



The Role of Governance in Ensuring SOA Success

The benefits of SOA adoption are compelling: lower development costs through rapid deployment of new functionality that reuses existing code, increased flexibility from improved responsiveness to business needs, and reduced maintenance costs from freeing staff to work on innovative new initiatives. Yet, as the number of reusable services grows within an organization committed to SOA, realizing those benefits becomes difficult without putting in place policies and procedures that govern the SOA. Collectively called governance, this addresses three aspects of managing SOA for the entire enterprise – organizational governance, lifecycle governance and operational governance. Developing and implementing an overarching governance plan that is formal, comprehensive and consistent, is an essential step in ensuring an organization receives the desired ROI and reduced TCO that were the initial motivation for adopting SOA.



Challenges of SOA Adoption

Organizations typically adopt SOA to drive down costs through reuse of developed services, and are excited to see quick returns on their initial investment. However, as the SOA matures and expands enterprise-wide, it goes far beyond reuse of a few services across a project or application – often growing into a difficult-to-manage initiative that dominates reuse across the organization. From affecting a few developers on a project, it evolves into an architecture that affects IT staff members across the organization, including architects, business analysts, developers and IT managers.

Practical experience has established that about 50 services in an SOA is a tipping point when it becomes more of a management challenge. At that scale, organizations can lose more money implementing SOA than they save. Lack of visibility into services, poor governing processes around the SOA, and hard-wiring regulatory needs into services are all problems that scale exponentially as services increase in number and complexity. Everyday events in an organization, such as a few developers of services leaving or enforcement of a new regulatory requirement, can wreak havoc.

Can an organization reach the goal of having SOA span departments while still realizing good returns on investment and reduced total cost of ownership? Is it possible for SOA to be successful and avoid an IT management nightmare? It is – and the means to achieve those ends is governance. Every organization that implements SOA and successfully scales the architecture to meet growing demand has put in place a strong governance strategy, and has implemented that strategy consistently over time and throughout the enterprise.

Essentials in SOA Governance

SOA challenges can be grouped into three areas: organizational, lifecycle and operational. A complete SOA governance solution addresses all three.

ORGANIZATIONAL GOVERNANCE

The adoption of SOA in a large company leads to multiple development teams creating loosely coupled components that leverage each other. This arrangement can lead to problems if standards are not properly defined and interfaces are not managed. Organizations often struggle to build a management system that ensures all services and applications comply with standards. If they don't, they can't be reused in other departments, which is the primary purpose of adopting SOA in the first place.

Organizational governance focuses on business alignment, which ensures the SOA implementation takes into consideration all business-level agreements. From the top down, it drives business requirements through service delivery. Doing so typically includes creating a Center of Excellence (COE), comprising stakeholders who drive adoption of SOA, set up



metrics for measuring success, and provide ongoing guidance. To help implement efficient governance techniques, the COE considers products and technology solutions to meet SOA goals, guides the enterprise in adopting a methodology, and shares its expertise with project members across the enterprise.

The following six steps are key to successfully implementing organizational governance.

1. Define a vision, high-level architecture and strategy

A critical part of SOA is having the right organizational roles and responsibilities in place to define the goals and key business processes requiring improvement. It is imperative to develop and communicate a high-level architecture and strategy on an ongoing basis that aligns with the organization's goals.

2. Define and implement an organizational foundation

An organizational foundation that defines the stakeholders for the services and establishes a process to follow for the various players involved in SOA is a requirement for ongoing SOA success.

3. Define and implement a technical methodology and standards foundation

Define the core infrastructure services, so that the rest of the enterprise can utilize them for reuse. This avoids duplication, establishes standards, and propagates best practices.

4. Decompose processes into services

A top-down approach of decomposing processes into services helps align business metrics with SOA. Prioritizing business processes for improvement enables the identification and analysis of the right service-level metrics. A key part of this process is establishing process performance baselines and success metrics.

5. Build services and composite applications

Developers build composite applications by leveraging the underlying services. This could mean building across a heterogeneous environment of underlying technologies. At this stage, developers need a tool that enables end-to-end design of the composite application and analyzes dependencies on underlying services.

6. Operate the business

As the business operates, there needs to be ongoing measurement of business processes and service performance to identify areas for improvement.

LIFECYCLE GOVERNANCE

Lifecycle governance focuses on the entire lifecycle of an application or service, from design to development to test to deployment and maintenance. As services move through the lifecycle, it fosters reuse, quality, performance and testing. It involves assessing and managing change impact on SOA operations and services. It also involves managing



module versions of services and service components, including legacy applications.

The following core components enable design time governance.

Lifecycle Management:

Provides end-to-end control of the service lifecycle. Promotes services through different lifecycle stages; enables impact, version and change management.

Information Management for Visibility and Reporting:

Helps with modeling relationships and dependencies between services and related artifacts. Also helps with reports on SOA metrics such as success, compliance and reuse. Provides the capacity to publish and discover services and related metadata, including policies.

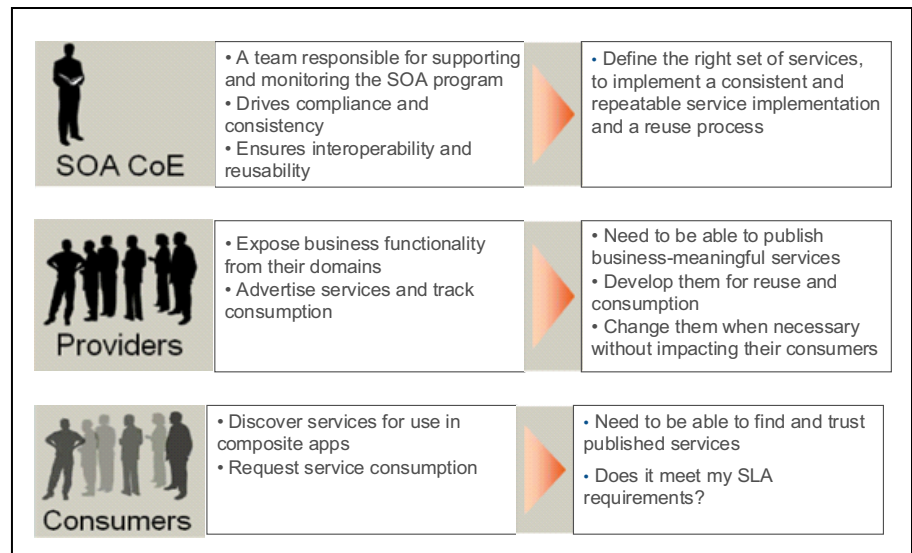
Design Time Policy Management:

Relates to the creation, management, and validation of design principles. Encourages elimination of duplicate services and fosters reuse. Validates compliance to design time policies.

Contract Management:

Helps formalize producer/consumer relationships, and helps individuals negotiate and manage agreements on an ongoing basis and facilitate change. Helps define and maintain service-level objectives.

Figure 1. Defining roles and responsibilities in lifecycle governance.





To be effective, governance needs to be available across organizations and different vendors. It needs to incorporate various data models, both structured and unstructured. To do that, it needs a repository, which is used to consistently maintain, share and standardize on artifacts associated with services. Without one, developers create their own models, and synchronization becomes a challenge.

OPERATIONAL GOVERNANCE

As services move through the various stages of the lifecycle and are deployed, *operational governance* becomes necessary. Operational governance consists largely of policy management and of enforcement and management of service-level agreements (SLAs). For operational governance, deployment and runtime service artifacts need to be specific to that runtime environment. Access is necessary for a variety of information including:

- Top hits and failures
- Service load, performance, and response
- Logging and auditing information
- Specific deployment information

This information needs to be scaled and tuned for the deployment environment.

Policy Management

Policy management is the separation of common application attributes from the service.

Embedding policy management in the application, or building security as part of the service, can make them very rigid. Changes to policies will require rewriting the service. In a better system, policies are abstracted from the service. These policies have a lifecycle of their own, and decisions about them can be made independently. Declarative, externalized policies are simple and flexible. They can be used to describe essential attributes such as authentication, authorization, encryption, routing, auditing and logging.

A policy manager is responsible for restoring policies and distributing them to the proper endpoint. Services can be hot-deployed without having to bring down the service.

Service-Level Management and End-To-End Visibility

To execute operational governance, staff members need insight and visibility into all aspects of available services. All services need to be deployed, monitored and managed as if they were one application. In addition, there is a need for a dashboard view to see the status of a service, the machines in use, the amount of hardware being utilized, how many nodes each service is being deployed to, what applications are using each service, and what services they are consuming. There is also a need for visibility into the state and performance of these processes.



SLAs are a key part of operational governance; it is critical to ensure they are being met in an ongoing manner. Using people to monitor SLAs and prioritize resources to ensure requirements are met can be both expensive and error-prone. A better solution is to automate monitoring to detect patterns of events that can adversely impact SLAs, in which case resources within the IT infrastructure can be automatically leveraged to meet business-driven SLAs.

Case Study: How Governance Enables SOA Success in Complex Environments

A telecom company adopted a growth strategy of acquiring smaller players. However, to realize good returns and guarantee success with each acquisition, the company needed to efficiently integrate the operations of each acquired company.

The principal challenge IT faced was that every acquired company brought a new set of problems. What are the services in the acquired company's IT department? How does the larger IT organization relate to these services? Who is the governing body for these services? In addition, each IT department used a different technology – one used Java, another used .NET, and a third used proprietary methods around old mainframe code.

How could the company guarantee SLAs would be met for the composite applications across all these services? What about regulatory and compliance metrics that need to be met?

The company chose to:

- Establish a Center of Excellence and standardize on a methodology for organizational governance
- Implement an extensive framework for lifecycle governance
- Institute continuous monitoring aligned with SLAs and enforce policies using operational governance

These steps eliminated the management nightmare associated with integrating the newly acquired companies. In addition, it demonstrated quick return on investment through tangible business metrics. After putting in place this governance plan, every new acquisition could be reliably proven to be an asset to the organization's growth rather than a liability that required excessive time and resources for integration and management.



Summary

Experience has shown that governance is an indispensable component of SOA success. An effective, comprehensive solution addresses the three primary areas of governance challenges:

- **Organizational governance**, which identifies business issues and lays an organizational foundation to address these issues
- **Lifecycle governance**, which addresses reuse, dependency and impact analysis, and processes to improve consistency, visibility, and trust
- **Operational governance**, which ensures appropriate security, auditing, and logging policies are enforced and performance-based SLAs are met

By putting in place governance practices that address all three areas, organizations can significantly increase the likelihood that they will receive all the benefits of their SOA initiative.

Resources

TIBCO offers an SOA Governance suite of products that meet all requirements to ensure successful SOA. The SOA Resource Center at <http://soa.tibco.com> provides access to a wealth of information on governance.



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