What's In³ All About? And Relevance to QoS, EMF, and RTE?

Background

- Interoperability is an issue for most organizations
  - However interoperability is a big issue
  - Interoperability has many meanings
- Therefore we need to understand what is really meant by this requirement
  - Use business scenarios
- The following is our understanding of the interoperability requirement

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Business Scenarios

- A Business Scenario describes:
    - Business process, application or set of applications
    - The business and technology environment
    - The relevant people and computing components
    - The desired outcome of proper execution
- A good Business Scenario
    - Is "S.M.A.R.T."
    - Enable the supply side to better understand the needs of the buy side
    - Support the business case for the vendors

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What Is Meant by Interoperability

❑ A useful working definition of interoperability

  ▪ The ability of two or more entities or components to exchange information and to use the information that has been exchanged *"to meet a defined mission or objective"*
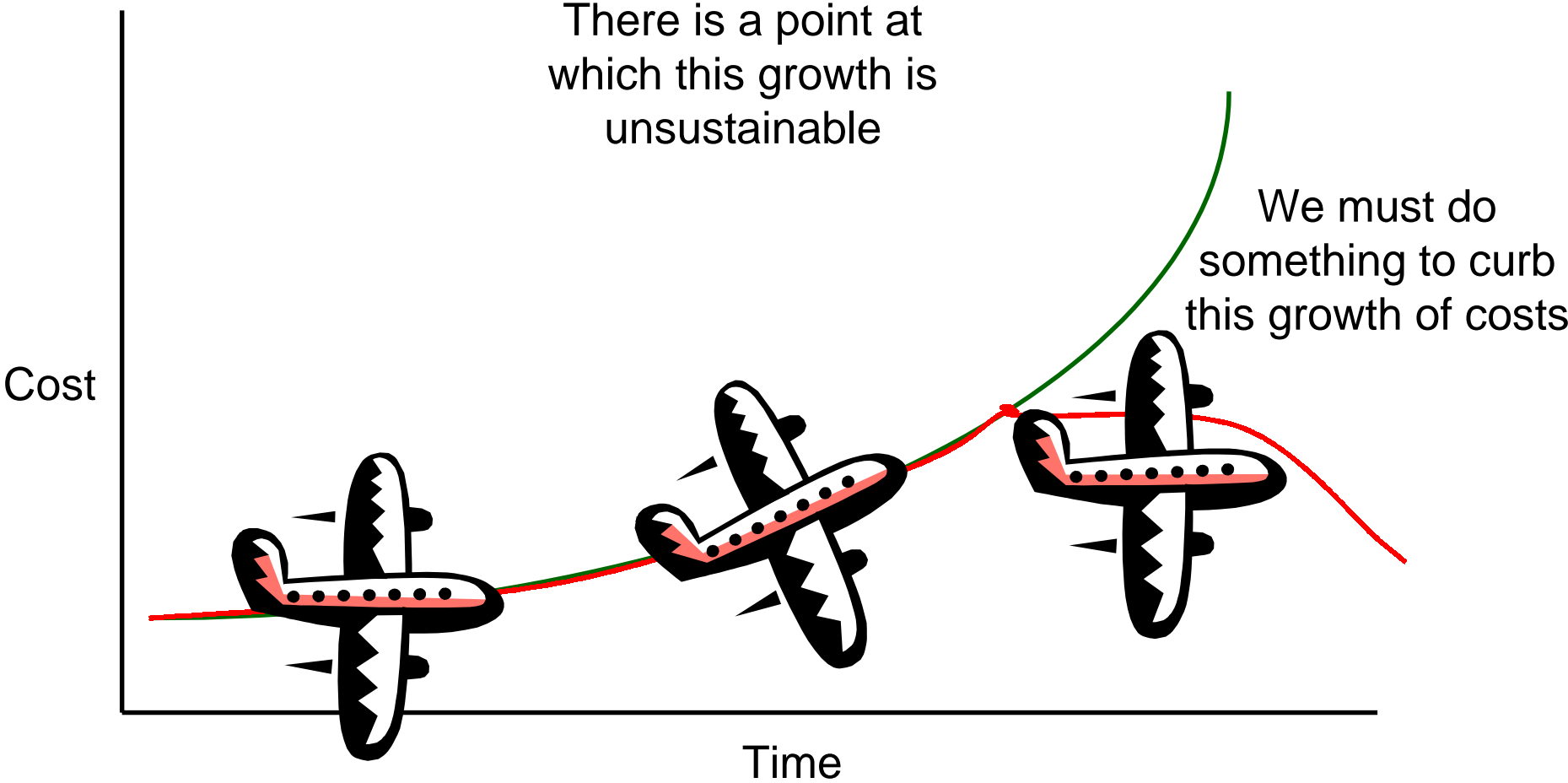
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Customer Problem Statement

- "I could run my business better if I could gain operational efficiencies improving
  - **the many different business processes of the enterprise**
    - **both internal, and**
    - **spanning the key interactions with suppliers, customers, and partners using**
  - **integrated information, and integrated access to that information."**

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Pain Points

- Lack of effectiveness of business operations
- Lost opportunity to add value to the business
- Increasing IT costs
- Lack of effectiveness of IT
- Reduced management control
- Increased operational risk

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The Criticality of IT Costs

Cost

There is a point at which this growth is unsustainable

We must do something to curb this growth of costs
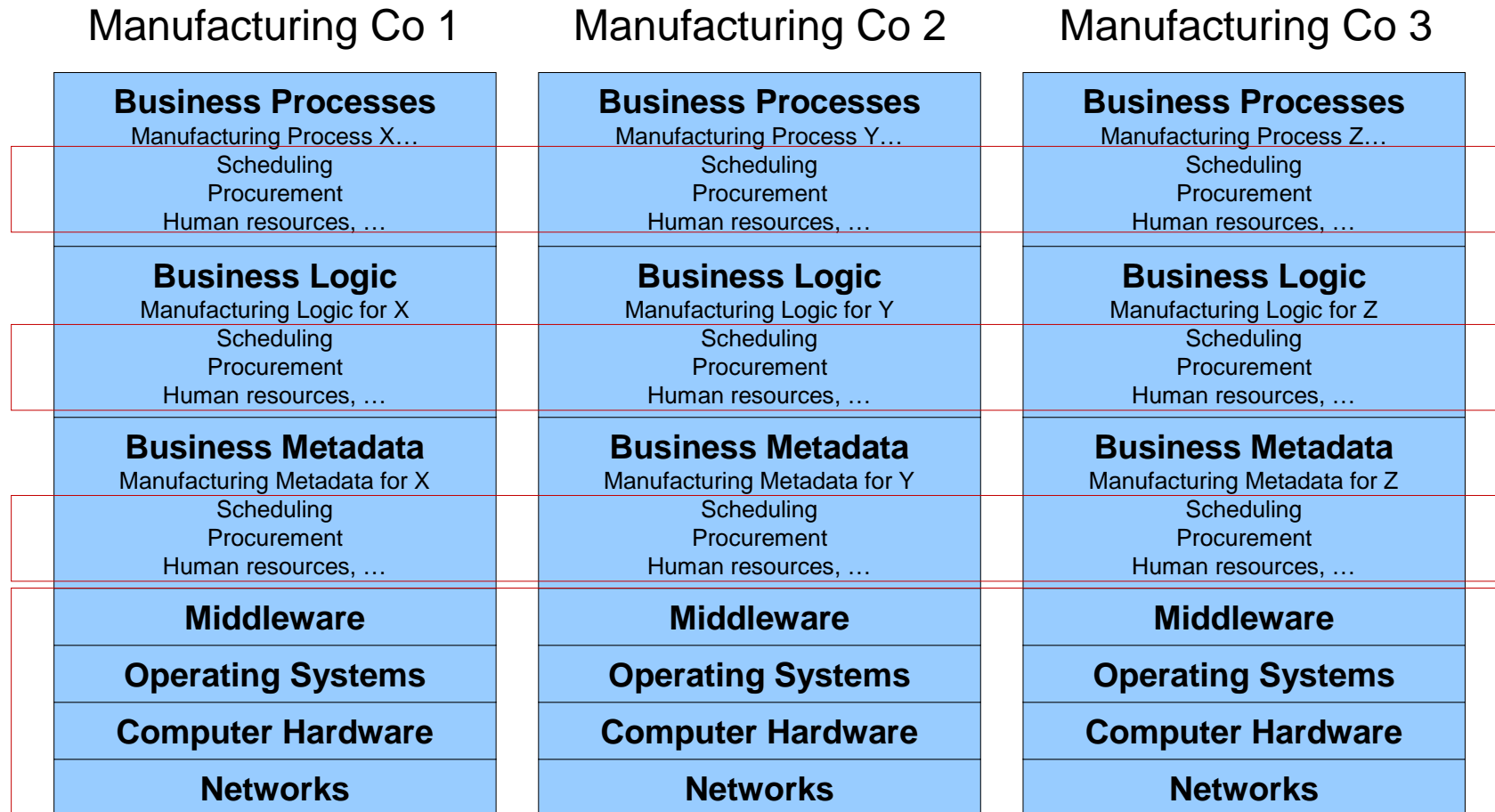
Time

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How Important...

❏ Not having an "Integrated Information Infrastructure" where systems interoperate, i.e. easily exchange information and use that information to improve operations, is causing organizations real pain

- 100s of millions in lost opportunities

- Billions are said to be spent to make systems interoperate or to recover from mistakes

- *The risks are not only financial but deal with lost lives*

  - *Hospitals, 911/999 systems, Critical infrastructure, Air Traffic Control...*

  * respondents to survey taken at conference

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Forecasts

- Gartner Dataquest forecasts Worldwide End-User IT Spending will grow from $2.7 US *trillion* in 2001 to greater than $3.0 US *trillion* in 2002 and $3.4 US *trillion* in 2003

- The worldwide integration services market, is expected to grow at a 25% compounded annual growth rate between 2001 and 2005 to $116.5 US *billion* according to IDC

- Recent CIO magazine survey says companies spend over 35% on integrating systems and processes
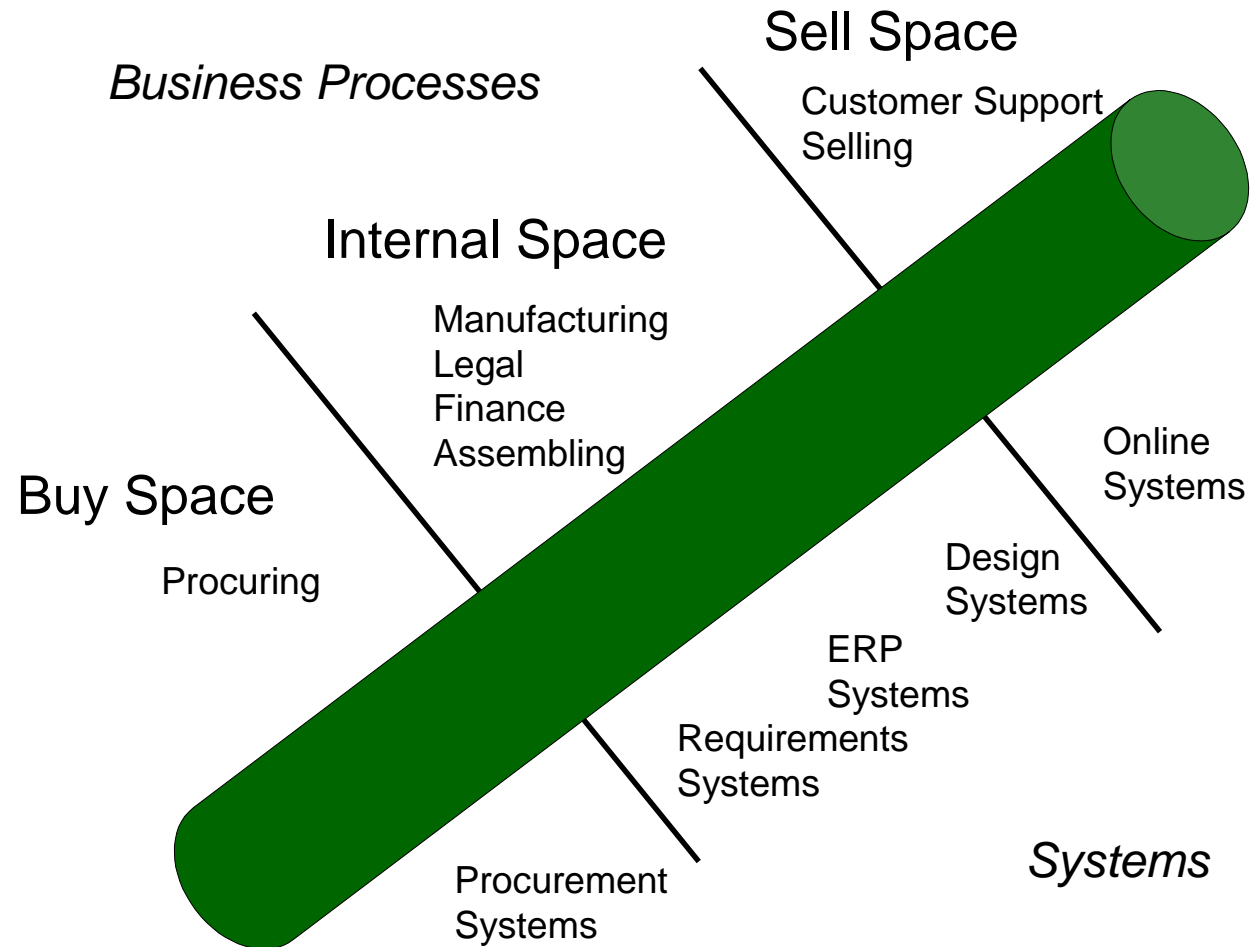
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Shared Problems

Manufacturing Co 1	Manufacturing Co 2	Manufacturing Co 3
Business Processes Manufacturing Process X…	**Business Processes** Manufacturing Process Y…	**Business Processes** Manufacturing Process Z…
Scheduling Procurement Human resources, …	Scheduling Procurement Human resources, …	Scheduling Procurement Human resources, …
Business Logic Manufacturing Logic for X	**Business Logic** Manufacturing Logic for Y	**Business Logic** Manufacturing Logic for Z
Scheduling Procurement Human resources, …	Scheduling Procurement Human resources, …	Scheduling Procurement Human resources, …
Business Metadata Manufacturing Metadata for X	**Business Metadata** Manufacturing Metadata for Y	**Business Metadata** Manufacturing Metadata for Z
Scheduling Procurement Human resources, …	Scheduling Procurement Human resources, …	Scheduling Procurement Human resources, …
Middleware	**Middleware**	**Middleware**
Operating Systems	**Operating Systems**	**Operating Systems**
Computer Hardware	**Computer Hardware**	**Computer Hardware**
Networks	**Networks**	**Networks**

Common problems

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Shared Problems across Industries

Manufacturing	Finance	Petrochemicals
Business Processes Manufacturing… Scheduling Procurement Human resources, …	**Business Processes** Banking… Scheduling Procurement Human resources, …	**Business Processes** Exploration… Scheduling Procurement Human resources, …
Business Logic Manufacturing Scheduling Procurement Human resources, …	**Business Logic** Banking… Scheduling Procurement Human resources, …	**Business Logic** Exploration… Scheduling Procurement Human resources, …
Business Metadata Manufacturing Scheduling Procurement Human resources, …	**Business Metadata** Banking… Scheduling Procurement Human resources, …	**Business Metadata** Exploration… Scheduling Procurement Human resources, …
Middleware	**Middleware**	**Middleware**
Operating Systems	**Operating Systems**	**Operating Systems**
Computer Hardware	**Computer Hardware**	**Computer Hardware**
Networks	**Networks**	**Networks**

Common problems

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Problems from …

Need to integrate and optimize business processes

Business Processes

Sell Space

Customer Support
Selling

Internal Space

Manufacturing
Legal
Finance
Assembling

Buy Space

Procuring

Online
Systems

Design
Systems

ERP
Systems

Requirements
Systems

Procurement
Systems

Systems

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Problems from ...

However fundamental issues are:

Integrated information
and
Integrated access

Sell Space

Customer Support
Selling

Internal Space

Manufacturing
Legal
Finance
Assembling

Online
Systems

Buy Space

Procuring

Design
Systems

ERP
Systems

Requirements
Systems

Procurement
Systems

Systems

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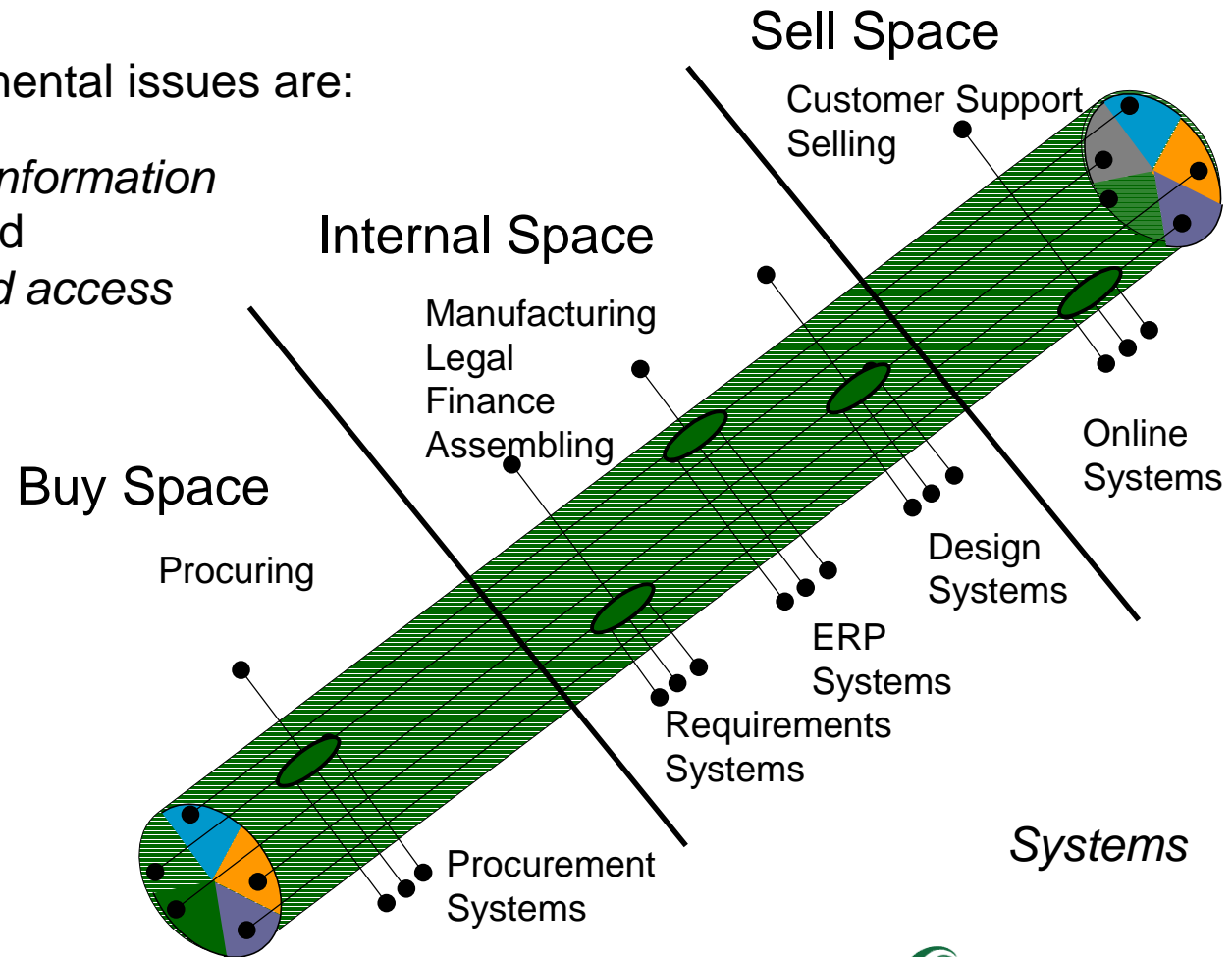
Need for Integrated Access

Business Environment

Banks

Lawyers

Risk Sharing Partners

Suppliers

Government

External

Internal

Retail Outlets

The Public

Customers

Regulatory Body

Offices

Trucks

Trains

Boats

Planes

Distribution Centers

Factories

Research Laboratories

Producing Locations

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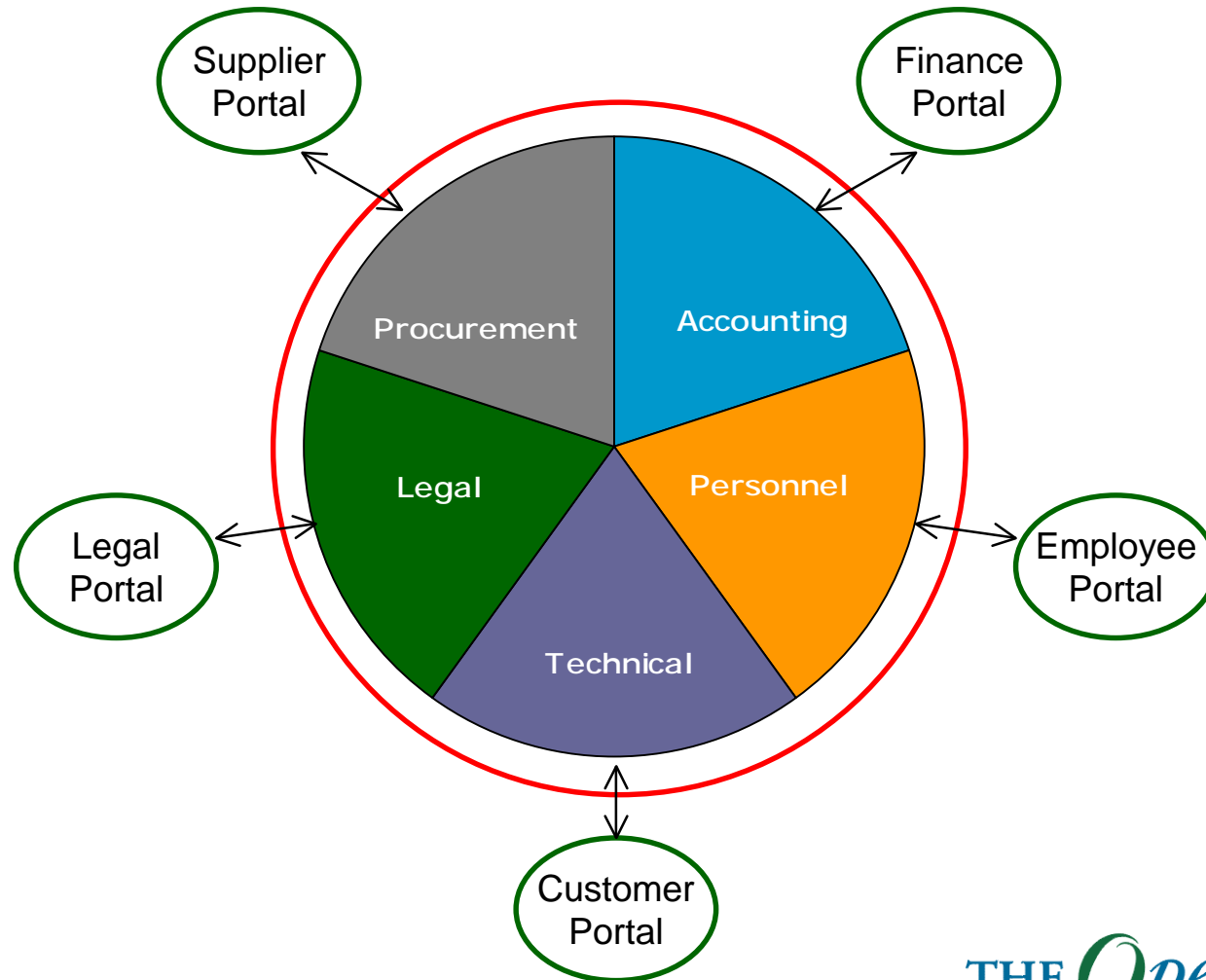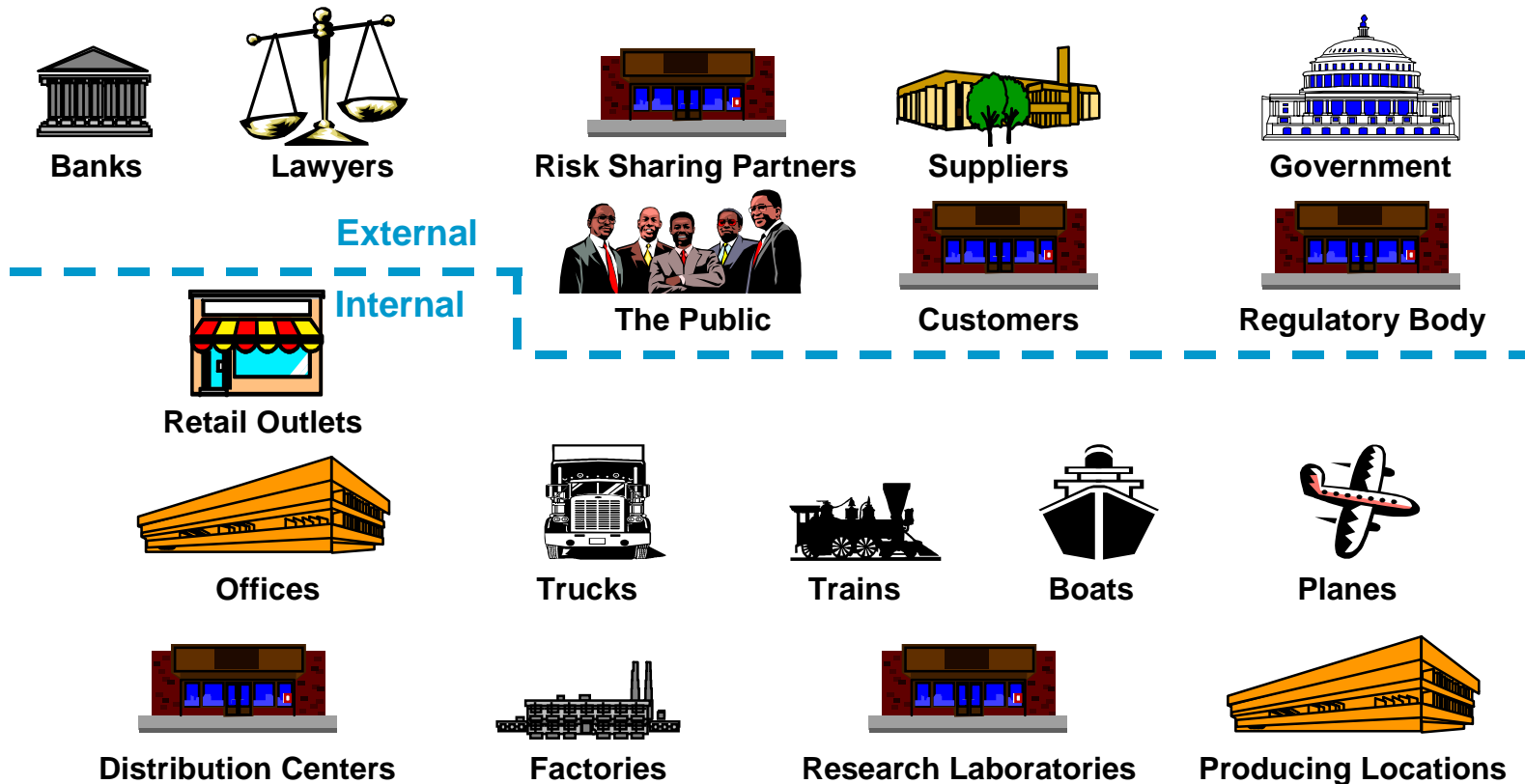
Business Environment
(product lifecycle)

- ❑ Internal processes include processes like:
  - ▪ Product definition
  - ▪ Manufacturing process design and definition
  - ▪ Inbound logistics
  - ▪ Workflow / shop floor logistics
  - ▪ Outbound logistics (fulfillment/delivery)
  - ▪ Maintenance, and
  - ▪ Discontinuance

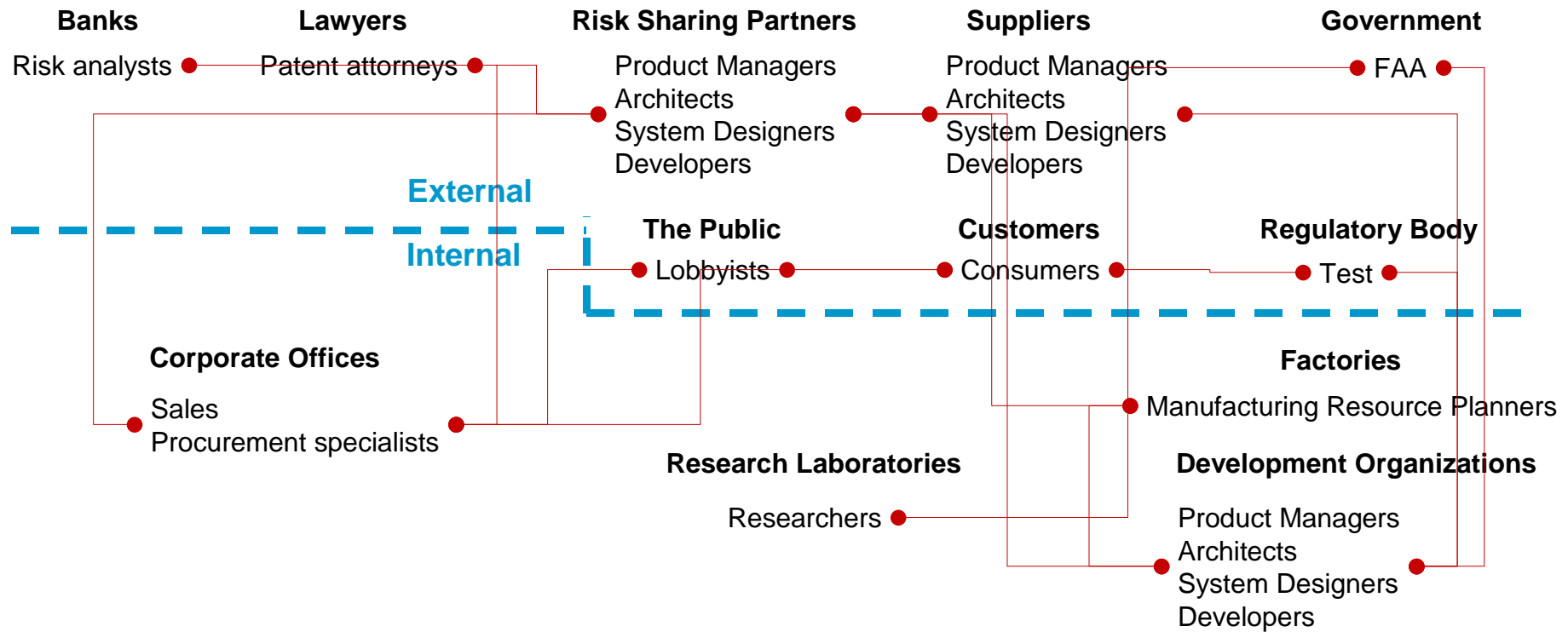**Success is measured in terms of process efficiency and accuracy!**

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Examples of Human Actors

- Clerks
- Analysts
- Engineers
- Materials acquisition and procurement specialists

- Shipping and delivery personnel
- Researchers
- Security specialists
- Suppliers
- Shop floor workers and technicians

People executing processes are always in the value chain!

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Business Environment
Consider a "Product Lifecycle" Example

Simple question, what is the impact of offering internet connectivity on an airplane or in a car?

Banks
Risk analysts

Lawyers
Patent attorneys

Risk Sharing Partners
Product Managers
Architects
System Designers
Developers

Suppliers
Product Managers
Architects
System Designers
Developers

Government
FAA

External
Internal

The Public
Lobbyists

Customers
Consumers

Regulatory Body
Test

Corporate Offices
Sales
Procurement specialists

Factories
Manufacturing Resource Planners

Research Laboratories
Researchers

Development Organizations
Product Managers
Architects
System Designers
Developers

Many people must get engaged, and involves access to much information that requires integration!
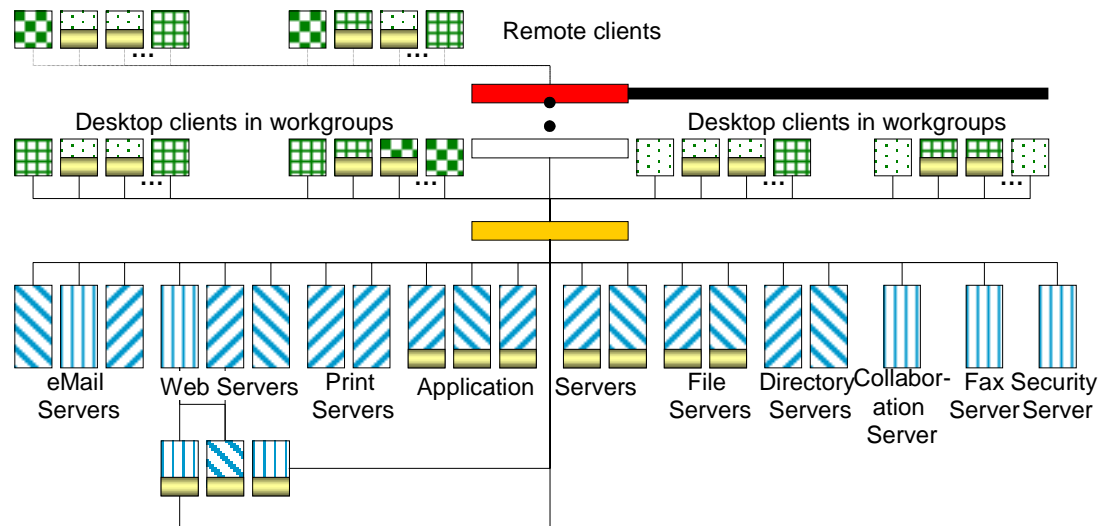
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Technology Environment
Network View
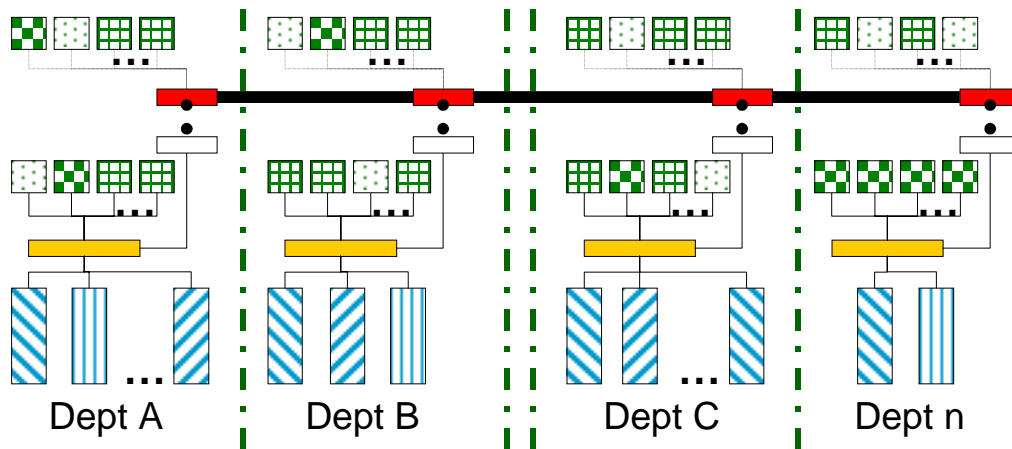
- Highly complex
- Heterogeneous
- 1000s of systems
- Information throughout
- Need for some level of information sharing

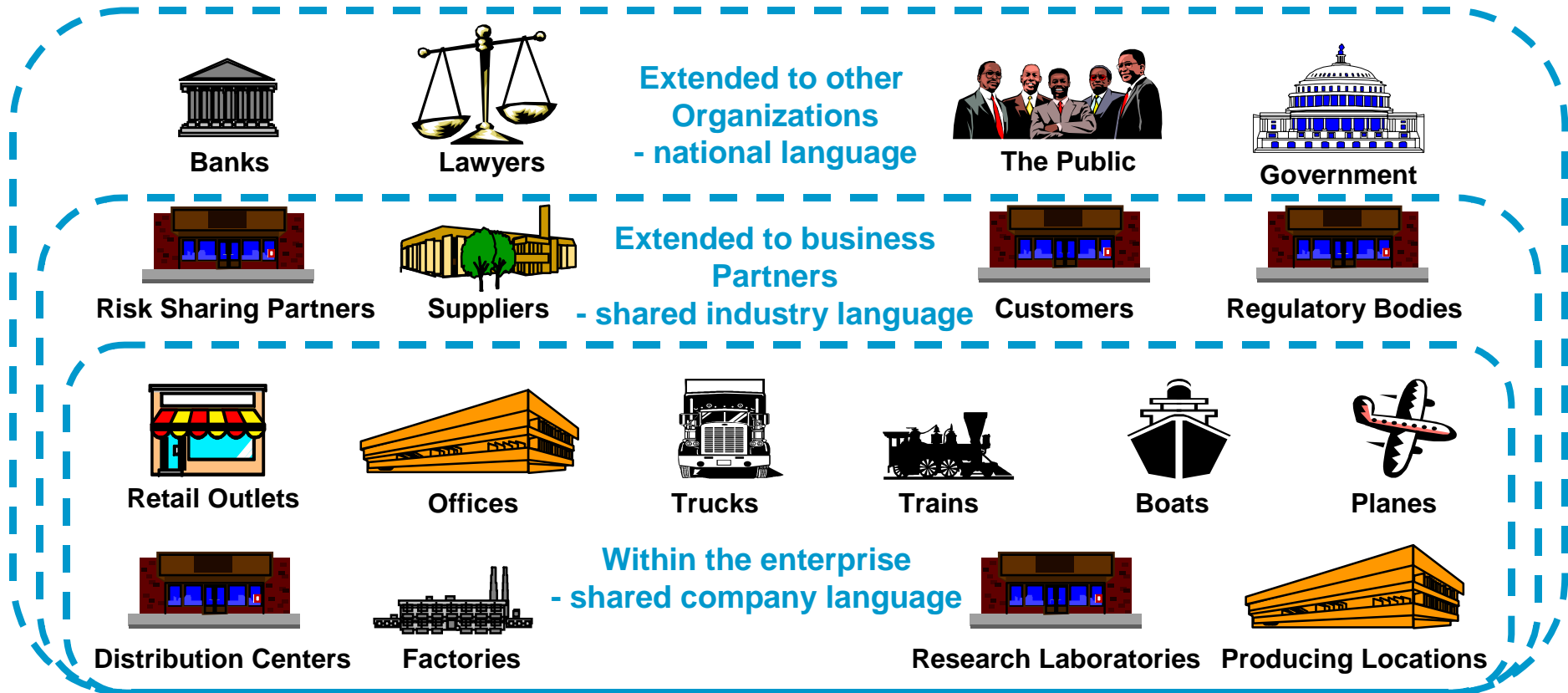- Too much information that just can't be easily accessed and managed!

Dept A   Dept B   Dept C   Dept n

Remote clients

Desktop clients in workgroups   Desktop clients in workgroups

eMail Servers   Web Servers   Print Servers   Application Servers   File Servers   Directory Servers   Collaboration Server   Fax Server   Security Server

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Objectives and Measures

- ❑ Improve business productivity and effectiveness of business operations
  - ▪ Improve select process performance metrics
  - ▪ Revenue growth
- ❑ Shorter cycles to return on IT investment
  - ▪ % of procurements against standards
  - ▪ Spend on customizations
- ❑ Improve effectiveness of information technology organization
  - ▪ Asset utilization
  - ▪ Cycle time for rolling out upgrades
- ❑ Improve service
- ❑ Improve management efficacy
- ❑ Reduce risk

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So What Is In^3?

- ❑ An ***Integrated Information Infrastructure*** is a desired state for an enterprise's infrastructure specific to the needs of the organization
  - ▪ It has standard components that provide services in a customer's extended enterprise that
    - ▪ Combine multiple sources of information
    - ▪ Deliver information to the places where that information is needed and
    - ▪ In the right context for the people or computer components using that information

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Extending the Reach

Banks

Lawyers

Extended to other Organizations
- national language

The Public

Government

Risk Sharing Partners

Suppliers

Extended to business Partners
- shared industry language

Customers

Regulatory Bodies

Retail Outlets

Offices

Trucks

Trains

Boats

Planes

Within the enterprise
- shared company language

Distribution Centers

Factories

Research Laboratories

Producing Locations

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So What Must One Do...

	Information	**Infrastructure**
Business	❑Understand business processes and information 　▪Prioritize and Assess ❑Create/adapt policies and best practices 　▪General management guidelines 　▪Use, management, and security policy	❑Identify and prioritize business information flow ❑Identify sources of information ❑Assess mechanisms for information flow ❑Register sources and destinations of information ❑Develop business architecture
Technical	❑Research 　▪Security services 　▪Information services 　▪Brokering services 　▪Integrated access services 　▪…	❑Plan, develop, test and deploy 　▪Security services 　▪Information services 　▪Brokering services 　▪Integrated access services 　▪…

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One Would Have a Lot to Do

- Takes Time
- Costs Money
- Judged on quality and results

Option 1 - Go it Alone	Option 2 - Leverage
Longer elapsed time	Shorter elapsed time
High costs	Greater industry investment
Unpredictable quality	Lower organization costs
No lasting guarantee	Safety in numbers
High risk	Safety in certified standard products
	Shared risk

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So What Can You Do In The Open Group?

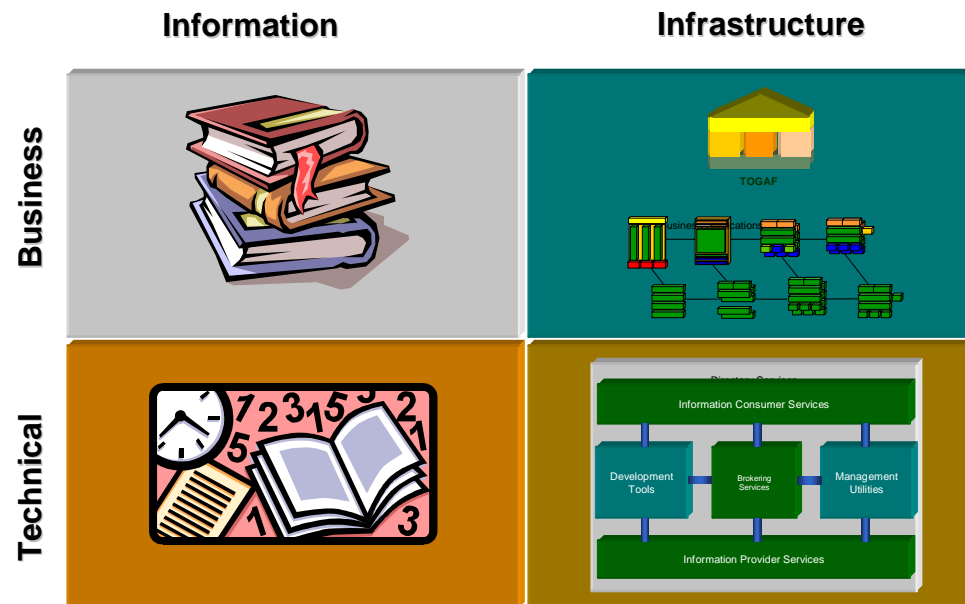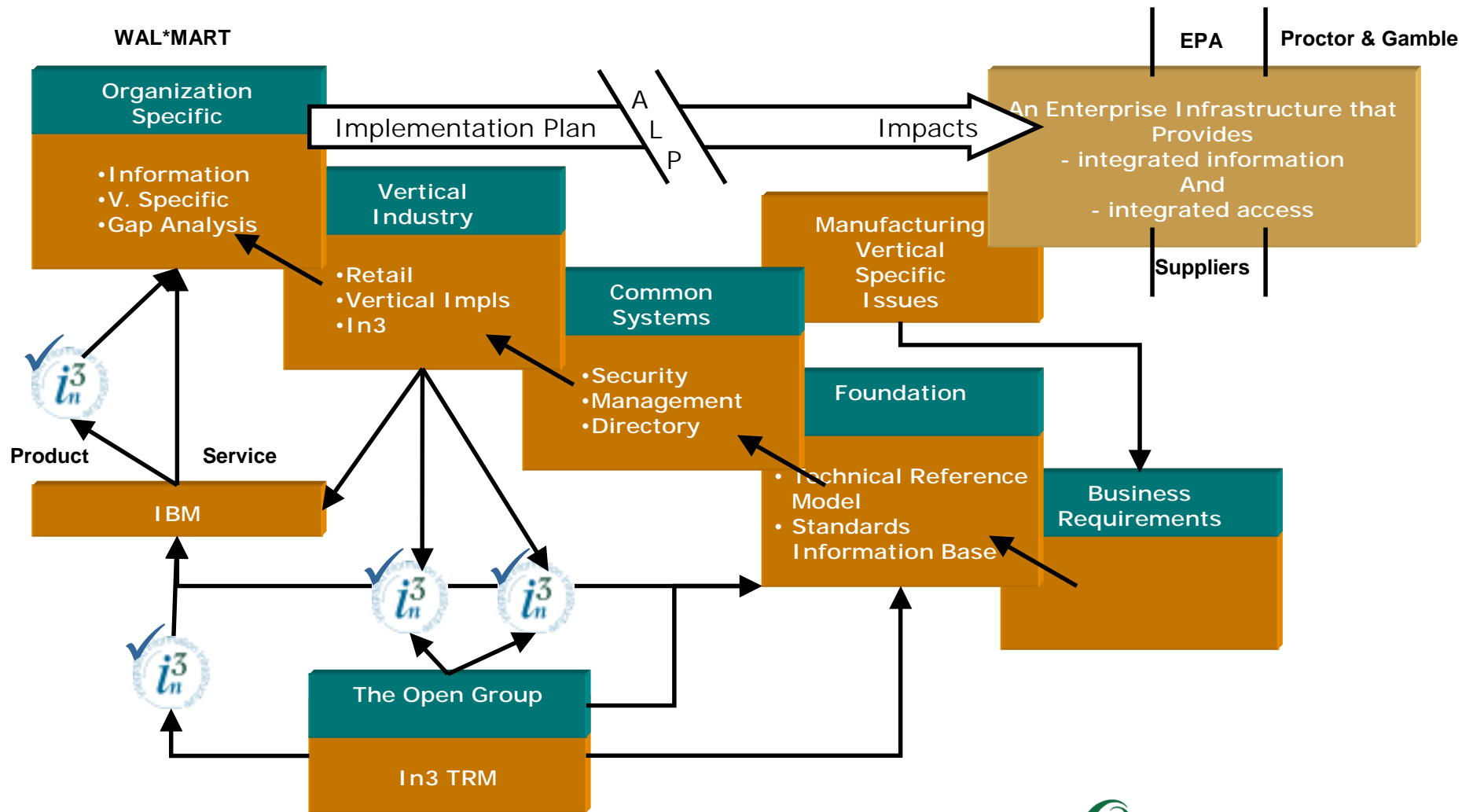|	**Information**	**Infrastructure**
Business		TOGAF
Technical		Directory Services — Information Consumer Services — Development Tools — Brokering Services — Management Utilities — Information Provider Services

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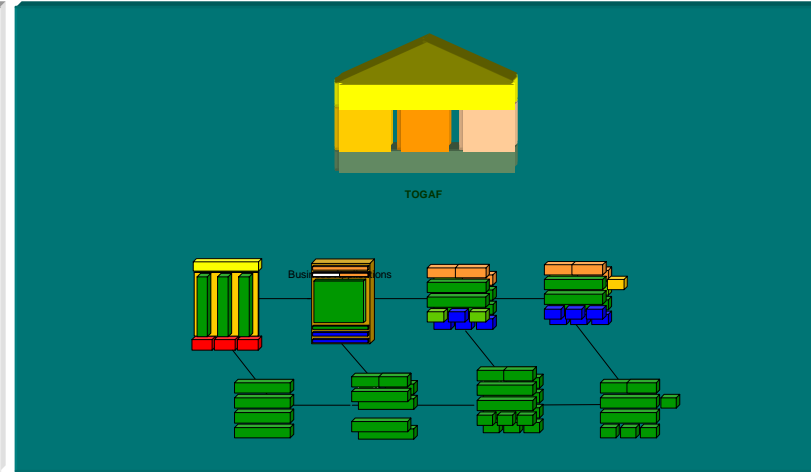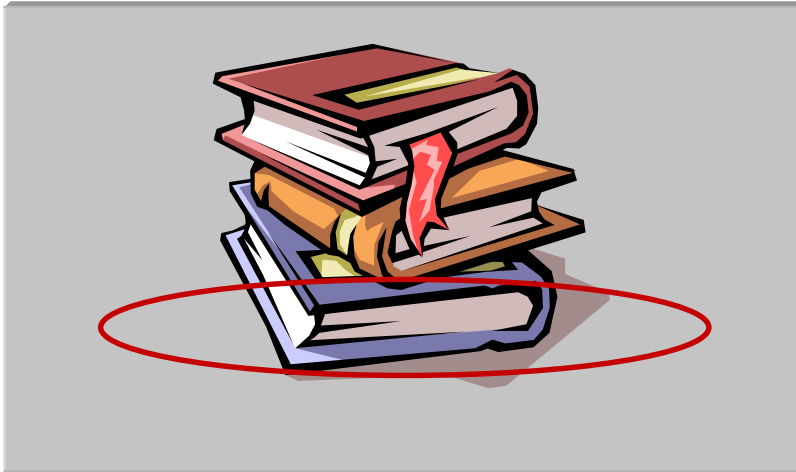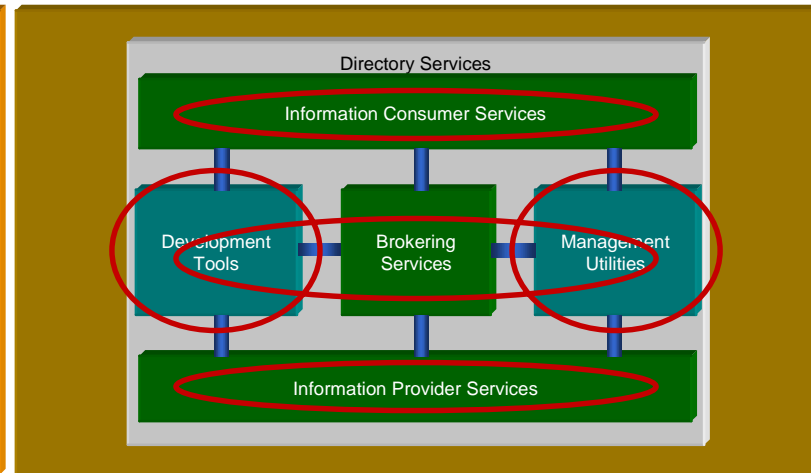
What Else Can We Do?

- ❑ Communicate to CxO levels on the importance of the issue
- ❑ Muster support from major customer and vendor organizations
- ❑ Bring the right organizations together; DMTF, OASIS, OMG, W3C, IETF, …

How

WAL*MART

Organization Specific
- Information
- V. Specific
- Gap Analysis

Implementation Plan

A L P

Impacts

EPA **Proctor & Gamble**

An Enterprise Infrastructure that Provides
- integrated information And
- integrated access

Suppliers

Vertical Industry
- Retail
- Vertical Impls
- In3

Manufacturing Vertical Specific Issues

Common Systems
- Security
- Management
- Directory

Foundation
- Technical Reference Model
- Standards Information Base

Product **Service**

IBM

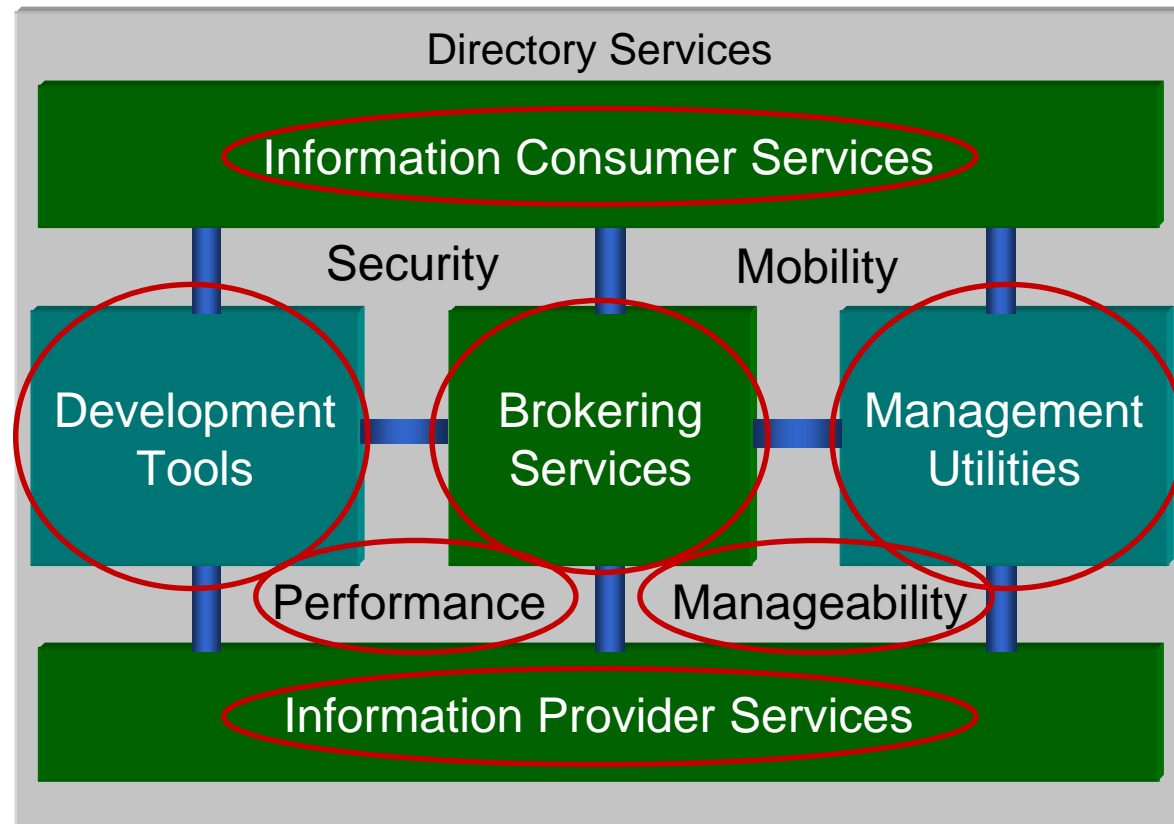Business Requirements

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In3 TRM

Notes on Architecture Models

- ❑ It is not intended to
  - ▪ Create an enterprise architecture that everyone must adopt
- ❑ But rather
  - ▪ Establish a technical reference model that could be used in conjunction with something like TOGAF to build one's architecture for one's Integrated Information Infrastructure

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A Level 1 Model
(front view)

None of this is cast in concrete!

Directory Services

Information Consumer Services

Security   Mobility

Development Tools

Brokering Services

Management Utilities

Performance   Manageability

Information Provider Services

Classes of Interfaces - formats and protocols …

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A Level 2 Model

None of this is cast in concrete!

Qualities (Mobility, Performance)

Qualities (Security, Manageability)

Information Consumer Services

Application - Client
Streaming audio / video Client
Application Messaging

Web Portal - Client
information Access

Mail Client
Transaction Processing

Desktop Video Conference Client
Phone / Fax Client
Networking and Communications

Directory   AAAC

Development

Policy languages and tools
Business modeling tools
Design tools
Construction tools
Languages
Libraries

Brokering Services

Messaging/Event Brokering
Component and Object Man
Process/Workflow Control
Enterprise Application Integration
Information Access Services

Management
Utilities
Monitors
Executory Utilities
Copy Managers

Encryption   Firewall

Information Provider Services

Fax/Phone
Services

Mail Services

Web Services

Applications

informationbase Services

Intrusion Detection

File Services

Collaboration
Services

Classes of Interfaces - formats and protocols …

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What's the Difference?

- ❑ There are many efforts going on in this space,
  - ▪ Global Grid, Global Information Utility, Internet Operating System, etc...
- ❑ Most of these efforts either focus on a particular aspect, or a particular technology
- ❑ The Open Group
  - ▪ Is looking at whole problem, bringing together all the parts and pieces
  - ▪ Best practices and technology standards
  - ▪ Well equipped to be the certification authority: to ensure that the pieces and parts have lasting guaranteed value to the enterprise
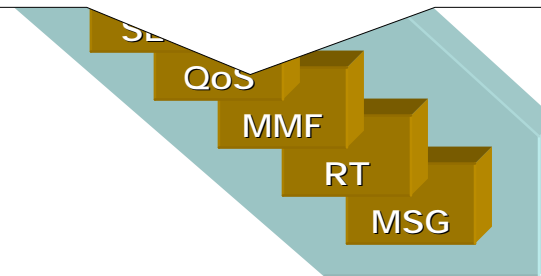
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Won't it be nice when...

❑ The Open Group membership announces the availability of the following profiles that represent collections of standards that can be used to produce products that are certified to interoperate as specified.

❑ These profiles represent major building blocks necessary for companies to build their Integrated Information Infrastructures which is estimated to save companies *billions* per year and improve operational efficiencies.
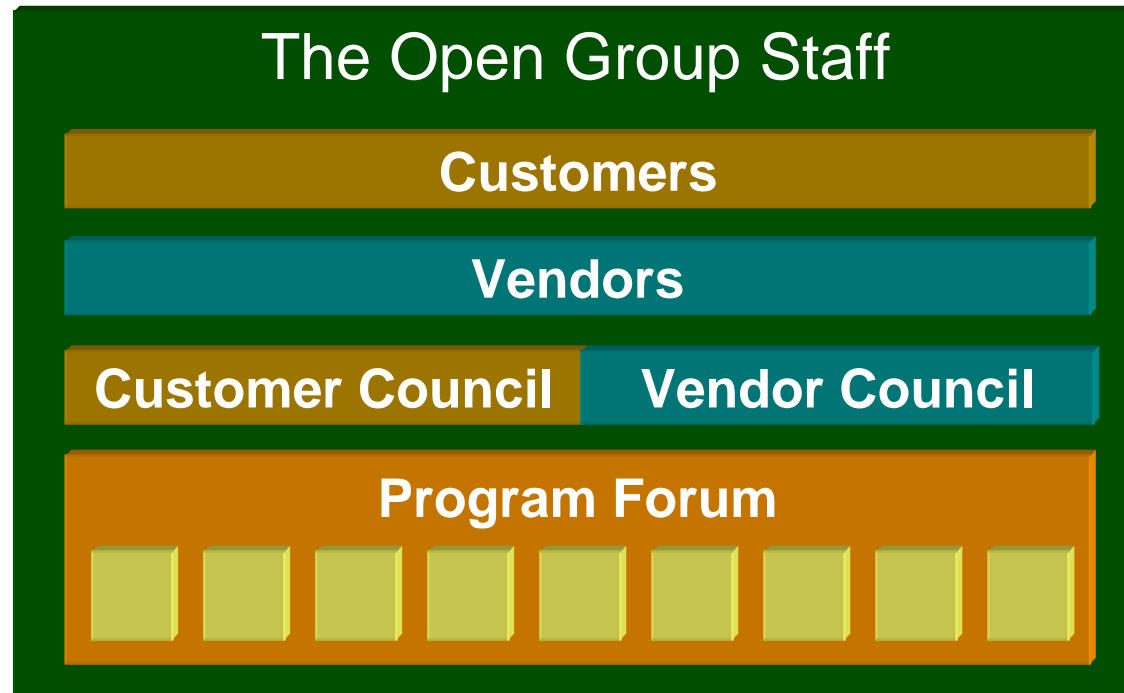
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Potential roles

For thought and discussion:
- Own the architecture building blocks for management, quality of service and information services.
- Management and service patterns for **In^3**.
- Best practice policy guidelines.
- Best practice guides for understanding management and performance needs for **In^3**.
- General architecture and approaches for policy enforcement - e.g. quality of service assurance.
- …

External Consortia and Open Source

SE
QoS
MMF
RT
MSG

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We All Have Parts to Play

The Open Group Staff

Customers

Vendors

Customer Council   **Vendor Council**

Program Forum

We can and will succeed!
Together we're better.

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