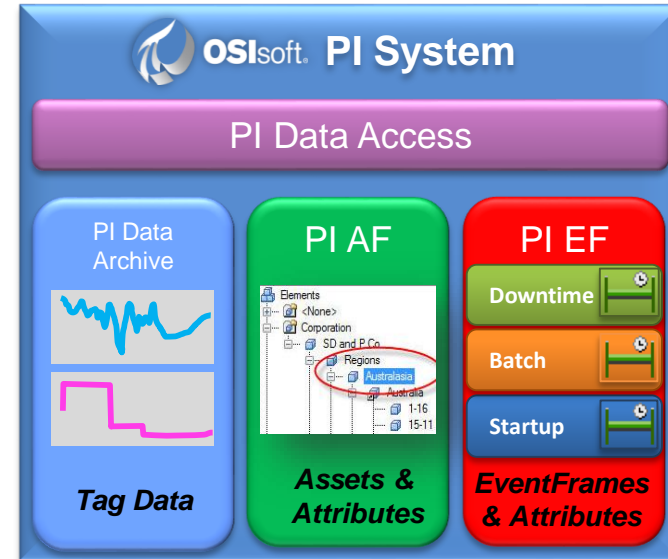
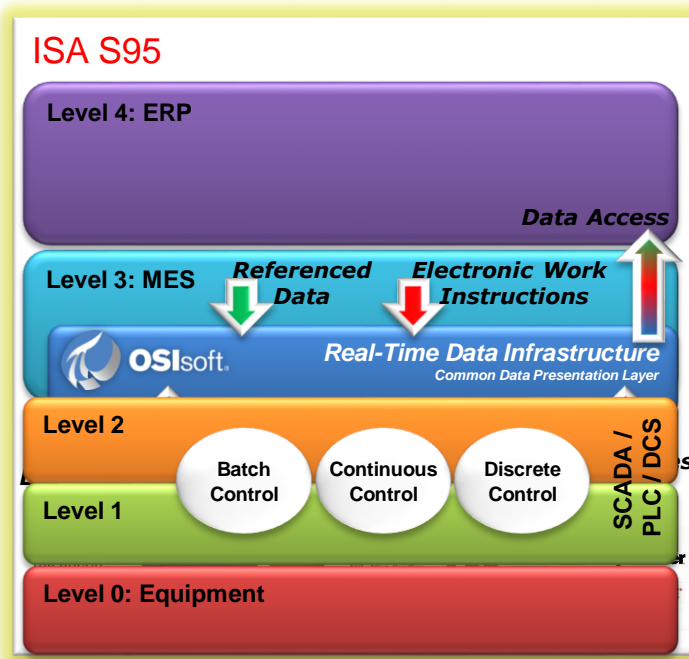


Overview of The PI System

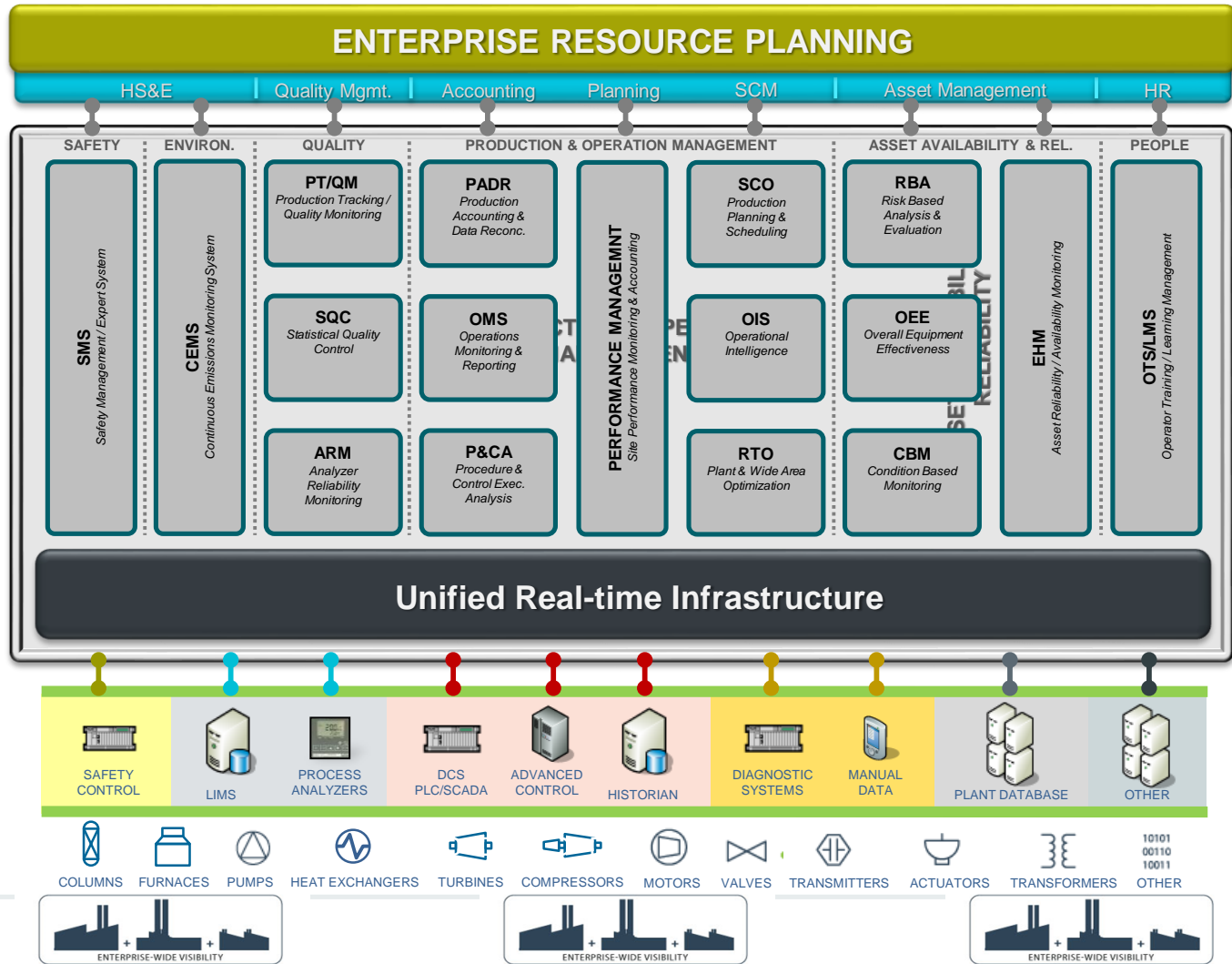
Presented by **Frank Batke**

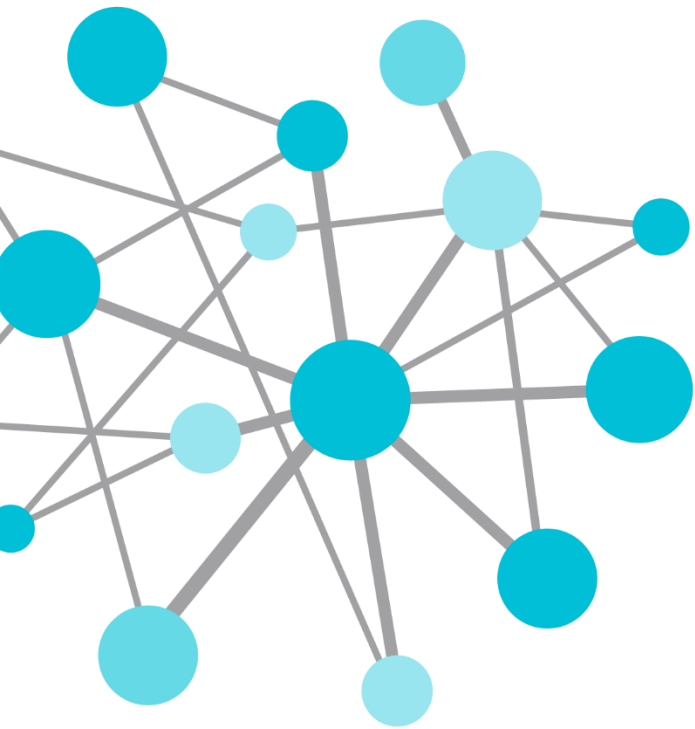
Hans Otto Weinhold

Aggregation – PI System Data Infrastructure



ENTERPRISE RESOURCE PLANNING





From Tag to Asset

30+ Years of experience

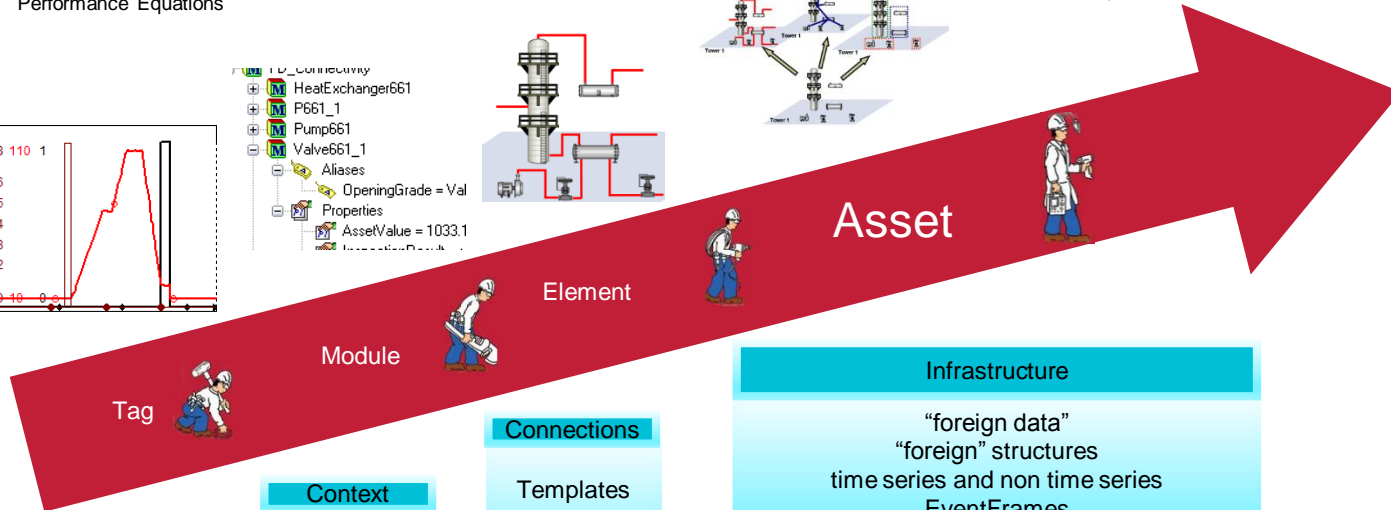
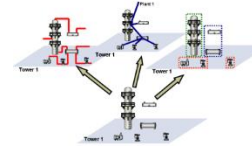
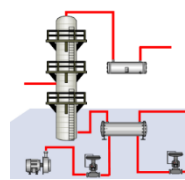
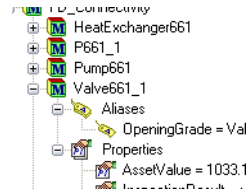
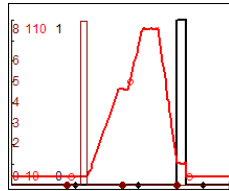


Going Asset centric

PI Processbook
PI Datalink
PI Batch
Performance Equations

PI ACE
RtReports
Module relative Displays

PI Notifications
Element relative displays
PI Coresight
PI Webparts
Asset based Analytics



History

Connectivity
Time series

PI Data Archive

Context

Alias
Versions
Hierarchies

Module database

Connections

Templates
Flow sheets
"foreign" data

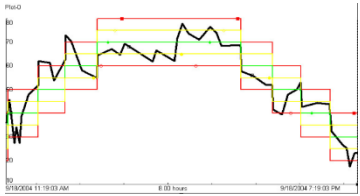
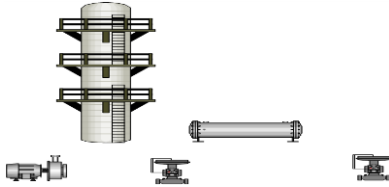
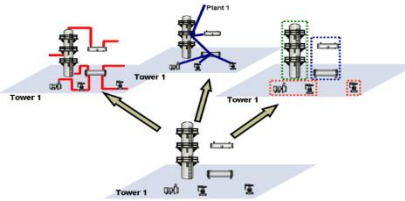

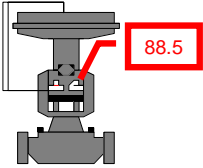
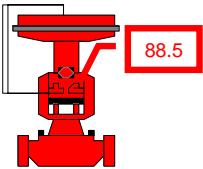
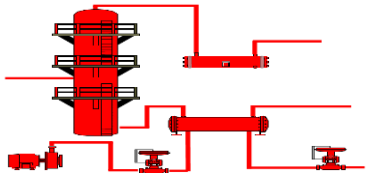
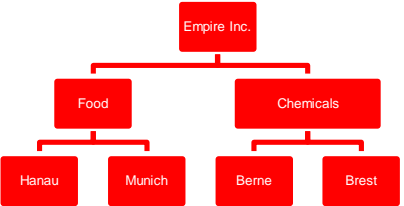
PI Asset Framework
1.x

Infrastructure

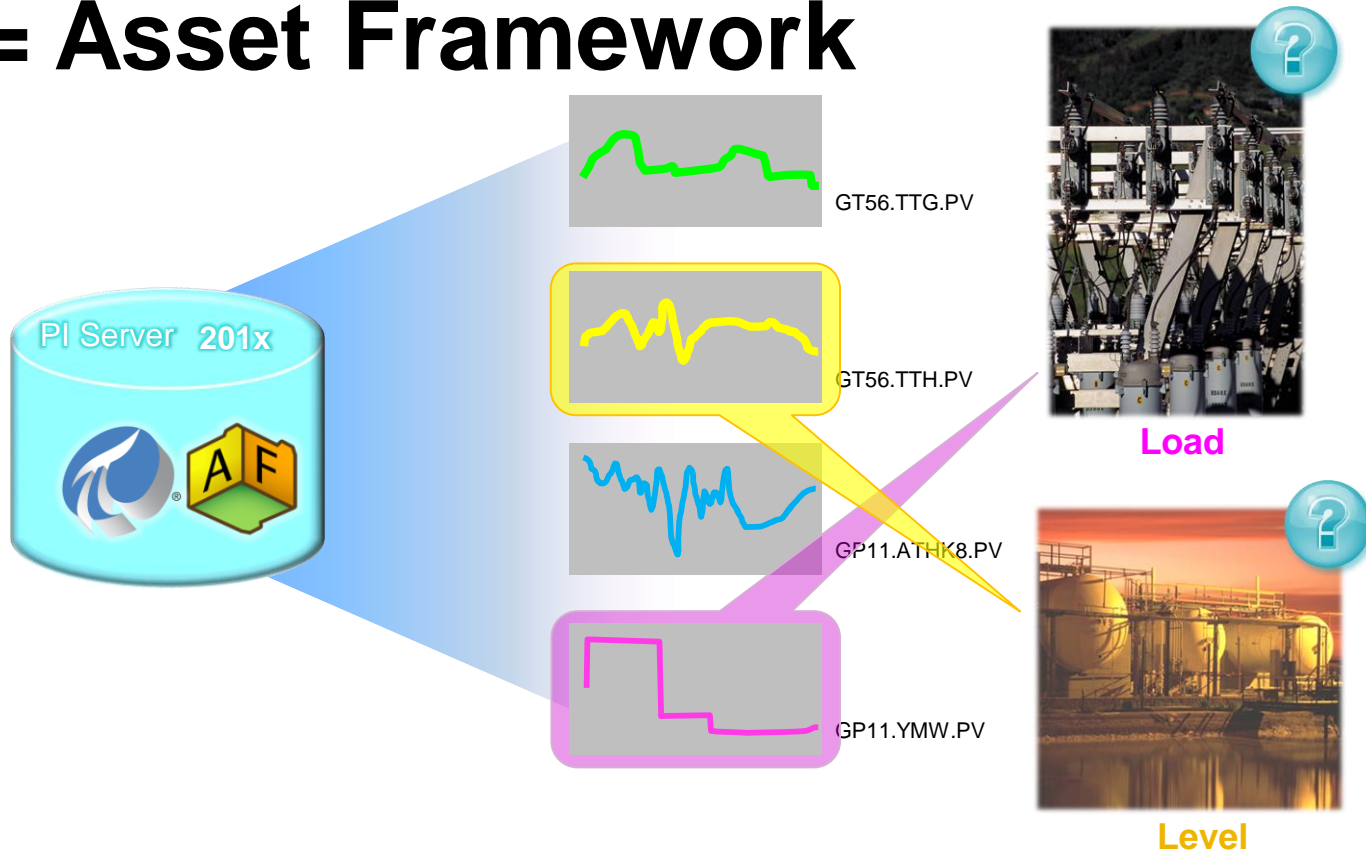
"foreign data"
"foreign" structures
time series and non time series
EventFrames
Versions

**PI Asset Framework
2.x**

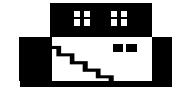
See the full picture

Time Series	Time Series Modules	Time Series non Time Series Assets	Time Series non Time Series Assets Asset structure
			
			
sensor	equipment	process unit / plant	enterprise

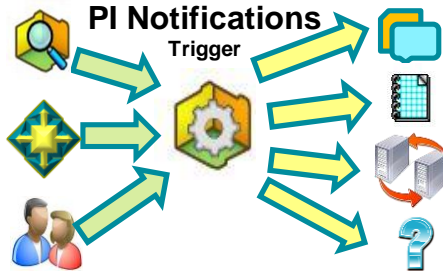
AF = Asset Framework



Find , Analyze, Deliver



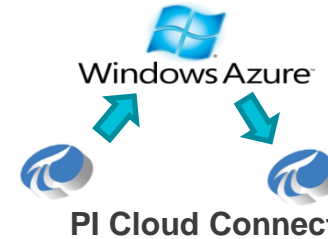
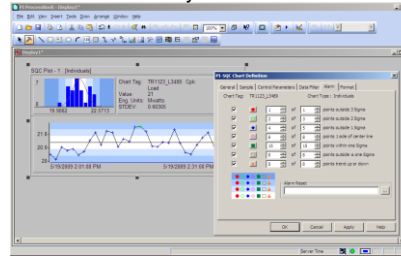
PI ACE Advanced Computing Engine



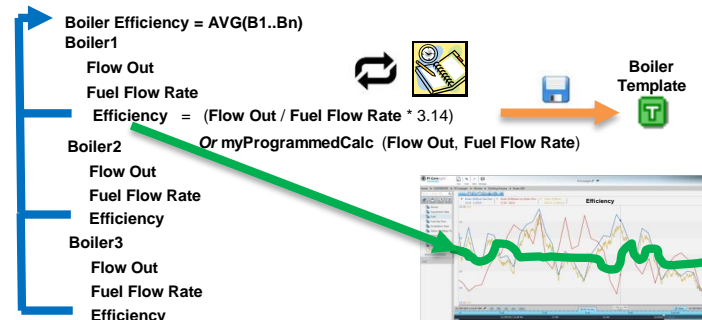
PI System Access –PSA

- PI SDK
- AF SDK (includes AN/EF SDK)
- PI OLEDB / PI OLEDB Enterprise
- PI JDBC
- PI ODBC
- PI OPC DA/HDA Server
- PI WebServices – SOAP
- PI WebAPI – REST - ODATA
- PI API (Runtime, no Development)

PI SQC Statistical Quality Control

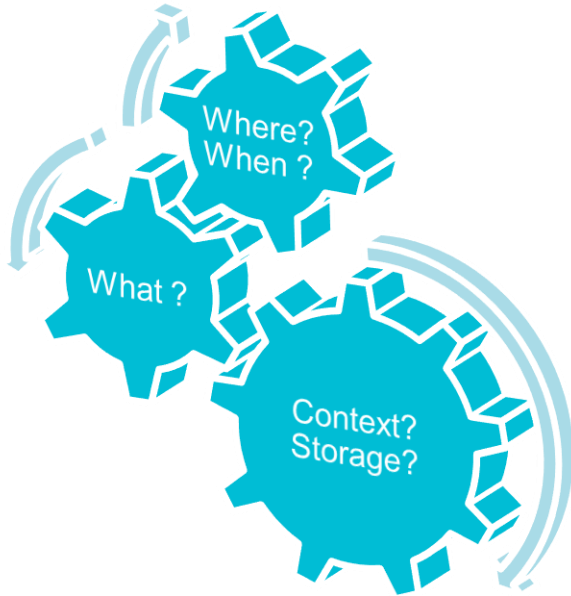


Asset Based Analytics



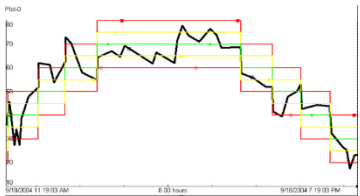
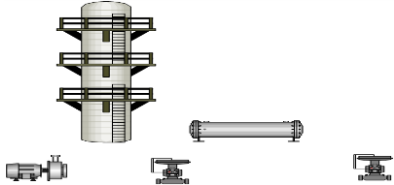
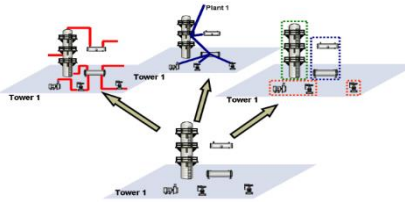

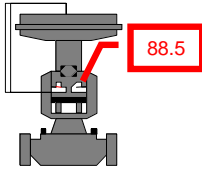
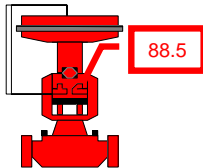
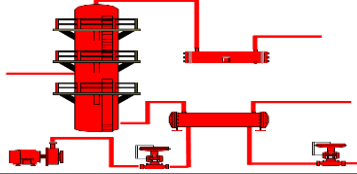
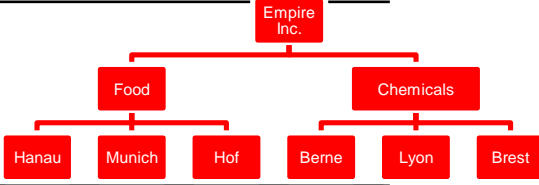
Its always an combination

!!!



Where ?	To run the analysis: <ul style="list-style-type: none"> • Performance • Rollout • Availability 	<ul style="list-style-type: none"> • Client • Server
When ?	To run the analysis: <ul style="list-style-type: none"> • Data retrieval • Consumer constraints • Performance 	<ul style="list-style-type: none"> • On event • On Time Schedule • On Condition • Ad hoc • Recalculate
What ?	Is hosting the algorithm: <ul style="list-style-type: none"> • Validation • Reuse existing investment • Performance 	<ul style="list-style-type: none"> • Formula (Expression) • .NET code • Existing DLL • 3rd party app
Context ?	What “object” is analysed <ul style="list-style-type: none"> • Reusability • Consistency • Rollout 	<ul style="list-style-type: none"> • Tag • Module • Asset • Asset Template • Asset structure
Result ?	Storage place: <ul style="list-style-type: none"> • Reusability • Consistency • Performance • Availability • Validation 	<ul style="list-style-type: none"> • Single Tag • Multiple Tags • Event frame • Action • Notification

Analysis Needs Context

Time Series	Time Series Modules	Time Series non Time Series Assets	Time Series non Time Series Assets Asset structure
Performance Equations (PE)	Advanced Computing Engine (ACE)	AF Formula Data Reference	Asset based Analytics
			
			
sensor	equipment	process unit / plant	enterprise

Analysis brought into context becomes **reusable** and allows **single point of maintenance**

Calculations in PI

What combination to RUN ?		PI Performance Equations	PI Datalink Expression	PIProcessbook Expression	PI ACE	PI AF Formula DR	PI Notifications	PI Asset Based Analytics
Where	Client		X	X		X		
	Server	X			X		X	X
When	On event	one only			X		X	X
	On Time Schedule	X			X		X	X
	On Condition				X		X	X
	Ad hoc		X	X	via Webservice	X		evaluation button
	Recalculate	partly			X			backfill
What	Formula	X	X	X	X	X	X	X
	.NET code				X		via SDK	planned
	DLL				X		via SDK	planned
	3rd party app		VBA	VBA	X		via SDK	planned
Context	Tag	X	X	X	X		X	
	Module		X	X	X			
	Asset		X	X	via AF Link Subsystem	X	X	X
	AssetTemplate					X	X	X
	Assetstructure						X	rollup
Result	Single Tag	X			X		X	X
	Multiple Tags				X		X	X
	Eventframe				via SDK		via SDK	X
	Action		VBA	VBA	.NET		X	

Visualize



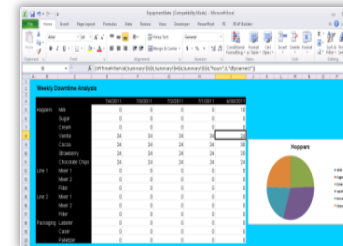
PI Coresight:
*Ad Hoc Analysis &
Collaboration
Going mobile*



PI ProcessBook:
Display authoring and Process
monitoring



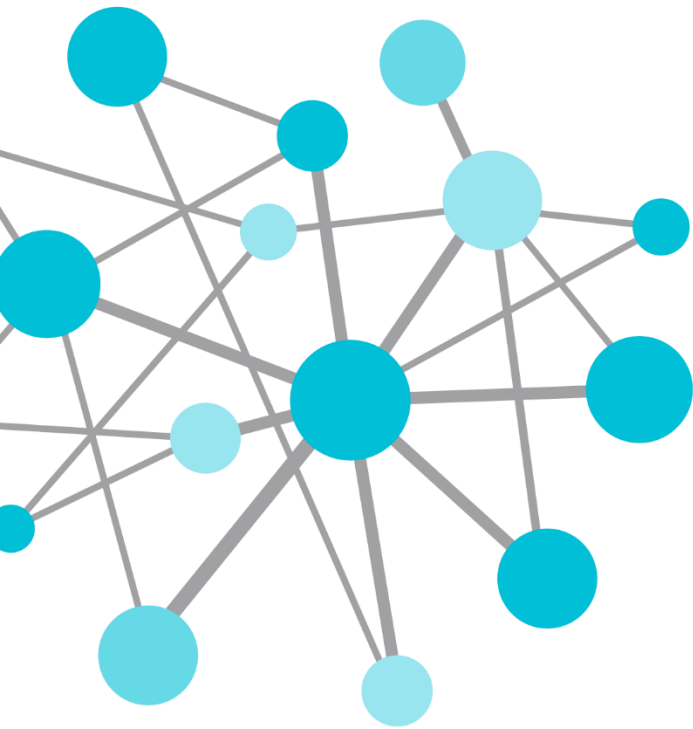
PI WebParts:
Composite Apps, Shared broadly
Integration into Portal



PI DataLink:
Reporting using Microsoft
Excel as front end

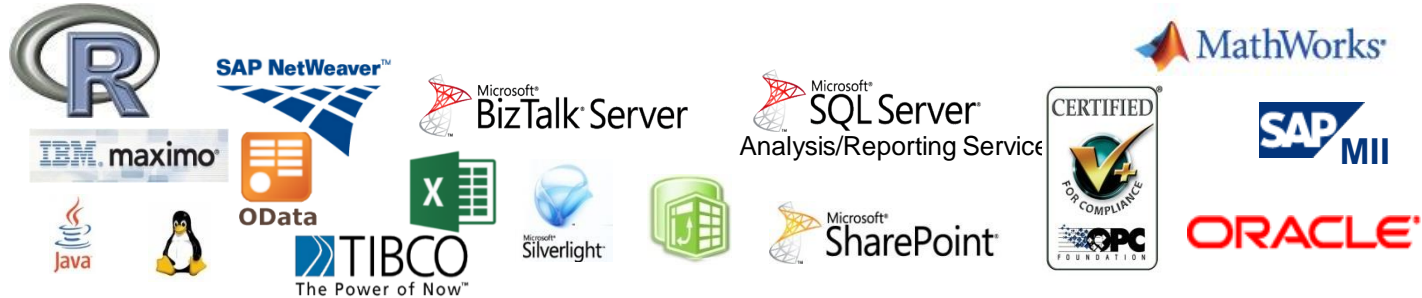
Demo 1: Assets and Visualisation

Context based Visualisation	Element relative Display <ul style="list-style-type: none">• Trend• Element name• Value• X-Y Plot
Template and Symbol	Model Builder (Processbook 2014 !) <ul style="list-style-type: none">• Add a attribute• New Composite• Resync
What about good old Excel	PI Datalink <ul style="list-style-type: none">• From Tag• From Attribute



**What about the world
outside of PI ?
Or
How to use my existing
investment ?**

PI System Access



PI JDBC

PI Web Services (SOAP/REST)

PI OLEDB Enterprise


PI OPC DA/HDA Server


OSisoft SDKs

AF Asset Information / Metadata

Notifications
Analytics

Relational / Non Time Series Data

 PI Data Archive

 PI Data Archive Collective

Time Series Data

Data access support

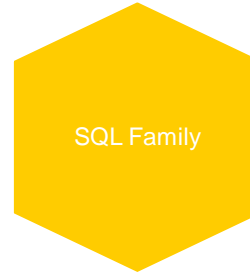
Product	Real-time	Archive	Metadata (AF)	Event Frames	Write data
OLE DB & OLE DB Enterprise	Yes	Yes	Yes, Enterprise only	Yes, Enterprise only	No
JDBC	Yes	Yes	Yes	Yes	No
ODBC 2014*	Yes	Yes	Yes	Yes	tbc
PI Web Services	Yes	Yes	Yes	Yes	Yes
PI System SDK (AF SDK)	Yes	Yes	Yes	Yes	Yes
PI SDK	Yes	Yes	No	No	Yes
RLINK	Yes	tbc	No	No	Yes

* Release in 2014, support tbc

- Table is for summary purposes only. Consult manuals/OSIsoft to verify functionality

PI Developer Platform

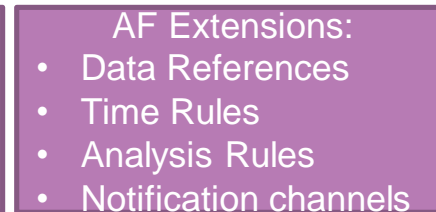
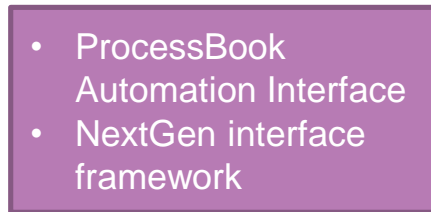
- Open



- Deprecated

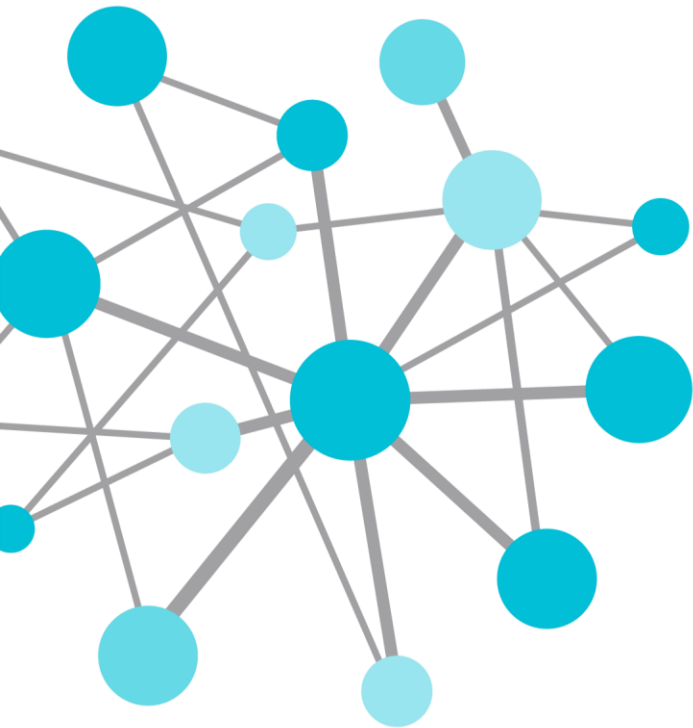


- Restricted



Demo 2: Assets and PI System Access

Use your existing investment: PowerPivot (since Office 2010)	Create Datasource PI OLEDB Enterprise Create Pivot (t.b.c. by Microsoft)
Use your NEW investment: PowerBI (since Office 2013 /365)	Create Datasource PI WebAPI ODATA (beta) Create Powerview



THANK
YOU

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