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BETTER GOVERNANCE FOR IT RESULTS

*USE THE LESSONS OF SOA GOVERNANCE FOR
OPTIMAL IT OUTCOMES*



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Abstract

Few topics in today's organizations present such a diverse set of both business and technology challenges as governance. Governance consists of establishing chains of responsibility, policies that guide the organization, control mechanisms to ensure compliance with those policies, and communication and measurement amongst all parties. However, what constitutes a policy and what activities and tools the organization requires for governance are questions that have a broad diversity of answers.

Nowhere are the differences among various definitions of governance more pronounced than in the contrast between lines of business and information technology (IT). From the business perspective, top executives as well as government regulators set policies for the organization, which explain in often broad terms how various individuals within the company must act in certain circumstances. From the IT perspective, however, governance covers a range of policies that span the gamut from purchasing and hiring policies all the way to firewall and coding policies and enforcing service-level agreements.

Service-Oriented Architecture (SOA) is a well-adopted approach to organizing IT resources to better meet the changing needs of the business. Governance is essential to ensuring that organizations realize the business benefits of SOA consistently through their IT implementations. Furthermore, as such firms adopt SOA, they become better able to provide more flexible governance overall. The big win for SOA governance, therefore, extends well beyond the SOA initiative and applies the lessons of SOA governance into all parts of the organization.

This paper explores the relationship among SOA, IT and corporate governance, defines the key lessons of SOA governance, and summarizes how these best practices expand well beyond SOA to deliver better governance overall.

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I. Executive Summary

Service-Oriented Architecture (SOA) has become the predominant architectural movement in IT organizations around the world, and yet, there remains confusion over the nature of SOA and how best to implement it. Despite what numerous platform and integration vendors espouse, SOA is not something you buy—it is something you do. Fundamentally, SOA is a set of best practices for organizing and managing IT resources as flexible, business-oriented Services.

Services abstract the underlying complexity of the IT environment, providing greater power and flexibility to the business. SOA has the power to increase competitiveness through IT innovation and agility in the face of today's ever-changing business environment, and once businesses realize and apply the transformative power of this critically important business concept, they will be in the position to deal with ongoing, often unpredictable, change.

Today, a majority of enterprises and government organizations are somewhere on their SOA roadmap. While business agility is the most strategic business benefit of SOA, many organizations leverage SOA to reduce the cost of integration, increase asset reuse, and improve customer visibility and overall business transparency, as they build the business case for agility.

Perhaps the least understood business benefit of SOA, however, is *business empowerment*. The concept of business empowerment focuses on the people within lines of business and how technology both directly and indirectly gives them the capabilities they need to succeed at overcoming the business challenges and demands that face them. Business empowerment is fast becoming the central motivation for SOA adoption, second only to business agility – and for many organizations, the most important reason of all for implementing SOA.

In essence, IT organizations that successfully implement SOA are placing increasingly powerful tools into the hands of the business, enabling them to have unprecedented control over their business processes and information. With such power, however, comes responsibility. On the one hand, the IT organization has policies it must follow on how it creates, deploys, and secures applications. On the other hand, the business must also follow policies that delineate how the organization complies with regulations, interacts with customers, and operates the business overall. As a result, *governance* is becoming increasingly important across both business and IT, as organizations struggle not only with increasingly powerful IT capabilities, but with the increasingly complex business world.

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II. The Business Motivation for Governance

The concept of governance is drawing substantial attention in corporate boardrooms and technical meetings alike, as companies struggle with complex regulatory compliance pressures, increasing globalization, enhanced competition, and the maturation of their markets. Many organizations have learned that one key differentiator between top performing organizations and their less successful counterparts is the ability to monitor their performance, and then evaluate those results and act on the lessons they've learned. As a result, governance can both empower and control. It empowers stakeholders to more rapidly make and implement decisions, while it provides for management controls designed to maintain corporate policies.

What is Governance?

To achieve the balance between business empowerment and IT control—and leverage performance monitoring and decision making without dissention in the ranks—requires effective corporate governance, which we define in this way:

- Establishing and communicating the policies that employees must follow
- Giving employees the tools they need to be compliant with those policies
- Enforcing policies
- Providing visibility into the levels of compliance in the organization
- Resolving any deviations from established policy

There's nothing in the above five bullets that requires that management involve technology in any way, and in fact, most managers today handle corporate governance in an essentially manual fashion, or where IT serves a secondary support role. For example, let's consider the case of a corporate nondiscrimination policy. Corporate council establishes the policy by basing it on the law. They then communicate it to employees via a memo. Next, human resources prepare some instructions on following the policy, which are the tools they provide to employees. The organization then handles enforcement through a formal complaint and investigation process, which also affords management visibility into the levels of compliance with the policy. Finally, the organization institutes a reprimand and dismissal policy for dealing with violations.

Note that in the example above, technology is not directly involved, but technology likely supported or enabled the governance processes. Perhaps someone sent an email to inform HR about the violation or posted the policy on an intranet. And yet, while a policy like a corporate nondiscrimination policy doesn't lend itself to IT involvement, other policies are better able to take advantage of the resources IT can provide. For example, today's businesses must keep confidential customer and employee information that resides in various databases private and secure. Enforcing confidentiality will then be a combination of manual tasks like educating medical personnel, combined with automated processes like requiring password protection for documents and processes.

In the case of IT governance as well, many processes and policies are essentially human-based. Architecture governance, a key aspect of IT governance, consists of setting up an architecture board who creates and manages policies for the IT organization, including policies for reviews and acceptance, hiring, purchasing, and leveraging existing technology. Architecture, however, serves an additional role by providing best practices for IT governance overall.

In the case of IT governance, many processes and policies are essentially human-based.

When architecture drives IT governance, taking a Service-oriented approach to architecture can improve the policy management, flexibility, and visibility necessary for IT governance, and more broadly, corporate governance.

What is a Policy?

While many governance processes are essentially human-centric, where technology plays little more than a supporting role, there are certain types of policies that lend themselves well to automation. One challenge for IT governance—and consequently, for architecture, and SOA governance—becomes identifying which policy-based processes are natural to automate and then leveraging the appropriate technologies to automate such processes in a flexible way. In fact, even for the most mature SOA implementations, many governance tasks fall outside the realm of automation. Even so, when architecture drives IT governance, taking a Service-oriented approach to architecture can improve the policy management, flexibility, and visibility necessary for IT governance, and more broadly, corporate governance.

This dichotomy between different perspectives on the nature of policies in the organization presents challenges across the organization as both business and IT managers get a handle on what it means to automate governance. Before SOA, business and IT managers shared little common ground with respect to policy definition and enforcement. SOA, however, helps automate policy activities by treating policies as external artifacts that serve as what ZapThink refers to as *metadata*: policy information represented in a standard, machine readable format. Once policies appear as metadata, it becomes possible to bridge the gap between the business and IT perspectives on policies by providing an artifact that can drive dialog between business and IT. Note that we're using the term metadata broadly to include artifacts external to the application code and the data the applications deal with. The physical representation of a policy might be a document like an XML file.

Defining the Governance Framework

The starting point for any SOA governance initiative, therefore, centers on the policies that the organization values and requires, and how they will enforce those policies in order to effectively balance empowerment and control. In order to get a handle on the scope of such an initiative, it is essential to put together a governance framework. To create a governance framework, you should answer the following questions:

- Which policies are within the scope of the current iteration? Which policies should you implement first?
- Who in your organization is responsible for creating policies?
- Which policies are automatable?
- How will you create and communicate policies?
- How will you represent policies? In other words, what is the format for your policies?
- How will people within your organization discover policies?
- What tools will people use to follow policies?
- How will management get visibility into policy compliance?
- How will you deal with policy violations? What mitigation approaches will you use?
- What is your process for policy change? Who makes the decisions about changes that impact policies and the Services they influence?

This governance framework then becomes an outline of your governance initiatives. In early iterations, it will be a simple document, but in each successive iteration, it is important to flesh it out, delineating in increasing detail how you will define and enforce policies as your governance initiative matures.

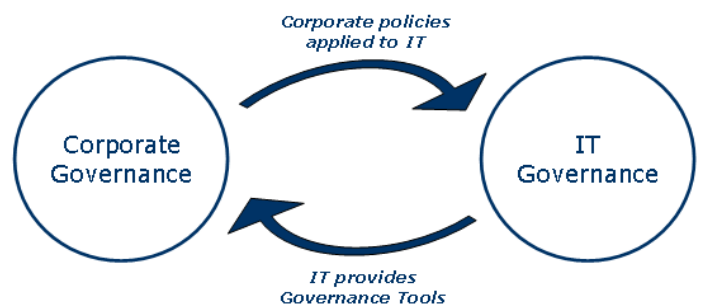
III. IT's Dual Governance Role

Once your initial governance framework is in place, it soon becomes important to identify the role IT has in implementing the governance initiative. It's important to note, however, that there are several different activities that organizations must undertake to tackle corporate and IT governance, including the following:

- *Communication* – the simple act of communicating policies, either face-to-face, via one-to-one remote communication media like email, or via one-to-many approaches like the corporate Intranet.
- *Training* – formal and informal training on policies and procedures.
- *Human management* – people working with their direct reports to ensure understanding of and compliance with corporate and IT policies.
- *Knowledge management* – leveraging a centralized repository of policies and associated best practices.
- *Automation* – taking advantage of IT infrastructure to implement policy enforcement directly.

Of these activities, IT clearly focuses on automation, and may also provide various communication and knowledge management capabilities as well. IT governance describes how people entrusted with the authority over some aspect of the business will consider IT in their supervision, monitoring, control and direction of that business entity. And yet, there is more to IT governance than leveraging IT capabilities for corporate governance. It's also important to remember that the IT department is part of the organization, just like any other division, and corporate policies apply to IT as well. As a result, there is a dual role for IT governance, as the following figure illustrates:

Governance Relationships (Step 1)



Source: ZapThink

In fact, this dual role of IT governance carries over into the discussion of architecture governance, as well as SOA governance.

The Role of Architecture in IT Governance

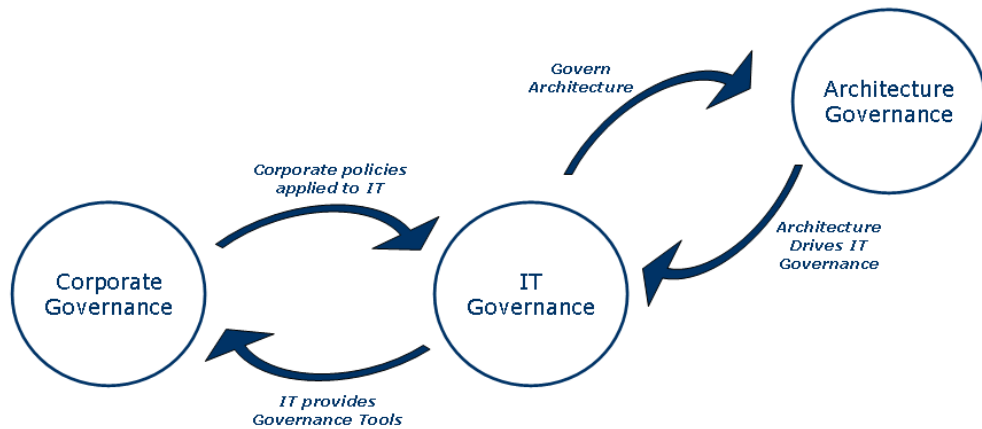
As organizations grow, either organically or via acquisitions, their IT efforts tend to decentralize. Such decentralization often leads to redundant, incompatible approaches to solving business problems. On the other hand, IT centralization efforts often run into roadblocks of their own as well. As a result, one of the key goals of IT governance initiatives is how to decentralize IT responsibility without leading to redundant or incompatible capabilities, and while maintaining sufficient centralized control. This goal is in addition to specifying the decision rights and an accountability framework for encouraging desirable behavior in the use of IT resources.

The answer to this question centers on architecture, which IEEE defines as *the fundamental organization of a system embodied by its components, their relationships to each other and to the environment and the principles guiding its design and evolution*. Architecture is in many ways the cornerstone of IT governance, because it provides the overall organizational guidelines for all of IT. In addition, architectural processes are the best way for the IT organization to implement IT governance. It is also necessary for an architecture board to drive IT governance within the organization.

In fact, it is possible to extend the dual role IT governance has for corporate governance to the consideration of architecture governance as well. After all, not only does architecture drive IT governance, it is also important to govern the architecture initiatives, as shown in the figure below:

Architecture is in many ways the cornerstone of IT governance, because it provides the overall organizational guidelines for all of IT.

Governance Relationships (Step 2)



Source: ZapThink

It is within the context of architecture governance as the above figure illustrates that SOA governance takes place. SOA governance at its core focuses on establishing a framework for assuring Service quality over the course of the SOA lifecycle. To ensure proper SOA governance, organizations must manage Services and Service consumption in the context of specific business, IT and regulatory policies that apply to those Services and the consumers that interact with them.

Fundamentally, however, this core of SOA governance is SOA governance “in the narrow,” in that it focuses on governance of Services in the context of the SOA initiative, rather than on IT governance more broadly. SOA governance “in the broad,” however, focuses on how the transition to Service-oriented approaches

affects the broader area of IT governance. SOA governance in the narrow, therefore, focuses on the creation, communication, and enforcement of policies that apply both to the design time aspects of Service artifact creation, publication, and reuse, as well as the runtime aspects of Service operations, including service levels and the management of Quality of Service (QoS) metrics.

SOA Governance: An Aspect of IT Governance

On the one hand, it's important for IT shops that implement SOA to govern those SOA initiatives, both at design time as well as run time—SOA governance in the narrow. But even more importantly, as organizations adopt SOA, they are able to leverage the new architecture to implement better IT governance more broadly, and by extension, better corporate governance overall—SOA governance in the broad. Since SOA involves enterprise-wide architectural change, SOA governance should not focus solely on certain technologies or IT projects. And yet, organizations should still take an iterative approach to applying SOA broadly, as well as with their SOA governance initiatives. This approach implies a focus on establishing and implementing SOA governance in the narrow before moving onto applying and leveraging SOA governance in the broad.

At its most basic, governance requires establishing and enforcing how a group of people agrees to work together. Specifically, governance is the establishment of chains of responsibility, measurement approaches to gauge the effectiveness of governance activities, policies that guide the organization, control mechanisms to ensure compliance with those policies, and communication among all parties. Governance, whether it be corporate, IT or architecture governance, needs to delineate who is responsible for making decisions, what decisions the organization should make, and policies for making those decisions in a consistent manner.

IT governance applies governance to an IT organization, including its people, processes and information. SOA governance, being a subset of IT governance, puts key IT governance decisions within the context of the Service lifecycle. SOA governance addresses aspects of the Service lifecycle such as planning, publishing, discovery, consumption, versioning, management, and security of Services. One of the primary goals of SOA governance, therefore, becomes the effective management of this Service lifecycle.

Governance is an essential part of any SOA implementation, because it ensures that the organization applies and enforces the policies that apply to the Services that the organization creates as part of its SOA initiative. But more importantly, organizations can leverage SOA best practices to represent policies broadly in such a way that the organization can achieve better policy management, flexibility, and visibility into policy compliance across the enterprise.

Governance is especially important for SOA for several reasons. In particular, since Service consumers and providers are loosely coupled, different people in different departments or organizations are generally responsible for developing and managing them. As a result, IT organizations require extra coordination to operate their SOA implementation successfully. For many SOA implementations to be successful, multiple applications must share common Services, which requires coordination. Such coordination is essentially a governance issue.

As organizations' SOA implementations mature, furthermore, there is an emerging set of governance challenges that focus more on architecture and application governance that applies both to the SOA initiative as well as more broadly across IT applications that don't fall into the SOA initiative. In many cases, such governance extends beyond the application development team to operations, incorporating IT Infrastructure Library (ITIL) best practices, in

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particular, those for IT Service Management (ITSM). Such best practices extend beyond SOA governance, applying as appropriate to policies across the spectrum of technologies and application approaches, including Representational State Transfer (REST), Plain Old XML (POX), Java, and legacy applications.

SOA Governance in Practice

One of the more important roles for SOA governance is guidance: it guides the establishment of policies for the design, development, configuration, and composition of Services and how those Services will change over time. Governance also serves to establish agreements between providers and consumers of Services, coordinating the information that tells the people who operate the consumers what they can expect and the individuals responsible for the providers what they're supposed to provide.

SOA governance helps address many design time SOA issues: What Services are available? Who can use them, and how should they use them? How reliable are the Services? How long will there be support for the Services? When and how might the Services change? What if two consumers want the same Service to work differently?

SOA governance also serves a critical role in the reuse of Services. It helps to answer such questions as: Who's going to pay to develop shared Services? Will development and Service composition teams actually reuse them? How will everyone agree on the functionality for a reusable Service? Who's responsible for a shared Service if there's a problem with it? Who gets to decide how to version a shared Service, and what are the policies for such versioning?

Note that most of the questions above concern human behavior more so than the behavior of systems. In fact, governance is more of a political problem than a technology problem. Governance mostly focuses on ensuring that everyone is working together and that separate yet interdependent efforts are in alignment. Governance does not determine the results of decisions, but it does guide what decisions an organization must make and who should make them. It is the identification, automation and enforcement of policy, furthermore, that makes this guidance efficient and scalable.

Governance introduces challenges into an organization as well. After all, nobody likes to be governed! Furthermore, SOA governance can become a scapegoat for SOA problems. As a result, one of the key challenges for SOA governance is using it judiciously to make SOA work better without letting concerns about governance overwhelm or become an obstacle to progress on other parts of the initiative.

IV. The Role of Governance Tooling

Even though governance is clearly about much more than technology, technology serves an essential role, and a governance software platform containing a registry/repository is the key infrastructure requirement at the center of the SOA governance value proposition. Therefore, understanding what a SOA governance software platform with a registry/repository is, why it's important to SOA governance, and also what value a that platform with its registry/repository provides beyond SOA governance are critical elements of the SOA roadmap. And to understand how SOA governance software platform with registry/repositories came to be at the center of this storm, it's important to understand the role of metadata in SOA.

It is the fact that we can represent many policies as metadata that is one of the primary reasons that software platforms with registry/repositories are so critical

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to SOA governance. If we have a way of representing certain policies in a standard format, say as an XML file that might conform to WS-Policy or other standards, then we can use a tool like a registry/repository combined with an automated SOA governance software platform to store, communicate, and enforce the policy, as well as provide workflows for dealing with such policies across the Service lifecycle.

It's not practical to represent all kinds of policies as metadata, however. Many design time policies, such as the policies for discovering, creating, publishing, and reusing Services, are typically for human, rather than computer, understanding, and therefore, metadata can't easily represent such policy information. For those aspects of policy that lend themselves to representation as metadata, registry/repositories are important tools to assist in managing and enforcing such policies as well. In addition, it's possible to store manually enforced policies that people communicate in unstructured formats in registry/repositories as related artifacts for communication and education purposes.

As a practical example of how a SOA governance software platform with a registry/repository works, envision that a developer is trying to reuse a Service that another developer, the owner of the Service, had published in the registry/repository previously. The owner of the Service then decides to change the Service. Before the developer can change it and publicize the change, the SOA governance software platform sends a notification so that other developers can know there's a proposed change in the works so that the team can evaluate what effects that change will have.

This design time example is but one instance of the power and usefulness of a SOA governance software platform with a registry/repository. Fundamentally, SOA has the potential to drive business flexibility, performance, and innovation by aligning technology with business objectives and making technology more agile to handle change, but in order to accomplish these admittedly difficult feats it is essential to manage the Services in the SOA implementation throughout the lifecycle with a SOA governance software platform. Also, remember to work through registry/repository deployment considerations, including scalability, reliability and high availability of the solution, and efficient and high performance access to content in order to get optimal results. It is essential to choose a SOA governance software platform with sophisticated lifecycle management support, including the ability to promote Services from stage to stage such as from test to production. In this way the SOA governance software solution will scale regardless of how extensive the SOA implementation becomes in the future.

Governance of Service Metadata

The Service metadata that the registry/repository component of the SOA governance software platform maintains enable SOA teams to select, invoke, enforce policies on, and reuse Services. SOA governance registry/repositories store information about Services in their environment whether that be at design-time, staging or in production, or in other organizations' environments, that the organization already uses or plans to use. For example, at run time, an application can check the registry/repository just before it invokes a Service to locate the Service that best satisfies its functional and performance needs. This capability can make the SOA deployment more dynamic and more adaptable to changing business conditions.

Scaling a SOA governance software platform with a registry/repository also helps teams iteratively adopt SOA, as they move through the Service lifecycle. A Service lifecycle typically includes the activities of modeling, Service assembly, quality

assurance, deployment, and management. During service modeling, teams can use the registry/repository component of the SOA governance software platform as a Service catalog to create or reuse Service taxonomies, classifications, and XML schemas. During Service development or assembly, they can use the Service catalog to locate Services for reuse, to request consumption and enable Service composition. Then, as part of the Service deployment process, teams can publish Service metadata related to deployment to the registry/repository, which can then augment any Service descriptions that already exist.

The organization can integrate the SOA governance software platform with its registry/repository with service management solutions to capture operational metadata, and to assess the performance of Services against business and operational performance objectives. This capability becomes valuable in order to manage Services, make future consumption decisions that depend on certain quality of service levels, and to leverage system management best practices such as those in the Information Technology Infrastructure Library (ITIL).

How Governance Helps to Manage the Service Lifecycle

SOA governance software platforms interact with the infrastructure that supports specific phases of the Service lifecycle and capture more detailed information about Services relevant in each phase of the lifecycle. During the design time, model and assemble phases of the Service lifecycle, the SOA project team uses the SOA governance software platform to locate candidate Service metadata as well as to understand and comply with policies governing the interactions with those Services. They can also publish and govern Service metadata about emerging, to-be-deployed Services. In essence, during design time, the SOA governance software platform governs the gathering of requirements, modeling, design, discovery, construction, quality assurance, and composition steps.

At run time, the core challenges of managing the Service lifecycle pertain to integrating people, process, and information assets as well as managing applications, Services, identity, compliance, and business metrics in operations. SOA governance software platforms provide the system of record for metadata describing Service interaction endpoints, often referred to as proxies or intermediaries, as well as the actual Service implementation endpoints. SOA run time infrastructure like ESBs, application servers, and intermediaries access relevant metadata in the registry/repository to support both deployer and administrator roles to drive configuration and ongoing operations of deployed composite applications, the policies that affect their run time behavior, as well as individual Services.

Once the development and quality assurance teams have finished their work and completed testing, deployers add further value to the Service metadata, by providing binding information for Service endpoints that composite applications use and by managing deployment of the metadata from the development environment to the staging and production instances of the registry/repository. The production registry/repository is then able to share Service metadata if policies in place allow. Relevant metadata are also available to the run time systems and those operational user roles that are responsible for the configuration and management of those systems.

Various parts of the IT infrastructure can also automatically and dynamically retrieve policies from the production registry/repository that are in effect for a Service interaction for the purposes of logging, filtering, data transformation, or routing, such as content-based routing policies. Such automated policies should have a high level of enforcement, depending upon the policy management infrastructure in place. Enforcement of a security policy, for example, should

It's important to place the Service lifecycle on a backdrop of governance processes that ensure the enforcement of compliance and operational policies, so that change occurs in a controlled fashion and with appropriate authority.

ideally offer no alternatives to compliance—in other words, the infrastructure should prevent undesirable behavior.

Policy Management, Visibility and Flexibility

SOA is especially useful in dynamic, heterogeneous environments, and can increase business agility—the ability to effectively respond to change, and to leverage change for competitive advantage—in such environments. However with this increased dynamism comes additional risks, for example, the risk that someone will change a business process in a way that is detrimental to the business. Because Services abstract the underlying complexity of the technology, both changes to business processes or the underlying Services the business processes leverage can place unexpected or excessive demand on the capacity of the underlying information systems, either potentially crashing the system or having an adverse affect on the other processes that the system also supports.

SOA also exacerbates the risk that someone will introduce rogue software, rogue Services, or that someone will change the configuration of the system in way that disrupts the business. For these reasons as well as others, it's important to place the Service lifecycle on a backdrop of governance processes that ensure the enforcement of compliance and operational policies, so that change occurs in a controlled fashion and with appropriate authority.

The SOA governance challenge, therefore, boils down to how to maintain adequate control while at the same time providing the flexibility the organization requires from their SOA initiative to foster agility and empowerment. To this end, SOA governance requires that organizations take business policies, typically in written form, and transform them into metadata-based rules that can help automate the process of validating and enforcing compliance with policies in both design time and run time environments. Companies must then manage policies through their entire lifecycle.

The first step for automating policy activities is to work with the architecture and application project teams to conduct a policy inventory to uncover the policies that are a priority to IT and the business. Next, the organization should decide which policy activities are automatable. In other words, identify those policies that you can represent as metadata that your policy management tools can understand. Then, users decide on level of granularity for those policies. Note that not every policy management or enforcement tool represents policies with the same level of detail, so it's important first to develop a consistent format for representing the policies.

At this point you must translate policies into a system-understandable format. Standards like WS-Policy and WS-SecurityPolicy can aid somewhat with this formatting issue, but unfortunately, these standards can only help in rather narrow situations. In the general case, it will be important to either develop your own XML-based policy specification, or encode the policies directly into the policy enforcement systems, which represents policies according to the tools' own internal specifications.

Once you have fully defined your policies, you must figure out how to enforce policies in practice. Policy enforcement essentially depends on the type of policy. For example, an XML firewall might enforce a security policy, while a SOA governance software platform might enforce a Service reuse policy. SOA management tools enforce many run time policies, while identity and access control solutions are adept at enforcing access management policies. Finally, it's important to identify techniques for long-term policy maintenance, as the organization creates, modifies, and retires its policies. SOA governance platforms can assist here in providing a system of record for all policies and maintaining

metadata about policy relationships to Services. Furthermore, industry organizations like HP's Governance Interoperability Framework (GIF) are working to expand the standardization and best practices around the representation of policies. Policy tools that support initiatives such as GIF can help with the standardization of policies across products from different vendors.

Defining Performance in the SOA Context

To achieve the business value that organizations require from their SOA initiative, they must be able to achieve both their flexibility and reuse goals. System flexibility leads to business agility, which can determine the difference between success and failure of the SOA effort which underpins an overall business goal such as application modernization or the rollout of a new Service-oriented business application. Meanwhile, Service reuse can increase IT productivity and reduce maintenance over time, freeing up more IT resources for innovation.

While SOA promises these benefits, many architects have designed their SOA implementations in a way that can impede performance. Without the proper planning, flexibility comes at the expense of performance, leading architects to choose one over the other. But with proper planning, it is possible to achieve the required flexibility without sacrificing scalability and performance.

This SOA performance problem falls into two broad areas: ensuring sufficient performance of Service interfaces as well as of abstracted business Services. Service interfaces abstract existing systems, so ensuring their performance necessitates managing the performance of the components, applications, and systems that lie beneath the Services abstraction. As you might expect, dealing with the performance of Service interfaces leverages well-established capacity planning and performance quality assurance techniques, including clustering, Service virtualization, and load testing. Today's architects are adept at making infrastructural decisions that ensure, for example, sufficient database performance, distribution of traffic onto a cluster of application servers, and the like.

Furthermore, it is important to enable the QA team to test for performance of the overall environment, not just the Service endpoints. This team must set up processes and tools to test the Service interface, as well as the underlying components, applications and systems. Automated testing tools that offer the ability to define tests at the interface level and then can abstract out or virtualize the underlying infrastructure. Such automated testing is a critical part of performance in the SOA context.

V. Expanding SOA Governance to a Broader IT Context

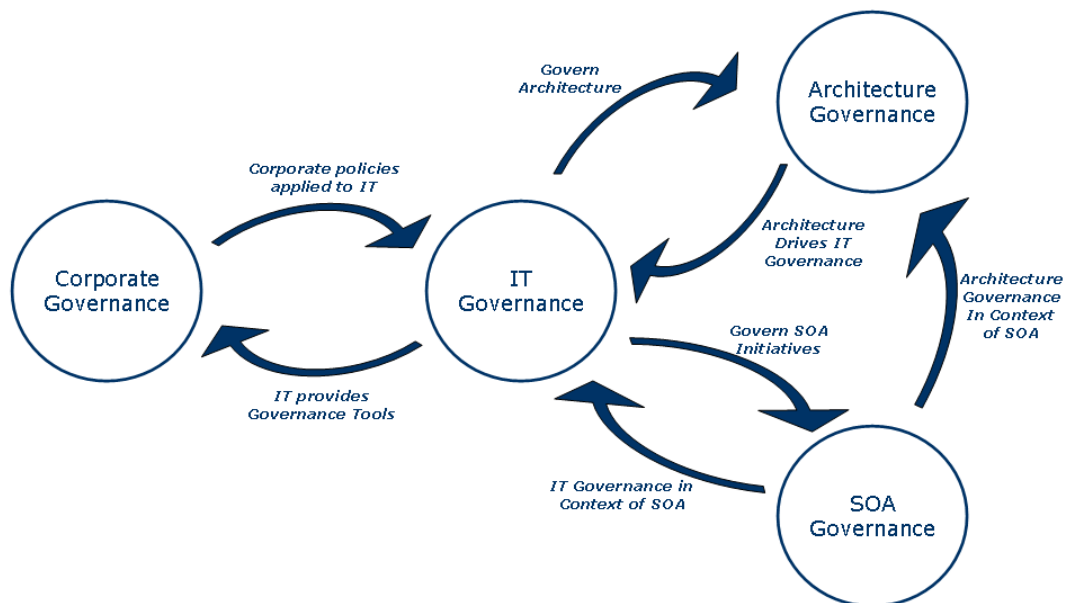
As SOA implementations mature, it becomes more straightforward to leverage the benefits of SOA for governance more broadly than simply the governance of Services as part of the SOA lifecycle. This SOA governance in the broad goes beyond the governance of Services within a SOA initiative (SOA governance in the narrow), and essentially considers how having SOA in place will improve IT governance overall, and more broadly, corporate governance as well. Basically, SOA governance in the broad involves governance in the context of SOA more so than governance of SOA initiatives. The question is, therefore, what benefits does SOA provide that are particularly appropriate for satisfying governance requirements.

SOA offers three core capabilities that enable governance: policy management, visibility, and flexibility.

In fact, SOA offers three core capabilities that enable governance more broadly across IT: policy management, visibility, and flexibility. Because SOA represents policies as metadata, it's possible to represent a broader set of policies as metadata than simply those that apply to Services. Because SOA abstracts heterogeneous data sources across an organization, SOA techniques can provide visibility into levels of compliance with policies across the company. And finally, SOA's core agility benefit helps organizations deal with policy change.

In fact, while SOA governance in the narrow applies IT governance to the governance of SOA initiatives, SOA governance in the broad both places IT governance in the context of SOA, as well as architecture governance in the context of SOA, as the figure below illustrates:

Governance Relationships (Step 3)

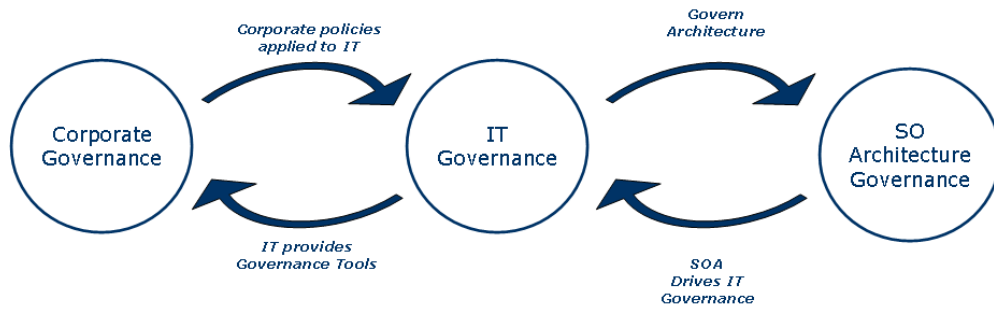


Source: ZapThink

Enterprise Architects will take a Service-oriented approach to architecture governance, as SOA best practices become the standard approach for organizing IT resources to meet the needs of the business.

The figure above, however, suffers from an element of serious shortsightedness. While architecture governance enables IT governance as we discussed earlier, ZapThink believes that over time, Enterprise Architects will take a Service-oriented approach to architecture governance, as SOA best practices become the standard approach for organizing IT resources to meet the needs of the business. At that point, the architecture governance and SOA governance circles will merge into a Service-oriented approach to architecture governance, as the final illustration below suggests:

Governance Relationships (Step 4)



Source: ZapThink

In fact, ZapThink believes the figure above illustrates the true future of SOA governance for enterprises around the world, as they fully implement SOA.

Case Study

Many organizations are realizing how architecture governance should drive IT governance, and how leveraging SOA can improve governance overall. Take for example a leading UK-based mobile phone retailer, who recently experienced a growth spurt, and as a result, needed to support increasingly complex and cross-divisional operational processes. Executive management placed heavy demands on the IT department to introduce new capabilities at a faster pace, prompting the company to transform its infrastructure to become more agile. They decided to leverage SOA for flexibility and reuse, and to help drive a methodology where the firm could standardize and simplify its processes and tooling. The business also required greater predictability and consistency their architecture and implementation style, in order to better keep pace with business needs in an efficient and interoperable environment.

In addition to defining corporate guidelines, policies, and standards, the enterprise architecture team also developed policies and procedures to ensure that developers and other stakeholders followed such practices. The company initiated its SOA initiative primarily with manual governance directives that the architecture team delivered via email and published documentation. However, this “honor system” approach to governance didn’t provide sufficient guarantees of policy compliance.

This organization realized that both business and IT stakeholders need to gain an overall understanding of why change is necessary and the value of moving toward the enterprise SOA vision. They also need greater awareness of what specific impact such changes will have on their respective tasks and positions. Helping people understand the importance of such changes to the company as a whole, but also how it will be good for them as individuals.

They also plan to advance their Service monitoring and management capabilities as part of their SOA governance efforts. Currently, they can only report on the behavior of applications and state of the infrastructure, while they require a deeper view of Service interactions. The company looks forward to tracing activities across chains of Services and their dependencies with better enforcement of service-level requires SOA policy and runtime management technologies.

VI. The ZapThink Take

To truly understand governance, it is essential to realize that it is more of a business imperative than a simple IT project. And yet, the enterprise calls upon IT to provide tools for governance, and IT is now calling upon the architects to leverage SOA for better governance. For this reason, SOA governance is at the eye of the SOA storm in most enterprises. SOA governance is clearly critical for realizing the promise of SOA, and organizations should consider SOA governance at the beginning of any SOA initiative.

Furthermore, SOA governance helps to resolve the conflict between user empowerment and IT management control. Before SOA, IT management sought to maintain control, and doled out limited capabilities to users, because if they provided too much in the way of user capabilities, the users might violate any number of important policies.

The Service-Oriented approach allows IT to empower a wide range of users to meet the needs of the business in myriad ways, because now we have formalized the practice of SOA governance, which enables business empowerment in the context of policy-based control. As organizations achieve levels of success with SOA, they are coming to realize that SOA should apply to the enterprise as a whole. Enabling the business to leverage IT capabilities in flexible, governed ways is a fundamental requirement of the business. As such, IT is an enabler of Service Orientation, but SOA in essence is more than an IT initiative—it is a business initiative.

SOA governance helps to resolve the conflict between user empowerment and IT management control.

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About ZapThink, LLC

ZapThink is an Enterprise Architecture (EA) strategy advisory firm. As a recognized authority and master of Service-Oriented Architecture (SOA) and EA, ZapThink provides its audience of IT practitioners, consultants, and technology vendors with practical advice, guidance, education, and mentorship solutions that assist companies in leveraging SOA to meet their business needs and presenting viable SOA solutions to the market. We provide this audience a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

ZapThink provides IT practitioners strategic insight and practical guidance for addressing critical agility and change management issues leveraging the latest EA and SOA best practices. ZapThink helps these customers put EA and SOA into practice in a rational, well-paced, and best practices-driven manner and helps to validate or recover architecture initiatives that may be heading down an unknown or incorrect path. ZapThink assists with solution vendor, technology, and consultant selection based on in-depth, objective evaluation of the capabilities, strengths, and applicability of the solutions to meet customer needs as they relate to EA initiatives and as they map against emerging best practices. ZapThink enhances its customer's skills by providing education, credentialing, and training to EAs to develop their skills as architects.

ZapThink helps to augment consulting firms' EA offerings and intellectual property by providing guidance on emerging best practices and access to information that supports those practices. ZapThink provides frameworks for product-based consulting based on ZapThink insight and research, such as SOA Implementation Roadmap guidance, Governance Framework development, and SOA Assessments, and provides a means to endorse and validate consulting firm offerings. ZapThink also accelerates consulting firms' efforts to attract, retain, and enhance the skills of EA and SOA talent by providing education and skills development

For solutions vendors, ZapThink provides retained advisory for guidance on product strategy, as well as marketing, visibility, and third-party endorsement benefits through its marketing activities, lead generation activities, and subscription services. ZapThink enables vendors to leverage ZapThink knowledge to transform their offerings in a cost-effective manner.

ZapThink's Managing Partners are widely regarded as the "go to advisors" and leading experts on SOA, EA, and Enterprise 2.0 by vendors, end-users, and the press. Respected for their candid, insightful opinions, they are in great demand as speakers, and have presented at conferences and industry events around the world. They are among the most quoted experts in the IT industry.

ZapThink was founded in 2000 and is headquartered in Baltimore, Maryland. Its customers include Global 1000 firms and government organizations, as well as many emerging businesses. Its Managing Partners have worked at such firms as IDC, marchFIRST, and ChannelWave, and have sat on the working group committees for standards bodies such as RosettaNet, UDDI, and ebXML.

Call, email, or visit the ZapThink Web site to learn more about how ZapThink can help you to better understand how SOA will impact your business or organization.

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