



 **ceradyne, inc.**

**Aras Innovator Solutions for Complex Materials**

# Agenda

- About Ceradyne
- Problem Statements
- Aras Innovator Solutions
- Our Integrated Solutions for PLM & beyond
- Business Intelligence
- Why PLM/PDM?
- PLM Architectures & Elements
- Projects and Implementation Plan
- Projects Summary
- Lessons Learned

# About Ceradyne

- Manufacturer of advanced technical ceramic products and components
- About 20 locations globally
- Markets
  - Defense
  - Industrial
  - Automotive
  - Nuclear
  - Solar
  - Electronic
  - Medical
  - Semiconductor
  - And counting ...

Product Diversification = Good for business  
But a significant challenge for IT



# Global Process Coordination

- No Integrated Solutions
  - Multiple platforms
  - Islands of information & formats
  - Inconsistent processes
  - Redundant work between applications (lack of integration)
  - Knowledge sharing challenges



# Product Complexity & Increasing Pace of Change

- File Revision Control
  - Mostly manual steps maintained by various users
  - Lack of systematic ways to track & enforce revision control



# Intellectual Property Control

- Security
  - Intellectual property management concerns
  - Risks of data loss

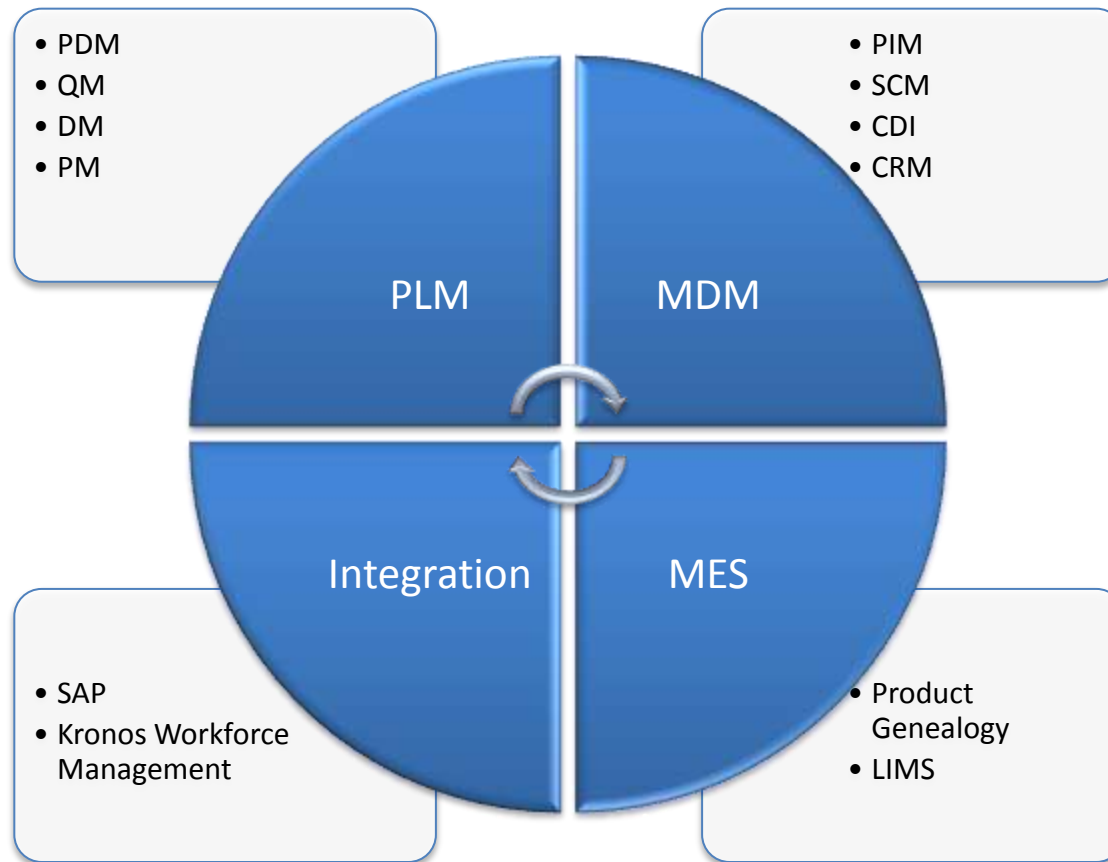


# Real-Time Multi-site Collaboration

- Performance Concerns
  - Remote locations with limited network bandwidths
  - Data management challenges (require file replication)

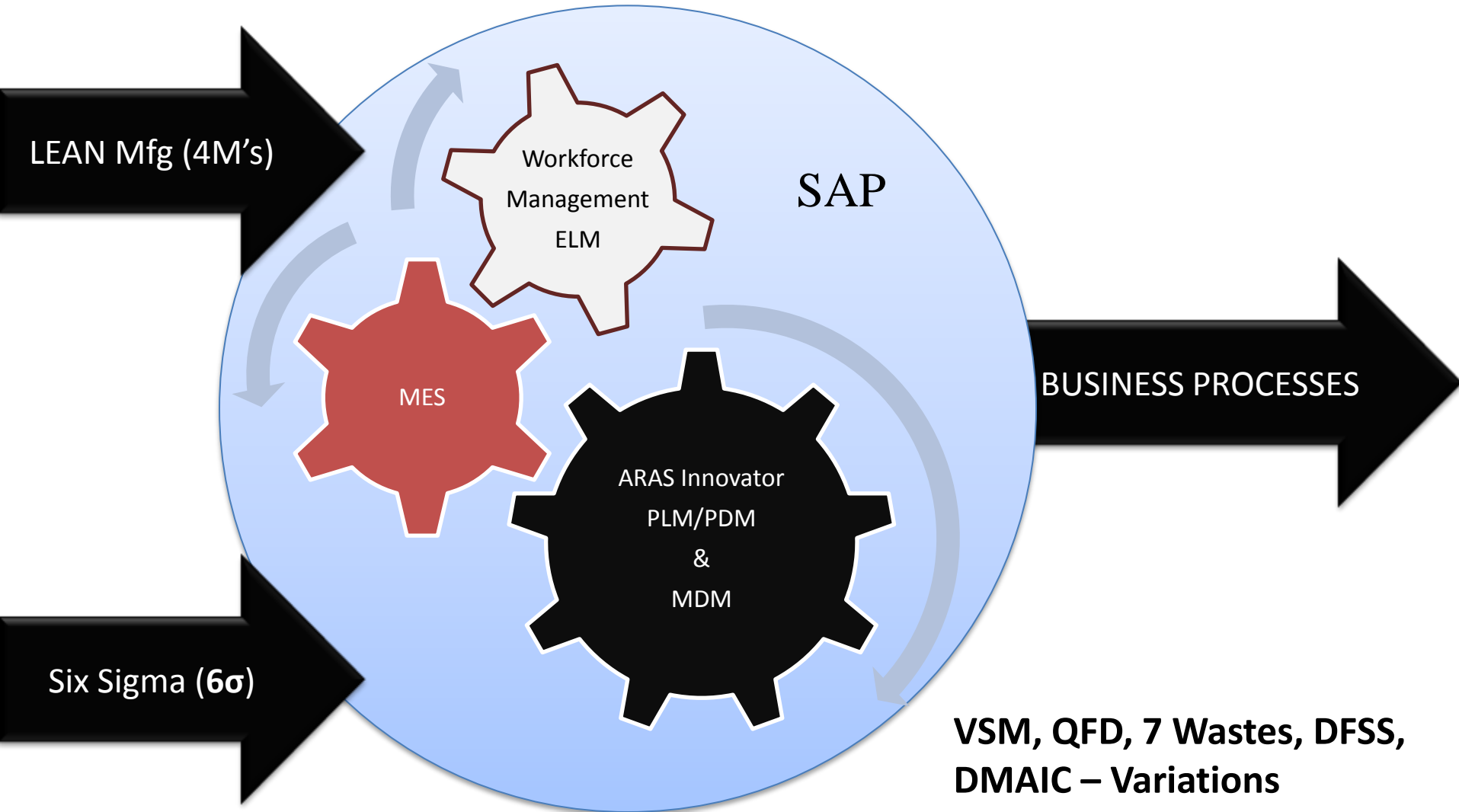


# Aras Innovator Solutions based for Complex Materials & Processes

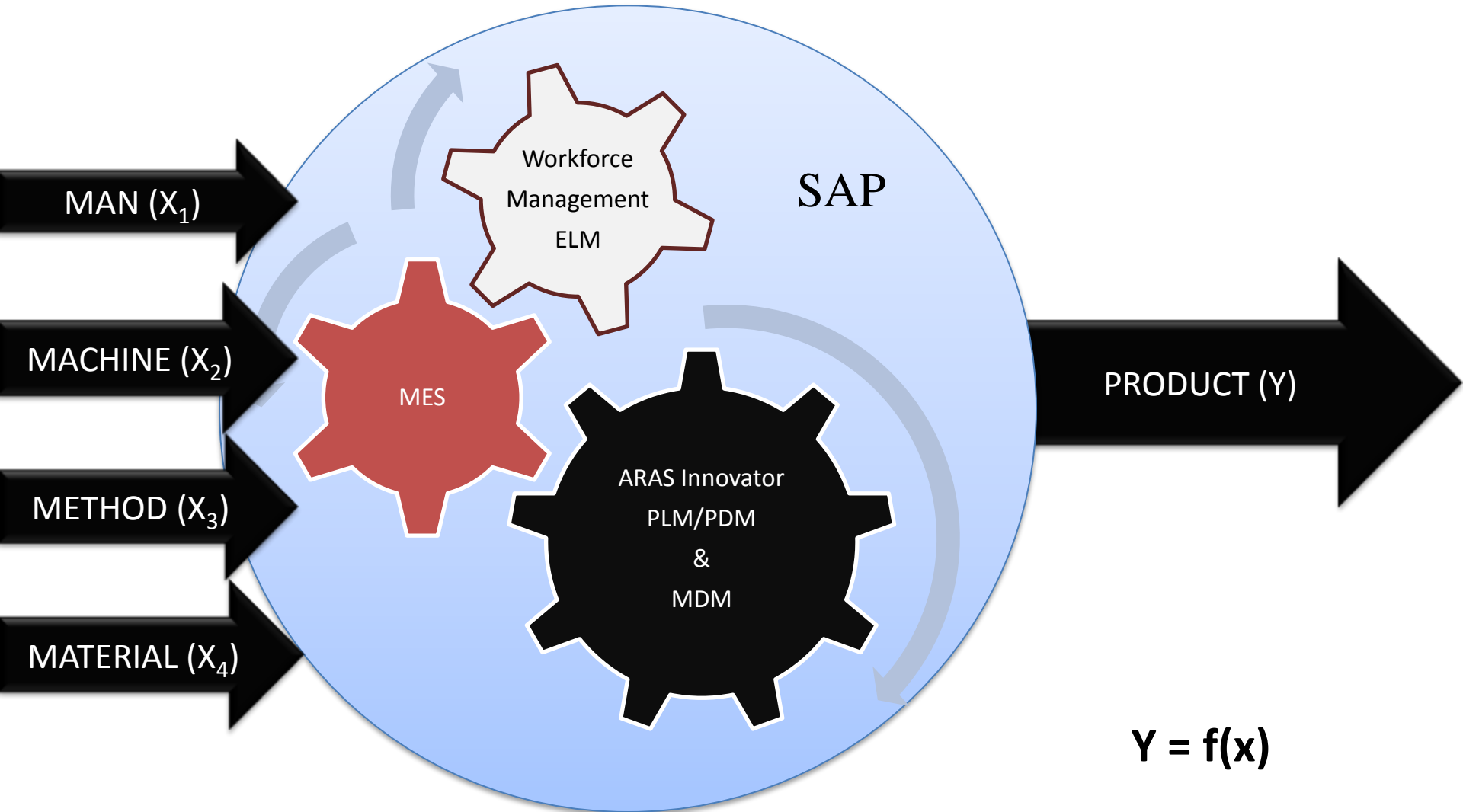




# LEAN Manufacturing, Six Sigma, & Solution Integrations



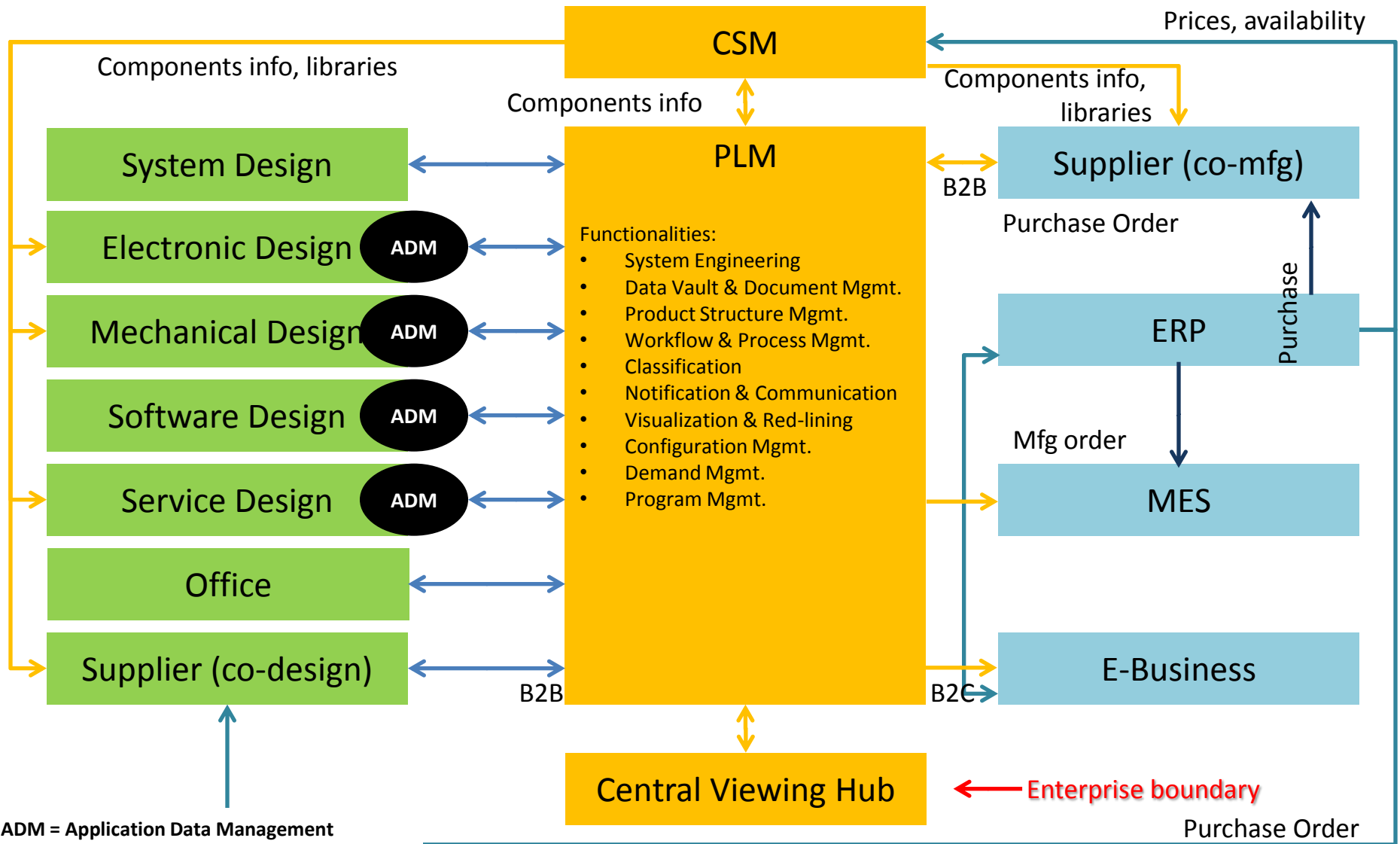
# The BIG Y



# Why PLM/PDM?

- Regulatory Compliances (Info Access Control)
  - ITAR (International Traffic in Arms Regulations)
  - Export Control
  - SOX (Financial)
- IP (Intellectual Property Management)
- Information Management Policies
- Quality Record Retention Policies
- CAD Integration
  - 3D Model, 2D Drawing, & Model Based Definition

# PLM Blueprint (Business Architecture)



ADM = Application Data Management  
 CSM = Component & Supplier Management  
 MES = Manufacturing Execution System

# PLM System Elements

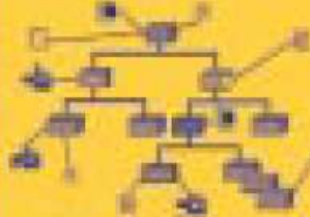
## Document Vaulting

Indexing, Storage, Query, Security, Usage



## Configuration Management

BOM, Product, and Data Configuration



## Viewing & Markup

Tools for Viewing & Markup of Product Data



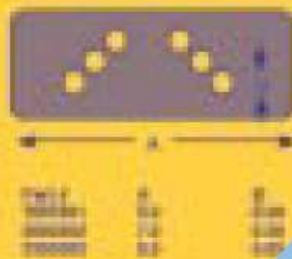
## Integration Tools

"Glue-ware" for Systems Integration



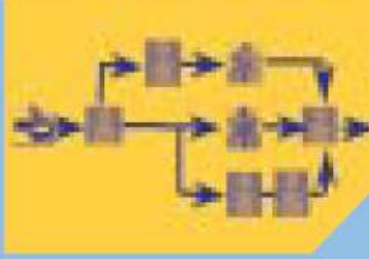
## Classification & Re-use

Reuse of Components, Design Information



## Workflow Management

Workflow for Design, Release, and Change



## Collaboration

On line teamwork



# Business Intelligence – The “So What” Factor

DATA => INFORMATION

## Business Processes

Lack of  
Data

Reactive  
Business  
Intelligence

Prescriptive  
Business  
Intelligence



Information Technology

# Aras Innovator Implementation Map

http://w3.ceradyne.com/Contact/worldwide-map.aspx - Microsoft Internet Explorer provided by Ceradyne, Inc.



# Aras Innovator Projects

- Corrective Actions (EH&S)
- Document Management (with consulting from Razorleaf)
  
- PLM / PDM SolidWorks CAD Integration (Razorleaf)
- ECR and ECO Workflows (Razorleaf)
  
- Program Management (IT & Engineering)
- MLM (Finance, Supply Chain, Quality, & Operations)
- ELM (HR, Quality, & Operations)
- PLM / PDM SAP Integration (IT)

**Think Big, Start Small, Build & Verify Incrementally**



# Project Highlights

- Corrective Actions (EH&S)
  - Low Risk
  - Quick Hit
- Document Management (RazorLeaf)
  - Regulatory Compliance
  - Process Improvement
- Program Management (IT & Engineering)
  - Aras Innovator PM

# Project Highlights

- MLM (Material Lifecycle Management)
  - SAP
  - Aras Innovator
  - MES (Manufacturing Execution System)
  - SolidWorks CAD
- ELM (Employee Lifecycle Management)
  - SAP
  - Aras Innovator
  - Kronos Workforce Management
  - Microsoft SharePoint

# Projects Summary

## Many Solutions – One Platform

- PLM (Product Lifecycle Management)
- PDM (Product Data Management)
- MLM (Material Lifecycle Management)
- ELM (Employee Lifecycle Management)
- MDM (Master Data Management)



**Aras Innovator – One Platform for Many Business Solutions**

# Key Lessons Learned

Decisions, decisions, decisions...

- Business leaders lead, IT manages...
- Open source vs. subscription
- DIY vs. choosing a solution partner



**Be Different...**

**To Make a Difference w/ Aras Innovator in Your Organization**