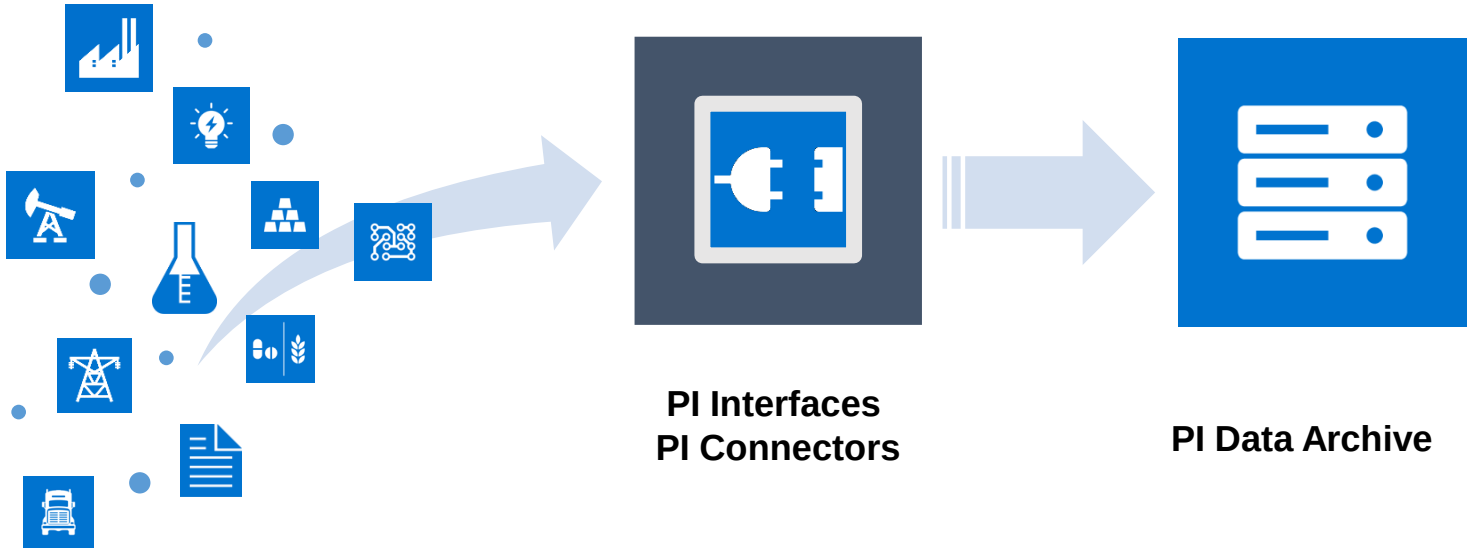

PI Interfaces
PI Connectors

PI Data Archive

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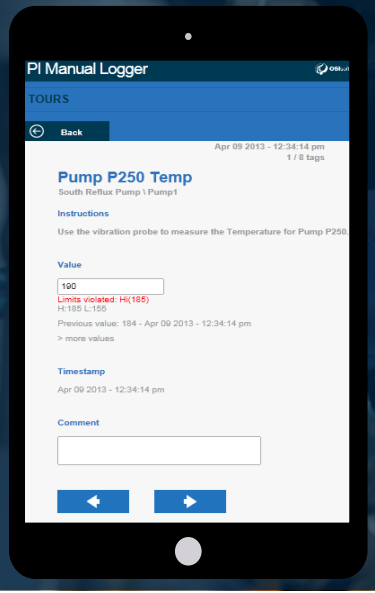
Options to add to data set:

- PI Interfaces & PI Connectors
- PI Manual Logger



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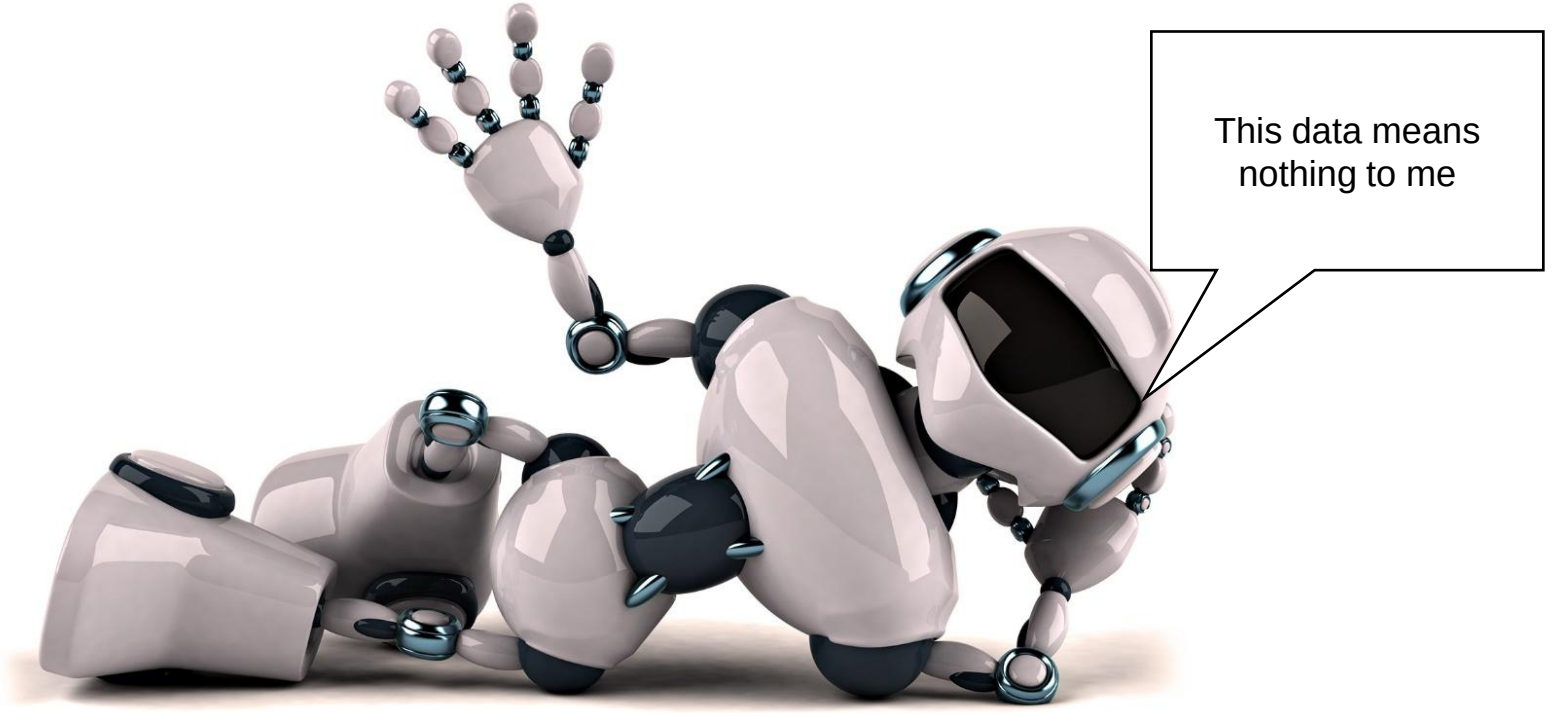
Robot Status Check



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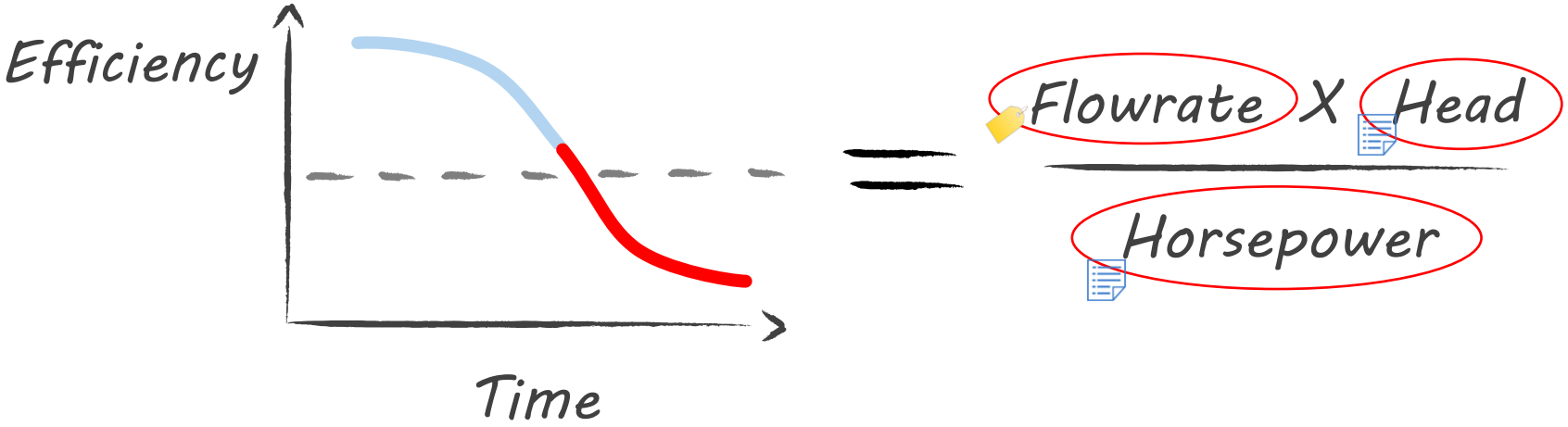
Building a Digital Model – Start Small



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OPERATIONS

Temperature
Pressure
Voltage
…

UNIFIED DATA

Smarter operation
Improved KPIs
In-context decisions

MAINTENANCE

Date of Last Service
Motor Horse Power
Vibration Analysis
…

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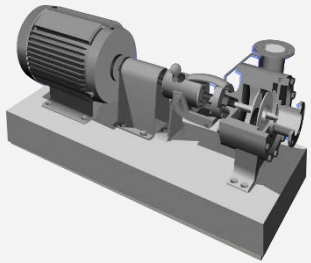
Build a Template

Element Template

Pump



Attributes

- Pump Status
- Discharge Flow Rate
- Horsepower
- Total Head

Calculations with Asset Analytics

- **Pump Runtime**
- **Efficiency**

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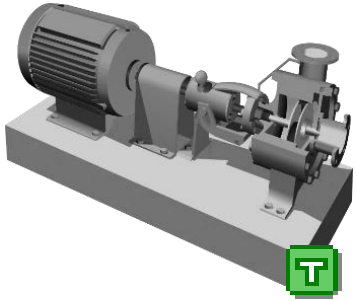
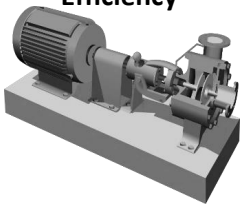
Reuse Your Template



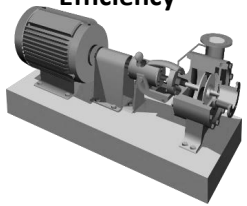
Pump Runtime

Efficiency

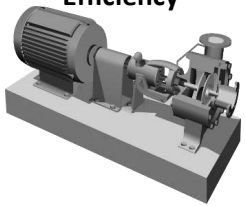
Pump Runtime Efficiency



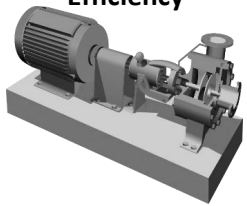
Pump Runtime Efficiency



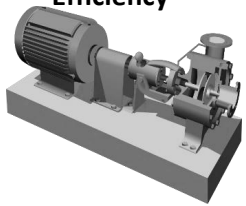
Pump Runtime Efficiency



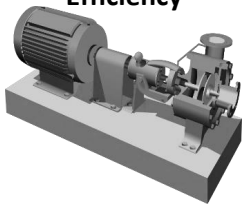
Pump Runtime Efficiency



Pump Runtime Efficiency



Pump Runtime Efficiency



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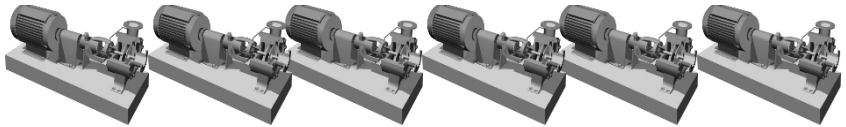
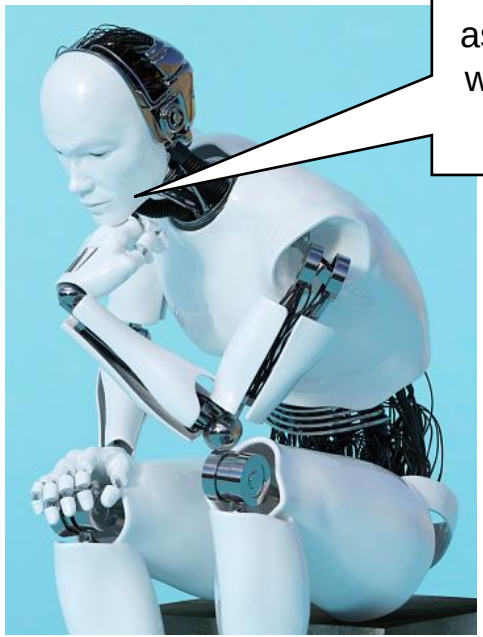
Robot Status Check





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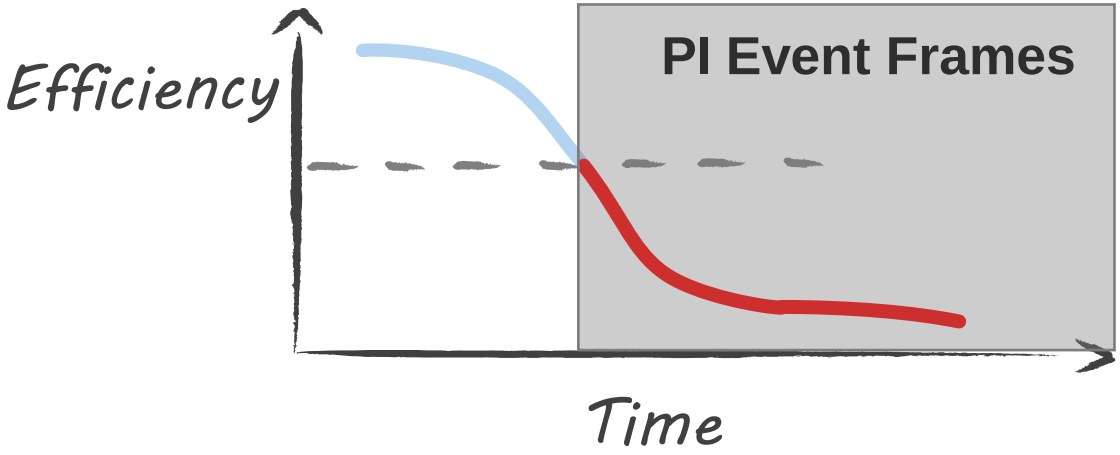
Pump Efficiency < **75%**



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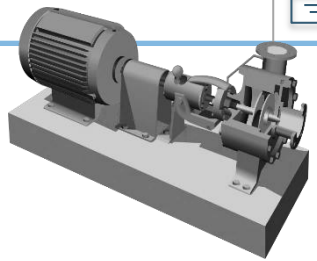
Writing Logic is Simple

x

Elements	Attributes	Analytics
Pump01	Pump Status	Run Hours
	Flow Rate	Pump Efficiency
	Horsepower	
	Total Head	



Maintenance event

Template: Pump maintenance

Expression

```
'Pump Efficiency' < '75'
```

True for

```
10 min
```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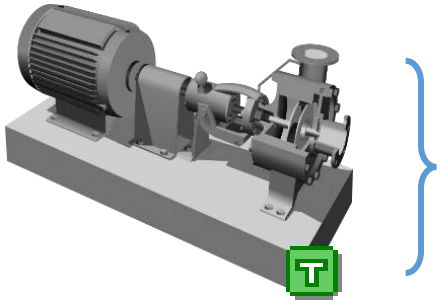
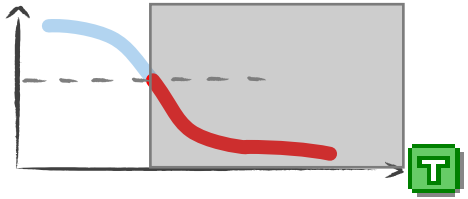
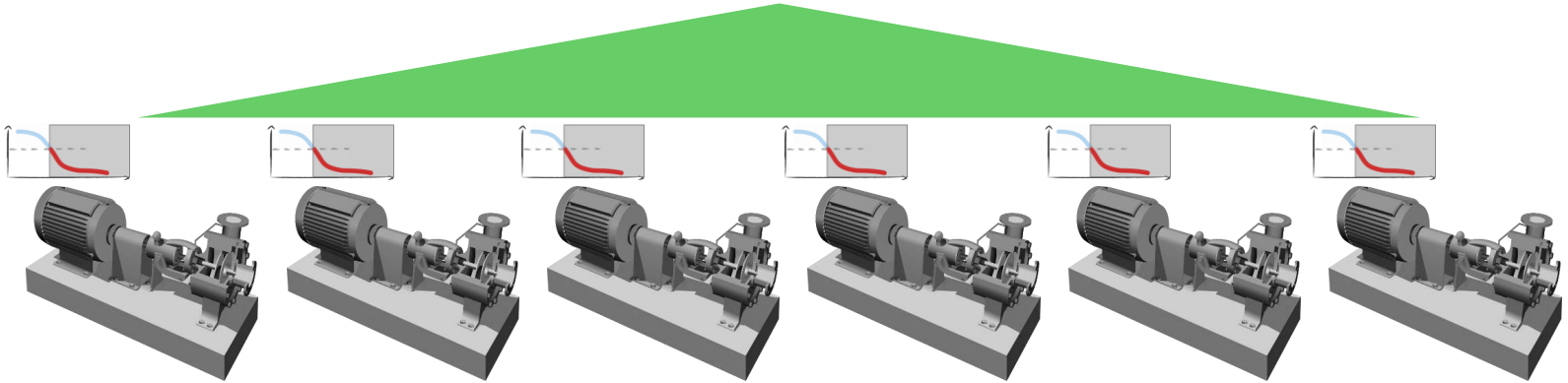
Reuse Your Template



Low Efficiency Event Frame





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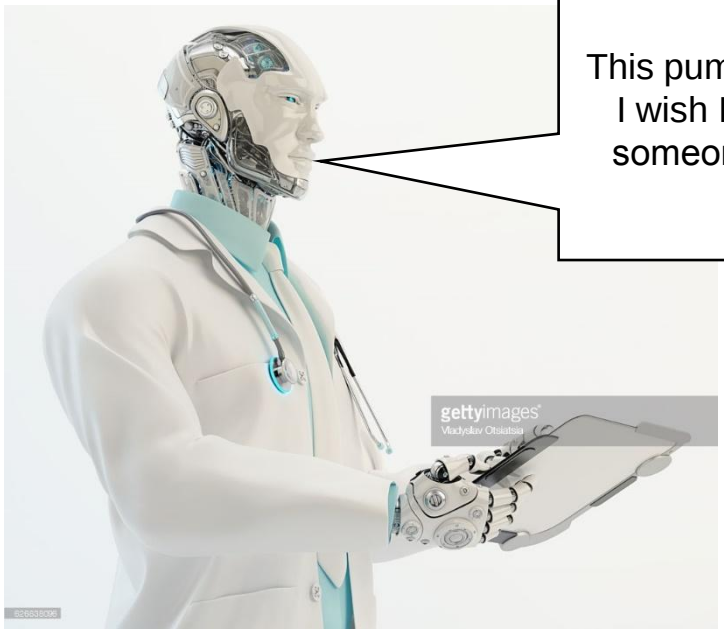
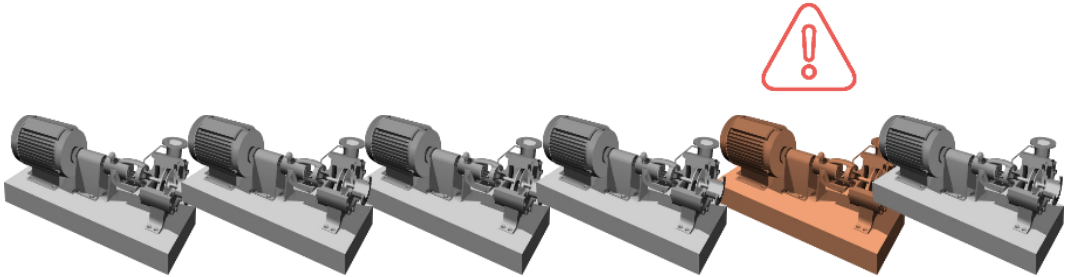
Robot Status Check





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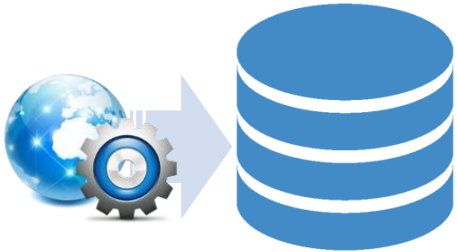
Connect
Collect & Store

Assign Context

Execute
Condition Logic

Alert and Notify

Visualize



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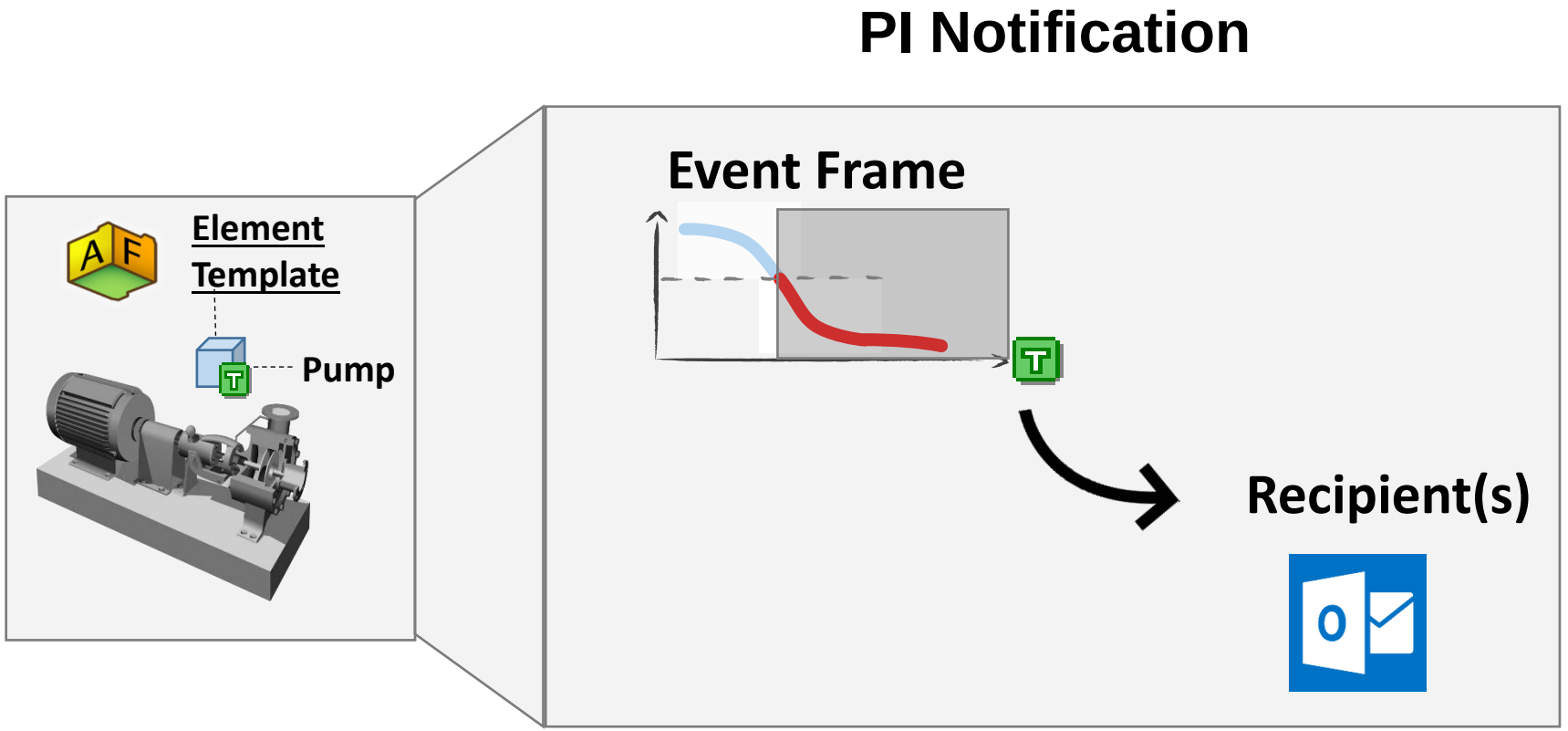
Alert and Notify



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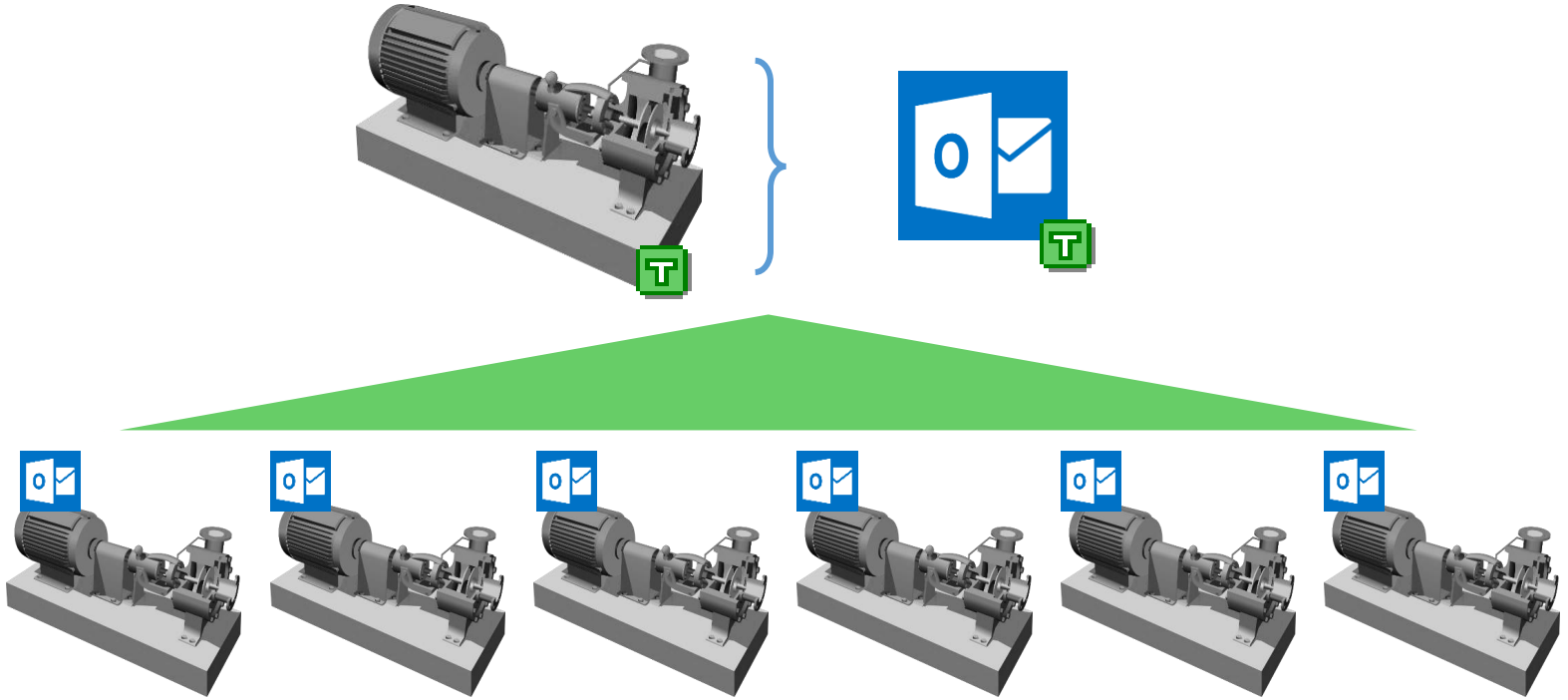
Reuse Your Template



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Beyond basics: Notifications to a CMMS

(Computerized Maintenance Management System)

Notifications

IBM maximo

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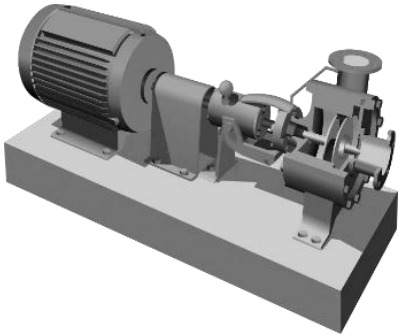
Robot Status Check

Pump #5 is having issues.



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5) Visualize

Connect Collect & Store → Assign Context → Execute Condition Logic → Alert and Notify → **Visualize**

PI Vision

PI DataLink

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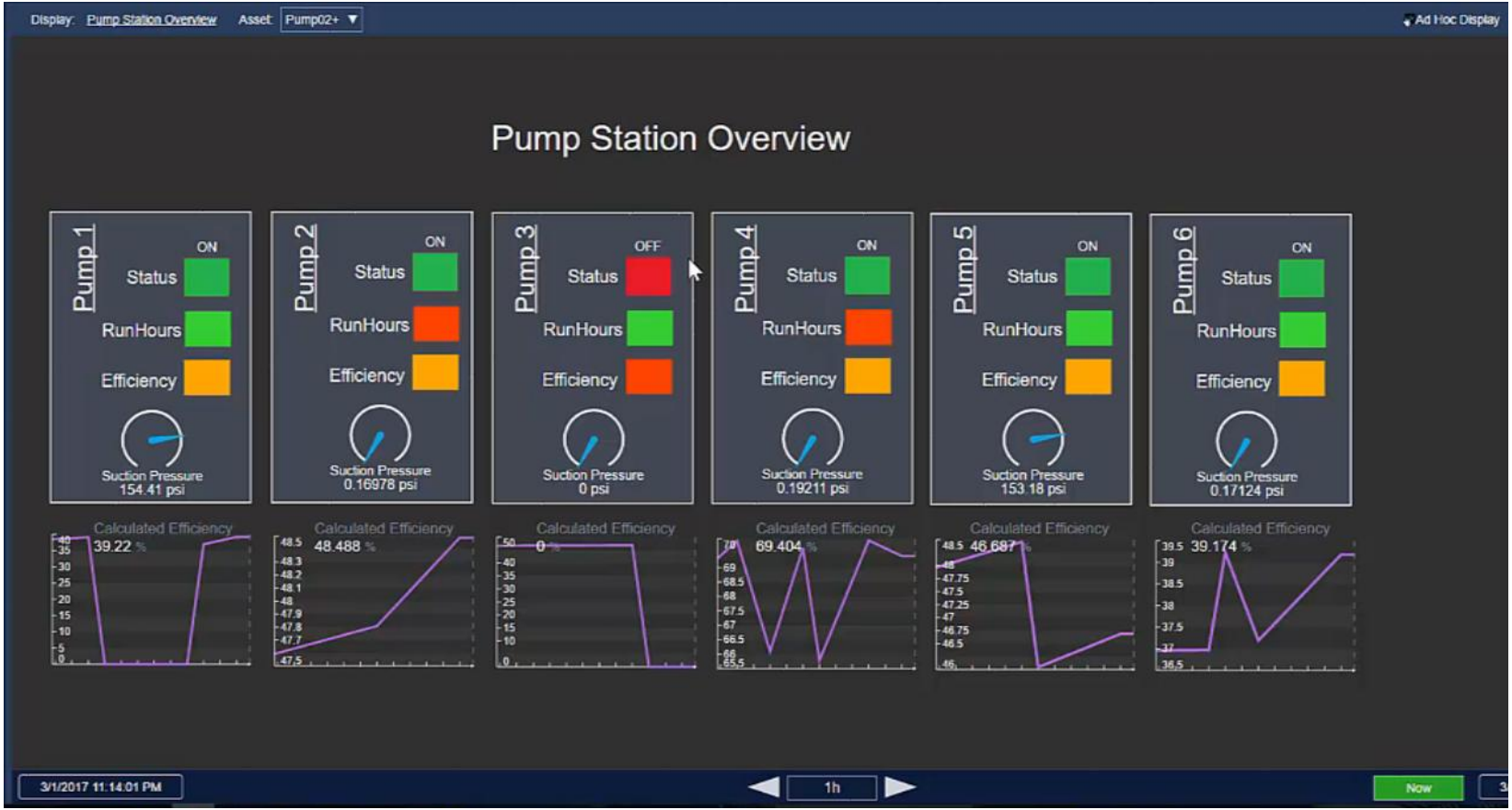

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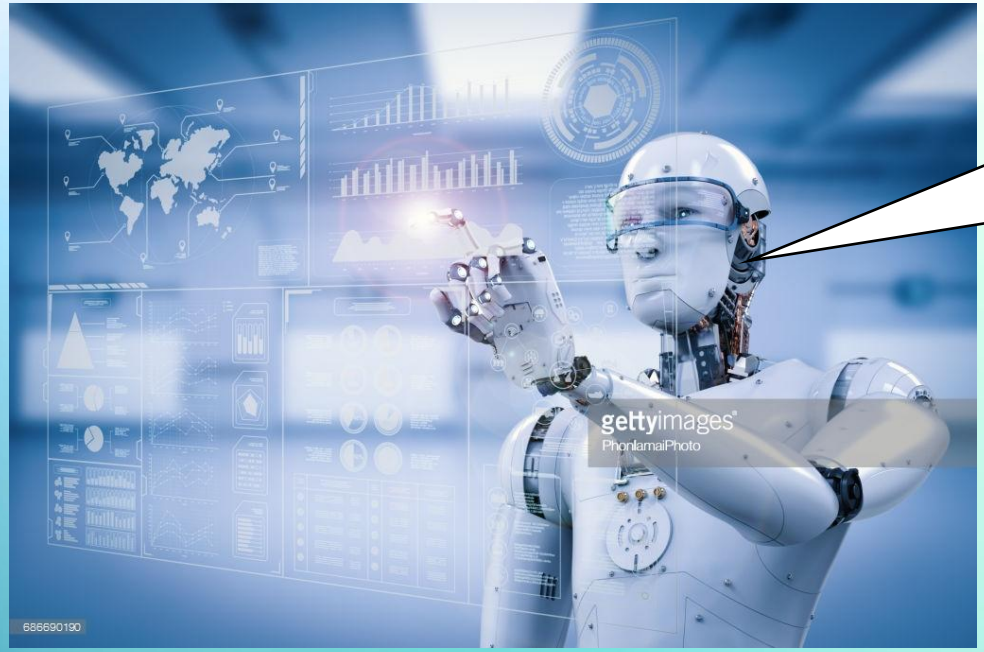
Robot Status Check



I'll keep an eye on everything!

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5 Steps of CBM

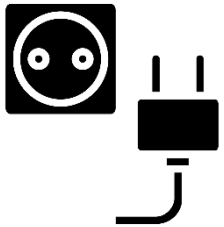
Connect
Collect & Store

Assign Context

Execute
Condition Logic

Alert and Notify

Visualize



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Resources to Help you Succeed

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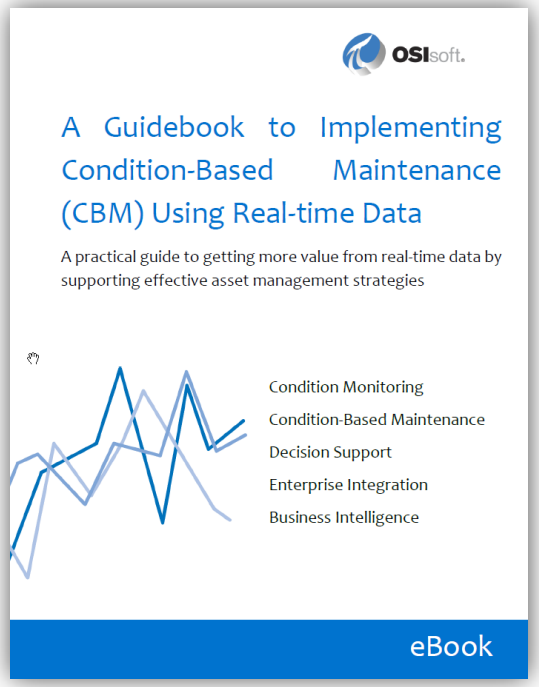
PI Square

The OSIsoft Community

All Places > All Things PI - Ask, Discuss, Connect

Asset Based PI Example Kits



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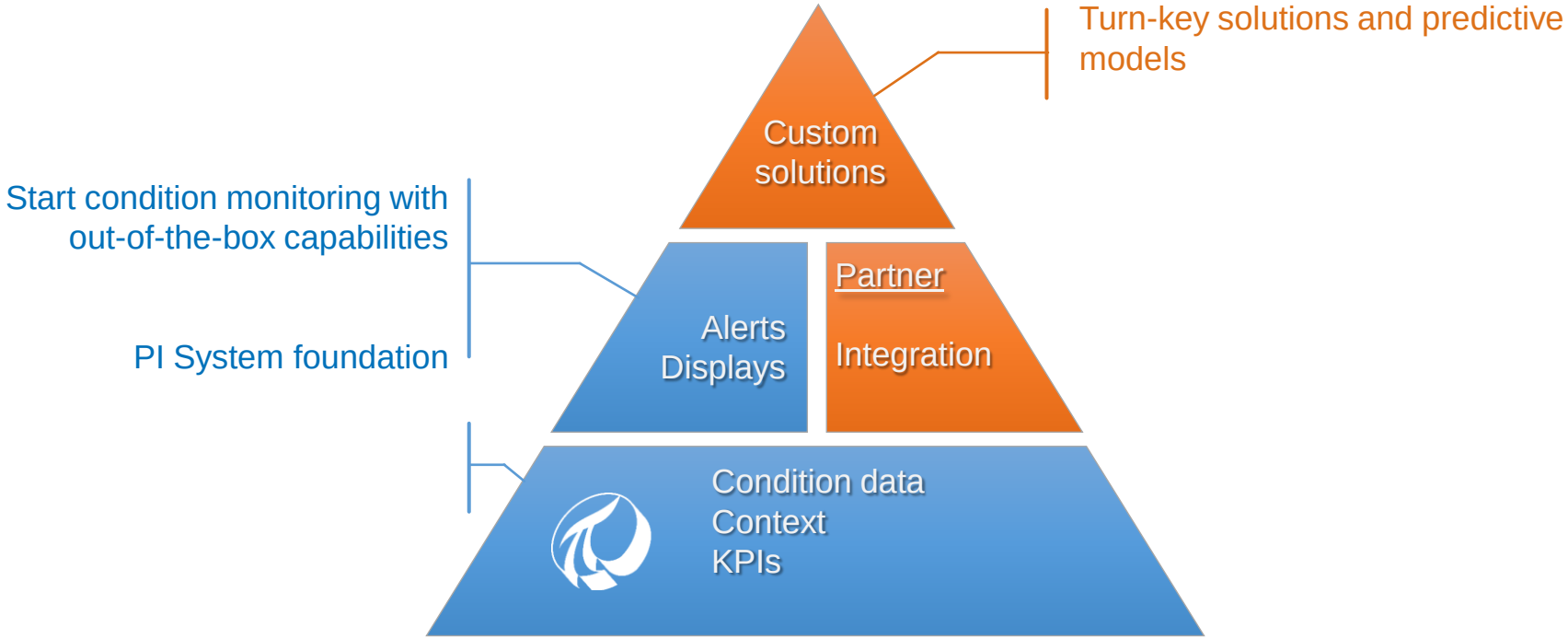
Partners Are Here to Help



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Customer Examples

Chemicals

Mining, Metallurgy & Materials

Oil & Gas

Pharmaceutical& Life Science

Pulp & Paper

Power Generation

Transmission & Distribution

Other

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Questions?

Please wait for the **microphone**

State your **name & company**

Please rate this session in the mobile app!

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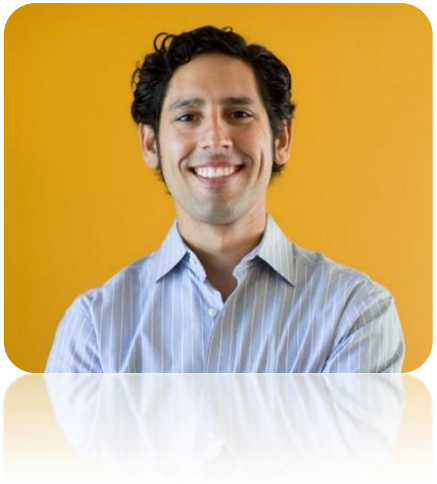
Contact Information

Jeremy Korman

jkorman@osisoft.com

Product Marketing Manager

OSIsoft LLC



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