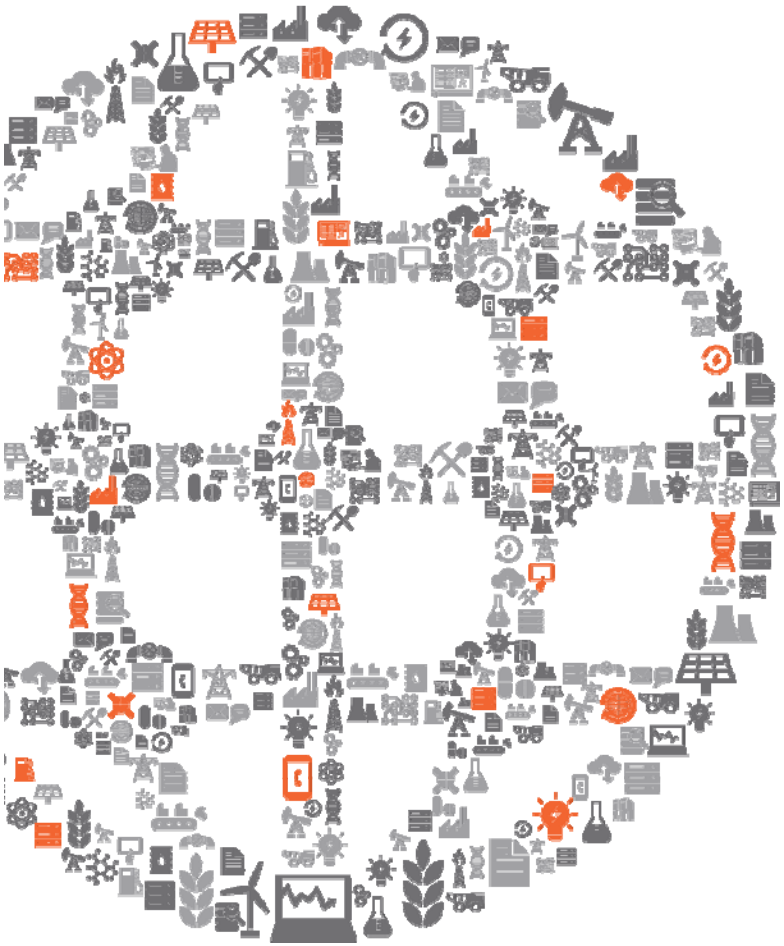

The Power of Data: Thriving in a World of Change

Presented by **Brett Higgins**

Vice President – Asia Pacific

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About OSIsoft

Founded in **1980**

14 000 Sites,
4 000 Customers
123 Countries

Revolutionary **customer support**

Over 20% of revenue invested in R&D

Global presence, Offices worldwide

Power & Utilities
Oil & Gas
Chemicals
Metals & Mining

Pharma
Life Sciences
Pulp & Paper
Datacenters
Critical Facilities

Strategic Partners:
Microsoft, ESRI, Cisco, Accenture, IBM

1000 Employees

65% of Global 500 process & manufacturing

Market Leader
"Enterprise infrastructure for streaming data & events"

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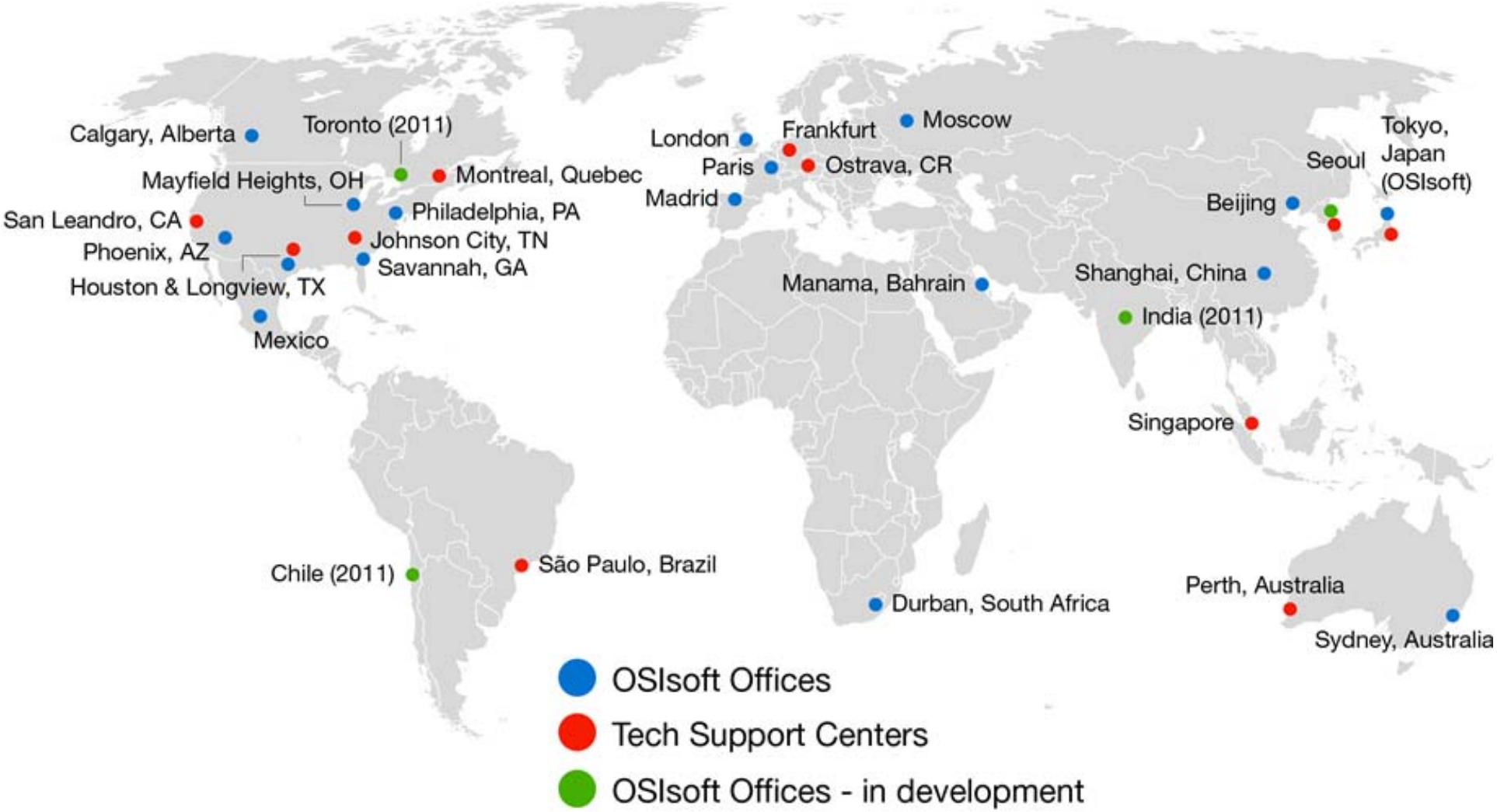
Worldwide Presence of OSIsoft



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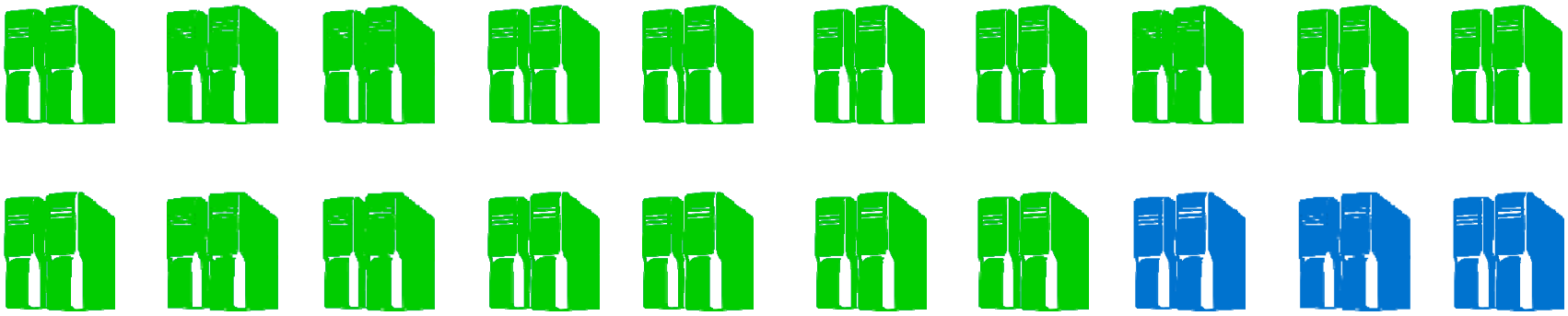
Statistic



Of the first **20** PI System installations

17 are current on support and running today

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Data or Information?

Definition of data

noun

- *the quantities, characters, or symbols on which operations are performed on a computer, which ay me stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media.*

- *things known or assumed as facts,* ***making the basis of reasoning or calculation***

Definition of information

noun

- *data that is (1) accurate and timely, (2) specific and organized for a purpose, (3) presented within a context that gives it meaning and relevance, and (4) can lead to an increase in understanding and decrease in uncertainty.*

- *Information is* ***valuable because it can affect behaviour, a decision,***

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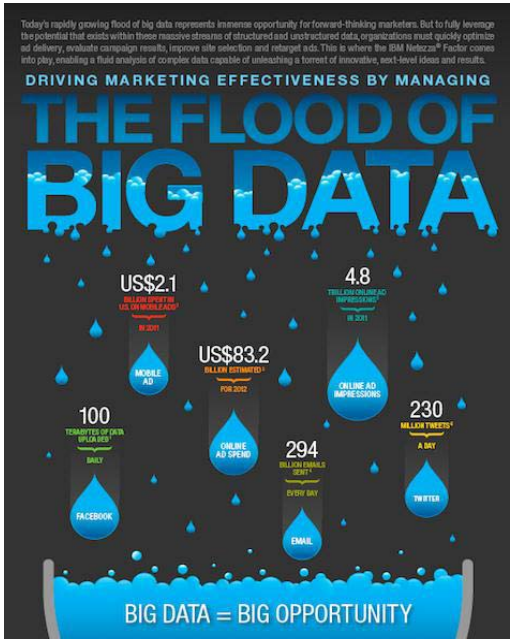

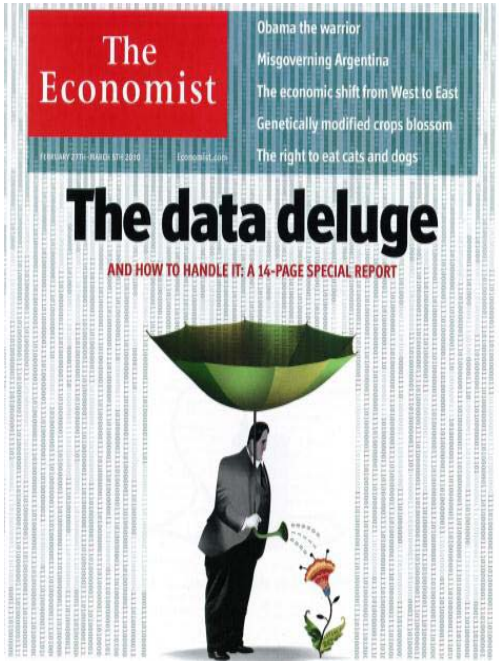

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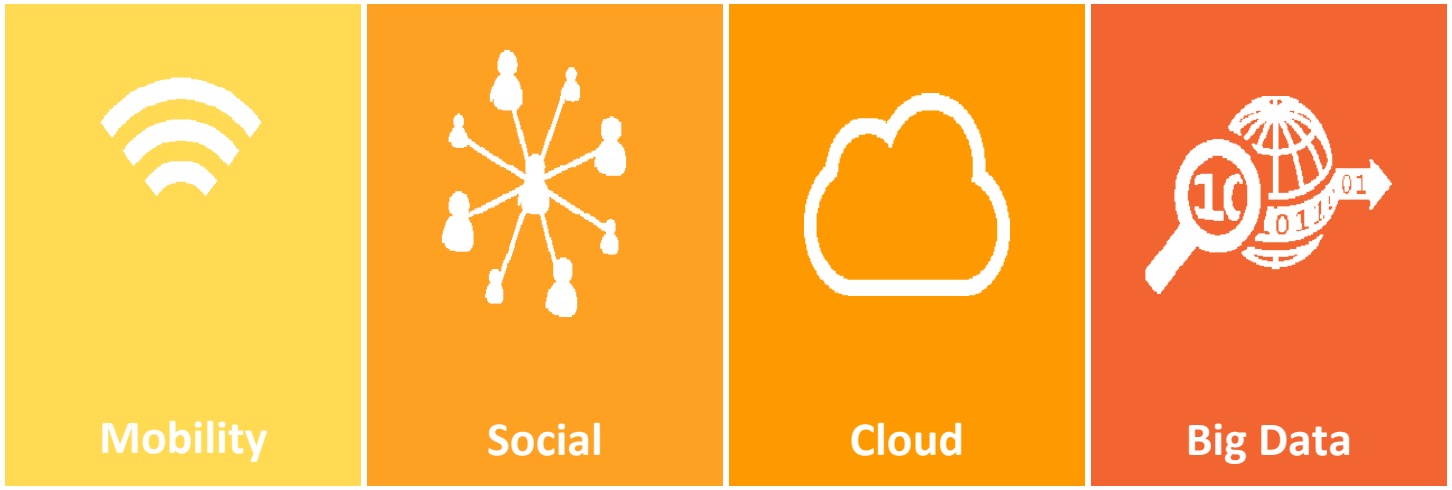
IT Trends Impacting Business Execution



> Social connections, mobility, cloud delivery and pervasive information are converging in a powerful way. This convergence is creating a new era of computing and new opportunities for business.
>
> *– Gartner, August 2012*

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The Ever-changing World of Devices

2003 2010 2015 2020

source - http://blogs.cisco.com/news/the-internet-of-things-infographic/

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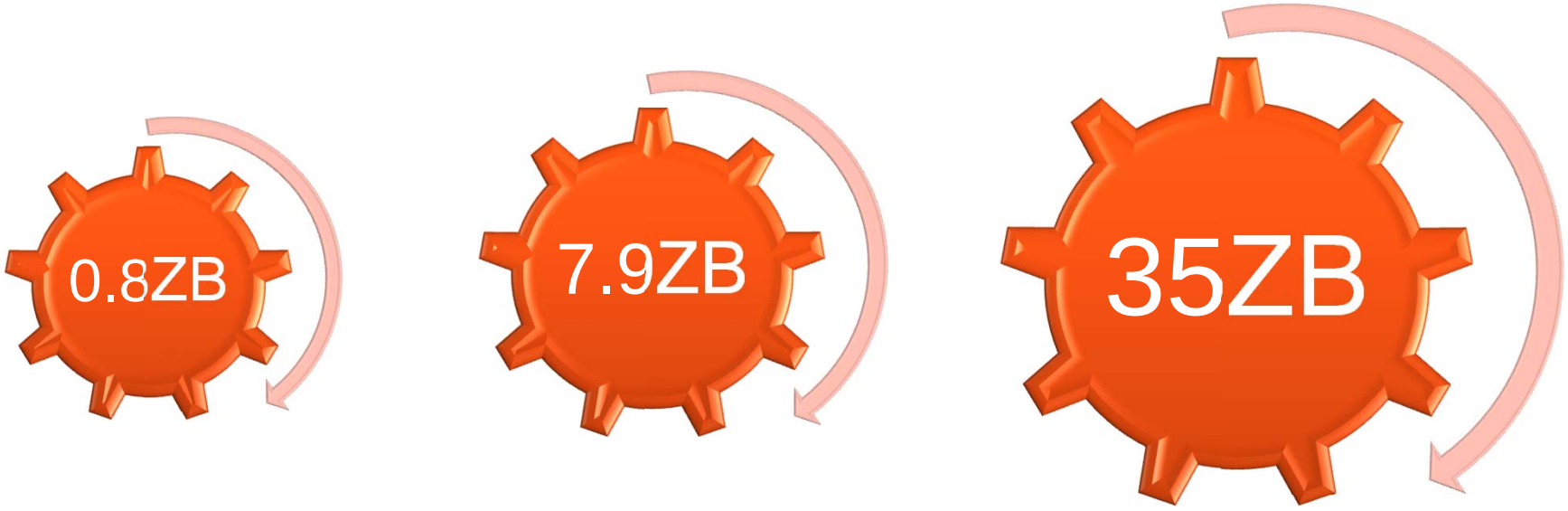
The Ever-changing World of Data



2009 **2015** **2020**

1,000,000,000,000 Gigabytes
= 1,000,000,000 Terabytes
= 1,000,000 Petabytes
= 1,000 Exabytes
= 1 Zettabyte (1 billion TB)

source - http://assets1.csc.com/insights/images/CSC_Infographic_Big_Data.jpg

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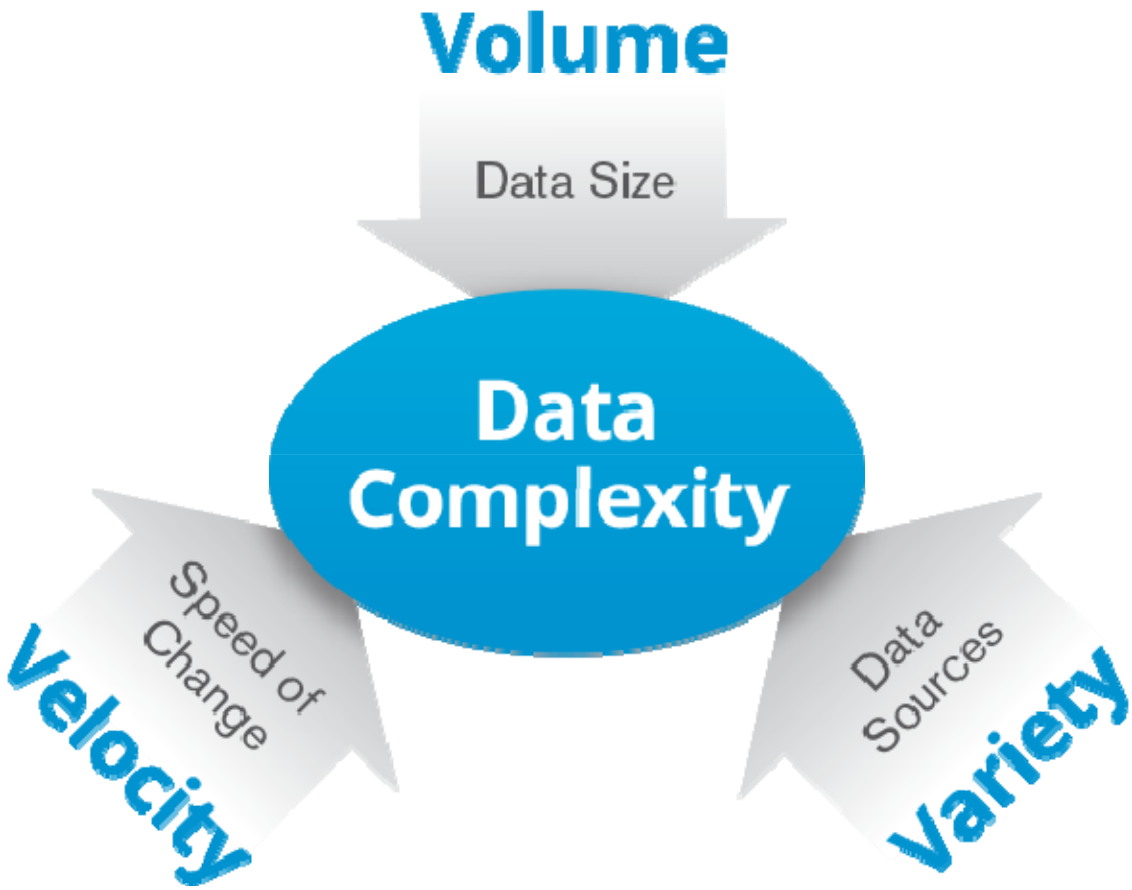
Size Isn’t Everything…….



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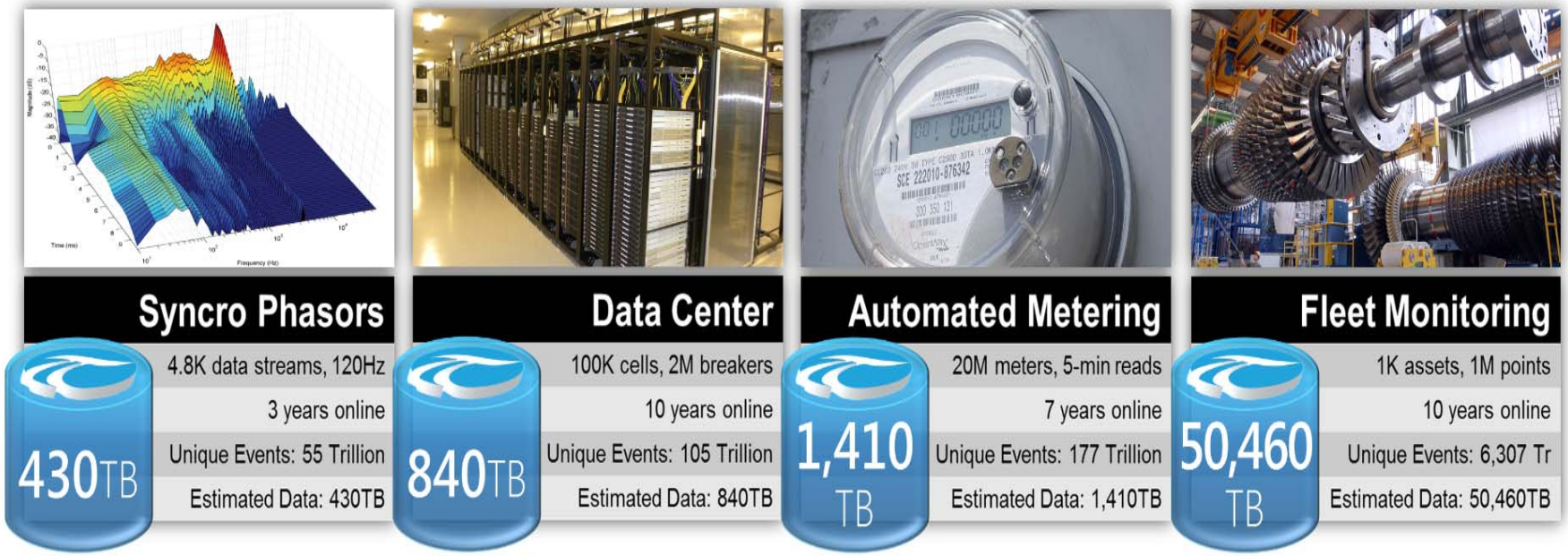
Scalability



- **Configuration experience**
  - Support majority of calculation requirements
    - Performance Equation syntax

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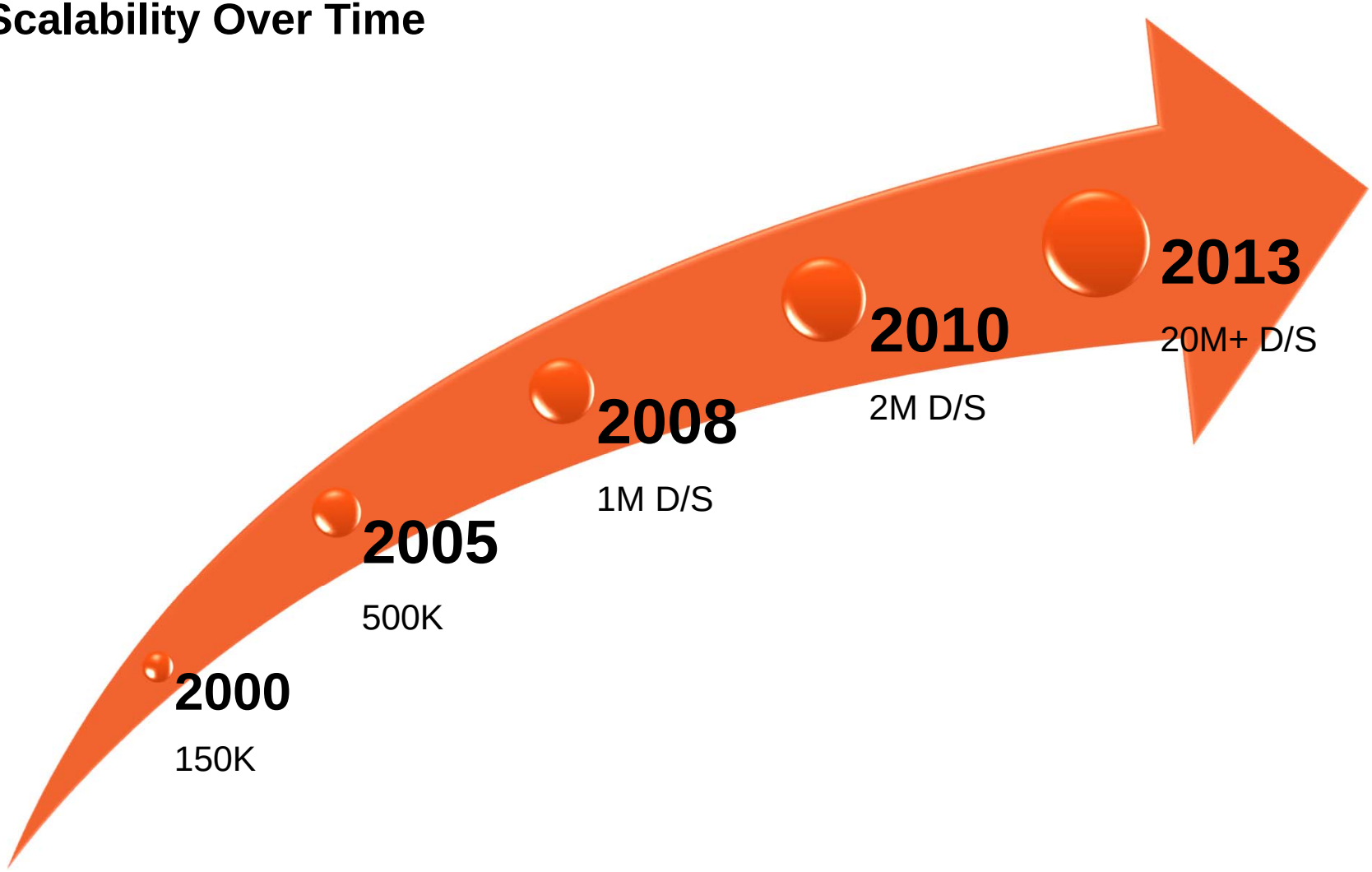
Evolution of the PI Server

Scalability Over Time



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PI Server 2012 vs. 2010: The Final Sheet

	2010	2012	Delta
Max Point Count	2-3M	**20M+**	5-10x
Startup Time	>10 min/Mpts	<30 sec/Mpts	20x
Point Creation	<100 pt/sec	500-2K pt/sec	5-200x
Tag Searching	Variable, Non-Linear	Constant or Linear	N/A
Max Update Signups	<200K	**10M+**	50x
Update Signup Rate	<2K/sec	>100K/sec	50x
Data Out (Archive)	<1M ev/sec	**>10M ev/sec**	10-20x
Data In (Snapshot)	<200K ev/sec	>1M ev/sec	5-10x
Data In (Archive)	<100K ev/sec	**>500K ev/sec**	5-10x
Archive Shifts	>1 min/GB	<10 sec/GB	6-12x
Online Archives	<10K files	>50K files	5-10x
Backup Speed	>5 min/GB	<1 min/GB	5-10x
Offline Reprocessing	>15 min/GB	30 sec/GB	30x

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Infrastructure is the most efficient way to deliver services needed by many….

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What is an Infrastructure

- ✓ Availability
- ✓ Security
- ✓ Scalability
- ✓ Flexibility
- ✓ Reliability
- ✓ Enabler of other applications

NYT Magazine All About Infrastructure,
Matt Ball, June 14, 2009

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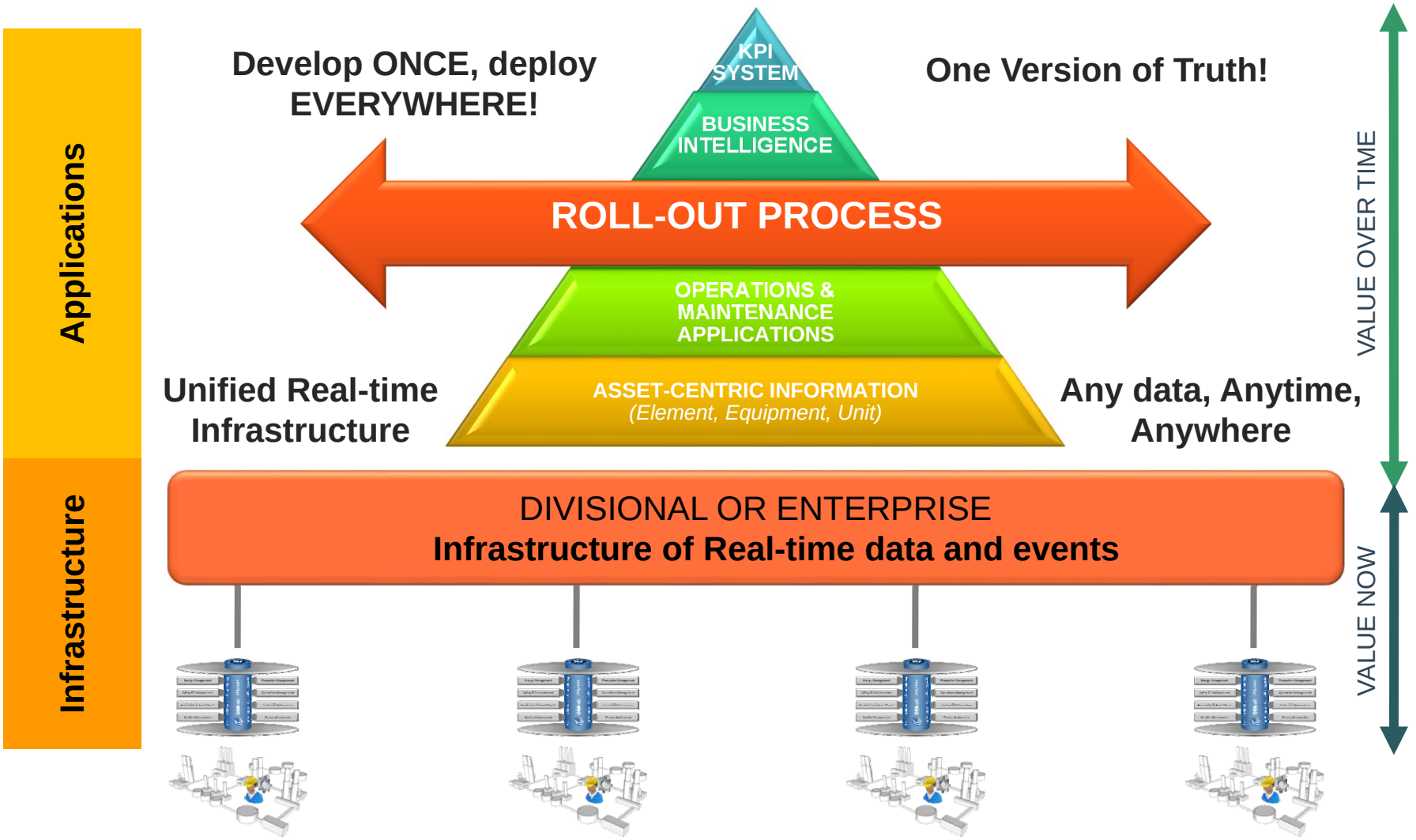
Infrastructure to harness the Power of Data

Implementing Strategic Initiatives on Enterprise Scale



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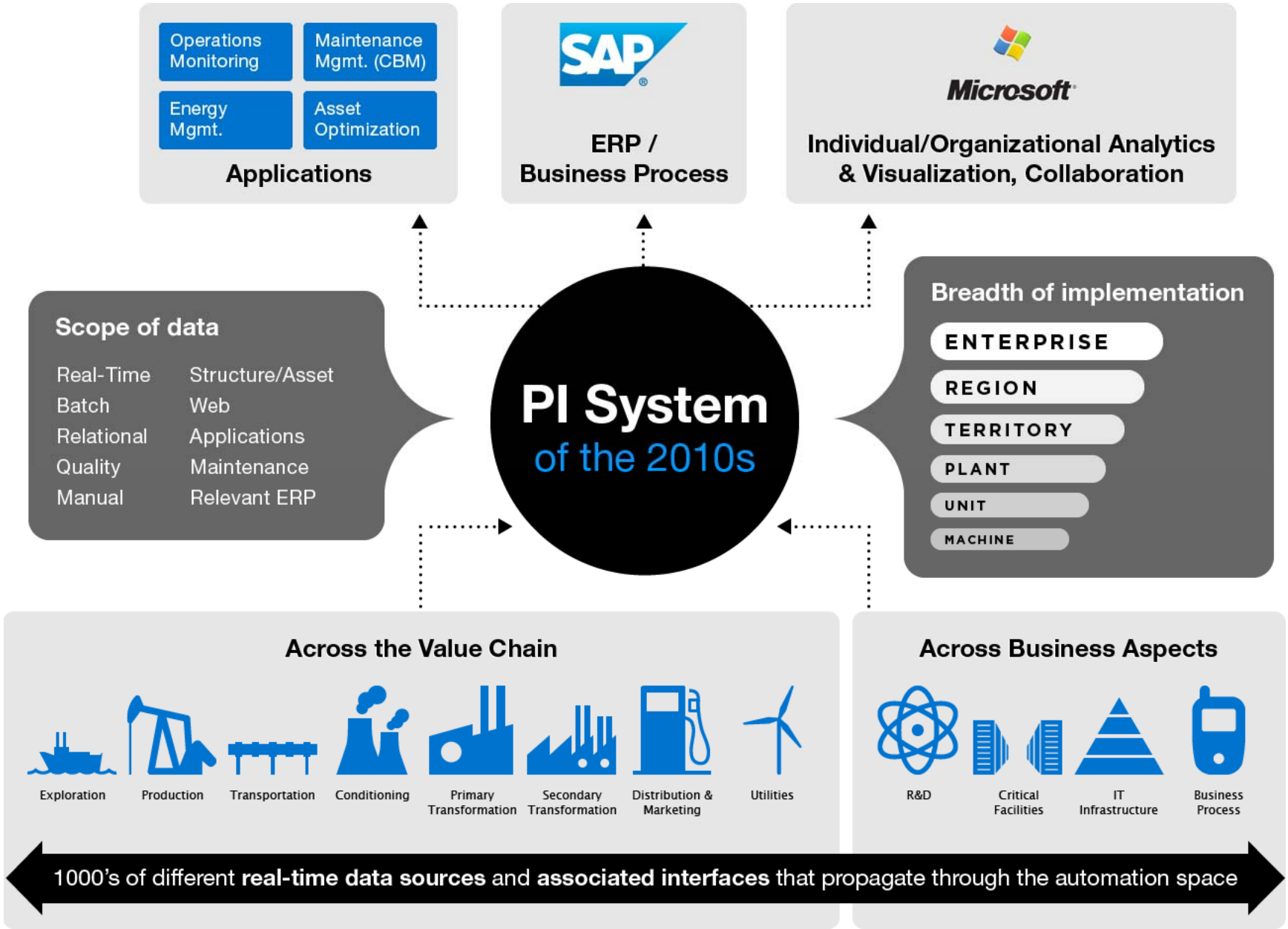

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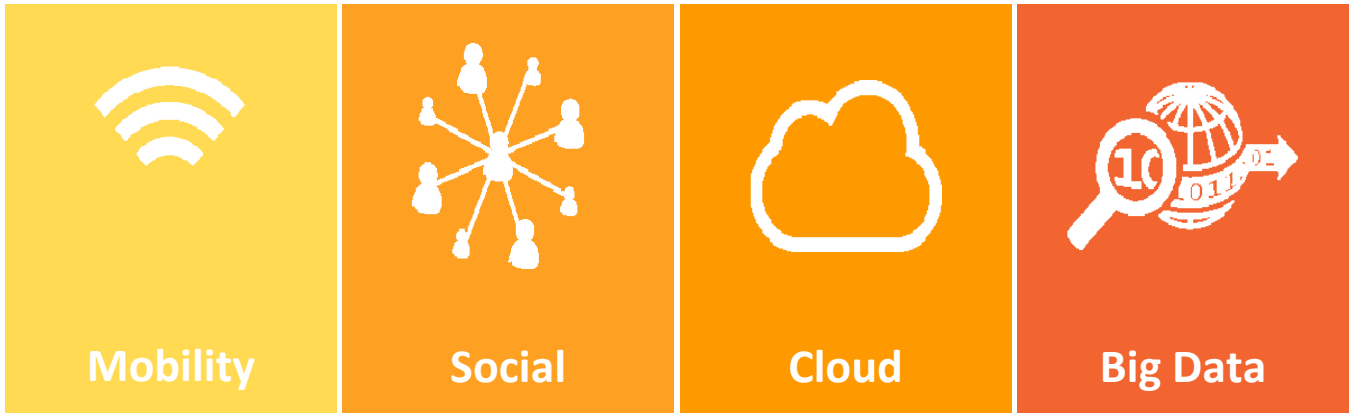
IT Mega Trends… How does OT Adapt for Operational & Business Excellence?

IT MEGA TRENDS



OT

OT is hardware and software that detects or causes a change, through the direct monitoring and/or control of physical devices, processes and events.

Real- Time Infrastructure for the Enterprise….

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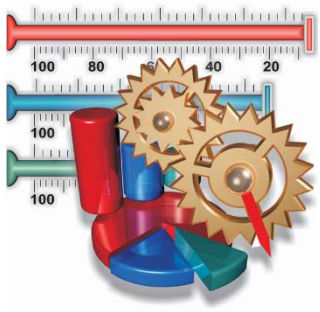
OT is often Siloed …

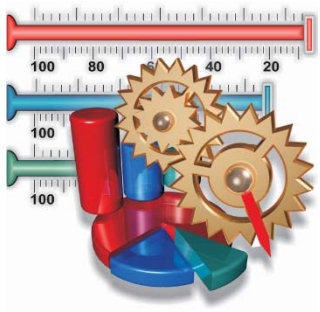
Sample OT Questions

"Which pump is the most reliable?"

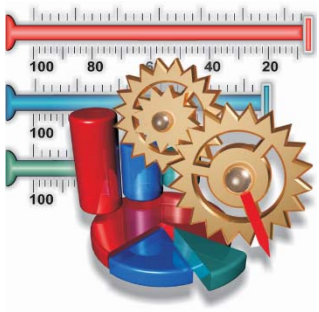
"Which site has the best performance?"



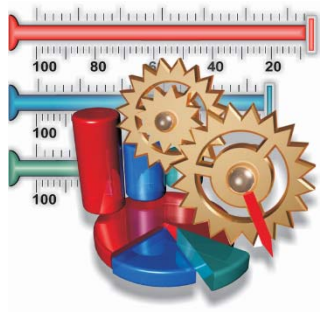
Plant A



Plant B



Plant C…..



Plant *n*

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OT is often Siloed …

More OT Questions

*"How do I **optimize my fleet** of 250 assets by comparing their performances for the past 5 or even 15 years?"*

*"Have we ever seen this **vibration pattern** in the past eight years?"*

*"Are there **dangerous oscillations** in my grid?"*

*"How can I **detect problems** with my machine before they become critical?"*

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Bridging the Great Divide…. IT and OT

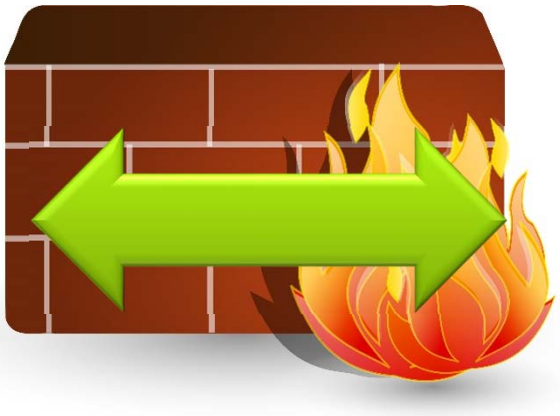
PLC

SCADA

DCS

EMS

DMS



CRM

MES

AMI

EAM

ERP

Real-time Infrastructure for the Enterprise

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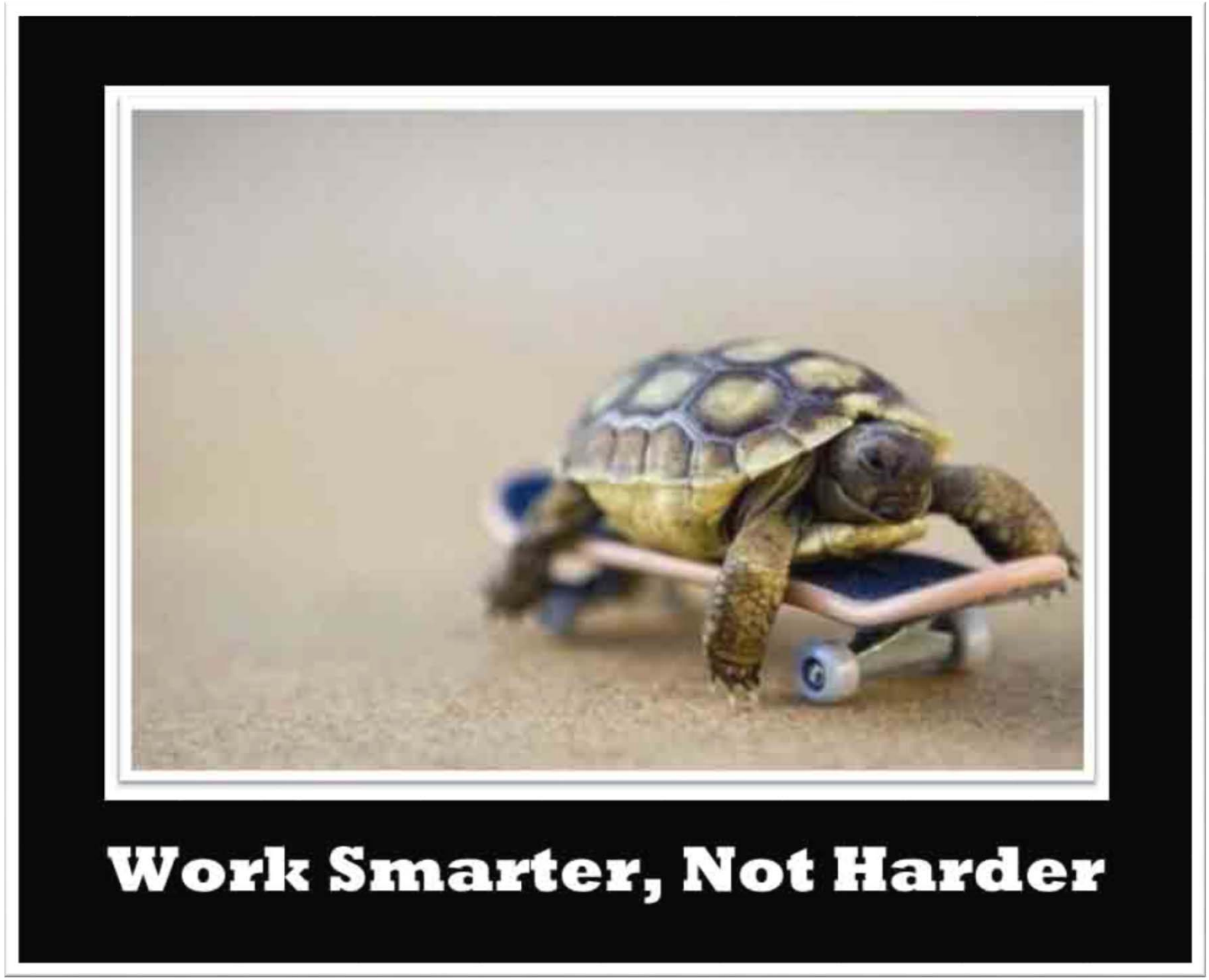

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Manageable

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Metadata (Card Catalogue)

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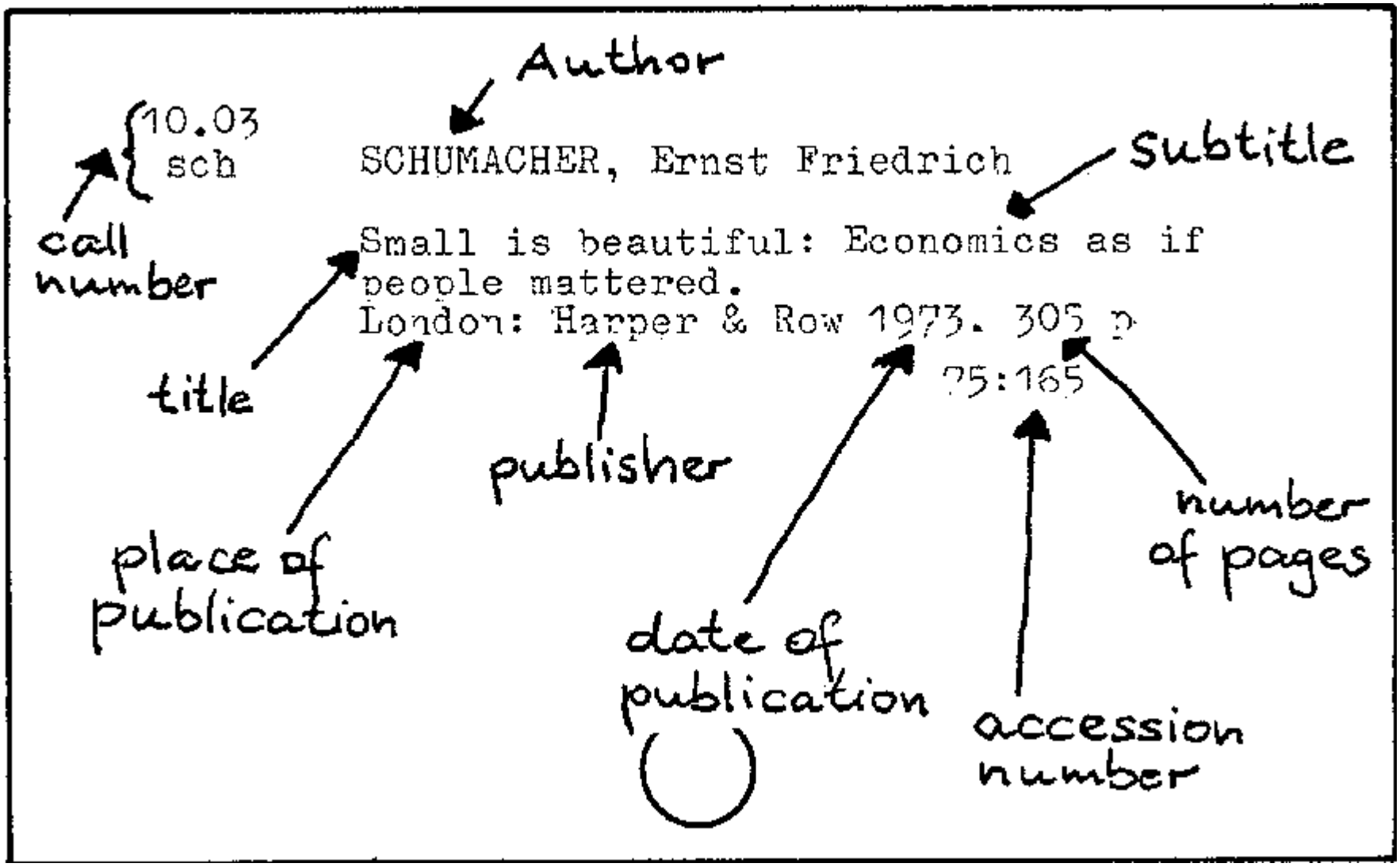

Metadata (Card Catalogue)

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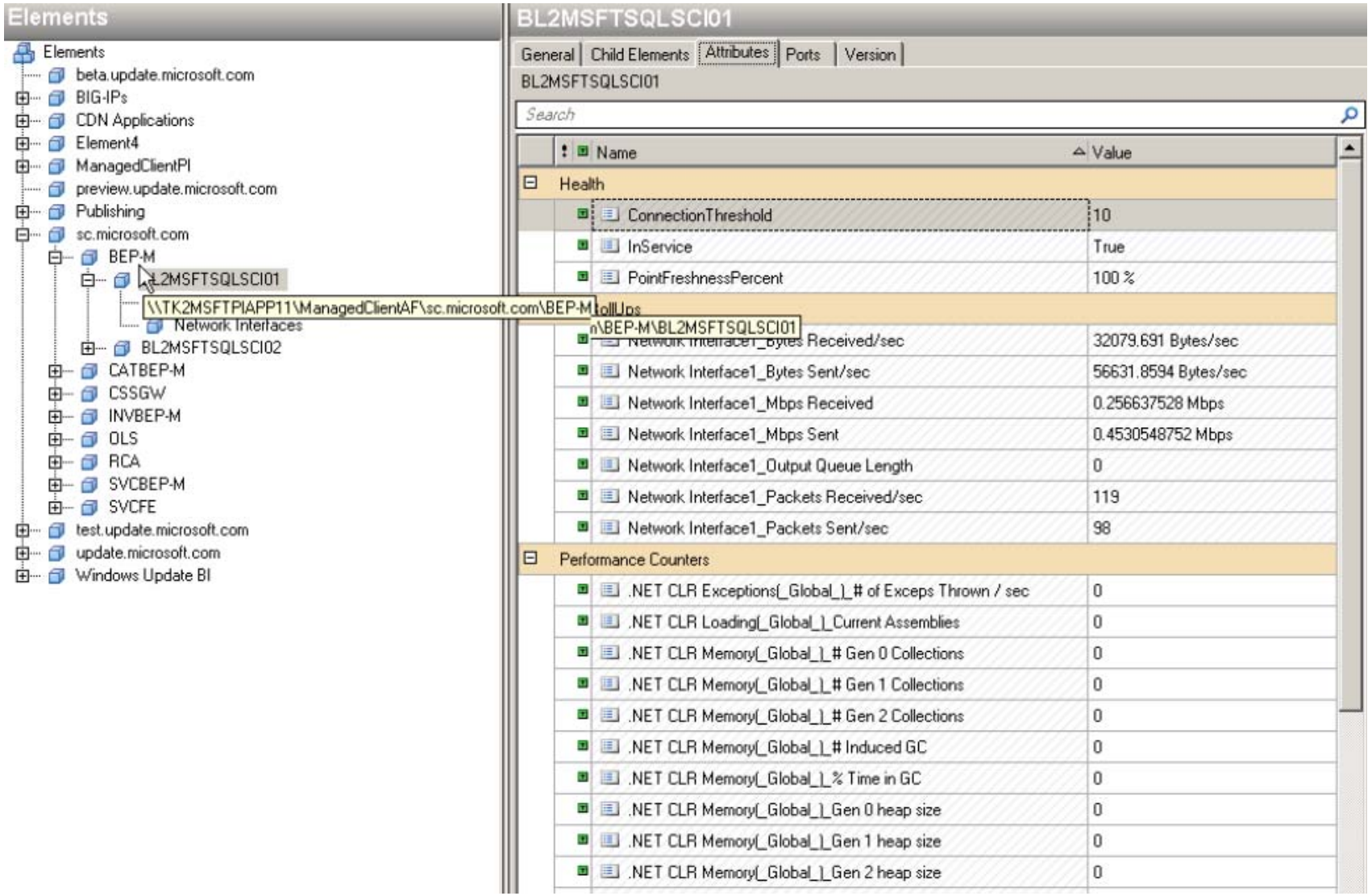

Metadata (PI AF)

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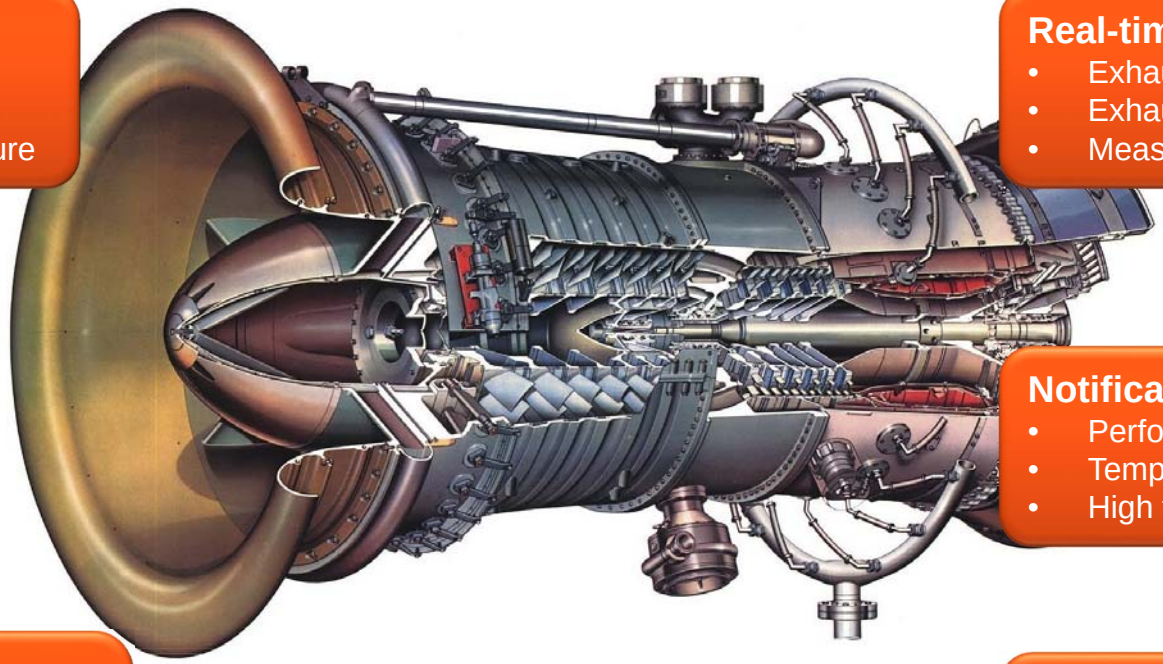
Model Driven Data

Real-time Values
- Inlet pressure
- Inlet flow
- Ambient temperature

Real-time Values
- Exhaust temperature
- Exhaust flow
- Measured MW output



Asset details
- Name
- Make
- Model

Notifications
- Performance excursions
- Temperature difference
- High temperature

External Databases
- Performance curves
- Last service date
- Design documents
- Inspection best practice

Calculations
- Performance calculations
- KPI's

Business Events
- Downtime
- Startup
- Excursions

Metadata (PI AF)

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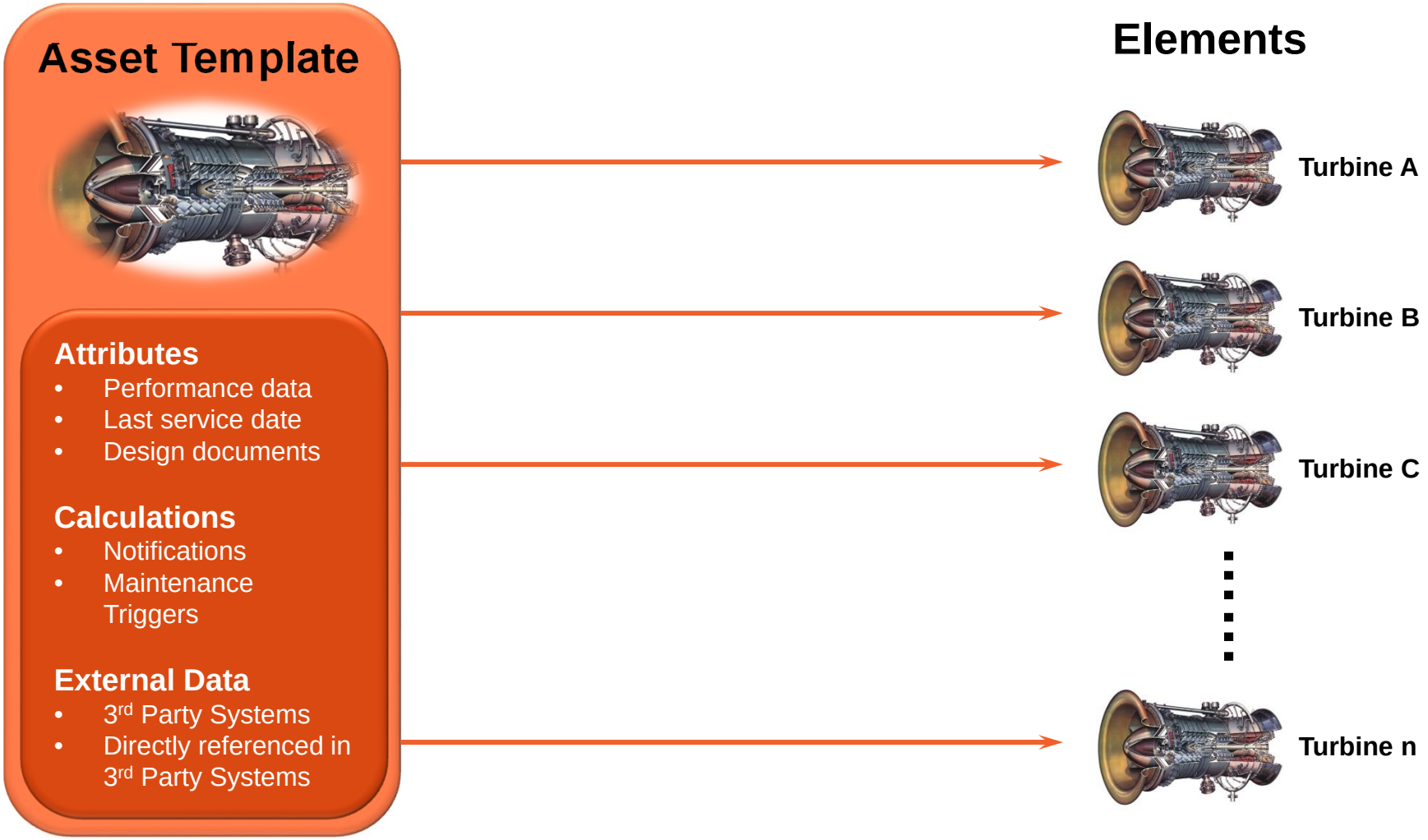
Do It Once… Apply to Many



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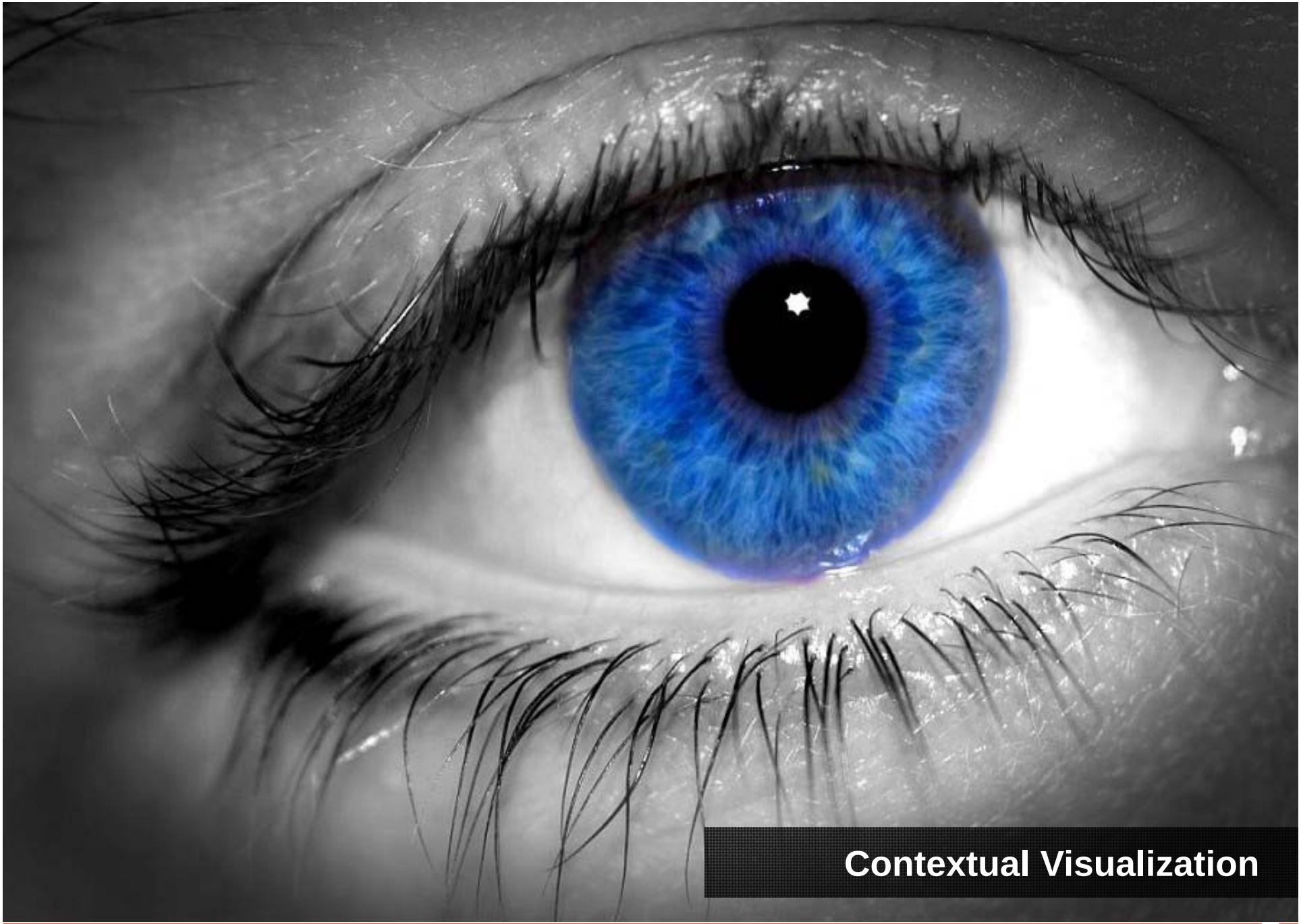

Contextual Visualization

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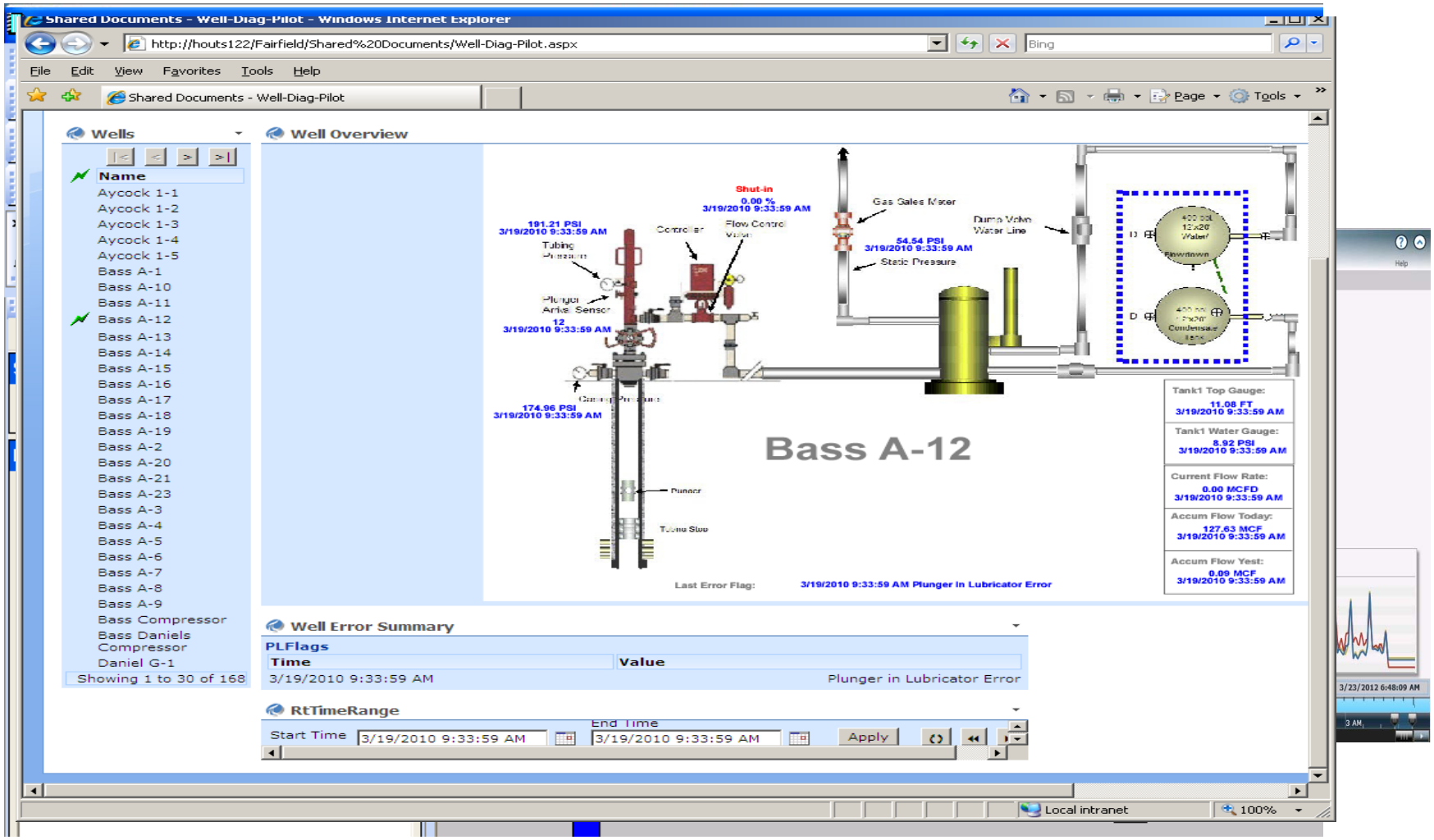
Contextual Visualisation

Element Relative Displays in PI [illegible]ook



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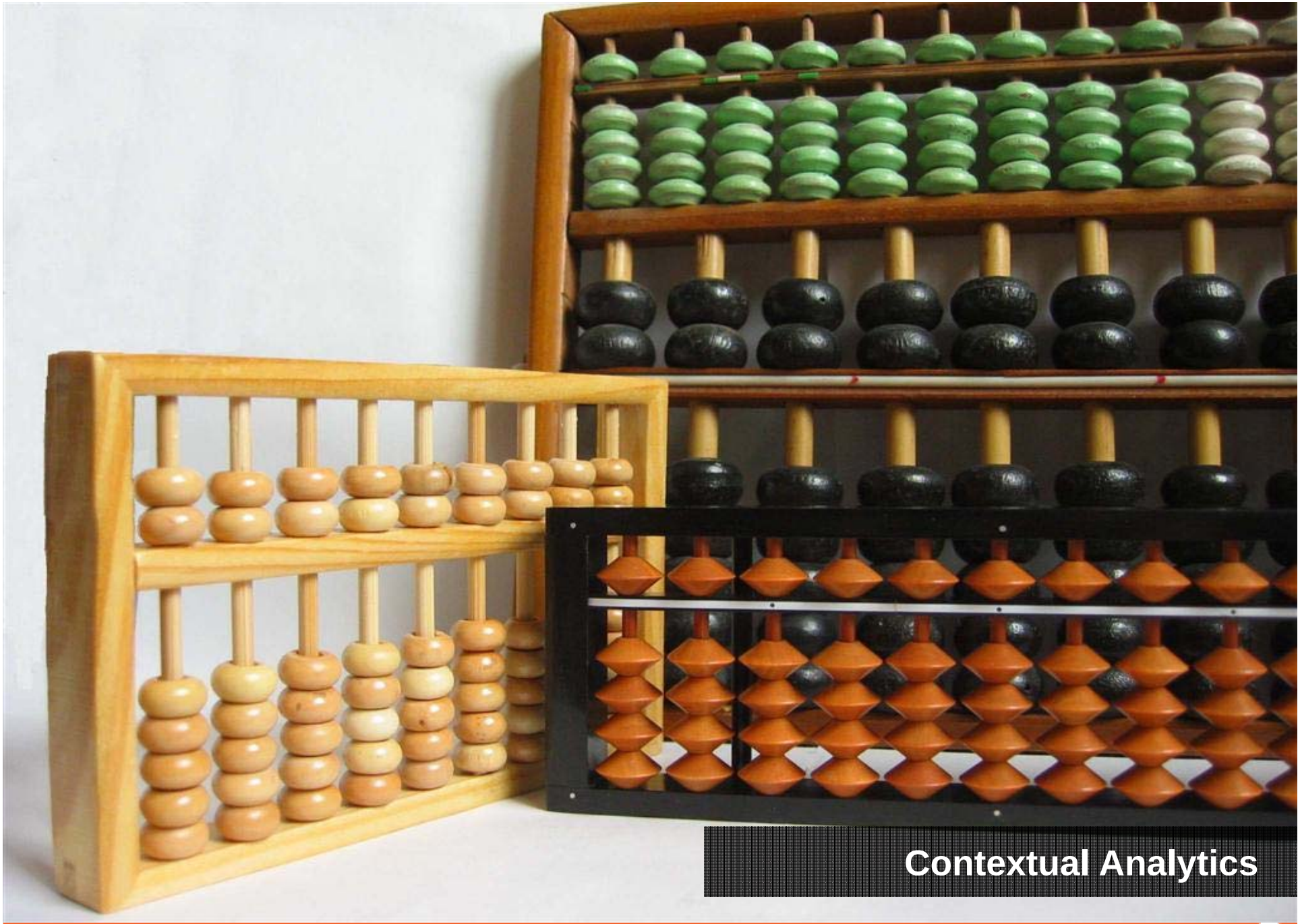

Contextual Analytics

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Contextual Analytics (Roadmap)

- **Configuration experience**
  - Support majority of calculation requirements
    - Performance Equation syntax
- **Simplify deployment**
  - Template calculations
  - Calculation dependency support
- **Data Access**
  - Any AF attribute as input or output
  - Event Frames as output of an calculation

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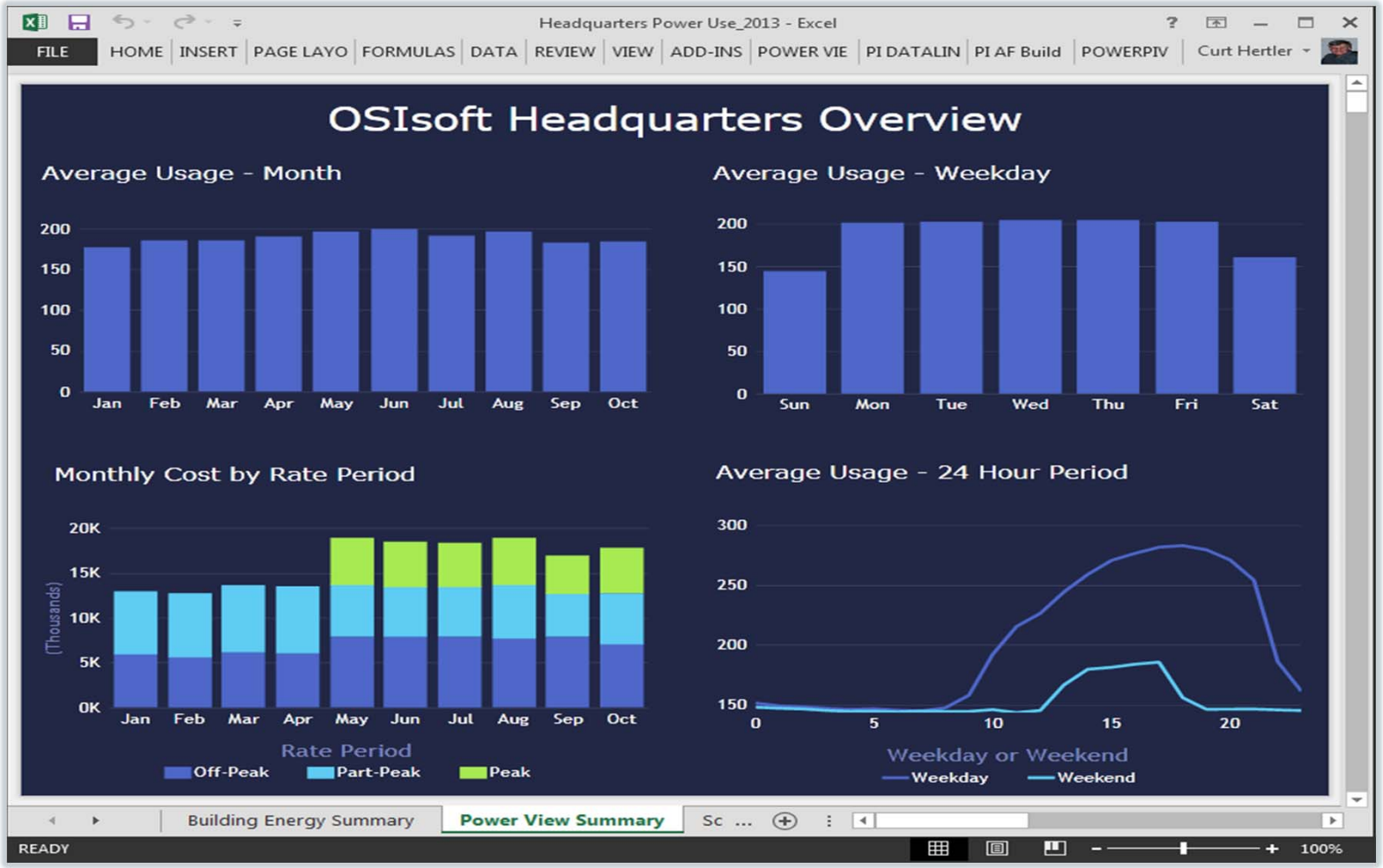
MS Excel & PowerView

Slice & Dice with PowerPivot & PowerView



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MS PowerView Example

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What are the keys to realizing & unlocking the power of data?

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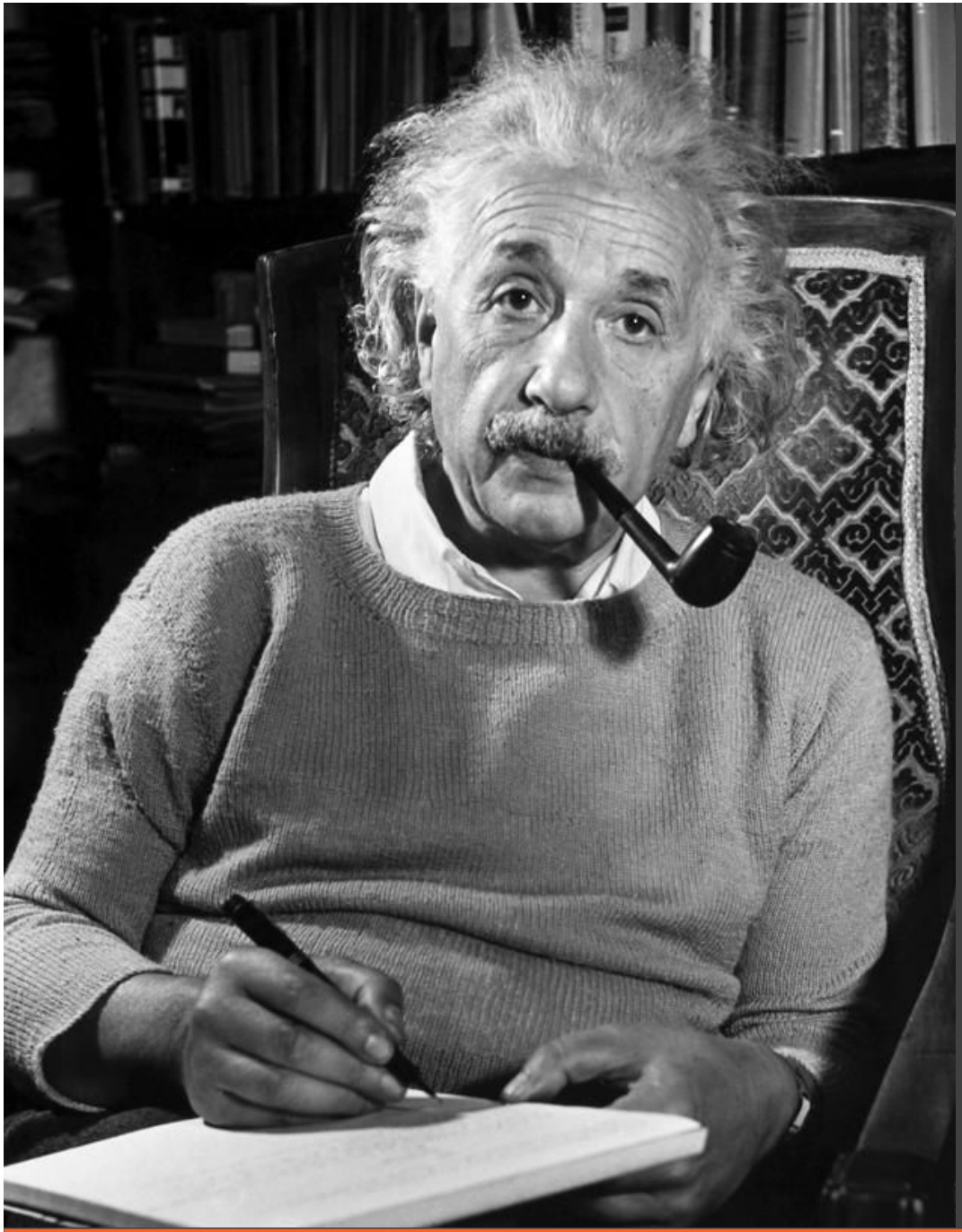

"The formulation of a problem is often more important than its solution."

Albert Einstein

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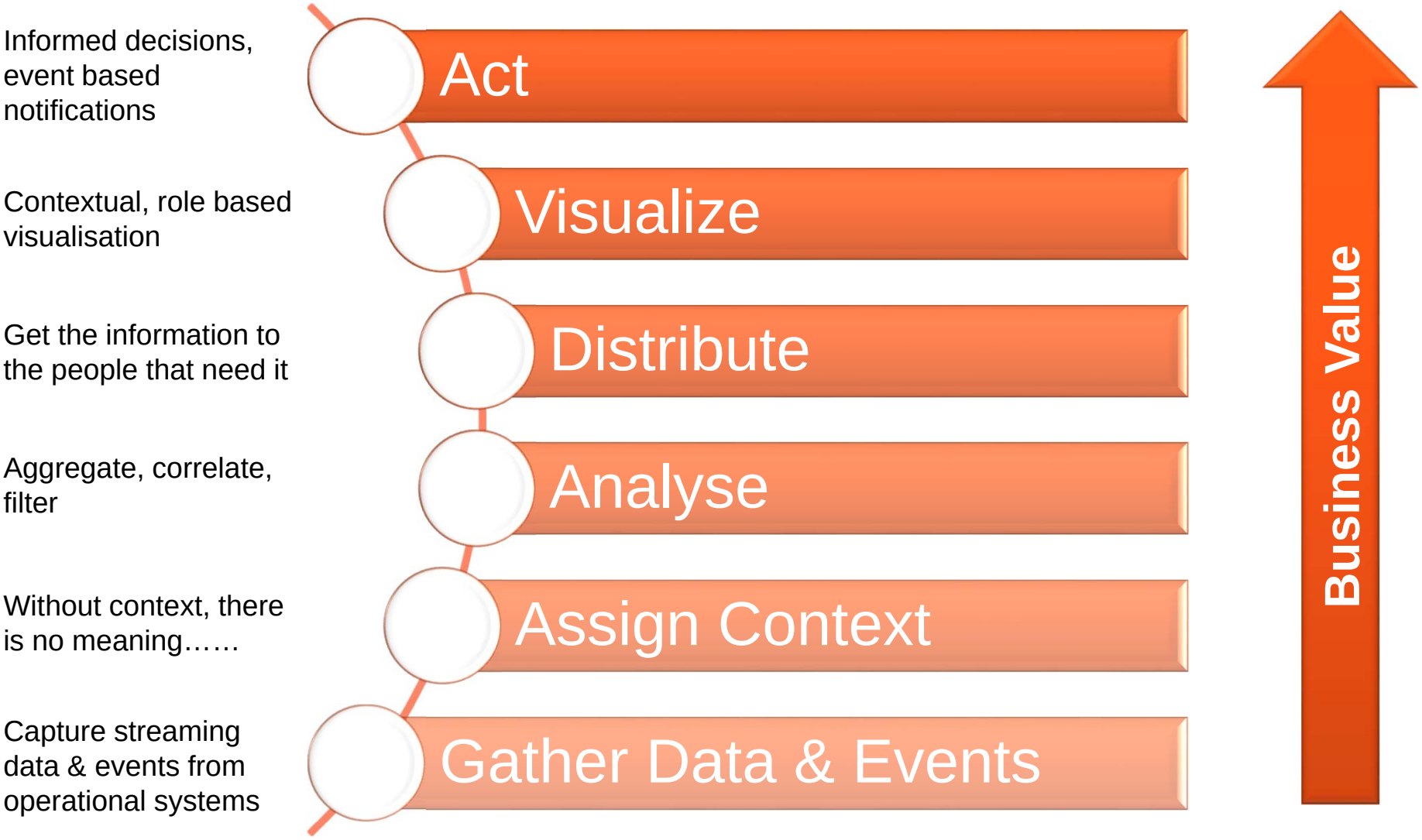
Transform Data into Information



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Mark Your Calendar

OSIsoft. USERS CONFERENCE 2013
The Power of Data
E M E A
THRIVING IN A WORLD OF CHANGE

PARIS SEP 16-19 FRANCE

SEPTEMBER 16 - 19

Hotel Pullman Paris Montparnasse

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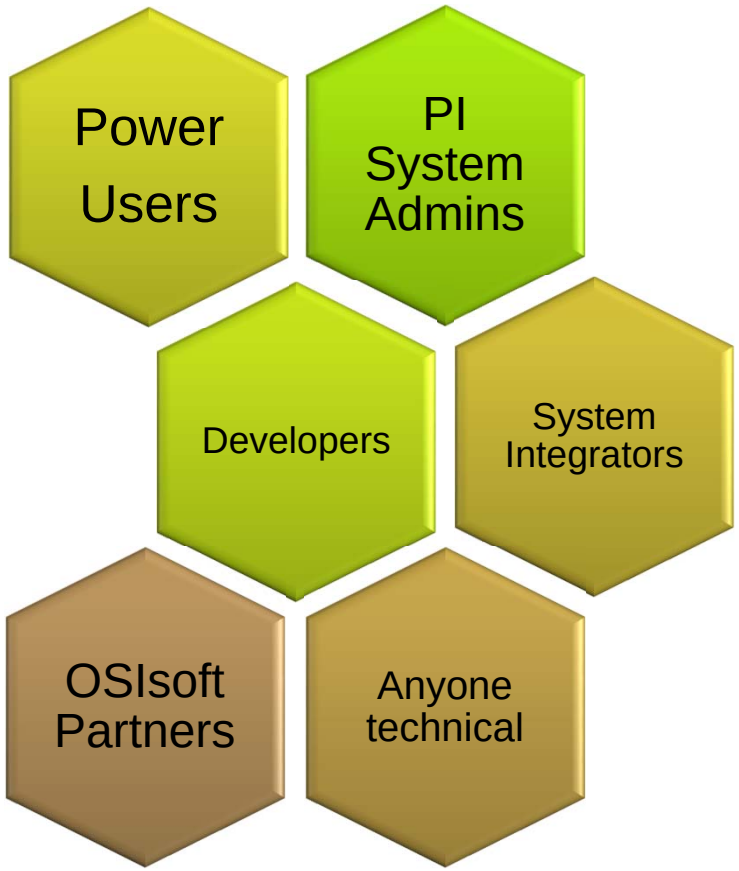
Get hands on knowledge of how to use and get value from the PI System



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THANK YOU

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Brett Higgins

brett.higgins@osisoft.com
Vice President, Asia Pacific
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