

Enterprise Architecture

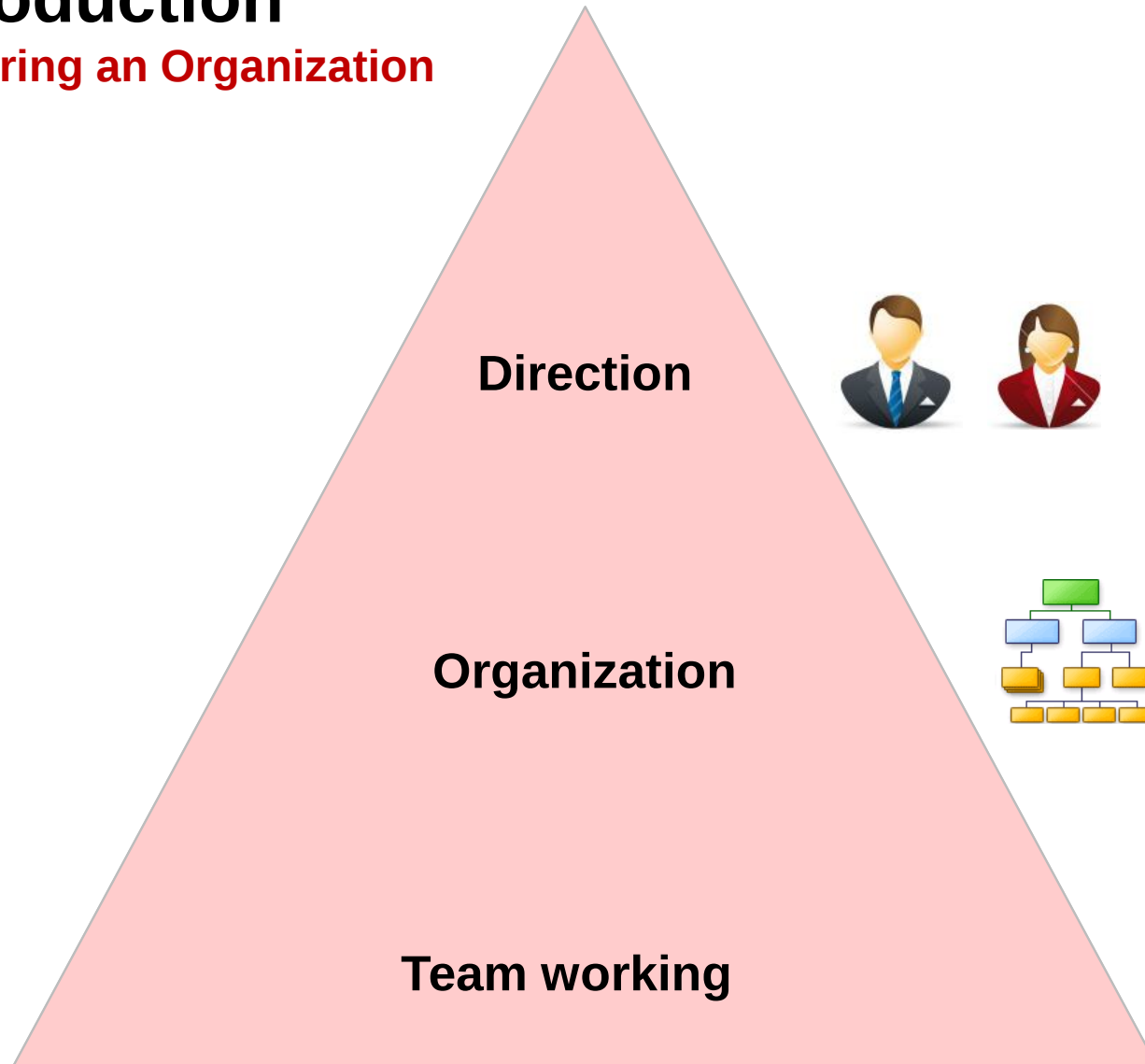
Danairat T.
Enterprise Architect
Certified Java Programmer, TOGAF Silver
ISACA Member
danairat@gmail.com

Agenda

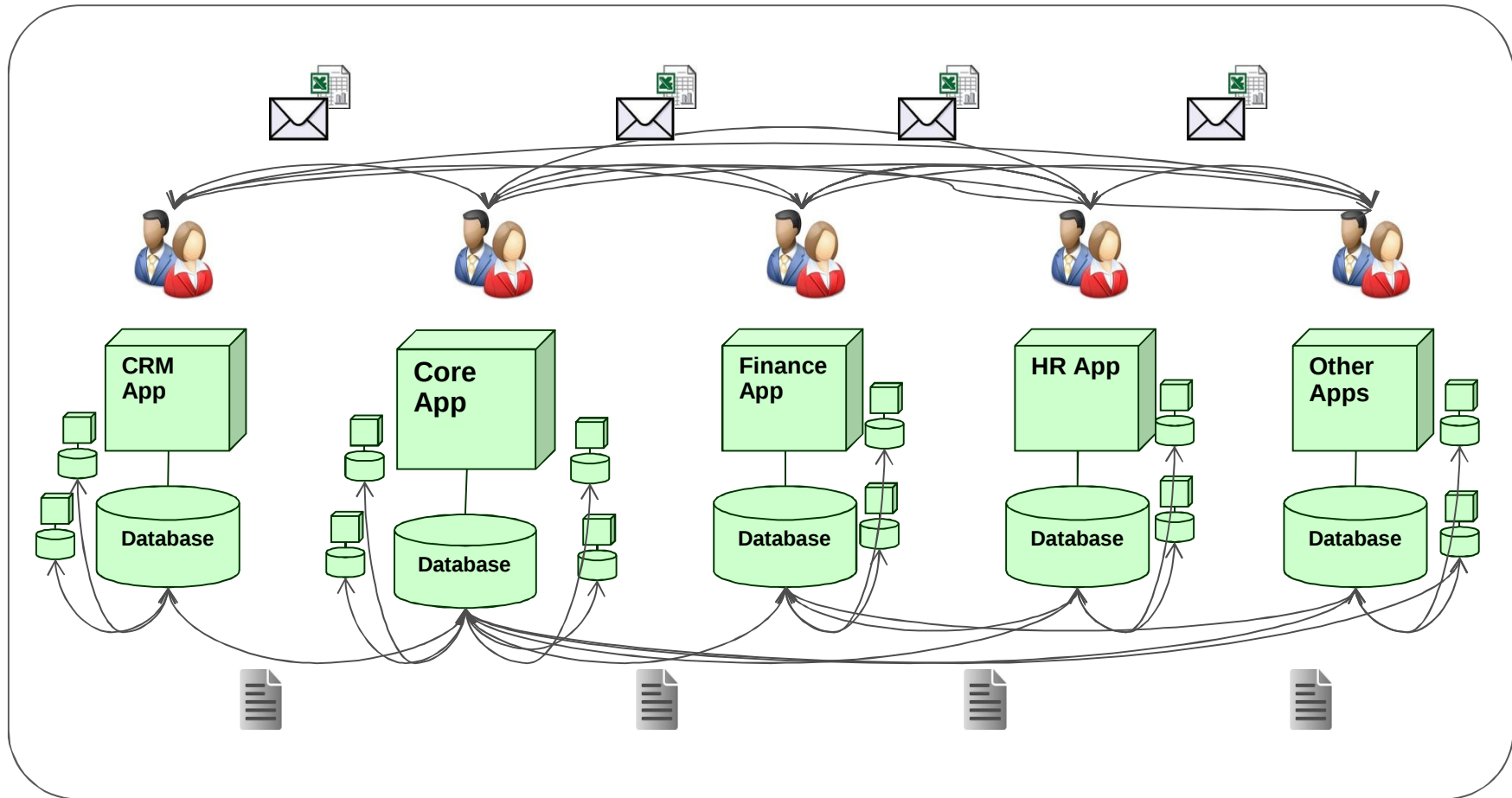
- Introduction
- Enterprise Reference Architecture
- Architecture Development Process
- Summary

Introduction

Exploring an Organization

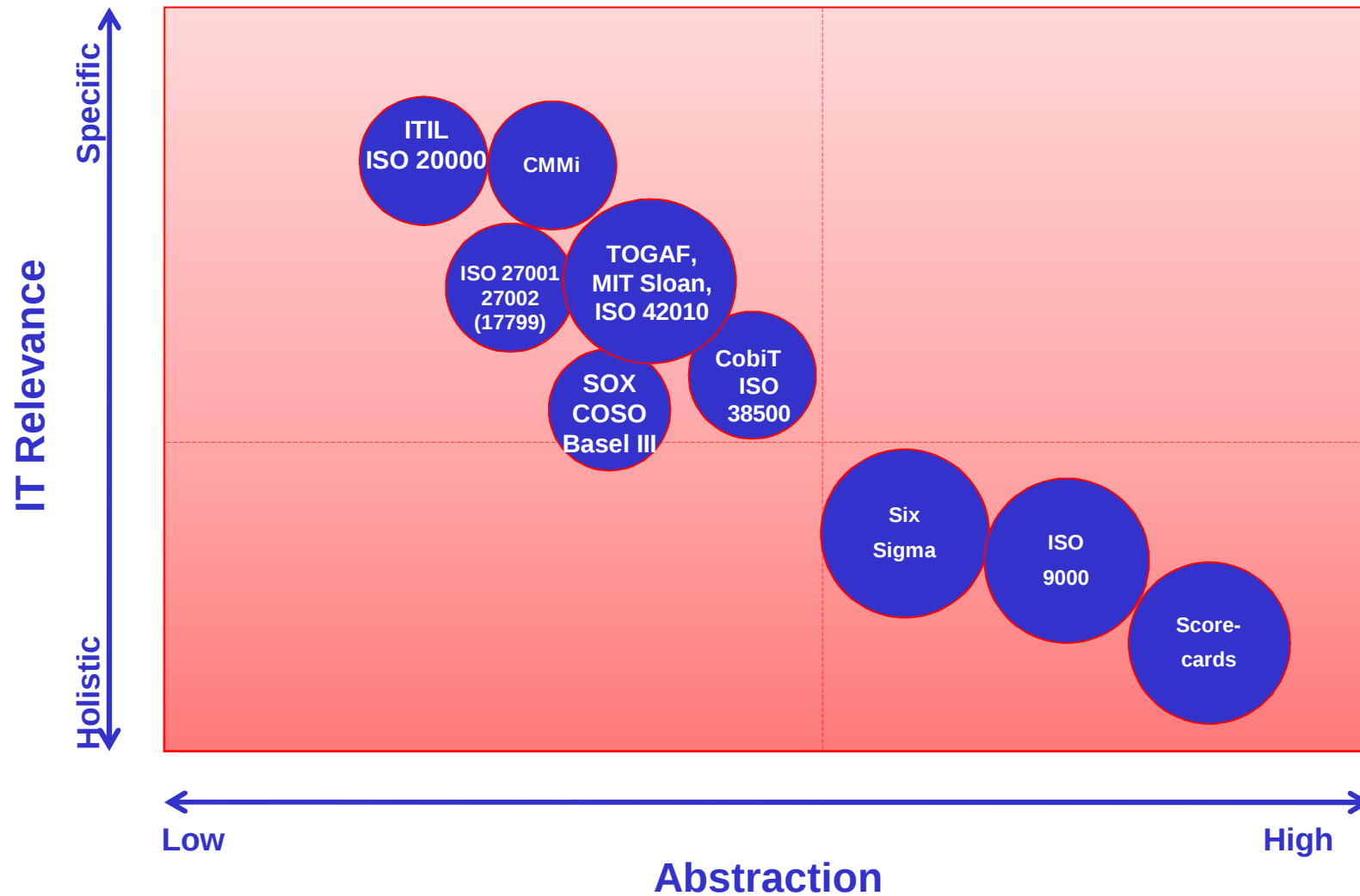


Why We Need Business Transformation

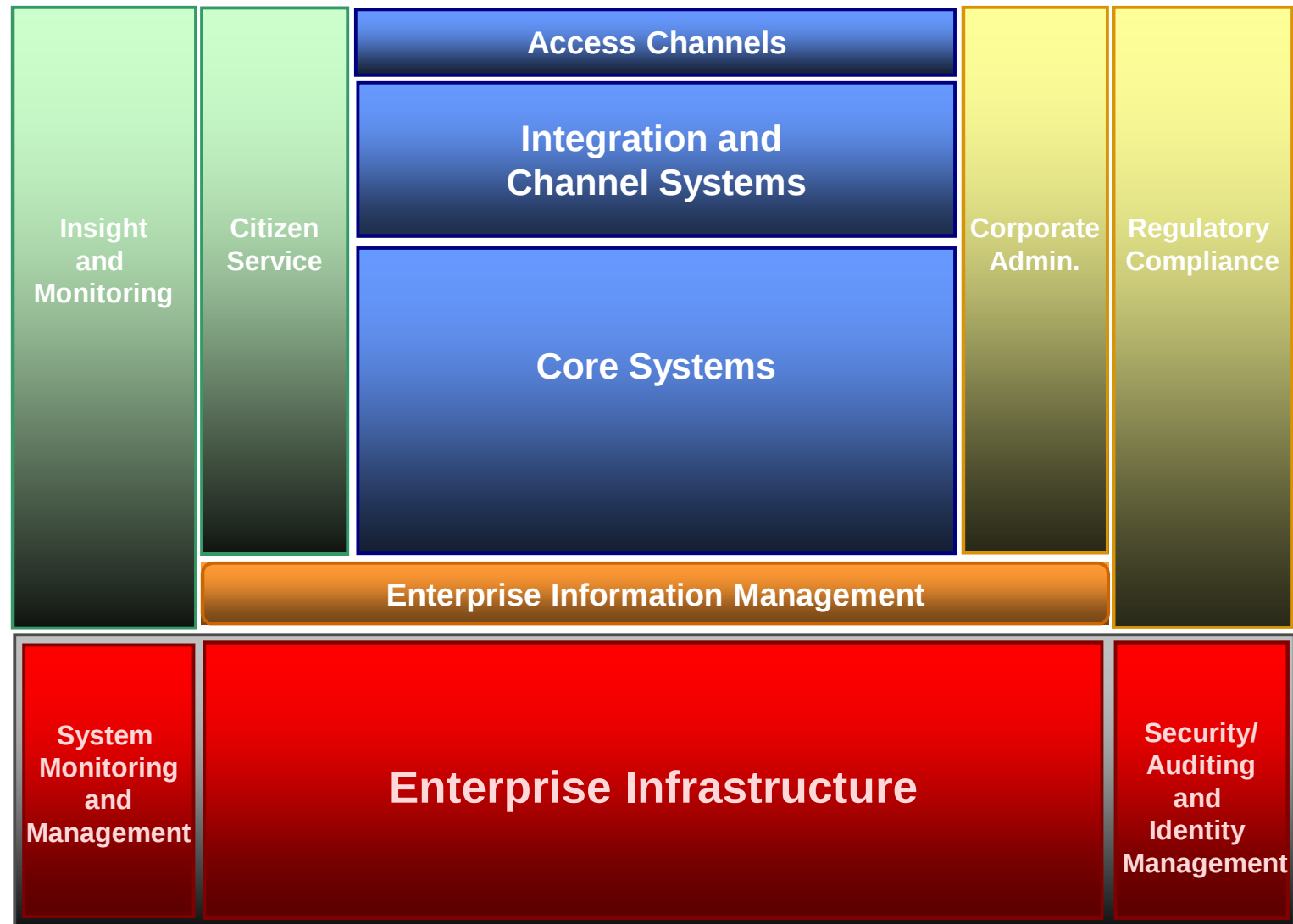


IT System Deployment – Silos and inefficient to scale business

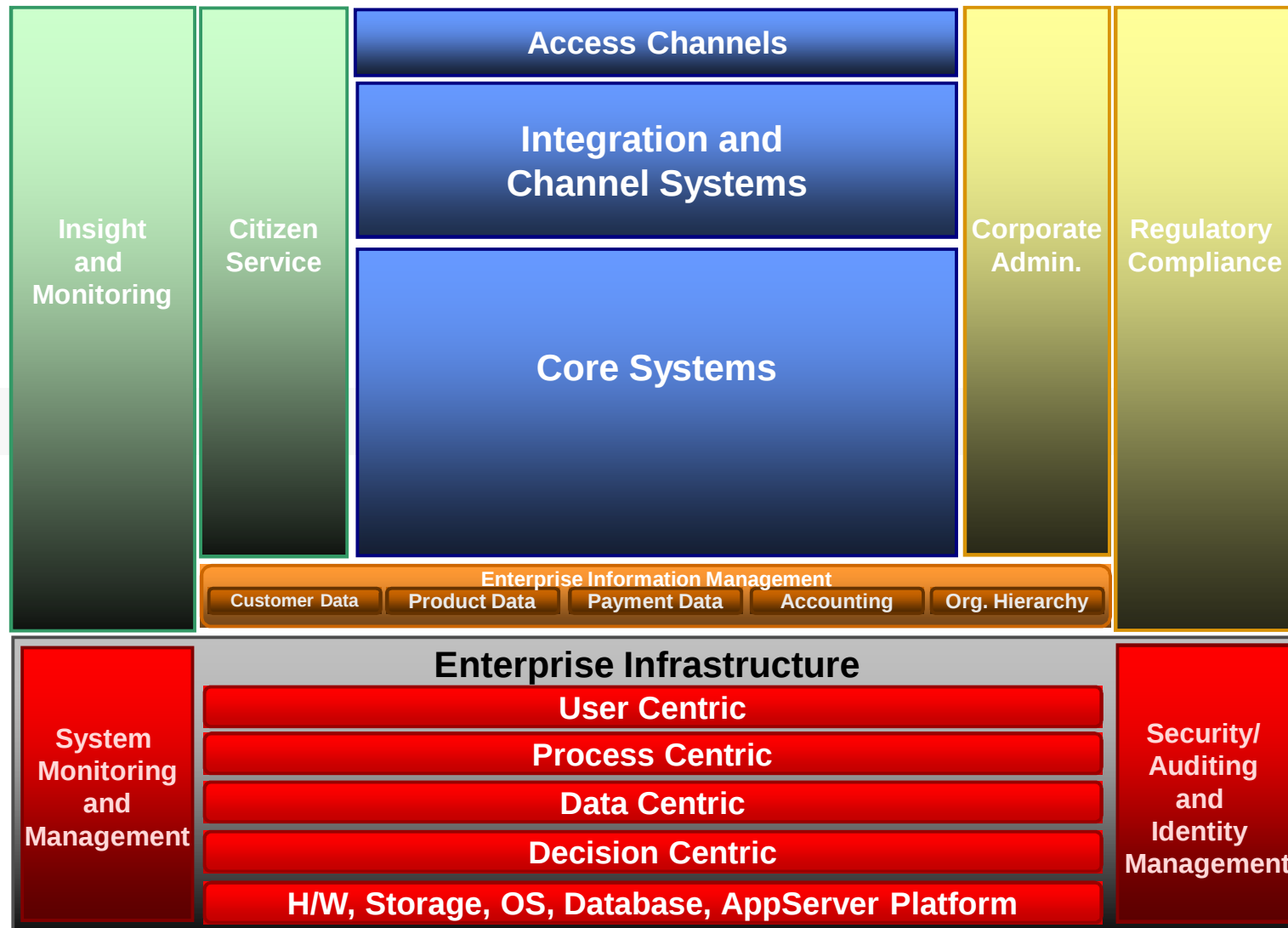
There are many of related standards/guidelines



The Enterprise Reference Architecture

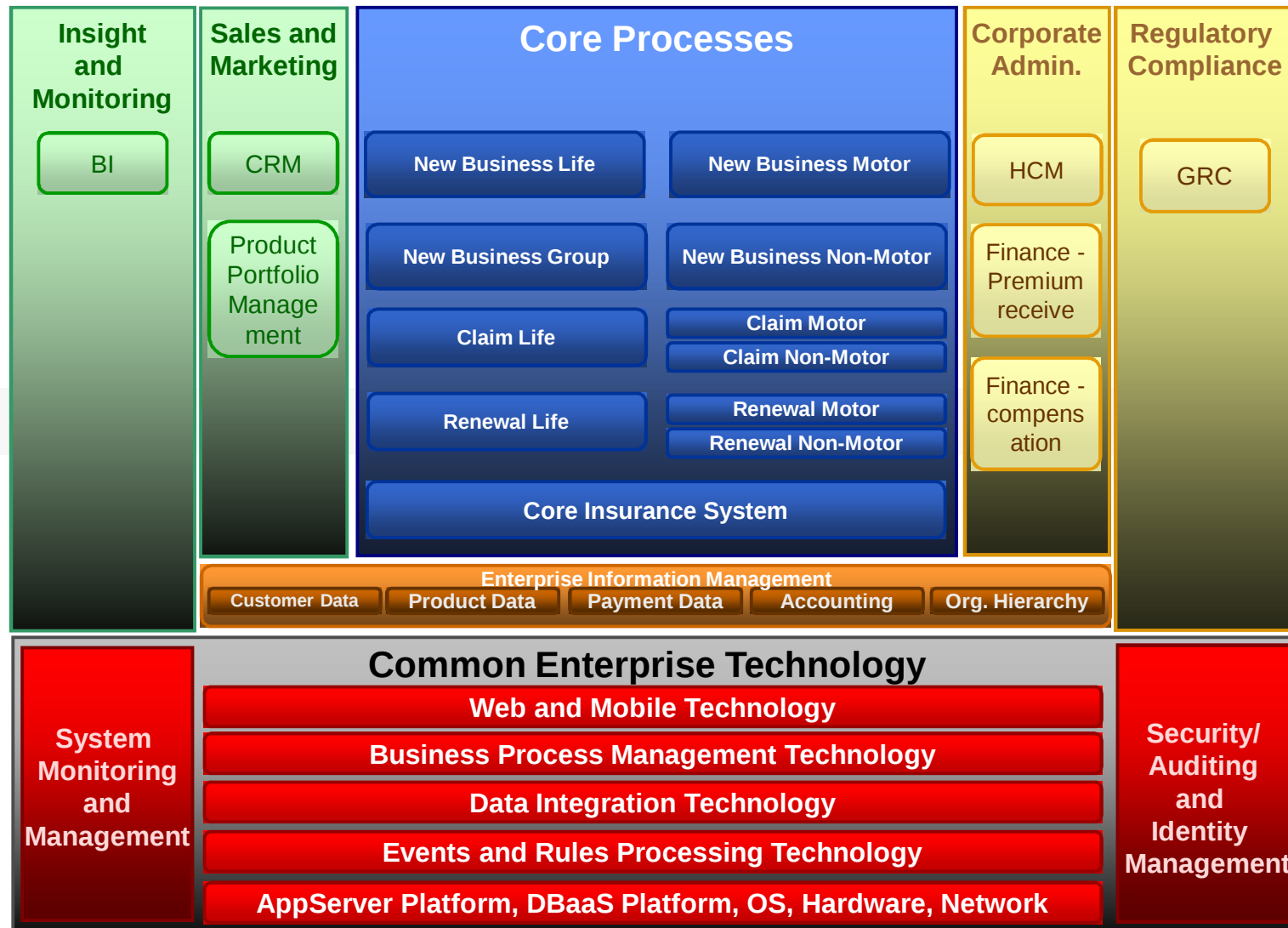


The Enterprise Reference Architecture



Sample Reference Architecture

The Technology Landscape

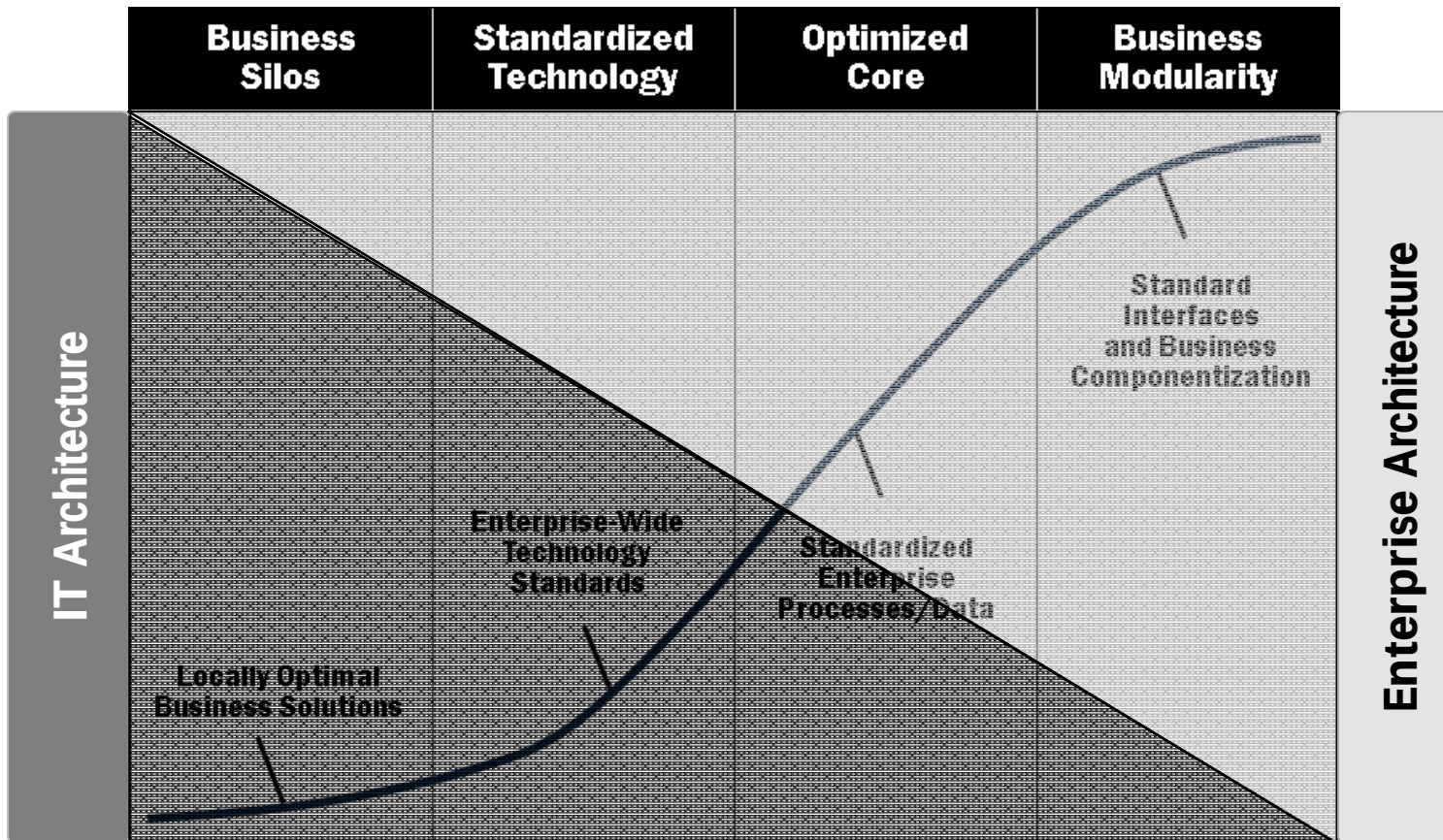


Group Workshop - The Current Enterprise Architecture

Write down your
existing enterprise
architecture
foot print

Team Name: xxx					
1. Name, Company, E-mail		3. Name, Company, E-mail			
2. Name, Company, E-mail		4. Name, Company, E-mail			
Enterprise Reference Architecture					
Business Insight and Monitoring	Citizen Services	Access Channels		Corporate Admin.	Regulatory Compliance
		Core Business Processing Systems			
	Master Data				
System Monitoring and Management	Enterprise Infrastructure			Security/ Auditing and Identity Management	

Transformation Maturity Model

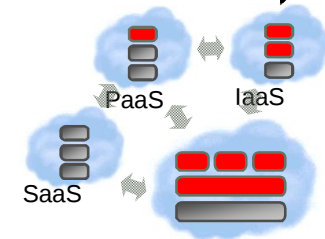
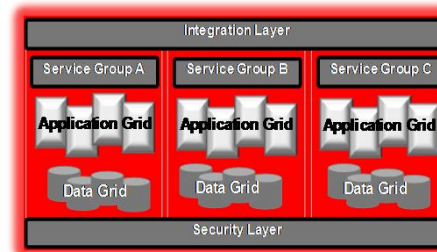
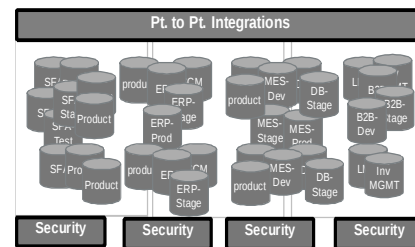
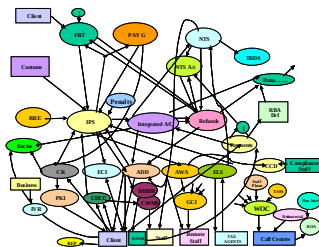
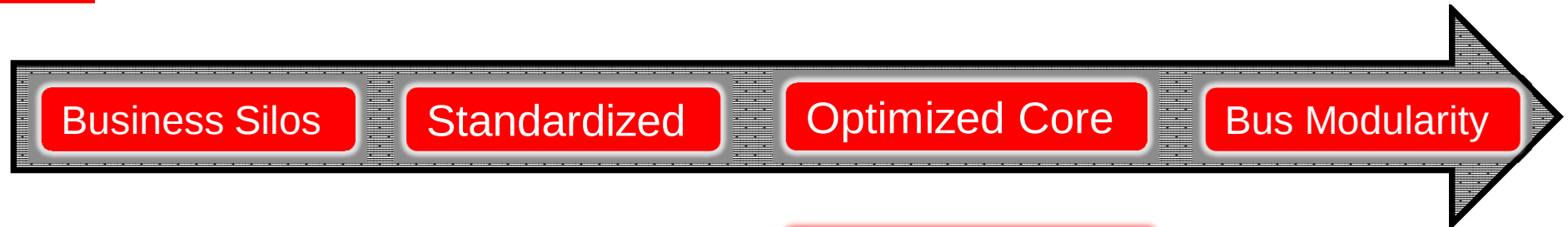


Center for Information Center Systems Research (CISR)

2009 MIT Sloan CISR – Ross

Source: *Enterprise Architecture as Strategy: Creating a Foundation for Business Execution*, J. Ross, P. Weill, D. Robertson, HBS Press, 2006

Enterprise Architecture Maturity – Details



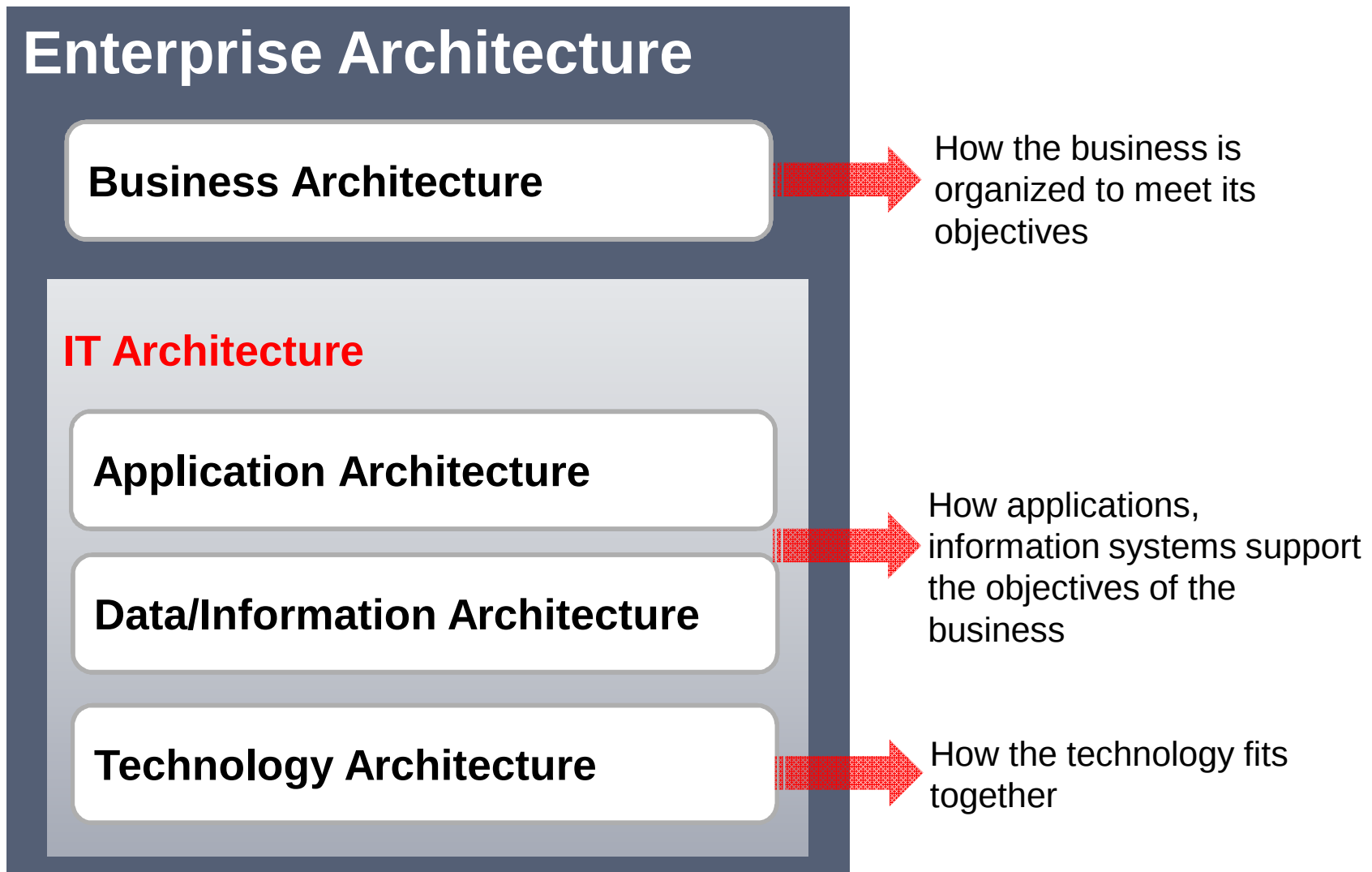
- Local IT silos
- Peak load sized
- Difficult to scale
- Difficult to change
- Expensive to manage
- Complexity driven risk

- Standardized interfaces/systems
- Lower license and support costs
- Increased utilization of IT skills
- Reduced IT project time/costs/risks

- Pools of resources
- Consolidated
- Better productivity
- Higher QoS
- Improved IT agility
- Improved security and management

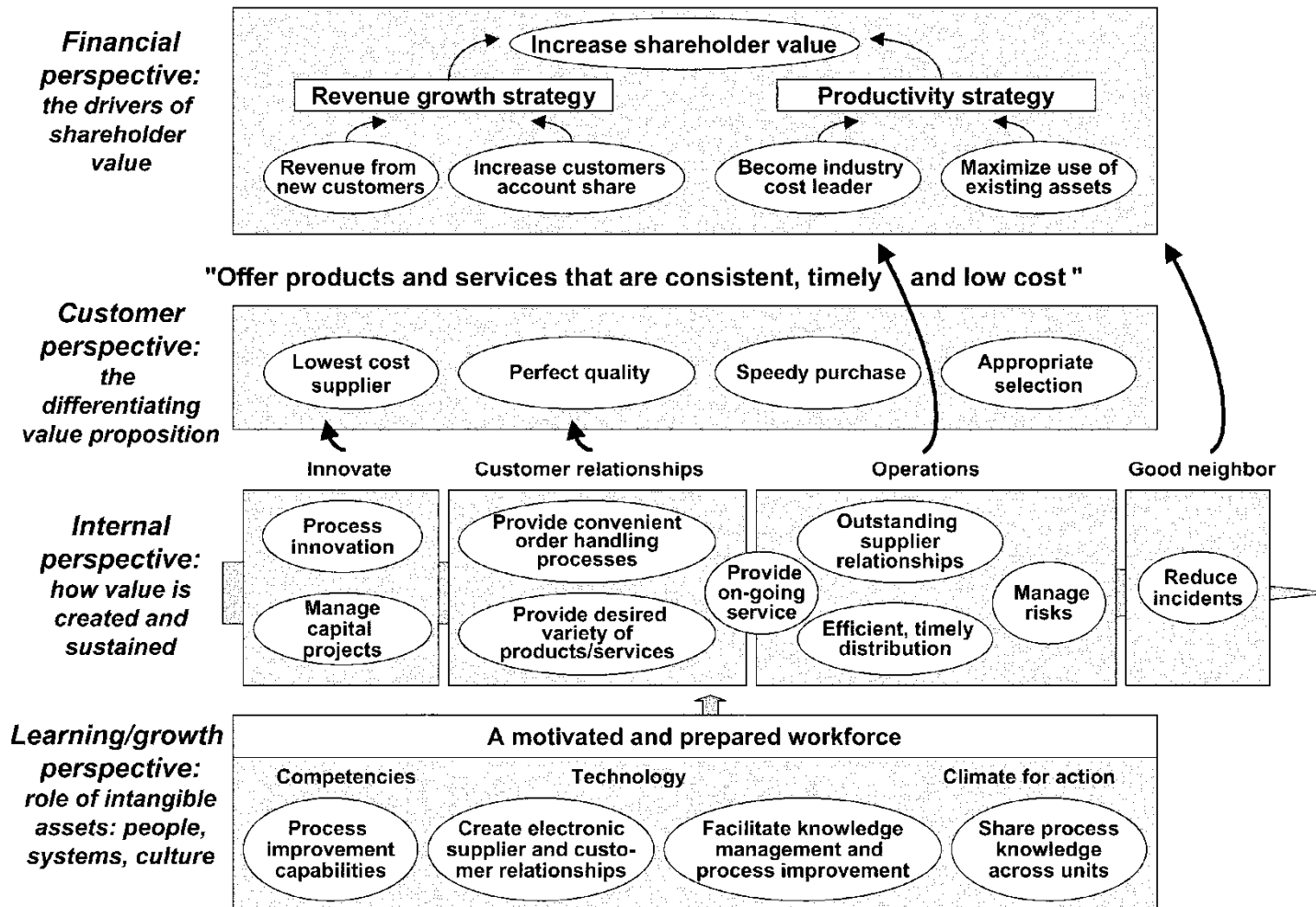
- Rapid provisioning
- Lower costs
- IT as a “Business”
- Faster project turnaround
- Greater focus on business

Architecture Domains



Business Architecture

Business Strategy Map

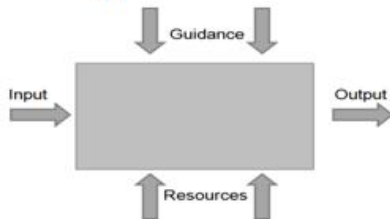


From: Strategy Maps: Converting Intangible Assets Into Tangible Outcomes by Robert S. Kaplan, David P. Norton - 2004

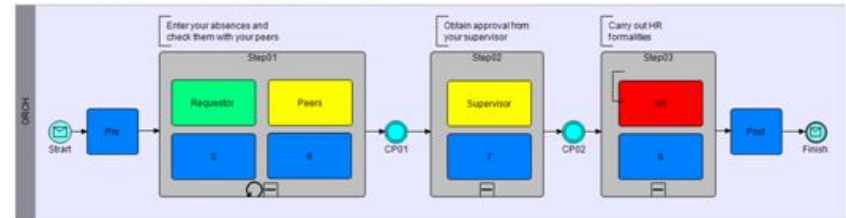
Business Architecture and BPMN

4 phases of business process development

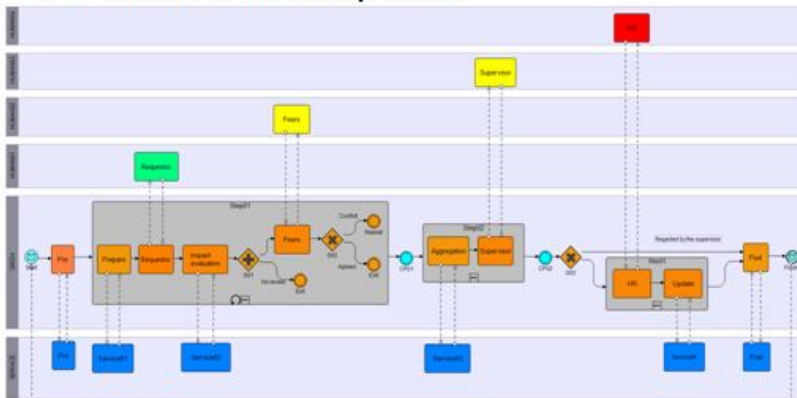
1. Blackboxing phase



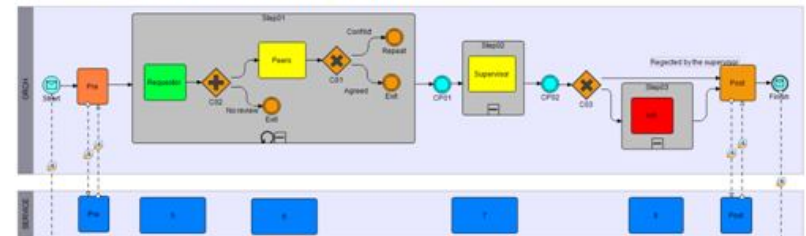
2. Structuring phase



4. Instrumentation phase

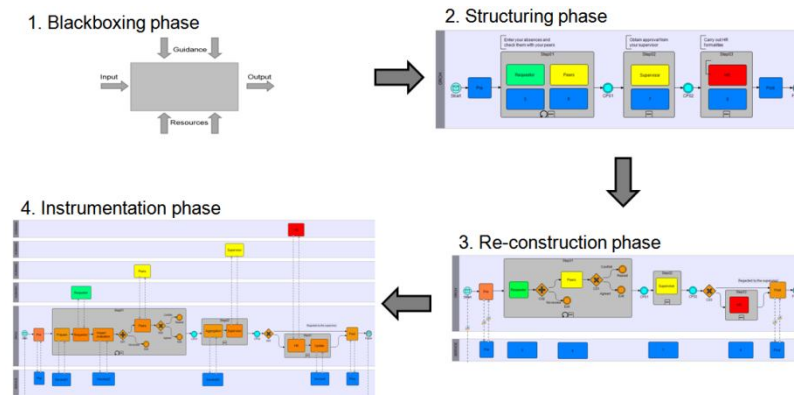


3. Re-construction phase



Group Workshop: Business Process Modeling

Developing BPMN



Brainstorm 1 hr. and Presentation 15 mins.

1. Introducing Group Members
2. Giving Process Name and Descriptions
3. BPMN Phase 1: Block Boxing Phase
4. BPMN Phase 2: Structuring Phase
5. BPMN Phase 3: Re-Construction Phase
6. BPMN Phase 4: Instrument Phase

Group Workshop – Business Objectives

#	Business Owner	Business Objective	Business Service - Process Name and short desc.	Business Issues	Supported Applications Name	Application Issues	Remarks

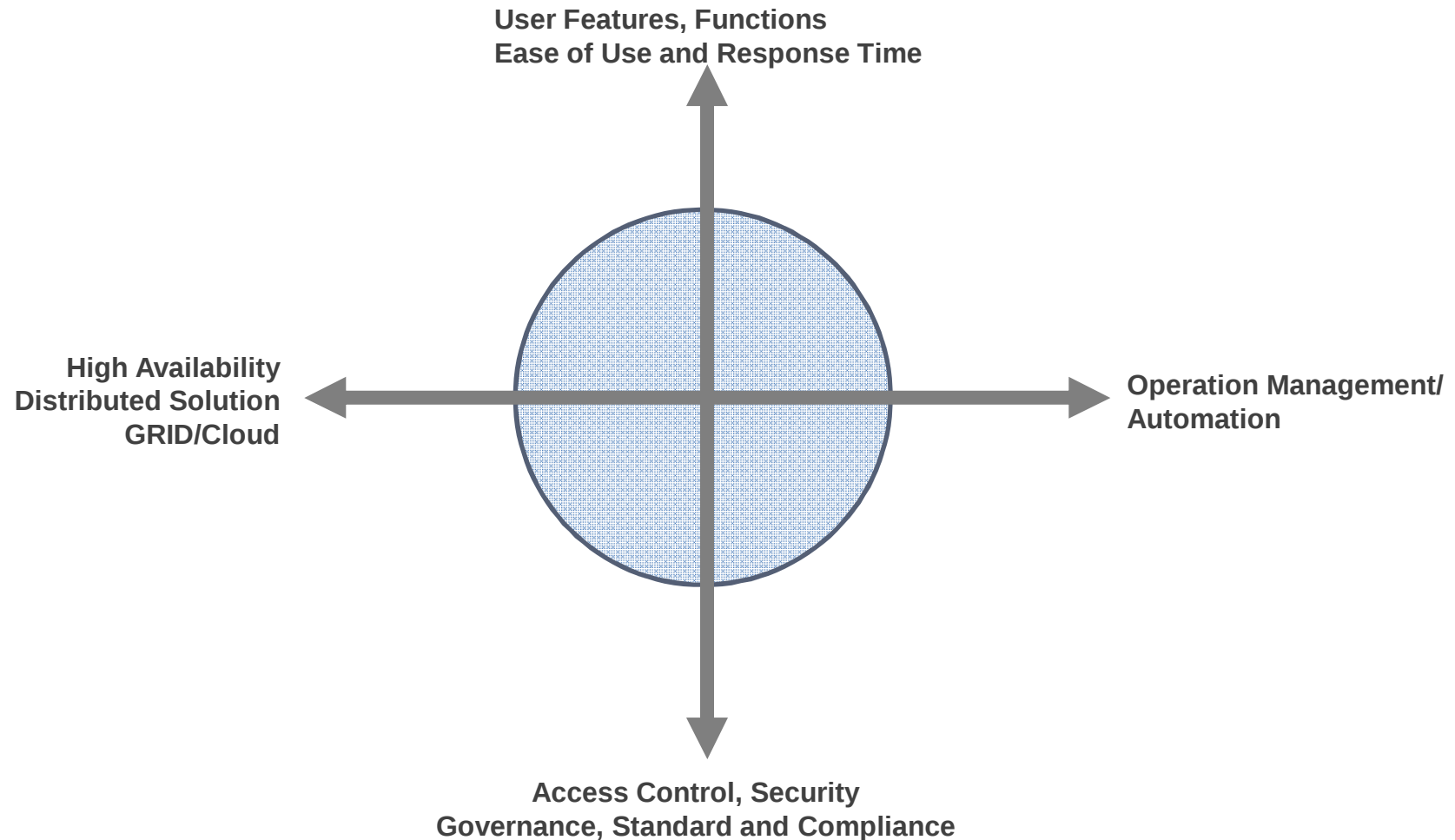
1.5 hrs. brainstorm and 15 mins. presentation

Application Architecture

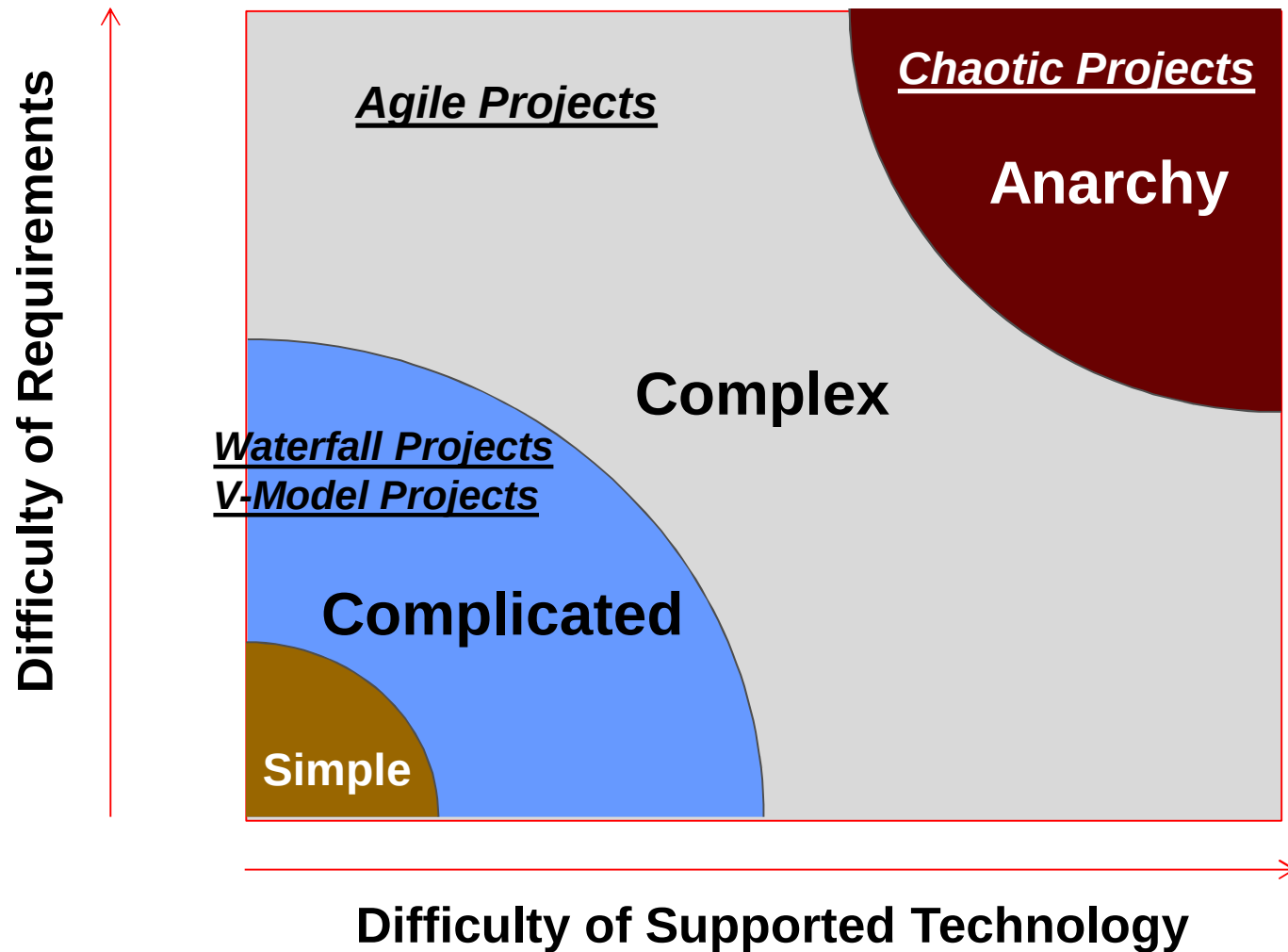
Application Development Framework

**An application framework
represents the **partial
implementation of a specific
area of an application****

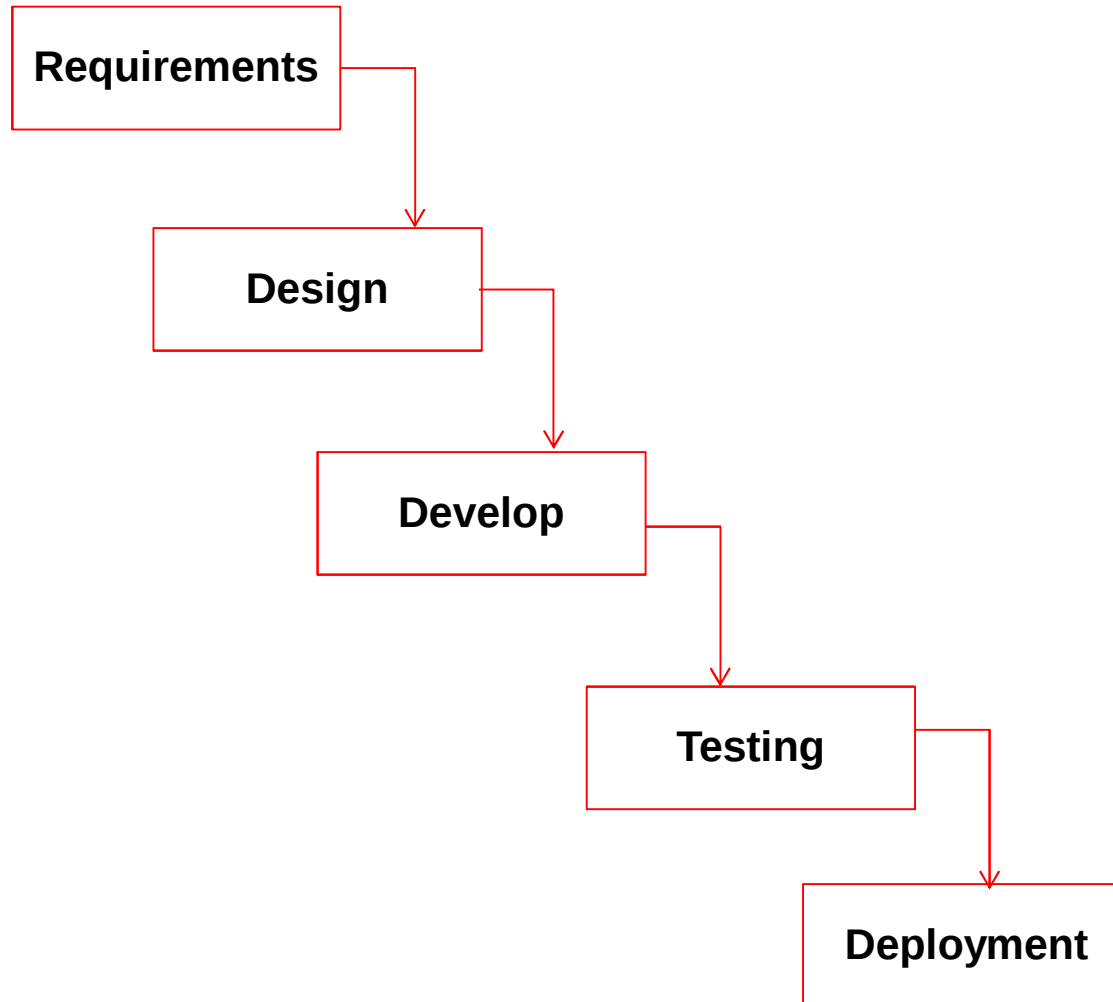
Functional and Non Functional Analysis



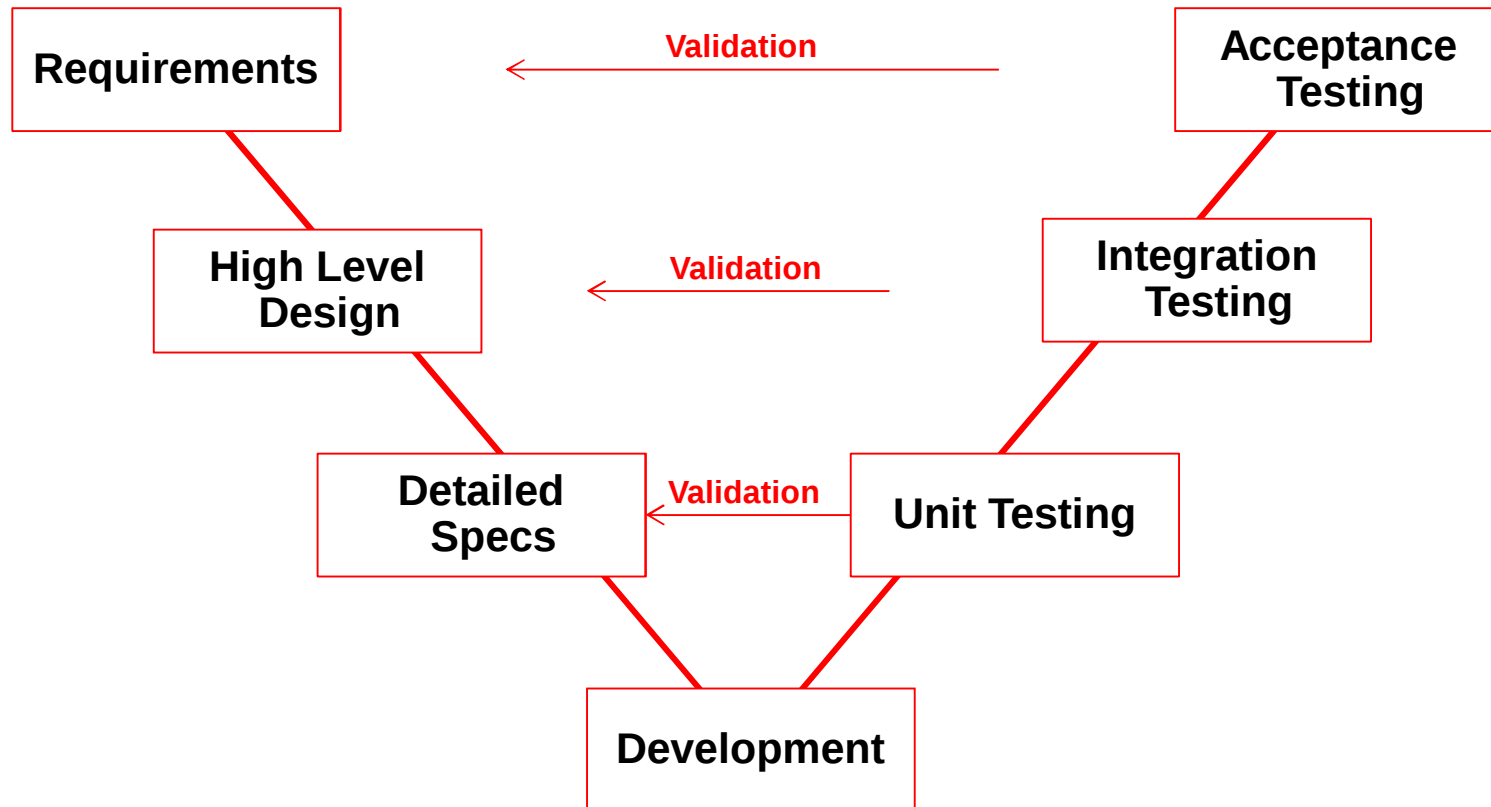
When to use which methodology



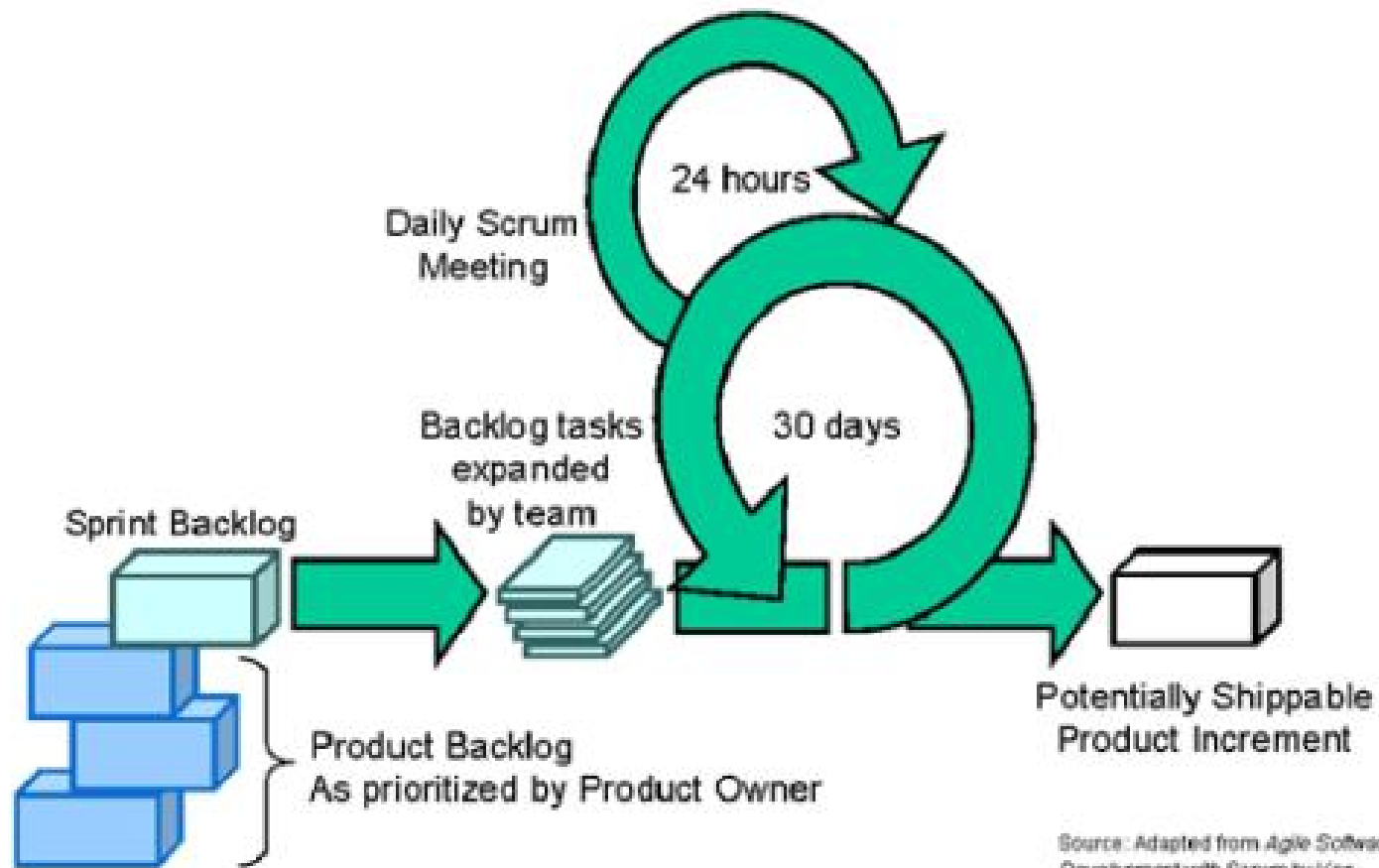
Waterfall Model



V-Model



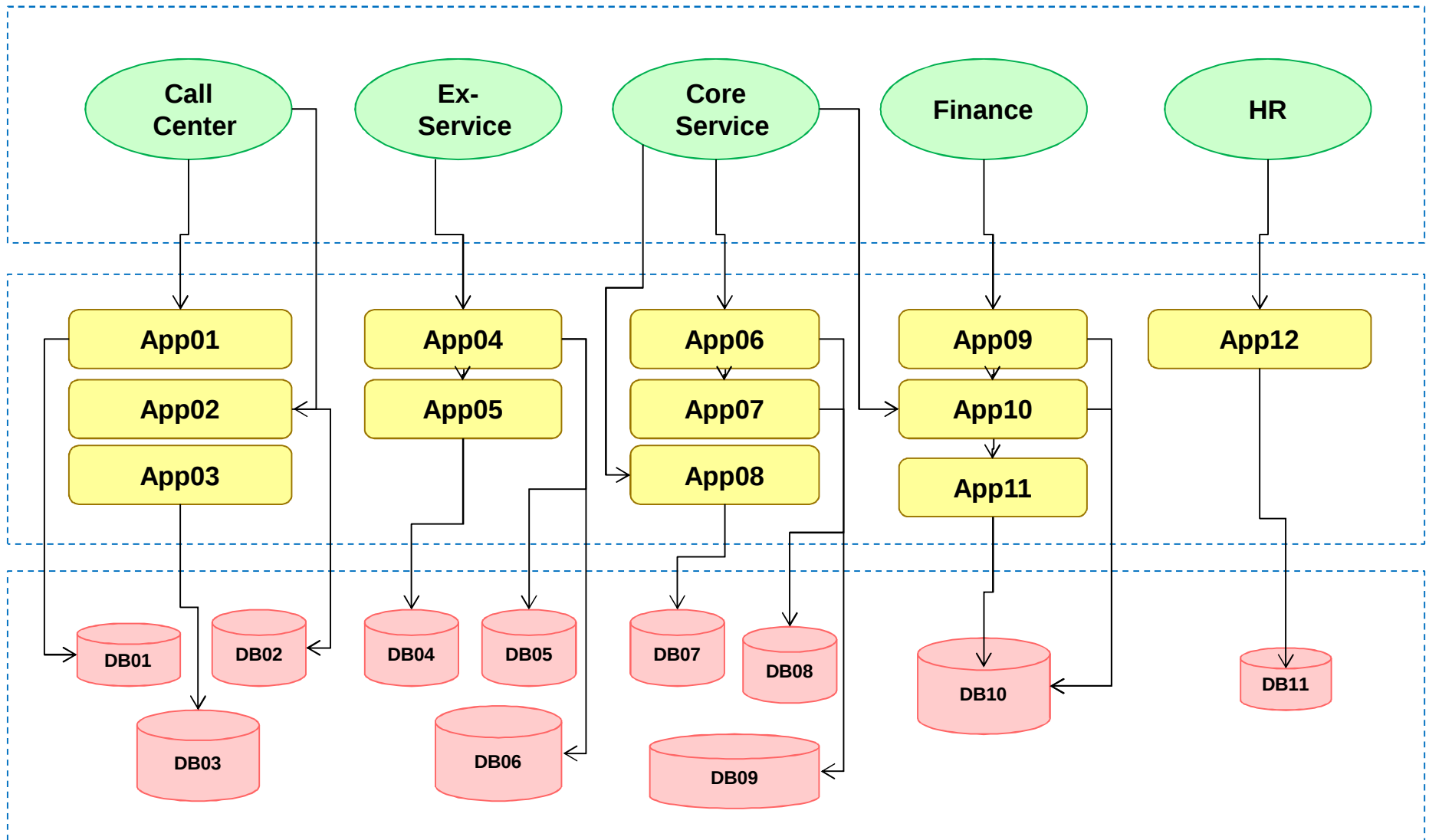
Agile – Scrum Method



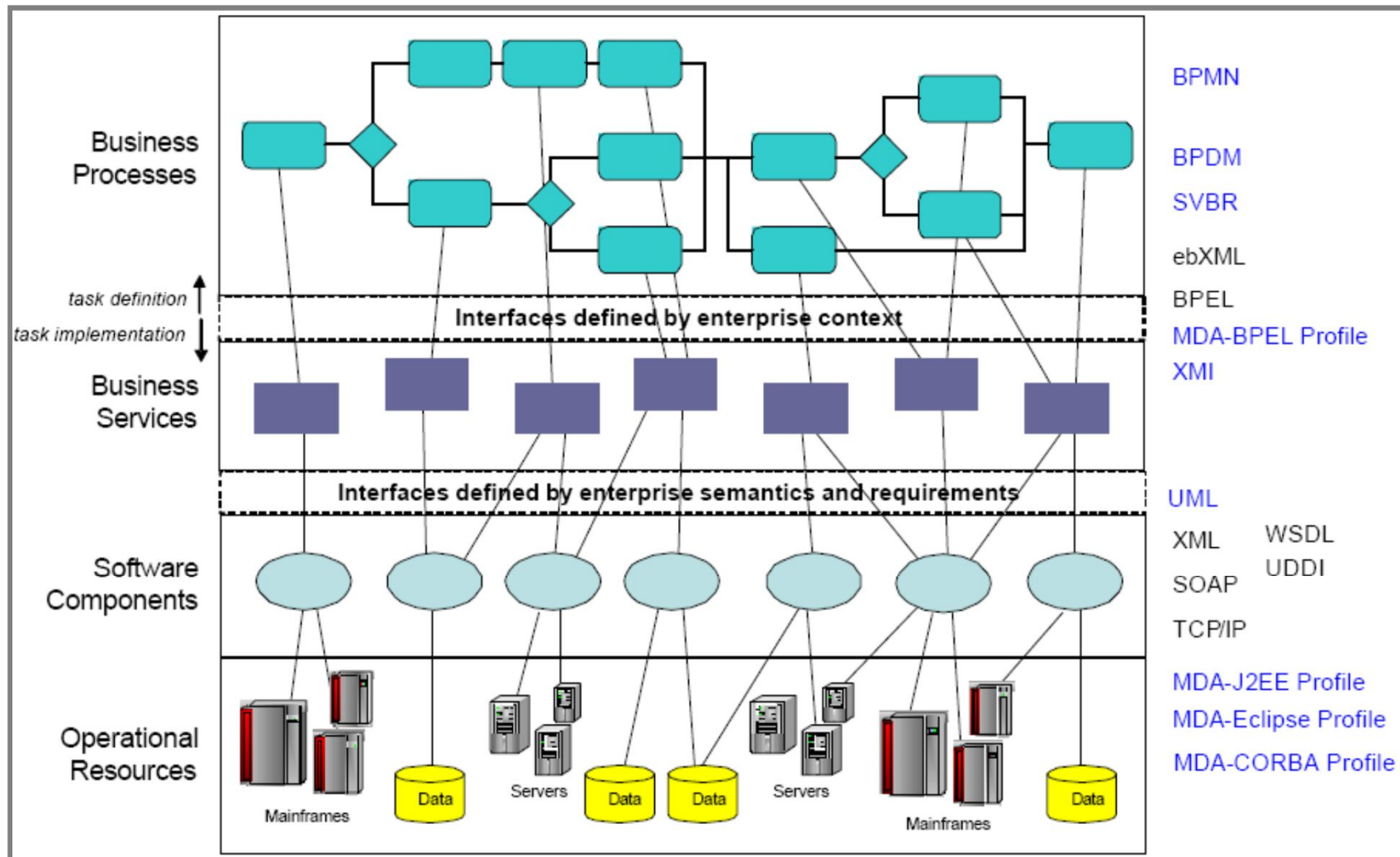
Source: Adapted from *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

Group workshop - Business Services and IT Alignment

1.5 hrs. brainstorm and 15 mins. presentation



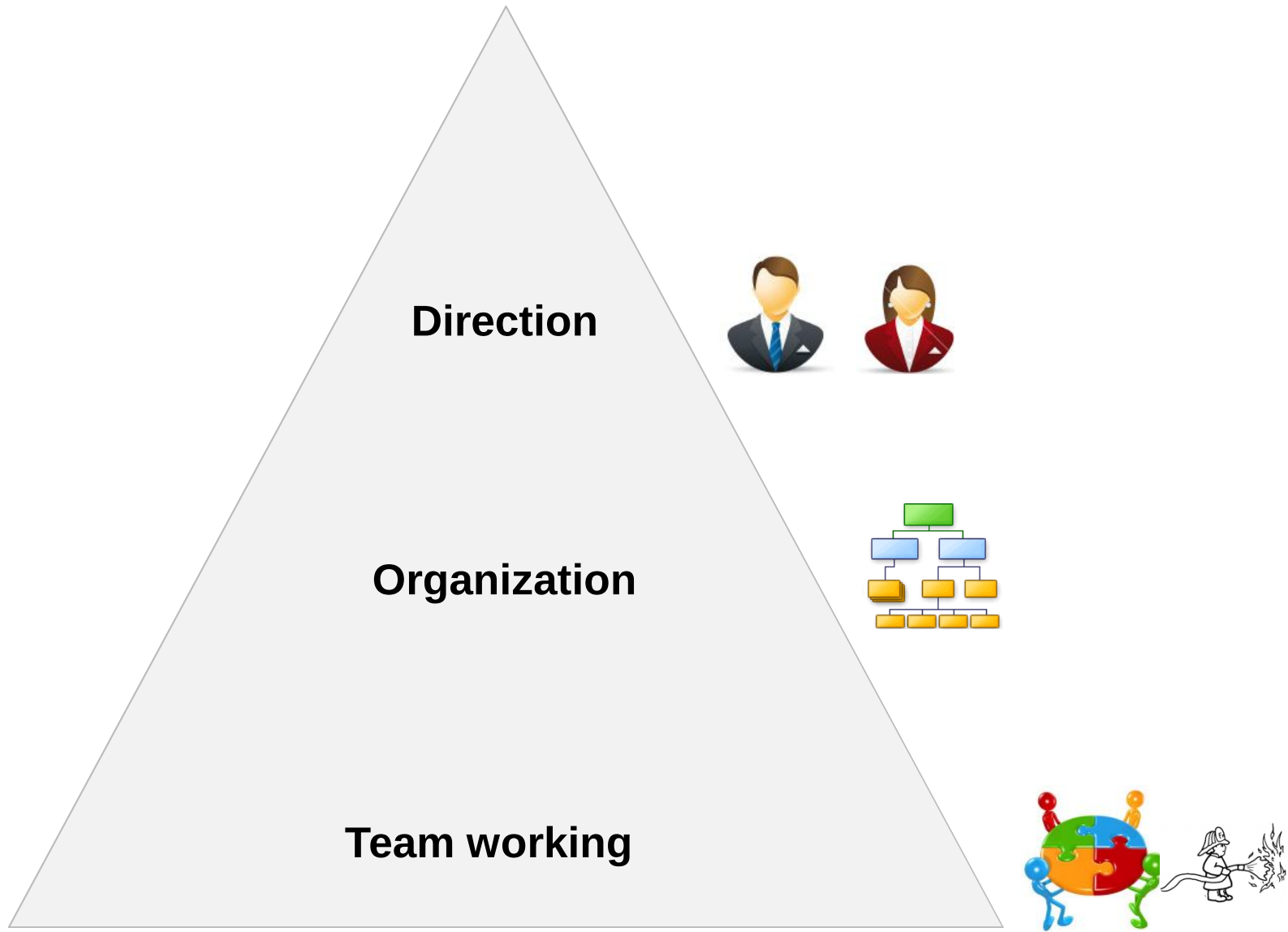
Object Management Group - Process Standards



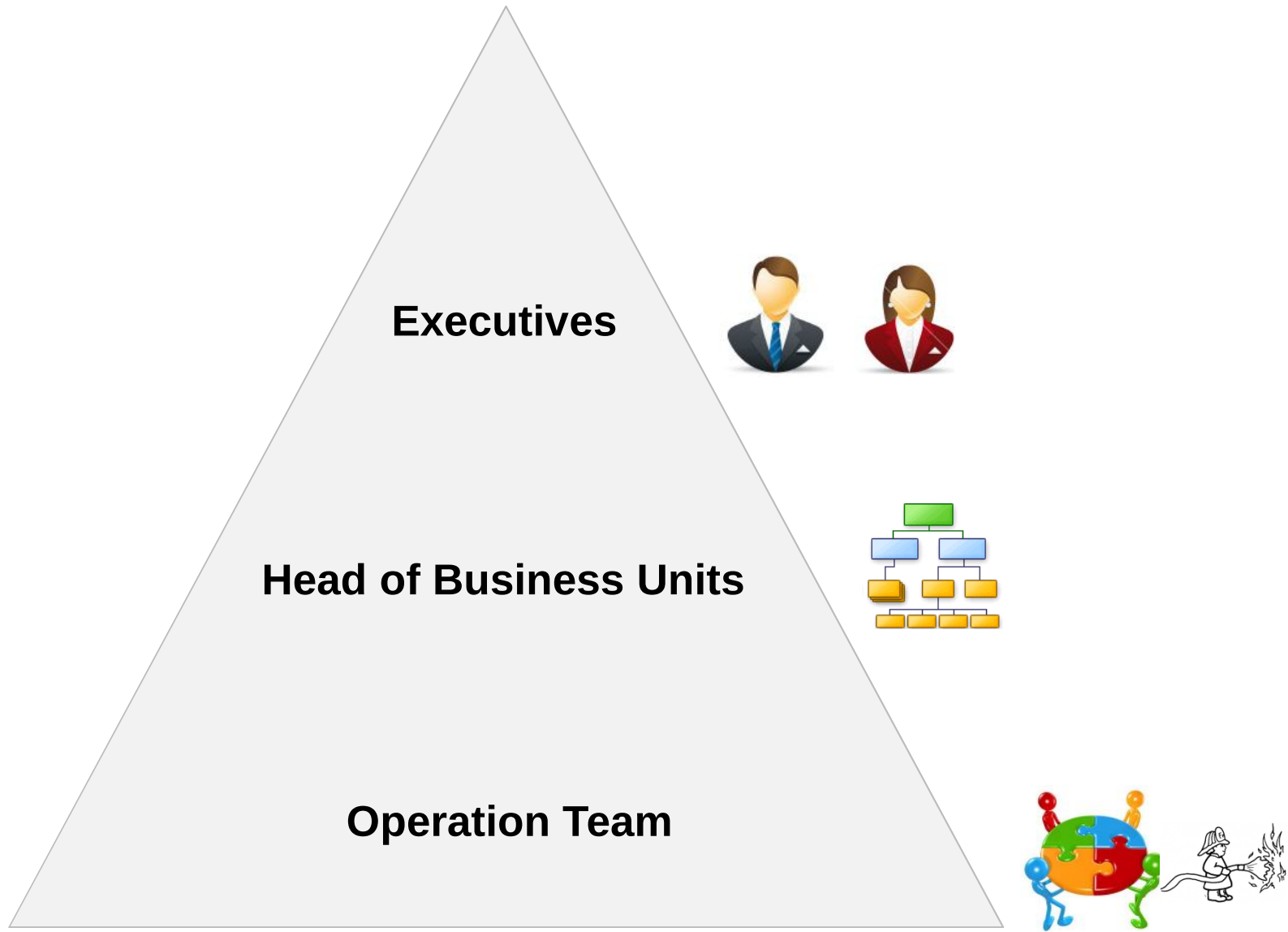
Omg.org

Data and Information Architecture

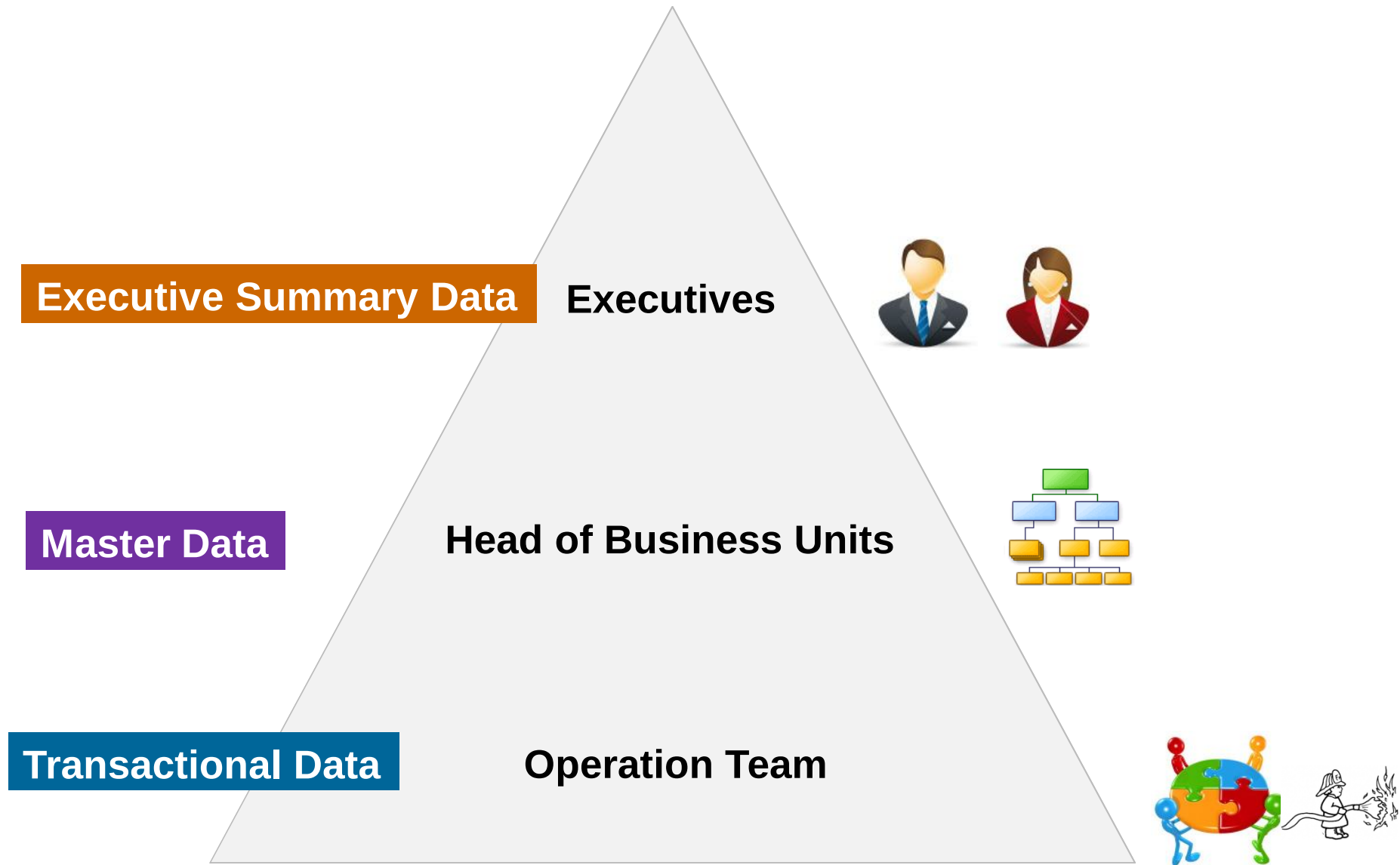
Discovering the Enterprise Data



Discovering the Enterprise Data

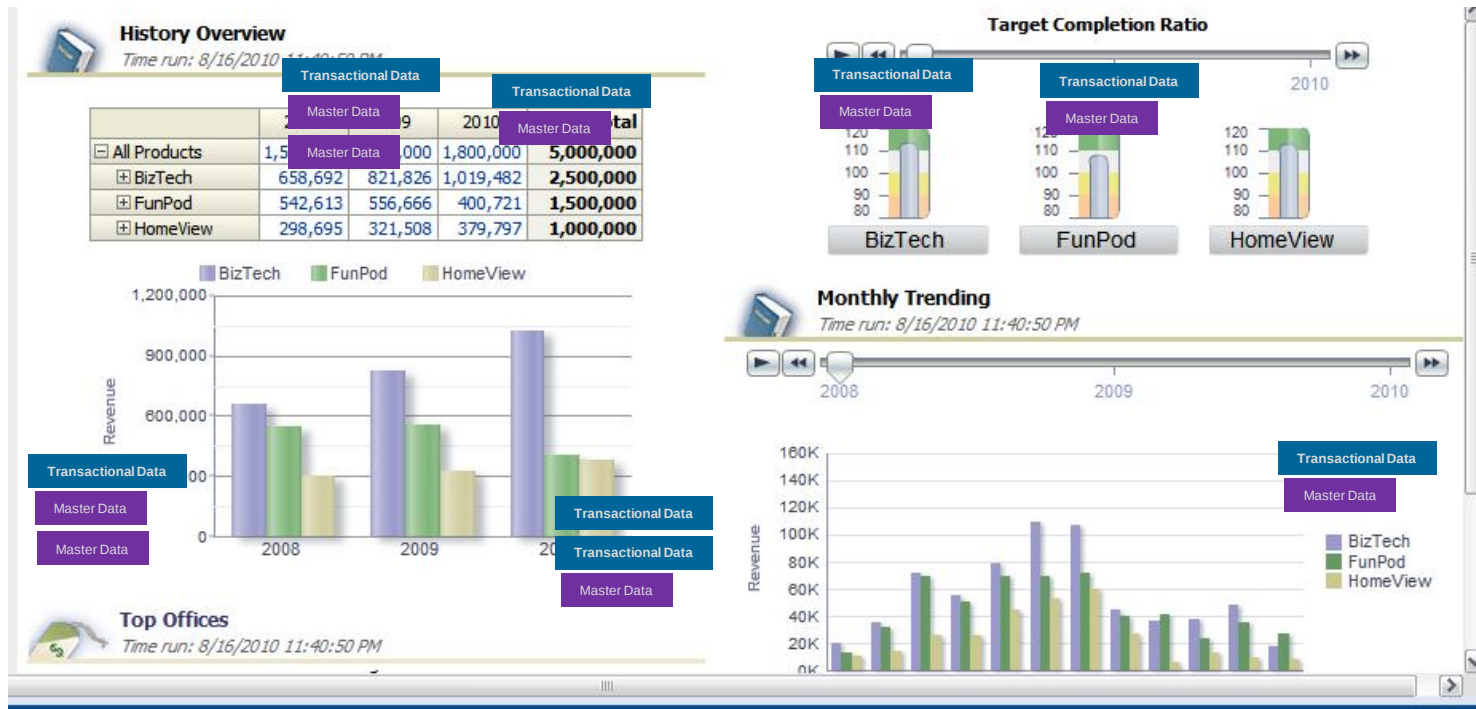


Discovering the Enterprise Data



Discovering The Enterprise Data

Drill in the Executive Reports

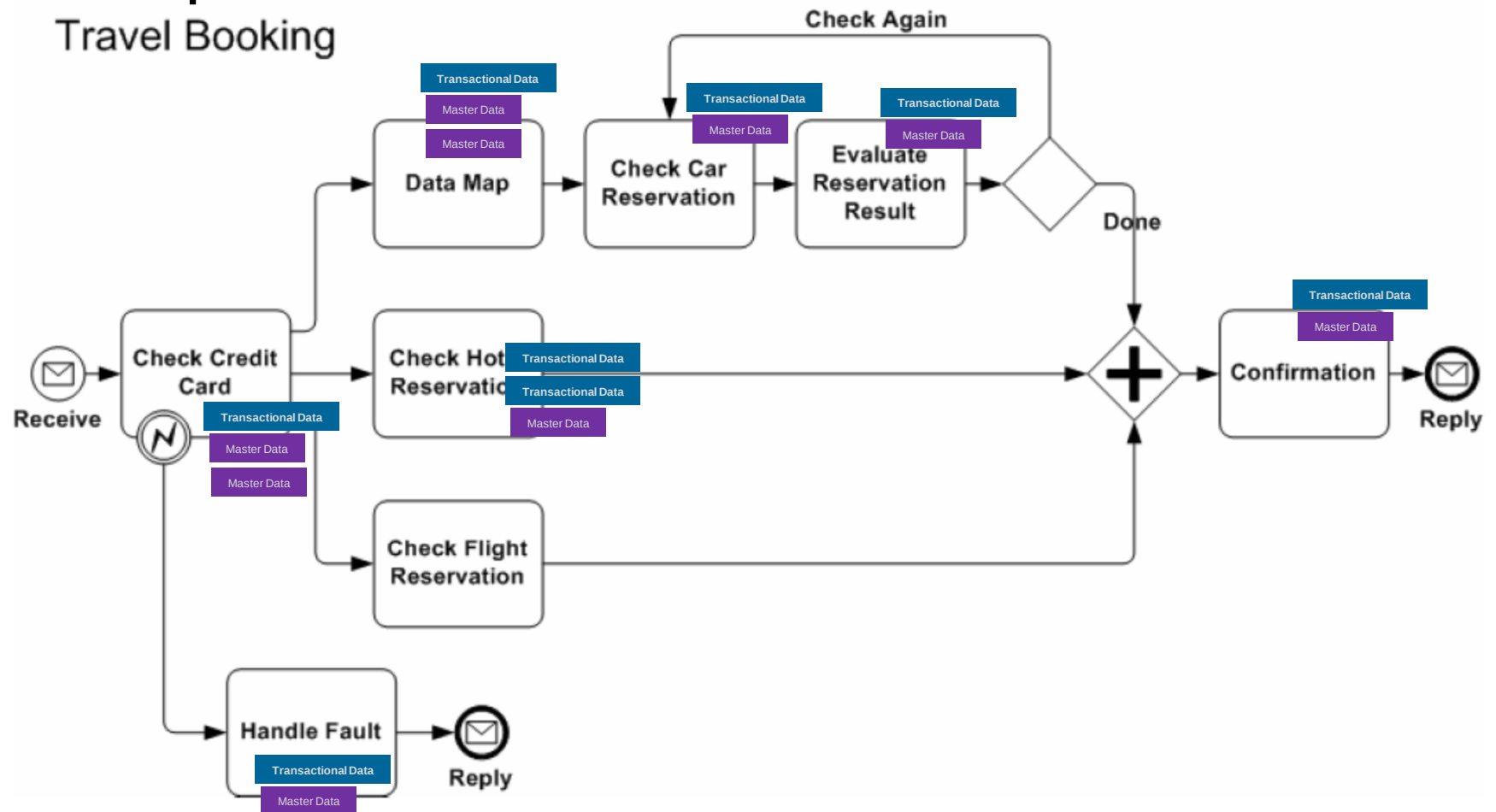


Discovery The Enterprise Data

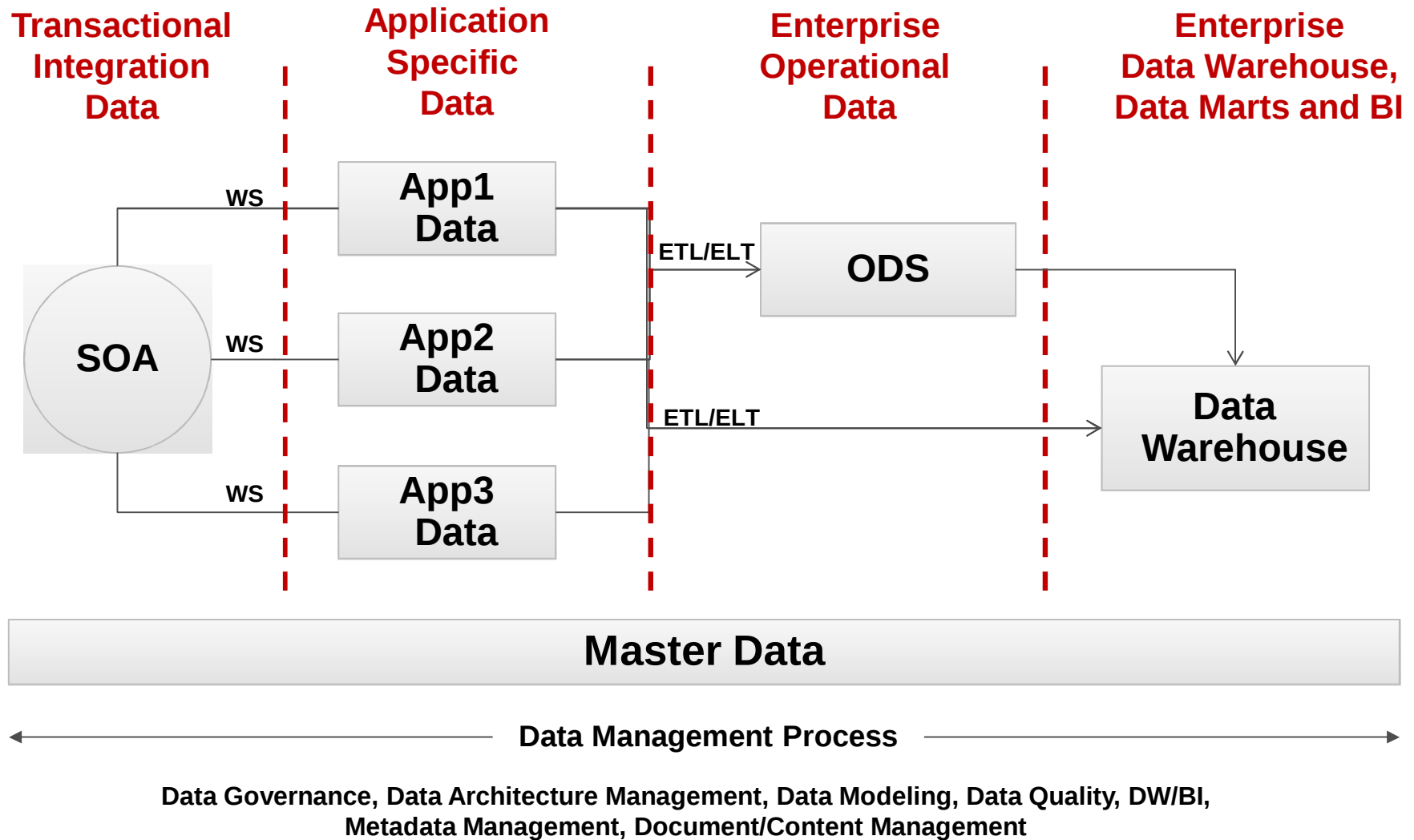
Drill in the Business Process

Example

Travel Booking



Enterprise Data Flow



Data Quality

The state of completeness, validity, consistency, timeliness and accuracy that makes data appropriate for an enterprise use

Three Main Data Quality Metrics

- Business Relevance
 - Executive Reports/Critical Business Process
- Accountability
- Controllability and Track-ability

Enterprise Data Quality Worksheet

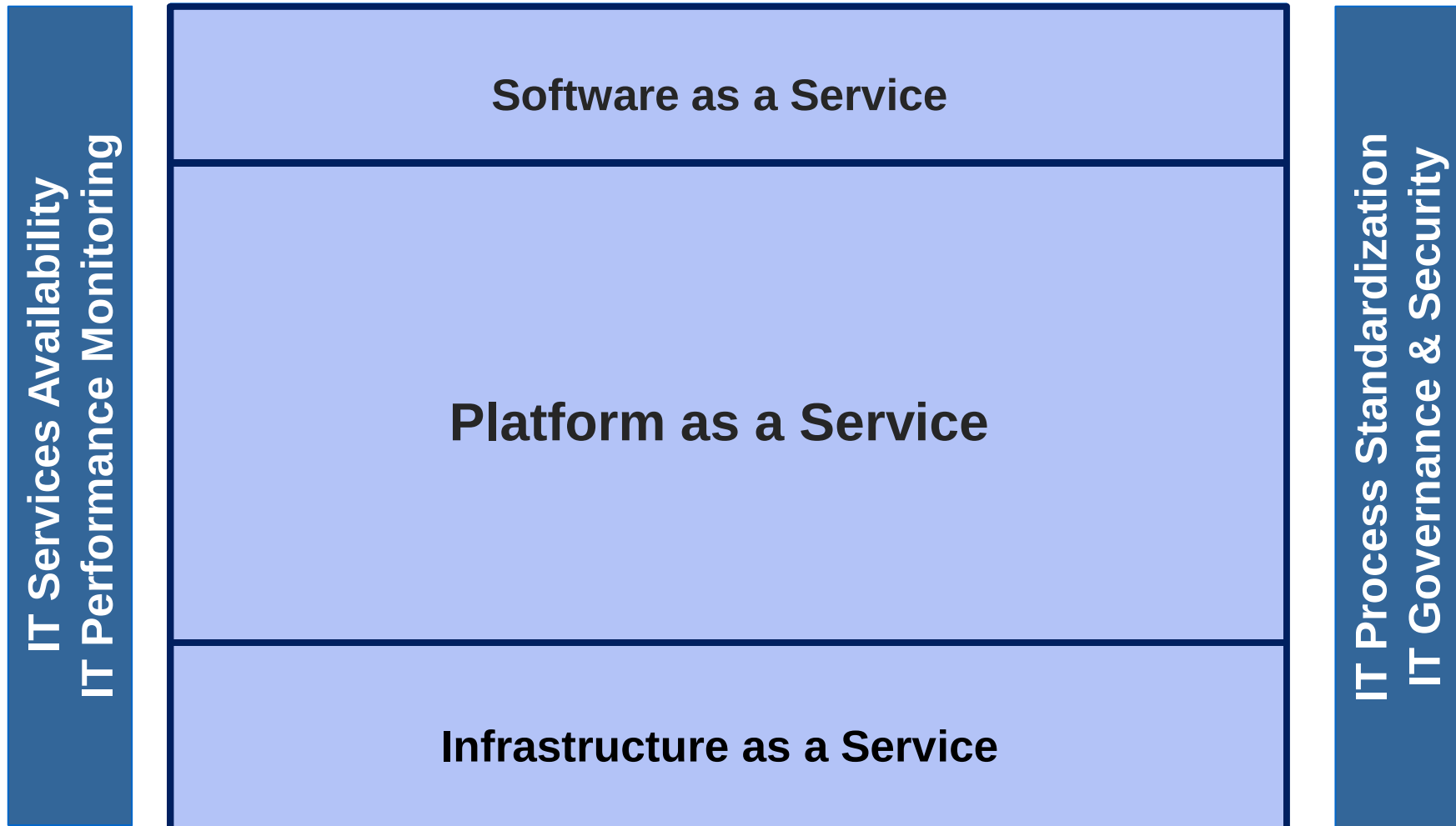
[illegible]

Data Management Scope – Table Matrix

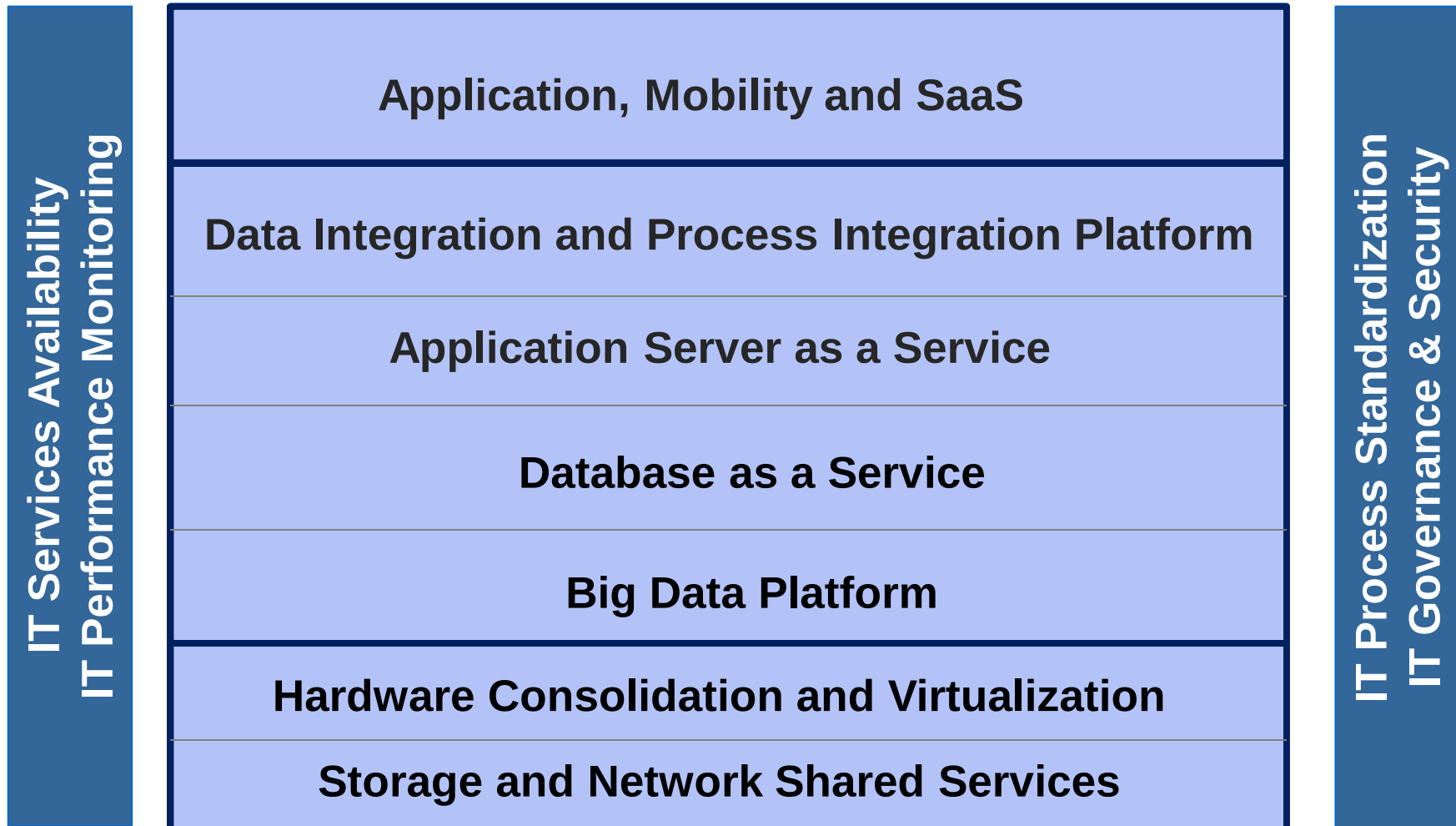
	Goals and Principles	Activities	Primary Deliverables	Roles and Responsibilities	Practices and Techniques	Technology	Organisation and Culture
Data Governance							
Data Architecture Management							
Data Development							
Data Operations Management	← Scope of Each Data Management Function →						
Data Security Management							
Data Quality Management							
Reference and Master Data Management							
Data Warehousing and Business Intelligence Management							
Document and Content Management							
Metadata Management							

Technology Architecture

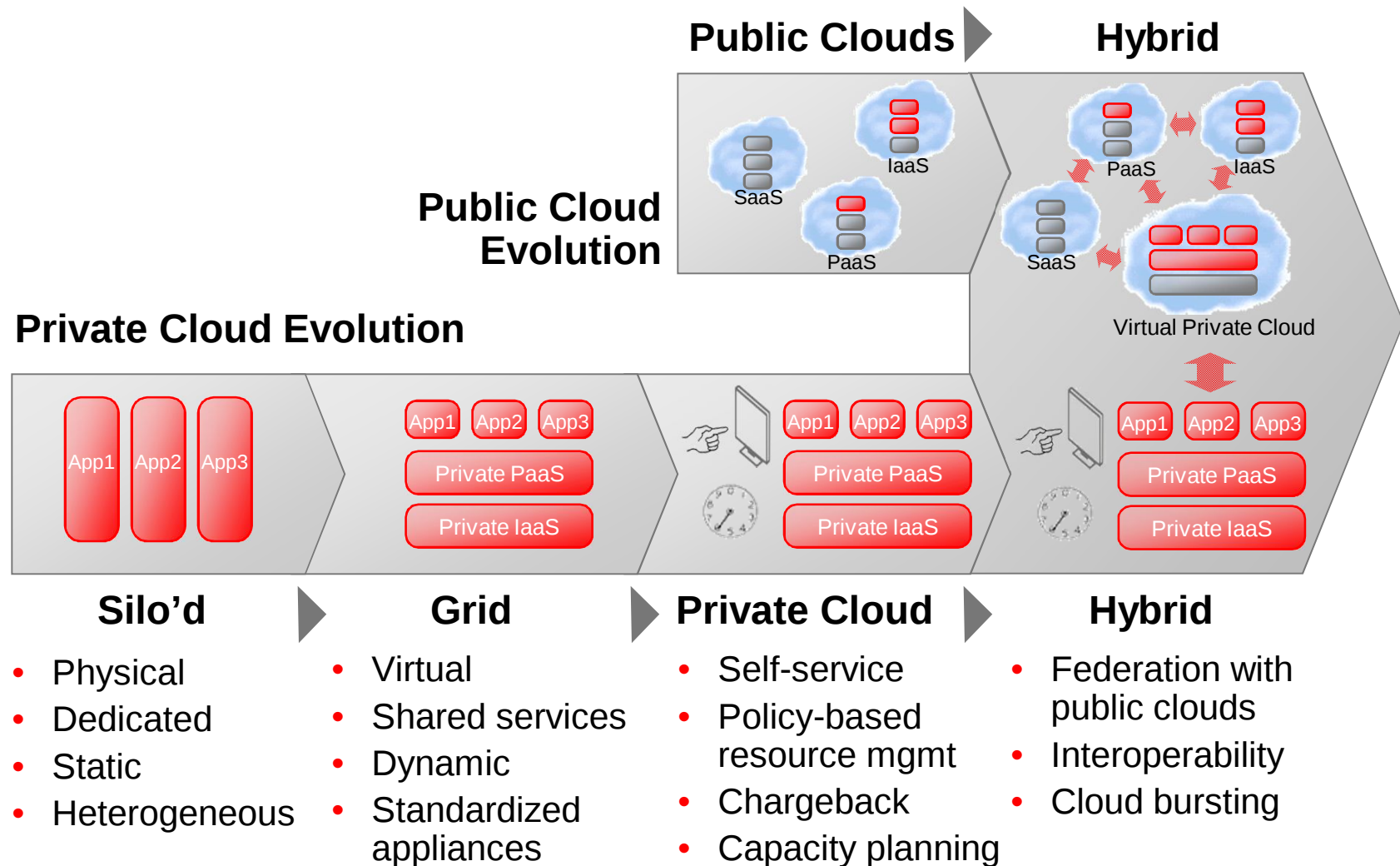
IT Shared Services Stack



IT Shared Services Stack

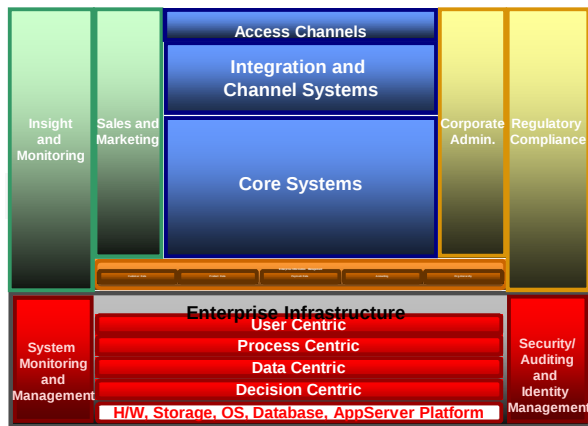


Cloud Roadmap



Technology Standard and Key Consideration

Database Server and Application Server



Database

- ANSI (American National Standards Institute) SQL
- DB Programming support
- DB and System Diagnostic and Tuning Tool
- Segregation of Duty Support
- Active-Active Clustering
- DB Machine

Application Server

- Open Development Framework
- Monitoring Matrix; eg. JMX, Managed Bean
- In-Memory Session Clustering
- Deployment Descriptor
- Declarative Transaction
- Declarative Security Access Control
- Application Server Machine

Enterprise Workflow Application

Task Form Display

Current Template: **ThreeRegionJSP**

Section: Rendering: Source

Header: **Default JSP** Footer1.jsp

Body: **Auto JSP** Body.jsp

Footer: **Default JSP** Footer1.jsp

[Help](#)

✓ Your request was processed successfully.

[10000] Purchase Order Approval for Antilla Electronics

State : ASSIGNED **Created Date** : 05/19/06 **Creator** : Antilla Electronics

Outcome: **Updated Date** : 05/19/06 09:32 AM **Acquired By:** jcooper

Priority : 3 **Expiration Date:** **Assignees** : Supervisor(U)

Purchase Order

Cust ID : Antilla Electronics string

ID : AS-0193 string

Name

First : DeGossaa string

Last : Calro string

Address

Street : 12, Burhon Street string

City : Danzig string

State : Godanzk string

Zip : PO-20398 string

Country : Poland string

Name

First : Mrs string

Last : Castro string

Oracle BPEL Worklist - Microsoft Internet Explorer

Address: http://localhost:9700/integration/worklistapp/TaskList

Acme Inc

Network Provisioning

User: jstein | Home | Logout

Search: My & Group Any Assigned Advanced Search

Home (My & Group Tasks)

Number	Title	Status	Assignee	Expiration Date	Actions
10096	Add Router in Engineering	Assigned	jstein (U)	Apr 8, 2005 11:00 PM	-- Select an Action --
10097	Add LAN Ports in Sales Conference	Assigned	jstein (U)	Apr 3, 2005 12:00 AM	-- Select an Action --
10098	Add Network Capacity in Chicago Field Office	Assigned	jstein (U)	Apr 4, 2005 11:00 PM	-- Select an Action --
10099	Add Firewall in Sales Demo Hosting	Assigned	jstein (U)	Apr 8, 2005 11:00 PM	-- Select an Action --
10100	Add Router in QA Lab	Assigned	jstein (U)	Apr 8, 2005 11:00 PM	-- Select an Action --

[1 - 5] Next

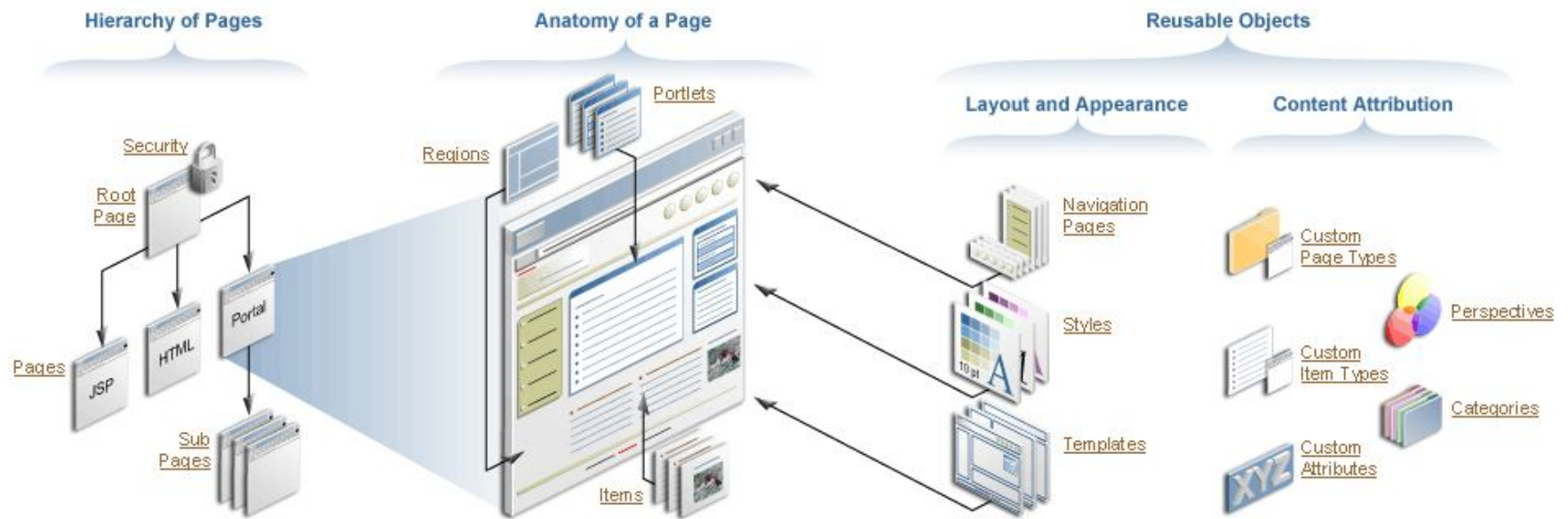
Page refreshed on Mar 30, 2005 1:05 PM

Local intranet

My & Group Tasks Chart

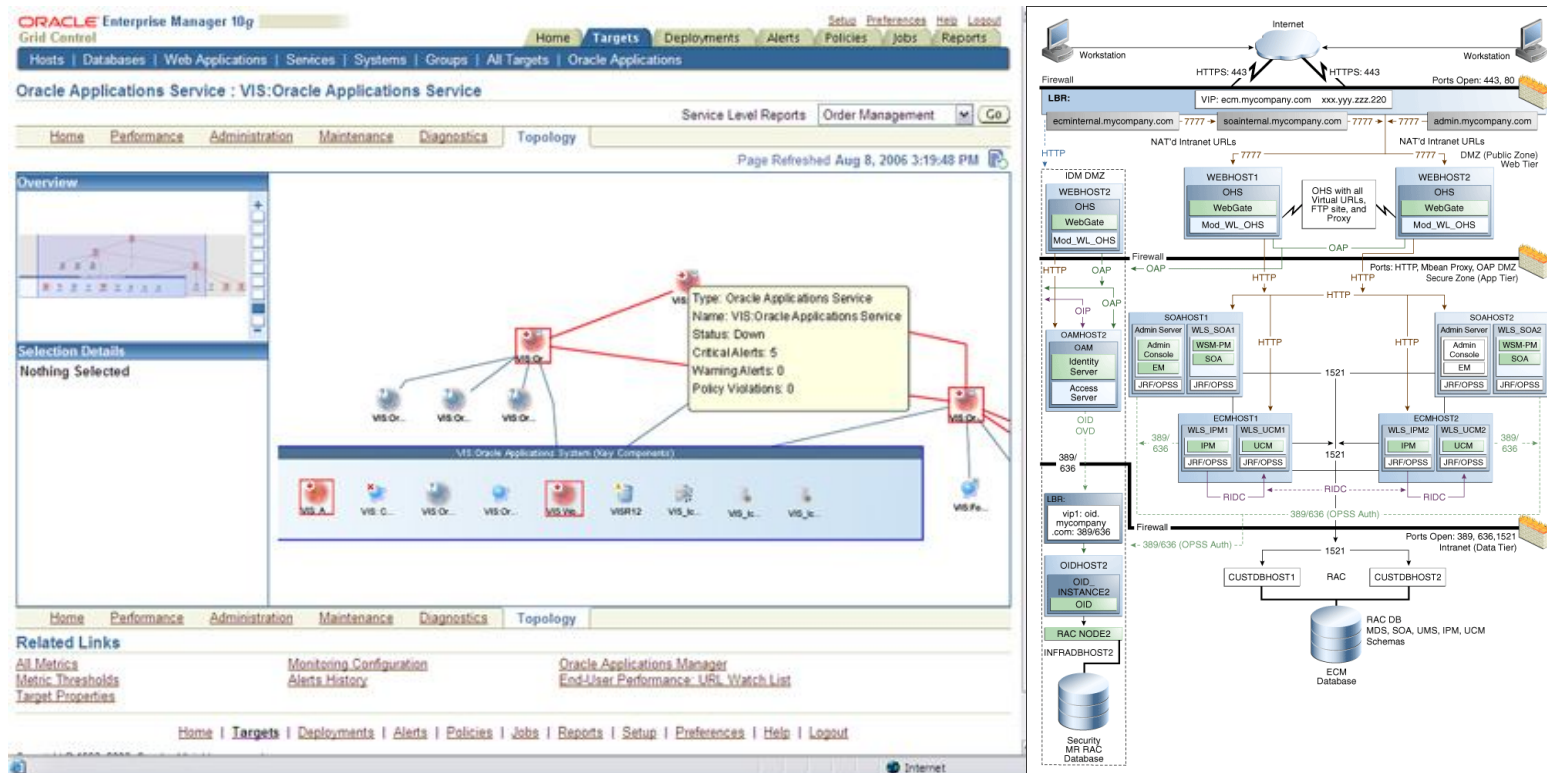
Status	Count
Assigned	6
Completed	1
Expired	0
Total	7

Web Portal Anatomy



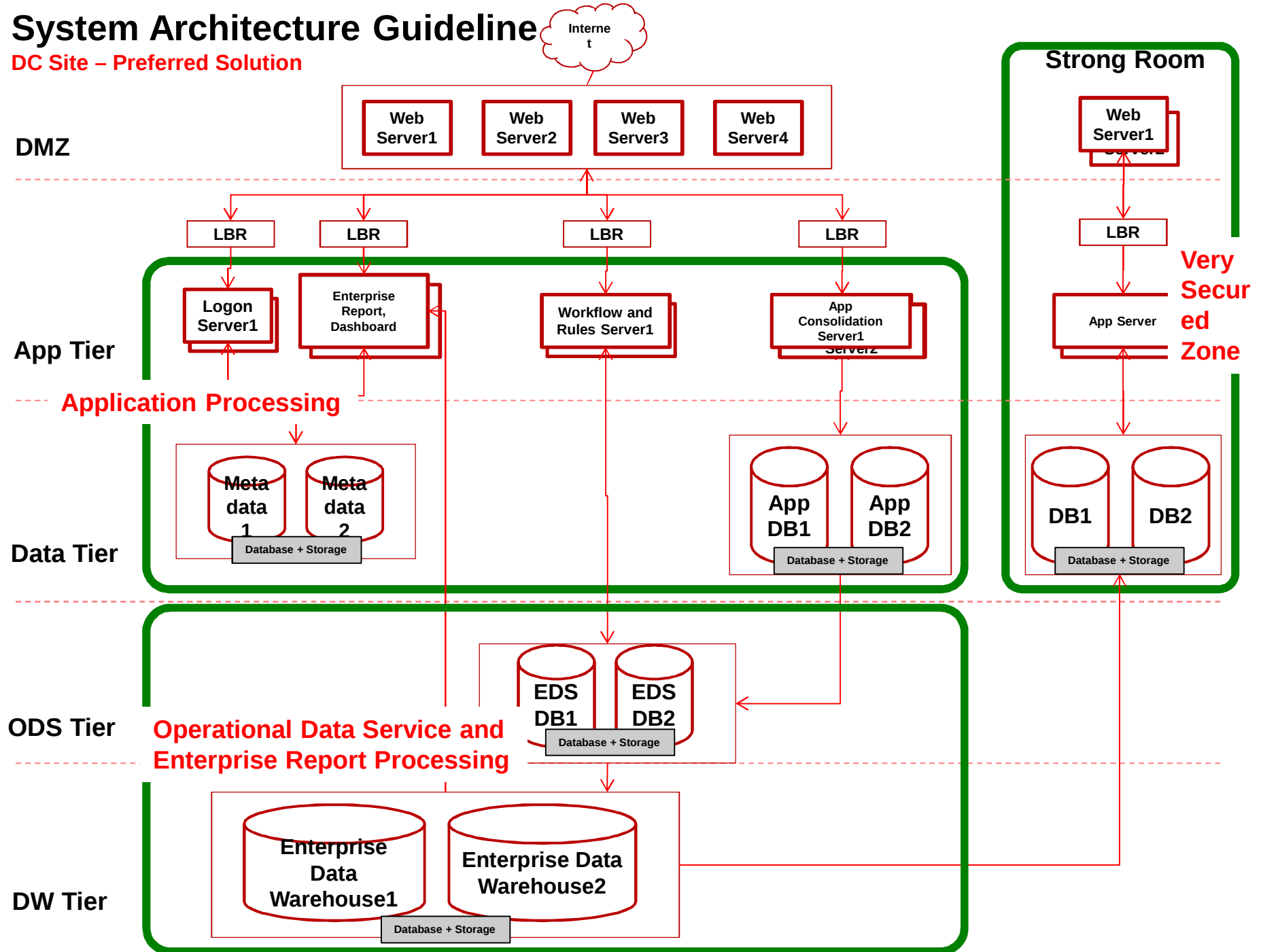
Monitoring and Management Technology

Various Technologies in open communication protocol and standard operation procedure



System Architecture Guideline

DC Site – Preferred Solution



Linking Application to Business Goals

Owner: Business Units

Business Objectives

#	Business Goals	Business Objectives	Owner	Supported by Business Processes	Remarks

Business Processes

#	Business Process Name	Owner	Strategic Business Process (Y/N)	Main Service Description	Main Business Users (Sales,Marketing, Core Processing, Corp Admin)	High Level Business Process (Please attach up-to-date document)	Expected Transaction Complete Duration (hr,day,week)	Actual Transaction Complete Duration (hr,day,week)	Total of Transaction / year	% of Transaction Duration done by automated system	Supported by Application(s)	Current Issues	Remarks

Linking Application to Business Goals

Owner: Technology Unit

Applications



#	Application Name	Owner	High Level Application Flow with User (SOD) Roles Partitioning (please attach up-to-date document)	Application Integration Details (Online/Batch) to which systems	Data Required	Current Issues	Remarks

Owner: Business Unit

Data



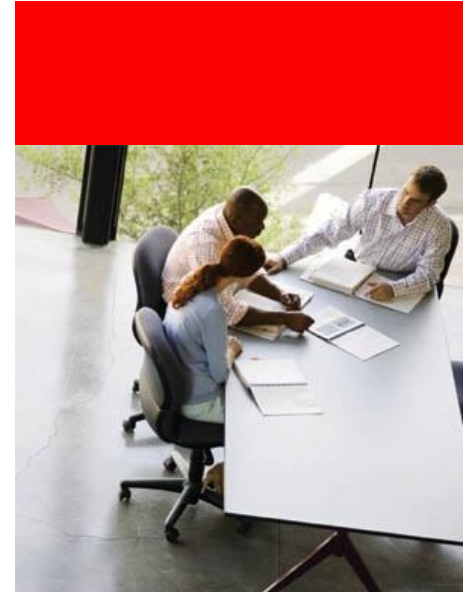
#	Master Data Name	Owner	Description	Change Control of master data (Y/N)	Sample of data structure if any	Current Issues	Ramarks

Owner: Technology Unit

Technology

[illegible]

Strategic Roadmap



Strategic Roadmap

<Sample>

		Current State	<Named Transition>	<Named Transition>	Future State
Business Architecture	Business Objectives	Maximize ROI of local business initiatives	Optimize IT efficiency and lower IT costs	Standardize cost, quality & consistency of business ops. Leverage knowledge across BUS	Increase speed to market and strategic agility
	Bus Op Model	Diversified	Coordinated	Replicated	Unified
	Business / IT Strategy	Maximize local business unit agility by maintaining full autonomy	Share IT infrastructure across business units for IT efficiency	Share core processes and/or data for business operational efficiency	Provide plug-and-play business process modules for strategic agility across enterprise
	EA Maturity	Business Silos	Standardized Technology	Optimized Core	Business Modularity
Application Architecture	Architecture Strategy	Customize & optimize local apps for BU needs	Provide shared infrastructure services via apps rationalization	Rationalize, standardize and optimize core business processes. Deploy enterprise apps.	Create/deploy/reuse plug-and-play business process components
Information Architecture	Architecture Strategy	Maintain data for BU needs	Rationalize data used by shared services	Standardize data assets and interchanges. Integrate and share info across BUs and COIs	Provide real time BI and implement predictive models
Technology Architecture	Architecture Strategy	Optimize platform for individual applications & data access via tuning configurations	Standardize tech; provide shared infrastructure platform	Optimize platform for shared core business apps/processes & data via virtualization	Fully leverage a service-oriented architecture

Strategic Roadmap

		Current State	<Named Transition>	<Named Transition>	<Named Transition>
Business Architecture	Business Objectives				
	Bus Operating Model				
	Business / IT Strategy				
	EA Maturity	Business Silo	Standardization	Optimization	Business Modularity
Application Architecture	Architecture Strategy				
Information Architecture	Architecture Strategy				
Technology Architecture	Architecture Strategy				

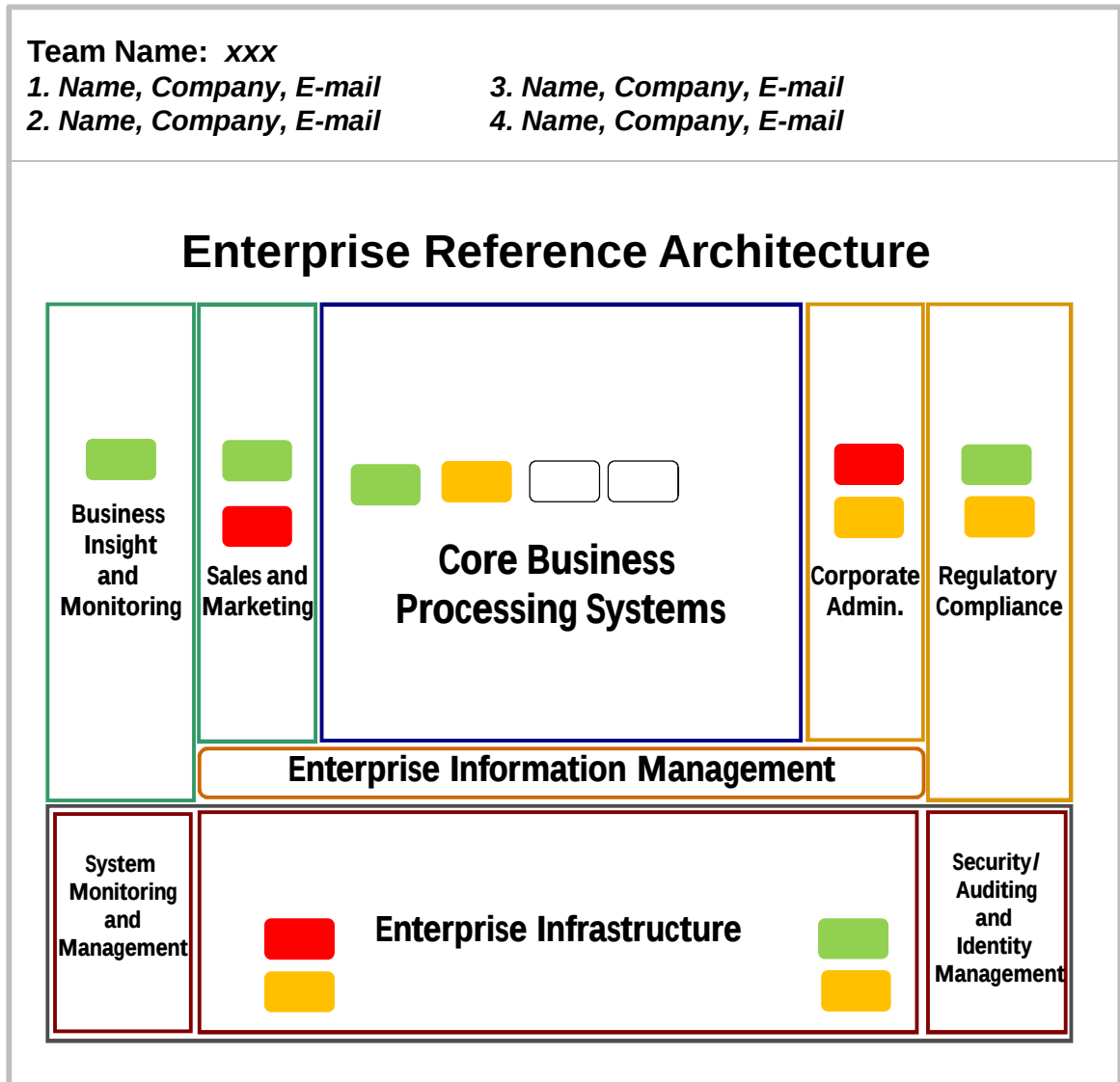
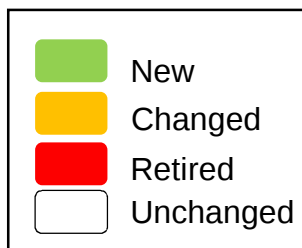
Proposed Implementation

<Sample>

Solution/ Initiative	Project	Standardization & Optimization				Growth			
		2014		2015		2016		2017	
		H1	H2	H1	H2	H1	H2	H1	H2
Information Standardization	Common Data Model								
	Common Information Exchange								
Dev Stabilization	Development Standards								
Business Process Optimization & Application Rationalization	Customer Service								
	Web-based Access								
	Carrier Interfaces								
	Billing / Refills								
	Business Intelligence								
IT Consolidation & Standardization	Unified DB Services								
	Unified Application Services								
	"Initiative" Services								

Group Workshop – Enterprise Business Process Future State

Write down your future state



Summary

- Enterprise Reference Architecture
- Architecture Development Process
 - Business Architecture
 - Application Architecture
 - Data Architecture
 - Technology Architecture
- Strategic Roadmap

Thank you very much.