

# PLCS as a pan-enterprise data integration model for optimizing support chain performance

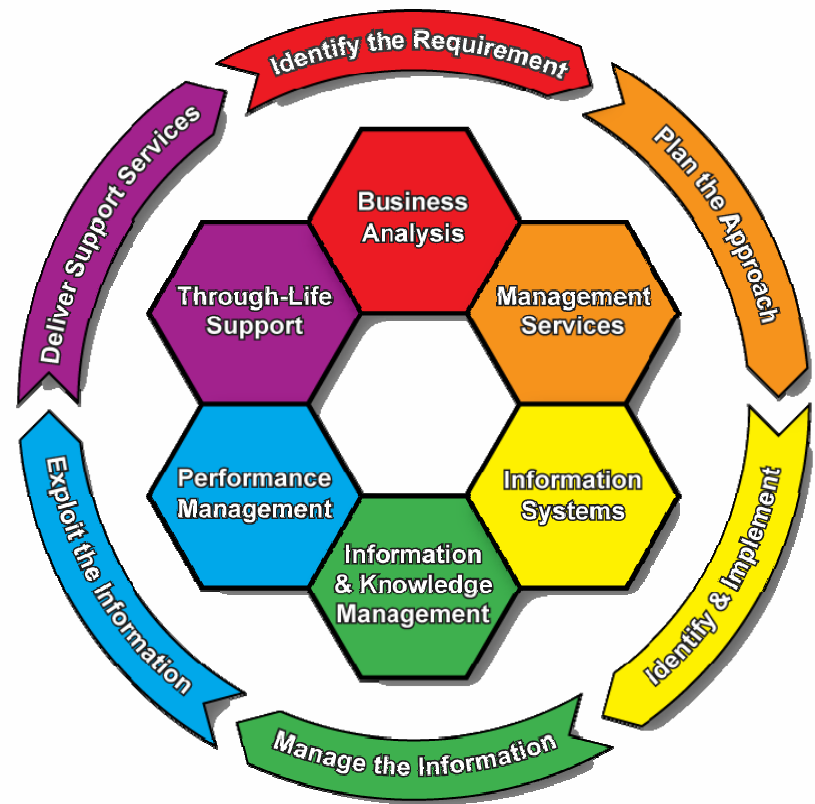
*Dr. Timothy M. KING*

*Executive Consultant*

*Capability Team, LSC Group*

# LSC Group

- independent consultancy within Babcock International Group
- smallest founding sponsor of PLCS Inc.
- solutions to the defence sector over 20 years
- diversification to health, energy, education, government



# Contents

- a fundamental thought
- a practical example
- enterprise integration
- the Lean Logistics Model
- summary & conclusions

# Transformation

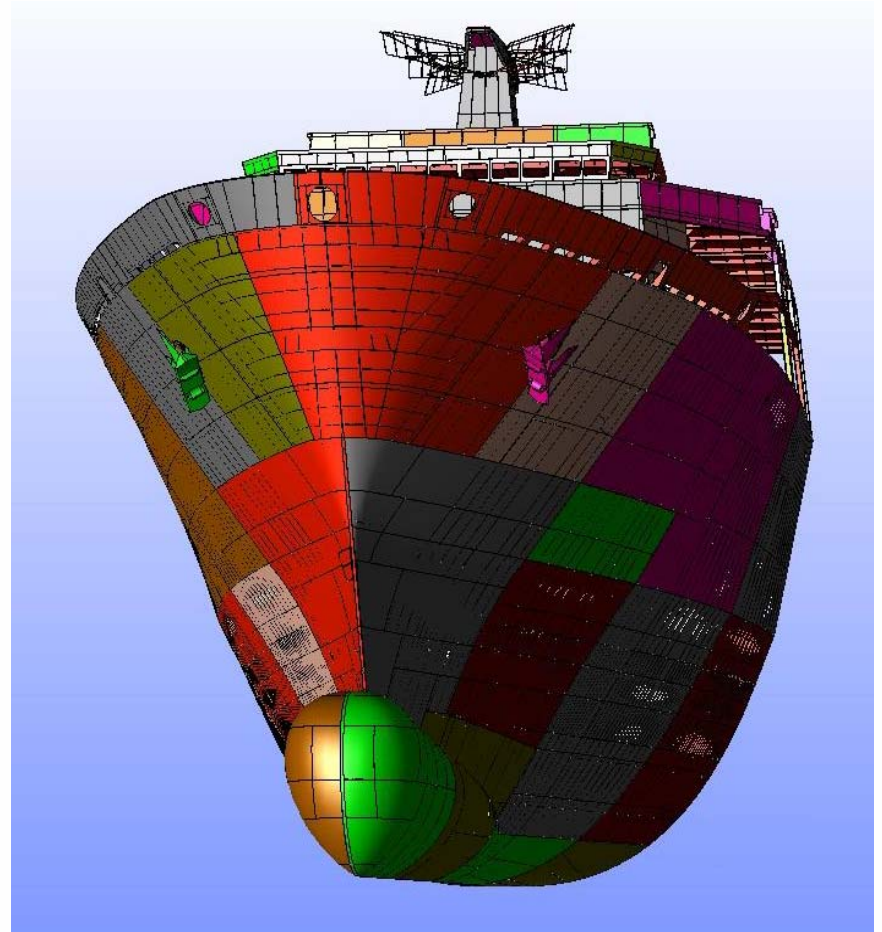
ME  
HERE  
NOW



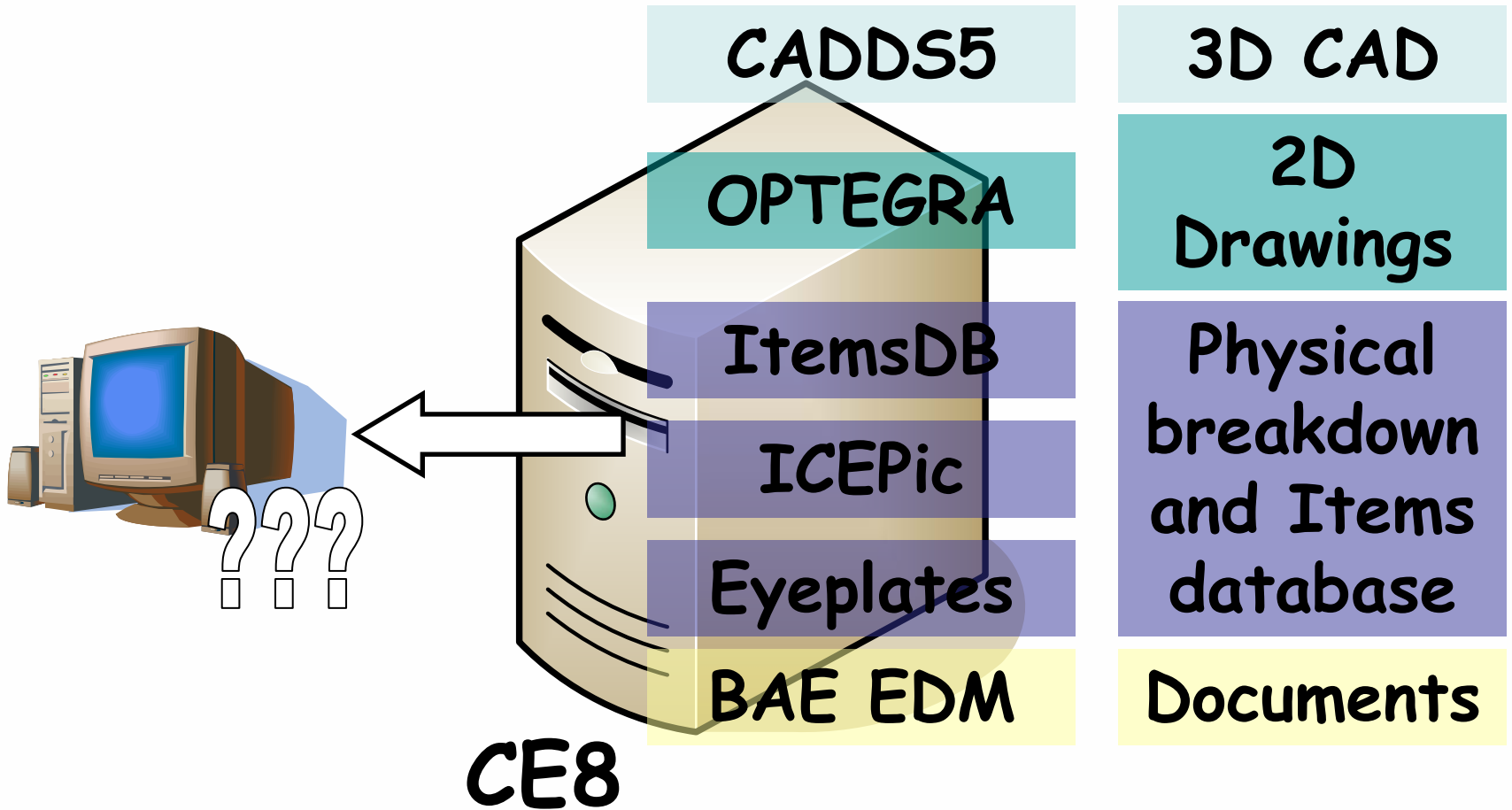
ANYONE  
ANYWHERE  
ANYTIME

A thought bubble with a red outline and three small circles leading to it. Inside the bubble, the text "rich, explicit context" is written in red.

rich,  
explicit  
context



# LPD datum pack



Powered by

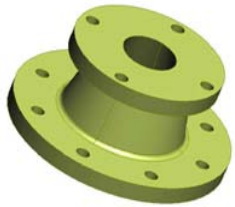
**LSC** GROUP

A DML Company

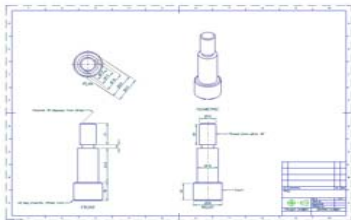
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# product information explorer

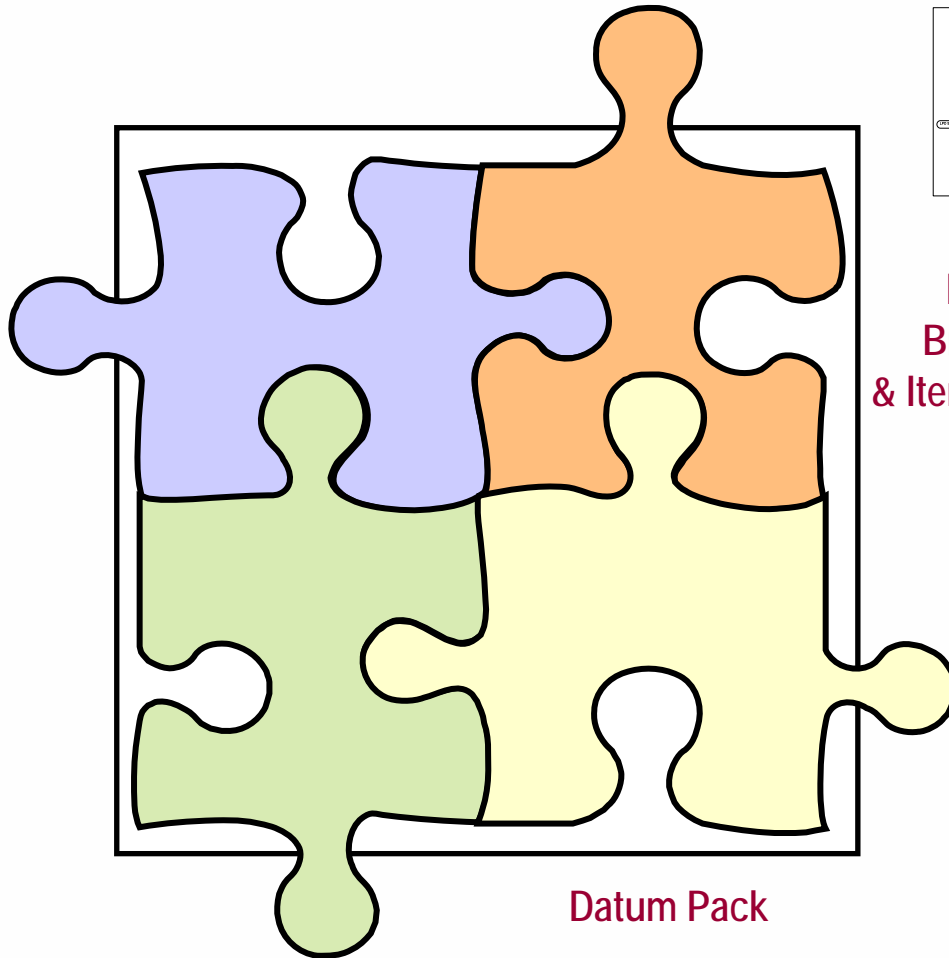
# Exposing product data



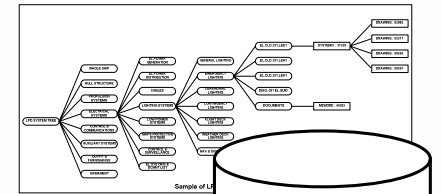
3D CAD



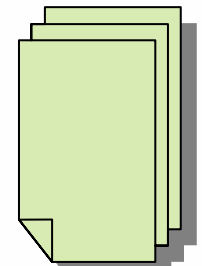
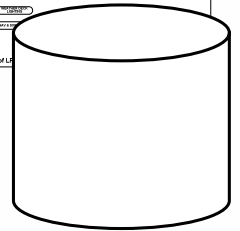
2D Drawings



Datum Pack



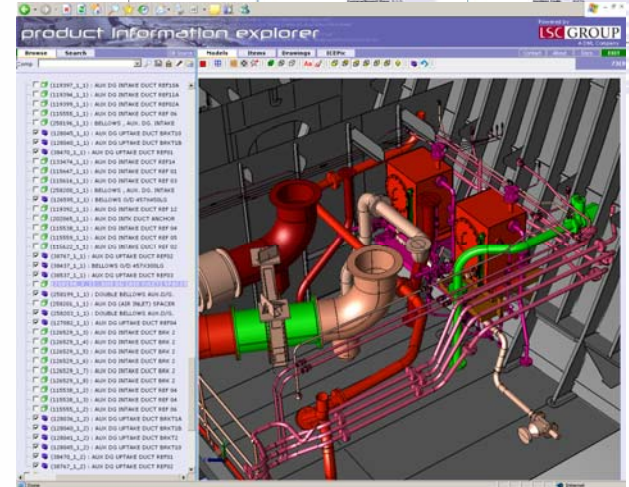
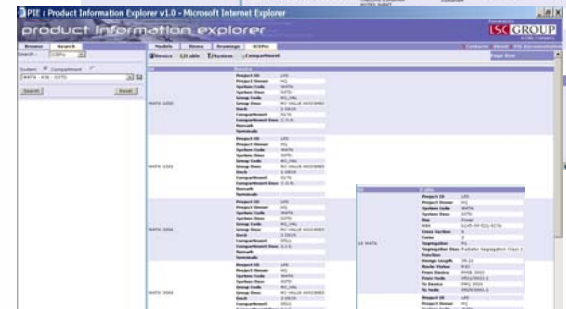
Physical Breakdown & Items Database



Documents, Manuals

# PIE – flexible, easy to use, web-enabled solution for releasing product information from disparate sources through a single user interface

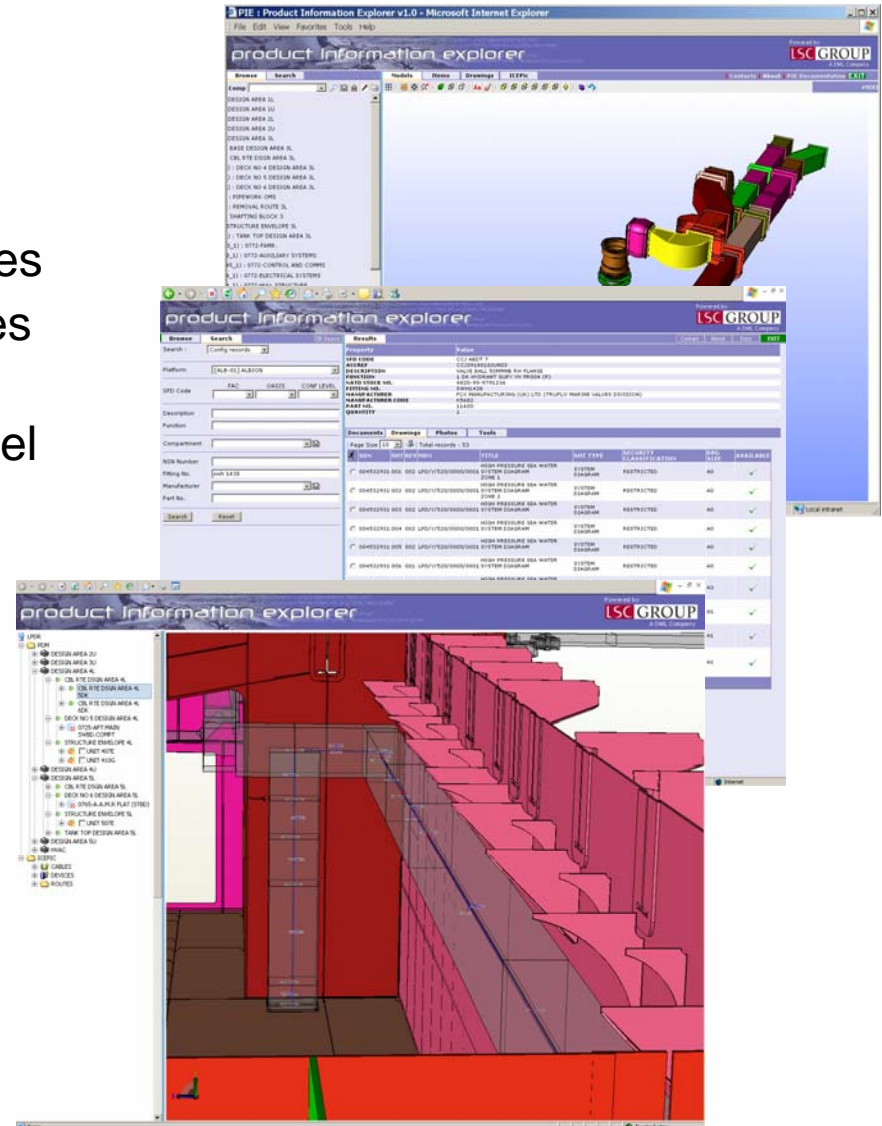
- capable of integration within existing complex frameworks of toolsets & processes for data creation & management
- capable of thin client or standalone delivery
- developed to exploit open standards for product data
  - ISO 10303 STEP, CGM
- independent of source data applications
- potential to provide access to full scope of product information
- scalable solution throughout product life cycle
- handles multiple product representations & structures





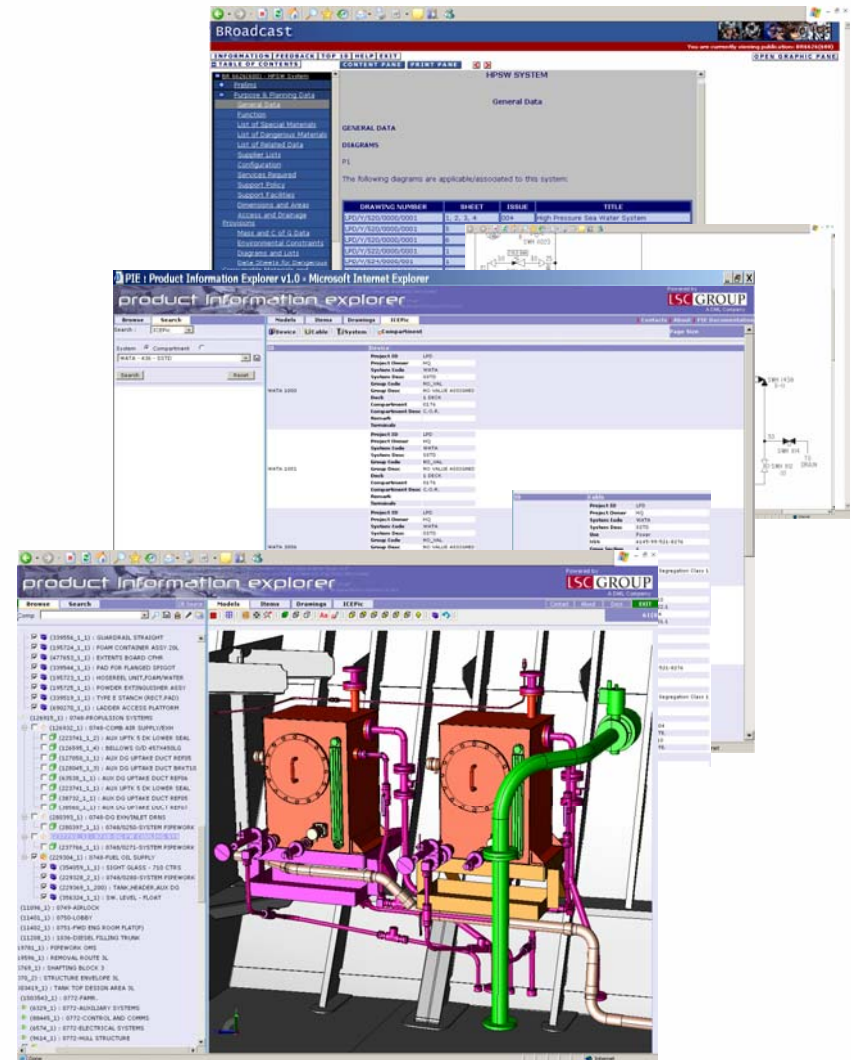
# PIE – enabling interrogation and analysis, of disparate PCI sources, as an integrated product model

- select & retrieve items for analysis
- view & navigate links between information types, across data sources
- powerful, direct search of PCI sources
  - full exploitation of metadata
- deliver rich views of the product model not available within the individual components of the design & configuration toolsets



# PIE – viewing & manipulation of the full range of product model formats & data types

- product structures, item instance & library part information
- 3D CAD models / assemblies, in correct global orientation
  - build, display, manipulate & interact with large ad hoc assemblies, with models derived directly from the native source
- 2D drawings in CGM, TIF, DWF & so on
- Interactive Electronic Technical Publications (IETP)
- simple documents, photographic images and so on



# PIE deployment

- current focus of implementations in Major Warships IPT (MWIPT)
- user base across MoD & extended enterprise
  - including Design Support Alliance (DSA)
- 500+ users
- another ~400 users imminent

# Enterprise integration

- the all-too-often modus operandi
  - "e-mail me the spreadsheet"
  - nothing wrong with the engineering
- the issues
  - islands of automation
  - proliferation & difficulty to identify copies of data sets
    - has my colleague changed the contents of this version of the spreadsheet?
  - auditing of transmission & receipt of instructions
    - did the e-mail get send?
    - did the e-mail get received?
  - semantic resolution of the content
    - what do the data in this column mean?
    - do I know what is the unit of measure for this value?

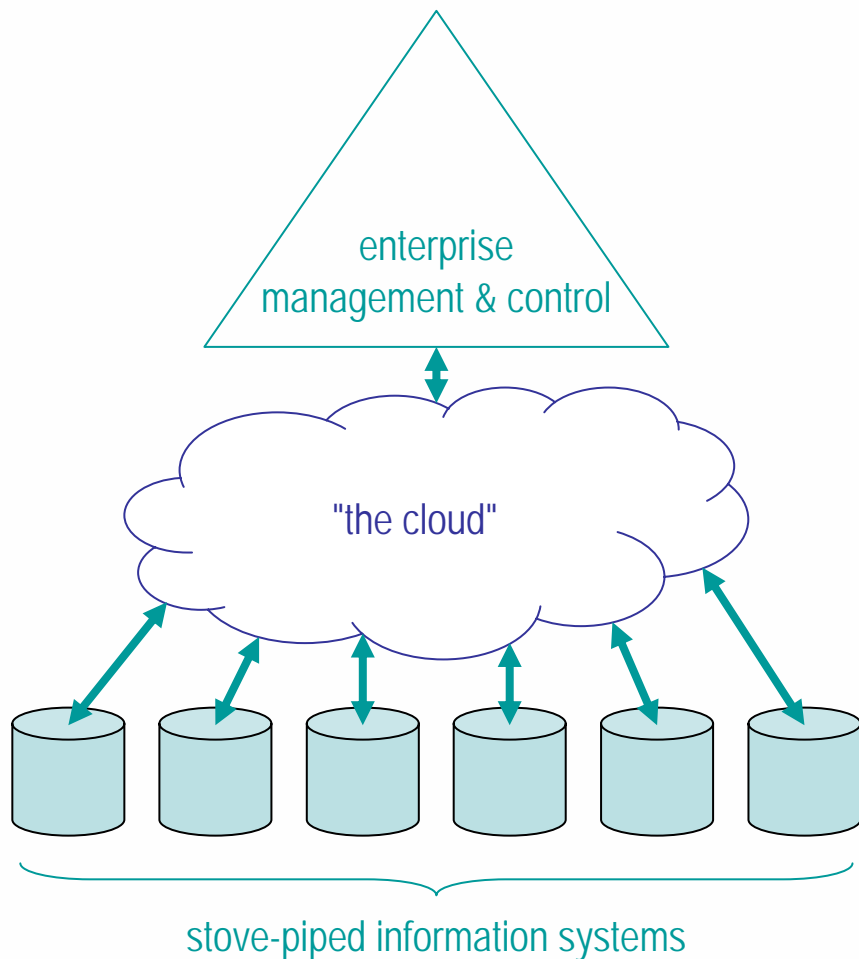
# Enterprise integration

- the requirements that demand something more sophisticated
  - management & operation
  - multi-organization collaboration
  - requirement for interoperability standards

# Testing the scope of PLCS

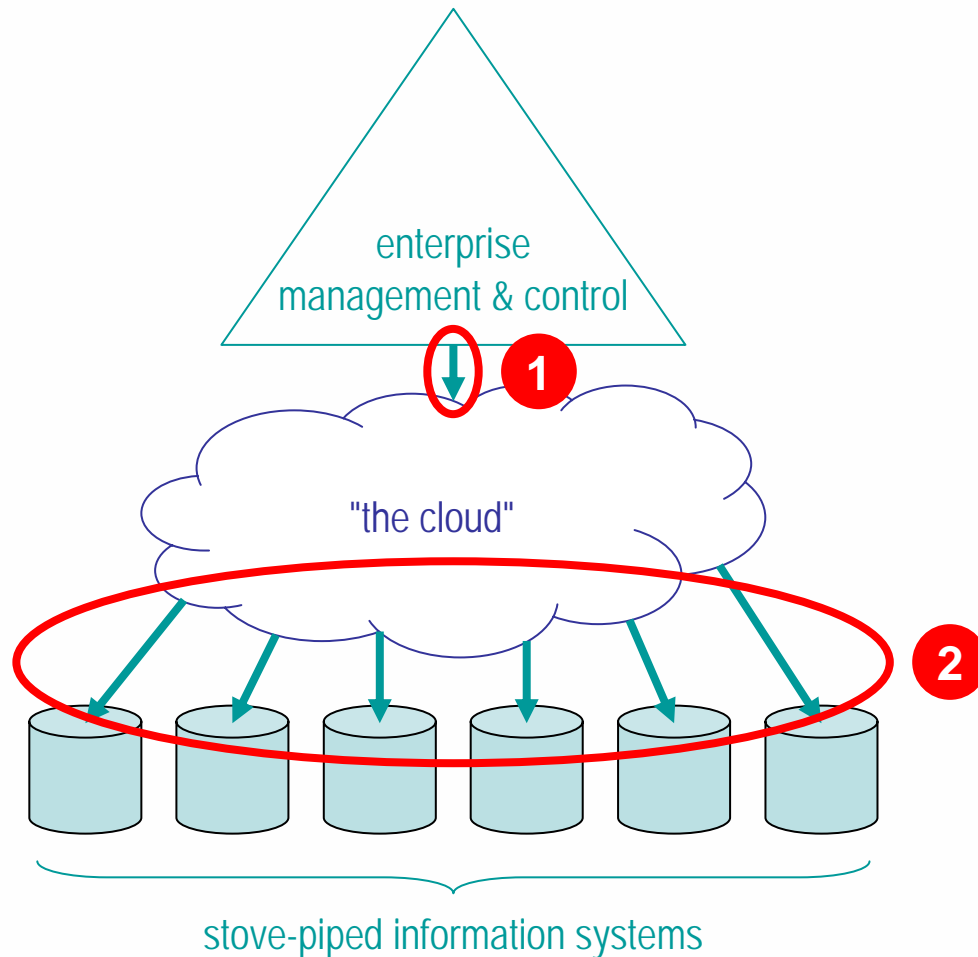
- PLCS RB199 Demonstrator
  - UK MoD, Rolls-Royce & LSC Group produce first practical implementation of PLCS
- Def Stan 00-60 LSAR
  - UK MoD mapping
- work package management
  - UK MoD UMMS
- configuration management
  - mapping of Submarine Definition Database
- e-Logbook for marine gas turbines
  - configuration & asset management data in PLCS format

# Enterprise management & operation



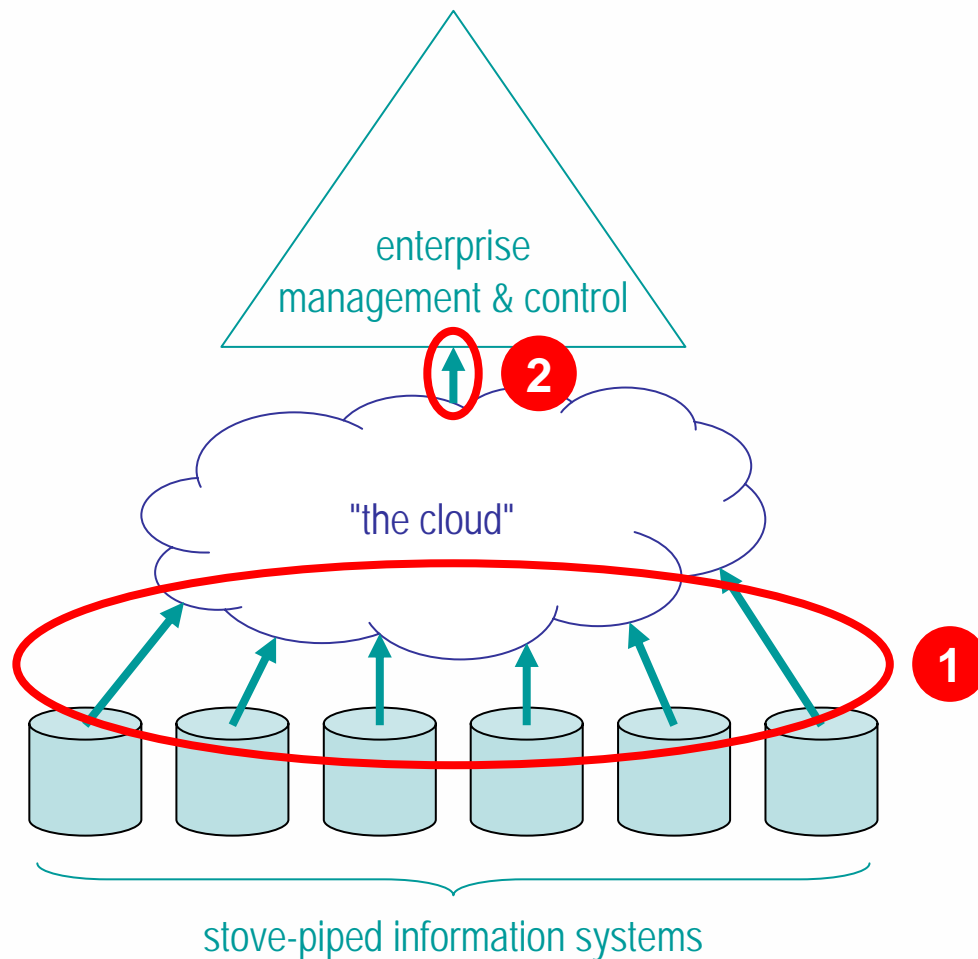
- in most enterprises, "the cloud" is currently an ad hoc combination of people, processes & technologies
- management requires a control & feedback loop
  - instructions to the enterprise
  - information returned to allow analysis of performance

# Enterprise control



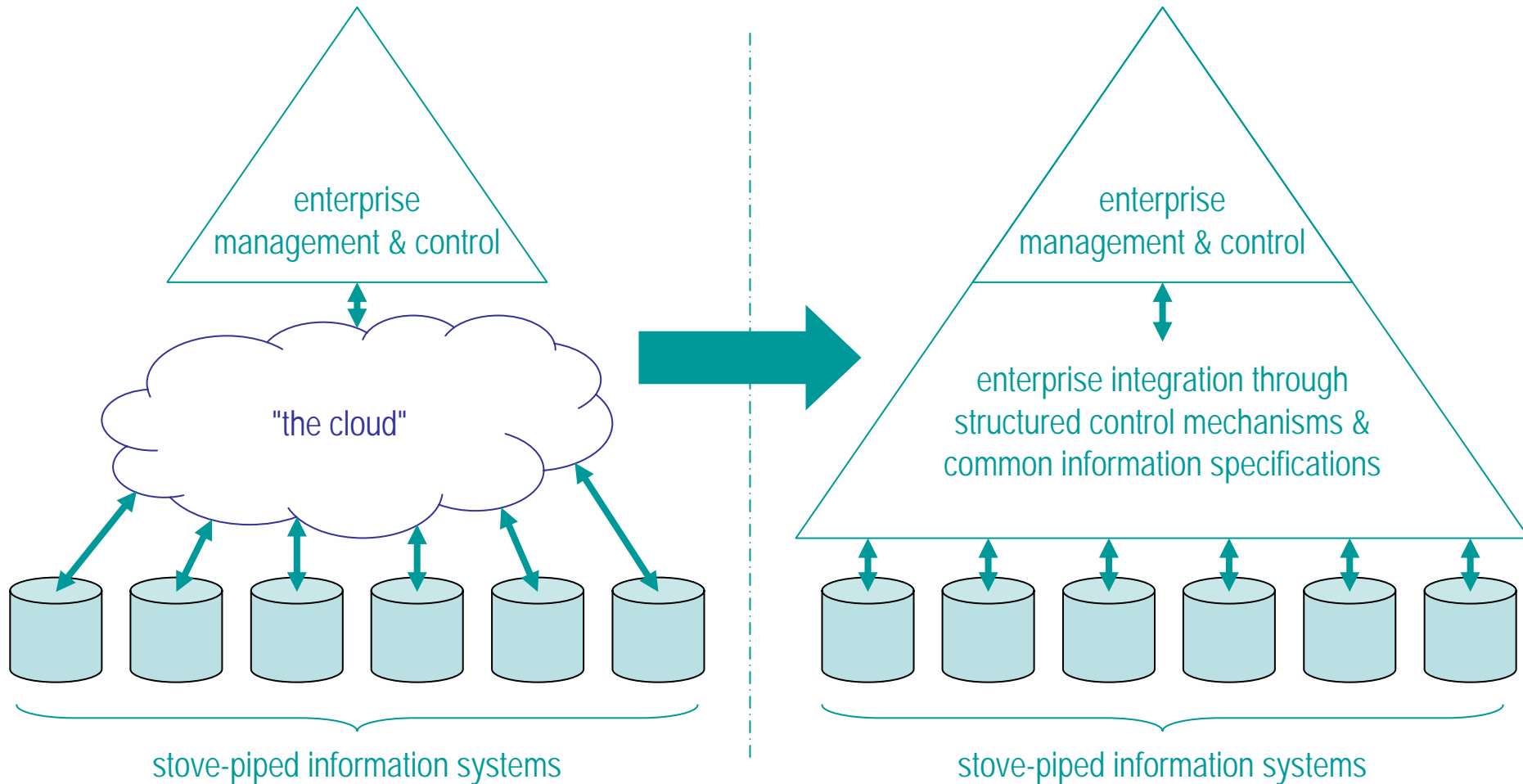
1. enterprise control established through unstructured information
  - e.g. e-mail messages, word-processor documents
2. people read & interpret the words & then act to execute processes through individual information systems

# Enterprise performance



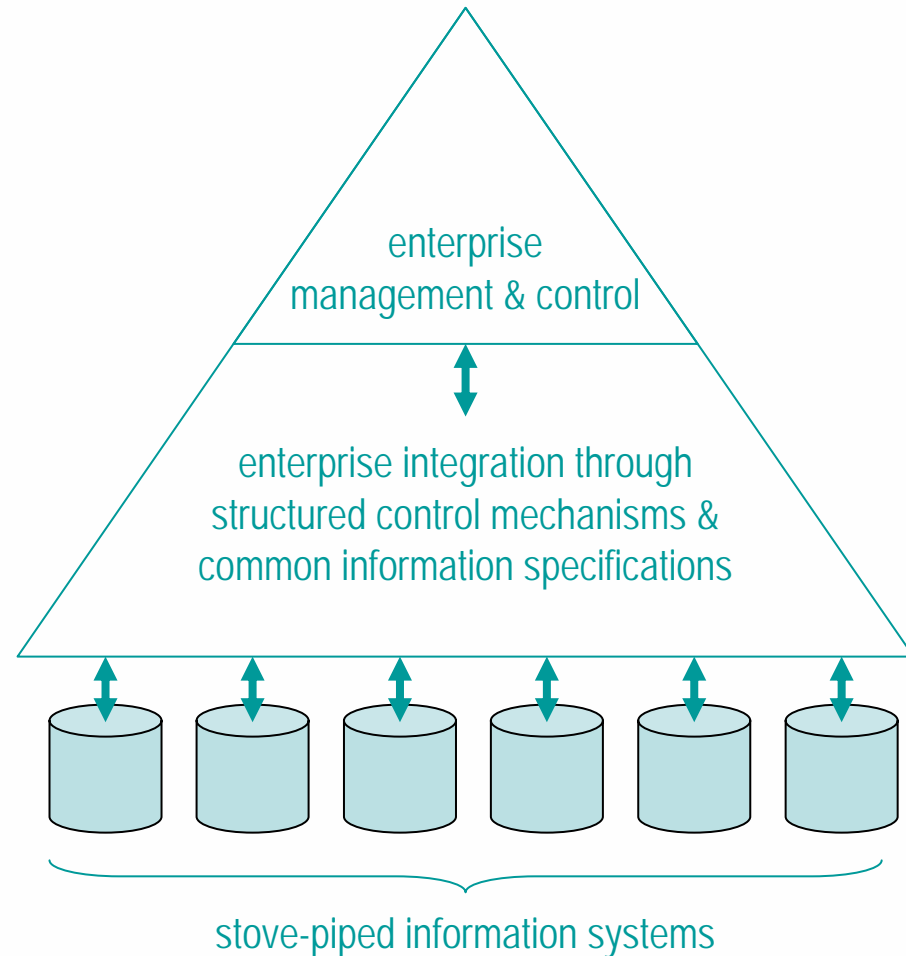
1. raw data for analysis of enterprise performance originates in disparate information sets
  - e.g. spreadsheets, database reports
2. people review the information sets & produce analysis results that indicate enterprise performance

# Transforming "the cloud"

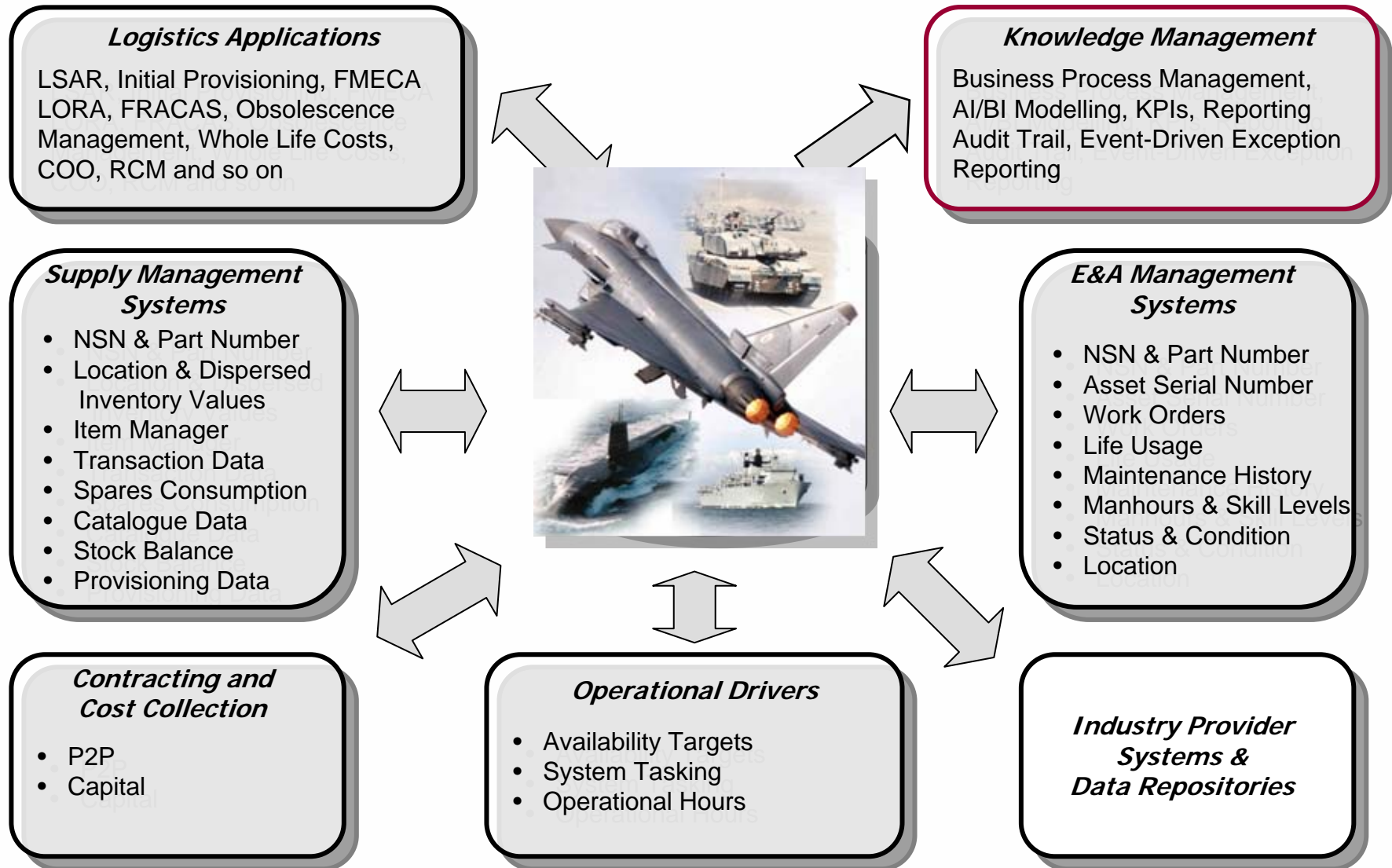


# Transforming "the cloud"

- structured control
  - workflow/BPM system for repeatable, auditable processes
  - establishes "standard work"
- common information
  - coherent & comprehensive integration of data sources & analysis tools
  - individual organizations continue to operate own preferred information systems
- removal of human subjectivity from analysis & transformation processes



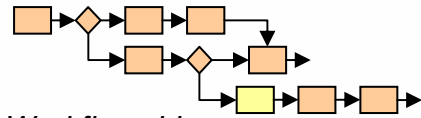
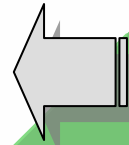
# Lean Logistics Model



Portal Technology  
for shared access &  
collaborative working



Delivered through

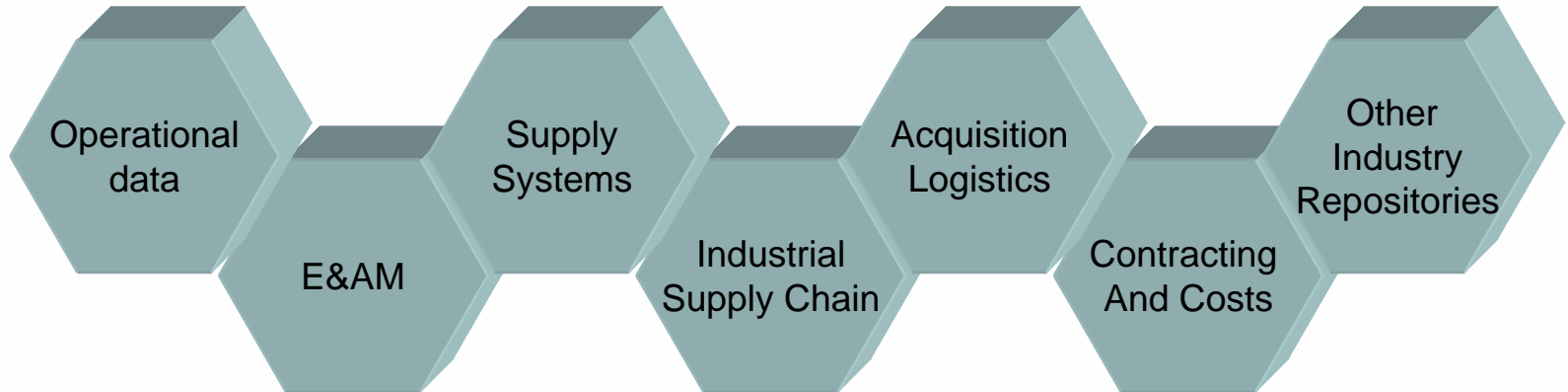
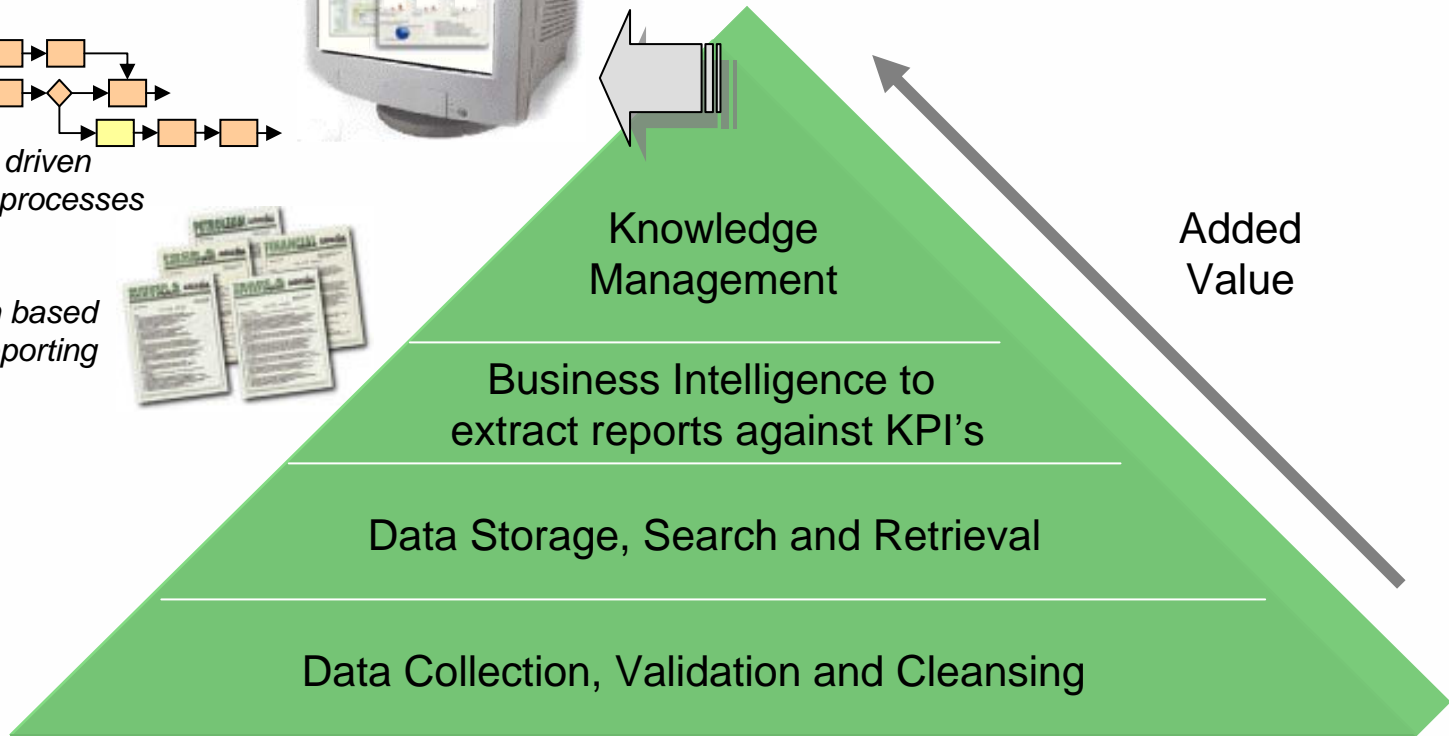


Workflow driven  
business processes

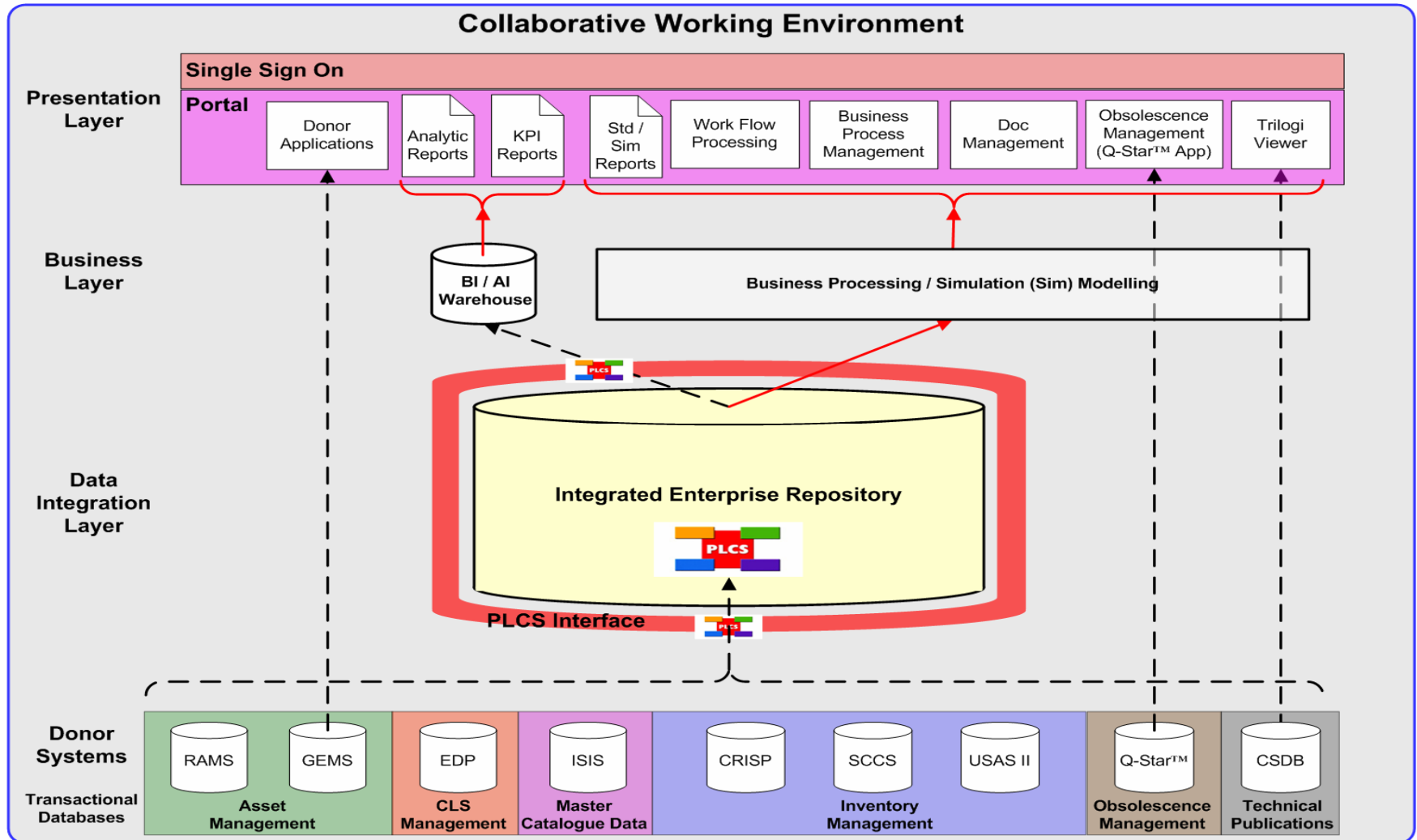
Exception based  
reporting



Added  
Value



# Lean Logistics Model Conference Room Pilot



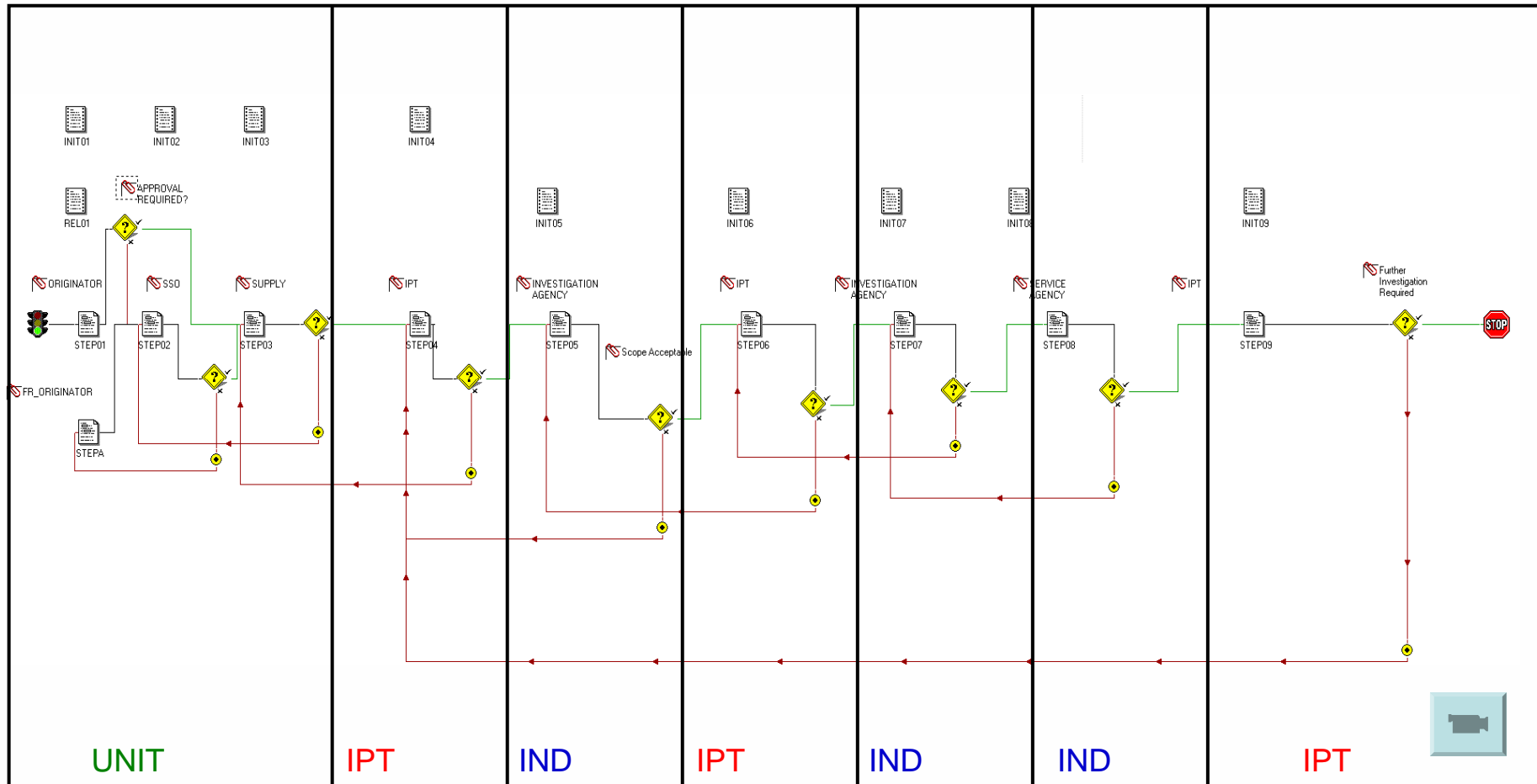
# Several different scenarios in one-day demonstration event

- e.g. narrative fault report scenario
  - faulty Power Supply Unit fitted to the transponder of an aircraft IFF
  - burst into flames in flight but self extinguished & aircraft landed safely
  - rectified under Work Order Number 9964260304 in E&AM system
  - unit decides to raise a NFR

progressed using an automated generic business process

# Phase 2: Conference Room Pilot

## Q2- Narrative Fault Reporting



# Lean Logistics Model Conference

## Room Pilot

- joint logistics picture of assets from two inventory management systems against ISIS master catalogue reference
  - data cleansing
  - inventory reconciliation
- cause & effect relationships between equipment usage & inventory impact
  - "customer pull" not "logistics push"
- E2E business process automation
  - identify & eliminate waste
  - full audit trail
- self-monitoring system against defined KPIs
  - exception reporting
- auto generation of warnings based on advanced predictive analysis
- supported by auto-generated decision support information
  - case histories, COO summaries, equipment location & status, real-time reliability performance, predictive analyses – "what ifs?"

information exploitation framework for through-life management and corporate governance

# Capability acquisition

*varying degrees of adoption in between*

*e.g. contracting for availability*

**capability acquisition**  
pay for service usage

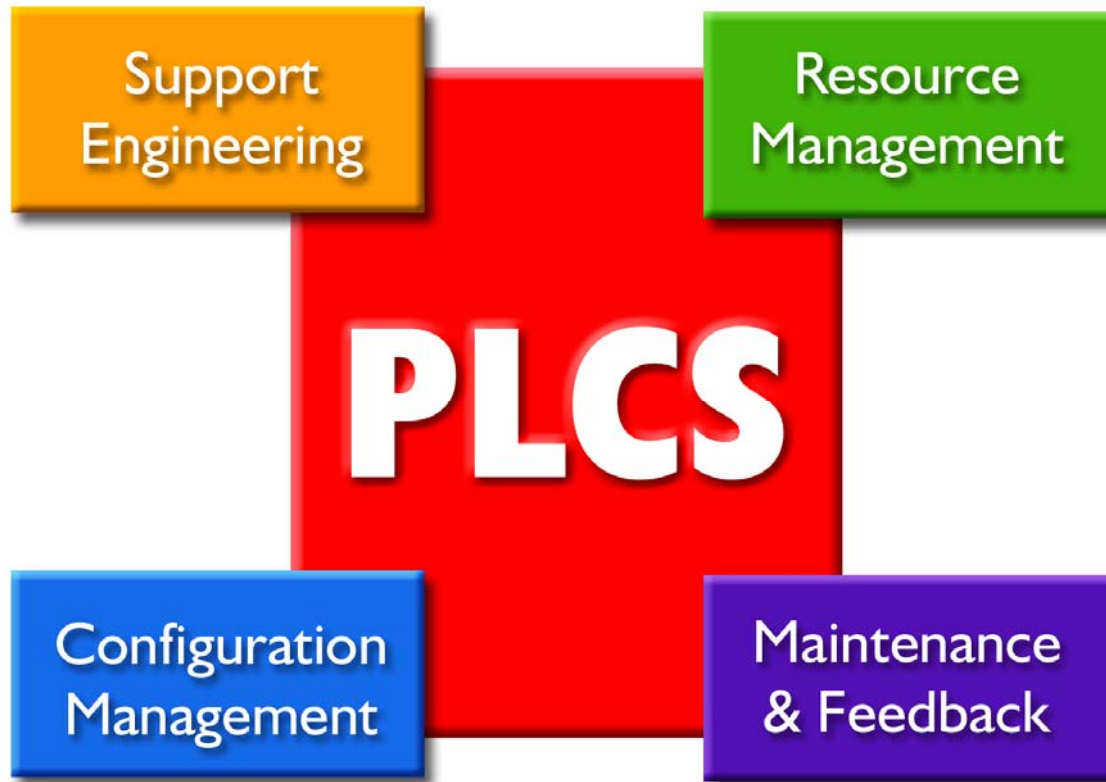


*the "hire car" model*

*direct incentive for the service provider to achieve optimum through-life costs*

**traditional**  
purchase system  
maintain system  
purchase spare parts

» **total cost of ownership** «



# Questions?

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