An Enterprise Approach to OSIsoft Products

Nourishing Ideas. Nourishing People.

Agenda

- **Company Profile**

- **PI Value Proposition**

- **Vision and Direction**

- **EA Deployment**

Cargill: *collaborate > create > succeed*

Who is

Cargill?

Cargill Company Profile

- **Founded 1865 in Conover, IA**

- **Privately owned**

- **HQ in Minneapolis, MN**

- **Offices and facilities in ~59 countries**

- **~125,000 employees worldwide**

- **Food, agriculture, and risk management**

Cargill Products and Services

- **Agriculture Services**
  - Provides farm and ranch services and products worldwide.

- **Food Ingredients and Applications**
  - Serves global, regional and local food manufacturers, food service companies and retailers with food and beverage ingredients, meat and poultry products and new food applications.

- **Industrial**
  - Supplies customers worldwide with fertilizer, salt and steel products and services, and develops industrial applications for agricultural feedstock's.

- **Origination and Processing**
  - Connects producers and users of grain, oilseeds and other agricultural commodities through origination, processing, marketing and distribution capabilities and services.

- **Risk Management and Financial**
  - Provides Cargill customers and the company with risk management and financial solutions in world markets.

Cargill Financials

- **Revenues:** $71 Billion
- **Net Income:** $1.5 Billion
- **Net worth:** $12 Billion
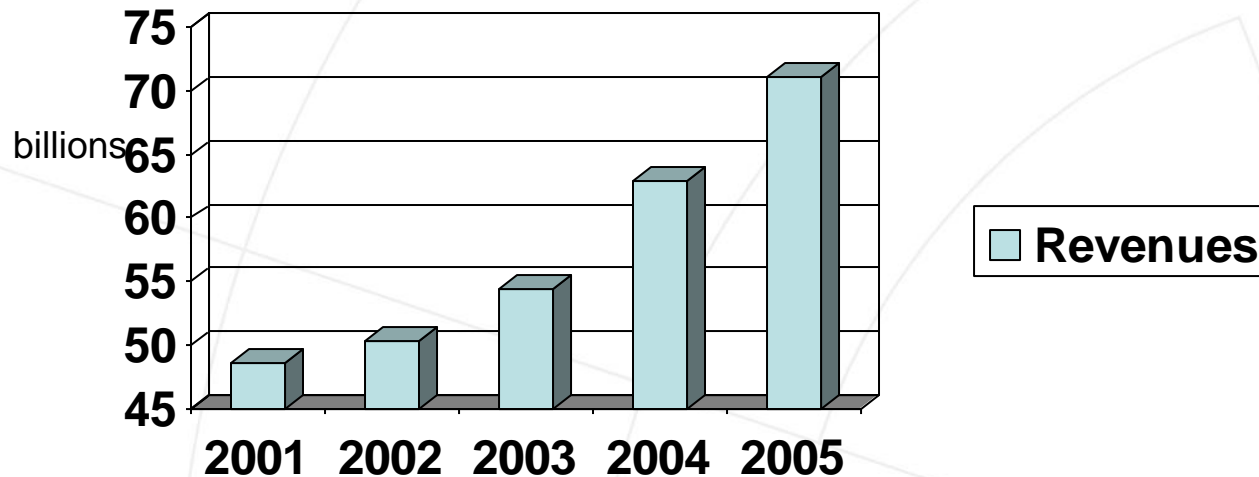
Our challenge …

- If the western world is to compete in manufacturing, we will have to become more sophisticated -- our *competitive advantage*.

  -- Ron Christenson, CTO, Cargill

A Brief History of PI

- **In 1996, OSI and Cargill partnered to use PI with limited initial deployment**

- **By 2005, 50 PI systems worldwide**
  - North America: 33
  - Europe: 15
  - Asia: 2

Value Proposition

"With PI as the eyes and ears of our entire operation, we are 'Operationally Ready' to manage and plan for any situation. I can't imagine operating without PI."

--Refinery Supervisor, DSO

"PI enables a more intelligent use of people's time and resources. It's a very powerful advantage when people can see into the operation in virtually any way they want and find the data they need to improve operating efficiencies."

–Plant Manager, GOSC

Value Proposition

"If we can't analyze process performance second-by-second, weekly and annually, we are at an extreme disadvantage in improving operations. PI enables us to maximize process efficiencies. Without PI, we'd be naked."
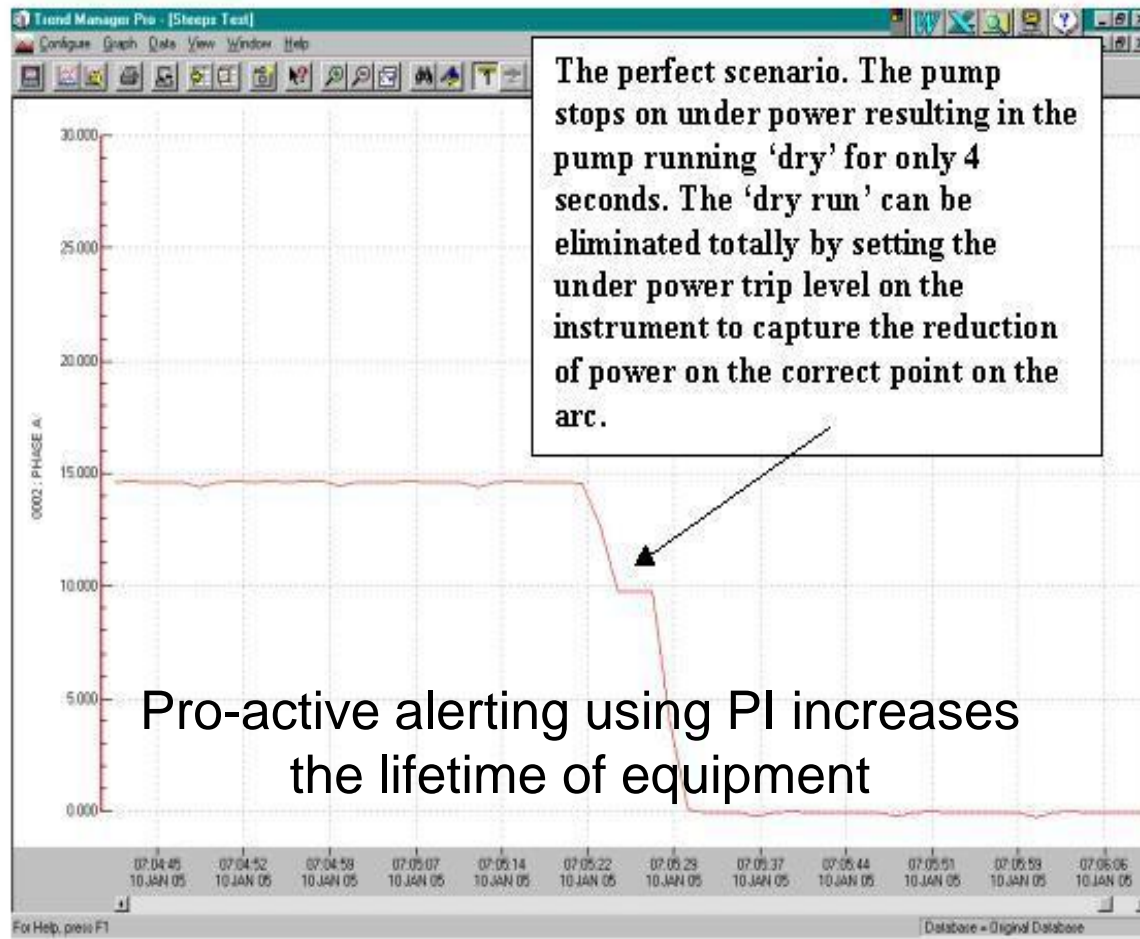
--Crush Superintendent, Cargill Mexico

"Millions of dollars have been saved by using PI not only to better understand the process, but to redesign the entire operation to run optimally."
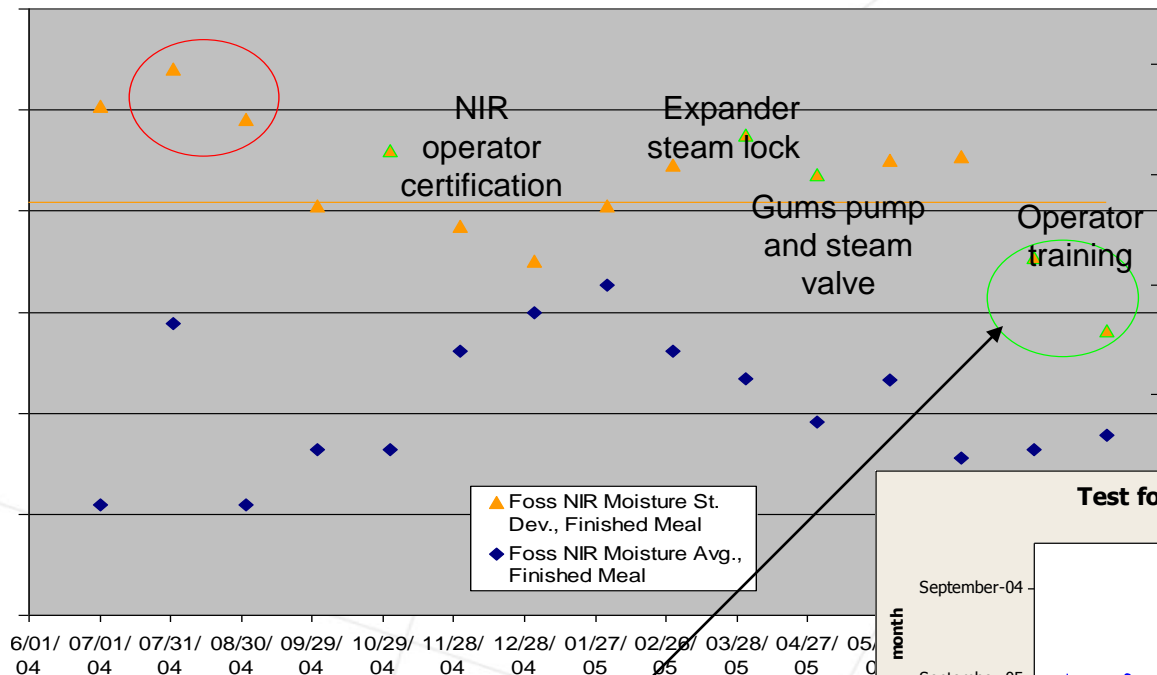
--Automation Engineering Team Lead, Cargill/Mosaic

Example of creating significant value with PI

The perfect scenario. The pump stops on under power resulting in the pump running 'dry' for only 4 seconds. The 'dry run' can be eliminated totally by setting the under power trip level on the instrument to capture the reduction of power on the correct point on the arc.

Pro-active alerting using PI increases the lifetime of equipment

6 sigma project drove an improvement in finished meal moisture variation - **Goal exceeded !**

NIR operator certification

Expander steam lock

Gums pump and steam valve

Operator training

▲ Foss NIR Moisture St. Dev., Finished Meal
◆ Foss NIR Moisture Avg., Finished Meal

6/01/ 04 07/01/ 04 07/31/ 04 08/30/ 04 09/29/ 04 10/29/ 04 11/28/ 04 12/28/ 04 01/27/ 05 02/26/ 05 03/28/ 05 04/27/ 05 05/

Improvement is consistent with an obvious trend and statistically significant per F-test of equal variance (p << 0.05)

Test for Equal Variances for Meal moisure

F-Test	
Test Statistic	2.64
P-Value	0.000
Levene's Test	
Test Statistic	21.46
P-Value	0.000

September-04

September-05

0.25   0.30   0.35   0.40   0.45   0.50   0.55
95% Bonferroni Confidence Intervals for StDevs

month

September-04

September-05

11   12   13   14   15
Meal moisure

month

Cargill
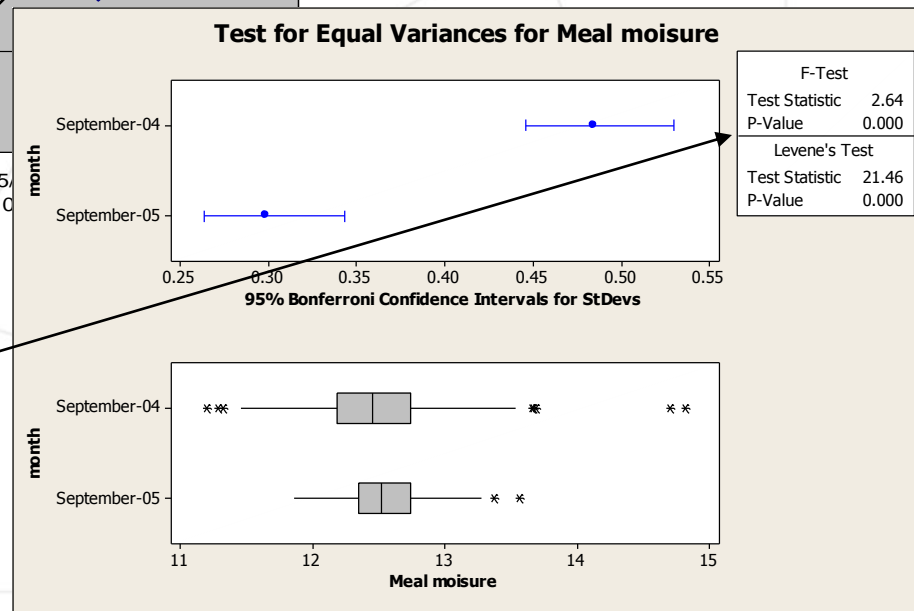
"Naked Without PI"

- Tool for leveraging process data to compete effectively in global economy

- Real time access to ALL process data

- Real-time monitoring of KPIs

- Historical data access for best practice, in-depth analysis, troubleshooting and root cause analysis

- Common data layer for process data using standard formats, tools and applications

- Easily configurable tools for meeting a host of production and business needs and scenarios
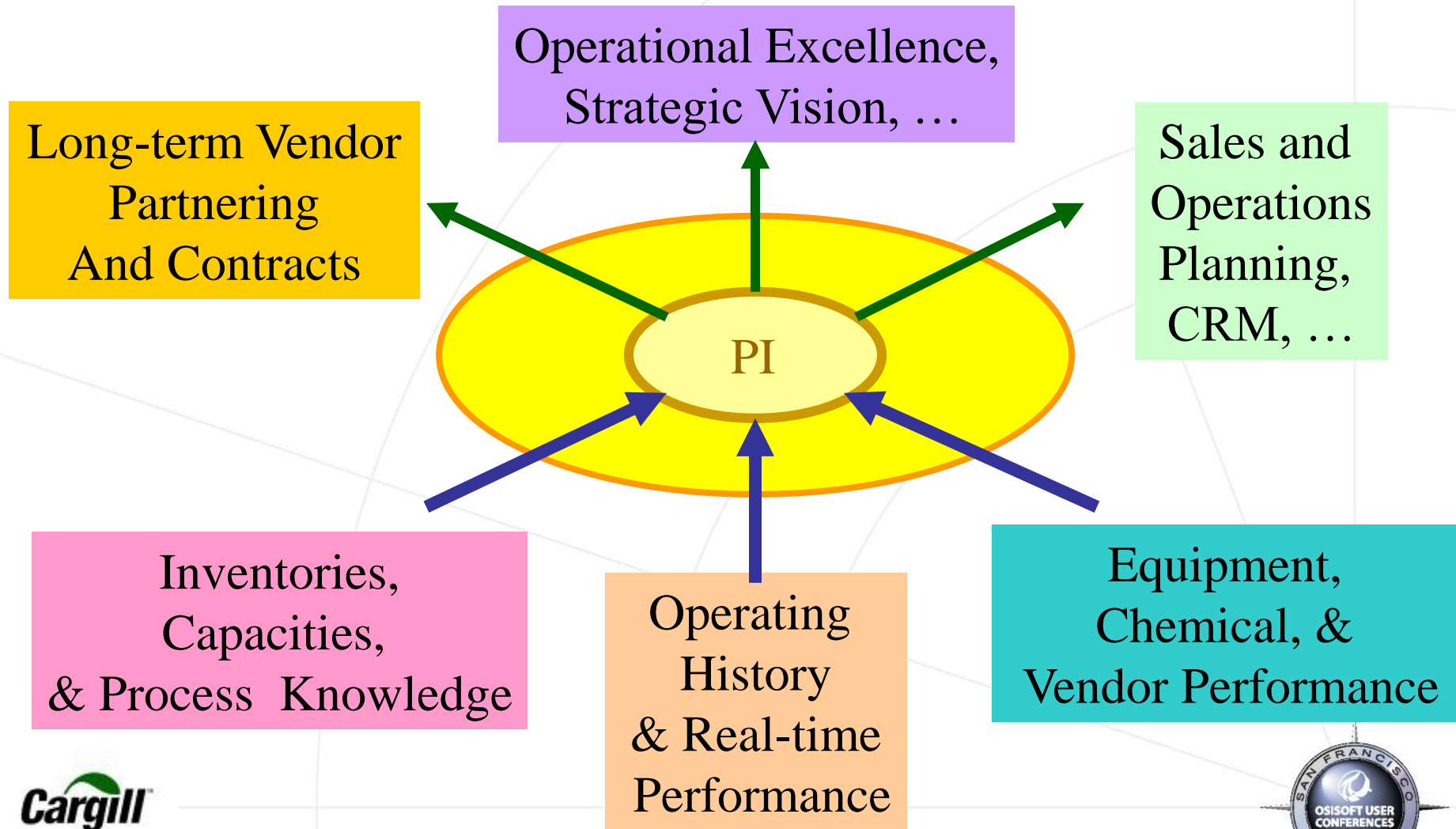
Cargill strategy for leveraging data streams
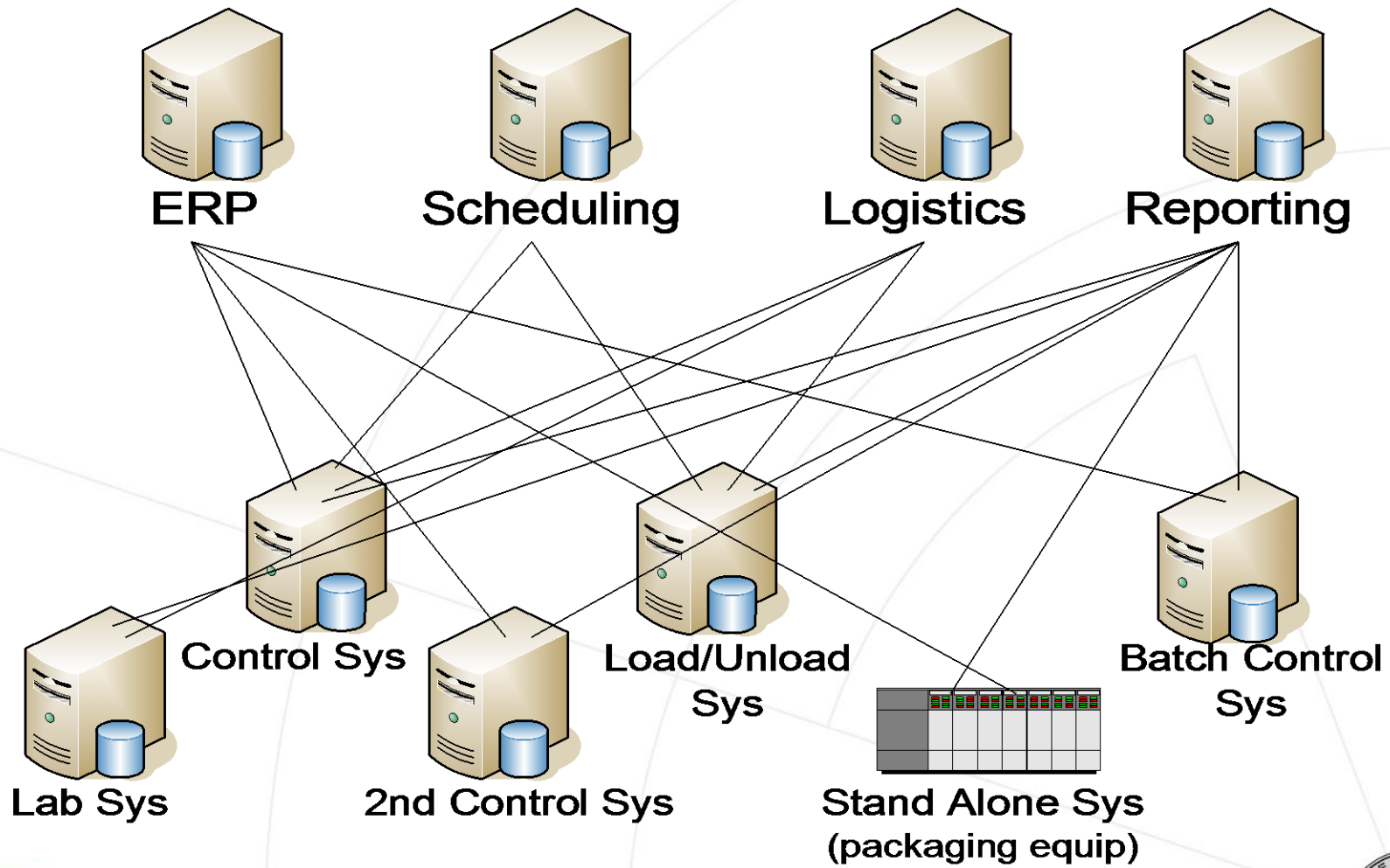
PI Historical and Real-time Data Systems

- 360° Business Vision – proactive, not reactive

- Common data layer for plant information

- OSI Enterprise Agreement

- Structure for WW implementation

  - Pre-work, project management, and post-install support (training and report development)

- Capturing Value – "knowing what we know"

  - BFG, Ops CoE, & PI CoE

  - Harvesting ideas
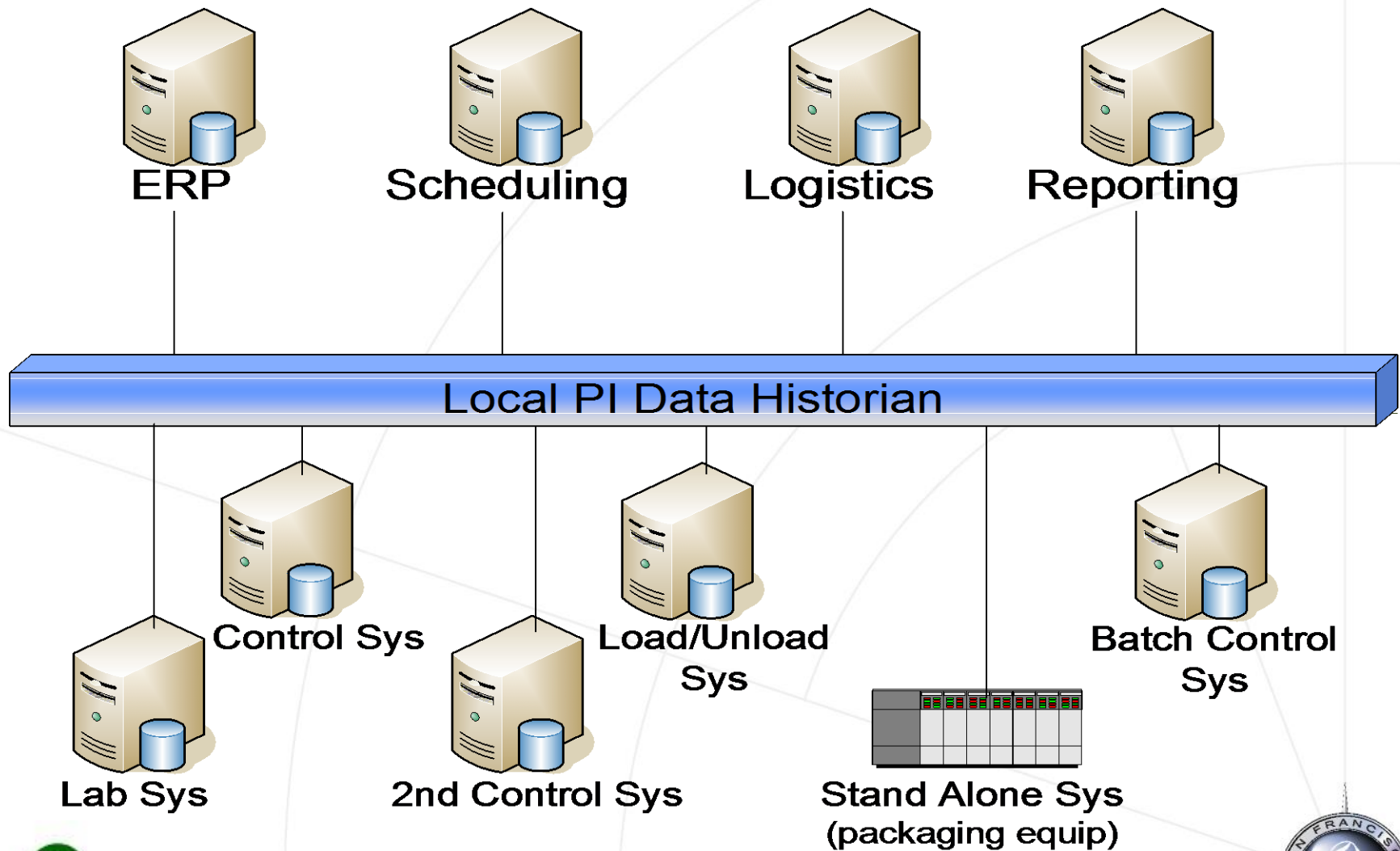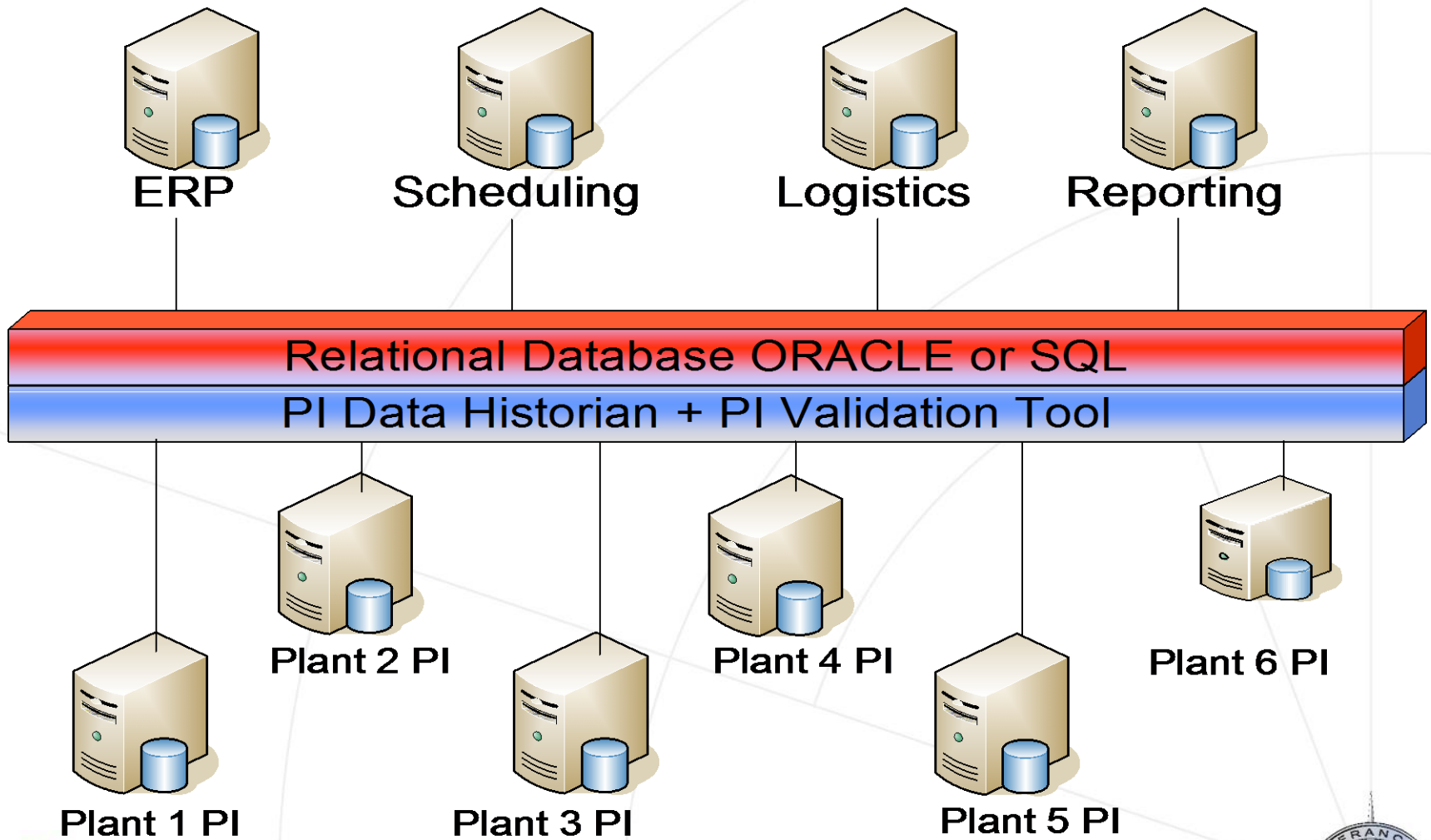
  - Sharing ideas and best practices

360° Business Vision

Operational Excellence, Strategic Vision, …

Long-term Vendor Partnering And Contracts

Sales and Operations Planning, CRM, …

PI

Inventories, Capacities, & Process Knowledge

Operating History & Real-time Performance

Equipment, Chemical, & Vendor Performance

Cargill

PI Within Cargill: No Common Infrastructure

ERP Scheduling Logistics Reporting

Control Sys Load/Unload Sys Batch Control Sys

Lab Sys 2nd Control Sys Stand Alone Sys (packaging equip)

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PI Within Cargill: Common Plant Data Layer

PI Within Cargill: BU Level Data Aggregation

ERP   Scheduling   Logistics   Reporting

Relational Database ORACLE or SQL

PI Data Historian + PI Validation Tool

Plant 2 PI   Plant 4 PI   Plant 6 PI

Plant 1 PI   Plant 3 PI   Plant 5 PI

OSI and the Road to Enterprise-Wide Historical and Real-Time Data Systems

Business Excellence

06-Mar-06

18-May-05

Enterprise Agreement

The OSIsoft Enterprise Agreement delivers tools, resources and support to make the most of business objectives.

- Leverage existing data sources such as plant control systems or any source of streaming data (performance monitors, energy prices...)
- Common data abstraction layer ... point
- Rich suite of ...
- Microsoft te...
- Softw... replac...
- Monitori... time
- PI syste...
- Training, ... SRP, ...
- OSIsoft is a business ... al-time performance management
- Allows Cargill to focus on adding value

OSIsoft is a partner in achieving worldwide business and operational excellence for Cargill and its customers

Cargill

Enterprise Agreement Deliverables

The Enterprise Agreement provides unlimited use of the Asset-Licensed products:

SERVER
- PI-Enterprise Server Professional
- PI OPC HDA Server
- PI Control Monitor Server
- PI System Management Tools (PI-SMT)
- RtReports (non compliant future version)

CLIENT
- RtWebParts
- RtAlerts
- PI-ProcessBook
- PI-DataLink
- PI-Batch View
- PI-ActiveView
- PI-Manual Logger
- PI-Hand Held Terminal Client
- PI-SQC Client
- PI AlarmView Client
- PI Control Monitor Client
- PI-Application Framework
- PI-DAP-Individual
- Standard available API's for other non-Intel
     operating systems

INTERFACES
- All OSIsoft standard interfaces
- All OSIsoft standard COM connectors
- PI-IN-OS-PI-NT
- PI-IN-OS-SNMP
- PI-IN-OS-
- PI-IN-OS-

PI Data Historian Platform, Interfaces, & Client Applications

Site Locations

● = Currently Installed   ● = New Site

PI Board Meets to Decide Enterprise Strategy

October 6, 2005

PI Board: Strategic Objectives

- Promote methodologies for creating value

- Promote the use of raw data in value creation

- Help plants to create solutions based upon PI

- Coordinate bottom-up approach, migrate local solutions into shared solutions

- Find synergies between different plants

PI Board: Strategic Objectives

- "Find" input for vision about how to use PI in Plant Operations

- Input comes from everywhere

- Focus on Plant Operations and asset solutions
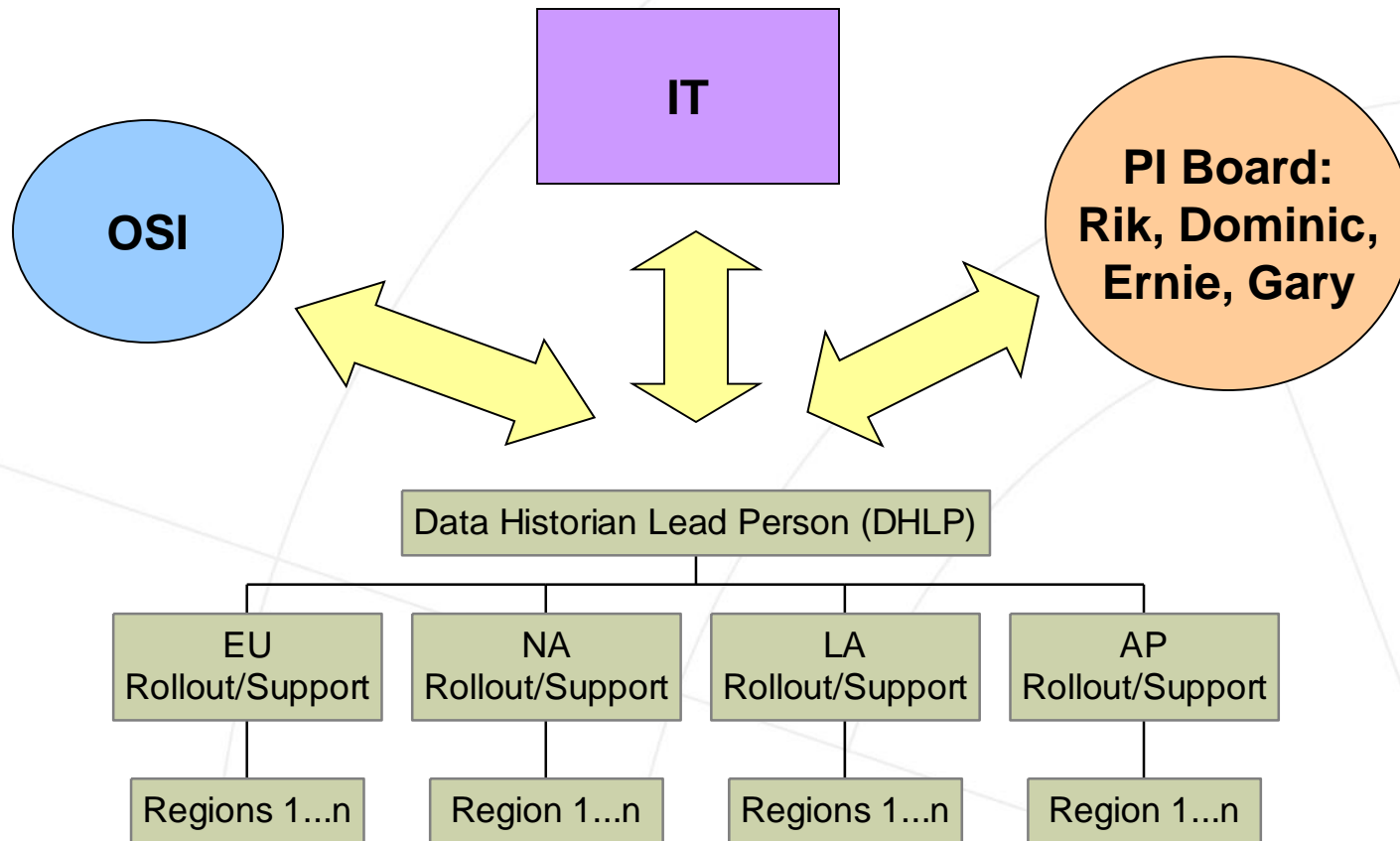
- PI environment oversight
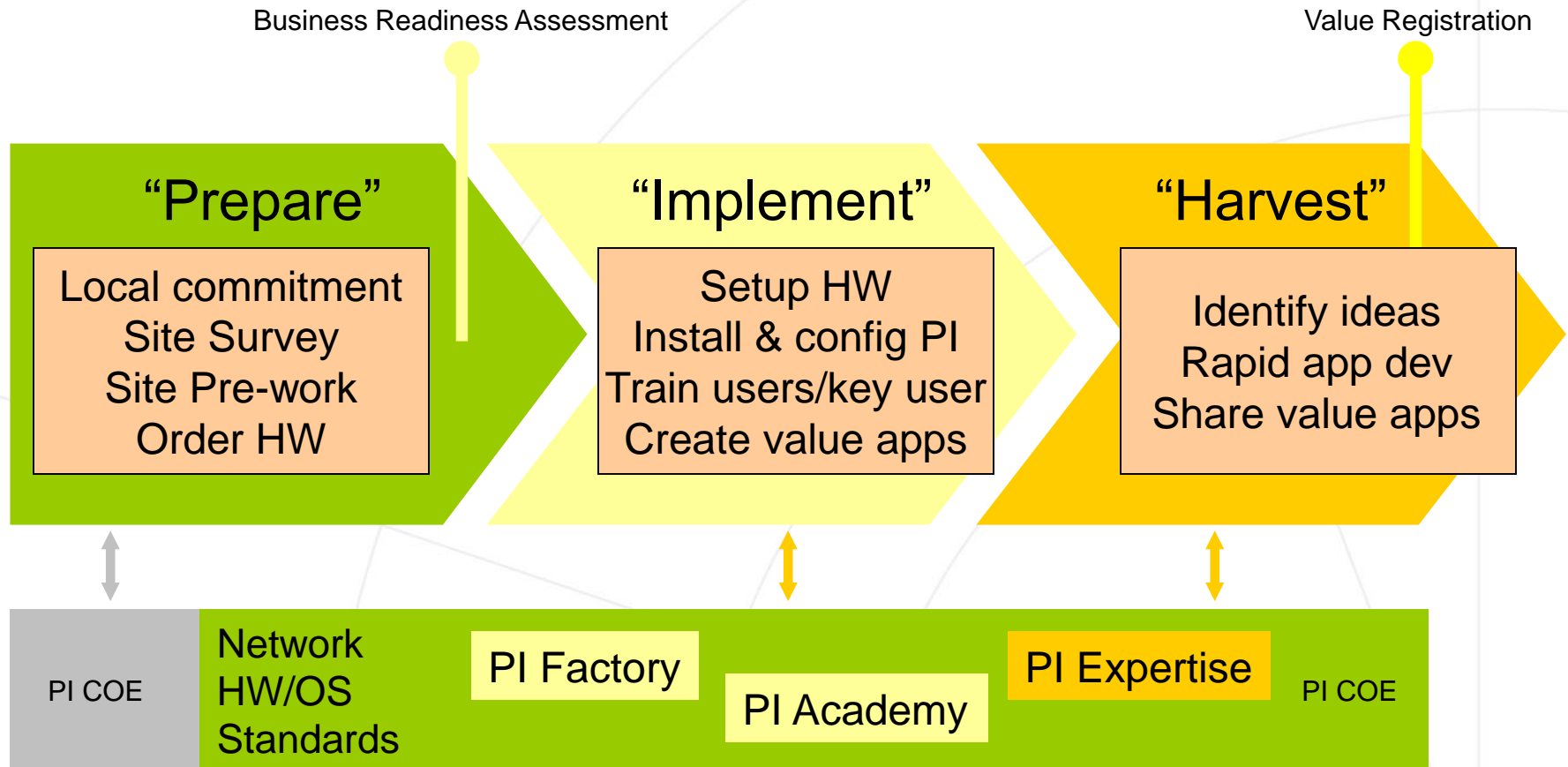
PI Board: Roles & Responsibilities

✓Take application in a direction -- guidance

✓Drive solutions and best practice

✓OSI Relationship Management
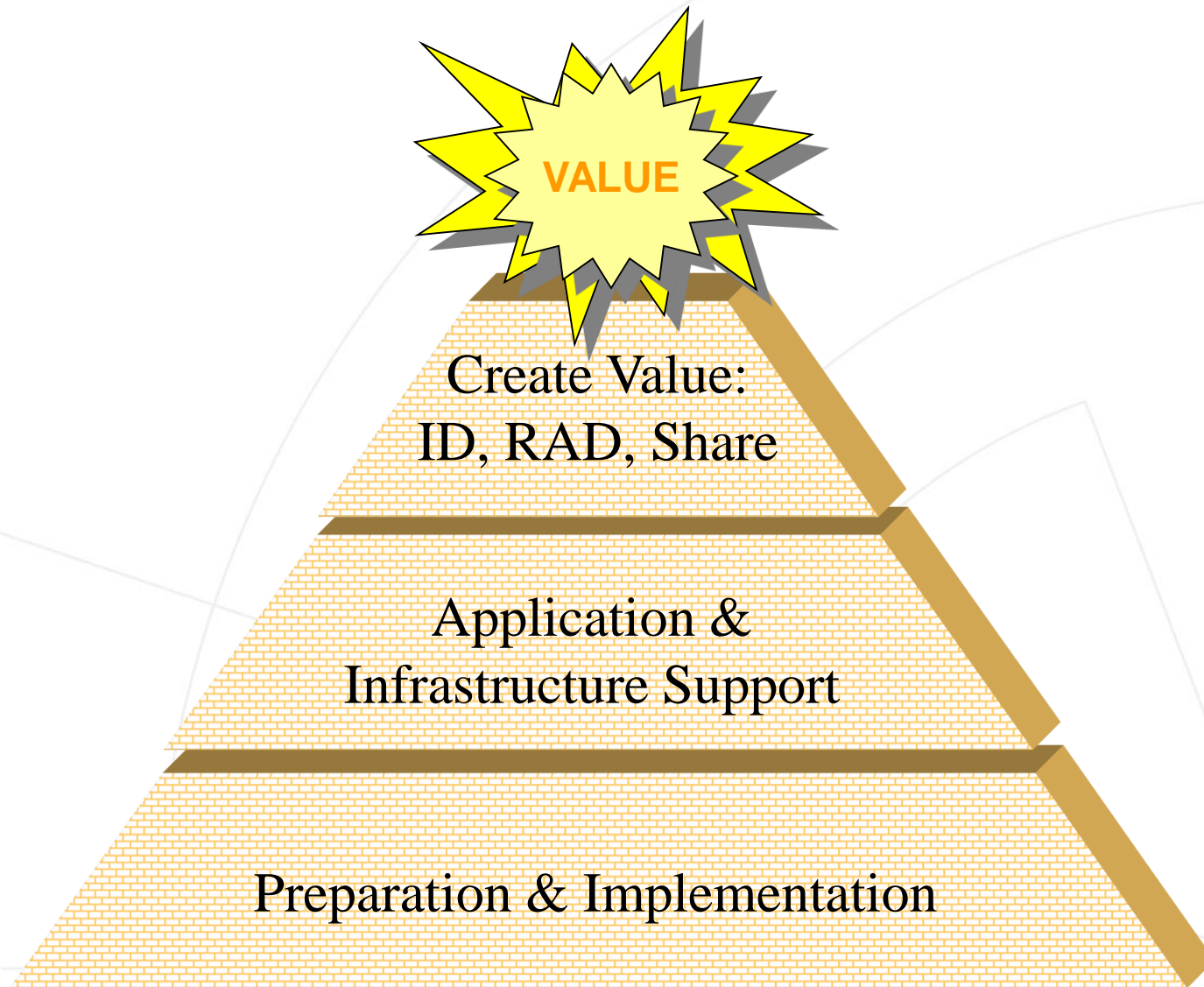
✓Coordinating Implementation and Support

✓PI Oversight

Coordinating the PI Enterprise Agreement

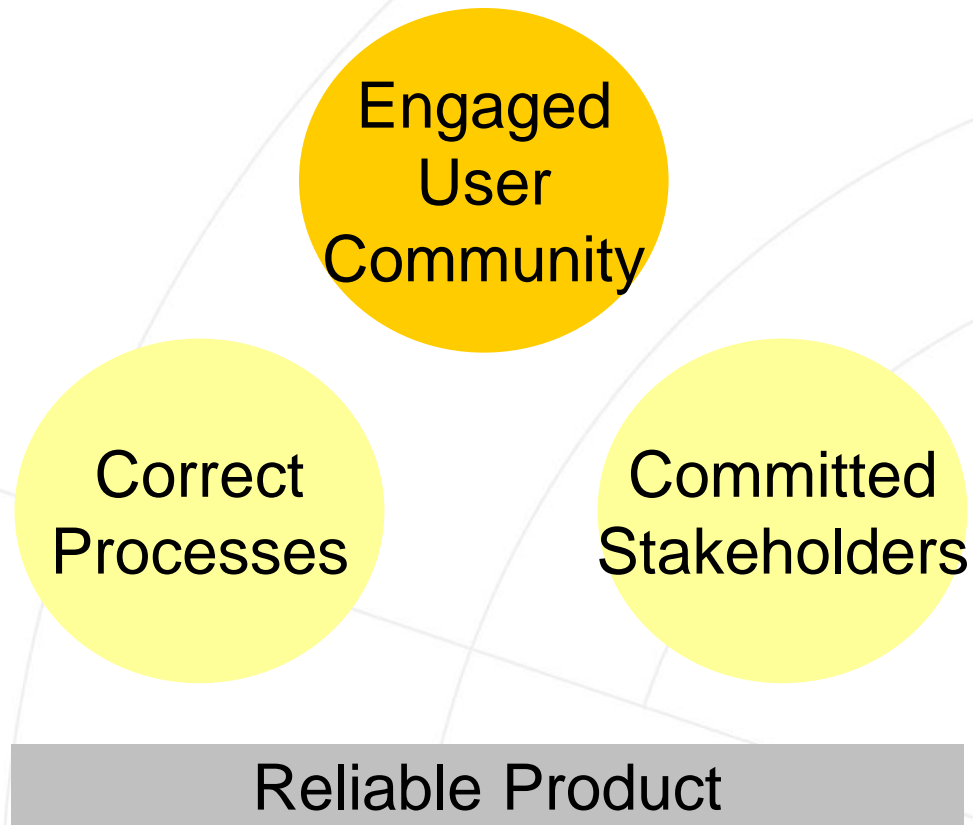OSI

IT

PI Board:
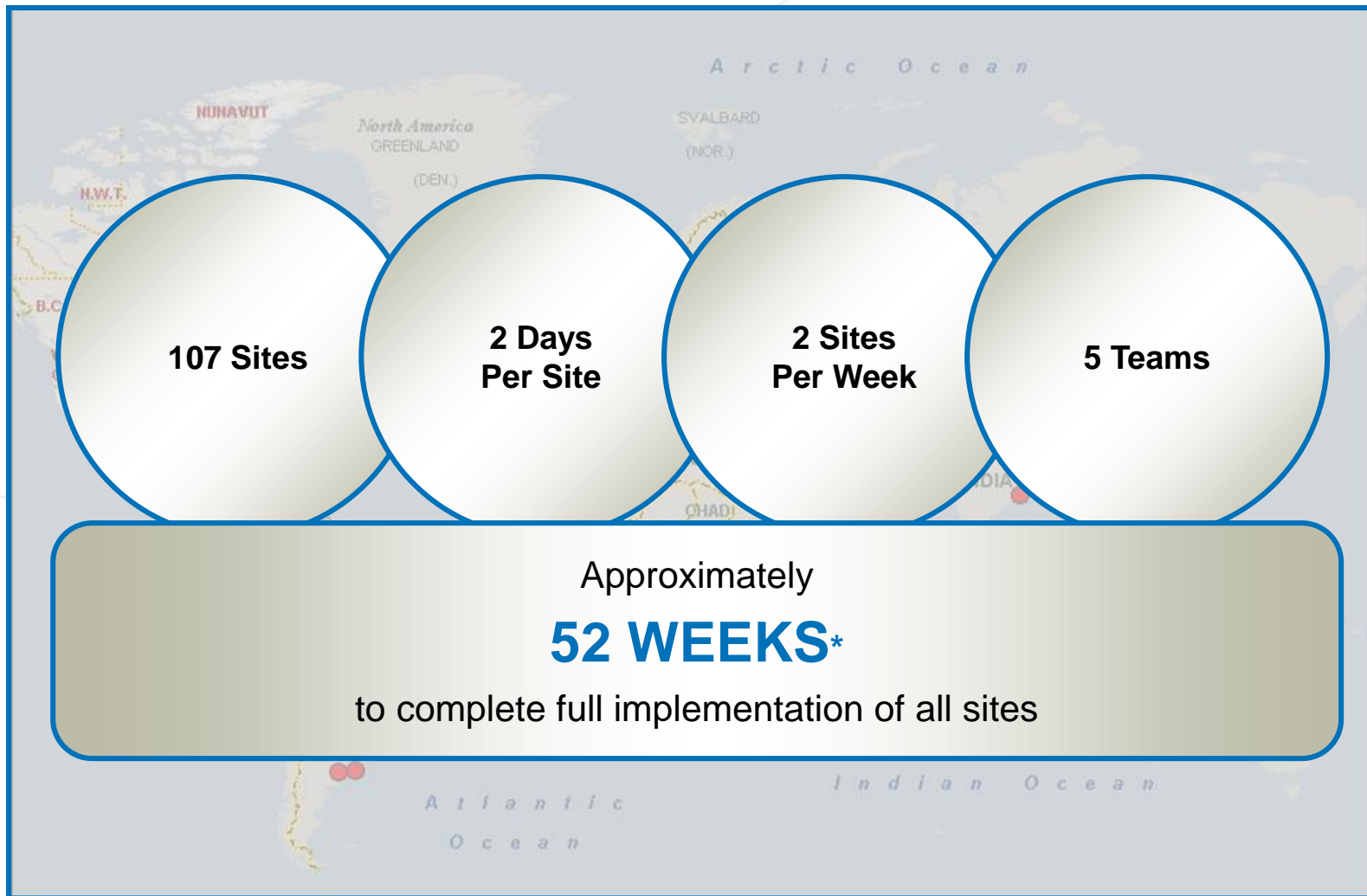Rik, Dominic,
Ernie, Gary

Data Historian Lead Person (DHLP)

EU Rollout/Support	NA Rollout/Support	LA Rollout/Support	AP Rollout/Support
Regions 1...n	Region 1...n	Regions 1...n	Region 1...n

OSI EA: Maximizing Value

Business Readiness Assessment

Value Registration

"Prepare"

Local commitment
Site Survey
Site Pre-work
Order HW

"Implement"

Setup HW
Install & config PI
Train users/key user
Create value apps

"Harvest"

Identify ideas
Rapid app dev
Share value apps

PI COE

Network
HW/OS
Standards

PI Factory

PI Academy

PI Expertise

PI COE

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OSI Enterprise Agreement Value Creation Pyramid

VALUE

Create Value:
ID, RAD, Share

Application &
Infrastructure Support

Preparation & Implementation

Components of a Successful PI Deployment

Engaged User Community

Correct Processes

Committed Stakeholders

Reliable Product

Roll Out Vision

| 107 Sites | 2 Days Per Site | 2 Sites Per Week | 5 Teams |

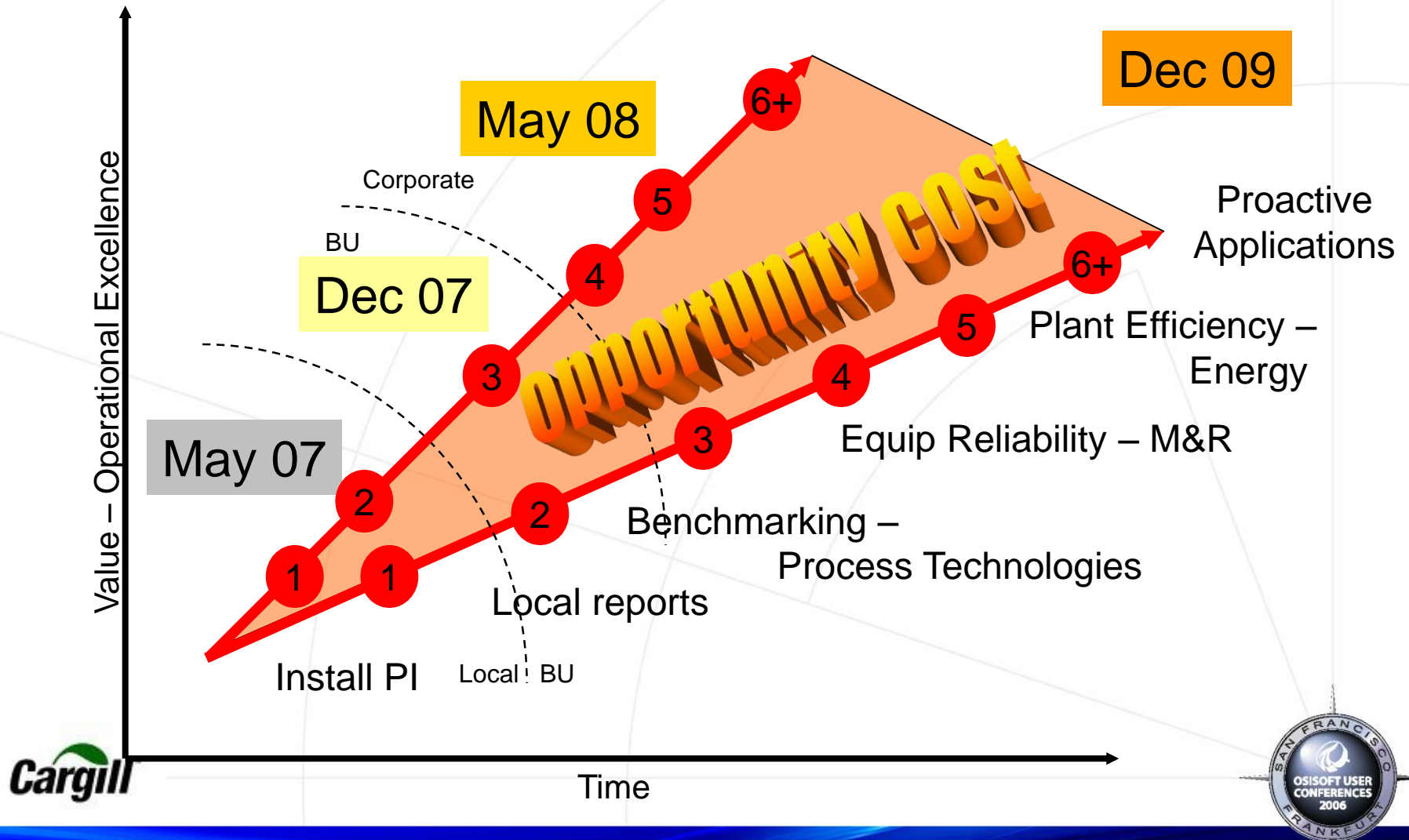Approximately

52 WEEKS*

to complete full implementation of all sites

Schedule will not necessarily be conducted concurrently between sites; some overlap at sites may occur.

PI Roadmap: Opportunity Cost

Sample PI Architecture

Enterprise Systems
- ERP
- Accounting
- Marketing

Centralized RtPM Servers
- RtAnalytics – BI and BAM
- RtPortal – Visualization

VB.NET COM DCOM

Clients using RtPortal
- ProcessBook
- DataLink
- WebParts

Mobile Clients

XML HTML

RtBaseline

Gateways
Connectors

- Maintenance Systems
- Plant level app servers

Data Left in PI

per site

COM DCOM XML
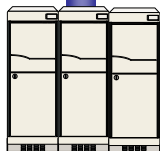
Control Secure LAN

- 3rd party historians
- Relational Data

Operational Excellence

OSIsoft has 370+ interfaces to DCS/PLC, LIMS, OPC, SCADA, Systems

Source: http://osicentral/sites/kcenter/KMDocLib1/RtPM%20Platform%20Architecture.ppt

OSI Enterprise Agreement

- Signed EA March 6, 2006

- Thanks to Starbucks

- Special thanks to Pat Kennedy, Robert Wheatley and the OSI Sales Team for helping us put this agreement together

Cargill