Advancing the Business/IT linkage with SOA Governance and Service Lifecycle Management

Kerrie Holley
WW CTO SOA Centre of Excellence,
IBM Fellow

IBM

What is governance?

Governance

The establishment of *chains of responsibility* to empower people, *measurement* to gauge effectiveness, *policies* to guide the organization to meet its goals, *control mechanisms* to ensure compliance and *communication* to keep all required parties informed
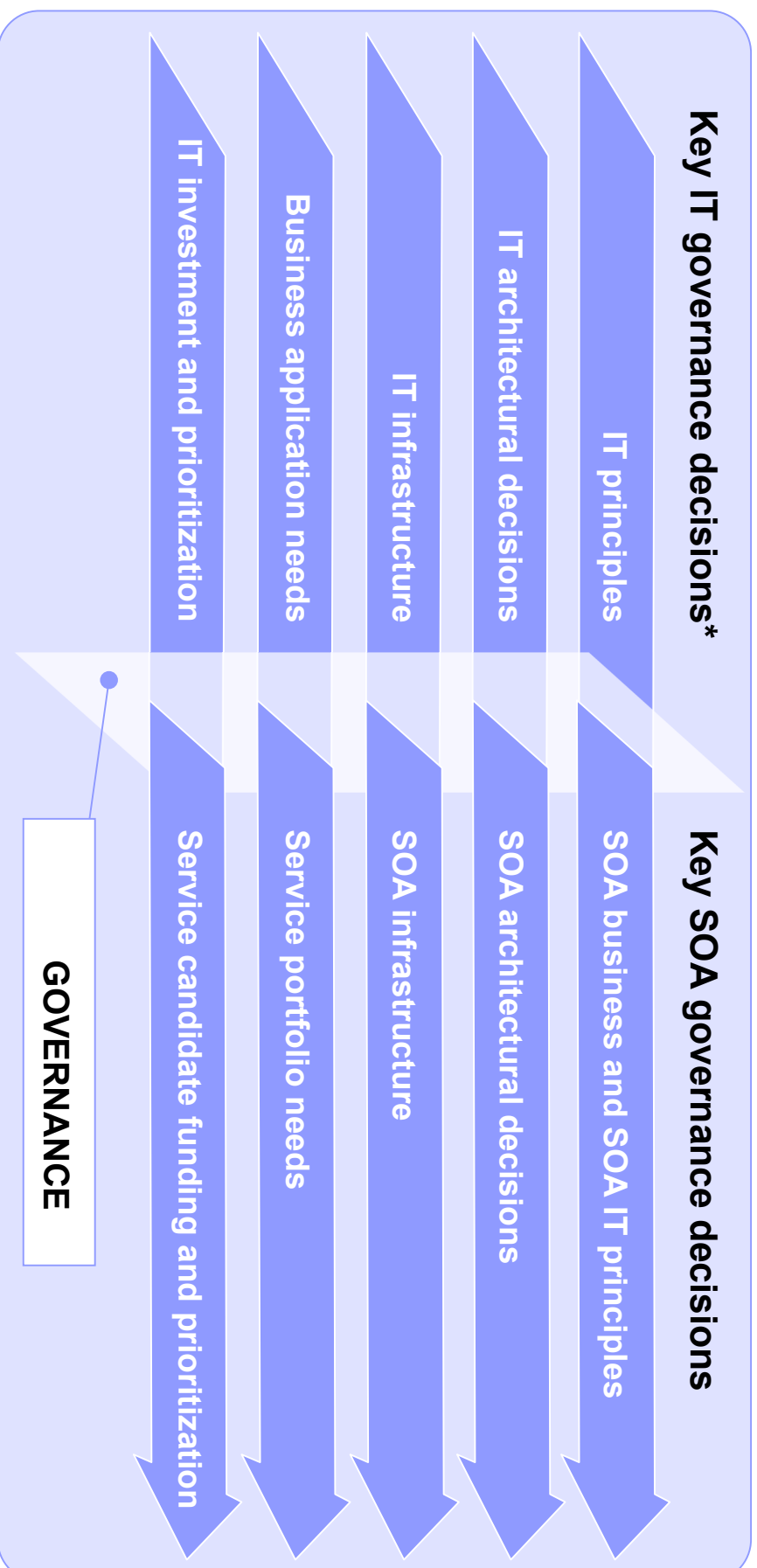
IT governance

The application of governance to an IT organization, its people, processes and information to guide the way those assets support the needs of the business

SOA governance

A specialization of IT governance that puts key IT governance decisions within the context of the lifecycle of service components, services and business processes. It is the effective management of this lifecycle that is the key goal to SOA governance

The relationship between IT and SOA governance

Key IT governance decisions*

IT principles

IT architectural decisions

IT infrastructure

Business application needs

IT investment and prioritization

Key SOA governance decisions

SOA business and SOA IT principles

SOA architectural decisions

SOA infrastructure

Service portfolio needs

Service candidate funding and prioritization

GOVERNANCE

* IT Governance: How Top Performers Manage IT Decision Rights for Superior Results, Peter Weill and Jeanne W. Ross.

3

IBM

Governance should not an "afterthought"; it matters because without it success is not achievable

Lack of working governance mechanisms in midsize-to-large (greater than 50 services) post-pilot projects will be the most common reason for project failure (0.8 probability). *(Gartner)*

Focus on business benefits

- Add flexibility to business process
- Improve time to market

Governance isn't optional- it's imperative. Without it, ROI will be low and every project out of pilot phase will be at risk. *(Gartner)*

Mitigate risk and regain control

- Maintain quality of service
- Ensure consistency of service

Professional investors are willing to pay premiums of 18-26% for stock in firms with high governance.
(McKinsey Quarterly)

Improve team effectiveness

- Measure the right things
- Communicate clearly between business and IT

Governance is critical to overall SOA Success

Technical Changes

Cultural Changes

Key Enabling Tools

Fostering a culture of reuse

SOA Governance and Service Lifecycle Management to support Business and IT alignment

Agenda

- SOA Governance and Management Method
- SOA Center of Excellence and Services
- SOA Governance Registry and Repository Strategy
- Service and Asset Management

Model

Assemble

Manage

Deploy

Governance & Best Practices

SOA Governance Lifecycle drives business/IT alignment at the beginning of SOA deployment
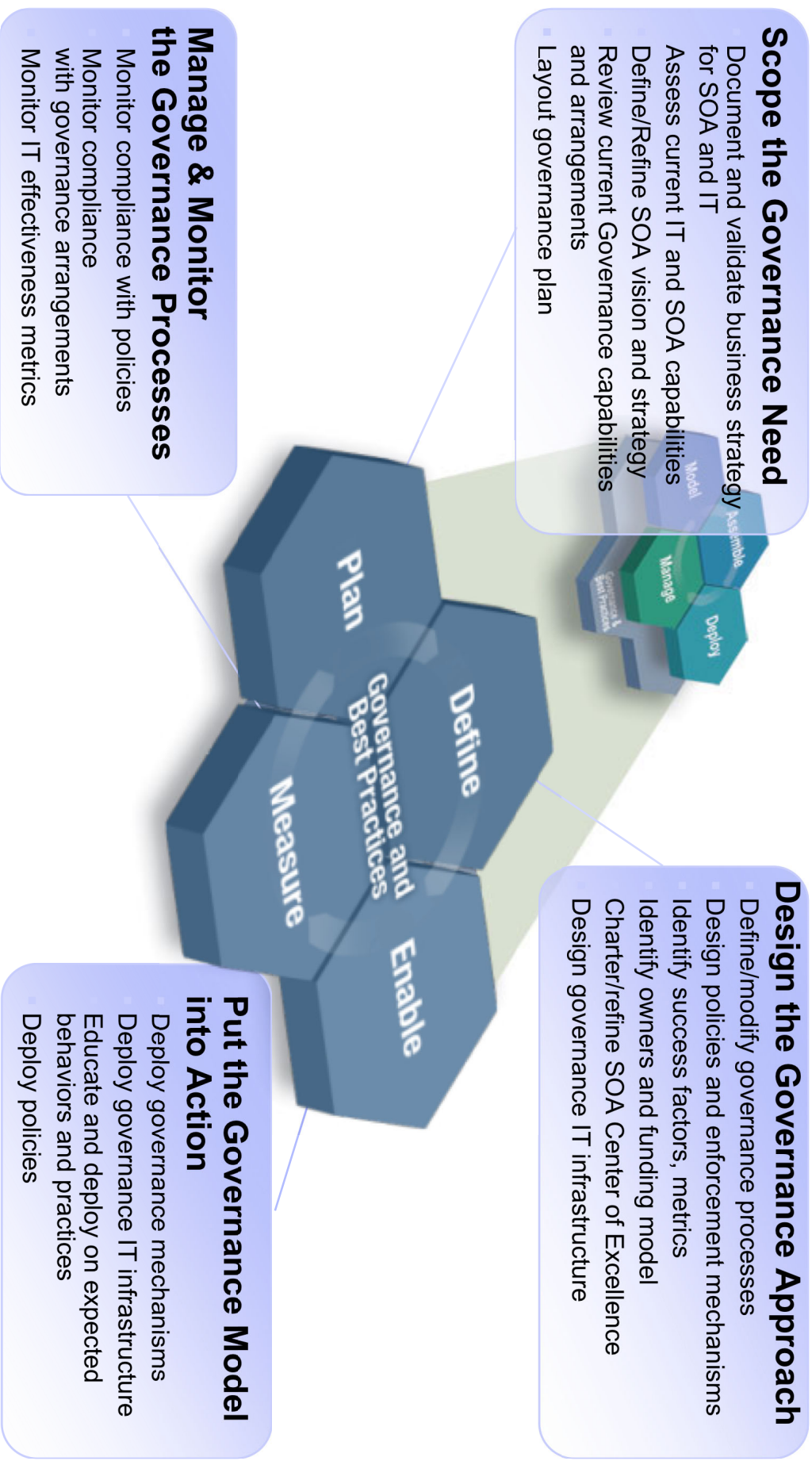
Scope the Governance Need
- Document and validate business strategy for SOA and IT
- Assess current IT and SOA capabilities
- Define/Refine SOA vision and strategy
- Review current Governance capabilities and arrangements
- Layout governance plan

Manage & Monitor the Governance Processes
- Monitor compliance with policies
- Monitor compliance with governance arrangements
- Monitor IT effectiveness metrics

Design 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

Put the Governance Model into Action
- Deploy governance mechanisms
- Deploy governance IT infrastructure
- Educate and deploy on expected behaviors and practices
- Deploy policies

Plan

Define

Measure

Enable

Governance and Best Practices

Model

Assemble

Manage

Deploy

Governance & Best Practices

SOA Governance Model

Vitality

Compliance

SOA Vision

Communication

Exception/Appeals

Governance Mechanisms

Managed by

Skills

Organizational Change Management

Supported by

Principles, Policies, Standards & Procedures

Implemented by

Infrastructure & Tools

Monitors & Metrics

Monitored by

Governed Processes

Service Strategy
- SOA Strategy
- Define Service Funding
- Service Domain Owners

Service Design
- Service Architecture
- Service Modeling
- Service Design

Service Transition
- Service Assembly
- Service Testing
- Service Deployment
- Service Delivery

Service Operation
- Event Management & Service Monitoring
- Security Management
- Service Support
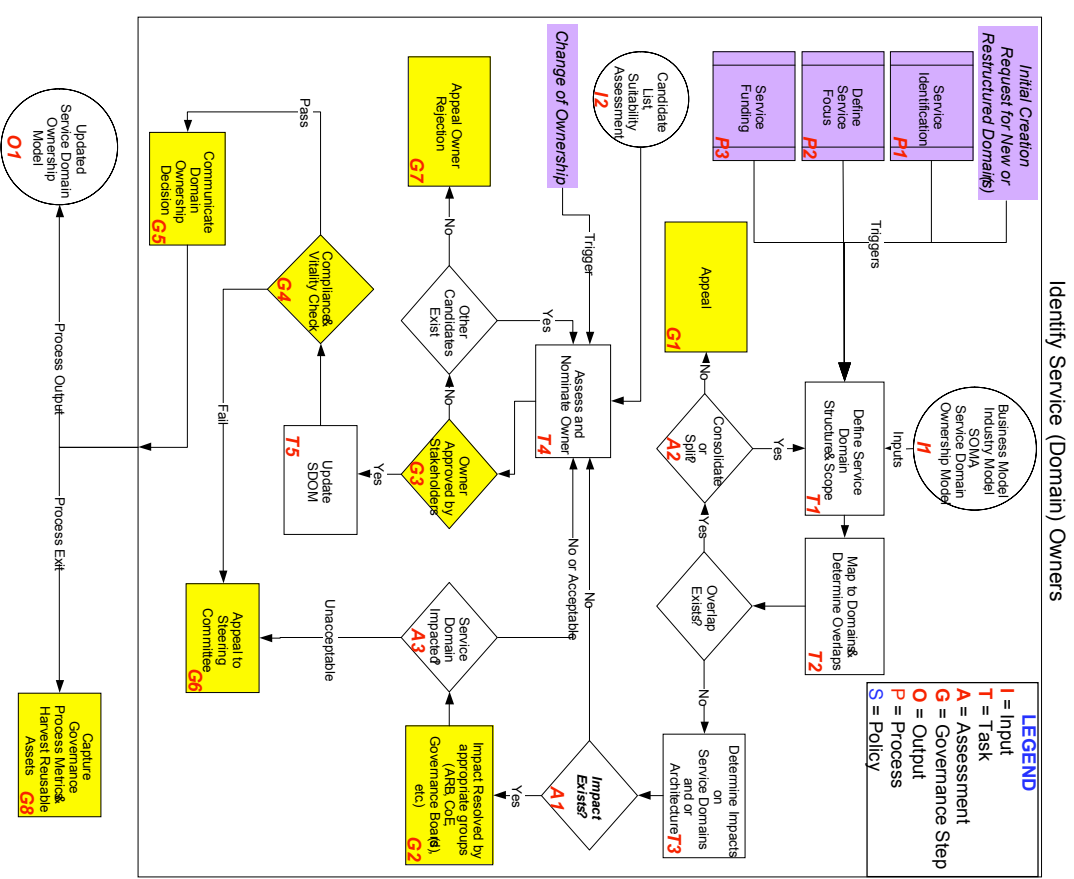
IBM

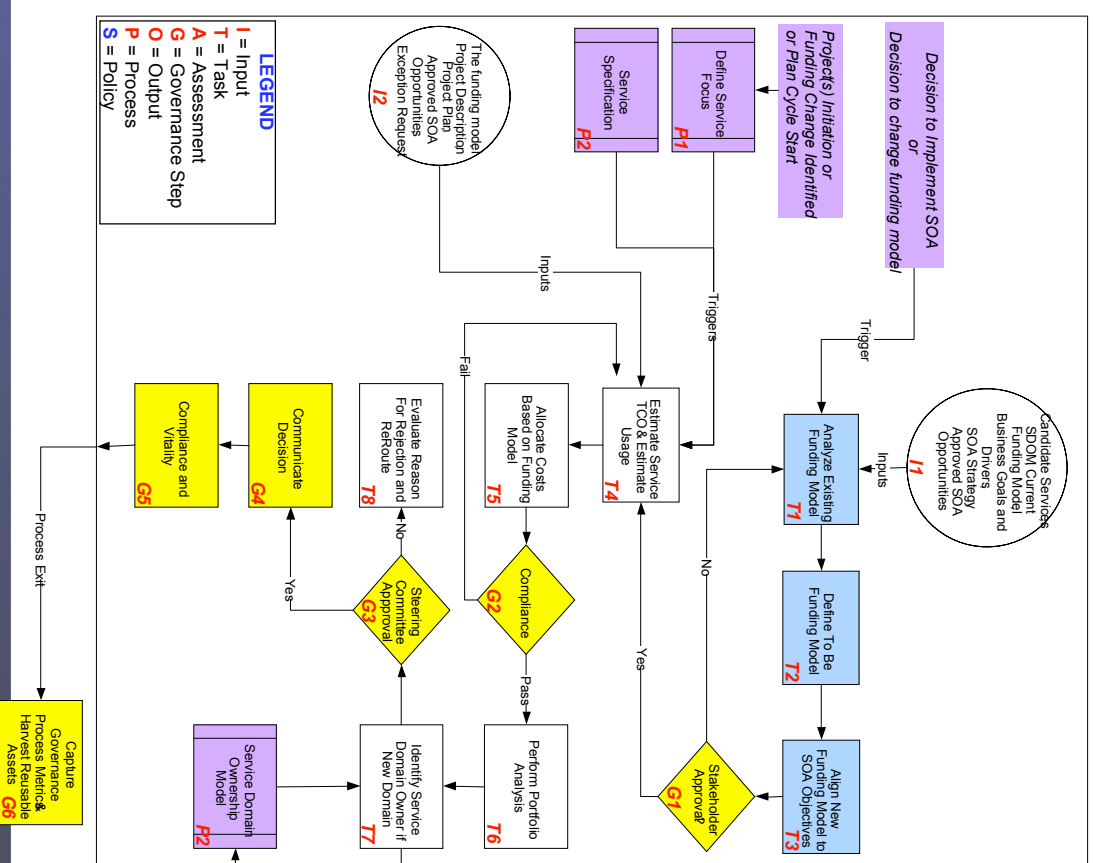# Service Domain Ownership Model helps business and IT cooperation

- Service Ownership is one of the most important yet difficult processes to implement for SOA.

- The Domain Ownership Model *should* align with the businesses structure but Political and Cultural issues increases the difficulty to adopt and implement.

- Commitment throughout the organization but especially at higher levels in the organization will make this less difficult.

- This process will make possible a number of SOA benefits and drive the adoption of other processes like the Funding Process which is closely linked to Domain Ownership

Identify Service (Domain) Owners

LEGEND
I = Input
T = Task
A = Assessment
G = Governance Step
O = Output
P = Process
S = Policy

Incentive to align is driven by the Define Service Funding Model

- Important yet difficult processes to implement for SOA.

- Drives a number of SOA benefits and make SOA adoption possible.

- Diagram addresses service funding definition and the governance of a defined model, but not the funding model.

- Funding Model should address funding of initial projects but more importantly day to day funding of services, their use, maintenance, development and versioning.
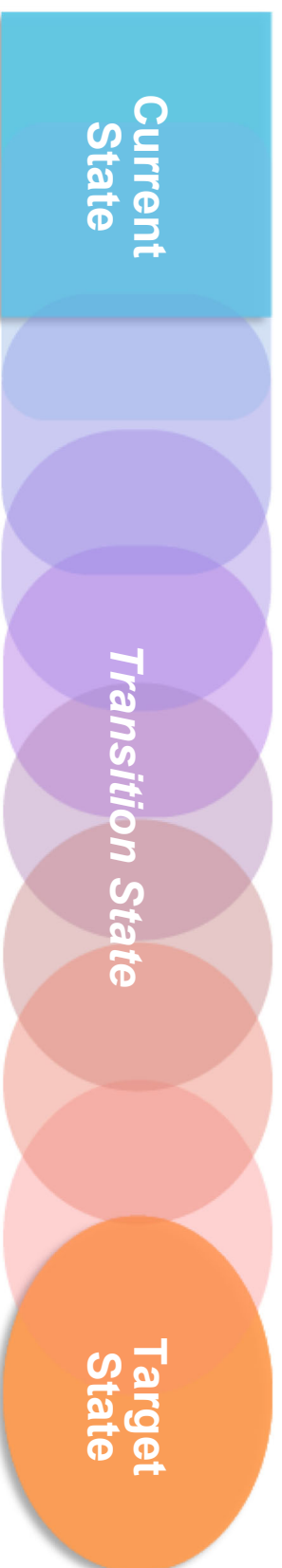
Define Service Funding

LEGEND
I = Input
T = Task
A = Assessment
G = Governance Step
O = Output
P = Process
S = Policy

Diagram elements:

- Decision to Implement SOA or Decision to change funding model
- Projects) Initiation or Funding Change Identified or Plan Cycle Start
- Service Specification — F2
- Define Service Focus — P1
- The funding model, Project Description Project Plan Approved SOA Opportunities Exception Request — I2
- Candidate Services SDOM Current Funding Model Business Goals and Drivers SOA Strategy Approved SOA Opportunities — I1
- Analyze Existing Funding Model — T1
- Define To Be Funding Model — T2
- Align New Funding Model to SOA Objectives — T3
- Stakeholder Approval — G1
- Estimate Service TCO & Usage — T4
- Allocate Costs Based on Funding Model — T5
- Compliance — G2
- Perform Portfolio Analysis — T6
- Identify Service Domain Owner if New Domain — T7
- Service Domain Ownership Model — P2
- Evaluate Reason For Rejection and ReRoute — T8
- Steering Committee Approval — G3
- Communicate Decision — G4
- Compliance and Vitality — G5
- Capture Governance Process Metric & Harvest Reusable Assets — G6
- Process Exit

Flow labels: Triggers, Inputs, Trigger, Inputs, No, Yes, Fail, Pass, Process Exit

SOA Governance and Management Method vision of success includes the Organizational Change and Change Management

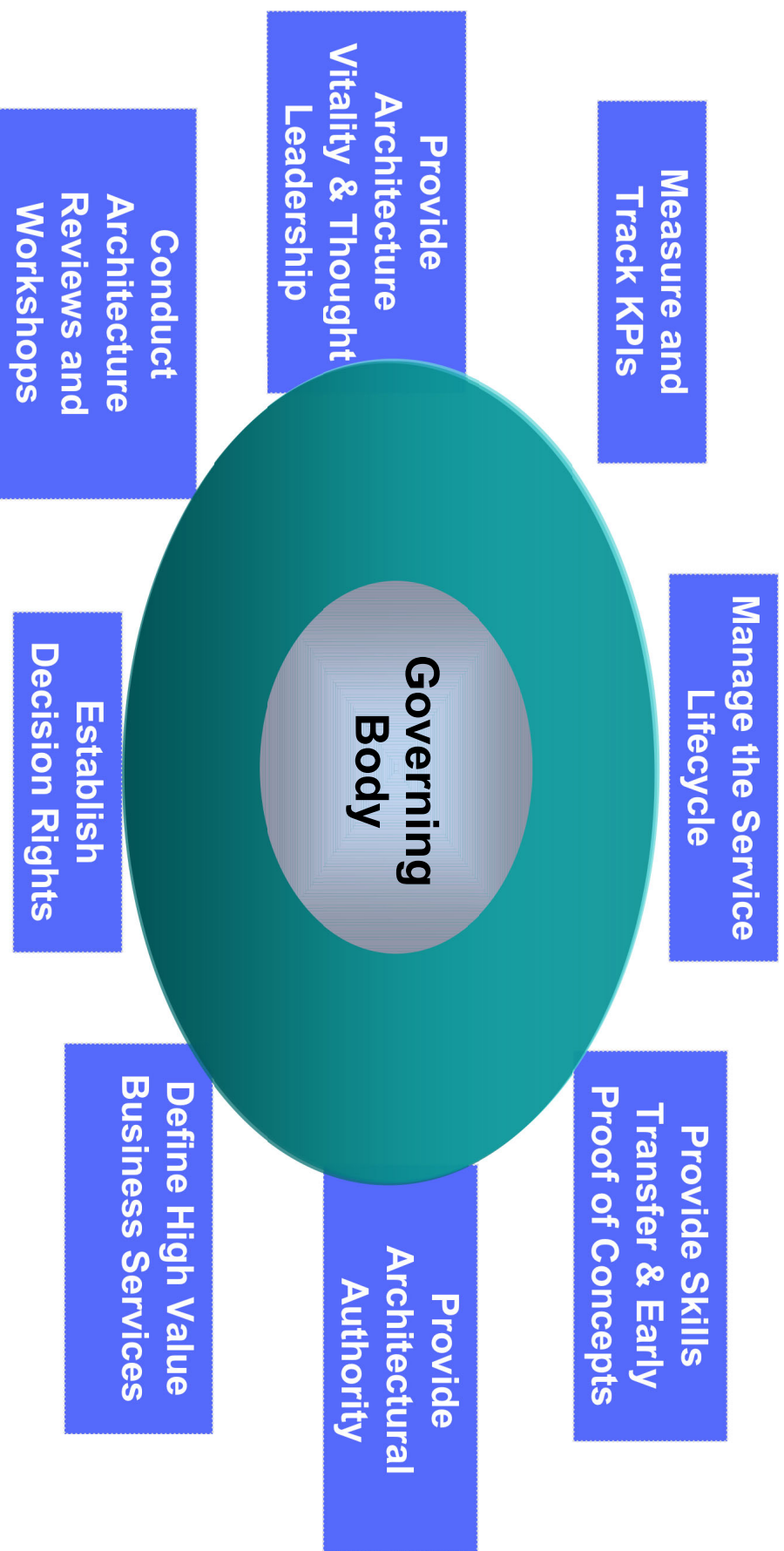"Help ensure that people impacted by the changes....

- **Understand**
- **Accept**
- **Are Prepared for, and**
- **Are Committed to**

the changes that will affect them."

The Change Management Pattern will:
- Mitigate risks with appropriate oversight & control
- Increase reuse & buy-in promoting the use of Services
- Speed Adoption of the Governance model enabling a successful implementation
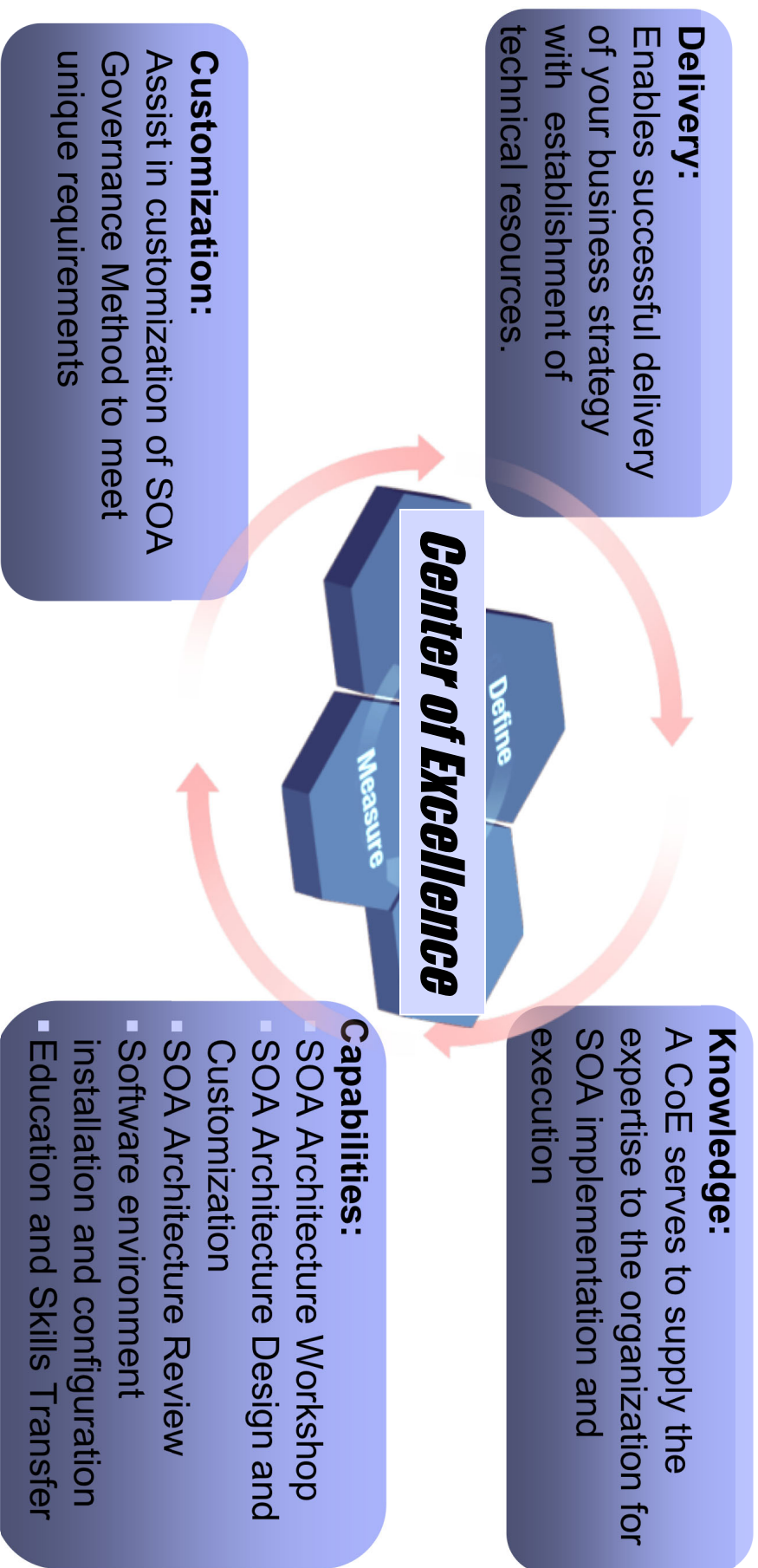- Facilitate the achievement of program benefits

Current State

Transition State

Target State

IBM

A Governing Body is needed to manage shared services across the business/IT organization

Measure and Track KPIs

Provide Architecture Vitality & Thought Leadership

Conduct Architecture Reviews and Workshops

Establish Decision Rights

Governing Body

Manage the Service Lifecycle

Provide Skills Transfer & Early Proof of Concepts

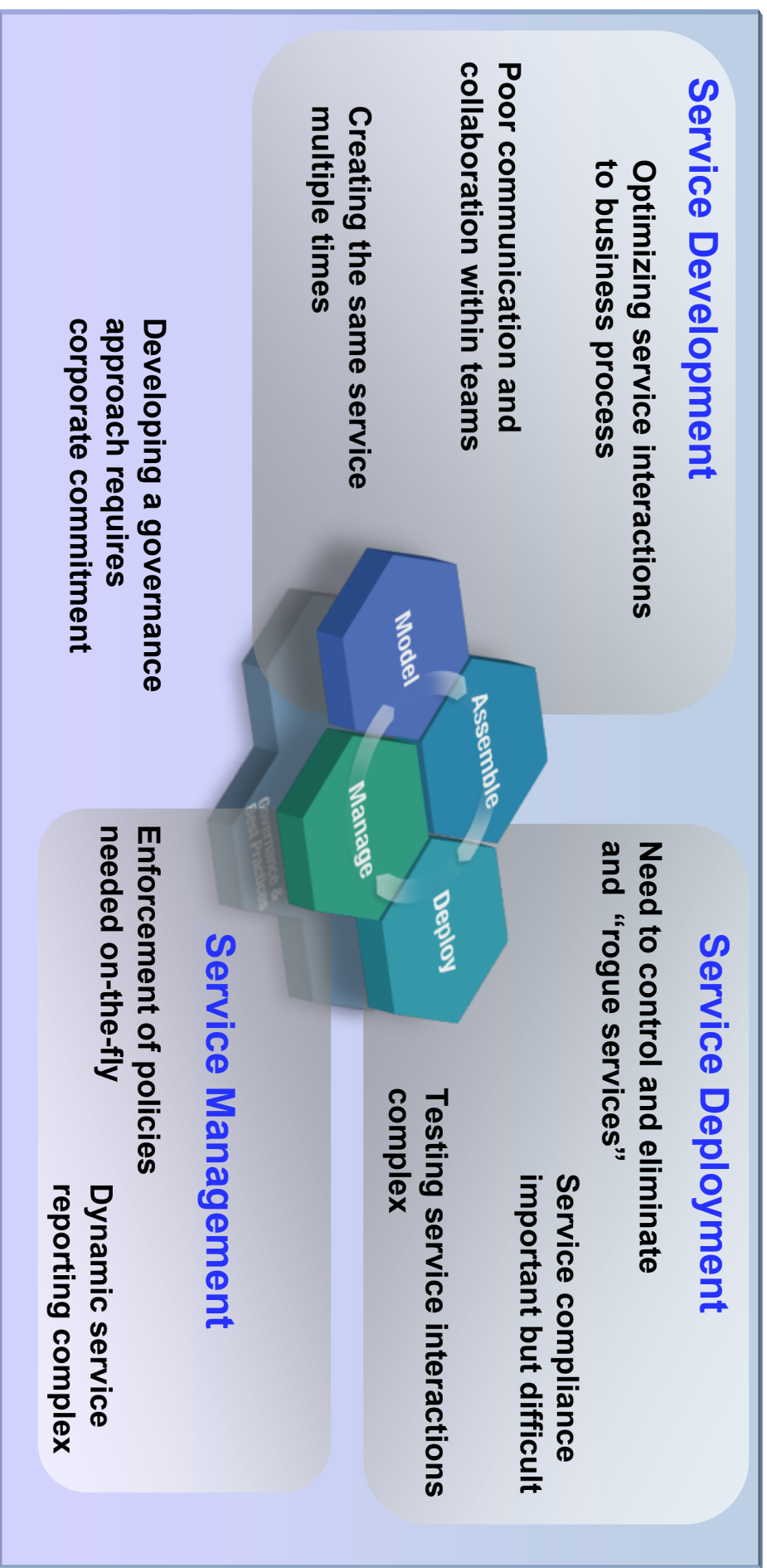**Provide Architectural Authority**

Define High Value Business Services

IBM

Center of Excellence (CoE) can improve the opportunity for SOA implementation success

Governance Method supplies templates to create CoE

Delivery:
Enables successful delivery of your business strategy with establishment of technical resources.

Customization:
Assist in customization of SOA Governance Method to meet unique requirements

Knowledge:
A CoE serves to supply the expertise to the organization for SOA implementation and execution

Capabilities:
- SOA Architecture Workshop
- SOA Architecture Design and Customization
- SOA Architecture Review
- Software environment installation and configuration
- Education and Skills Transfer

Center of Excellence

Define

Measure

SOA on your terms and our expertise
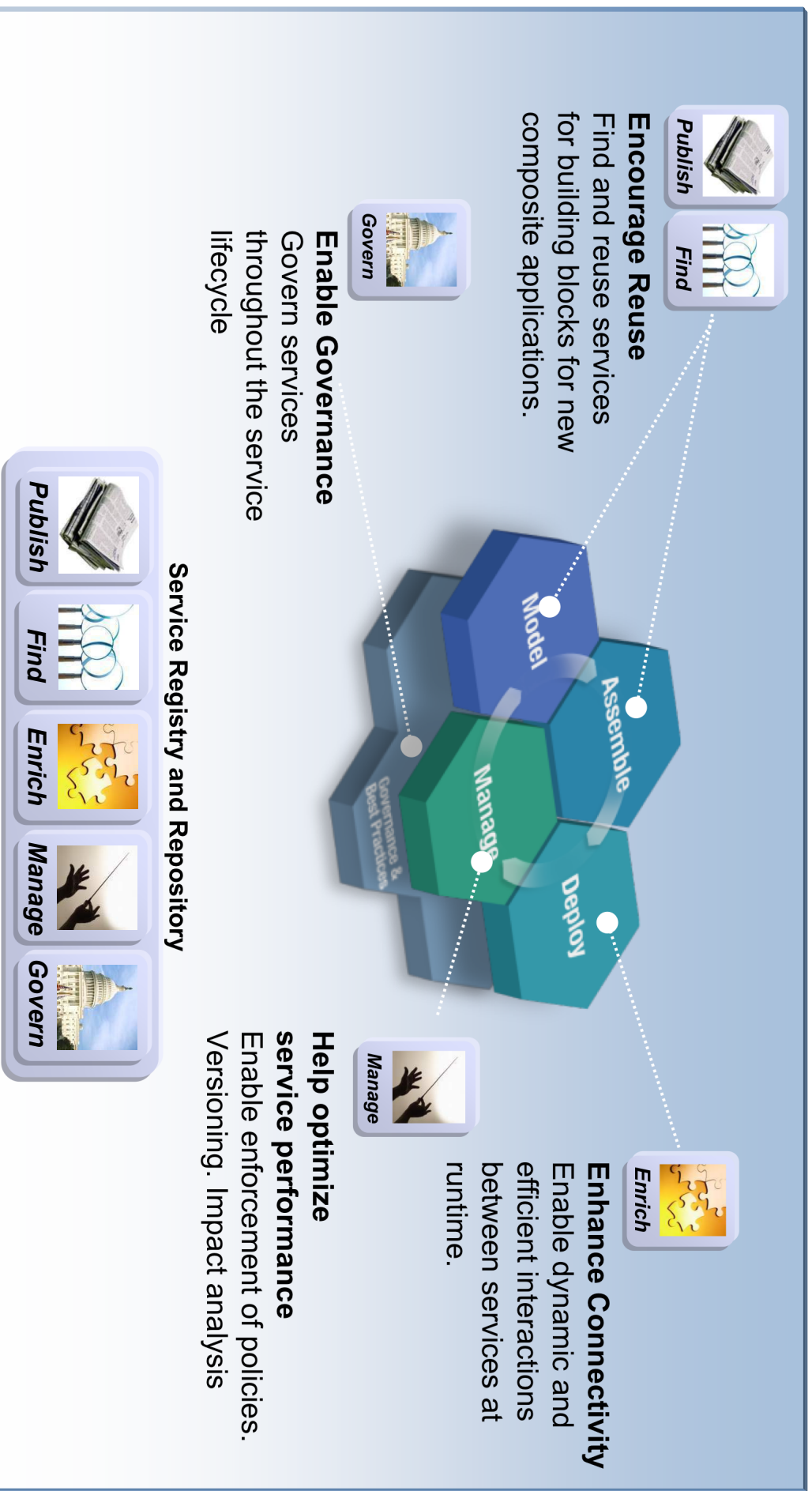
IBM

Each phase of the SOA Lifecycle has different *challenges* requiring different governance capability

Service Development

Optimizing service interactions to business process

Poor communication and collaboration within teams

Creating the same service multiple times

Service Deployment

Need to control and eliminate "rogue services"

Service compliance important but difficult

Testing service interactions complex

Service Management

Enforcement of policies needed on-the-fly

Dynamic service reporting complex

Developing a governance approach requires corporate commitment

Model

Assemble

Manage

Deploy

Governance & Best Practices

Governance is supported by a federated set of capabilities to meet the challenges of service lifecycle management

Service Development
- Service Discovery
- Service Development Lifecycle

Development Registries

Version Control

Asset Development Management

Service Asset Manager

Model

Assemble

Manage

Deploy

Service Deployment
- Runtime Repository
- Runtime Discovery

Service Registry & Repository

Other Service Endpoint Registries / Repositories

UDDI Registries

Other External Reg / Rep

Info based Services

Service Management
- Operational Efficiency & Resilience
- Configuration Data Discovery
- Managing change

Change and Configuration Management

Successful SOA service strategy requires a deployment tool to manage and control services at runtime

Encourage Reuse
Find and reuse services for building blocks for new composite applications.

Publish
Find

Govern

Enable Governance
Govern services throughout the service lifecycle

Service Registry and Repository

Publish
Find
Enrich
Manage
Govern

Model
Assemble
Manage
Deploy
Governance & Best Practices

Manage

Help optimize service performance
Enable enforcement of policies. Versioning. Impact analysis

Enrich

Enhance Connectivity
Enable dynamic and efficient interactions between services at runtime.

IBM

Service management and control will require the functionality in a federated registry/repository strategy

Promotes reuse and eliminate redundancies

- Publish and find services and related metadata through all stages of SOA
- Integration and federation with other standard registries and repositories

▼

Address the IT pain point of poor reuse and duplication

Enriches SOA runtime interaction

- Enable optimized access to service metadata
- Manage service interactions and policies

▼

Reduce huge maintenance costs by enabling a flexible infrastructure

Enables better control of SOA with governance

- Facilitates SOA focused service lifecycle management
- Analyze impacts of service introduction, retirement or alteration by maintaining relationships

▼

Eliminate lack of ownership and misalignment of activities with business initiatives

Service Development and Delivery Management focuses on creation and updating services as assets
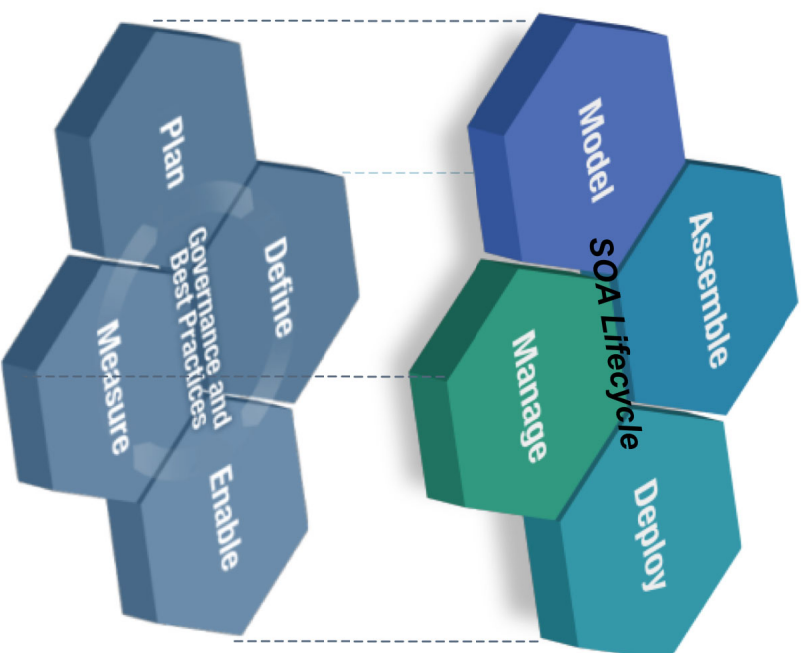
Service Lifecycle Management

Service Development and Delivery Management

Enforce, execute, automate process and policies

Infrastructure and Management In Support of SOA

Monitor and control operational policies

SOA Governance

SOA Governance and Management Method

Establish Process, Policies and Organizational Change

Development and delivery asset management tracks IT assets needed to implement an SOA

- Uses Reusable Asset Specification (RAS) to describe/classify assets

- Handles multiple types of assets
  – Services, source code, documentation, presentations, patterns, process flows
  (Collections of artifacts associated with a particular business requirement)

- Benefits:
  – Reduce software development and operational costs
 – Improve quality by facilitating the reuse of approved & proven assets

Asset

- Classifier
- .xml
- .doc, .uml
- Artifact
- .ppt, .doc
- Reusable Asset Specification (RAS)

IBM
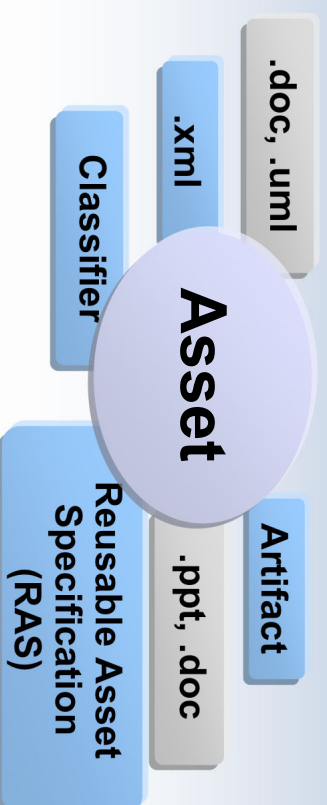
An Asset Manager supports development and delivery management of services and composite business services

Asset Manager is a collaborative software development asset management solution for:
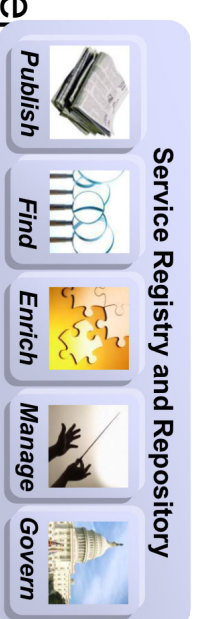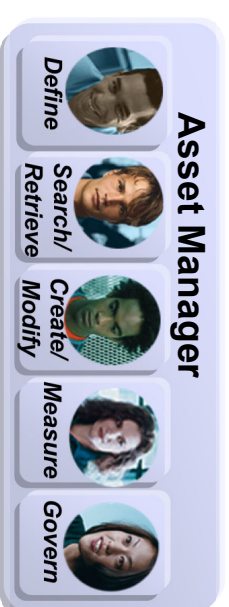
- *Design*
- *Development*
- *Consumption*

of services as part of an SOA initiative or other development environments
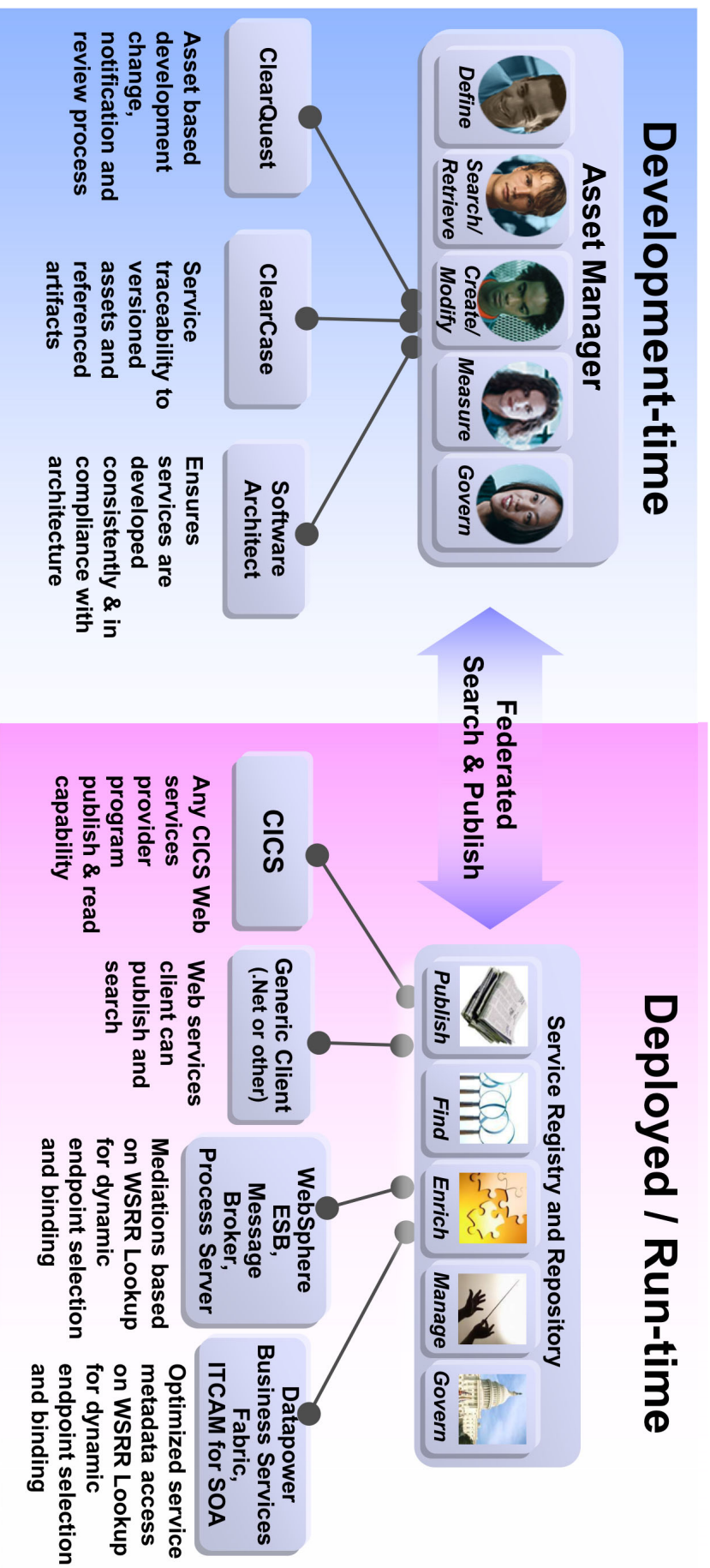
Asset Manager

Define

Search/ Retrieve

Create/ Modify

Measure

Govern
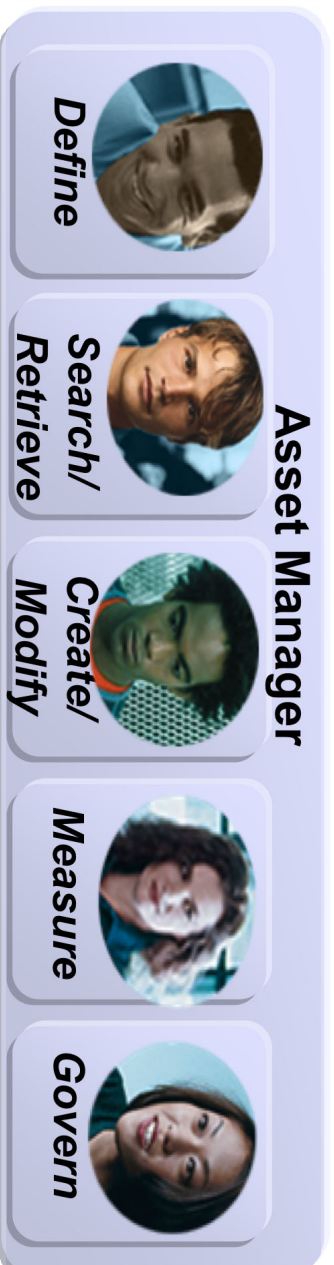
Registries and Repositories can work separately or federated together based on the business/IT SOA requirements

- **Asset Manager**
  - Key requirement is tracking assets in a development environment
  - Beginning to be interested in creating services
  - new asset
  - Converting current applications into Services

- **Service Registry and Repository**
  - Bringing in Services to implement SOA
  - Web based environment moving to SOA
  - Managing Services in an operational environment
  - Services being used from many sources and/or repositories

Asset Manager

Define

Search/ Retrieve

Create/ Modify

Measure

Govern

Service Registry and Repository

Publish

Find

Enrich

Manage

Govern

Development and deployment of services in SOA will have different requirements within the Lifecycle

Development-time

Asset Manager

Define
Search/ Retrieve
Create/ Modify
Measure
Govern

ClearQuest

Asset based development change, notification and review process

ClearCase

Service traceability to versioned assets and referenced artifacts

Software Architect

Ensures services are developed consistently & in compliance with architecture

Federated Search & Publish

Deployed / Run-time

Service Registry and Repository

Publish
Find
Enrich
Manage
Govern

CICS

Any CICS Web services provider program publish & read capability

Generic Client (.Net or other)

Web services client can publish and search

WebSphere ESB, Message Broker, Process Server

Mediations based on **WSRR Lookup** for dynamic endpoint selection and binding

Datapower Business Services Fabric, ITCAM for SOA

Optimized service metadata access on **WSRR Lookup** for dynamic endpoint selection and binding

⋎ Not every deployed service is a reusable asset and not every reusable asset is a deployed service

⋎ A service will be one of many types of assets

Improve business flexibility and service reuse within SOA development and deployment by adding an Asset Manager

Improve quality while reducing development cost and time

- *Managing and facilitate software reuse of assets, including Services*
- *Drive improvements in end-to-end service quality*

▲
- Accelerate delivery
- Increase quality
- Improve reliability

Promote cross project communication of reusable assets

- *Promote reusable asset sharing*
- *implement a cross org workflow*
- *Faster delivery of assets*

▲
- Unify disparate development teams
- Enable reuse and eliminate rework

Manage compliance and govern multi-platform development assets to

- *Enforce and monitor integrity*
- *Definable and auditable processes*
- *Incorporated in overall SOA Governance*

▲
- Enforce and govern architectural standards
- Control access and utilization of assets.

Service Lifecycle Management tools enhance each team members ability to be successful

Role			
Business Executive	Model business goals	Identify key business goals	
IT Executive	Establish quality management process	Align key business goals	Track Service Development
Developer	Create/Govern New Services	Discover services for reuse / publish service	Manage and build run time assets
Tester		Test Changes	
Deployment Manager		Ensure signoff and create audit trail for change	Track service information

Iterative & continuous

PROCESS

Model · Assemble · Deploy · Manage

IBM

Key Takeaways

1. Adopt an end-to-end framework to support a long-term approach toward service orientation
2. Implement a Stakeholders Management & Communication Strategy to gain adoption of ESB and service orientation
3. Communicate clear roles and responsibilities, including job impacts, at various levels of the organization
4. Establish Governance Scenarios to promote an "enterprise view" on shared services
5. Integrate the Services Lifecycle into the current SDLC or systems delivery process
6. Apply lessons learned from previous enterprise effort to build momentum and gain support from management

Act Now: Have you developed your SOA Governance Strategy?

- **Make the most of your time today**

- **Learn how other organisations here today have managed their SOA projects through good SOA Governance**

- **Leverage the expertise and tools available to you from IBM and its Business Partners**

- **Enjoy the day, ask questions and give us your feedback**

- **Key items available to you and your teams, via our website - www.ibm.com/itsolutions/uk/idc :**
  - Effective SOA Governance White Paper
  - Learn how Norwich Union approached SOA Governance
  - IBM SOA Architecture & Governance Workshop

IBM

Questions?

IBM SOA Executive Summit – July 2007

IBM

The workshops, sessions and materials have been prepared by IBM or the session speakers and reflect their own views. They are provided for informational purposes only, and are neither intended to, nor shall have the effect of being, legal or other guidance or advice to any participant. While efforts were made to verify the completeness and accuracy of the information contained in this presentation, it is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, this presentation or any other materials. Nothing contained in this presentation is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software.

References in this presentation to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in this presentation may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. Nothing contained in these materials is intended to, nor shall have the effect of, stating or implying that any activities undertaken by you will result in any specific sales, revenue growth or other results.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer.

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries. For a complete list of IBM trademarks, see

AIX, CICS, CICSPlex, DB2, DB2 Universal Database, i5/OS, IBM, the IBM logo, IMS, iSeries, Lotus, OMEGAMON, OS/390, Parallel Sysplex, pureXML, Rational, RCAF, Redbooks, Sametime, System i, System i5, System z, Tivoli, WebSphere, and z/OS.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.
Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.
Intel and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
UNIX is a registered trademark of The Open Group in the United States and other countries.
Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.