

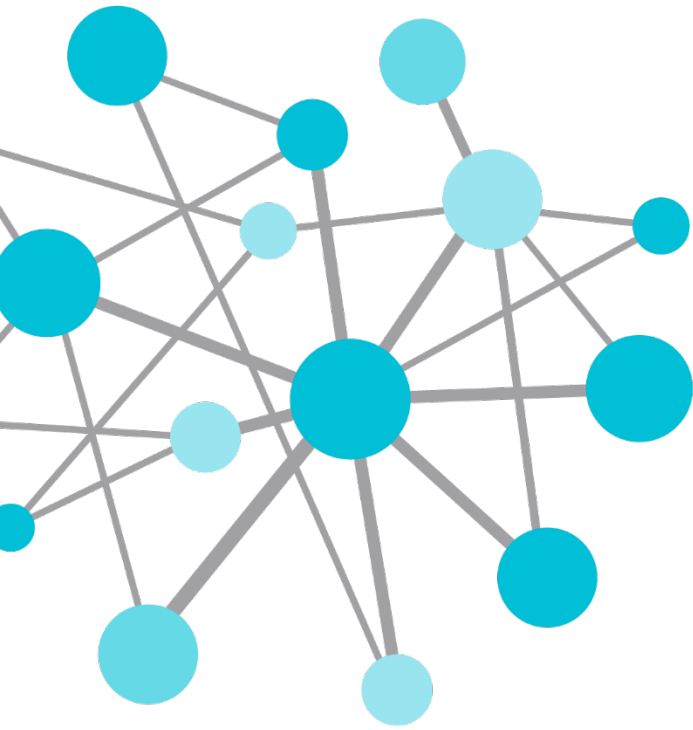
OSIsoft®

SEMINÁRIO REGIONAL 2014

The **Power** of **Data**

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DECISION READY IN REAL-TIME

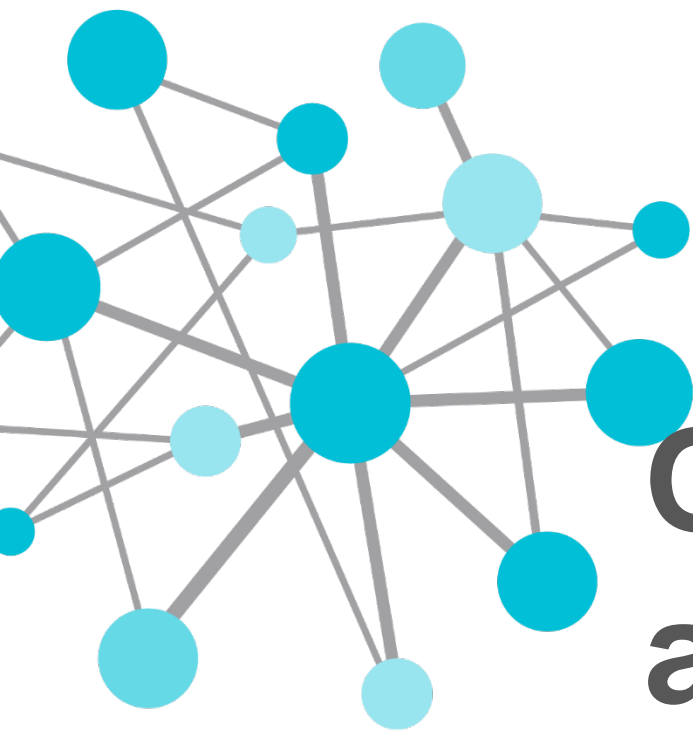


Leveraging the OSIsoft Infrastructure as an Enabler for Operational Excellence

Presented by **Lance Fountaine**
OSIsoft Mining and Metals Industry Principal

Session Agenda

- OSIssoft Mining and Metals Industry Footprint
- Defining 21st Century Operational Excellence: Living in a Digital World
- The OSIssoft 'PI System' as an Enterprise Information Infrastructure
- Summary / Lead-in to Customer Use Cases
- Participant Q&A



OSIsoft Mining and Metals Industry Footprint



Where is the 'PI System' Used in Metals and Mining?

Coal and Energy	Iron Ore	Copper	Nickel, Zinc, Lead and Silver	PGM and Gold	Diversified and Other Mining Companies
<ul style="list-style-type: none"> • Alpha Natural Resources • bhpbilliton • Cameco • Consol Energy • Energy Coal • Murray Energy Corporation • Peabody • Rio Tinto • Sasol • Suncor Energy • Syncrude • Xstrata Coal 	<ul style="list-style-type: none"> • Arcelor Mittal • bhpbilliton • CAP • CLIFFS • Companhia Siderurgica Nacional • Dongbu • Rio Tinto • SeverStal Resurs • TATA • Usiminas • Vale 	<ul style="list-style-type: none"> • Anglo American • Aurubis • bhpbilliton • Chinalco • Codelco • Escondida • Freeport-McMoRan • Grupo Mexico • Ivanhoe Mines • Kennecott Utah Copper • KGHM • Rio Tinto • Southern Copper • Sumitomo Corporation 	<ul style="list-style-type: none"> • Asturiana de Zinc • Grupo Paranapanama • KGHM • Penoles • QNI • Teckcominco • Vale • Votorantim • Xstrata • Zinifex Limited 	<ul style="list-style-type: none"> • Anglo American • Anglo Platinum • Barrick • Cameco • Goldcorp, Inc. • Umicore • Newmont • Kinross • Oceana Gold • Gold Fields 	<ul style="list-style-type: none"> • Aditya Birla Group • Alcoa • Anglo American • Bhpbilliton • Cemex • Climax Molybdenum • Dubai Aluminum • Hydro • Logan Aluminum • Mosaic • Rio Tinto • Xstrata

Upstream



Mining

Midstream



Concentration of Minerals



Metal Processing

Downstream



Product Manufacturing



Defining 21st Century Operational Excellence: Living in a Digital World

What Challenges / Opportunities does OSIsoft Recognize as Critical to the Metals and Mining Business?

Challenge – Market Conditions

- Commodity Market Prices
- New or Improved Operations / Known Technology Competition
- New, Competitive Manufacturing Technologies

Challenge – Cost Headwinds

- Energy Costs
- Raw Materials Costs
- Labor Costs
- Logistics / Transportation Costs
- Aging Assets / Sustaining Capital Requirements

Other Challenges

- Geology – Decreasing Yields on Known Mine Reserves
- Environmental Regulations / Reporting Requirements
- Slow Global Economic Recovery

Opportunities

- Commodity Market Growth in Developing Countries
- Market Pull for New Materials / Alloys (Strength, Weight)
- Sustainable Materials

What If Your Company had the Ability to Leverage Its Current Data Assets to...

Improve Enterprise Visibility and Management (Operating System)

- Establish and Automatically Report Standard KPIs to Measure Performance
- Support Operations through Global and Regional CoEs (Centers of Excellence)
- Drive Real-time Action in Support of Operational Excellence
- Rapidly Identify and Leverage Best Practices
- Increase Employee Engagement with Continuous Improvement Innovation

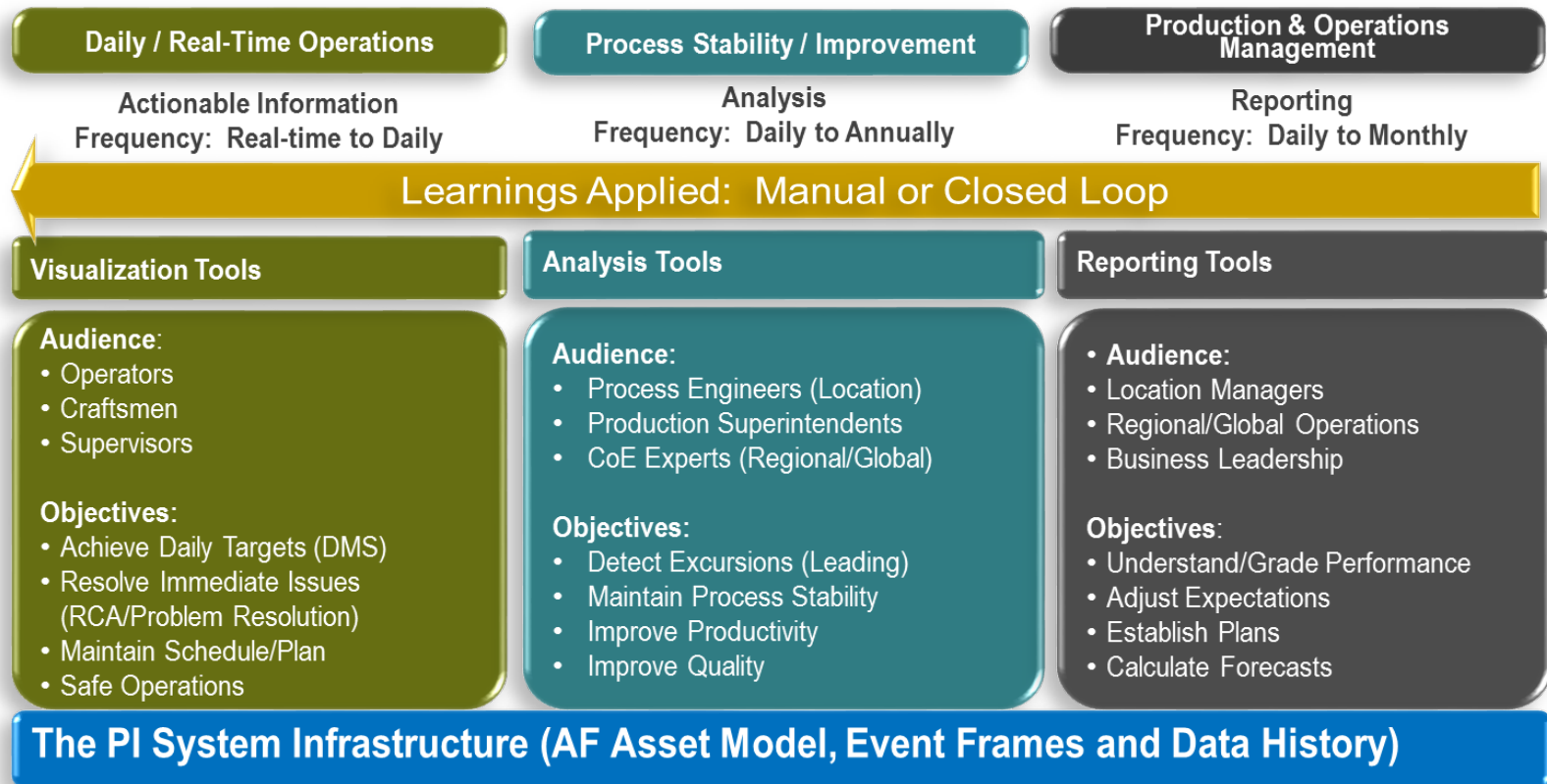
Improve Awareness and Forecasted Impact of Uncontrollable Factors

- Rising Energy Rates
- Rising Raw Material Costs, Reduced Raw Material Quality
- Rising Water Rates
- Rising Labor Rates
- Cost of Environmental Regulation / Mandates

More Directly Impact Controllable Costs / Performance

- Continuously Improve **Process Productivity / OEE**
- Better Control **Product Quality** / Improve **Genealogy Tracking**
- Extend **Life of Critical Assets** / Reduce **Maintenance Costs**
- Reduce **Energy / Raw Material / Natural Resource Consumption**
- Continuously Improved **Environmental Performance** to Meet **Regulatory Compliance and Reporting** Requirements

How Does Data Drive Results?



What would be the Results?

Improve Operating Cost Position

- Reduce Sustaining Operations Cost / Improve Productivity
- Reduce Working Capital (Inventory)
- Improve Supply Chain Options / Performance

Increase Revenue Stream

- Improve Overall Production Capacity / Quality
- Improve Capacity / Mix of Higher Margin Products
- Increase Asset Availability

Reduce Capital Requirements

- Reduce Sustaining Capital Requirements
- Reduce Capital Requirements for Information Solutions / System Integration

21st Century Operational Excellence: Leveraging Information as the Foundation for the Business Operating System

The Language of Business Operating Systems

- SPC (Statistical Process Control)
- Lean Manufacturing / Six Sigma
- TPS (Toyota Production System)
- Continuous Improvement / Deming Cycle

Improving Plant / Enterprise Performance Management

- Established / Managed KPIs
- Visibility into Uncontrollable Impacts (e.g., Energy Rate, Raw Material Rate, Metal Prices, etc.)
- Engaged Workforce driving Collective Innovation
- Enabling Platform for Process CoEs (Centers of Excellence)
- Leverage / Adoption of Best Practice



The OSIsoft 'PI System' as an Enterprise Information Infrastructure

OSIsoft is a company with a focus



OSIsoft.

One System. Singular focus.

1980



Founded

20%



Revenue invested in R&D

65%

Of Global Fortune 500



16,000

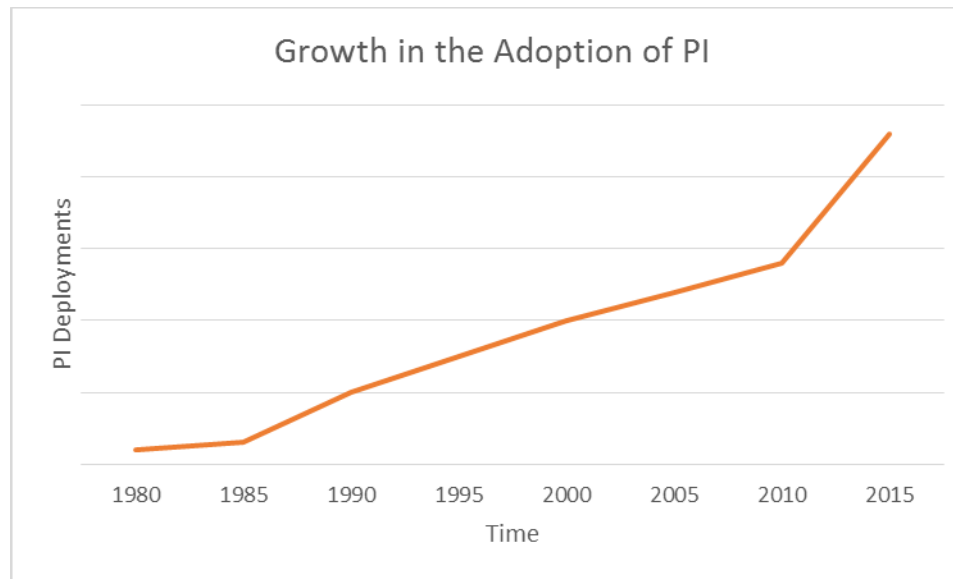
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The Evolution of the OSIsoft 'PI System'

What is Driving the Growth with Existing Customers?

- Deployed in Support of Defined Process / Project Initiatives
- Provides Process Historian Functionality
- Component Pricing / Purchases



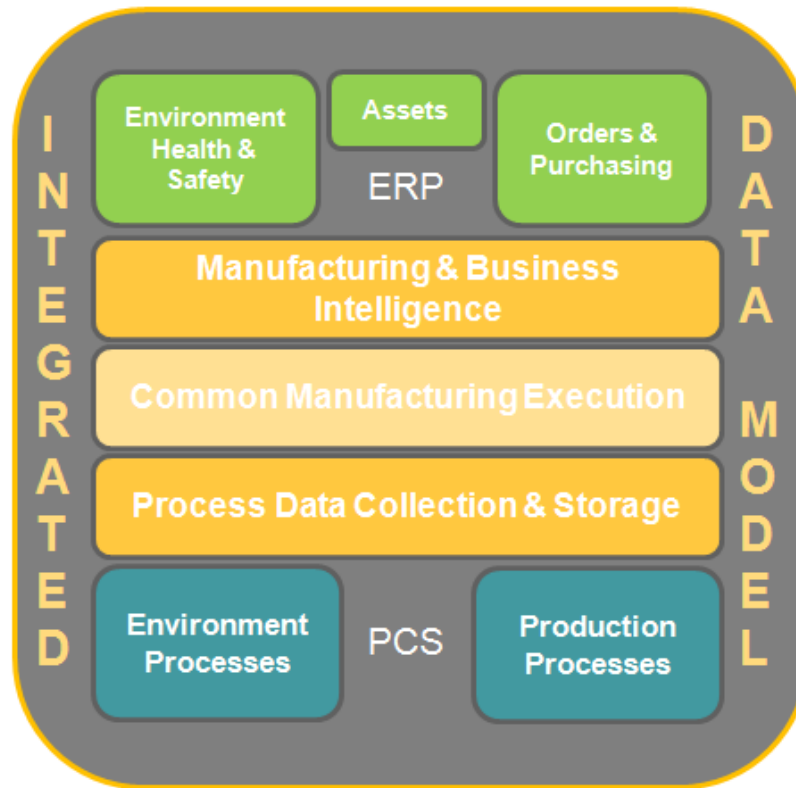
- Provides an Information Infrastructure
- Deployed as Data Foundation for the Plant / Enterprise Operating System
- Software / Services Purchased as Enterprise Agreements

Establishing an Enterprise Information Architecture

Transactions
Business



Action
Operation



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Definition:

The integration of data with process expertise to enable proactive and intelligent manufacturing decisions in dynamic environments

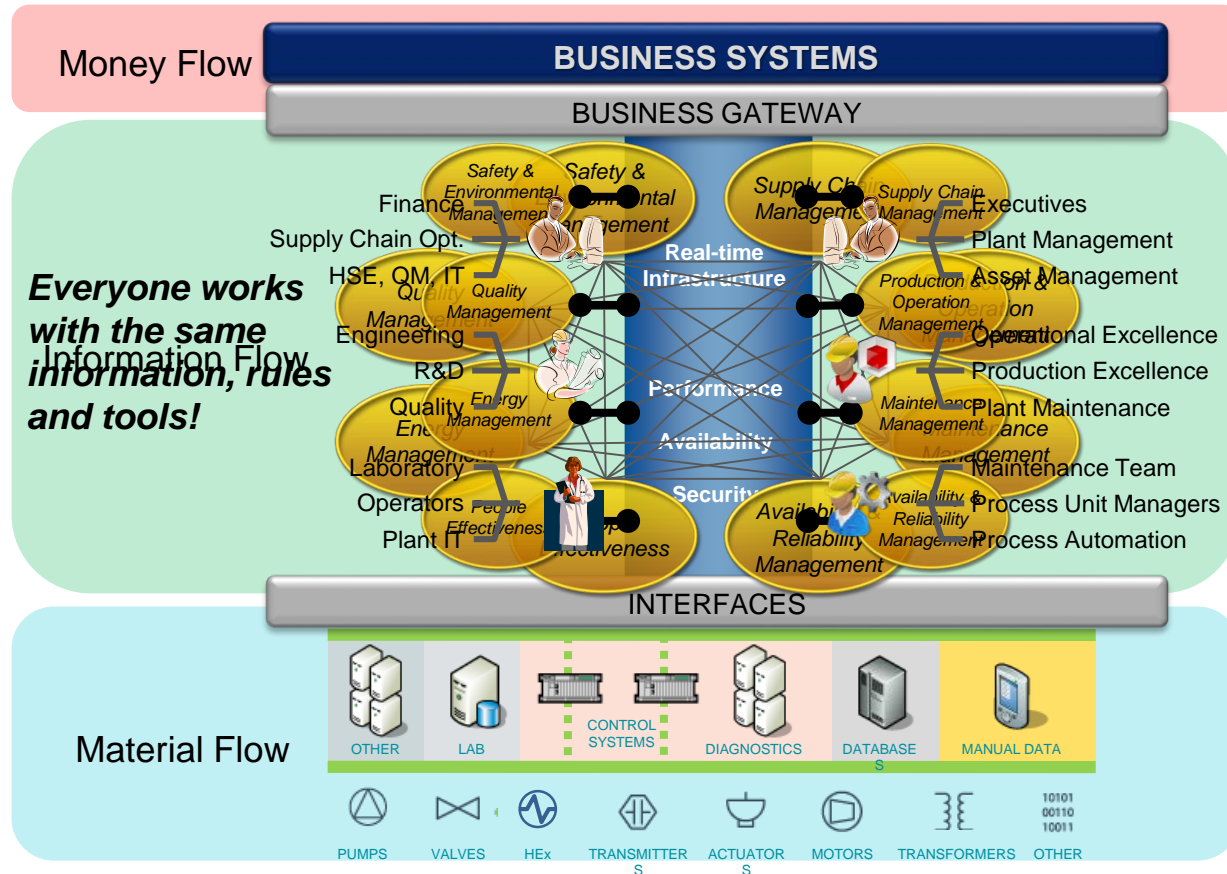
Key Components:

1. Common Applications for Manufacturing Execution (MES)
2. REAL TIME and HISTORICAL data capabilities
3. Network / Data integration from shop floor to the enterprise
4. Comprehensive analysis toolset

The Architecture Ties Together Information from All Sources within a Plant and Across the Enterprise

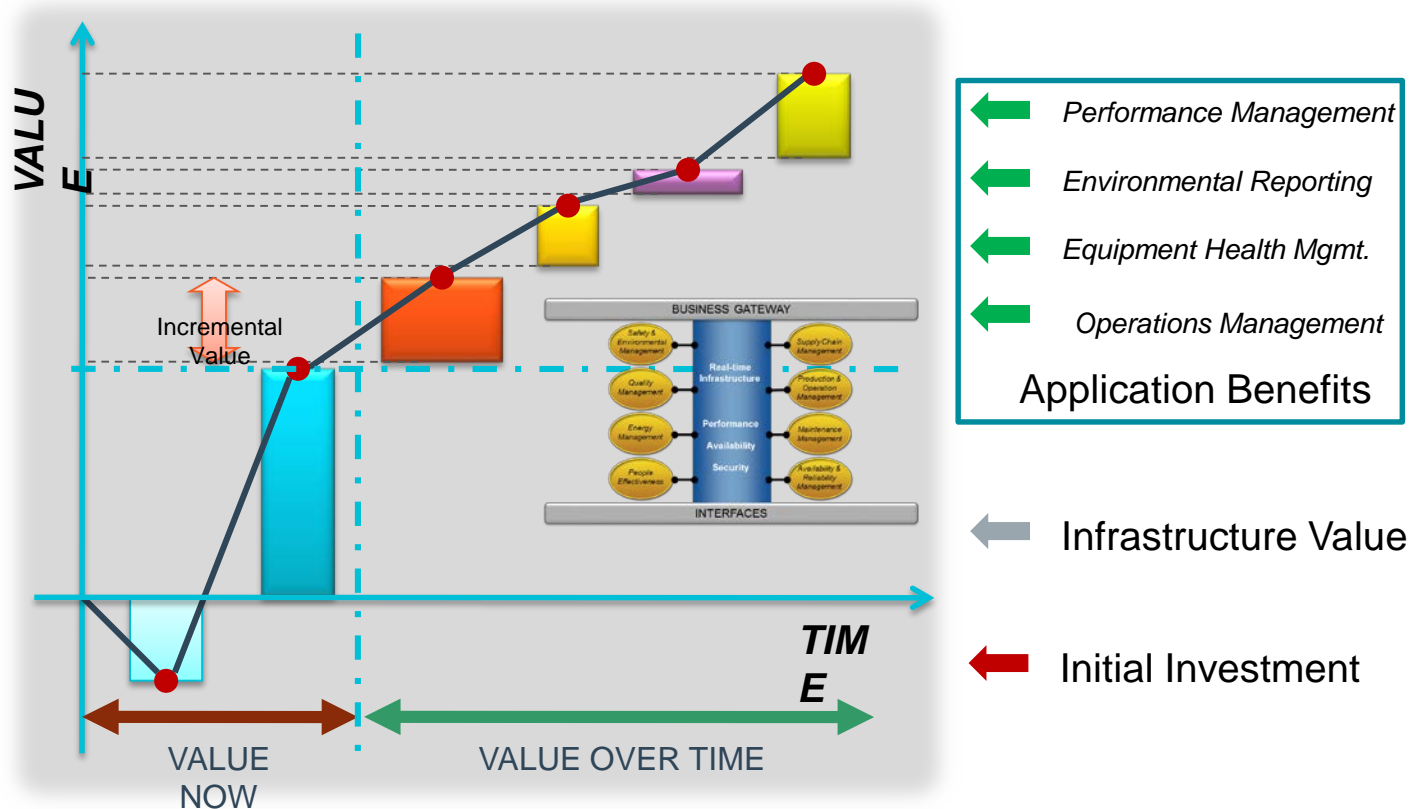
Evolution of the Data Infrastructure

Revolutionizing the Collaborative Space

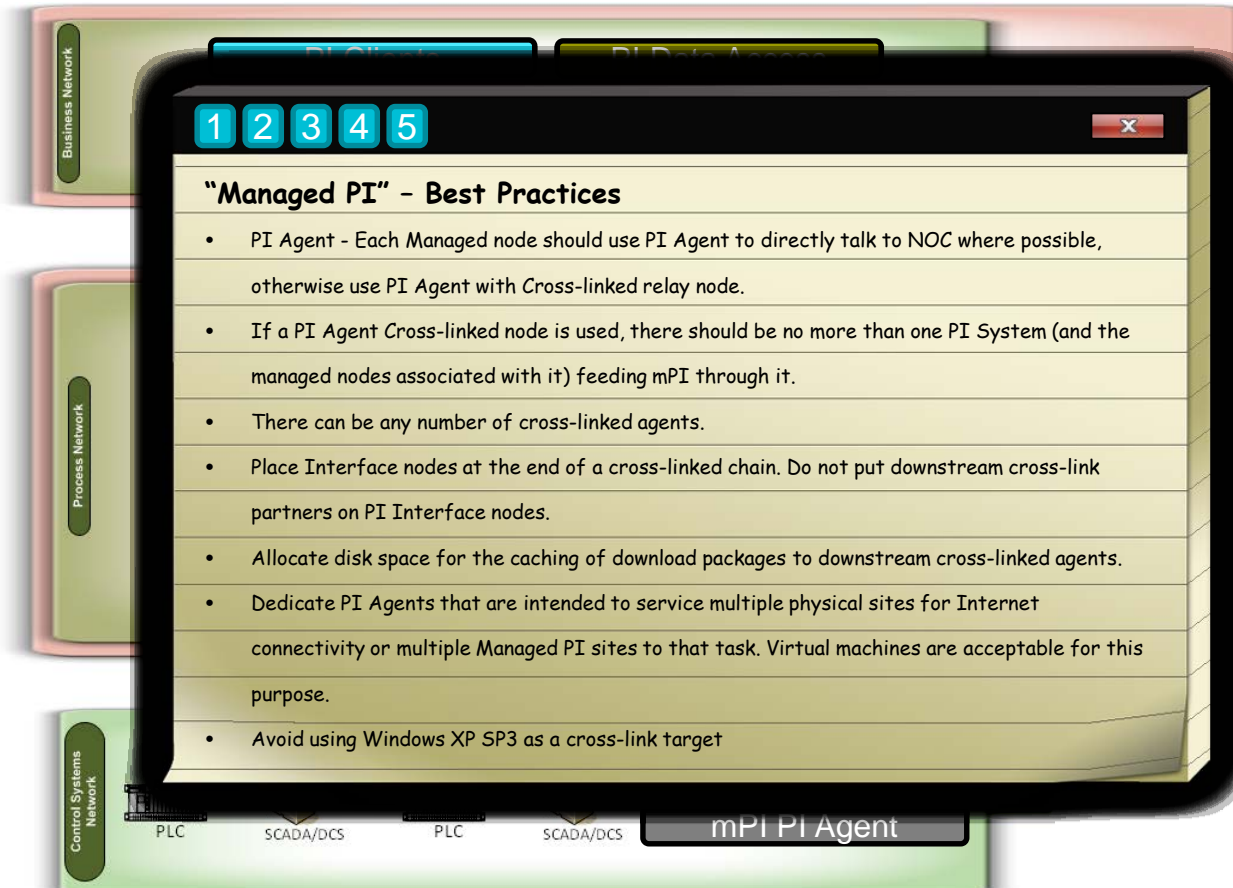


Value Creation—an Infrastructure Approach

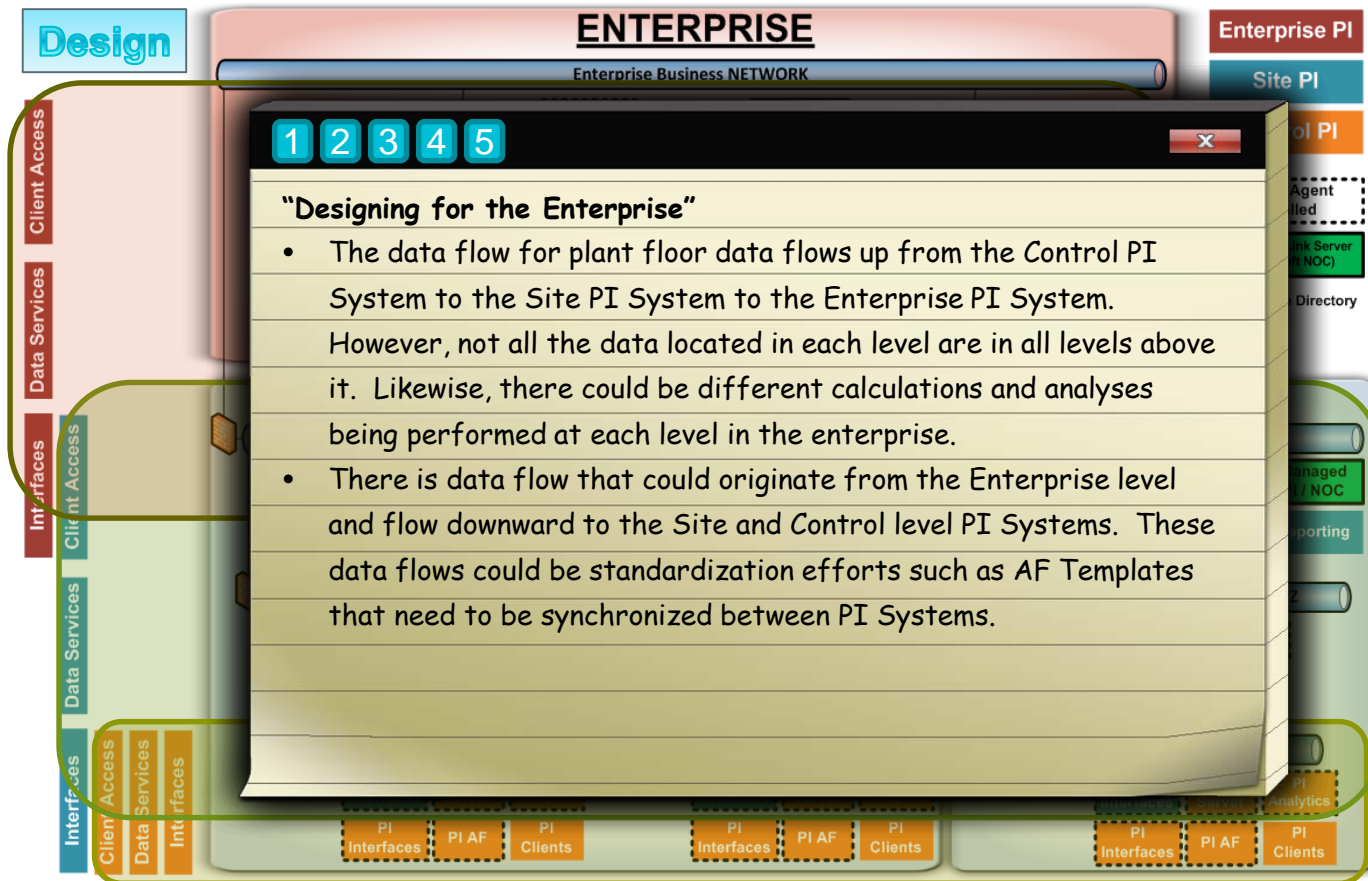
Value Now, Value Overtime



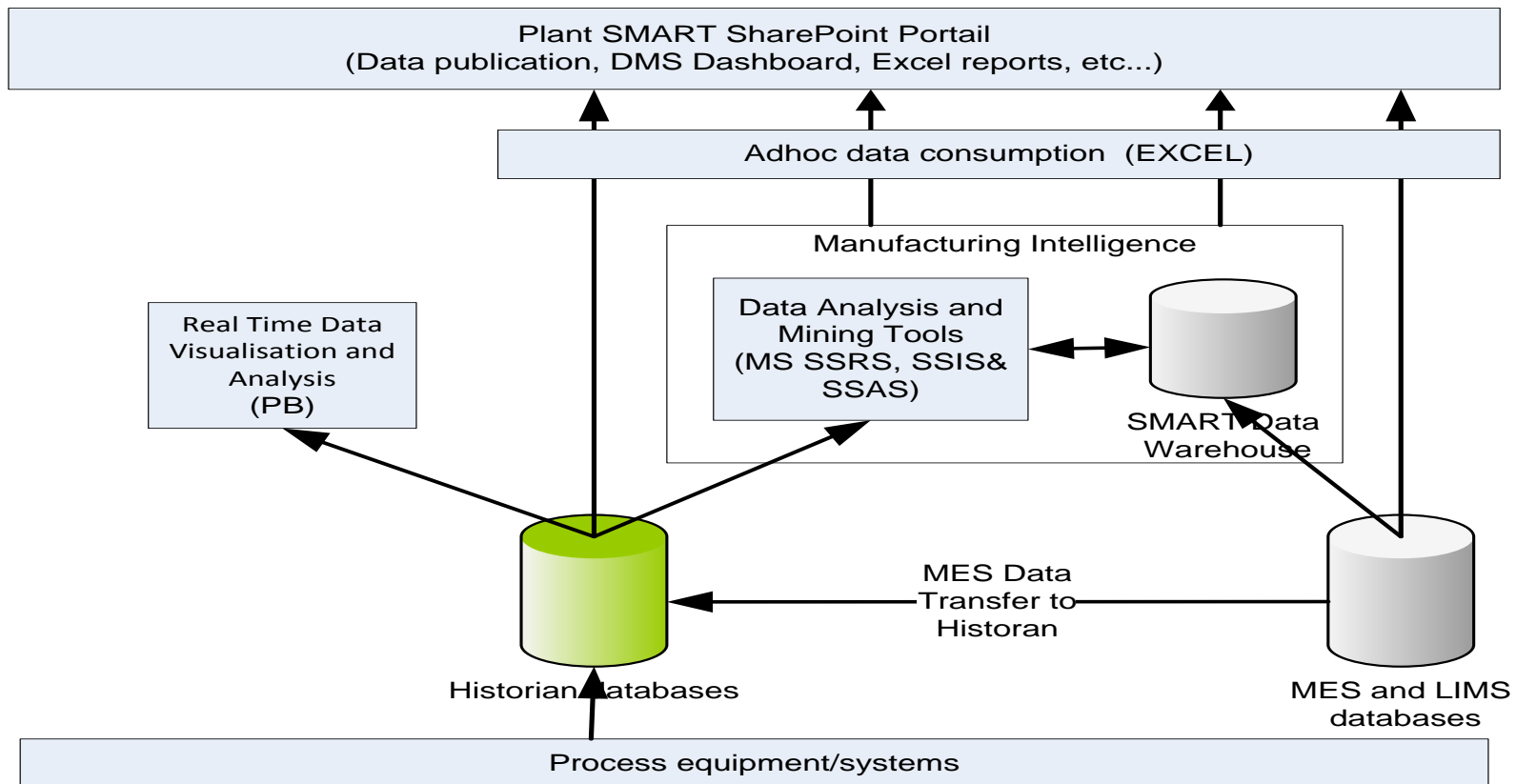
PI Architecture Functional Reference



Enterprise PI System Reference Architecture



Data Integration and Visualization Toolset



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Alignment with IT Strategy and Priorities

Industry Trends

- Information Infrastructure is a Key Component of 'Big Data' / 'Internet of Things'
- Infrastructure Enables IT / OT Convergence
- Data Platform / Tools to Support Analytics and Advanced Analytics
- Supports 'Process Optimization', 'Smart Manufacturing', 'Lean Manufacturing' Concepts
- Supports Cloud and Mobility Opportunities

Technology

- Enables / Simplifies Data Integration
- Reduces Manual Data Entry
- Reduces Infrastructure Complexity

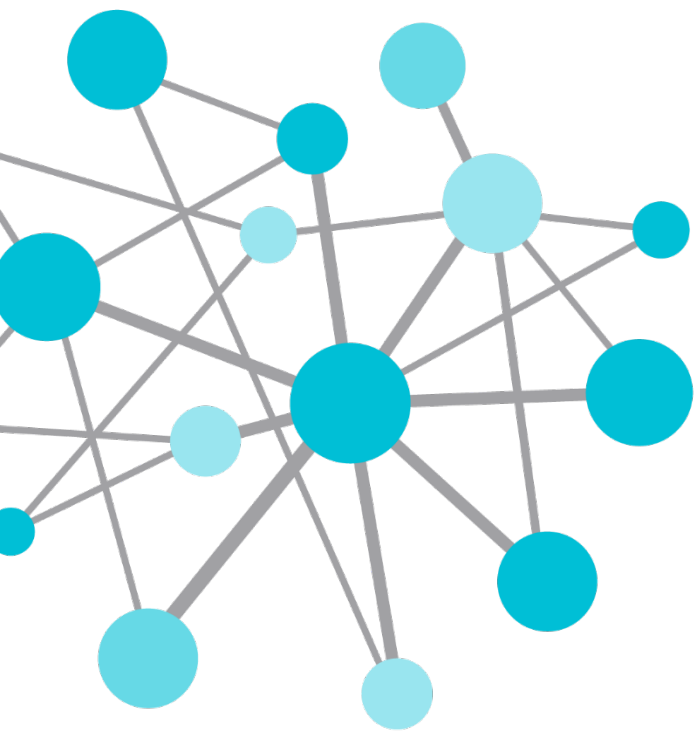


Summary and Take-Aways



Further Consideration on Today's Agenda

- Examples of the Value Message will be Highlighted in Today's Customer Presentations
- Overview of Customer Speakers
 - List Here
- Content Represents Specific Examples of the OSIsoft PI Infrastructure Being Leveraged in Support of Operational Excellence



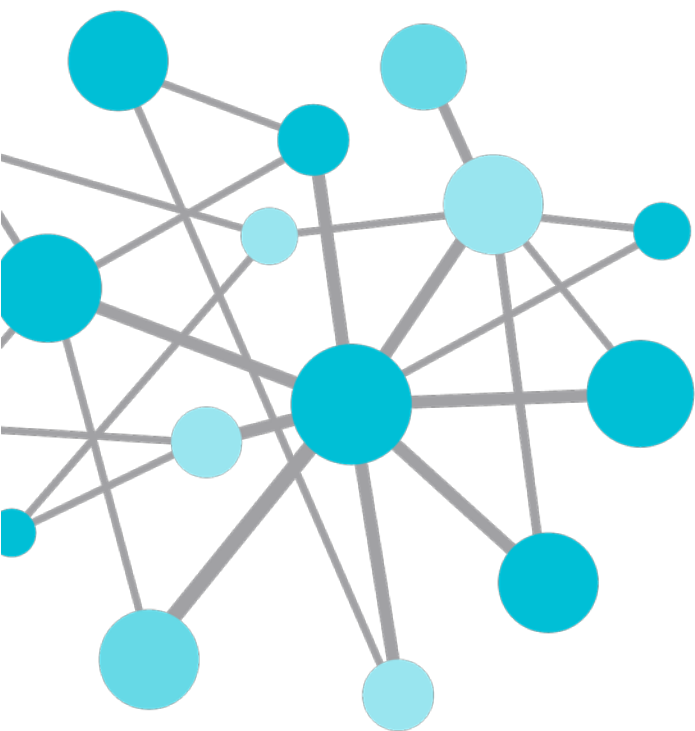
Participant Q & A



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THANK
YOU

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