Enterprise IT Architectures

Enterprise Architecture – Governance
Agenda

I. Enterprise Architecture Governance & Transition

II. SOA Governance

III. Q&A
Enterprise Architecture – Governance & Transition
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
Governance involves balancing the key aspects of relationships and processes on a foundation of communication.

THE WILL
- Trust
- Alignment
- Responsibilities
- Communication
- Behavior
- Culture

THE WAY
- Charter
- Organization
- Principles
- Processes
- Roles & Respon.
- Metrics
- Tools

Communication
### Key terms and phrases

| Governance | A structure of relationships and processes to direct and control the enterprise in order to achieve the enterprise’s goals by adding value while balancing risk versus return over IT and its processes. The IT Governance Institute |
| Principle | The underlying general rules which an organization will use to utilize and deploy all business and IT resources and assets, across the enterprise e.g. "IT systems will be designed to be capable of rapid expansion in line with unpredicted business growth." In EA we distinguish between Guiding Principles and Usage Principles. |
| Policy | A high level statement of how things will be managed or organized, including management goals, objectives, beliefs and responsibilities. Policies are normally defined at an overall strategy level and can be related to a specific area, for example, Security Policies, Management Policies. In many instances, policies reflect the law and givens, which must be adhered to - this is especially true in the case of Security and Privacy policies. |
| Guideline | A general statement of direction, a desired future state which is not necessarily mandated. Guideline statements are similar in content to principle statements, but without the associated motivation and benefit statements. |
| Business Steering Committee | This group is responsible for providing business guidance, communicating changes in business direction, and for approving major changes and variances to the architecture. This committee should represent all business units, and participants should be senior managers (people with decision-making authority, for example, general managers or executive vice presidents). |
| Architecture Management Group (Architecture Review Board) | The group responsible for managing the design, deployment, maintenance, and evolution of the Enterprise Architecture. In addition, the AMG will be responsible for championing the EA throughout the enterprise. |
Enterprise Architecture and Governance

- Strategy
  - Business Opportunity
  - Technology Availability

- Planning
  - Business Architecture
    - Processes
    - Information
    - People
    - Locations
  - IT Architecture
    - Applications
    - Data
    - Technology

- Transition Plan
  - Ensures Alignment
  - Ensures Vitality
  - Ensures Compliance

- Design and Delivery
  - IT Solutions

- Enterprise Architecture
  - Define
  - Plan
  - Measure
  - Enable
  - Governance and Best Practices
Governance!
*Importance by Illustrating Service Control*

1. Provide a currency service that fills a specific line of business (LOB)
2. Other LOBs start using the service
3. LOBs increase use of services / quality suffers
4. Service is fixed at provider’s expense
5. Fix works temporarily but problem reappears
6. Maintenance costs soar / provider ends service
Governance!
Context of the wider Enterprise

- “An Enterprise Architecture is only as good as the decision making framework that is established around it.” (TOGAF)
EA Governance (how EA decisions are made) is a subset of IT Governance (how IT decisions are made)

- **IT Principles**: High level statements about how IT is used in the business
- **IT Architecture**: Organizing logic for data, applications, and infrastructure captured in a set of policies, relationships, and technical choices to achieve desired business and technical standardization and integration
- **IT Infrastructure Strategies**: Strategies for the base foundation of budgeted-for IT capability (both technical and human), shared throughout the firm as reliable services, and centrally located
- **Business Application Needs**: Specifying the business need for purchased or internally developed IT applications
- **IT Investment and Prioritization**: Decisions about how much and where to invest in IT including project approvals and justification techniques

The Governance and Roadmap areas are nested in IT and Enterprise level work.
Governance specifies how decisions are made within a targeted Management System – in this case Enterprise Architecture.

... How we govern is similar for each management system

... What we govern varies for each management system

Governance specifies how decisions are made within a targeted Management System – in this case Enterprise Architecture.
EA Governance Caveat – A balanced approach

Optimal Target based on Requirements

Unstructured
- Free-for-all
- Unrepeatable process
- No metrics
- No documentation
- Relies on ‘heroes’

Governance
- Balanced
- Repeatable process
- Measurable
- Documented and used
- Continuously improved

Too Structured
- No room for creativity
- Bureaucratic and slow
- Too many metrics
- Policy & procedure excess
- Often ignored / undermined
EA Governance affects many decision-makers

Architecture Leadership
Sponsored issues and opportunities

Architecture Implementation

Projects/Solutions Life Cycle
Architect Design Develop Test Implement

Business Units
Executive Committees Technology Briefings Operations

Architecture Blueprint
Guidance, Standards & Direction
Architects

Business Direction and Opportunities
Approvals & Resources
IT Direction and Opportunities
Service Levels, Issues & Escalations
Special Task Forces
Technology Scans, Assessments, Labs, Metrics, Issues, on demand

Executive Committees

Technology Briefings

Operations
Governance Considerations – What is required? Processes, Roles and Organization
Key processes are for Architecture Review, Vitality, and Change Management
All governance deliverables are interrelated; iteration is required to ensure a consistent view across the complete governance framework.
EA Architects are primarily involved in strategy and solution design stages.
Committees for ensuring Enterprise Architecture

Diagram showing the relationship between Business Strategy, IT Strategy, Architecture, Transition Plan, Gap Analysis, and Governance. The diagram also includes the Architecture Compliance Review Team (ACRT) and Business & Technical Solutions (Projects) with a "Solution Life Cycle".
Roles and Responsibilities

Executive Level IT Steering Committees

Architecture Review Board Leadership

Technical Review Board Implementation

Project Teams

Architecture Role/Responsibility

- Business/IT Direction (Project Funding/Approval)
- Architecture Policy & Direction Leadership & Sponsorship (Governance/Standards/Processes)
- Architecture Compliance at Project Level Reviews, consults, mentors project teams

Strategic

Tactical

Business Architect, Application Architect, Data Architect, Technology Architect
EA Governance – Overview of the boards/committees

Architecture Management

Executive Review Board
- 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

IT Steering Committee
- 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

Architecture Review Board
- 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

Architecture Compliance Review Team
- Champion Architecture
- Review Projects for Compliance with Standards
- Provide Architecture Guidance to the Stakeholders
- Maintain Architecture Standards and Processes
- Recommend Architecture Improvements

Architecture Stakeholders
- Comply with Architecture & Provide Feedback to ARB
- Locally Sponsor and Champion Architecture
- Support Conformance to Architecture
- Submit Requests for Architecture Changes and Exceptions

Executive Decision Making
- CEO
- President
- CFO
- CIO
Enterprise Architecture Governance also has many dimensions

<table>
<thead>
<tr>
<th>Enterprise Architecture Elements</th>
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</thead>
<tbody>
<tr>
<td><strong>Strategy</strong></td>
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<tr>
<td>Strategic Alignment - Explicit linkages to IT and Business Strategies in order to support and implement those strategies</td>
</tr>
<tr>
<td>Principles - Fundamental rules upon which the Enterprise Architecture is based</td>
</tr>
<tr>
<td>Architecture Vision - Represents the governing ideas and directions for a target Enterprise Architecture</td>
</tr>
<tr>
<td>Measurements - Measuring the EA benefits and return on investment to prove its value</td>
</tr>
<tr>
<td><strong>Artifacts</strong></td>
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<tr>
<td>Framework - Structure of the EA, set of conventions for ensuring consistent notation, terminology and semantics to describe EA</td>
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<tr>
<td>Models / Patterns - Overall EA context, diagrams and views; Assemblies of Components for communications and guidance</td>
</tr>
<tr>
<td>Components / Standards - Basic Architecture building blocks, defining reusable functionality of service</td>
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<tr>
<td><strong>Governance</strong></td>
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<tr>
<td>Management Processes - Processes required to manage, use and update the Enterprise Architecture</td>
</tr>
<tr>
<td>Roles - Key roles and responsibilities necessary to effectively manage and use the Enterprise Architecture</td>
</tr>
<tr>
<td>Organization - Position and reporting structure of the EA Roles</td>
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<tr>
<td><strong>Roadmap</strong></td>
</tr>
<tr>
<td>Current Environment - An understanding of the organization's current operating environment</td>
</tr>
<tr>
<td>Gap Analysis - An assessment of the gaps between the Current installed IT environment, and the Target IT environment</td>
</tr>
<tr>
<td>Transition Plan - Transition initiatives required to effect transformation from the Current State to the Target State</td>
</tr>
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Enterprise Architecture Governance Components

Vision, Mission, Charter
- Development of change vision and specific mission

Architecture Roles & Responsibilities
- Who are the architecture participants?
- How do the participants interact?
- Decision rights

Governance Bodies & Cadence
- What forums review and approve architecture decisions?
- Who leads and participates in the architecture forums, and how often do they meet?

Processes
- What activities are governed?
- Who reviews and approves decisions, and how do escalations occur?

Metrics
- What types of metrics and measures are managed?

Principles
- What is the high level development guidance?

Tooling
- What tools will be utilized?
Information Governance Aspects

*Information Governance is a holistic approach to managing and leveraging information for business benefits and encompasses people, processes, and technology*

- Executive Sponsors and Champions
- Organizational structure and definitions of roles and responsibilities
- Information Governance Experts
- Data Stewards, Data Managers
- Data Quality Experts

- Data Standardization Processes
- Processes and Business Rules for ongoing governance
- Information Governance Policies and Procedures
- Common Data Standards and Business Definitions
- Data Quality Remediation Processes
- Change Management Processes (IT & Business)

- Metadata Repositories, populated with the common data standards, business definitions, data structures, and data transformation rules
- Workflow Technology
- Data Quality Remediation Technology
- Integrated Development and Information Management Platform
- Reporting & Performance Management Technology
EA inspired initiatives should be considered alongside all requests for IT resource (development and implementation):

- Business driven
- Technology driven
- Architecture driven

Transition initiatives need to be prioritized and approved as part of the overall IT Operating Plan for the enterprise.
So as well as guiding development, the EA framework must also provide transition “roadmaps”

**Preferred Product Analysis: Selection Criteria**

<table>
<thead>
<tr>
<th>Building Block: Operating System</th>
<th>Current</th>
<th>Migration</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Environment</strong></td>
<td>OS/390, USS390, OS/400, AIX, Solaris, Unix, Win 9x, 2000, Novell, OS/2, MacOS</td>
<td><strong>Tactical Deployment</strong></td>
<td>zOS, Solaris, Win2000, WinXP</td>
</tr>
<tr>
<td><strong>Retirement Targets</strong></td>
<td>Win9x, Novell</td>
<td><strong>Preferred</strong></td>
<td>zOS, Solaris, Windows</td>
</tr>
<tr>
<td><strong>Sunset Targets</strong></td>
<td>OS/400, MacOS, Win 2000 non-Solaris Unix</td>
<td><strong>Emerging</strong></td>
<td>Linux, Autonomic, Virtualisation, Integration, Consolidation</td>
</tr>
</tbody>
</table>

**TA Product/Service Evaluation Summary**

<table>
<thead>
<tr>
<th>Evaluation Percentages</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>100%</td>
</tr>
<tr>
<td>Good</td>
<td>80%</td>
</tr>
<tr>
<td>Fair</td>
<td>60%</td>
</tr>
<tr>
<td>Poor</td>
<td>40%</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Category Weighting:** Relative Percentage of overall importance to the business of the specific Category. The sum of all relevant categories must total 100%.
SOA Governance
Governance within the SOA Lifecycle

- Discover
- Construct & Test
- Compose

- Gather requirements
- Model & Simulate
- Design

- Assemble

- Integrate people
- Integrate processes
- Manage and integrate information

- Deploy

- Manage applications & services
- Manage identity & compliance
- Monitor business metrics

- Manage

- Financial transparency
- Business/IT alignment
- Process control

- Governance & Best Practices
Why Governance Matters

- **Realize business benefits**
  - 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
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
SOA Governance Life Cycle Addresses Key Questions

- What standards do we need to establish and when?
- What processes do we need to identify, develop, deploy and manage services?
- How do we govern and manage our SOA Identification, development and deployment approach?
- What metrics and key performance indicators will we use?
- How does the registry and repository get used? What controls are necessary?
- Who manages the Services Repository? Who uses it?
- How do we measure our model and the effectiveness of services?
- How do we govern and manage the Life Cycle of services?
- What can I reuse from my existing IT Governance Model?
- What is our SOA Vision and Strategy?
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
Service Governance within SOA Governance

**Service Governance** – the governing of the *individual* service lifecycle management process to maximize how that particular service delivers business value and enables the goals of the business.

**SOA Governance** – solution portfolio level

- Process Modeling Services
- Metadata Model
- Organizational Change
- Human Collaboration
- Portfolio Management
- Risk Management

**Service Governance** – project service level

- Registry & Repository Support
- Policy Lifecycle Management
- Change Management
- Service Lifecycle Model
- Service Level Agreement
- Dashboards & Other Presentation
- Decision Rights Management
Governs the Service Consumers as well as the Service Provider

**Service Provider**
- Eligibility
  - Eligibility V2.1
    - Service Level Definition
      - Service Endpoint

**Service Consumer**
- Account Creation
  - Account Creation V1.0
    - Service Level Definition
      - Service Endpoint
Example: Defining the Governance Solution

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

Lotus

WebSphere

Rational

Tivoli

Refine Operational Environment

Tailor Methodology

Create Project Proposal

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Interaction Between the Lifecycles

Service 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
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
**Example – Enforcement at Development Time**

- **policy**: Services must be compliant with the existing reference architecture.
- **human decision**: Implement Service that failed Litmus test.
- **registry lookup**: Services should be reused instead of created whenever possible.
- **quality gate**: Services must be compliant with the existing reference architecture.
- **review**: New roles and new activities.

---

Example - Enforcement at Development Time

- **exception procedure**: Implement Service that failed Litmus test.
- **policy**: Services should be reused instead of created whenever possible.
- **registry lookup**: Services must be compliant with the existing reference architecture.
- **review**: New roles and new activities.
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
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: Services must be compliant with the existing reference architecture.

Quality Gate: Validate Service Design, manual enforcement during development.
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

2. Validate Service Ownership

3. Registry Lookup to enforce reuse of existing services

4. Validate Service Design for Standards Compliance

5. Publish Service to repository after Litmus test is successful

6. Add a Policy for Dynamic Binding

Ensure Compliance and Define Policies

Governance at Development Time – Enforcing Policies of Services Life Cycle

Validate Service Ownership

 Registry Lookup to enforce reuse of existing services

 Publish Service to repository after Litmus test is successful

 Add a Policy for Dynamic Binding

Validate Service Design for Standards Compliance

Service Analysis and Design

WebSphere Service Registry and Repository

Publish Find Enrich Manage Govern
When is a Repository Used?

*In every phase of the Service Lifecycle*
Supporting the Steps of Service Life Cycle

1. Created
2. Plan
3. Model
4. Authorize Development
5. Assemble
6. Certify
7. Revoke
8. Manage
9. Deprecate
10. Retired
Main Capabilities of Service Registry and Repository

Service Registry and Repository

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

**Find**

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

**Manage**
- Enable Governance
- Govern services throughout the service lifecycle

**Govern**
- Help optimize service performance
- Enable enforcement of policies. Impact analysis

Publish Find Enrich Manage Govern

Help optimize service performance Enable enforcement of policies. Impact analysis

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

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

Enable Governance Govern services throughout the service lifecycle

IBM
TOGAF (The Open Group Architecture Framework) 9.1

- TOGAF Version 9.1 is a detailed method and set of supporting resources for developing an Enterprise Architecture. Developed and endorsed by the membership of The Open Group's Architecture Forum, TOGAF 9.1 represents an industry consensus framework and method for Enterprise Architecture that is available for use internally by any organization around the world - members and non-members of The Open Group alike - subject to license conditions.

- First developed in 1995, TOGAF was based on the US Department of Defense Technical Architecture Framework for Information Management (TAFIM). From this sound foundation, The Open Group Architecture Forum has developed successive versions of TOGAF at regular intervals and published them on The Open Group public web site.
What is TOGAF®?

- TOGAF, an Open Group Standard:
  - A proven enterprise architecture methodology and framework used by the world's leading organizations to improve business efficiency
  - The most prominent and reliable enterprise architecture standard, ensuring consistent standards, methods, and communication among enterprise architecture professionals
  - Enterprise architecture professionals fluent in TOGAF standards enjoy greater industry credibility, job effectiveness, and career opportunities
  - TOGAF helps practitioners avoid being locked into proprietary methods, utilize resources more efficiently and effectively, and realize a greater return on investment
Business Vision and Drivers

Informs the capability
Ensures Realization of Business Vision
Business needs feed into method
Refines Understanding
Informs the Business of the current state

TOGAF Capability Framework

Architecture Capability Framework (Part VII)

Architecture Development Method (Part II)

ADM Guidelines & Techniques (Part III)

Architecture Content Framework (Part IV)

Enterprise Continuum & Tools (Part V)

TOGAF Reference Models (Part VI)

Sets targets, KPIs, budgets for architecture roles
Drives need for Architecture Capability maturity
Delivers new business solutions
Operational changes cause updates

Business Capabilities