

# zapthink white paper

## SOFTWARE AG CENTRASITE COMMUNITY

*A HOLISTIC APPROACH TO SOA GOVERNANCE*



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## A HOLISTIC APPROACH TO SOA GOVERNANCE

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### Abstract

Governance is drawing significant attention from the boardroom down as a result of heightened regulation, increased competition, and constant change in the marketplace. There are two faces to SOA governance. On one hand, SOA governance simply means governing a SOA implementation initiative—for example, communicating corporate policies to developers implementing Services, and giving them the tools they need to follow those policies as they assemble the various elements of the SOA implementation. On the other hand, there's a broader, more strategic definition of SOA governance: IT governance in the context of SOA.

Software AG takes a big picture view to SOA governance, based on the premise that SOA governance extends well beyond the governing of Web Services. It believes that the extensible nature of SOA requires a similarly extensible strategy to governance. Software AG has established the CentraSite Community as its strategy for providing a SOA governance solution that customers can adapt to their unique business and technology needs. Organizationally, the CentraSite Community promotes shared wisdom through its collaborative online presence. Architecturally, Software AG CentraSite registry/repository supports the community through its extensible data model and broad standards based approach. Because the CentraSite Community does not impose a one-size-fits-all governance solution, customers can implement the right governance recipe to meet their unique business needs.

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## I. SOA Governance Requires a Multi-disciplinary Approach

Governance is drawing significant attention from the boardroom down as a result of heightened regulation, increased competition, and constant change in the marketplace. As stewards of the information that companies use for running their operations, governance has become a top priority for many IT organizations whose priorities include performance, risk management capability, and the degree to which they can align their activities and goals with those of the business. The same factors driving corporate and IT governance initiatives are also providing impetus for efforts to govern SOA as well.

There are two faces to SOA governance. On one hand, SOA governance simply means governing a SOA implementation initiative—for example, communicating corporate policies to developers implementing Services, and giving them the tools they need to follow those policies as they assemble the various elements of the SOA implementation. On the other hand, there's a broader, more strategic definition of SOA governance: IT governance in the context of SOA. After all, SOA isn't a single application that you can stick in a corner somewhere; instead, it's important to implement SOA holistically, applying Service-oriented principles across the entire scope of interaction between the business and IT.

Ultimately, governance is essential for any organization seeking to realize value from SOA. Yet, there is no single, black box solution for SOA governance. In actuality, SOA governance involves a multidisciplinary approach that ventures beyond managing web services to adding key touch points addressing your organization's specific SOA strategy. Use cases could include:

- If your organization is building new services to address specific points of pain, governance may involve the core essentials of tracking compliance with service policies, monitoring and managing service levels, and managing the quality of services themselves.
- If your organization is focused on legacy renewal, an added focus on extracting business rules and reconciling services with business rules may be appropriate.
- If your organization is embracing process integration and continuous process improvement, SOA governance may involve an iterative approach to optimizing services created from processes, or processes that are composed from services.

## II. SOA Governance is a Connected Process

Because SOA is not a standalone application or architecture, SOA governance requires a holistic approach to SOA, applying Service-oriented principles across the entire scope of interaction between the business and IT. As a result, SOA

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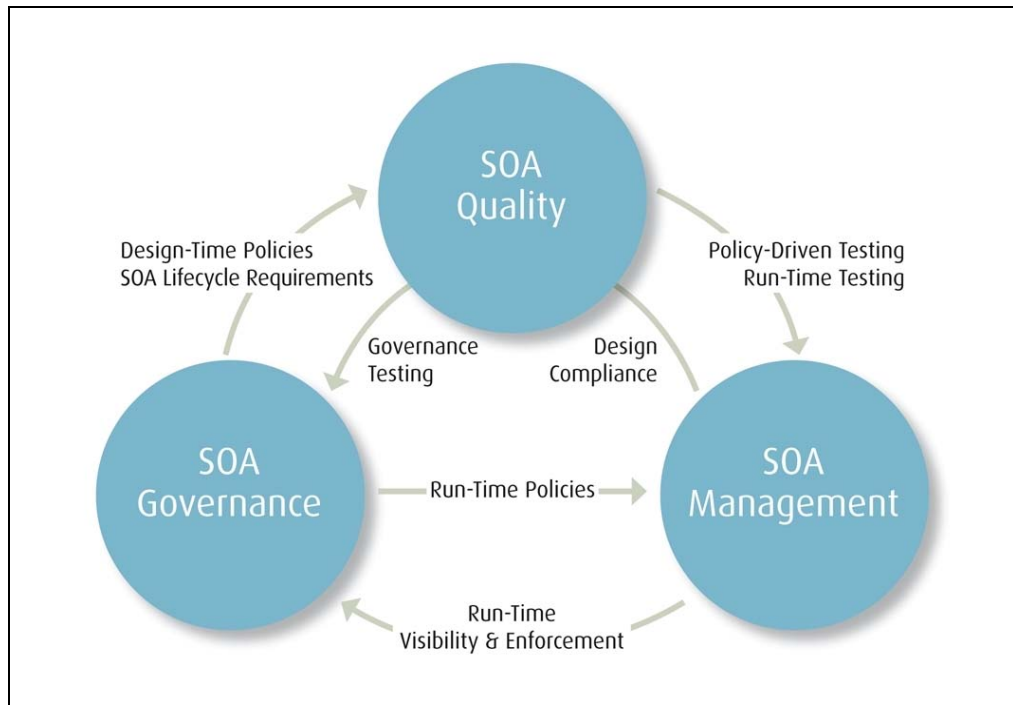
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governance will have multiple touch points with the policies and best practices comprising the pillars of corporate and IT governance. Similarly, SOA governance must relate to technology architecture and methodologies that the organization enforces. Furthermore, SOA governance relates closely with SOA quality as well as SOA management, as the figure below illustrates.

**The Relationships among SOA Governance, Quality, and Management**



Source: ZapThink

SOA governance supports corporate governance, which defines the rules of corporate conduct and requirements for business transparency. For instance, the policies that govern trust and entitlements must be consistent with corporate policies or external regulations that may govern disclosure of fiduciary information or the protection of customer privacy. Furthermore, regulatory mandates that stipulate separation of responsibilities may in turn impact who is authorized to create a Service.

Similarly, SOA governance must be responsive to the goals, policies, and practices set forth through IT governance. At high level, the purpose of IT governance is to ensure that IT activities, priorities, and decisions align with business goals and are in compliance with corporate policies, and to ensure that IT is delivering value to the business. Governance encompasses applying policies and practices for mitigating risk; implementing consistent processes for setting priorities and making decisions; and instituting common metrics for tracking performance. Consequently, a key touch point for SOA governance is proving that Service deployment and consumption supports IT's rules of engagement. For instance, SOA governance must ensure that managing Service contracts will not tax existing capacity to the point of jeopardizing the performance of internal back end systems.

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SOA governance involves managing Service policies across the entire Service lifecycle, from design to run time and the change impact cycle.

Furthermore, if the organization has an active Enterprise Architecture initiative, SOA governance must ensure that architects design Services in accordance with existing architectural standards and enterprise best practices. And if organizations have formalized their Software Delivery Lifecycle (SDLC) methodologies, SOA governance must support all relevant checkpoints. That requirement could involve ensuring that the organization develops Services as an outcome of documented requirements management processes, consistently tracks and resolves issues with Services, and adheres to the software organization's QA lifecycle.

The QA lifecycle for Services provides an especially good example of how SOA governance fits in with the SDLC. Because of the flexible, loosely-coupled nature of SOA, Services can change without impacting back end enterprise systems, and vice-versa. The challenge of ensuring continuous quality in a constantly changing system is an aspect of maintaining effective governance, and as such, the combination of SOA governance, along with quality tooling and approaches serve to make that problem more manageable.

SOA governance involves managing Service policies across the entire Service lifecycle, from design to run time and the change impact cycle. In many cases, this will require close connections or synergies with external systems that manage tasks or processes tied in with each phase of the life cycle. It starts at *Design Time*, when an organization creates Services and the policies that they associate with them. SOA governance at design time involves specifying:

- The ground rules for how, and when, people can create Services. Specifically, who is empowered to request, specify, and design Services? Depending on internal policies, authorizations may vary. These ground rules dictate synergy and links with trust or identity management systems or processes.
- Architectural standards regarding what constitutes a Service. Such standards may involve specifying processes and workflows for determining if, and when, to reuse or modify existing Services; what design patterns to use; and which standards must apply. These standards dictate close coordination with test and quality management processes.
- What Service contracts are valid and enforceable?

At *Run Time*, SOA governance ensures that the organization applies policies that it specified at design time once they deploy the Services. In many cases, this requirement will dictate synergy with systems or processes that *enforce* service levels, policies, and contracts that are separate from the systems used for specifying them. Run Time SOA governance involves verifying:

- Compliance with Service contracts and Service policies.
- Service performance, checking whether the Services meet their SLAs, and whether QoS trends are acceptable.
- How the organization exposes Services consumers.
- How the organization properly authenticates identities and validates access privileges, based on requests that fall within existing Service contracts.
- Whether the organization observes corporate policies regarding information disclosure and access control.

- Whether the organization has properly approved all Services. Validating Services requires ensuring that they have exposed no “rogue” Services (Services that have bypassed formal approval processes).

Because architects design Services to evolve to support business agility, the Service lifecycle also includes a *Change Time* phase. At this stage, the job of SOA governance is to ensure that Services—and the systems to which they relate—will not break when contracts, policies, or schemas change. Change Time SOA governance requires:

- Enforcement of Metapolicies that control who can change policies and under what conditions, dictating synergies with identity management and trust processes or systems.
- Conducting impact analyses of service changes on IT operations, system/data interfaces, contract compliance, etc.
- Deprecation policies for transitioning customers upon introduction of newer versions of Services.

### III. Software AG’s Holistic Approach to SOA Governance

Software AG believes that SOA governance extends well beyond governing Web Services, and that WSDL is only a small part of the necessary metadata for governing a Service. In Software AG’s view, other necessary pieces of the puzzle include:

- The Contract(s) that the organization associates with providing the Service, including key provisions covering security, quality of service, and other business considerations.
- The applications, business processes, and underlying legacy components that the organization uses for spawning Services.
- Requirements for compliance with business rules, and alignment with business processes.
- The ground rules for aggregating Service requests, or the context for orchestrating and composing Services into composite applications.

And because people are part of the equation, the metadata associated with governing a Service should include the rules for consuming those Services. For instance, with advent of capabilities for Web 2.0-style mashups, it may be necessary to include descriptors or rules governing how and when to compose Services with known or unknown external applications or Services.

Software AG’s CentraSite SOA registry/repository, co-developed with Fujitsu, provides a logical hub where customers can store service-related components and policy assertions, providing the logical foundation for applying SOA governance. The Service registry stores metadata on the Service, providing the critical abstraction layer that separates the Service from its implementation. The Repository in turn stores the assets of the Service. Consistent with its broader views of SOA governance, Software AG takes a more holistic view, storing *all* the assets that are relevant to the Service. Extending beyond models, mappings, shared keys, and transformational schemas, CentraSite incorporates a plug-in architecture that can accept data such as process models, business rules, test plans and results, along with run time performance histories from external sources. Its capabilities include:

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- Versioning capabilities for artifacts that the registry/repository stores.
- Full SOA lifecycle management for Services, policies, processes, and other artifacts with customizable lifecycle states and stages.
- Standards-based capabilities for policy and security management, auditing logs, and configuration management.
- An extensible data model that accommodates new artifacts by associating them with existing artifacts.
- Integration with existing infrastructure through an extensible and pluggable AJAX-based user interface architecture.

Software AG believes that when SOA governance is effective, SOA intertwines with business rules, processes, enterprise architecture, IT, and corporate governance. The result is that there are numerous touch points, across different management activities, across the enterprise. Consequently, Software AG's SOA governance solution leverages the extensibility of CentraSite Registry, and supports industry standards to integrate with third party tools and solutions addressing governance across the entire Service life cycle.

The CentraSite Community is Software AG's strategy for fulfilling the company's holistic vision of SOA governance. The CentraSite Community is continuing to be built on the premise that Services are not isolated assets, but in fact, carry significant interdependencies that may extend to:

- Traditional back-end application silos the organization uses to develop Services from.
- Business requirements from stakeholders that "own" source systems.
- Customer expectations for Service levels and content.
- Enterprise architecture standards.
- Information security, customer privacy, and regulatory compliance mandates.

Software AG is actively building the CentraSite Community in several ways. First, it is developing an expanding partner network to help deliver the full promise of SOA, including interoperability and reuse. Additionally the CentraSite Community provides a destination for sharing SOA best practices using Web 2.0 social media interactive tools such as blogs, Wikis, and chat forums. And, through CentraSite's standards-based plug-in architecture, the CentraSite Community provides the mechanism for delivering a best-of-breed governance solution that covers all the areas that are critical to the customer.

#### IV. The CentraSite Community

As a standards-based registry/repository, CentraSite can readily accommodate complementary solutions that the CentraSite Community members provide. Community members support a wide range of SOA governance disciplines, from enterprise architecture to web services testing, SOA management, security, business processes, business rules, and overall SOA infrastructure. This section provides a brief sampling of the contributions of several the CentraSite Community members.

*Business Rules can play a key role in enabling process-driven SOA, as rules can make processes far more manageable and consistent by exposing complex decisions as transparent decision Services.*

### **Ilog – Managing Business Decisions through Rules-Based Decision Services**

Ilog helps customers manage business decisions through Rules-based Decision Services. Ilog believes that business rules are a useful mechanism for legacy modernization strategies that extract decision logic from legacy systems. In so doing, business rules play a pivotal role enabling exposing of Services from otherwise difficult-to-access legacy logic. Business Rules can also play a key role in enabling process-driven SOA, as rules can make processes far more manageable and consistent by exposing complex decisions as transparent decision Services that the business process consumes. In turn, business users can keep processes up to date without requiring long lasting process re-design. Rules-based decision Services can also extend SOA governance by requiring that Services checked into a registry must initially be vetted for compliance with enterprise Business Rules.

Ilog's Business Rules Management System (BRMS) interacts with the CentraSite Community in several ways. By providing a natural language system that places business analysts in full control over the rules base, Ilog's BRMS enables IT teams to deploy rules as fully formed Transparent Decision Services that CentraSite makes available. Additionally, Ilog's Rule Reporting feature describes the business rules that comprise a Decision Service. This Ilog feature can store these reports in CentraSite, thereby facilitating reuse, while providing a checkpoint for ensuring that Services consistently support the business policies of the organization.

### **Mega – Reconciling Services with Business Processes**

Organizations can use Mega's business process analysis platform for reconciling Services with defined business processes, thereby providing input to the SOA governance process. Mega provides reporting and analytics information that can be critical to keeping SOA aligned with the business.

Mega helps SOA architects analyze and transform the business process and value chains to a form where they can automate those process, as well as design and generate Services. Specifically, Mega helps them model a business process and associate business rules as part of the process description. They can use the business process description to model the related candidate workflows and map them to Services.

You can export to CentraSite a process that you design in Mega and associate with Services; CentraSite stores the process definition to document the Service. By providing the business context, the business process definition helps Service designers reuse Services. In turn you can upload a Service definition into Mega, where you can map it to business processes

Based on the mapping of Services to business processes, Mega provides impact analysis reports and reports on compliance with standard and best practices you can define at design time. This capability enables the business to track its Service "maturity levels," and measure the alignment of Services to the organization's business processes, or gauge the level of dependency between Services and business processes. In so doing, Mega can serve as a business compass for the SOA roadmap, revealing opportunities for reuse of Services and Processes alike.

### **Parasoft – Improving Service Quality**

Ensuring that a Service simply "works" or doesn't crash ignores larger issues, such as whether Services are well-formed (to promote reuse), and whether they are sufficiently secure to prevent unauthorized leakage of sensitive information.

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*Software AG's holistic view of SOA governance makes provision for storing test artifacts and results that provide key indicators on the health of a Service—a factor that is especially critical given that health reports could change over time.*

Concerns over the health of a Service are more critical, especially as organizations expose Services outside the firewall, make them available to trusted intermediaries, or dynamically orchestrate them to produce new scenarios they didn't foresee at design time. Software AG's holistic view of SOA governance makes provision for storing test artifacts and results that provide key indicators on the health of a Service—a factor that is especially critical given that health reports could change over time as the Service, or the scenarios under which the Service is consumed, change.

Parasoft SOAtest feeds test assets (reusable tests, regression tests, emulated services, functional and performance tests) to CentraSite, which helps Service designers reuse test plans—but that is only the first step in managing Service quality. Because SOA environments can be highly dynamic, Service designers can not always design tests covering all possible scenarios. That calls for a new kind of test approach, creating a smart “stub” that embodies the properties of a Service asset that designers can test in a wide range of scenarios to predict behavior of actual Services at design time. Software AG's CentraSite is critical for creation of smart stubs, because it stores the Service assets, from which Parasoft's SOAtest can create smart stubs. CentraSite registry/repository provides the logical place for storing the stubs, and results of their behavior across different test scenarios.

#### **AmberPoint – Run Time Governance Validating Service Behavior**

Run time policies govern the behavior of a service in any of its run time environments and are used at each stage of the lifecycle—development, staging and production. AmberPoint closes the loop by working in concert with CentraSite which stores the assumptions on how Services are supposed to behave when in production. At run time, AmberPoint ensures compliance with specifications made in design and development of Services, and flags exceptions that may occur, including:

- Discovering dependencies on platforms, applications, or other services that may – or may not have been anticipated at design time.
- Detecting rogue services.
- Managing dynamic changes to the service network.
- Managing service levels and usage across various consumers.
- Managing security, auditing and logging.
- Debugging errors and failures

Policies also serve to control run time behavior to ensure high availability, high performance, security, service contracts, and other aspects that impact the health of the application as it is running. By enforcing these policies automatically, regardless of the infrastructure, AmberPoint automates many tasks that would normally be carried out manually. It uses a policy-based approach to controlling the environment, eliminating coding that would otherwise become necessary for implementing special versions of services that are used in different settings. For example, AmberPoint's policy-based approach to run time SOA governance allows Service providers to selectively require encryption for external use while turning it off if the Service is consumed inside the security perimeter. The result is the ability to reduce the cost of running SOA while improving user satisfaction. In turn, integrating AmberPoint policies and policy decisions with Software AG CentraSite closes a critical governance loop in the Service lifecycle.

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## V. The ZapThink Take

More than an extension of corporate and IT governance, SOA governance is essential to the success of SOA. Lacking governance, chaos is inevitable. Services proliferate to the point where it becomes difficult if not impossible to track; enforce compliance with corporate policies and EA patterns and best practices; and promote reuse. Services created randomly hinder business agility.

ZapThink has always believed that organizations should not conduct SOA governance in isolation. It must be extensible for several reasons. First, because SOA is an approach to enterprise architecture that abstracts IT functionality into business-oriented Services, SOA governance should ultimately have a cascading impact on IT and the rest of the enterprise as well. The application of SOA to IT governance—what we call SOA governance in the broad—promises to provide the visibility and control necessary for IT governance, while increasing the business agility today's organizations require. Likewise, SOA provides an enterprise the ability to govern other aspects of their business as well.

Software AG has built the CentraSite Community on sound assumptions such as that:

- There is no such thing as SOA governance in a box, and that the extensible nature of SOA requires a similarly extensible strategy for governance.
- No single vendor can have a complete SOA offering that applies to every customer or business scenario, or governance requirement. Each customer will require different forms of SOA governance. For instance, those who are already at the point of modeling and composing business processes may have different needs for Service enablement than those who are focusing on legacy renewal by abstracting business rules.
- No single vendor or stakeholder has a monopoly of wisdom on how to govern SOA.

Architecturally, CentraSite supports Software AG's Community-based approach to SOA governance through provision of a plug-in architecture. Because the CentraSite Community does not impose a one-size-fits-all governance solution, customers implement the right governance recipe to meet their unique business needs. Although this paper profiled only four members, CentraSite offers a dynamically growing community that provides an expanding array of complementary governance solutions. With the recent acquisition of webMethods, Software AG CentraSite is well poised for further growth. Organizationally, the CentraSite Community promotes shared wisdom through its collaborative online presence.

ZapThink also agrees with Software AG's belief that SOA governance is more than governance of Services. While it is important to ensure that Services are well formed and that organizations comply with Service policies at run time, SOA governance also requires context, which requires the ability to map Services to their data transformations, business rules, business processes, user interaction preferences, and performance characteristics. Software AG's CentraSite Community supports this big picture view.

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ZapThink is an IT advisory and analysis firm that provides trusted advice and critical insight into the architectural and organizational changes brought about by the movement to XML, Web Services, and Service Orientation. We provide our three target audiences of IT vendors, service providers and end-users a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

ZapThink helps its customers in three ways: by helping companies understand IT products and services in the context of Service-Oriented Architecture (SOA) and the vision of Service Orientation, by providing guidance into emerging best practices for Web Services and SOA adoption, and by bringing together all our audiences into a network that provides business value and expertise to each member of the network.

ZapThink provides market intelligence to IT vendors and professional services firms that offer XML and Web Services-based products and services in order to help them understand their competitive landscape, plan their product roadmaps, and communicate their value proposition to their customers within the context of Service Orientation.

ZapThink provides guidance and expertise to professional services firms to help them grow and innovate their services as well as promote their capabilities to end-users and vendors looking to grow their businesses.

ZapThink also provides implementation intelligence to IT users who are seeking guidance and clarity into the best practices for planning and implementing SOA, including how to assemble the available products and services into a coherent plan.

ZapThink's senior analysts are widely regarded as the "go to analysts" for XML, Web Services, and SOA 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 industry analysts in the IT industry. ZapThink was founded in November 2000 and is headquartered in Baltimore, Maryland.

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