



PI System 101: Basics for Beginners

Presented by

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We're all here to share ideas

*Meet the
people next
to you*



Our Customers Have Challenges

What is the forecast of productivity?

I need to know the moment it goes out of tune.

I need to combine data from 3 sources in 1 report.

The equipment is not working— what's the problem?

Plant Manager



COO



Engineer

Maintenance Technician



Our Customers Gain Value

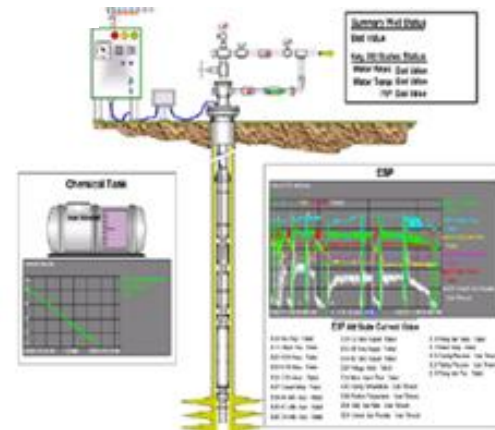


Customer Example

Global O&G Company

ESP Reliability Improvement Saves \$40M/y

"PI AF transforms the way real-time data collected from 100's of similar assets can be analyzed so only those assets that need attention NOW are brought to the attention of the right individual for action. Instead of counting the cost of failure, each business unit counts the benefits of optimization."



CHALLENGES

Spending **>\$100M/year** in repair of Electric Submersible Pump (ESP)

3,800 ESPs in place with **20% failure rate**

Decision process to determine which ESP is in danger of failure

Visibility into when to act and what to do to **prevent ESP failure**

SOLUTION

Develop a PI System based application to predict ESP failure

Leverage Asset Framework to develop ESP **templates for standardization** and scalability

Develop **data quality/validation** to minimize false information

Setup Notifications to generate **exception-based reporting**

RESULTS

Reduced days of lost production by **65%**

Lengthened mean time between failure (MTBF) by **35%**

Improved engineer and analyst productivity by **300%**

Greater than **\$40M/year** saving in reduced maintenance alone

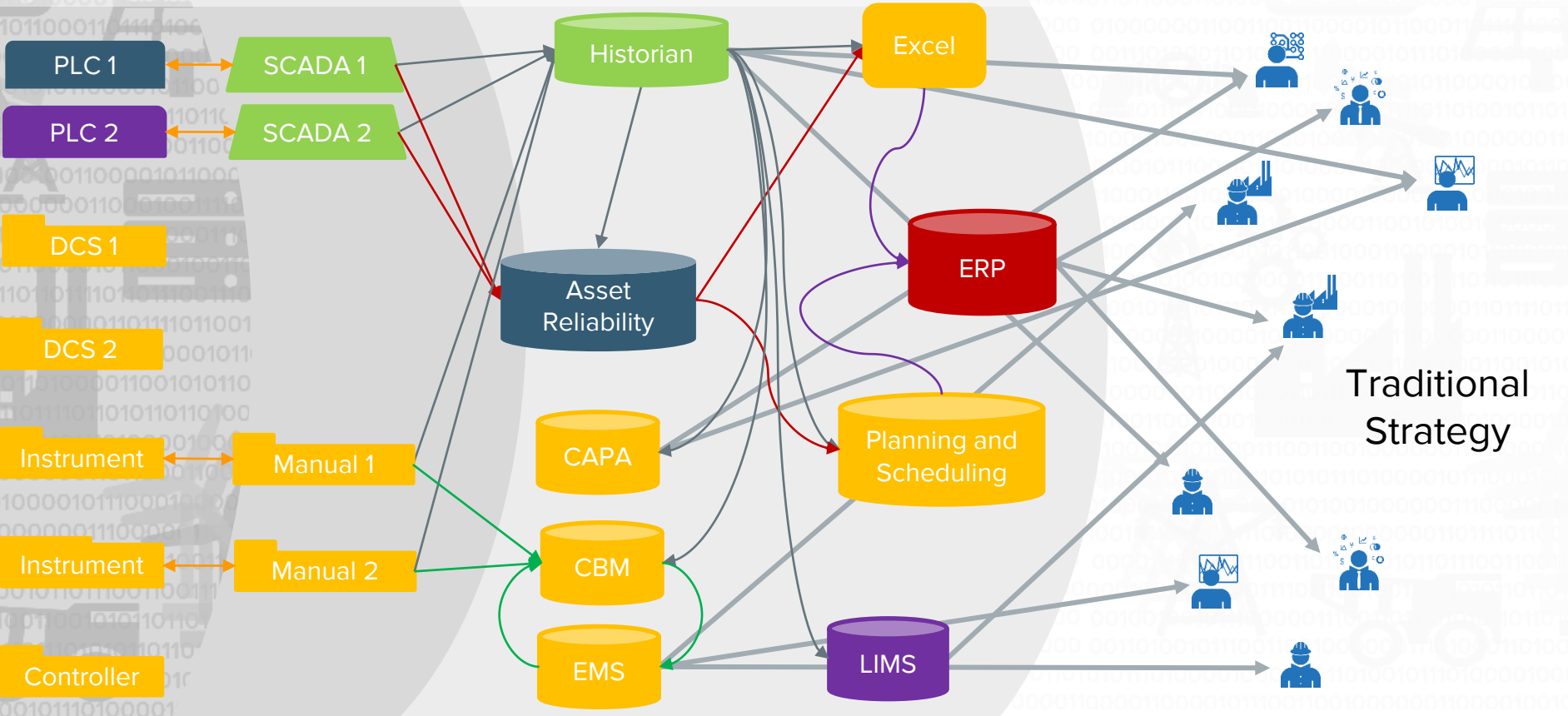


How does your business use the PI System?

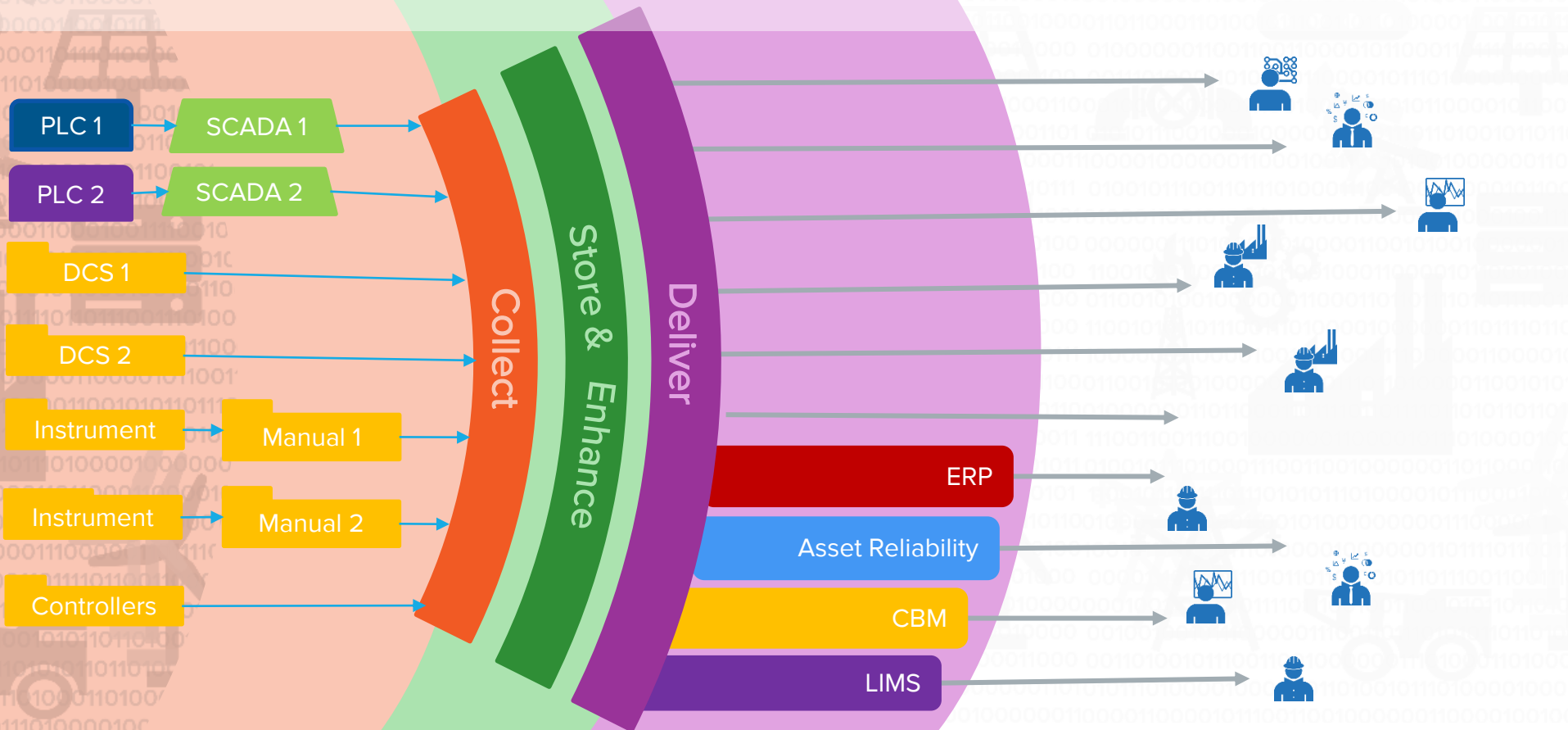
What do you want to gain from the UC?

Silos to Standards / Complexity to Simplicity

AUDIENCE POLL

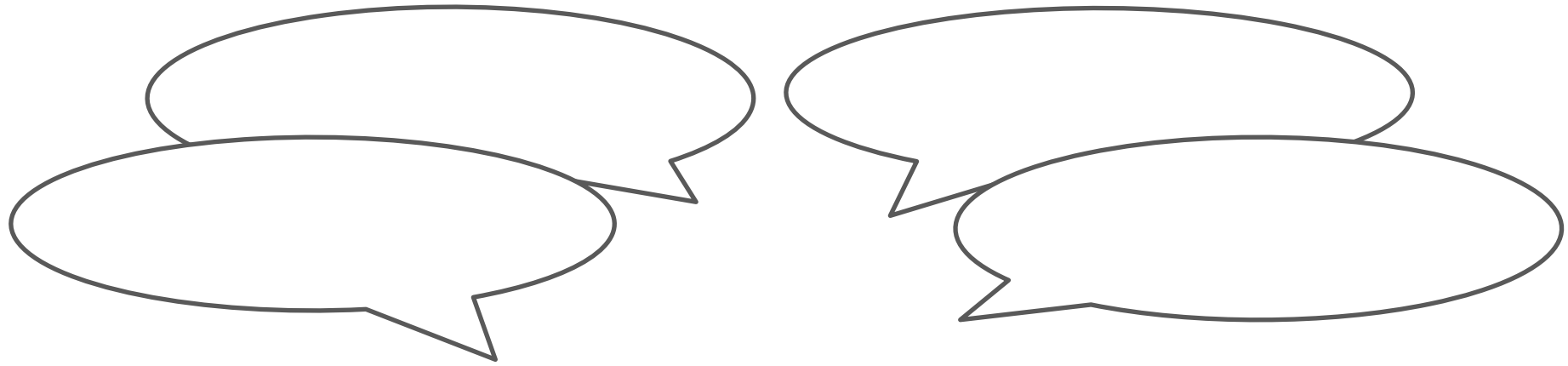


Silos to Standards / Complexity to Simplicity



What are the pieces of the PI System?



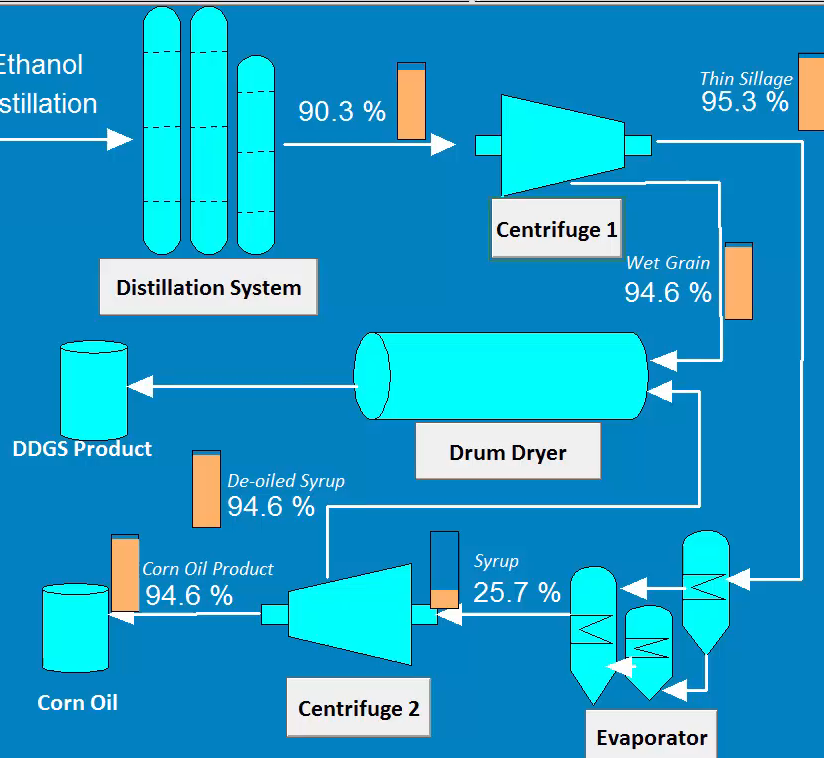


*How do you use the PI System to
do your job?*

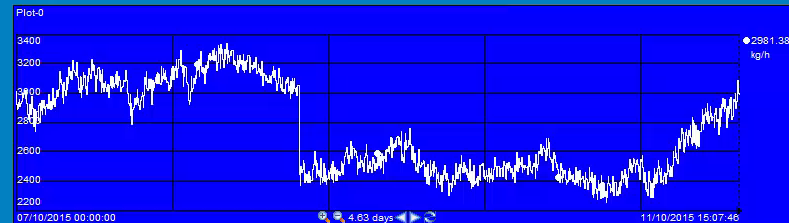
*How do your colleagues use the PI
System to do their jobs?*

Live Demo: What are the products?

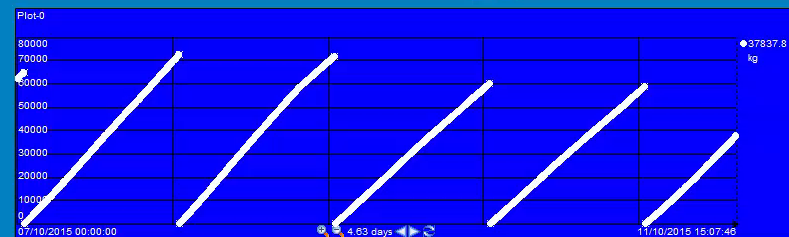
Corn Ethanol
Pre-Distillation



Production Rate - Corn Oil [kg/h]

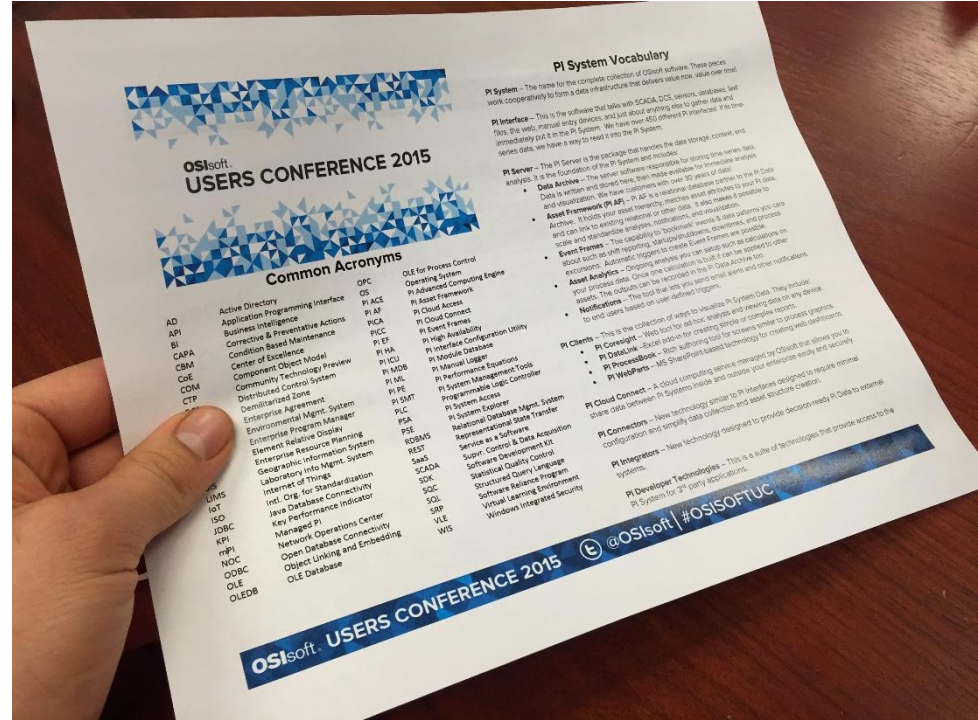
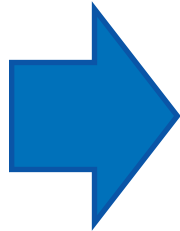


Total Shift Production - Corn Oil [kg]



Let's take a look at...

Your handy cheat sheet



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Common Acronyms

AD	Active Directory	OPC	OLE for Process Control
API	Application Programming Interface	OS	Operating System
BI	Business Intelligence	PI ACE	PI Advanced Computing Engine
CAPA	Corrective & Preventive Actions	PI AF	PI Asset Frameworks
CBM	Condition Based Maintenance	PI Cloud Access	PI Cloud Access
CME	Center of Excellence	PI Event Frames	PI Event Frames
COM	Component Object Model	PI High Availability	PI High Availability
CTP	Component Technology Preview	PI IECI	PI Interface Database
	Community Control System	PI IHA	PI Interface Database
	Distributed Control System	PI IML	PI Manual Logger
	Enterprise Agreement	PI MMB	PI Manual Management Tools
	Enterprise Program Manager	PI PFI	PI Performance Framework
	Enterprise Resource Planning	PI PSM	PI Programmable Logic Controller
	Enterprise Information System	PI PTC	PI Process Control
	Geographic Info Mgmt. System	PI PTC	PI Process Control
	Laboratory of Things	PI PTC	PI Process Control
	Int'l. Org. for Standardization	PI PTC	PI Process Control
	Java Database Connectivity	PI PTC	PI Process Control
	Key Performance Indicator	PI PTC	PI Process Control
	Managed PI	PI PTC	PI Process Control
	Network Operations Center	PI PTC	PI Process Control
	Open Database Connectivity	PI PTC	PI Process Control
	Object Linking and Embedding	PI PTC	PI Process Control
	OLE Database	PI PTC	PI Process Control

PI System Vocabulary

- PI System** – The name for the complete collection of OSIsoft software. These pieces work cooperatively to form a data infrastructure that delivers value now, value over time.
- PI Interface** – This is the software that talks with SCADA, DCS, sensors, databases, led files, the web, manual entry devices, and just about anything else in your data and investigation. We have customers with over 30 years of data.
- PI Server** – The PI Server is the package that handles the data storage, content, and analysis. It is the foundation of the PI System and includes:
- **Data Archive** – The server software responsible for storing time-series data. Data is written and stored here, then made available for immediate analysis.
 - **Asset Frameworks (AF)** – AF is a relational database engine to store PI data and investigation. We have customers with over 30 years of data.
 - **Event Frames** – This is the package that handles the data storage, content, and analysis. It is the foundation of the PI System and includes:
 - **Asset Analytics** – This is the package that handles the data storage, content, and analysis. It is the foundation of the PI System and includes:
 - **PI Clients** – This is the collection of apps to visualize PI System Data. They include:
 - **PI Connect** – Web tool for ad-hoc, simple and viewing data on any device.
 - **PI DataLink** – Web tool for creating simple or complex reports.
 - **PI ProcessBook** – Rich authoring tool for screens similar to process graphics.
 - **PI WebParts** – MS SharePoint based technology for creating web dashboards.
- PI Cloud Connect** – A cloud computing service managed by OSIsoft that allows you to share data between PI Systems inside and outside your enterprise easily and securely.
- PI Integrations** – New technology designed to provide decision-ready PI data to external systems.
- PI Developer Technologies** – This is a suite of technologies that provide access to the PI System for 3rd party applications.

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The PI System has 3 Layers

PI Interfaces

& PI Collectors

OPC

Modbus

HTML

UFL

RDBMS

And hundreds more!

PI Server

Store & Enhance

PI Data Archive



Historical data

Real-time data

Future Data

PI Asset Framework



Asset Analytics

Asset Structure

Event Frames

Notifications

PI Clients

Deliver

PI Coresight

PI ProcessBook

PI DataLink

PI WebParts

PI Integrators

3rd Party Apps

Custom Apps

Maps, BI, etc.



Real Time
Troubleshooting



Keep the
Process Healthy



Report on
data quickly



Avoid
breakdowns



What Resources Are Available?



OSIsoft YouTube Channel



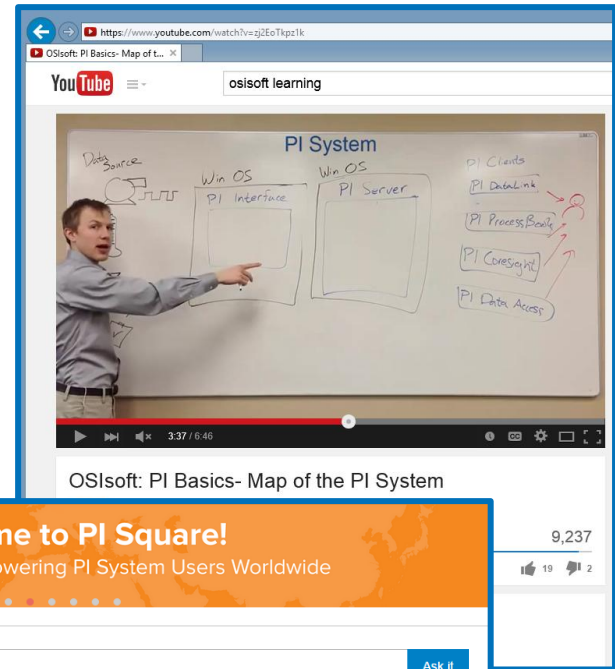
PI Square Users Community



*Live Classes &
Virtual Learning
Environment (VLE)*



*Tech Support &
Field Service*



<http://icons8.com>

What's Next at the UC?

TechCon Talks
Hands On Labs
Product Expo

Find us at the
Learning Booth.



Come meet us and ask us questions! 😊

Contact Information

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Questions

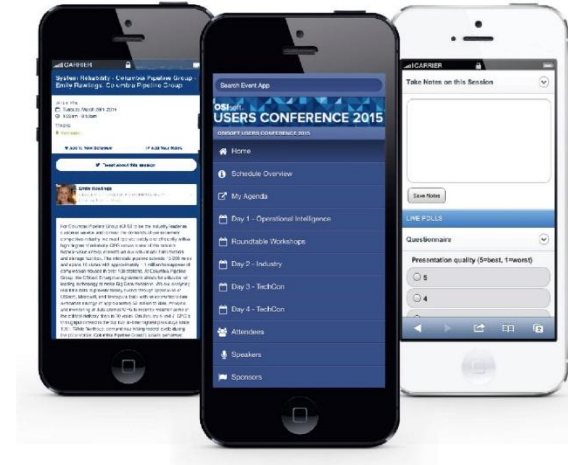
Please wait for the **microphone** before asking your questions



State your
name & company

Please don't forget to...

Complete the Online Survey
for this session



<http://eventmobi.com/emeauc15>



감사합니다

谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado