



Mining, Metals & Materials: Shaping Your Journey to Operational Intelligence

Presented by **Lance Fontaine**

Company Visions

The OSIsoft Vision

We believe **People with Data** can **Transform** their world

Typical Mining, Metals and Materials Vision

Commodity Production: Low Cost Producer

Sustainability: Eliminate / Minimize Risk

Value-Add Production: Products that Differentiate

An Operational Intelligence Strategy: The Marriage of our Visions

What Challenges / Opportunities Exist within Mining, Metals and Materials?

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) or Remote Operation Centers
- 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

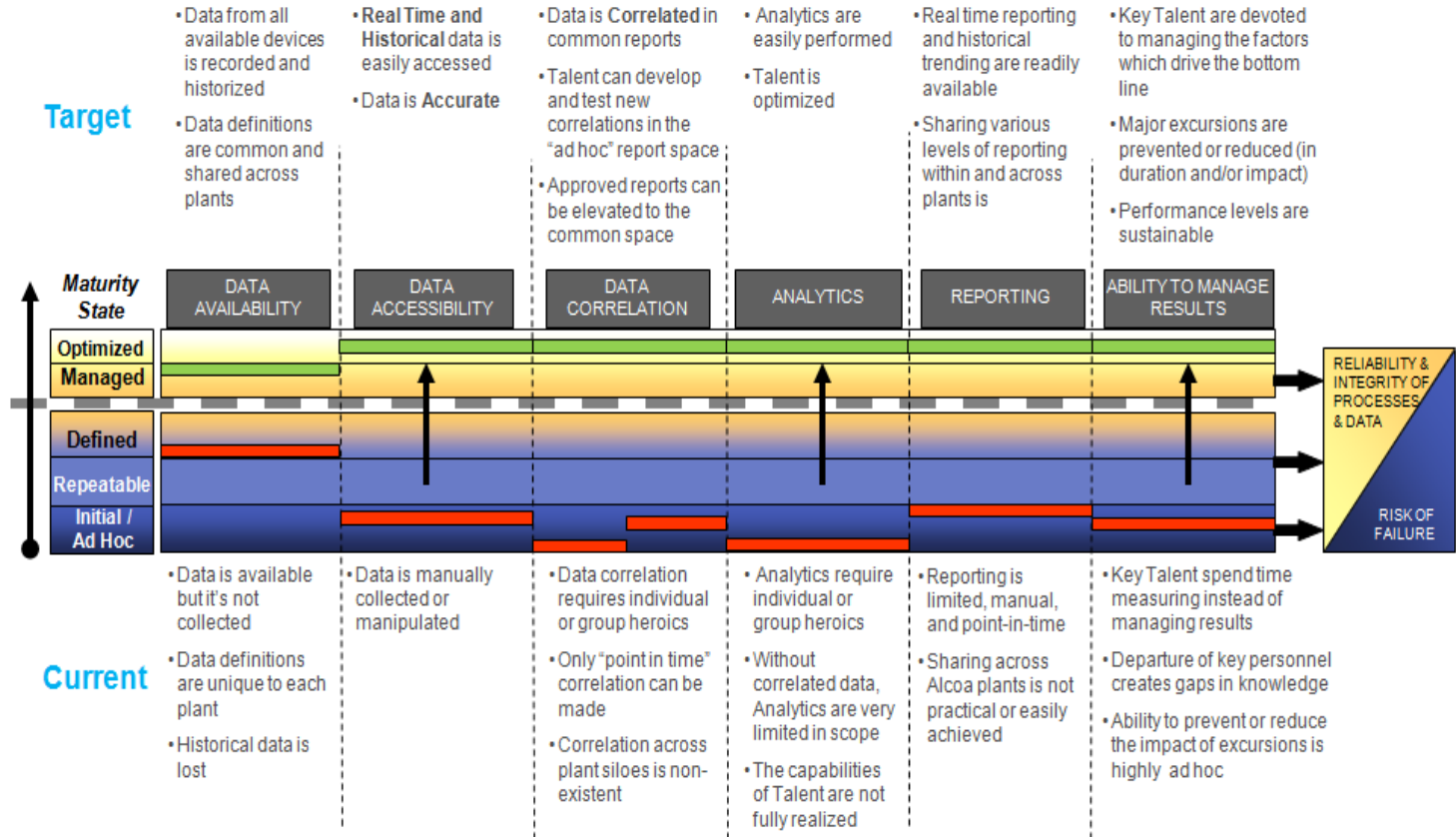
- Rising Energy Rates
- Rising Raw Material Costs, Reduced Raw Material Quality
- Rising Water Rates
- Rising Labor Rates
- Cost of Environmental Regulation / Mandates

More Directly Impact Controllable Costs / Performance

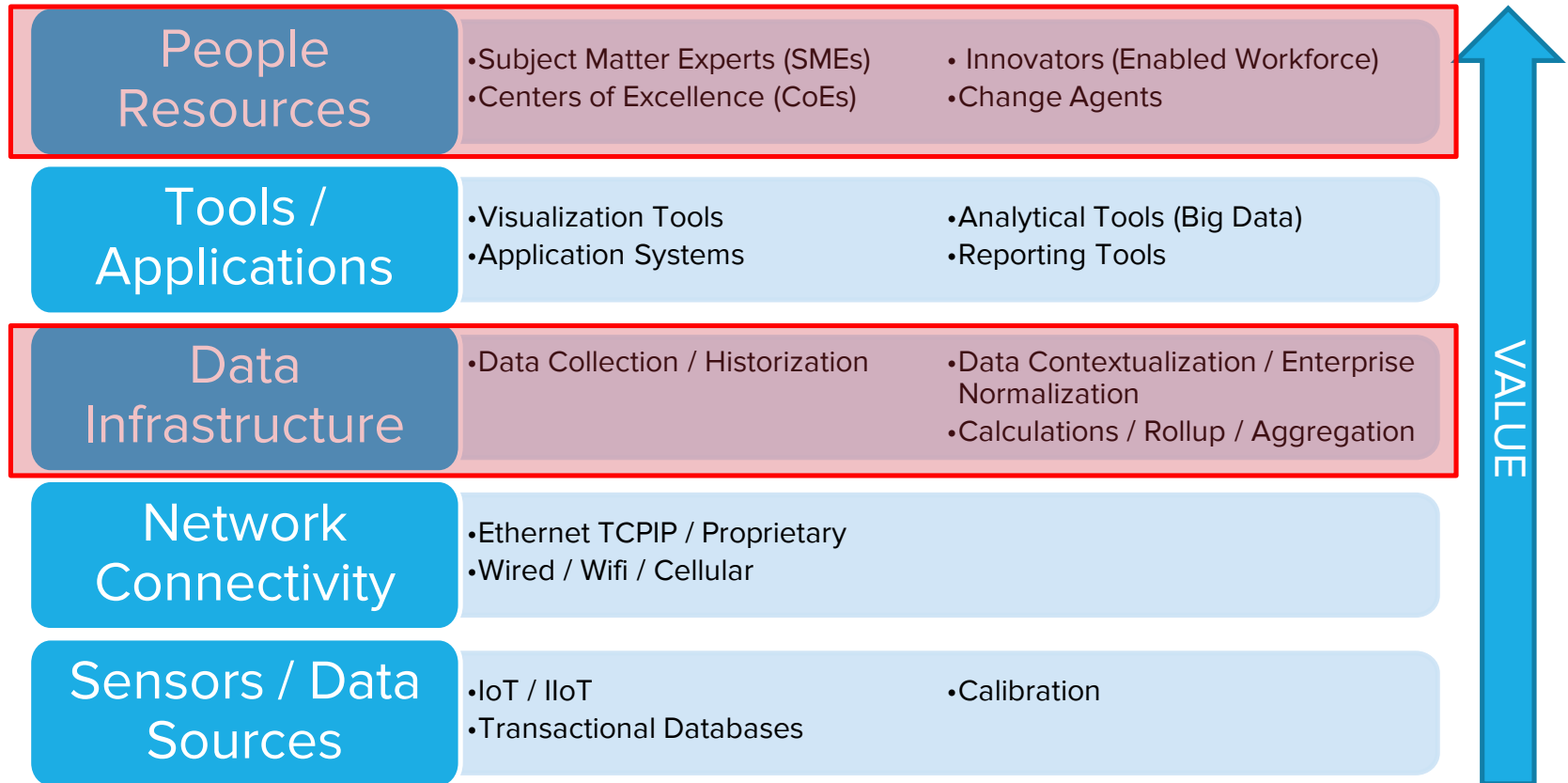
- Continuously Improve **Process Productivity / OEE**
- Better Control **Product Quality / Improve Genealogy Tracking**
- Extend **Life of Critical Assets / Reduce Maintenance Costs**
- Reduce **Energy / Raw Material / Natural Resource Consumption**
- Continuously Improved **Environmental Performance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

Why the Need to Re-Evaluate Your Information Platform?

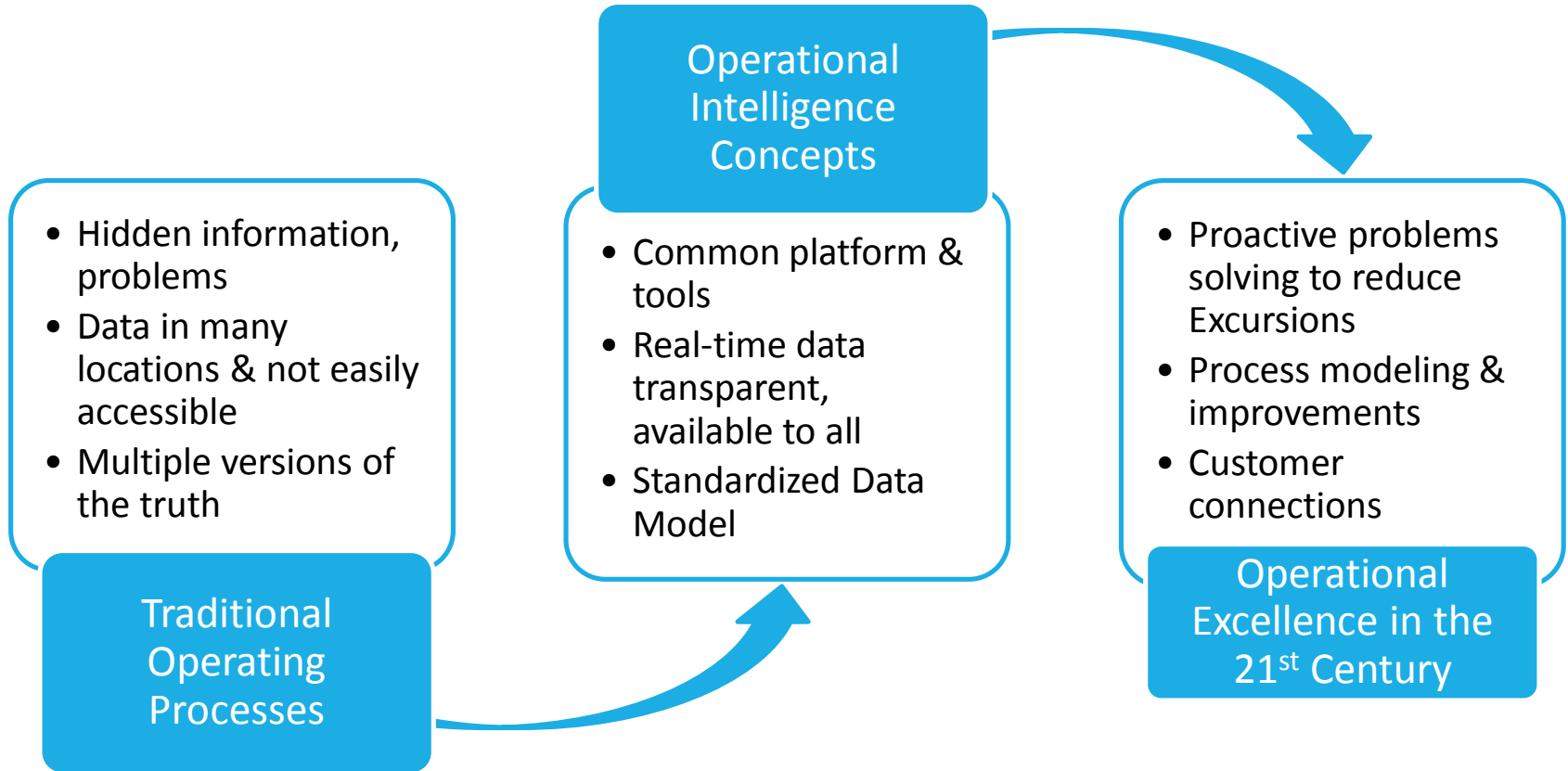
The Data Capability and Maturity Model



Data to Value: Recognizing the Critical Contributors



Information and the Operational Intelligence Concept



How Does Operational Intelligence Drive Results?

Daily/Real-Time Operations

Intelligent Action
Frequency: Real-time to Daily

Process Stability/Improvement

Intelligent Analysis
Frequency: Any

Production and Operations Management

Intelligent Reporting / Integration
Frequency: Daily to Monthly

Learnings Applied: Manual or Closed Loop

Visual Information / Notification

Audience:

- Operators
- Craftsmen
- Supervisors

Objectives:

- Achieve Daily Targets (DMS)
- Situational Awareness
- Resolve Immediate Issues (RCA/Problem Resolution)
- Maintain Schedule/Plan

Learning / Knowledge Expansion

Audience:

- Process Engineers (Location)
- Production Superintendents
- CoE Experts (Regional/Global)

Objectives:

- Detect Excursions (Leading)
- Maintain Process Stability
- Improve Productivity
- Improve Quality

Evaluation / Decision Support

Audience:

- Location Managers
- Regional/Global Operations
- Business Leadership

Objectives:

- Understand/Grade Performance
- Adjust Expectations
- Establish Plans
- Calculate Forecasts

OSIsoft PI Data Infrastructure

21st Century Operational Excellence: Leveraging Information as a Key Enabler

Common Operations Programs

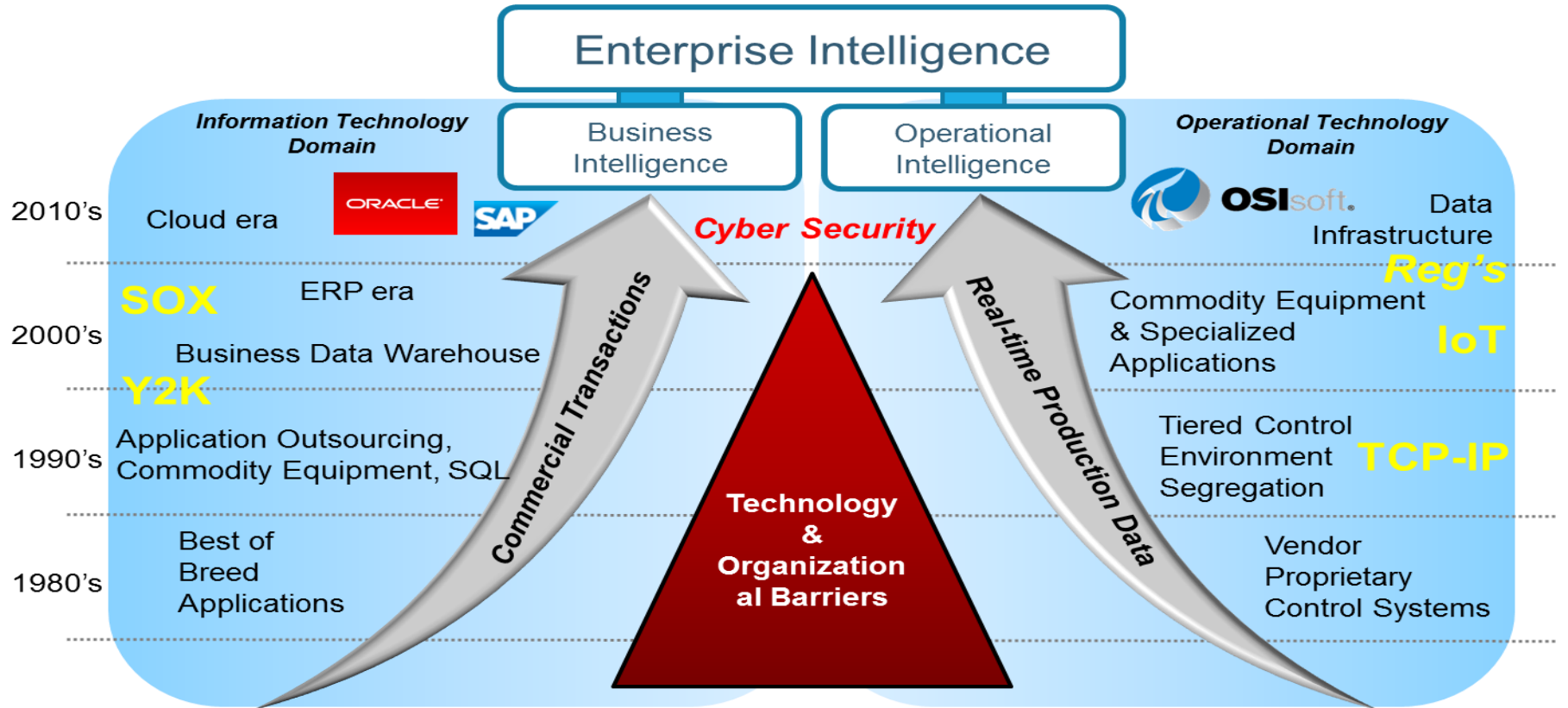
- SPC (Statistical Process Control)
- Lean Manufacturing / Six Sigma
- TPS (Toyota Production System)
- Continuous Improvement / Deming Cycle

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

Meeting the Technical Requirements: Recognizing IT / OT Convergence

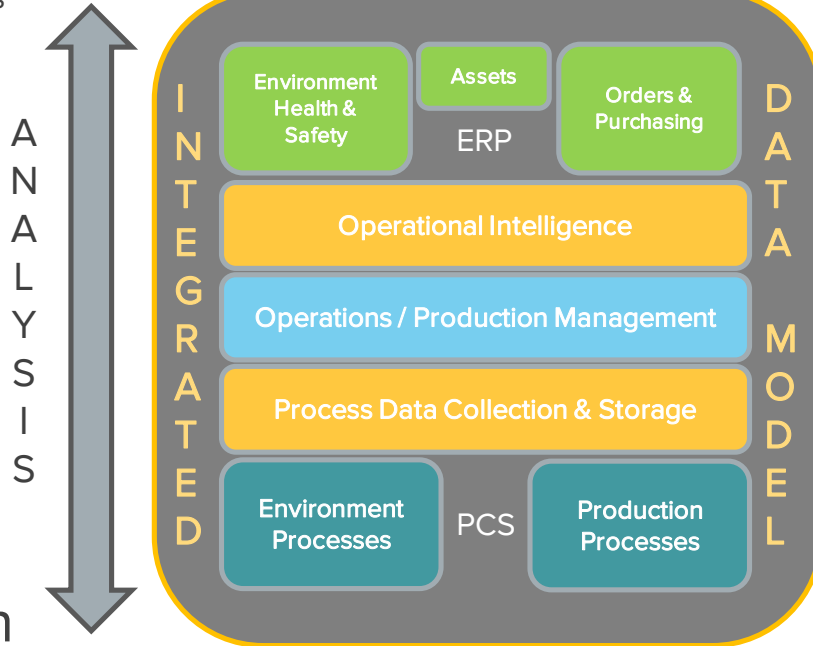
Recognizing IT/OT Convergence



Defining a Standard Technical Architecture

Transactions

Business



Definition:

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

Key Components:

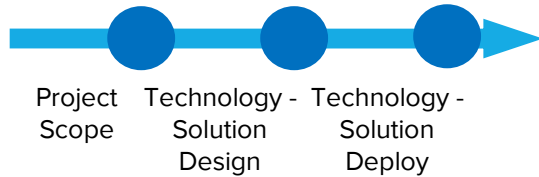
1. REAL TIME and HISTORICAL process data capabilities
2. Network / Data integration from shop floor to the enterprise
3. Comprehensive analysis toolset(s)

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

Adopting a Project or Program Approach

Project Based Approach

Project #1



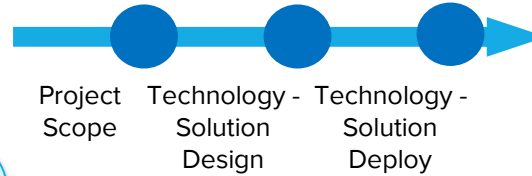
Typical Scenario:

- Limited Technical Scope (Sources of Information / Tags)
- Fixed Project Timeline
- Working Group: Location Operations Resources working with IT / OT Resources

Pros (often):

- Well Defined, Limited Scope
- Single Design / Deployment
- More Manageable Initial Cost

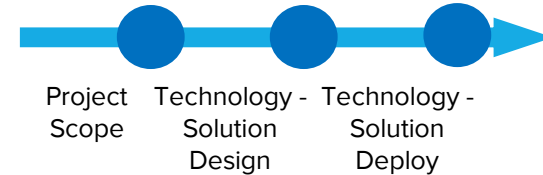
Project #2



Cons (often):

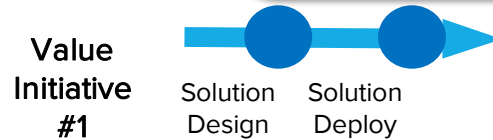
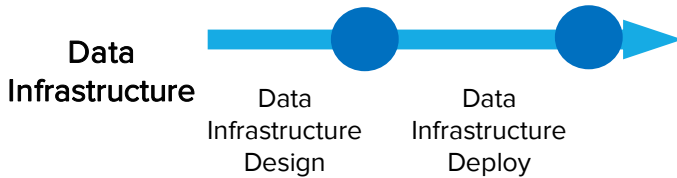
- Site Based, One Off Solutions
- Not Easy to Leverage / Deploy 'Best Practices' or 'Standards' across Multiple Sites
- New Projects Require New Software / New Solutions / New Funding / **New Start**
- Cost / Complexity Increase Over Time

Project #3



TIME

Program Based Approach



Typical Scenario:

- Supports Vision of Data as an Asset
- Initial Scope / Focus on Technical Architecture and Data Infrastructure
- Defined Partnership between Operations and IT /OT

Pros (often):

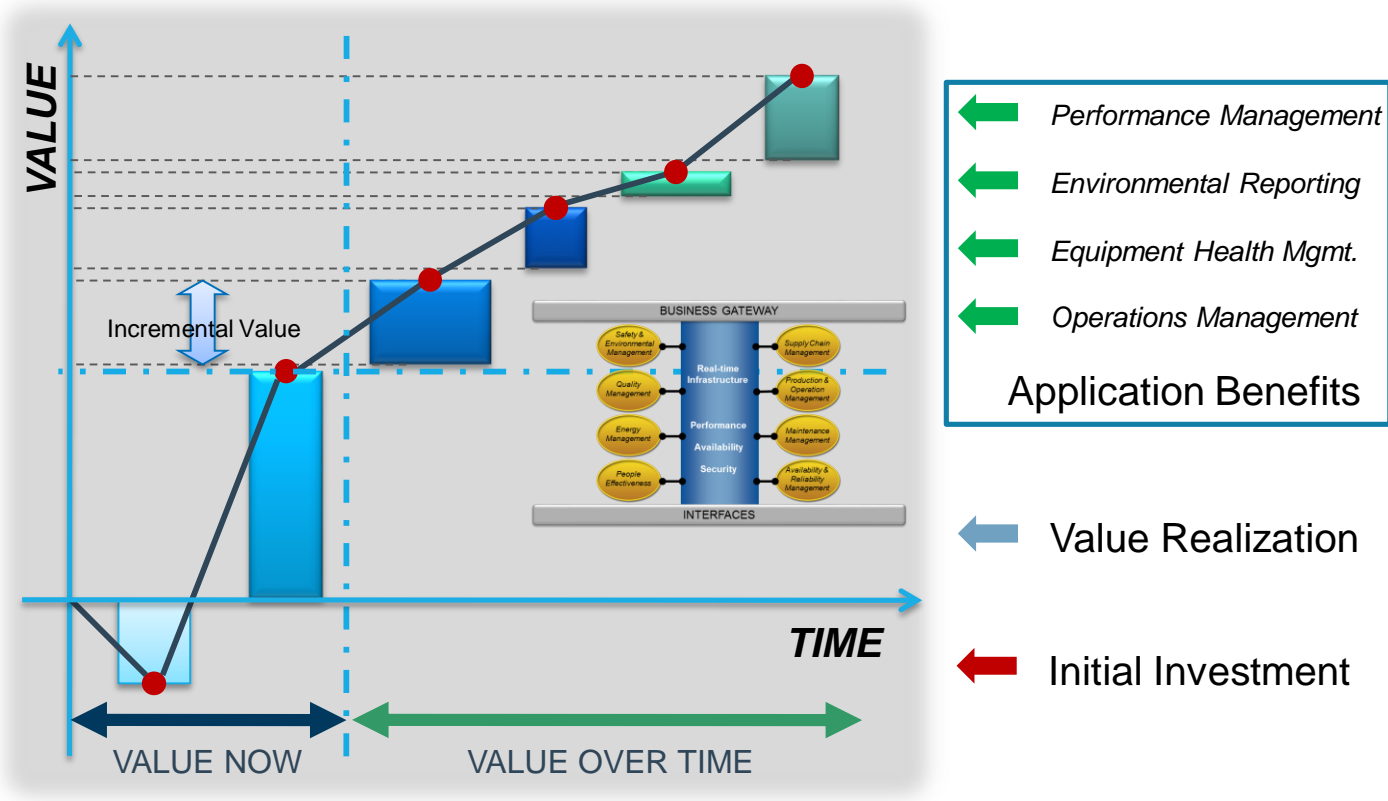
- Supports Transformation through Continuous Improvement Program
- Shorter Time to Value for Defined Value Initiatives
- Less Investment / Funding Required for Subsequent Projects
- Focus on Leverage of 'Common Standards' or 'Best Practices'
- Provides Standard Approach to Technology / Minimizes Complexity
- Engages People

Cons (often):

- Higher Initial Funding Investment (Offset by Lower ongoing TCO and Stronger Value Realization)

TIME

Value Creation – The Project vs. Program Approach



Conclusion

Key Considerations for Today's Session

- What is your vision for the use of information within your company / division?
- What role does OSIsoft PI play as an enabling technology?
- How can OSIsoft help you establish and execute your strategy for success?

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Questions

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

State your
name & company





THANK
YOU