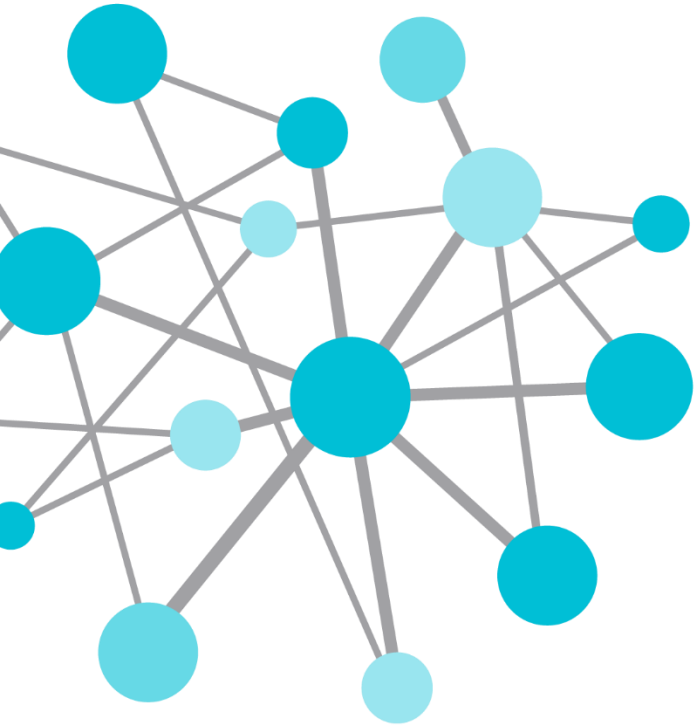


Integrating Predictive Models and Microsoft BI

A New Age in Analytics

Presented by **Curt Hertler, Partner Solutions Architect**

Models for Safe, Reliable, & Profitable Operations

E&P

Well Production Forecasting

Equipment/Asset/System Performance

Midstream

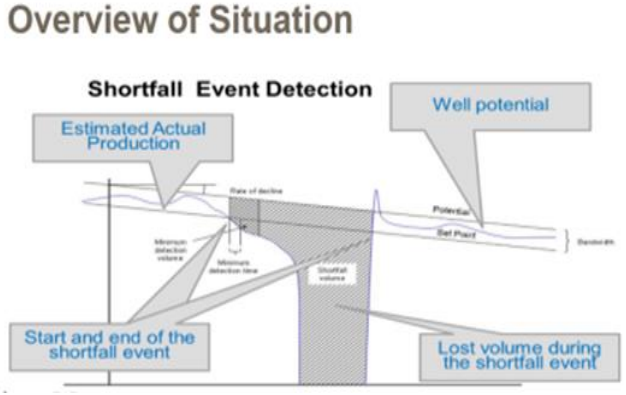
Equipment/Unit/System Performance

Reliability & Integrity

Hydrocarbon Processing

Planning & Forecasting

Equipment/Unit/System Performance



KAPPA

HYSYS

UPi MAGION UNIVERSE

Weatherford

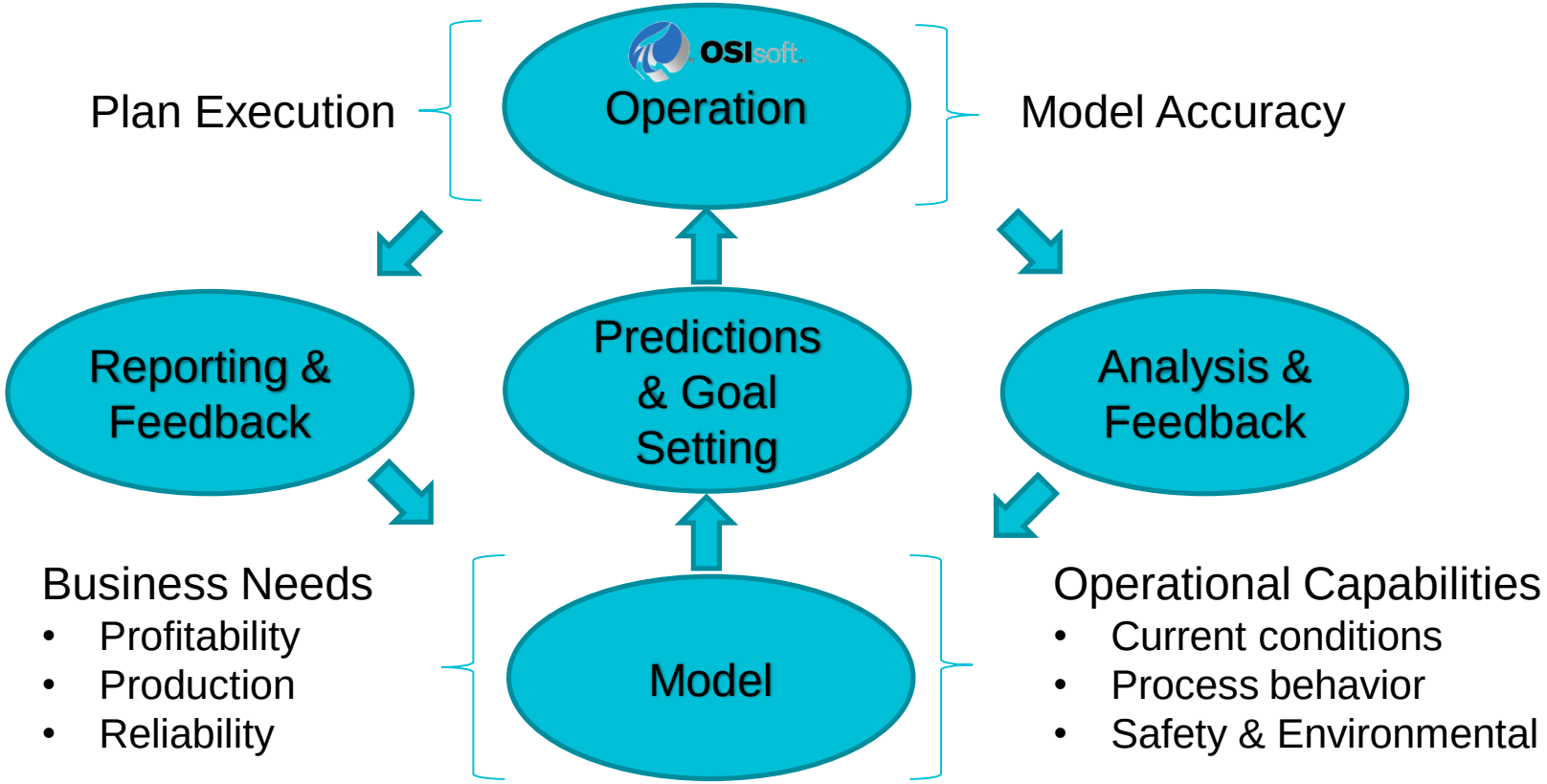
Petrel E&P Software Platform

KBC

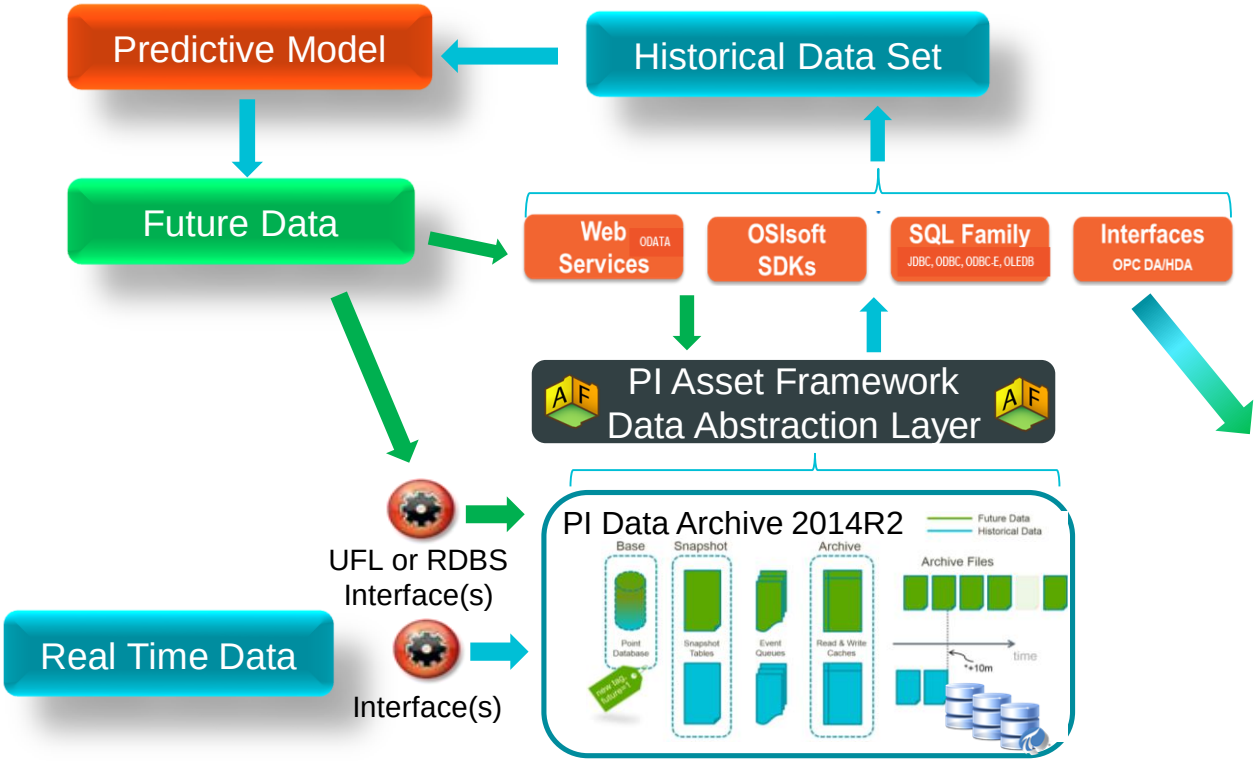
aspentech

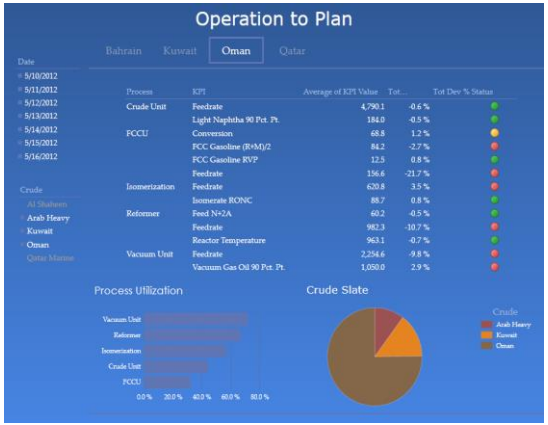
SIMSCI

Continuous Improvement Process



Conceptual Data Flow

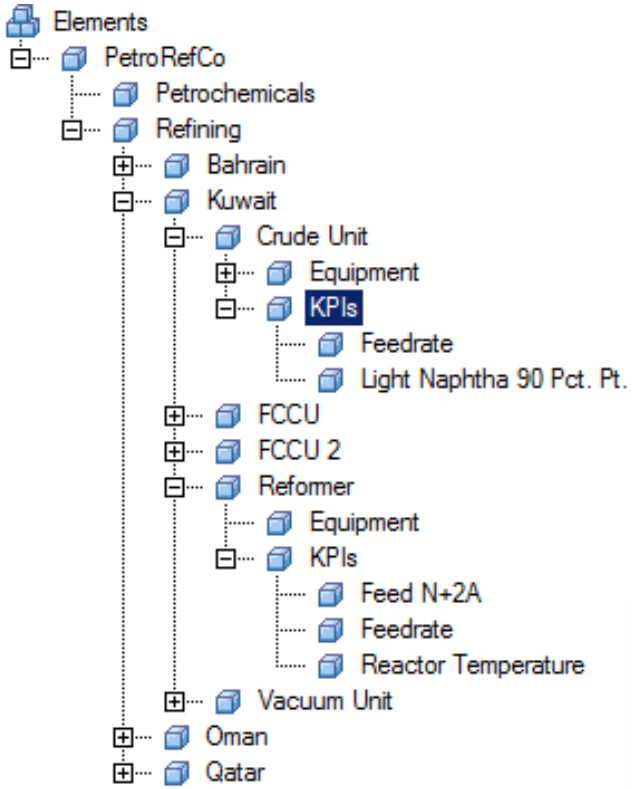




Reporting to Scale – *PI AF*

Asset Hierarchy

- Plant
- Process
- KPI



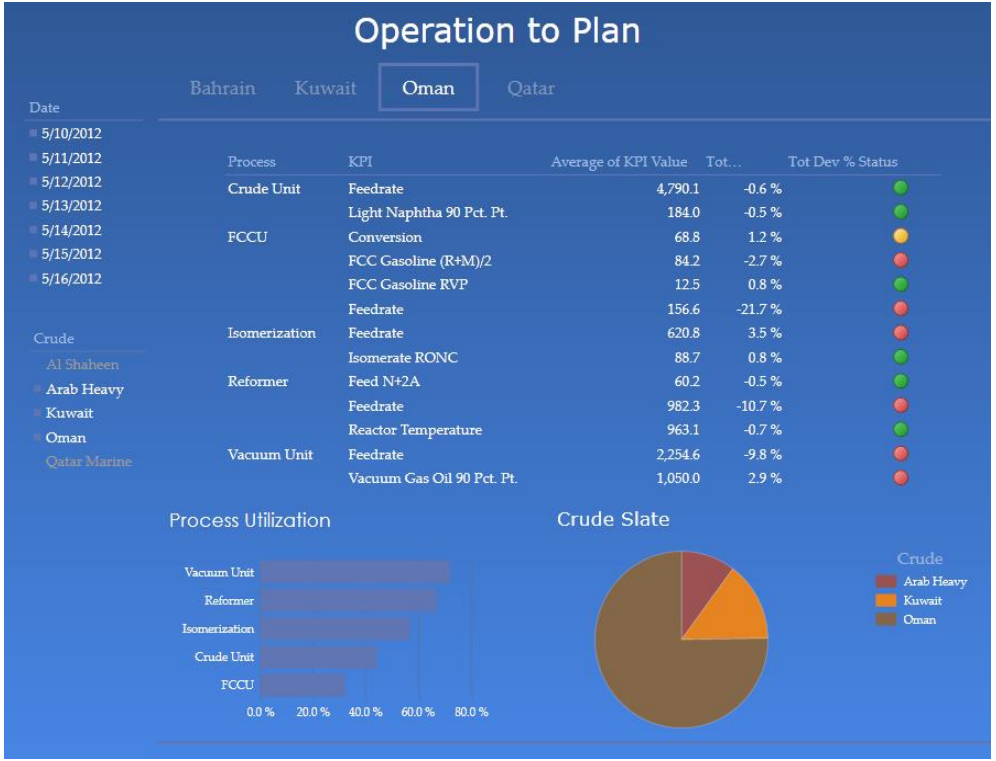
"KPI Total" Template

Name	Value
Category: Operating Plan Data	
Operating Plan Target	16700 bbl
Category: Process Data	
Hourly Throughput	16761.332951708042
Process Value	401676.21875 bbl/d

"KPI Laboratory" Template

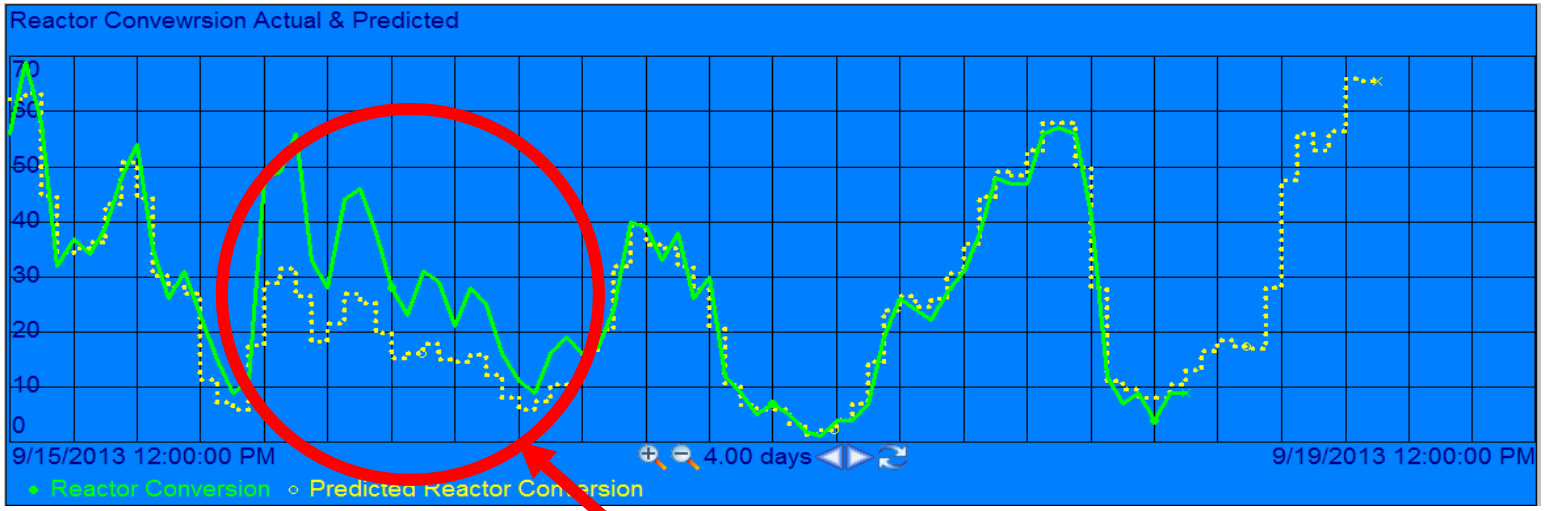
Name	Value
Category: Operating Plan Data	
Operating Plan Target	175 °F
Category: Process Data	
Laboratory Value	177.199996948242 °F

Plan Execution Reporting



Model Accuracy Analysis

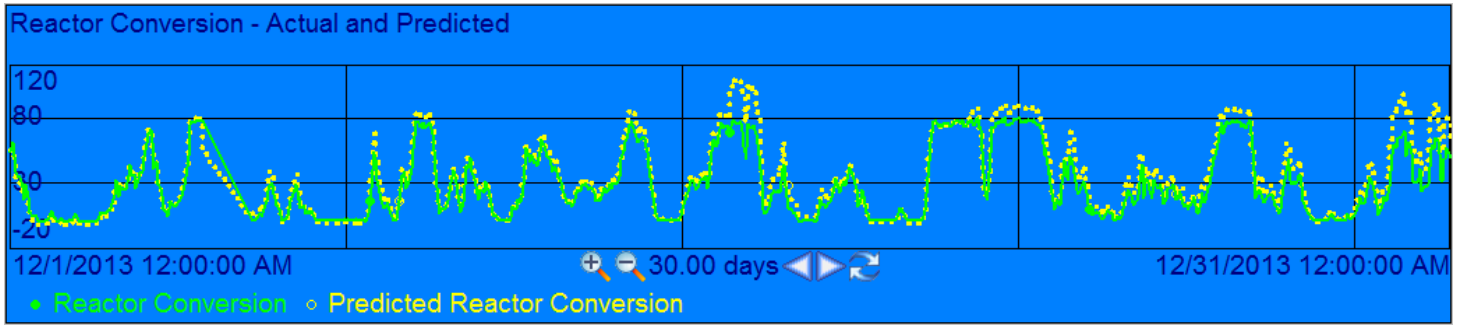
PI Data Archive 2014 R2



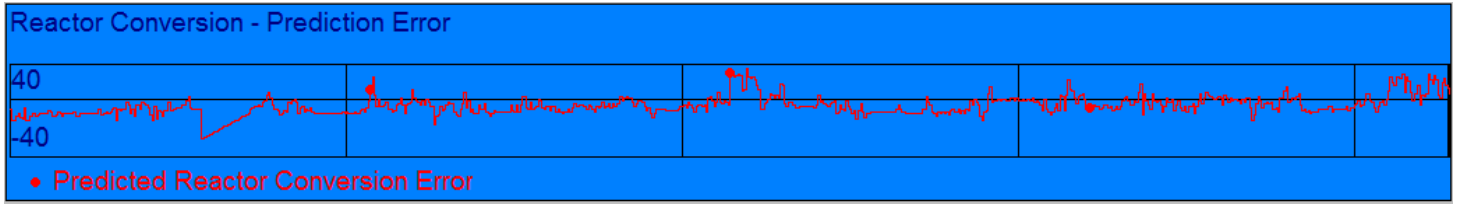
Model Improvement Opportunity

Leveraging Real Time Data for Prediction Improvement

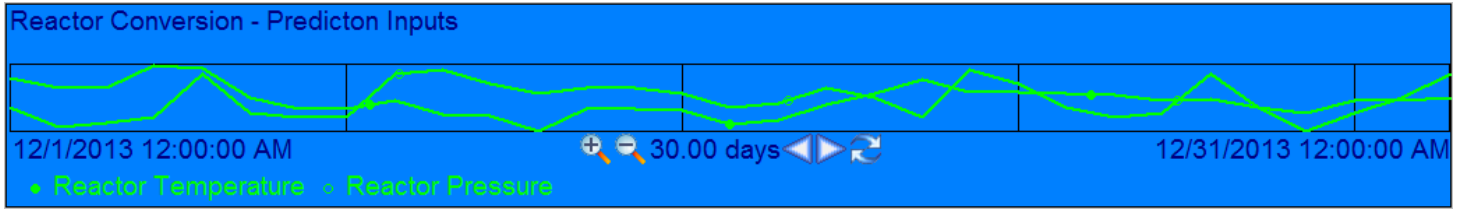
Actual & Predicted



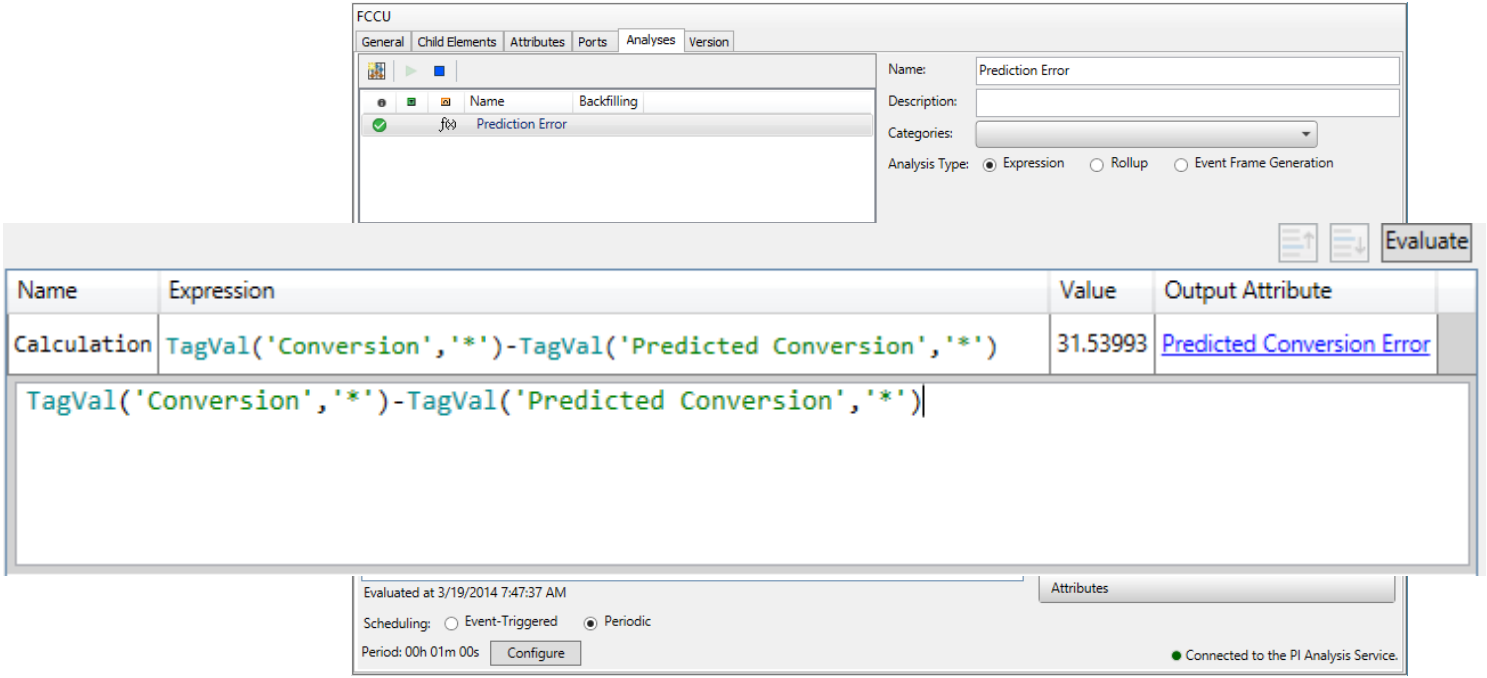
Prediction Error



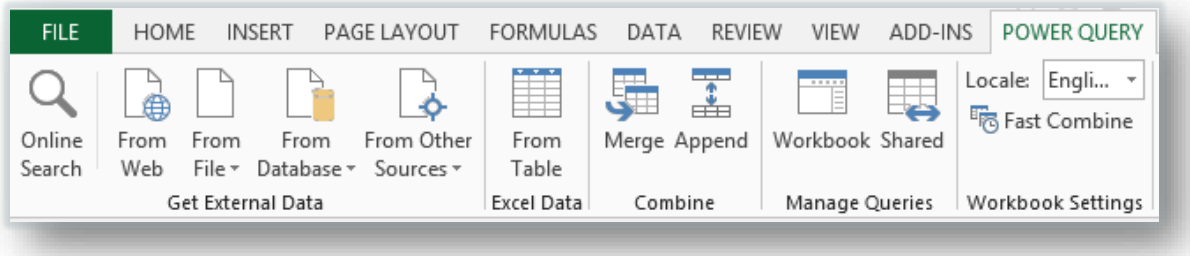
Affecting Conditions

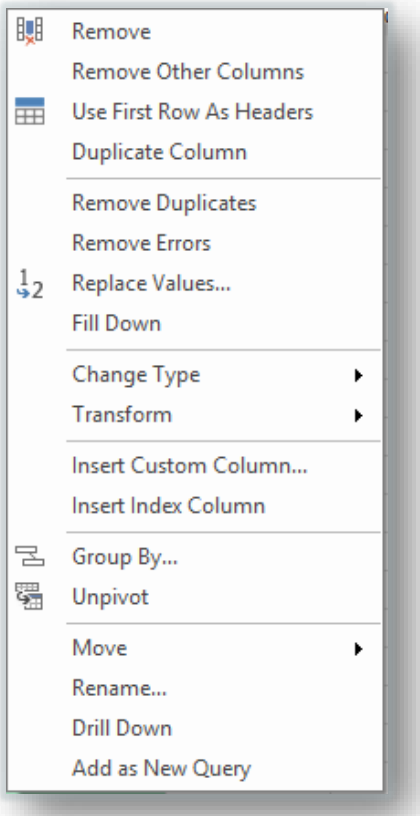


PI Analytics 2014



Power Query for Excel 2013





Free Add-In for Excel 2010 or 2013

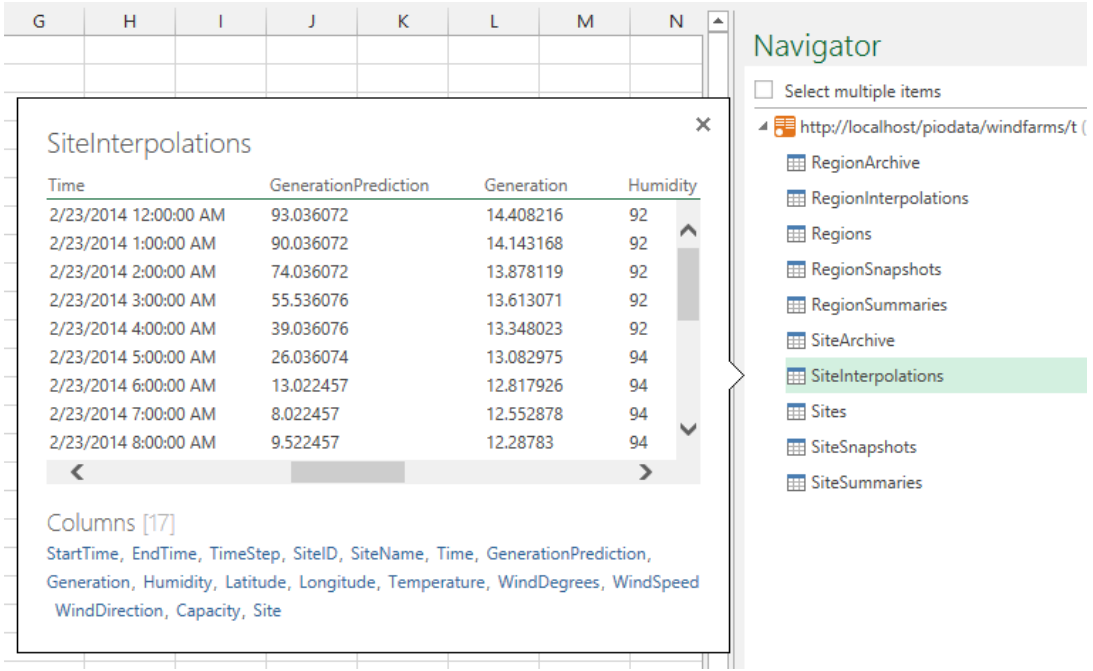
- Access to useful data sources
  - OData Feeds, like the PI OData feature of the PI Web API
- Shape datasets for Power View analysis
  - Remove columns and filter rows
  - Insert calculated columns
  - Reformat text and numeric data
  - Append and merge

PI Web API's OData Feature

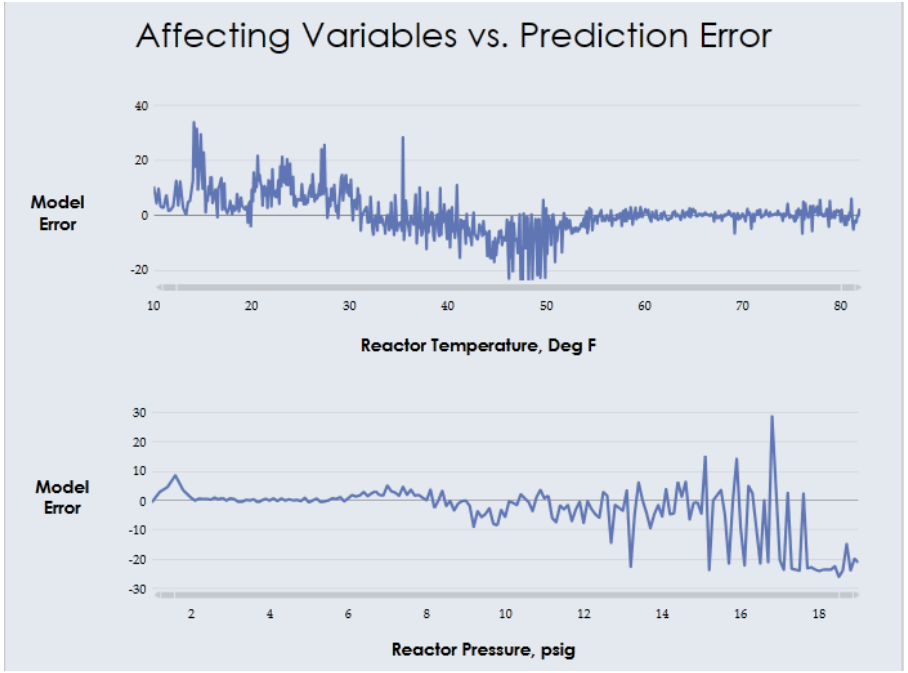
CTP available on vCampus

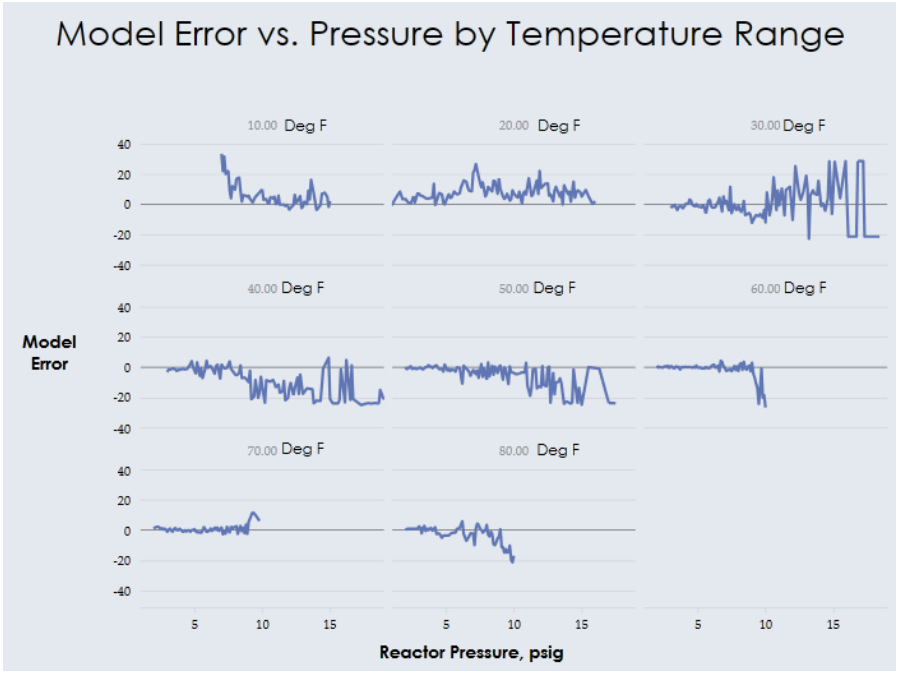
- Connect to PI AF by URL
- Easy navigation to AF attribute data by element template
- Dataset types
  - Snapshot
  - Archive
  - Interpolated
  - Summaries

http://localhost/PIOData/WindFarms/T



Analyzing Model Accuracy

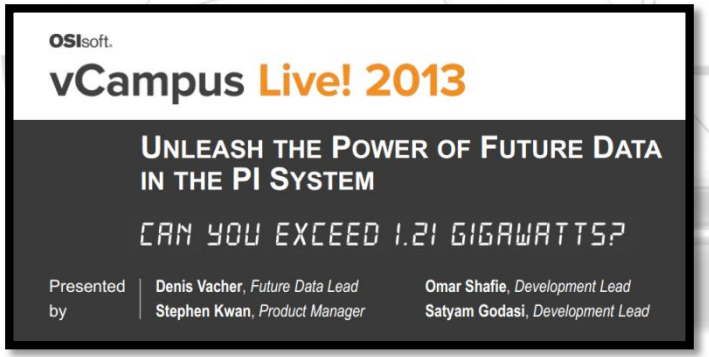




PI Data Archive 2014 R2 “DeLorean”

September 2013

⇨ Sneak peak, user validation

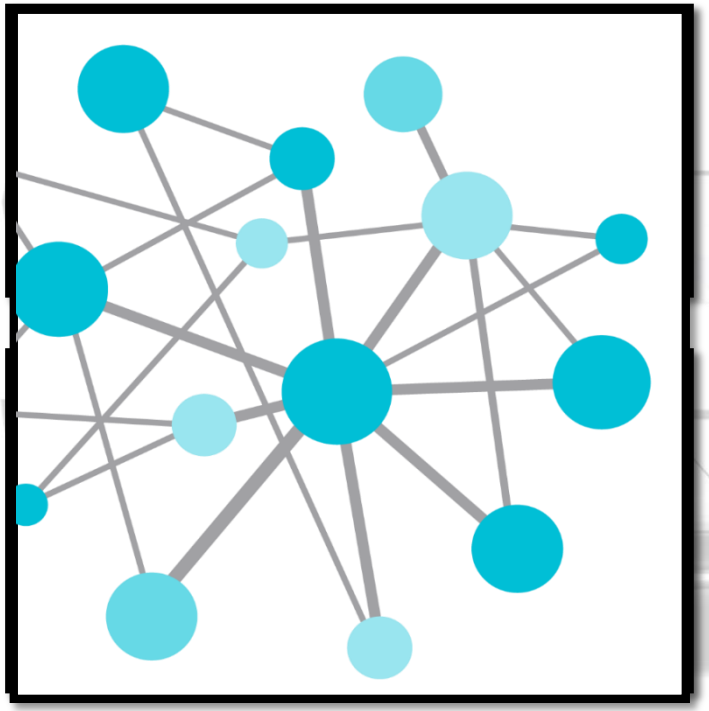


December 2013

⇨ Programming Hackathon

⇨ Demos & developer feedback

PI Data Archive 2014 R2 “DeLorean”



2014

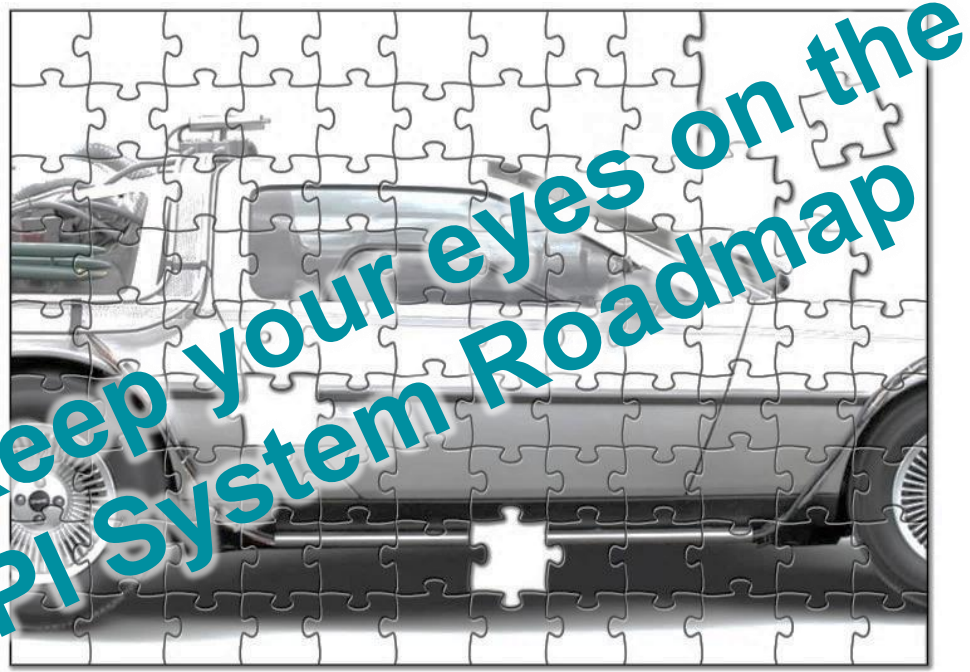
⇨ Q2: vCampus CTP
- storage preview

⇨ Q3: Beta Program
- storage feature complete

⇨ Release

System-Wide Future Data

- PI Interfaces/Connectors
  - Data In/Out
- PI Server
  - AF and Analytics
- Programmatic Access
  - PI AF SDK, Web API, …
- Clients
  - PI DataLink, PI Coresight, …



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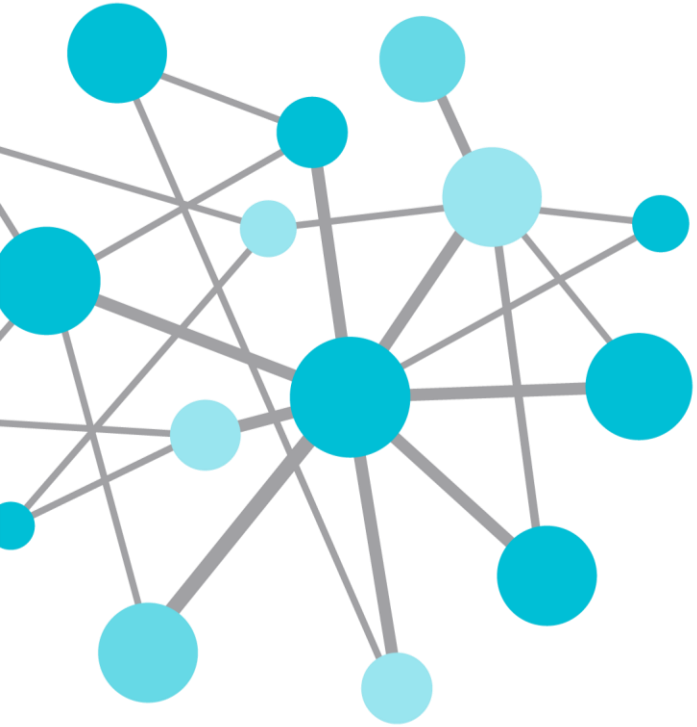
Partner Solutions Architect

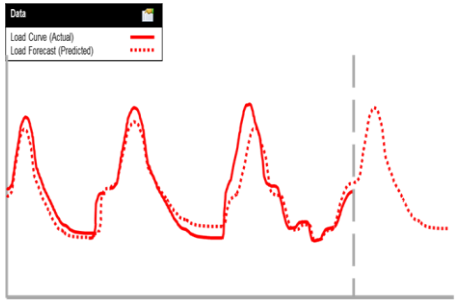
OSIsoft, LLC



THANK YOU

Brought to you by OSIsoft.

Agenda



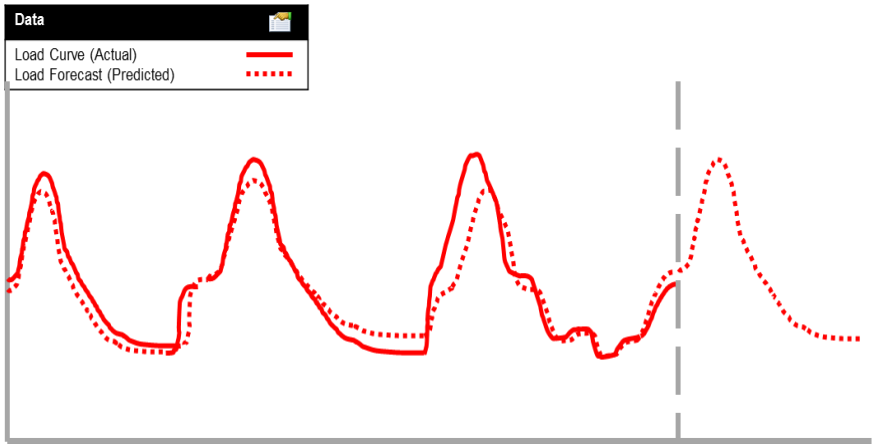
- The What and Why of Future Data?
- What are sources and uses of Future Data?
- Examples in Predictive Analytics
- Closing Comments
- Q&A

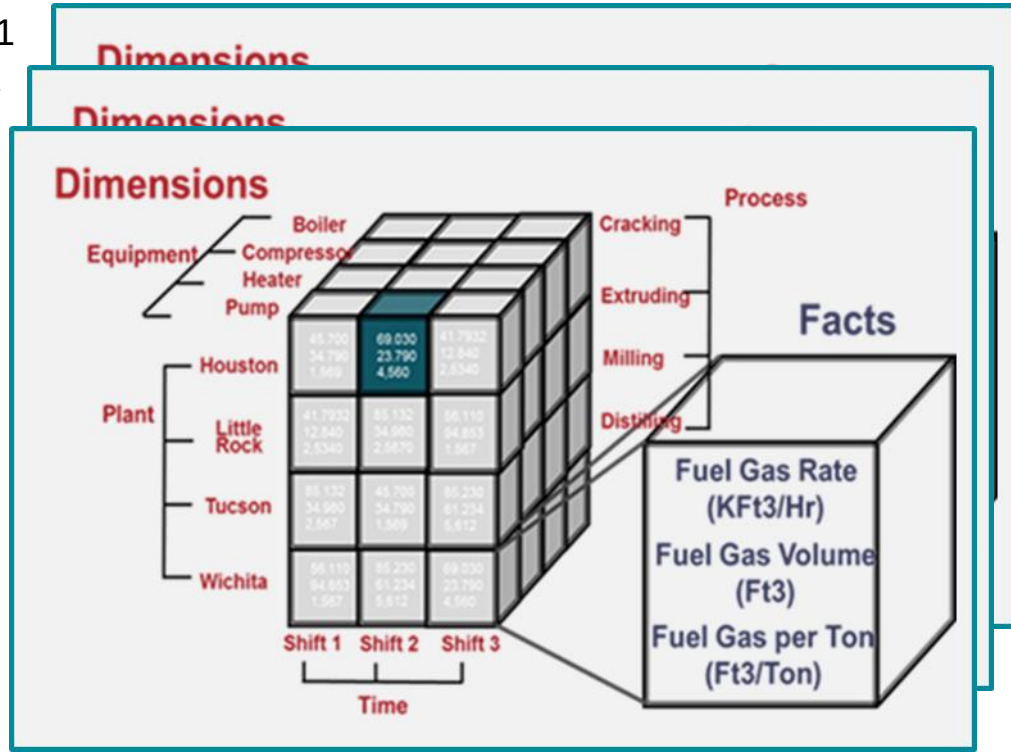
Adding the 4th Dimension to the Cube..

Time *-1

Time *

Future Time * +1





More Examples of PvA BI

Closing Comments

- Future Data Enabled Predictive Analytics
- Xxxx
- Xxxx
- Xxxx
- Participation in Beta Test – “opportunity to help shape the Future of Future Data”

FUTURE DATA

BETTER DECISIONS

HIGHER EFFICIENCY

DEEPER INSIGHTS

Conceptual Data Flow