Enterprise Architecture II & Architecture-Management

Hans-Peter Hoidn

hans-peter.hoidn@ch.ibm.com

December 10, 2007

© Copyright IBM Corporation 2007

Agenda

I. Case 3 – Presentations

II. EA Architecture Framework

III. Business Architecture through CBM (Component Business Modeling)

IV. Governance

V. SOA Governance

© Copyright IBM Corporation 2007

I. Case 3 – Presentations

© Copyright IBM Corporation 2007

II. EA Architecture Framework

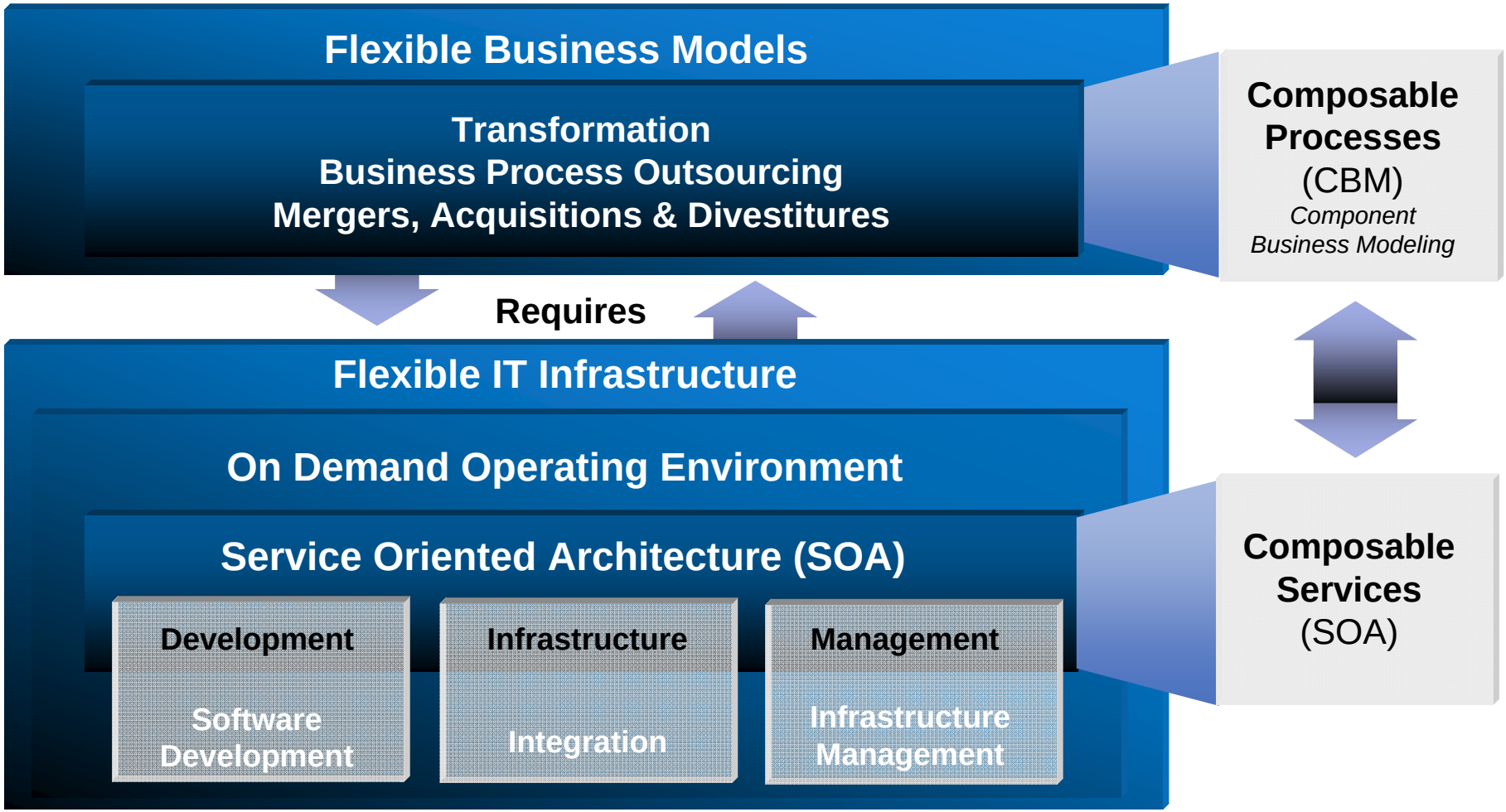
© Copyright IBM Corporation 2007

III. Business Architecture through CBM (Component Business Modeling)

© Copyright IBM Corporation 2007

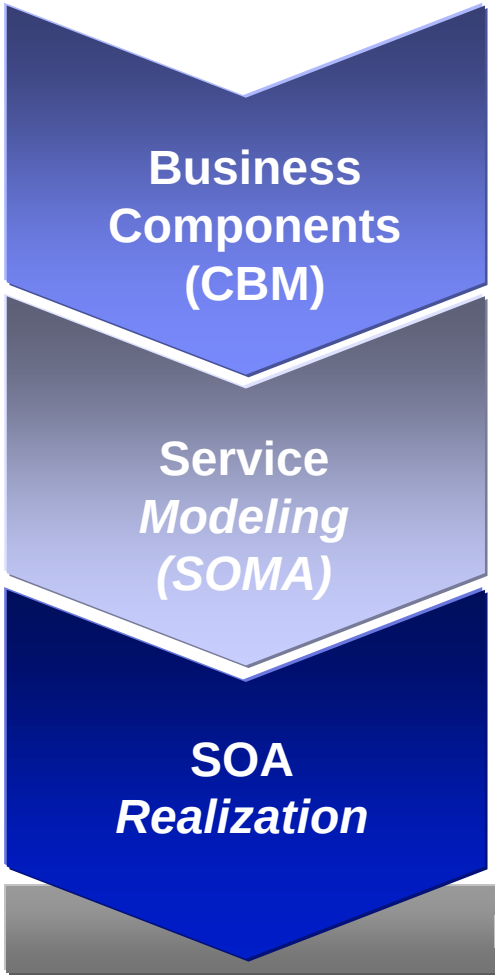
Greater Flexibility Is Required

From Business Models and the Supporting IT Architecture



© Copyright IBM Corporation 2007

Best implementations start with business design or a master plan – approach for SOA



Step 1: Break down your business into components

- Decide what is strategically important, and what is just operations in the value chain domains
- Analyze the different KPIs attached to these components
- Prioritize and scope your transformation projects

Step 2: Define a Service Model

- Identify your services based on your business components
- Specify the services and components accordingly
- *Make SOA realization decisions based on architectural decisions*

Step 3: Implement a Service Model

- Develop a service-oriented architecture to support the Componentized Business
- Implement service based scoping policy for projects
- Implement appropriate governance mechanism

Business-Aligned IT Architecture

© Copyright IBM Corporation 2007

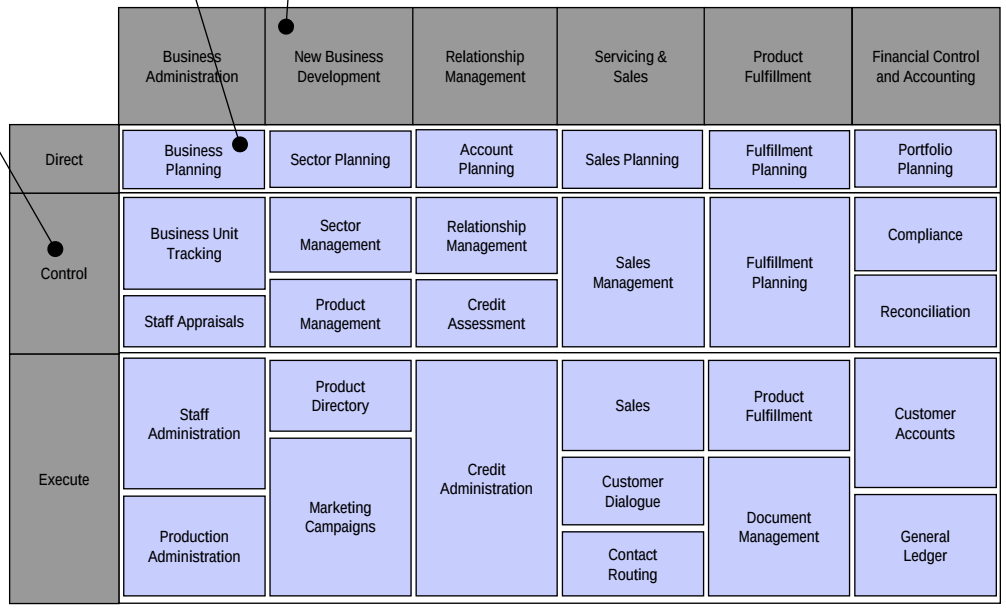
Component Business Model

A **Business Component** is a part of an enterprise that has the potential to operate autonomously, for example, as a separate company, or as part of another company.

Columns are Business Competencies, defined as large business areas with characteristic skills and capabilities, for example, product development or supply chain.

An **Operational Level** characterizes the scope of decision making. The three levels used in CBM are direct, control and execute.

- Direct is about strategy, overall direction and policy.
- Control is about monitoring, managing exceptions and tactical decision making
- Execute is about doing the work

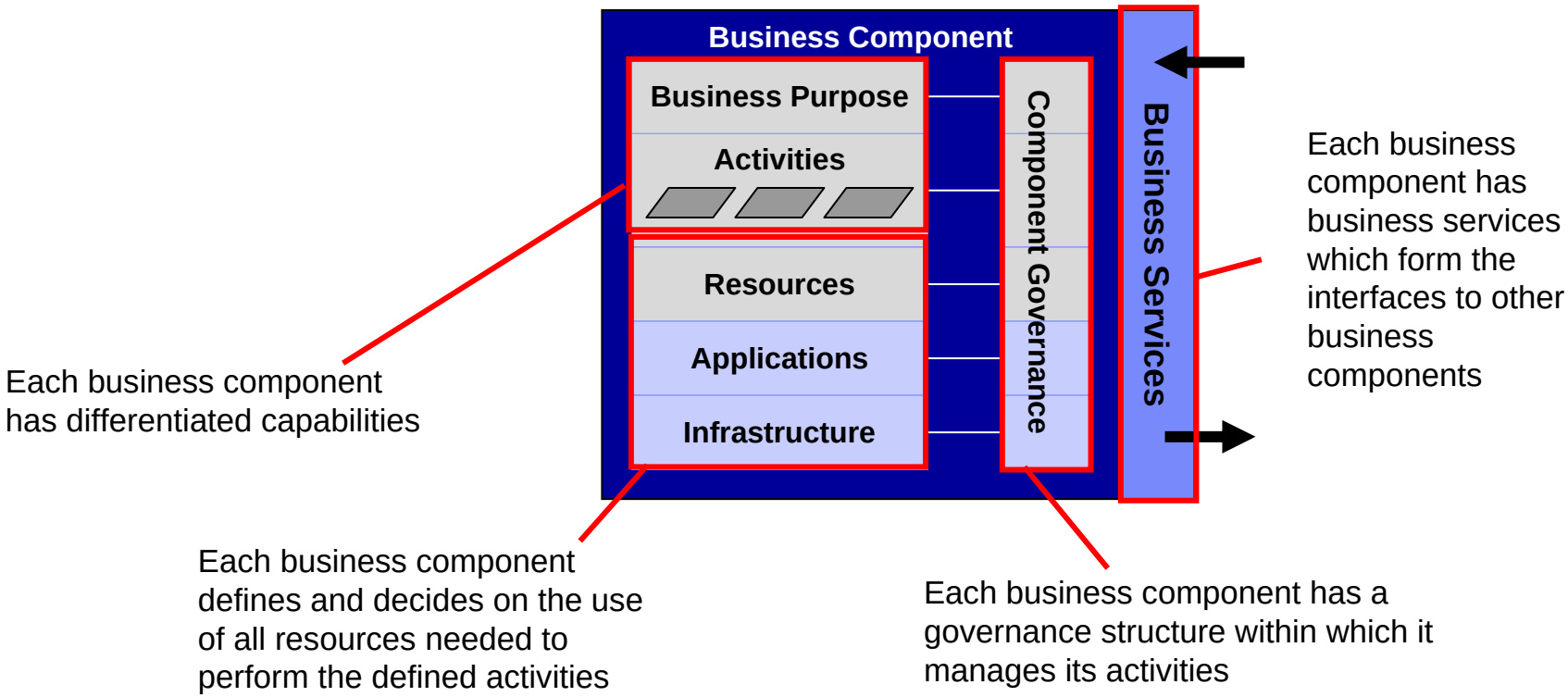


© Copyright IBM Corporation 2007

The building block of a component business model is a 'business component'

A component is a business in microcosm. It has activities, resources, applications, infrastructure. It has a governance model. It provides goods and services (business services)

Business Component Elements



© Copyright IBM Corporation 2007

Deconstruct & Conquer: *The Component Business Model*

1 2 3 4 First, break down your business into its components

Example: Consumer Packaged Goods

	Product Management	Customer Relationship	Manufacturing	Supply Chain & Distribution	Business Administration
Strategy	Category/Brand Strategy	Customer Relationship Strategy	Manufacturing Strategy	Supply Chain Strategy	Corporate Strategy
	Category/Brand Planning	Customer Relationship Planning	Supplier Relationship Management	Supply Chain Planning	Corporate Planning
			Production and Materials Planning		Alliance Management
					Line of Business Planning
Tactics	Brand P&L Management	Assessing Customer Satisfaction		Distribution Oversight	Business Performance Management
	Matching Supply and Demand	Customer Insights	Manufacturing Oversight	Inbound Logistics / Outbound Logistics	External Market Analysis
	Marketing Development & Effectiveness	Account Management			Organization and Process Design
	Product Ideation		Supplier Control		Legal and Regulatory Compliance
Execution	Concept/Product Testing	Value-Added Services	Make Products		Treasury and Risk Management
	Product Development	Customer Account Servicing	Assemble/Pkg. Products	Distribution Center Operations	Accounting and GL
	Product Management	Retail Marketing Execution	Plant Inventory Management		Indirect Procurement
	Marketing Execution	In-store Inventory Mgmt		Transportation Resources	Facilities and Equipment Management
	Consumer Service		Manufacturing Procurement		HR Administration
	Product Directory	Customer Directory		En Route Inventory Management	IT Systems and Operations

© Copyright IBM Corporation 2007

Deconstruct & Conquer: *The Component Business Model*

1 2 3 4 Next, decide what's differentiating and what is simply operating

Example: Consumer Packaged Goods

Strategic View

- **Strategic differentiation**
- **Competitive parity**
- **Basic**

	Product Management	Customer Relationship	Manufacturing	Supply Chain & Distribution	Business Administration
Strategy	Category/Brand Strategy	Customer Relationship Strategy	Manufacturing Strategy	Supply Chain Strategy	Corporate Strategy
	Category/Brand Planning	Customer Relationship Planning	Supplier Relationship Management	Supply Chain Planning	Corporate Planning
			Production and Materials Planning		Alliance Management
					Line of Business Planning
Tactics	Brand P&L Management	Assessing Customer Satisfaction		Distribution Oversight	Business Performance Management
	Matching Supply and Demand	Customer Insights	Manufacturing Oversight	Inbound Logistics / Outbound Logistics	External Market Analysis
	Marketing Development & Effectiveness	Account Management			Organization and Process Design
	Product Ideation		Supplier Control		Legal and Regulatory Compliance
Execution	Concept/Product Testing	Value-Added Services	Make Products		Treasury and Risk Management
	Product Development	Customer Account Servicing	Assemble/Pkg. Products	Distribution Center Operations	Accounting and GL
	Product Management	Retail Marketing Execution	Plant Inventory Management		Indirect Procurement
	Marketing Execution	In-store Inventory Mgmt		Transportation Resources	Facilities and Equipment Management
	Consumer Service		Manufacturing Procurement		HR Administration
	Product Directory	Customer Directory		En Route Inventory Management	IT Systems and Operations

© Copyright IBM Corporation 2007

Deconstruct & Conquer: *The Component Business Model*

1 2 3 4 Then, analyze costs

Example: Consumer Packaged Goods

Financial View

- **High capital area**
- **High cost area**
- **High cost & capital area**

	Product Management	Customer Relationship	Manufacturing	Supply Chain & Distribution	Business Administration
Strategy	Category/Brand Strategy Category/Brand Planning	Customer Relationship Strategy Customer Relationship Planning	Manufacturing Strategy Supplier Relationship Management Production and Materials Planning	Supply Chain Strategy Supply Chain Planning	Corporate Strategy Corporate Planning Alliance Management Line of Business Planning
Tactics	Brand P&L Management Matching Supply and Demand Marketing Development & Effectiveness Product Ideation	Assessing Customer Satisfaction Customer Insights Account Management	Manufacturing Oversight Supplier Control	Distribution Oversight Inbound Logistics Outbound Logistics	Business Performance Management External Market Analysis Organization and Process Design Legal and Regulatory Compliance
Execution	Concept/Product Testing Product Development Product Management Marketing Execution Consumer Service Product Directory	Value-Added Services Customer Account Servicing Retail Marketing Execution In-store Inventory Mgmt Customer Directory	Make Products Assemble/Pkg. Products Plant Inventory Management Manufacturing Procurement	Distribution Center Operations Transportation Resources En Route Inventory Management	Treasury and Risk Management Accounting and GL Indirect Procurement Facilities and Equipment Management HR Administration IT Systems and Operations

© Copyright IBM Corporation 2007

Deconstruct & Conquer: *The Component Business Model*

1 2 3 4 Finally, prioritize your transformation initiatives

Example: Consumer Packaged Goods

Transformational View

- **Seek external provider / external utility**
- **Consolidate and/or create internal utility**
- **Integrate and redesign**
- **No action**

	Product Management	Customer Relationship	Manufacturing	Supply Chain & Distribution	Business Administration
Strategy	Category/Brand Strategy Category/Brand Planning	Customer Relationship Strategy Customer Relationship Planning	Manufacturing Strategy Supplier Relationship Management Production and Materials Planning	Supply Chain Strategy Supply Chain Planning	Corporate Strategy Corporate Planning Alliance Management Line of Business Planning
Tactics	Brand P&L Management Matching Supply and Demand Marketing Development & Effectiveness Product Ideation	Assessing Customer Satisfaction Customer Insights Account Management	Manufacturing Oversight Supplier Control	Distribution Oversight Inbound Logistics Outbound Logistics	Business Performance Management External Market Analysis Organization and Process Design Legal and Regulatory Compliance
Execution	Concept/Product Testing Product Development Product Management Marketing Execution Consumer Service Product Directory	Value-Added Services Customer Account Servicing Retail Marketing Execution In-store Inventory Mgmt Customer Directory	Make Products Assemble/Pkg. Products Plant Inventory Management Manufacturing Procurement	Distribution Center Operations Transportation Resources En Route Inventory Management	Treasury and Risk Management Accounting and GL Indirect Procurement Facilities and Equipment Management HR Administration IT Systems and Operations

© Copyright IBM Corporation 2007

III. Governance

© Copyright IBM Corporation 2007

What is Governance?

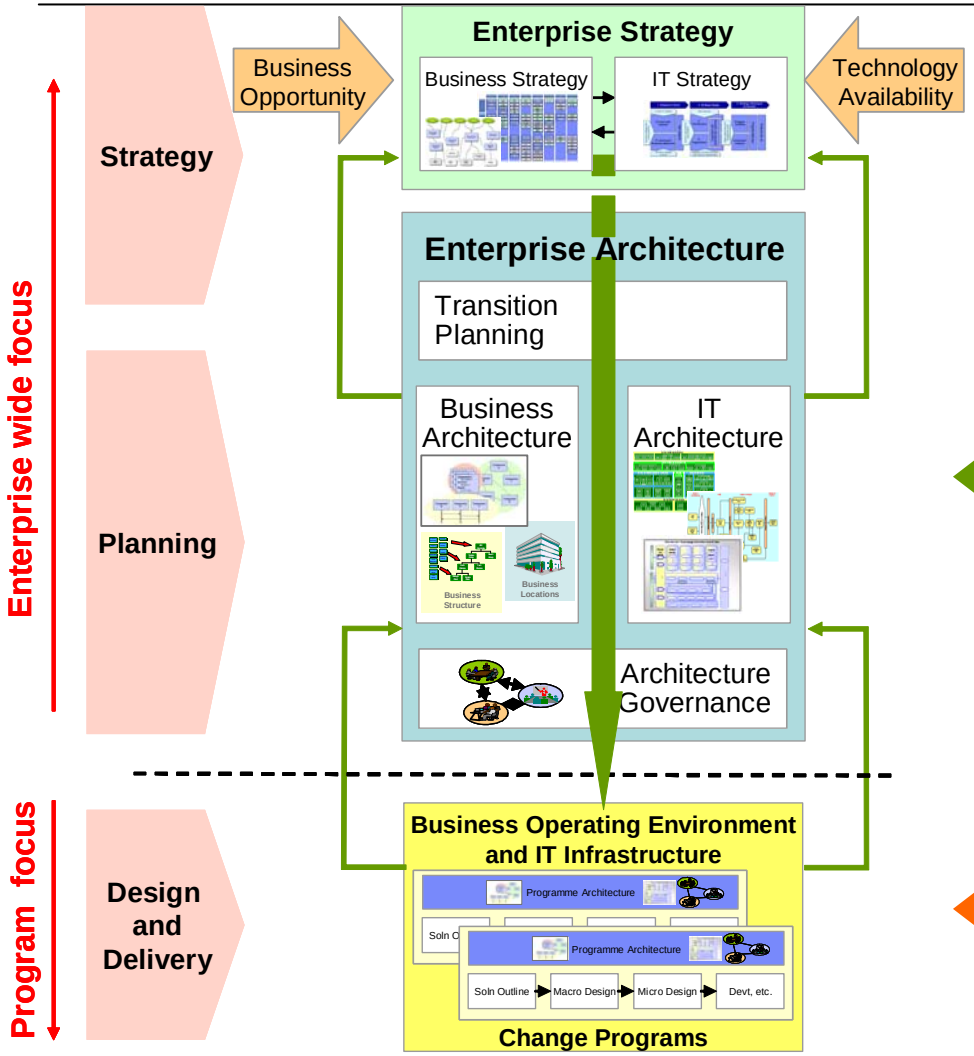
Establishing chains of responsibility, authority and communication to **empower** people (decision rights)

Establishing measurement, policy and control mechanisms to **enable** people to carry out their roles and responsibilities

- Corporate Governance
- IT Governance
- EA Governance
- SOA Governance

© Copyright IBM Corporation 2007

Recap: Enterprise Architecture provides the “city plan” for business and IT “building blocks”.



Strategy
"the city’s purpose & goals"

Enterprise Architecture
"the city plan"

System Design
"the buildings"

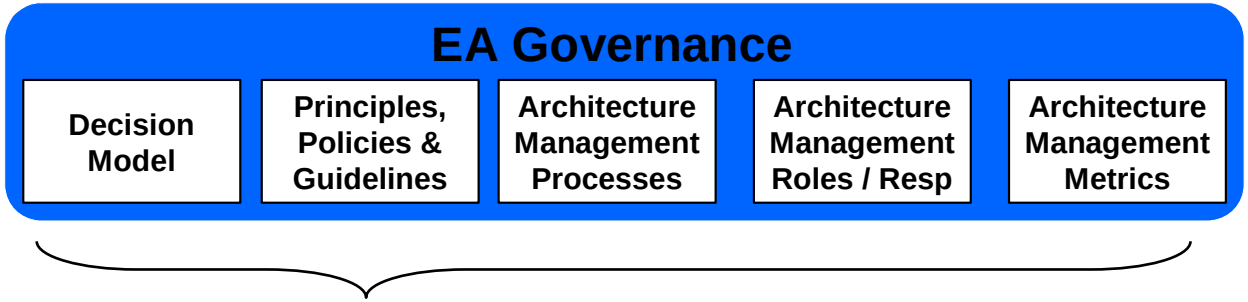
As an integral part of the strategic planning process, the EA is the linkage between the business strategy, IT strategy and IT implementation

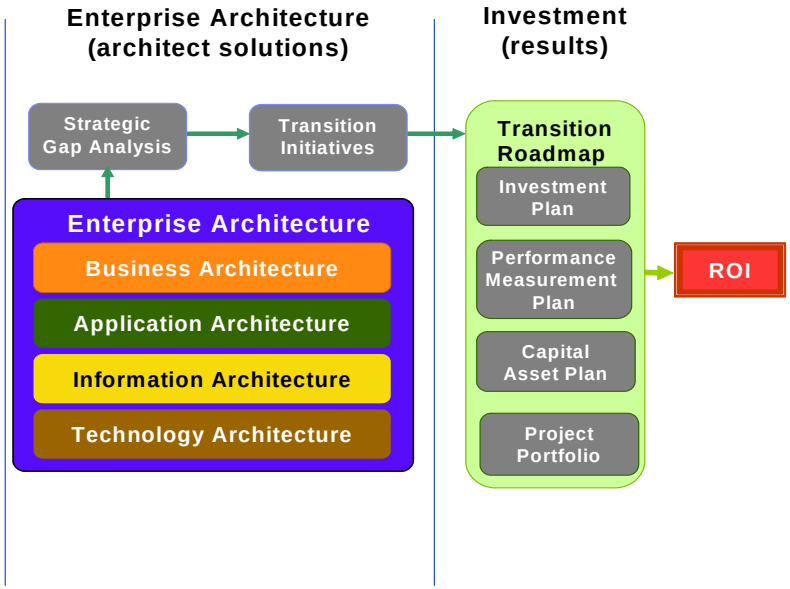
EA guides investment, cost reduction and design decisions to support the goal of optimizing return on IT investments (ROI)

The Enterprise Architecture defines an environment in which infrastructure and solutions can be built for both known and unforeseen future requirements

© Copyright IBM Corporation 2007

Architecture Governance

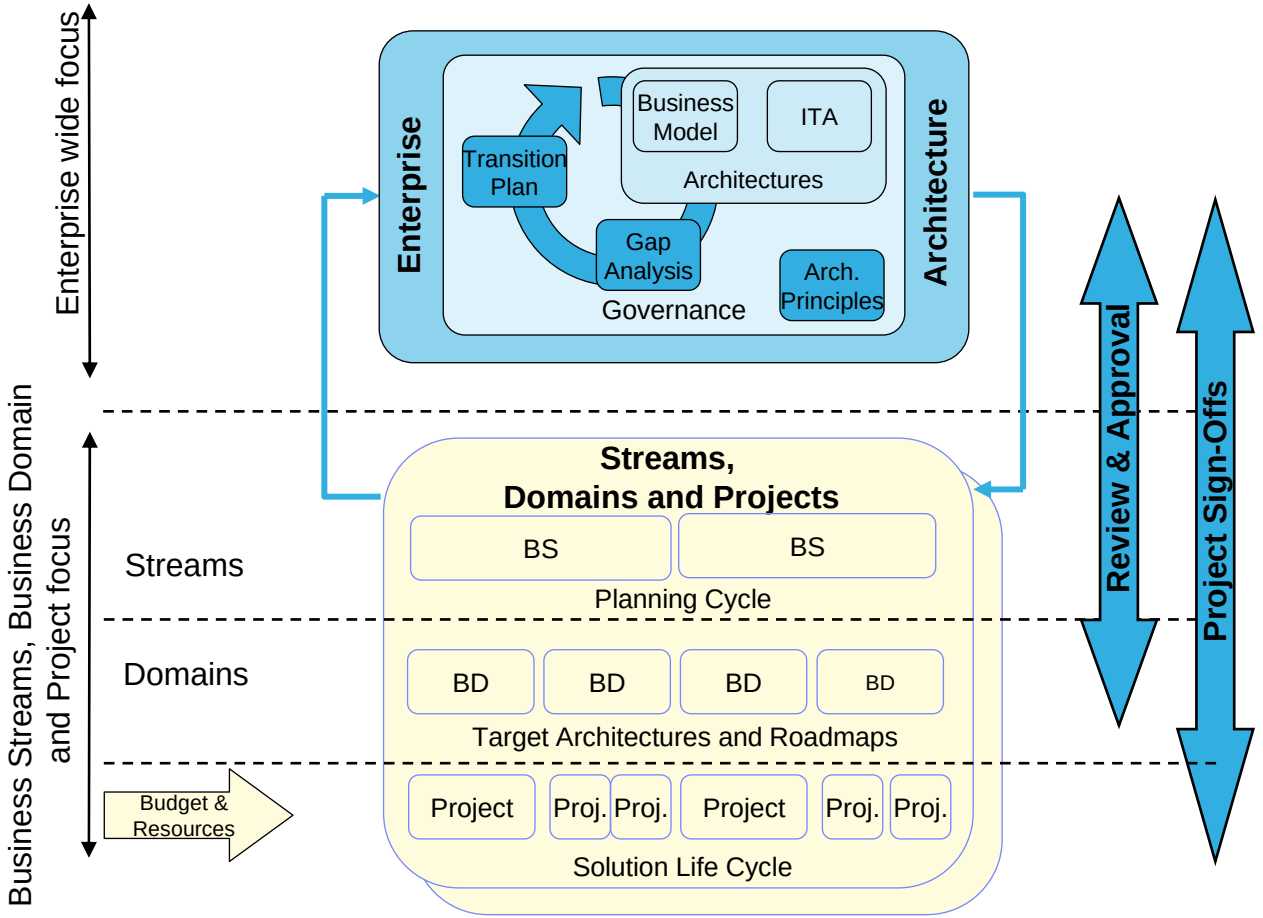




- The ***practice and orientation*** to ***managed and control architecture*** at an enterprise-wide level.
- Does not operate in isolation, but within a hierarchy of governance structures (e.g. Corporate Governance , Information Technology (IT) Governance, etc.

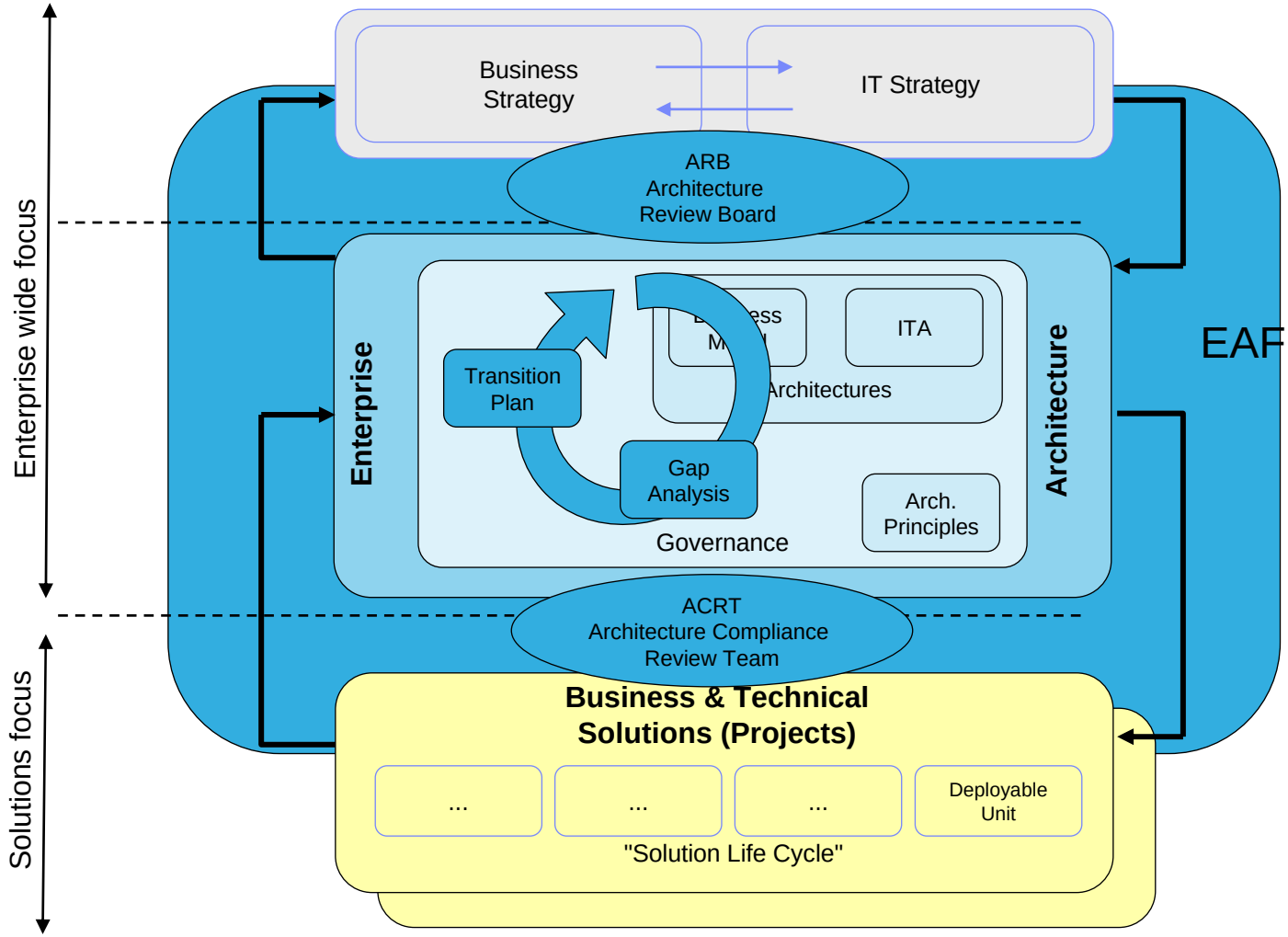
© Copyright IBM Corporation 2007

Enterprise Architecture and Gap Analysis & Transition



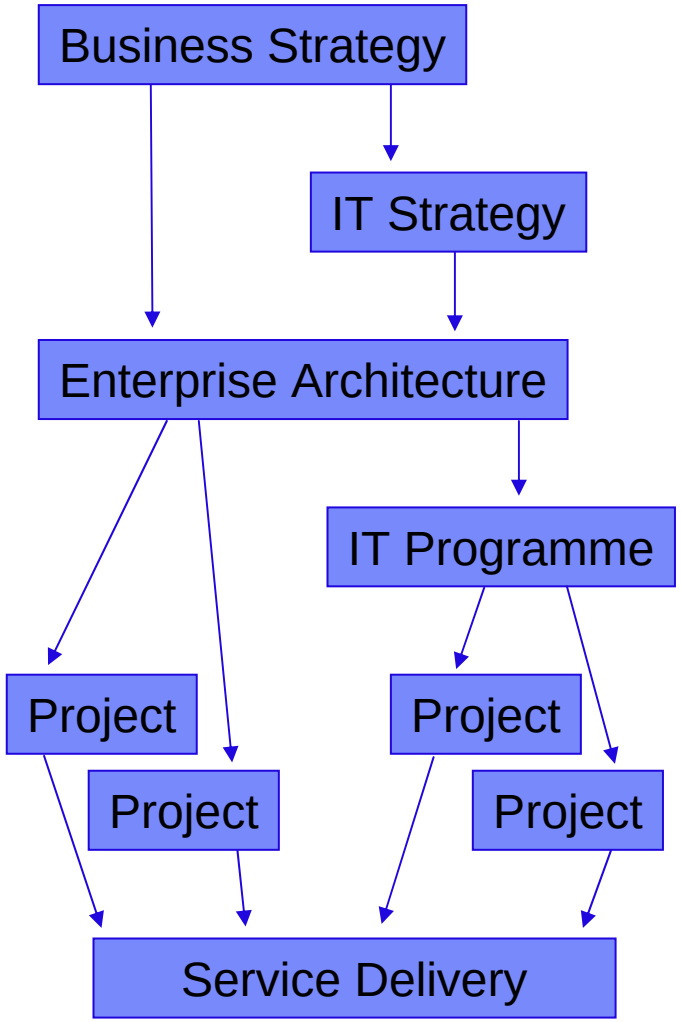
© Copyright IBM Corporation 2007

Committees for ensuring Enterprise Architecture



© Copyright IBM Corporation 2007

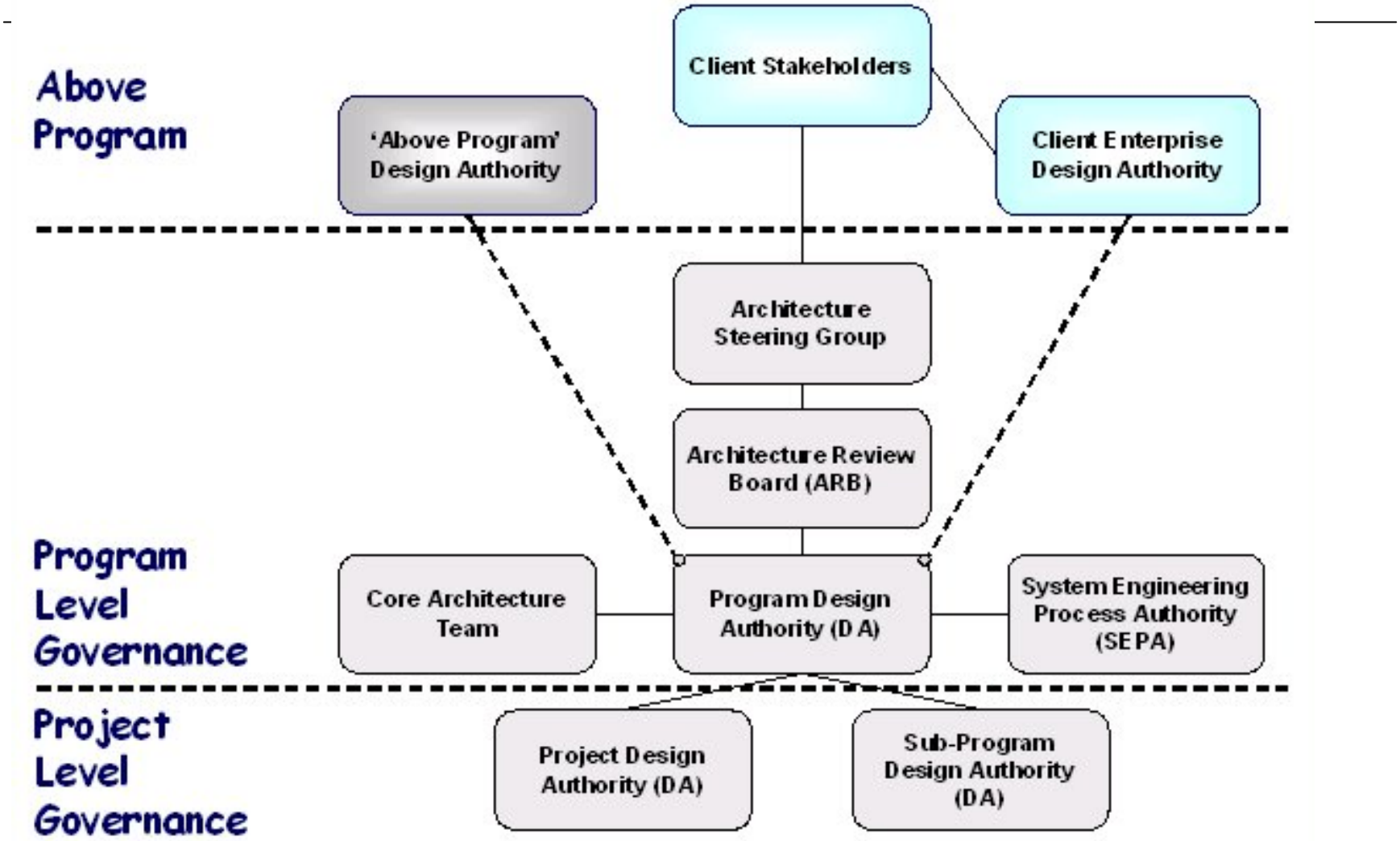
Types of Engagement and their Design Authorities



- Ideally, the sequence shown should be followed, with all IT Projects ultimately deriving from a written Business Strategy

© Copyright IBM Corporation 2007

Organization Model for Architecture Governance



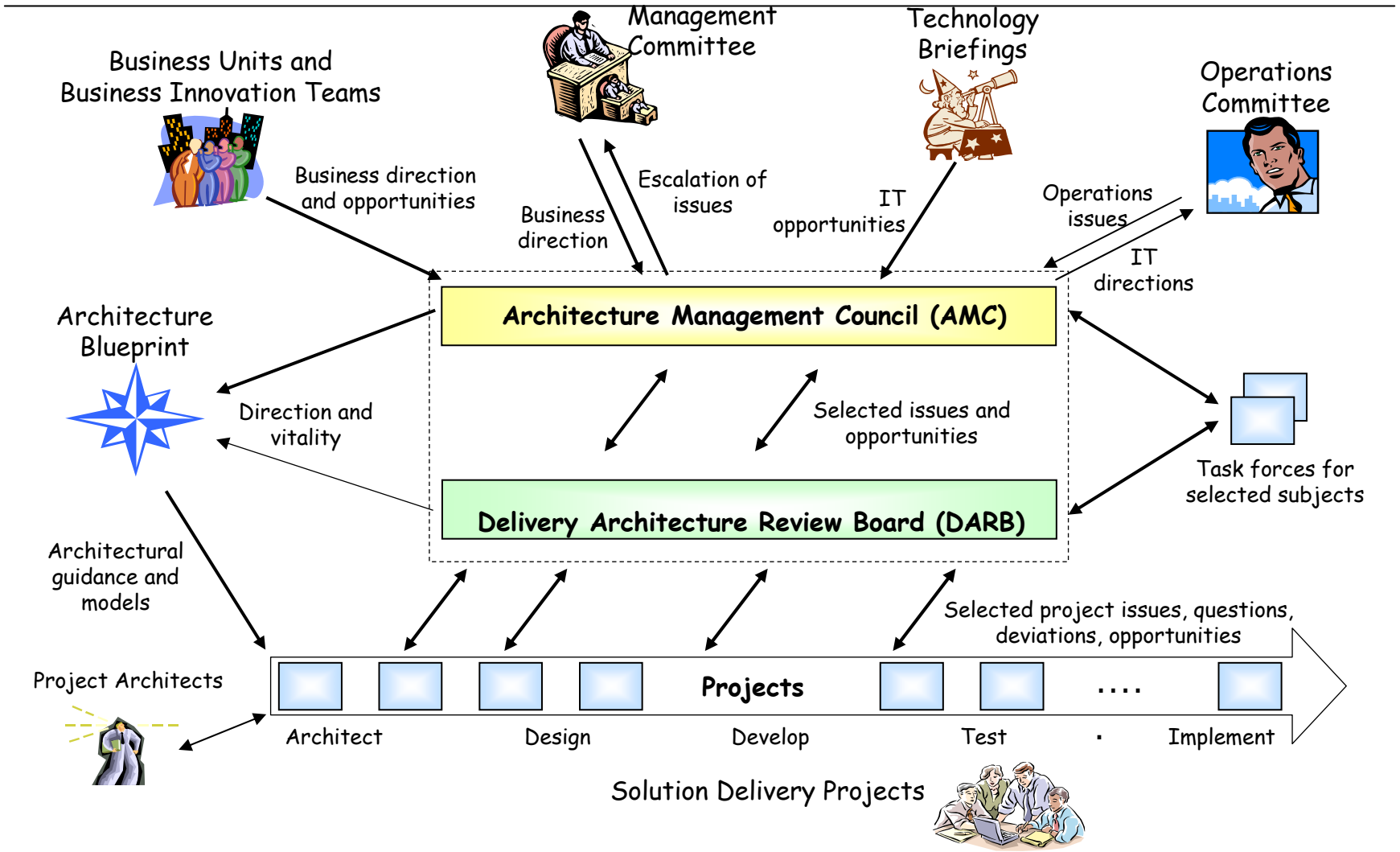
© Copyright IBM Corporation 2007

EA Governance – Overview of the boards/committees

Executive Review Board	IT Steering Committee	Architecture Review Board	Architecture Compliance Review Team	Architecture Stakeholders
Executive Decision Making CEO President CFO CIO	• Identify Business Requirements • Ensure Business and IT are strategically aligned • Review and Approve IT Initiatives & Projects • Review and Approve Architecture Funding • Sponsor and Champion Architecture • Approve R&D Plan • Monitor Progress	• Sponsor and Champion Architecture • Own and Support Architecture Vision and Guiding Principles • Ensure Architecture Compliance • Review, Approve/Deny Architecture Changes/ Exceptions/Appeals • Ensure Architecture Vitality and Review Emerging Technologies • Communicate Architecture to Stakeholders	• Champion Architecture • Review Projects for Compliance with Standards • Provide Architecture Guidance to the Stakeholders • Maintain Architecture Standards and Processes • Recommend Architecture Improvements	• Comply with Architecture & Provide Feedback to ARB • Locally Sponsor and Champion Architecture • Support Conformance to Architecture • Submit Requests for Architecture Changes and Exceptions

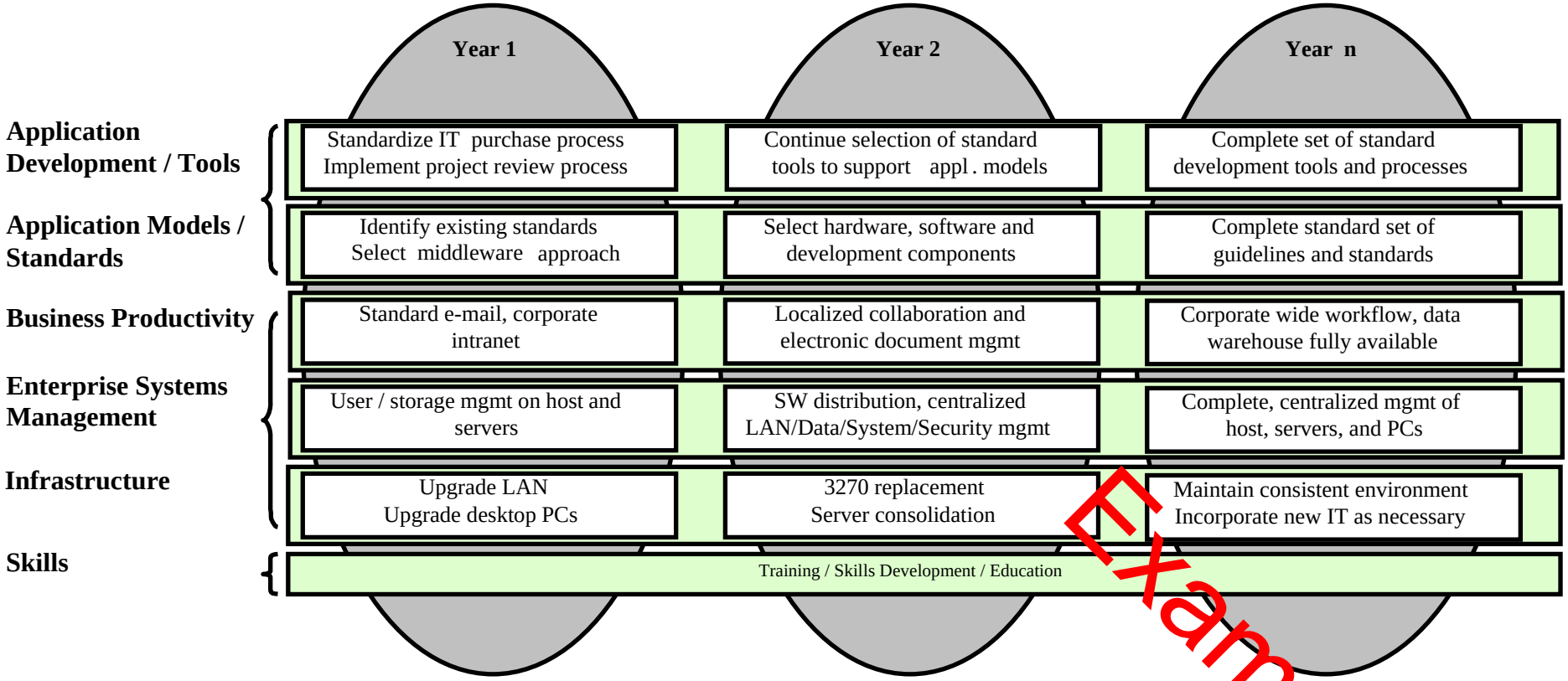
© Copyright IBM Corporation 2007

Example Architecture Organizational Model



© Copyright IBM Corporation 2007

Integrated Transition Plan



© Copyright IBM Corporation 2007

A Roadmap can be created for key Architecture Building Blocks (ABB) – Example Operating Systems

Current	Migration	Future
Baseline Environment OS/390, USS 390, OS/400, AIX, Solaris, Digital Unix, Win95, Win98, 2000, NT,Novell OS/2, DOS, MacOS, PC Unix	**Tactical Deployment** zOS Solaris Win 2000 Win XP	**Strategic Direction** zOS Solaris Win XP, 2003
Retirement Targets DOS, win95, win98 Novell		**Preferred** zOS Solaris Windows
Sunset Targets OS/400 MacOS OS/2, Win NT, 2000 Non-Solaris flavors of Unix		**Emerging** Linux Autonomic Virtualization Integration

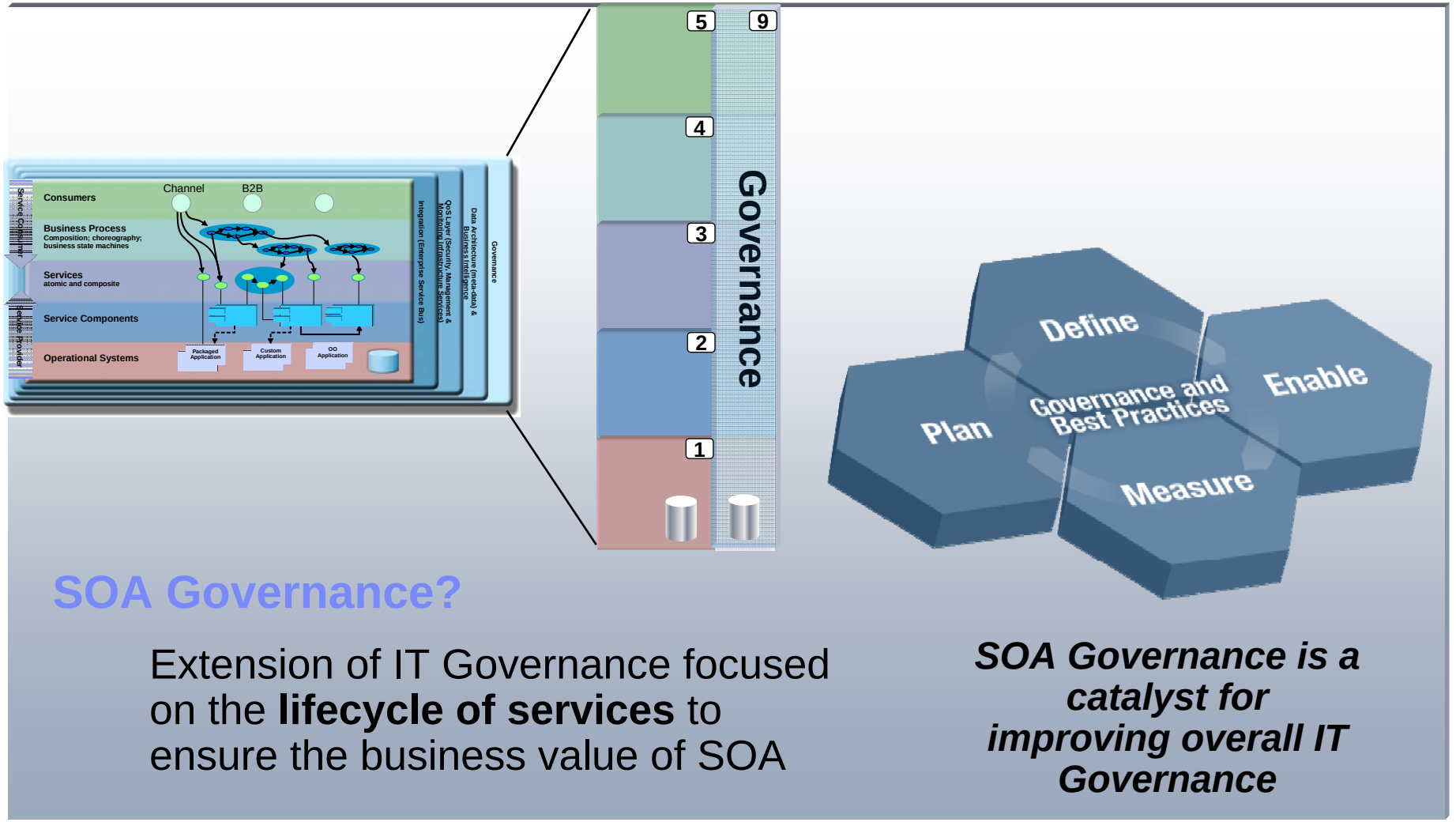
Example

© Copyright IBM Corporation 2007

IV. SOA Governance

© Copyright IBM Corporation 2007

What is SOA Governance?



SOA Governance?

Extension of IT Governance focused on the **lifecycle of services** to ensure the business value of SOA

SOA Governance is a catalyst for improving overall IT Governance

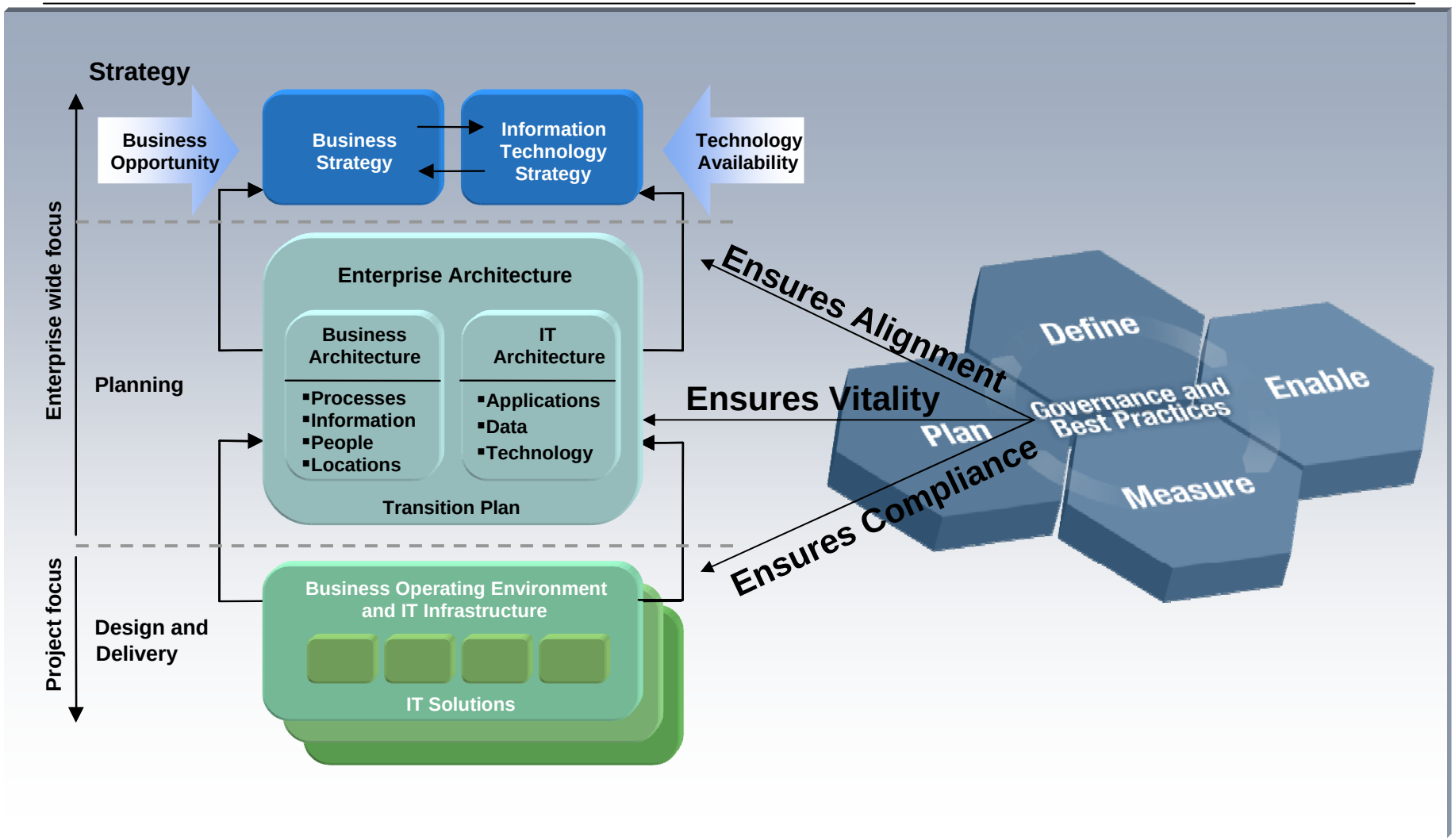
© Copyright IBM Corporation 2007

Why SOA Governance Matters

- Realize business benefits of SOA
  - Business process flexibility
  - Improved time to market
- Mitigate business risk and regain control
  - Maintaining quality of service
  - Ensuring consistency of service
- Improved team effectiveness
  - Measuring the right things
  - Communicating clearly between business and IT

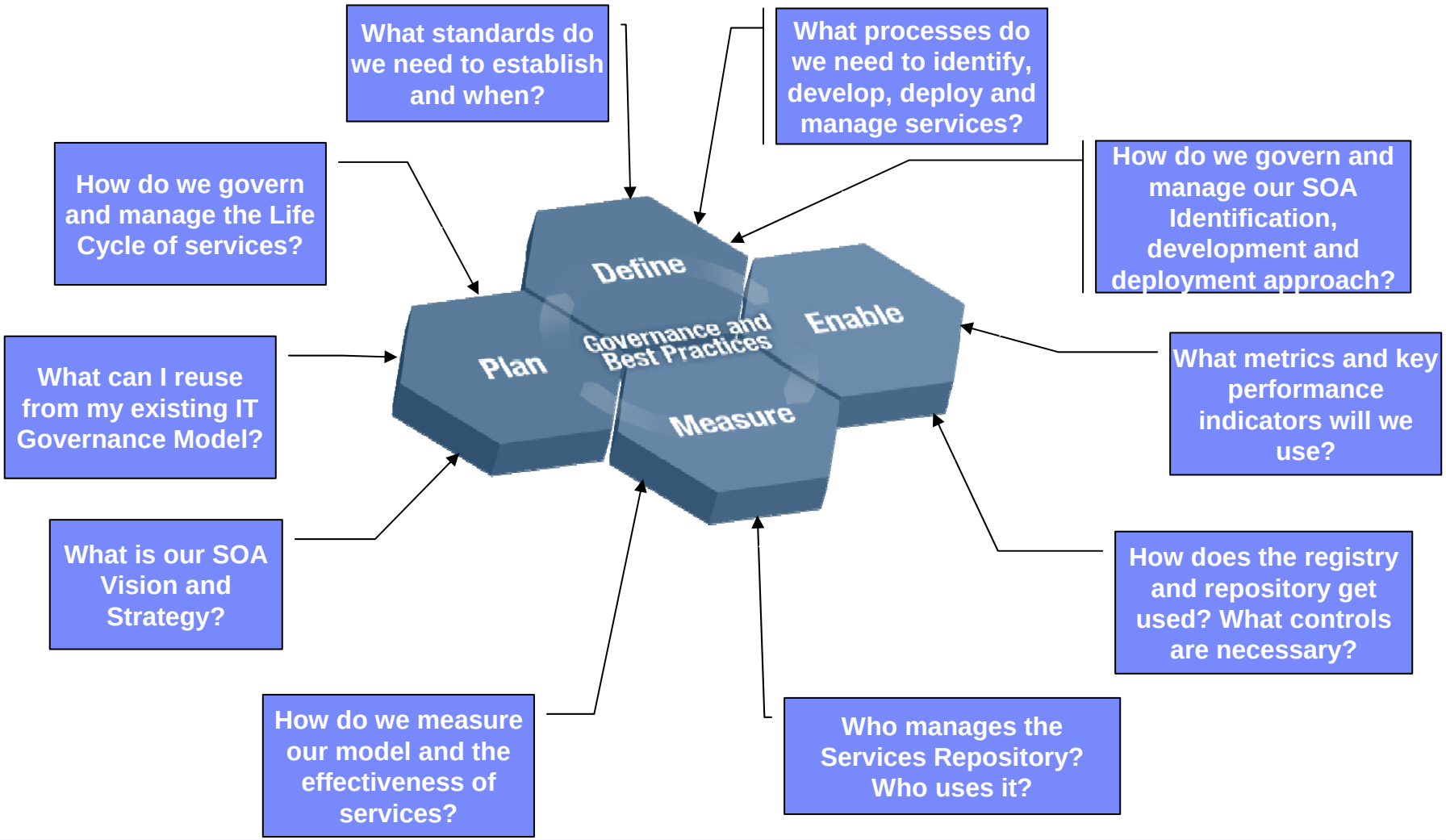
© Copyright IBM Corporation 2007

Enterprise Architecture and SOA Governance



© Copyright IBM Corporation 2007

SOA Governance Life Cycle Addresses Key Questions



© Copyright IBM Corporation 2007

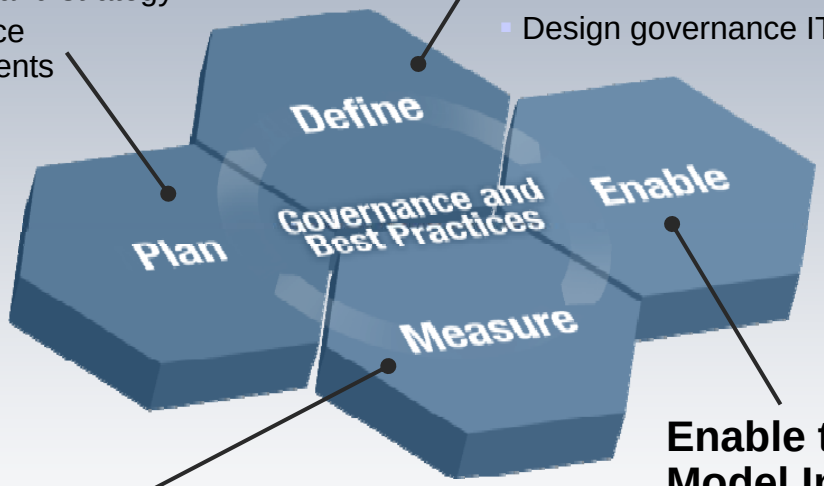
SOA Governance Lifecycle – How to establish?

Plan the Governance Need

- Document and validate business strategy for SOA and IT
- Assess current IT and SOA capabilities
- Define/Refine SOA vision and strategy
- Review current Governance capabilities and arrangements
- Layout governance plan

Define the Governance Approach

- Define/modify governance processes
- Design policies and enforcement mechanisms
- Identify success factors, metrics
- Identify owners and funding model
- Charter/refine SOA Center of Excellence
- Design governance IT infrastructure



Monitor and Manage the Governance Processes

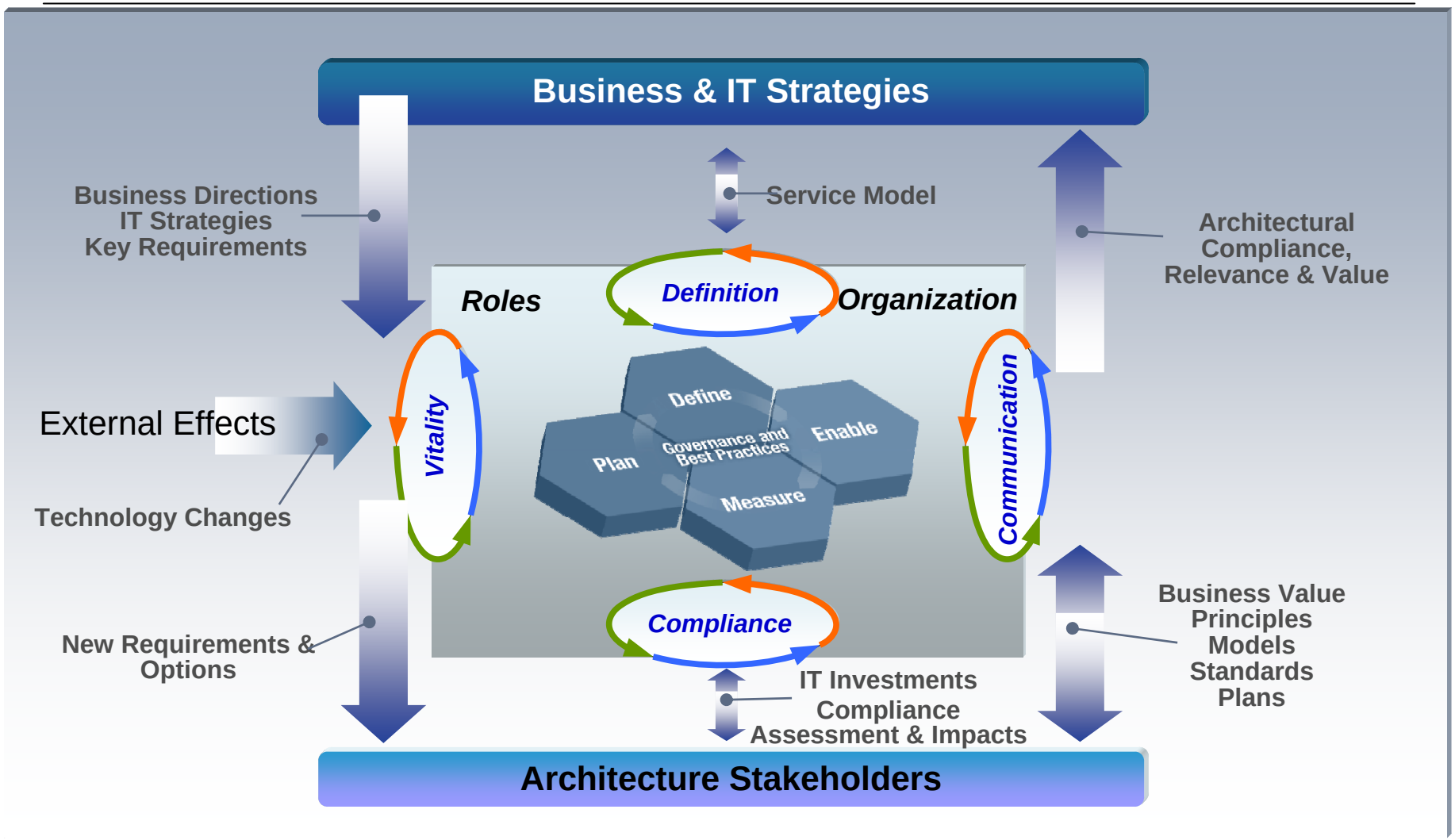
- Monitor compliance with policies
- Monitor compliance with governance arrangements
- Monitor IT effectiveness metrics

Enable the Governance Model Incrementally

- Deploy governance mechanisms
- Deploy governance IT infrastructure
- Educate and deploy on expected behaviors and practices
- Deploy policies

© Copyright IBM Corporation 2007

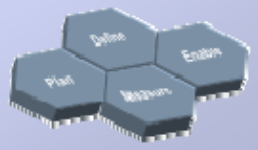
SOA Governance Considerations – What is required ? Processes, Roles and Organization



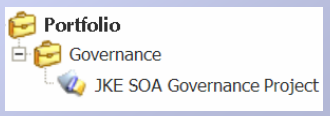
© Copyright IBM Corporation 2007

Defining the Governance Solution at JKE

Tailor Methodology

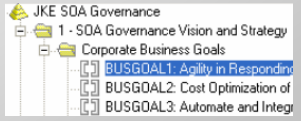


Create Project Proposal



Execute the "JKE SOA Governance Project"

Identify SOA Business and IT Principles



Determine Existing Governance Structure

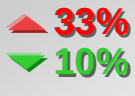
Define CoE Structure

Create the SOA Governance Framework

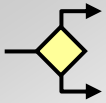
Roles

Processes

Policies



Metrics



Quality Gates

Implement Tools and Infrastructure

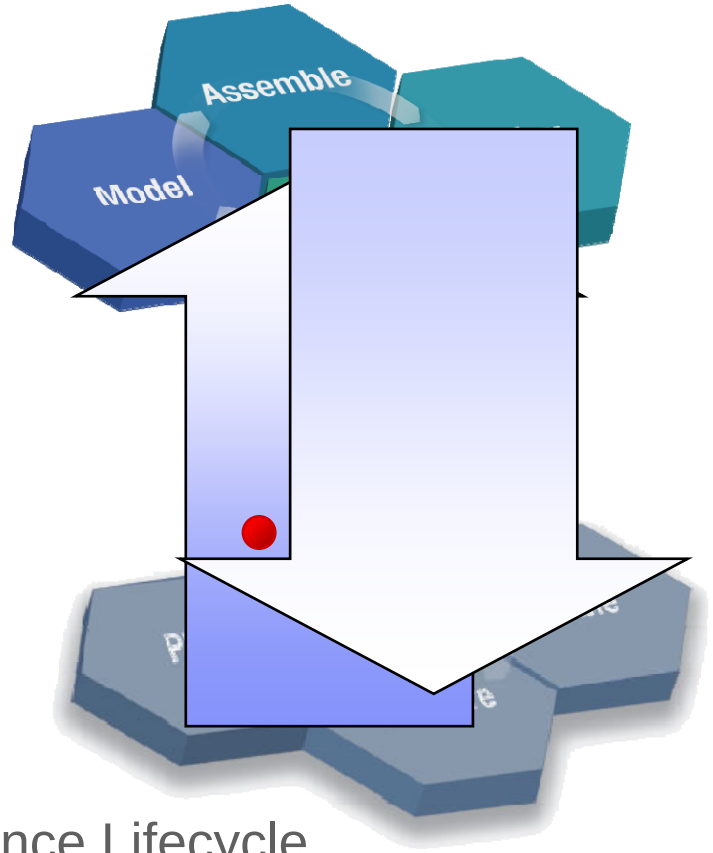
WebSphere Lotus Rational Tivoli

Refine Operational Environment

© Copyright IBM Corporation 2007

Interaction Between the Lifecycles

Service Lifecycle



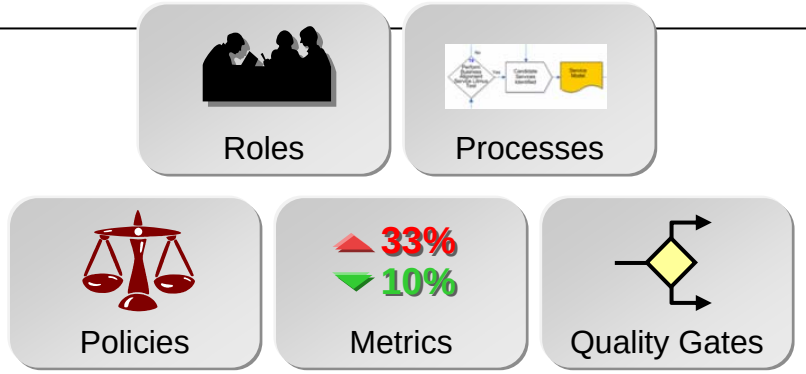
Governance Lifecycle

- **Policies**
  - quality gates
  - controls
  - metrics
  - standards
- are **defined** in the Governance lifecycle (for different aspects of Governance)…
- …and they are **enforced** in the service lifecycle
- metrics are captured to improve governance process

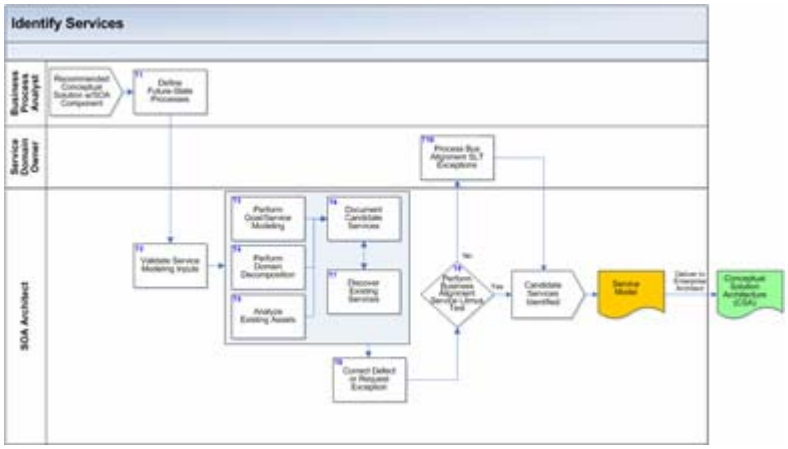
© Copyright IBM Corporation 2007

The Governance Framework (Extensions to Development Processes)

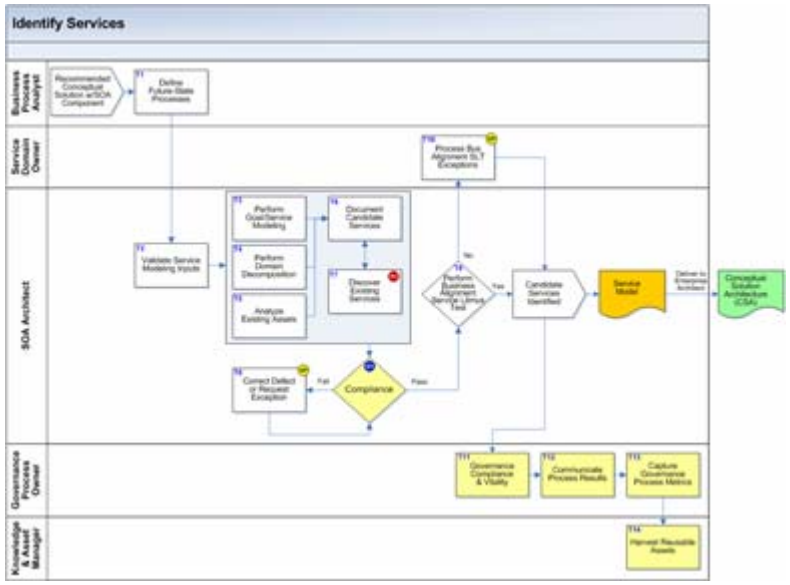
- All the “elements” that we need to add to make a process well-governed



non-governed process

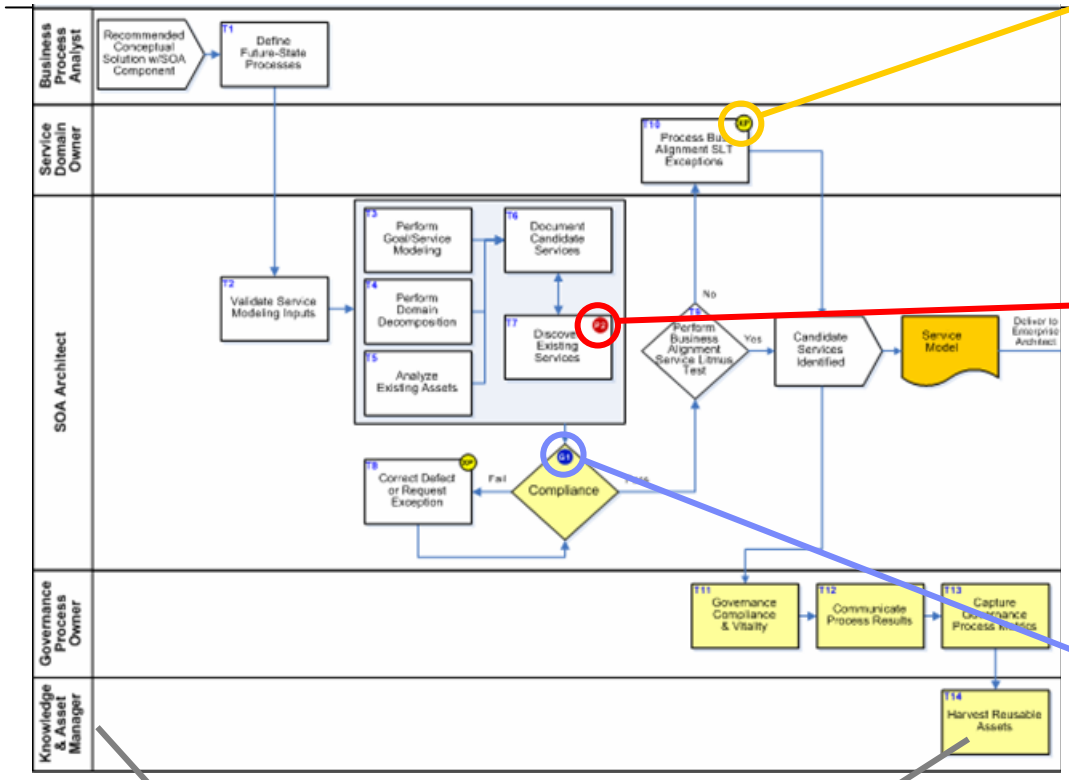


well-governed process



© Copyright IBM Corporation 2007

JKE Example: Enforcement at Development Time



exception procedure

Implement Service that failed Litmus test

human decision

policy

Services should be reused instead of created whenever possible

registry lookup

quality gate

Services must be compliant with the existing reference architecture

review

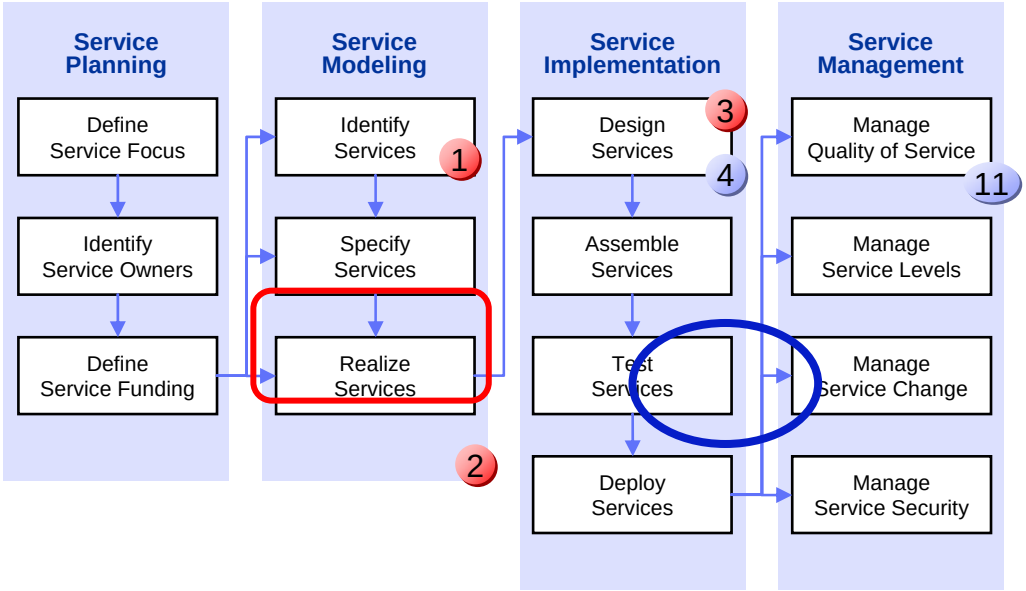
new roles

new activities

© Copyright IBM Corporation 2007

Example – Enforcing Service Reuse Policy

- During the “Identify Services” activities, the SOA Architect implements the Service Reuse policy searching for existing services
- At the Validate Service Design quality gate the policy is enforced



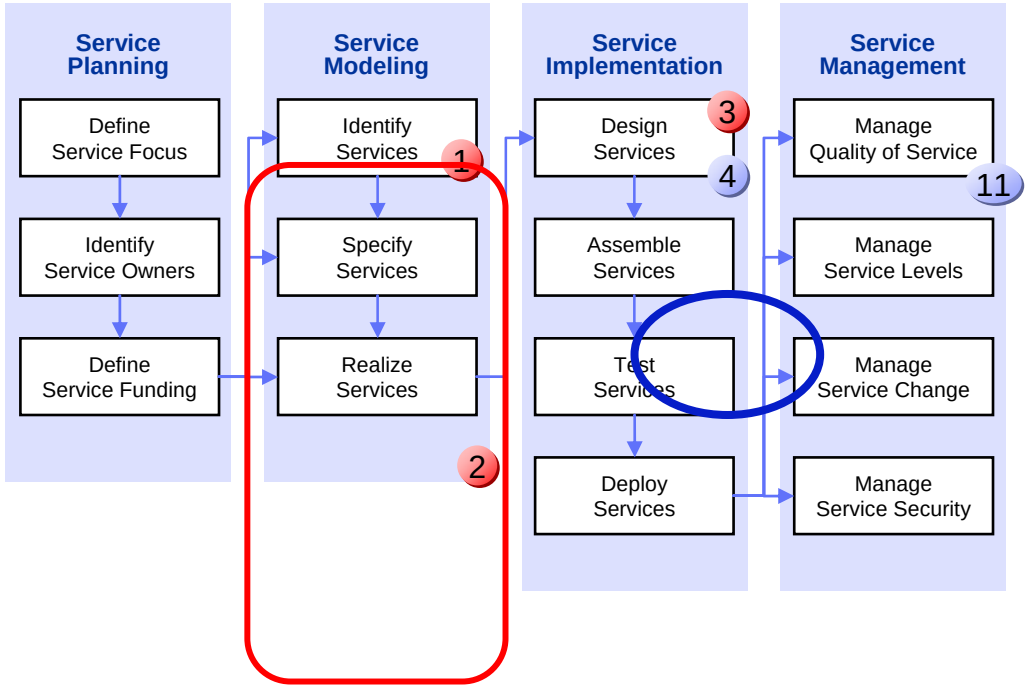
Policy 1 Services should be reused instead of created whenever possible

Quality Gate 4 Validate Service Design, semi-automatic enforcement during development

© Copyright IBM Corporation 2007

Example – Enforcing Architecture Compliance Policy

- The SOA Architect implements the Compliance with the Reference Architecture policy during all the activities in the Service Modeling phase
- At the Validate Service Design quality gate the policy is enforced with a manual review of the service model



Policy 2 Services must be compliant with the existing reference architecture

Quality Gate 4 Validate Service Design, manual enforcement during development

© Copyright IBM Corporation 2007

Governance at Development Time – Enforcing Policies of Services Life Cycle

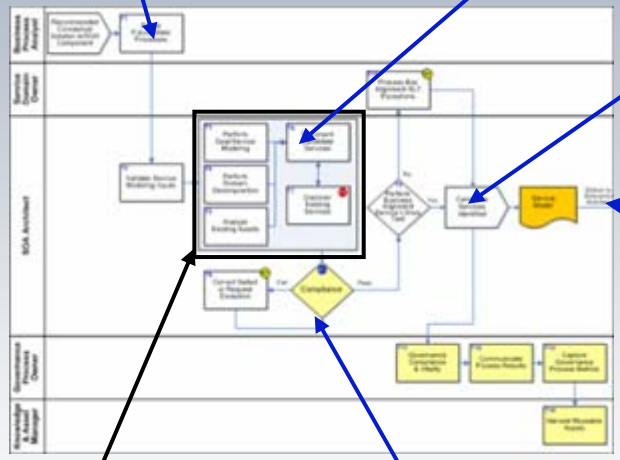
Ensure Compliance and Define Policies

1 Service state transitions are defined based on governance solution

WebSphere Service Registry and Repository

2 Validate Service Ownership

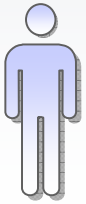
3 Registry Lookup to enforce reuse of existing services



5 Publish Service to repository after Litmus test is successful

6 Add a Policy for Dynamic Binding

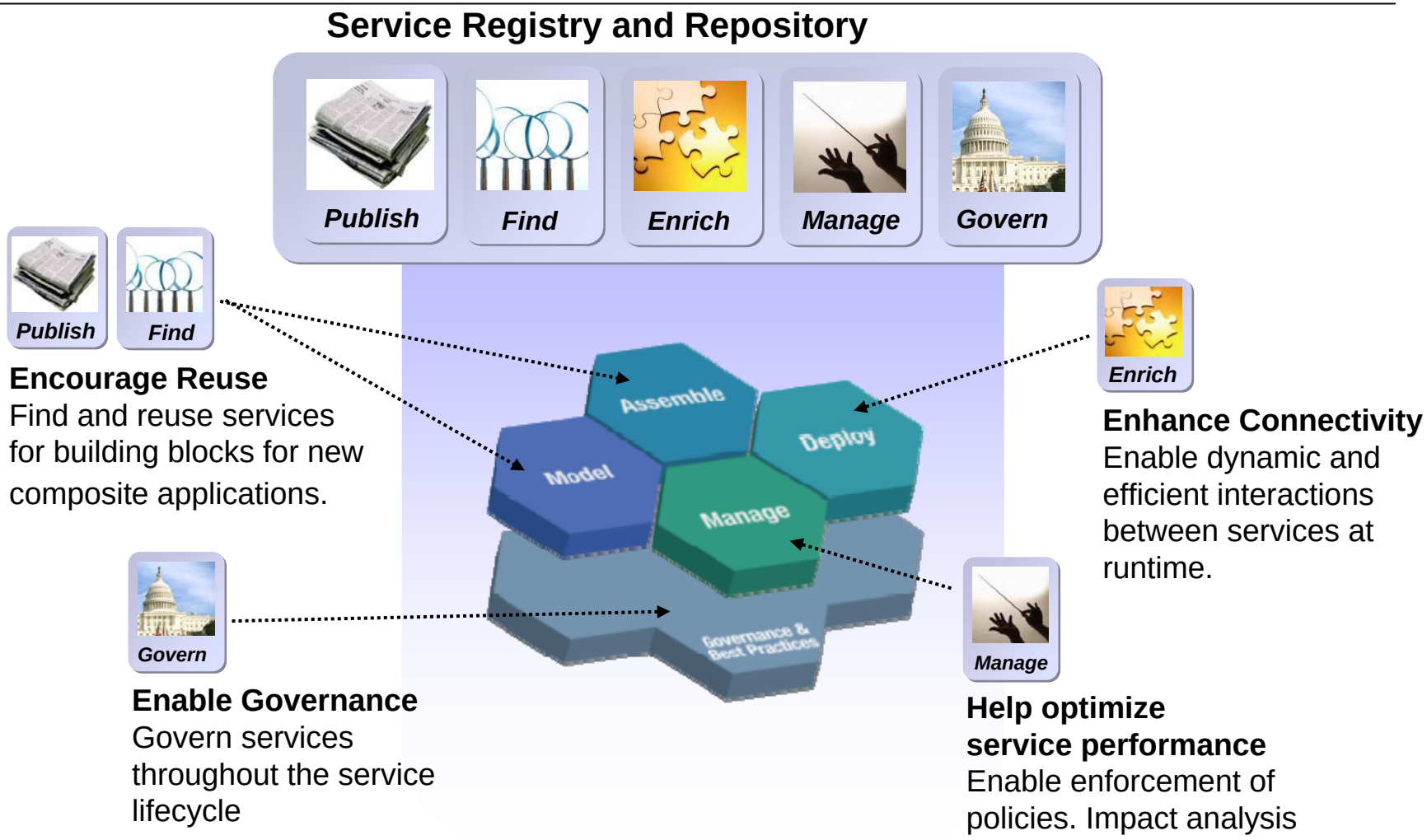
Service Analysis and Design



4 Validate Service Design for Standards Compliance

© Copyright IBM Corporation 2007

Main Capabilities of Service Registry and Repository



© Copyright IBM Corporation 2007