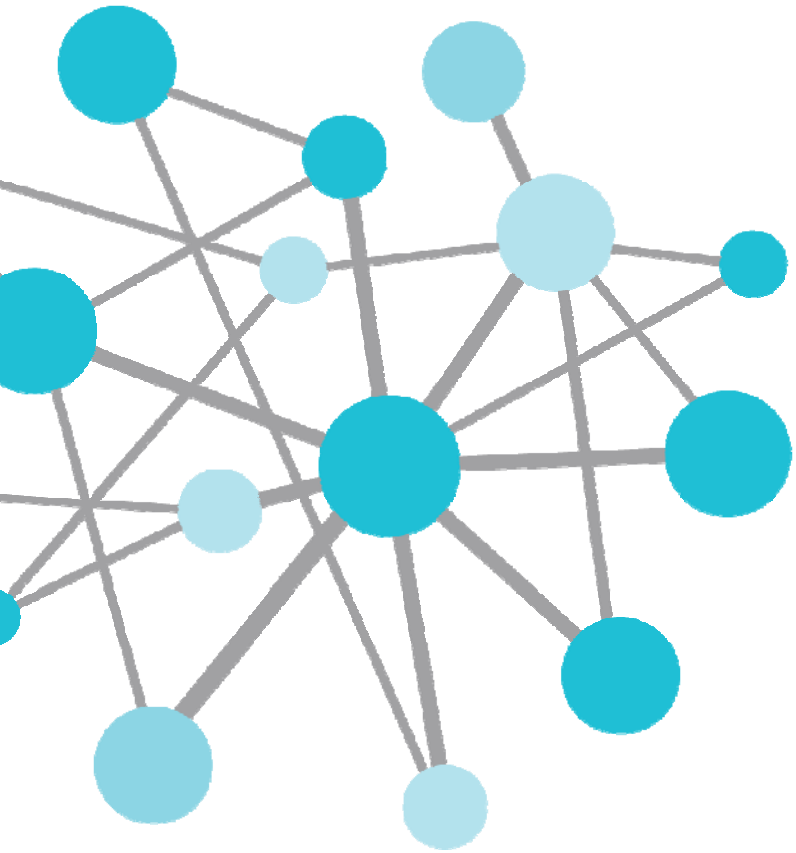
Leveraging the OSIsoft Infrastructure as an Enabler for Operational Excellence

Presented by **Lance Fountaine**

OSIsoft Mining and Metals Industry Principal

Session Agenda

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



OSIsoft Customer Footprint

Who is the 'OSIsoft PI' Customer Base?

Oil & Gas

- Transportation

Power Generation, Transmission & Distribution

- Utilities
- Facilities
- Smart City

Mining, Metals, Metallurgy & Materials

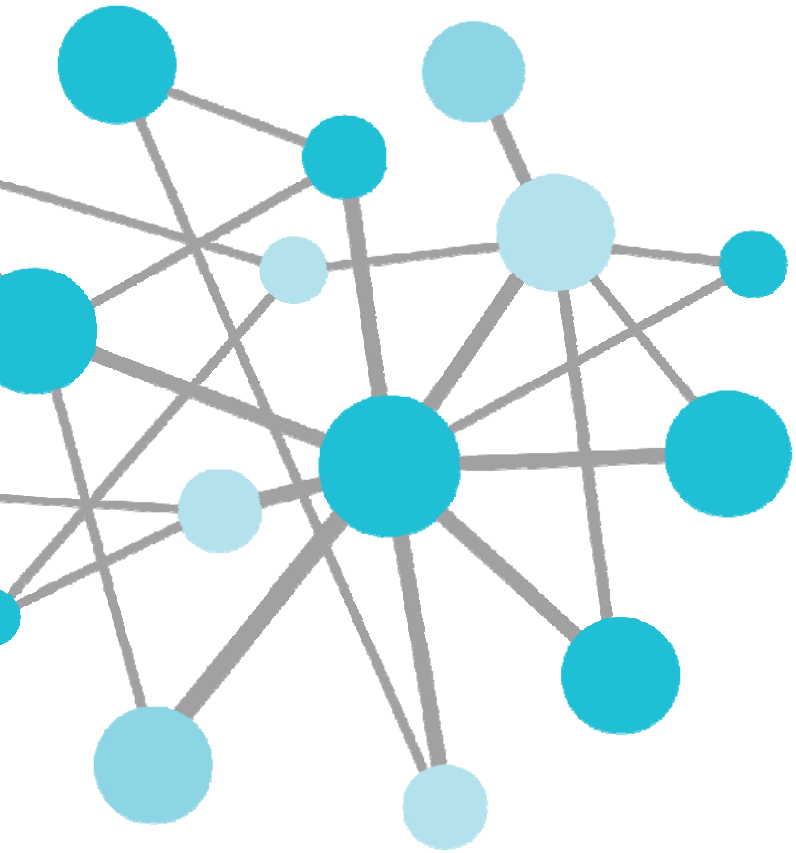
- Discrete Manufacturing
- Transportation

Pulp & Paper

- Discrete Manufacturing

Pharmaceuticals

- Food and Beverage



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

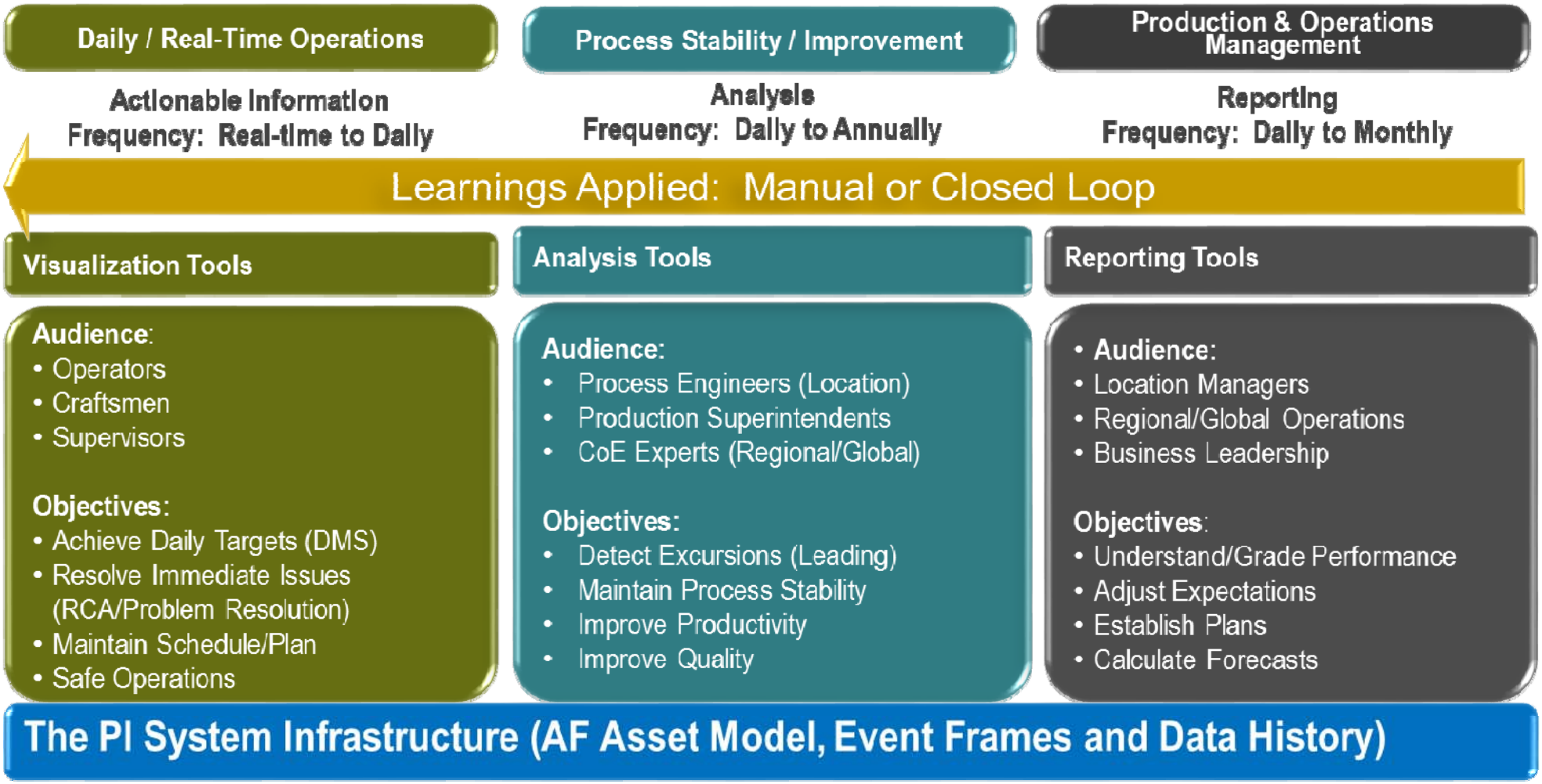
Improve Awareness and Forecasted Impact of Uncontrollable Factors

- 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

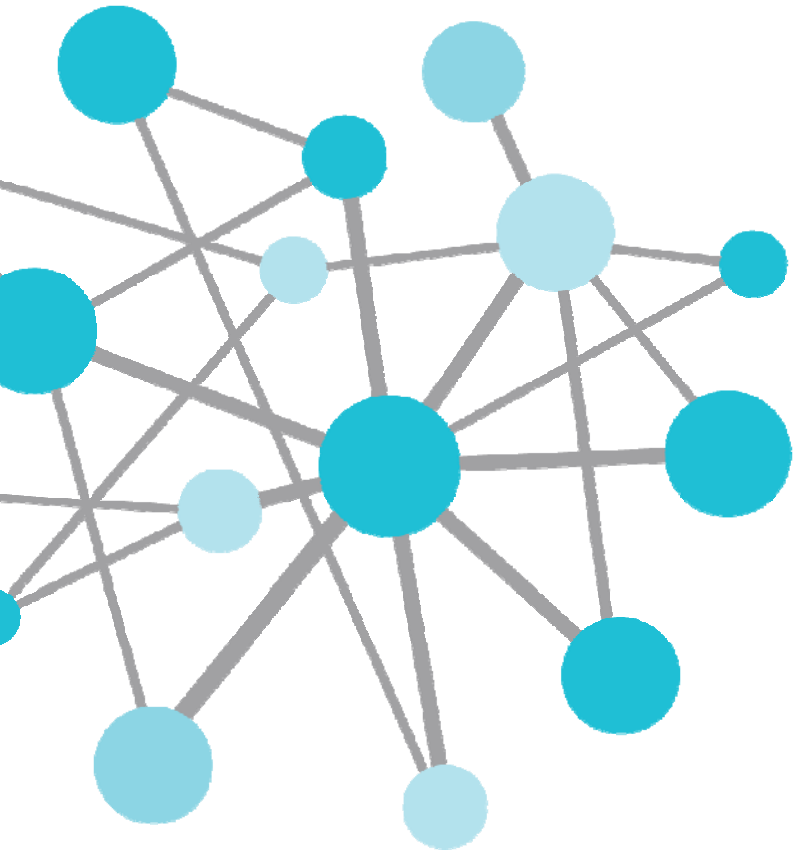
21st Century Operational Excellence: Leveraging Information as the Foundation for the Business Operating System

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

One System. Singular focus.

1980
Founded

20%
Revenue invested in R&D

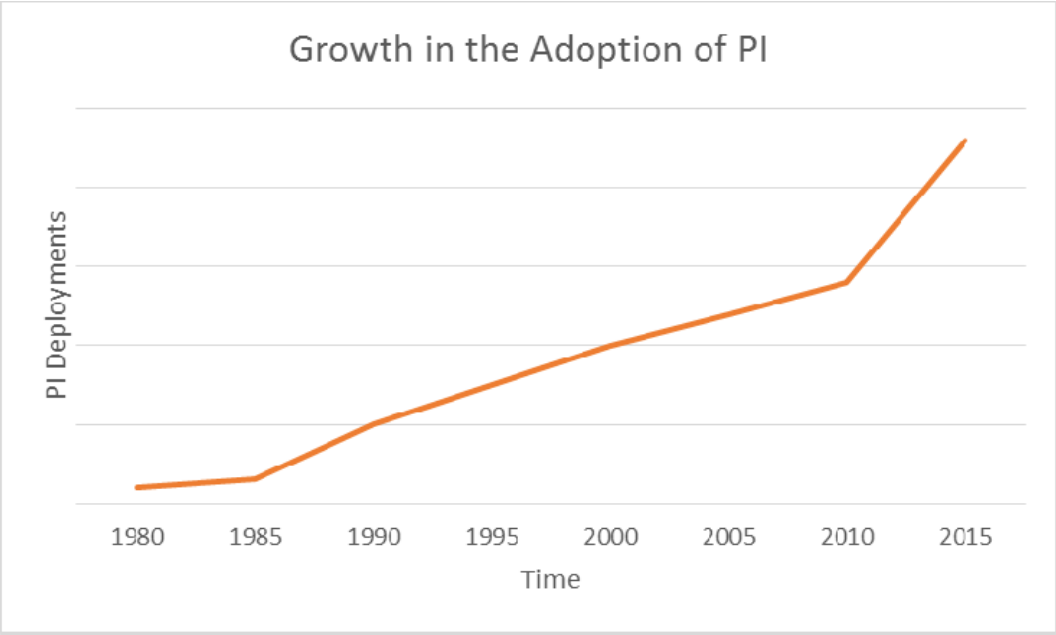
65%
Of Global Fortune 500

16,000
# of Sites

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

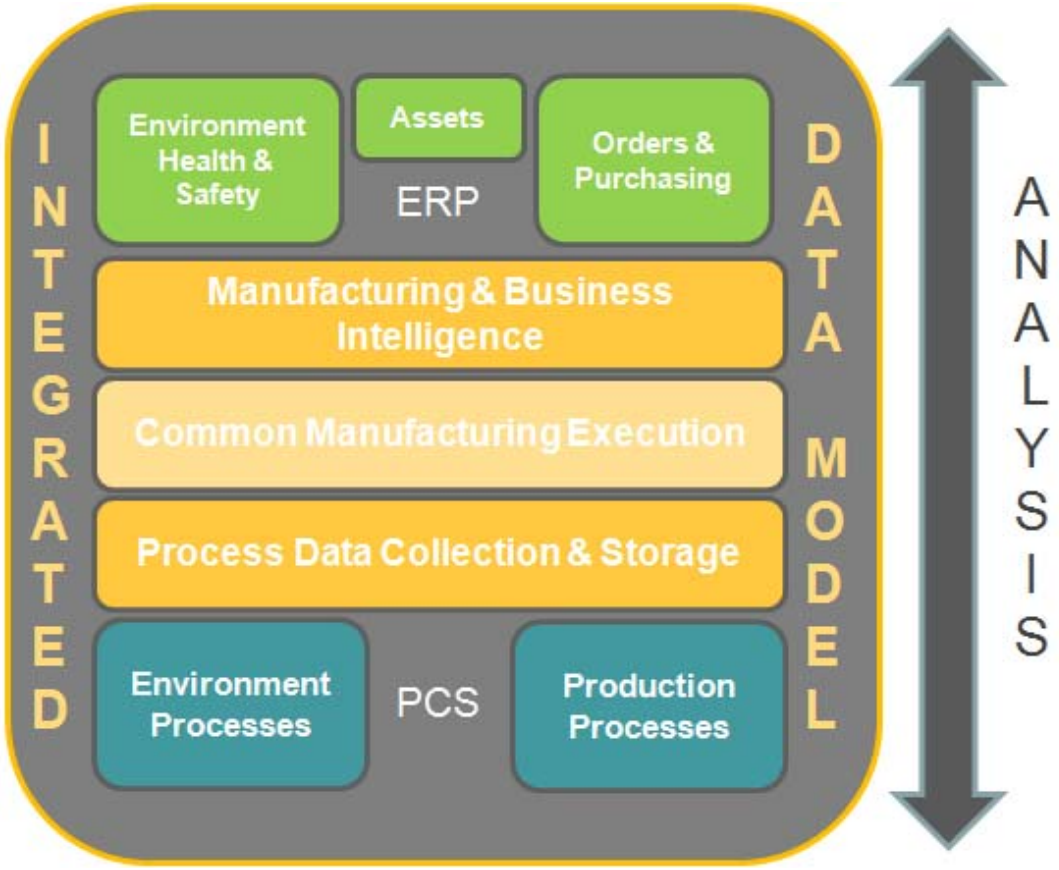


- Provides an Information Infrastructure
- Deployed as Data Foundation for the Plant / Enterprise Operating System
- Software / Services Purchased as Enterprise Agreements

Establishing an Enterprise Information Architecture

Transactions
Business

Action
Operation



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

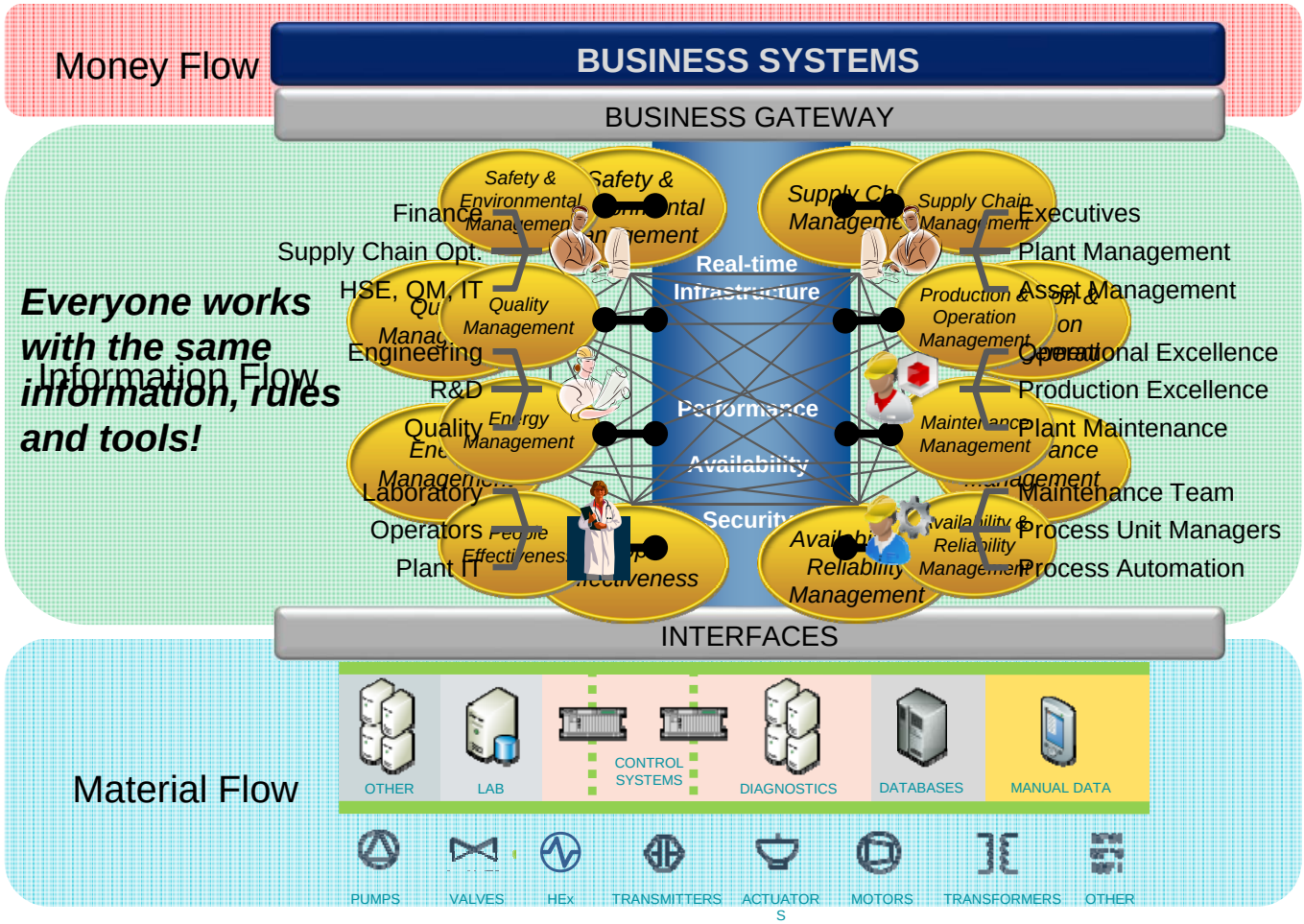
Key Components:

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

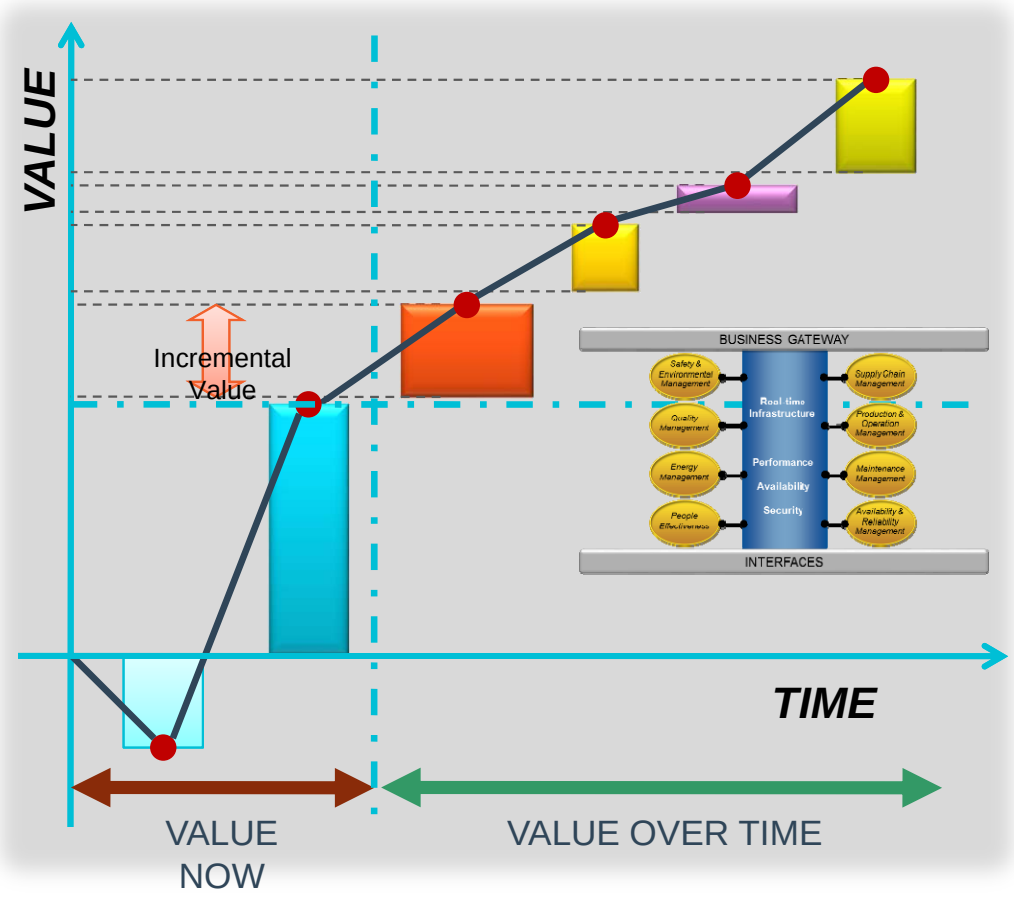
Evolution of the Data Infrastructure

Revolutionizing the Collaborative Space



Value Creation–an Infrastructure Approach

Value Now, Value Overtime



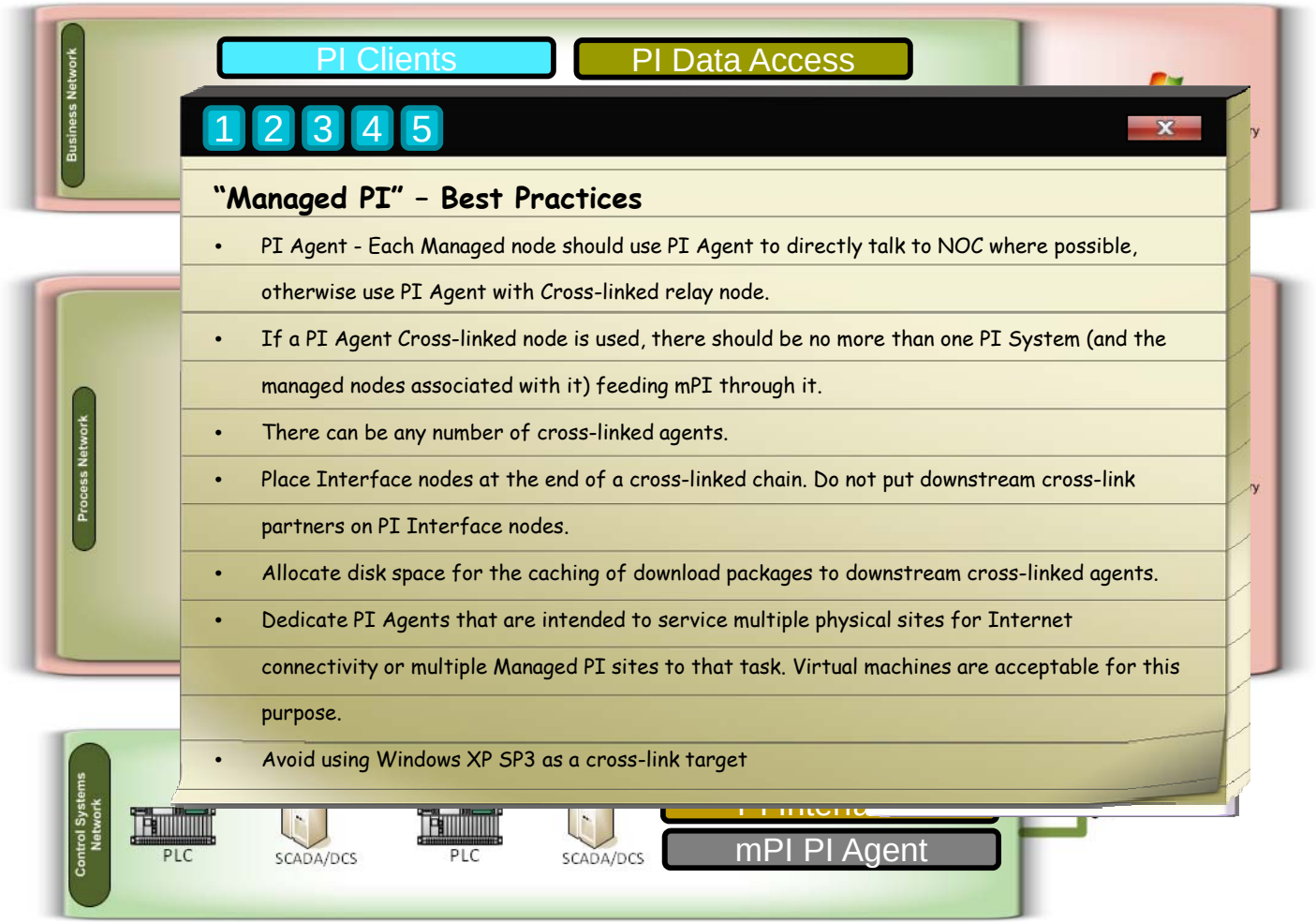
- *Performance Management*
- *Environmental Reporting*
- *Equipment Health Mgmt.*
- *Operations Management*

Application Benefits

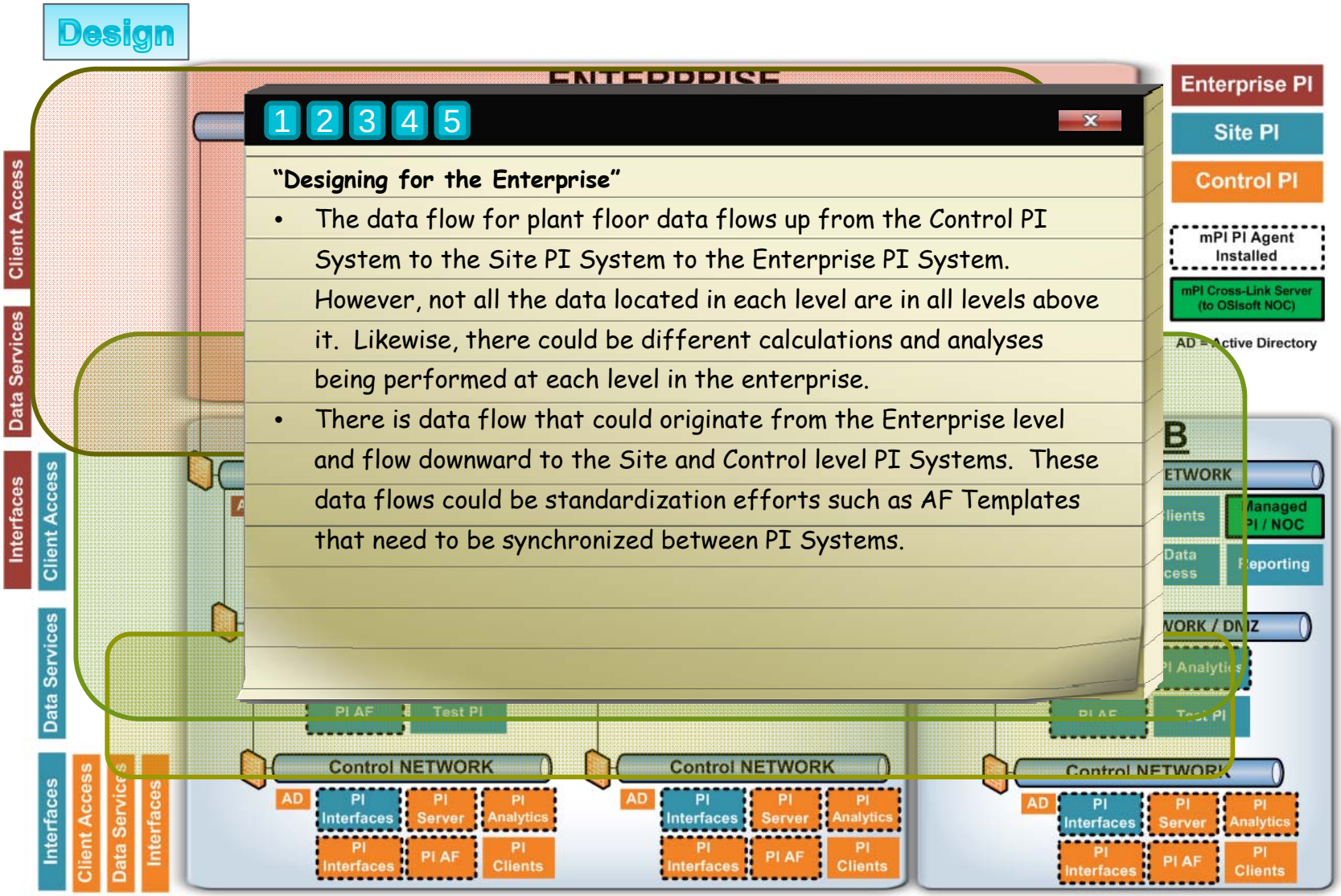
Infrastructure Value

Initial Investment

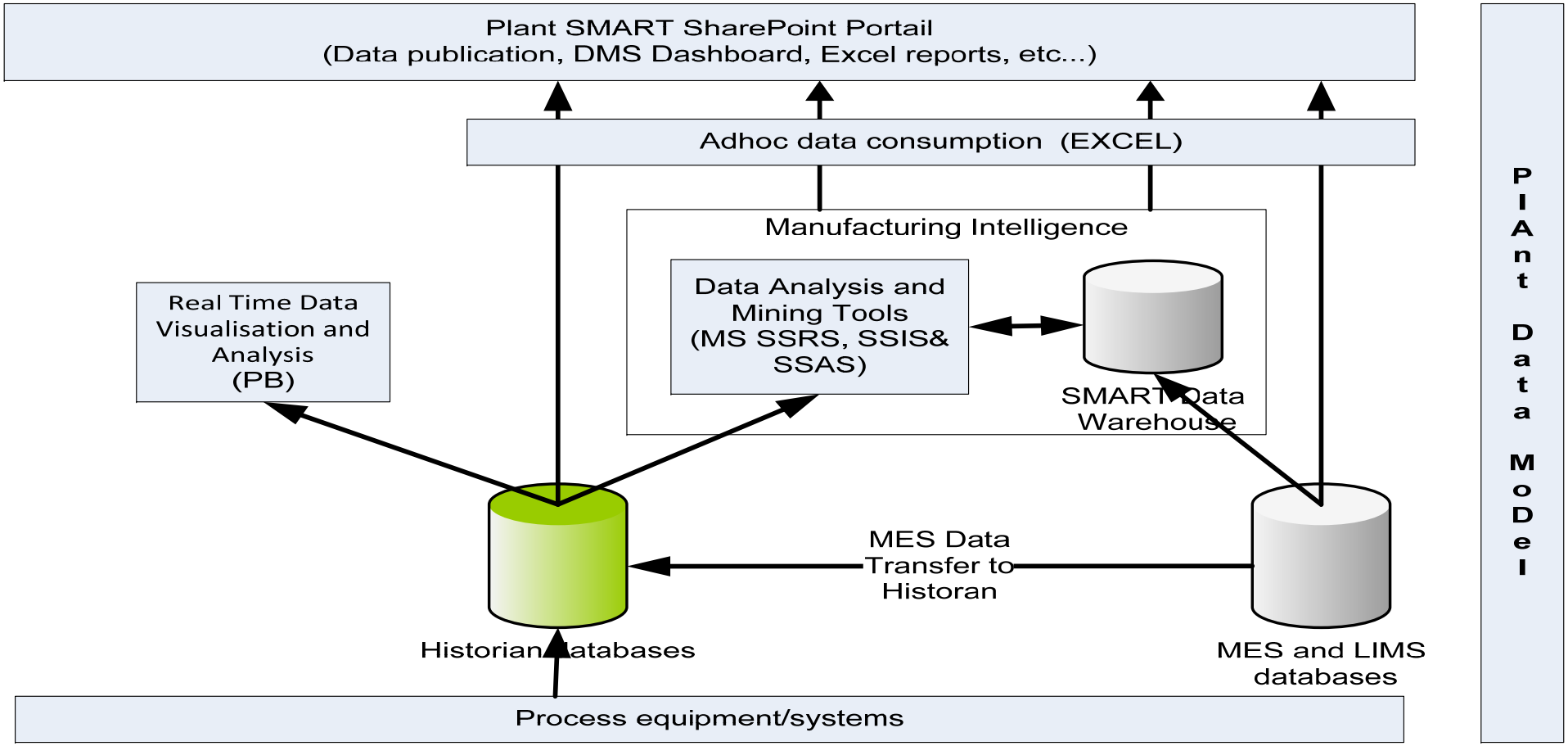
PI Architecture Functional Reference



Enterprise PI System Reference Architecture



Data Integration and Visualization Toolset



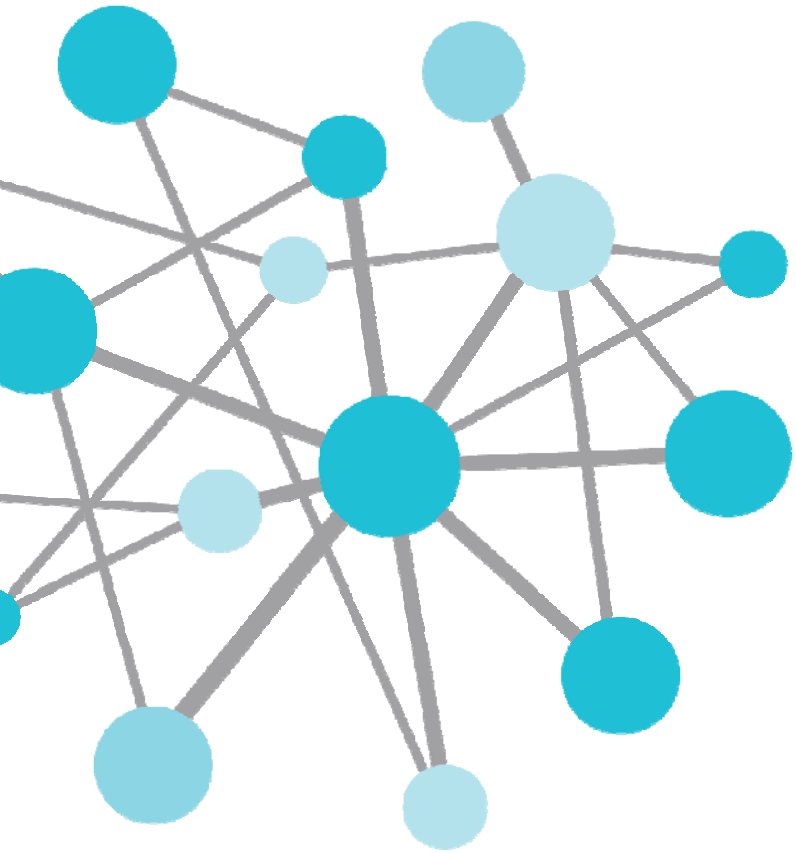
Alignment with IT Strategy and Priorities

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

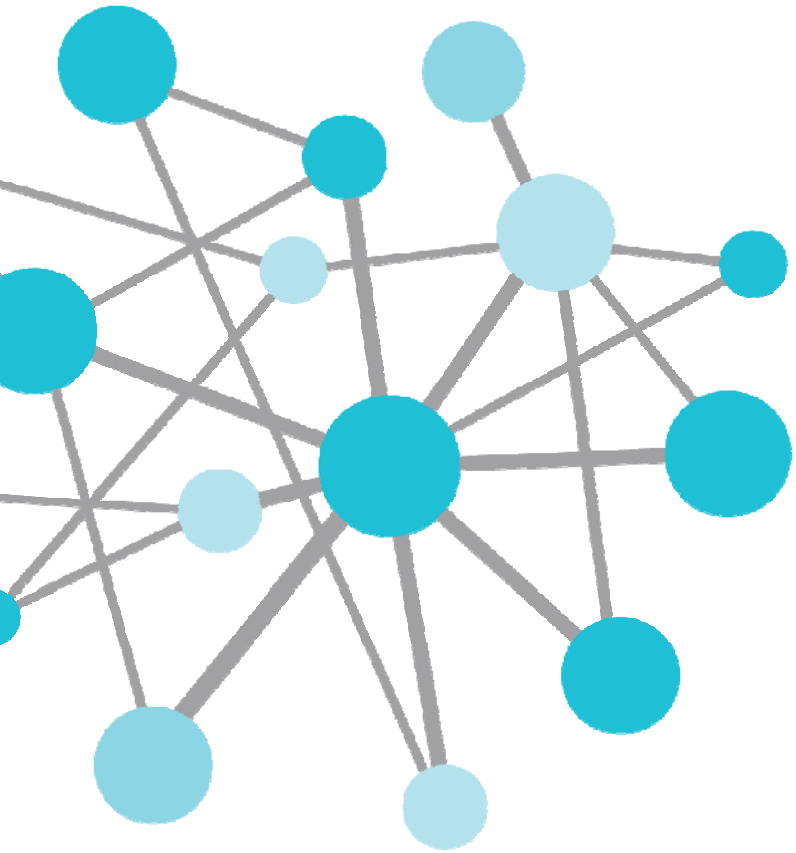
- Overview of Customer Speakers

  Meridian Energy's use of PI System from an Asset Management Point of View
  Henrico Van Niekerk, Reliability Engineer, Meridian Energy

  Utilizing the PI AF Structure for New Zealand Customers
  David Parker, Managing Director, Dimension Software

  Bringing Space and Time Together
  Matt Lythe, Sales Manager, Eagle Technologies (ESRI)

- 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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