



SOA Governance:
Necessary Protection for a Strategic Business Investment

A research report
prepared by:



Publication sponsored by:



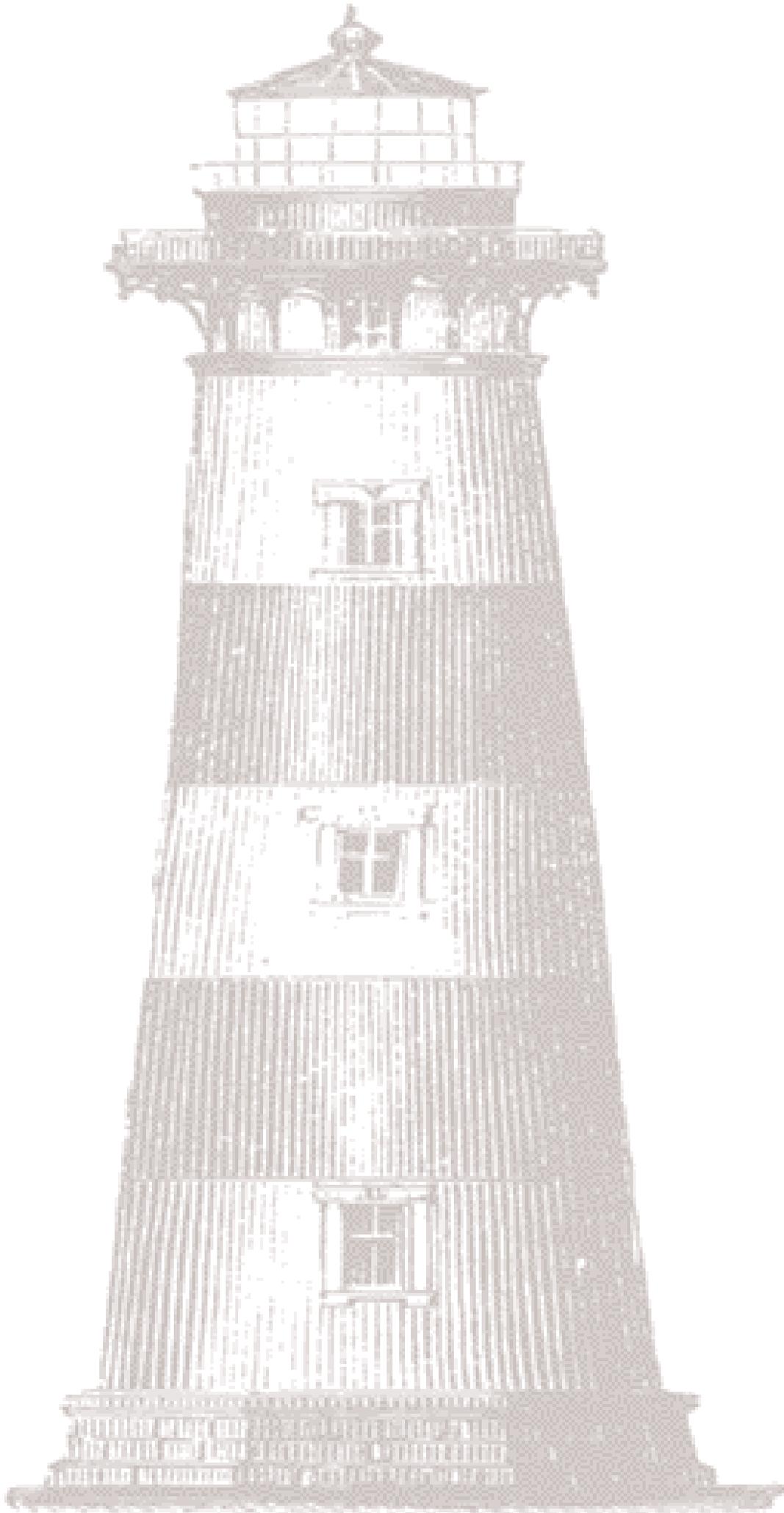




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About this Report

This report is based on independent research by Saugatuck Technology Inc., who is solely responsible for the analysis, conclusions and recommendations presented in this report.

The analysis and guidance presented in this report is based in part on Saugatuck's previously-published research on SOA strategy and adoption, [SOA Reality Check: Three Waves of Adoption through 2012](#) (SSR-305, 12-28-06). Publication of this report was funded by IBM Corp.

About Saugatuck Technology

Saugatuck provides research-based consulting services that combine business planning and market assessment with first-hand research of executive technology buyer trends. Founded in 1999, Saugatuck is headquartered in Westport, CT. For more information, visit www.saugatech.com or call 203.454.3900.

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INTRODUCTION: EFFECTIVE IT GOVERNANCE

“Effective IT Governance is the single most important predictor of value an organization generates from IT.”

- MIT Sloan School of Mgmt.

When it comes to the right IT strategy to help enterprises achieve their business goals, nothing is of higher priority to business and technology executives than Service Oriented Architecture, or SOA. But alarmingly, few of these enterprises (and their managing executives) are implementing *the governance required to realize SOA’s full business benefits*.

Governance – including standardization, planning, funding, acquisition and ongoing management – is what prevents strategic SOA investments from fragmenting into dozens, hundreds or even thousands of ineffective, resource-sapping “point solutions.”

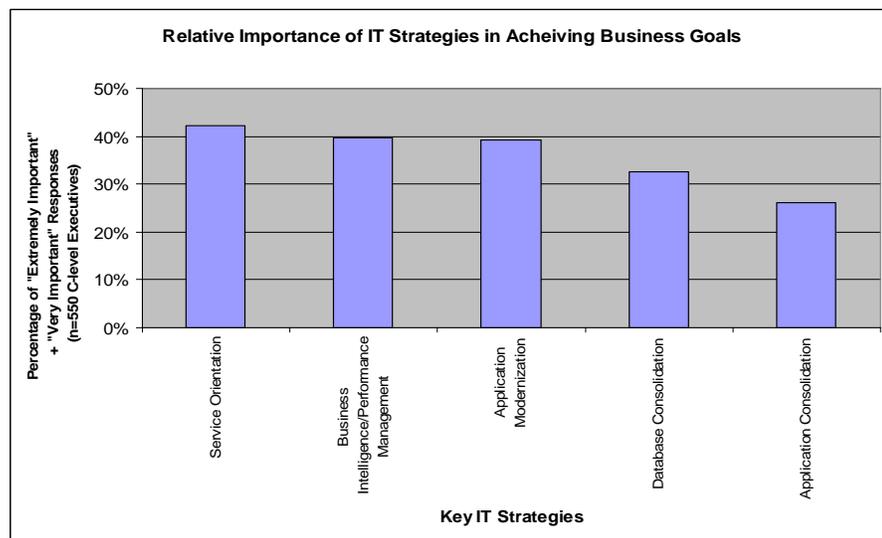
This research paper will present a business guide for SOA governance based on the most recent user enterprise research and analysis from Saugatuck Technology. We will include a snapshot of SOA realities in today’s markets, with typical rationales behind SOA investment and adoption.

But the core focus will be on the whys and wherefores of SOA governance – including a definition, examination of the roles and benefits of governance, and guidance regarding how to develop and maintain effective SOA governance.

AN SOA REALITY SNAPSHOT: TACTICAL TECHNOLOGY VS. STRATEGIC BUSINESS

Saugatuck has been researching and analyzing SOA adoption realities, drivers, and reasons for success since 2002. In 2006, our survey research (conducted with BusinessWeek Research Services) of nearly 600 C-level and IT executives indicated that Services Orientation emerged as the highest-priority strategy for attaining an organization’s business goals (see Figure 1).

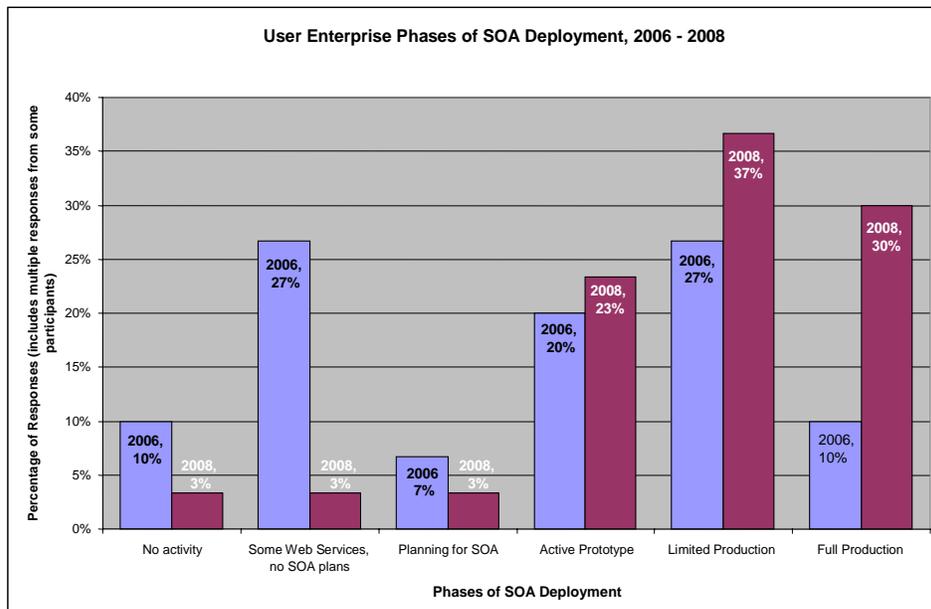
Figure 1: IT Strategies for Achieving Business Goals



Source: Saugatuck Technology

Forty-three percent of the nearly 600 executive participants viewed Services Orientation as extremely or very important. These high expectations for Service Oriented Architecture (SOA) are no longer surprising. Research conducted by Saugatuck with senior IT executives in the summer of 2006 revealed that 47 percent of their firms were currently in a limited or full production stage of SOA deployment. (See figure 2 below).

Figure 2: SOA Deployment Reality and Plans through 2010



Source: Saugatuck Technology

The business value of SOA is now undisputed. Re-use, improved cost management capabilities, and improved flexibility and resiliency are perfectly attuned to the goals of today’s enterprise. Marketplaces reward those organizations that can respond to change in competitive circumstances quickly without losing their cost effectiveness.

But businesses cannot change their policies and processes without changing the systems in the IT portfolio. Often these systems are not only expensive to maintain, but defy timely enhancements. These systems may have been poorly documented or not documented at all, and due to years of maintenance may present themselves as tangles of “spaghetti code” or as brittle structures resistant to modification.

Moreover, changes in one system frequently can lead to changes in other systems. The time and cost to modify these legacy systems can prevent the business from evolving successfully in response to market conditions. By contrast, Service Orientation makes rapid change possible and cost effective because functionality is modularized, catalogued and explicitly managed for change.

Yet while the advantages of SOA are well understood by IT and business leaders, their organizations struggle to make them happen. One of the primary reasons has been that too many IT organizations have viewed Services Orientation as a technology solution rather than as a management discipline. Instead of providing a



foundation for strategic business adaptability, SOA has been used to meet tactical, short-term integration or implementation challenges. So while clusters of Service Orientation dot the IT landscape, there has been no consistent, nor coherent, SOA culture in many, if not most enterprises. This adds to management costs of both business and IT, reduces any advantage from implementing SOA, and adds to the business and technological risk facing the enterprise.

These problems are addressed by **governance**. Without governance, today's global businesses, large and small, are unlikely to manage risk and control costs successfully, or to overcome the immaturity, investment and management obstacles noted earlier. Yet, enterprises tend to be quite lax when it comes to pursuing SOA governance.

Technological, organizational, and cultural obstacles stand in the way. The enterprise may lack tools to track and manage assets; resource sharing policies and practices may not be well-defined; or there simply may not be any effective resource or information sharing due to organizational silo structures.

Or, it may be that there are too many tactical, immediate challenges that take precedence over the more strategically-positioned governance. ***In a recent Saugatuck survey of nearly 150 IT executives, not one identified governance as a current challenge.*** Respondents were far more focused on tactical IT management tasks such as upgrading infrastructure, integrating applications or implementing business intelligence solutions.

And without leadership at the very top of the organization, IT and business executives may be indifferent to challenges that go beyond the boundaries of their organizational roles. Successful governance requires the unstinting support of the senior-most IT and business leaders. Without that support no governance program can be successful.

GETTING STARTED: ASSESSMENTS, BASELINES, AND LEARNING TO CHANGE

Ideally, SOA governance should be in place from the start. But given that nearly half of larger enterprises have already at least trialed SOA, we are just as likely to see "after the fact" SOA governance put in place.

It is essential to establish a clear charter to drive the legitimacy of SOA Governance. The CIO and business leaders must come together in full recognition of the organizational change that SOA Governance represents and conduct an assessment of the current situation. This may be accomplished with or without a professional services partner, but based on our most recent research, Saugatuck believes that without an outside perspective enterprises find it difficult to initiate real and lasting organizational change.

The purpose of this initial assessment is to establish a baseline. It is a kind of inventory, gauging the maturity of the systems environment, identifying the processes that are in place, roles and responsibilities across IT and business units in regard to enhancing and maintaining the IT portfolio. Critical to this assessment is an understanding of how IT and business units work together, how IT projects are funded and charged back, how changes are approved and implemented and how cooperation is established when projects cross business lines. Assessing IT and

What is SOA Governance?

Governance, broadly speaking, is a formal management discipline, defining an organization's roles, organizational units and processes, assigning decision rights and determining which policies to follow in making those decisions.

IT governance defines the working relationship between business leaders and the IT organization in achieving information technology goals and objectives.

SOA governance is an application of IT governance specifically focused on the lifecycle of services, metadata and composite applications in an organization's Services-Oriented Architecture. SOA Governance requires both a services development and runtime perspective and provides a framework for managing services as an IT asset, including:

- Enhancements to IT processes to address funding, sharing and incentives for sharing, and reuse of services, as well as for the identification, design and specification of services
- Infrastructure enhancements for security, monitoring, performance, versioning and shared usage
- Implementation of disciplined procedures for the use of the registry/repository and other tools in services development, deployment and management
- Redefinition of roles and responsibilities, including education and training for both IT and business roles
- Organizational change is one of the key elements in a successful SOA Governance program, re-structuring organizational relationships among IT professionals and, more importantly, between IT organizations and business units.

business alignment is one dimension that should be included; another is the organization's willingness to accept not only change, but the degree of organizational discipline necessary to manage change.

If SOA projects have already been attempted or are currently underway, these projects should be assessed for any best practices and lessons learned. Both successful and failed SOA efforts can be rich mines of what works and what doesn't, and a keen source of insight as to how SOA Governance challenges can be overcome.

Three important issues relating to the baseline assessment are 1) the suitability of the IT infrastructure, 2) the state of the applications portfolio, and 3) the current use of tools and methods within the IT organization. IT Infrastructure may require significant investment, depending on the existing environment in place, and assessing what will be required is of primary importance.

BUILDING FROM - AND RE-EXAMINING - IT GOVERNANCE

SOA Governance builds on the capabilities and the maturity of technology and processes already in place. When SOA projects have already been initiated, or if enterprise application integration has been implemented, some of these key ele-



ments may already be in place, such as the service registry /repository, the enterprise service bus (ESB), messaging middleware, runtime monitoring software and service-level security.

Proactive management of the applications portfolio is also an important practice, as is maintaining a repository to manage newly-developed services or services interfaces through the encapsulation of legacy systems. Development and assembly tools that are designed to create and maintain services, ideally integrated with the registry/repository system, and method and procedure tools that drive these processes are key elements of the foundation for SOA Governance.

SOA Governance also forces a re-examination and redefinition of existing IT Governance and the organization, decision rights, roles, tools and processes that comprise it. SOA Governance cannot be successful in isolation. To be effective, it must be the centerpiece of an organization's approach toward designing, implementing, managing and funding the information systems and technology assets that drive business processes. In this way SOA Governance precipitates a transformation in the way a business utilizes IT and in the way IT itself operates.

Of course, implementing Services Orientation and SOA Governance must be staged to enable organizational learning across multiple dimensions. New methodologies, standards and coding conventions must be acquired and quality-assured. Re-use and cross-department design based upon reuse must become a core development practice, reinforced by well-managed registry/repository systems and centers of excellence. Business units must collaborate among themselves and with IT in order to assure that project management and funding will support this. The chief architect at a leading risk management firm puts it this way: "The governance model is very much a federated model so the business units have a lot of input...It's a major change. SOA is more than just an investment by our Corporate IT. It's an investment across all of our businesses, so it has to go through all our governance processes."

EXPANDING SOA GOVERNANCE

As SOA Governance gains a foothold and begins its transformation of IT Governance, new organizational processes, groups and roles play a major part in the end-to-end lifecycle of service development, deployment and management. At a minimum, these should include:

- Centers of Excellence;
- An Architectural Review Board;
- The Office of Chief Architect; and
- The IT Executive Steering Committee.

Clearly, however, SOA Governance is much more than forming committees and new organizational units. It encompasses the ways in which projects are initiated and funded, training for IT and business unit leads and awareness initiatives that reach across the organization.

One key element in a Governance program is a *formal charter of operations*. Such a charter sets forth the vision and objectives of each program function.

IBM's SOA Governance Platform

It's clear from the research that SOA governance requires a directed combination of organizational and technological capabilities in order to succeed – and to enable SOA success throughout the enterprise. Unfortunately, the technological side of the equation often receives short shrift – too many enterprise executives believe that a combination of an Enterprise Service Bus (ESB) and perhaps a repository are enough to build effective SOA governance. In reality, SOA governance requires a portfolio of technologies – spanning the development, deployment and management of services – as part of a disciplined, SOA life-cycle approach. The following list of tools and related offerings from IBM represents the breadth and depth of an effective IT portfolio approach to SOA governance.

Rational Software Development Platform

- Rational Build Forge – governed service build & delivery process
- Rational ClearQuest and Functional Testing – policy work flow automation for geographically distributed quality governance
- Rational Software Architect – analysis, modeling & governance

Rational Asset Manager

- Development and delivery asset management registry
- Integrated with other Rational, WebSphere and Tivoli products
- Federated with WebSphere Service Registry and Repository

WebSphere Service Registry and Repository

- Discovery of services
- Governance of artifacts and services
- Integrated with External Service Bus

Tivoli Change and Configuration Management Database

- Tracks items and configurations necessary to deliver a service
- Federates information from other operational management products
- Automated Service Management processes

ITCAM for SOA

- Chargeback and tracking functionality for Service Lifecycle Management
- Identifies “rogue services” running in production
- Maintains logs of service calls for historical analysis
- Monitors service levels, reroutes services to meet SLAs
- Creates reports for chargeback and SLA compliance

IBM SOA Governance and Management Method

- Creates SOA Governance end-to-end process
- Works with Rational Portfolio Manager and Method Composer

Center of Excellence (CoE) Service Offering

- Working with the SOA Governance Method
- SOA Governance process reviews and training
- Services across the Governance and Management Lifecycle



Best Practices: SOA Governance for Two User Enterprises

Nearly half of user enterprises larger than \$1B in annual revenues have implemented SOA in some capacity. Almost all regard SOA investment as a potential competitive advantage, and therefore won't go on record regarding plans and actions. Of the dozens of enterprise executives interviewed, Saugatuck, was able to persuade two industry-leading enterprises to discuss key aspects of their SOA strategies – and the importance and impact of governance – for this report.

Sales Division of a Large, Multinational Automotive Manufacturer

Began SOA as strategic investment in improving customer satisfaction. Delays in coordinating customer information with purchased vehicle data consumed as much as four days from the time of purchase. This had a negative effect on customer satisfaction by delaying follow-up communications, warranty execution, and other ownership benefits. Redundant systems and data also inflated the costs of sales, customer service/support, and related operations. The company began its SOA journey by coordinating the development of web services with an enterprise service bus (ESB). The ESB project simplified the portfolio of data and systems, reduced operational redundancies and costs, and reduced the average amount of time needed to coordinate customer and vehicle data from four days to four hours. Customer satisfaction improved dramatically as a result.

Realized the need for SOA governance because the development and rollout of web services quickly indicated the need for coordination within the project group and across the enterprise. The ESB implementation increased the pace of web services deployment, the number of web services users, and the types and variety of web services – complicating the ESB project and the business environment.

SOA governance is justified by “The elimination of redundancies, especially in data, databases, and associated services,” according to the firm's chief IT architect. “That has a significant impact on not just our project and IT costs, but on the company's operating costs as a whole.”

Multi-discipline Financial Services Firm

Began SOA as strategic investment in web services. The firm made a strategic decision to develop and deploy web services in order to improve the availability and delivery of data throughout the enterprise. Its SOA plan and strategy have developed and evolved from its web services beginning. “We want to be on a services model to reduce and control amount of interaction between developers - and our development needs,” according to the company's CIO.

Realized the need for SOA governance because of the rapidly-expanding scope of services development and deployment. “We saw that we could quickly get into anarchy without real-time governance,” explains the CIO.

SOA governance is justified by the fact that the firm's overall IT governance is siloed, while web services are not. The firm sees a key role for SOA governance to help it overcome IT and business silos. “Without governance, things won't be totally chaotic, but there will be a lot of overhead and rework, plus lots of possible corporate friction based on lots of people not knowing what has been done,” adds the firm's CIO.

While compliance is an important function, a more effective disposition is enablement. Governance must be proactive in its execution and provide the means for SOA projects and programs to be successful by providing training and consulting, facilitating reuse and assisting in the planning, budgeting and design of efforts across business units.

Without a common center of gravity, however, even good beginnings in implementing SOA will drift apart, and risk developing “islands of SOA” rather than a cohesive architecture. This problem can be avoided by **creating one or more Centers of Excellence** that provide consistency through ongoing training and consulting services, a registry/repository of services, and a metrics program.

Centers of Excellence should be viewed as the implementation arm of the governance model, chartered with the care and feeding of the architecture -- providing SOA leadership and direction, training, tools expertise, guidance as to standards and best practices in service design and development, as well as management of the services registry/repository system. Unfortunately, in our experience, too many user enterprises view Centers of Excellence as high-visibility, low-impact, but elaborate “window dressing,” rather than as effective management resources.

However, when Centers of Excellence are built and managed with clear, manageable goals, and endorsed and enforced by top-level executive management – including tying usage by business and IT departments to enterprise management standards and compensation – they are effective, and they reduce costs not only across all aspects of SOA, but across most aspects of enterprise IT and business management. Once again, for SOA Governance to be effective it must be integral to overall IT Governance.

At the heart of SOA Governance is the process of defining architecture for the creation and use of services in support of the business. The plan for implementing architecture is the responsibility of the Office of Chief Architect. The Office of Chief Architect is an essential function that may begin small, as with a single experienced SOA architect, but evolve as the role of Service Orientation deepens and broadens within the enterprise.

Staffing must be linked to the size and complexity of the SOA effort. The Office of Chief Architect works closely with the Centers of Excellence, the Architectural Review Board, the Executive Steering Committee, and the SOA project teams to ensure effective design and implementation, as well as on-going reviews, reconciliation of conflicting design alternatives in cooperation with IT management and business unit executives and the phased rollout of the SOA architectural plan. Saugatuck’s research suggests that the Office of Chief Architect will be most effective when proactive and opportunistic, rather than reactive and mediating in style. As with IT and SOA Governance overall, the Office of Chief Architect should work through cultural norms when possible, but not avoid hard choices with discernable business benefits.

One way in which SOA Governance transforms IT governance is through the creation of new functions, as we have seen with the Centers of Excellence and the Office of Chief Architect. The Architectural Review Board is another essential function to the success of SOA, once its scope has moved beyond point projects. As explained by the chief engineer of a large U.S. federal government agency,



“Having a clear roadmap, a practical one and not just a very-highly technical one, and making good judicious decisions about programs on the shelf and thinking about evolution upfront is important.

Ensuring the effectiveness of the Office of Chief Architect is the Architectural Review Board, which provides political legitimacy based on business value to project plans that drive implementation consistent with the architecture. Both business unit heads and IT management compose this board, bringing business priorities to technology decisions. SOA Governance also impacts the IT Executive Steering Committee and its functions and agenda, by surfacing the business value of the Service Orientation approach and by actively shaping the way in which projects are initiated and funded. Unless this occurs, long-term, enterprise-wide SOA efforts will not succeed, and so it is a critical relationship that should be anchored by one or more members who also play a role in SOA Governance. Ideally there would be a senior business or IT member of The Executive Steering Committee who has a stake in the success of enterprise-wide SOA efforts.

One Vendor’s Approach to SOA Governance

IBM has evolved a phased approach to SOA governance based on helping thousands of enterprises – and its own internal business and IT groups – to develop, implement, and manage SOA. IBM’s approach to SOA Governance includes four key phases:

Plan phase:

- Understand the current governance structures and environment
- Create an IT governance baseline
- Define the scope of the governance model
- Conduct change-readiness surveys

Define phase:

- Define and refine the governance processes, quality gates and decision-making matrix
- Define organizational change
- Define IT changes in SOA development processes

Enable phase:

- Implement the transition plan defined in the previous phase that outlines the actions needed to effect SOA governance
- Initiate SOA organizational change
- Launch SOA governance Center(s) of Excellence (optional)
- Implement the infrastructure for SOA

Measure phase:

- Measure the effectiveness of governance processes
- Measure the effectiveness of organizational change
- Review and refine development and operational environments

While extremely simplified, the above illustrates how encompassing SOA governance can, and should, be. It also underscores the need for phased stages of planning, activity, and review – just as would any other significant investment.

If SOA has a champion at that level in the organization, that champion should be a participant in the Executive Steering Committee. Otherwise, there should be formal linkage through a membership role either to the Office of Chief Architect or the Architectural Review Board.

Awareness Campaigns play an important role in triggering the cultural change essential to Service Orientation. Getting the word out across the organization about Service Orientation - its objectives and business benefits, the new roles, functions and processes it creates, and the importance of SOA Governance to its success - and making the organization aware of the relationship of long-term goals to short-term initiatives is essential to preparing and executing the cultural change that SOA requires. Awareness programs should anticipate challenges, but trumpet successes and enable cooperation. Communicating best practices - and the key changes in how IT implements SOA in cooperation with multiple business units - simultaneously aligns the organization around these business goals and makes explicit and visible new SOA and IT cultural norms and how they are evolving to deliver increased business value and competitive agility.

CONCLUSION: SOA REQUIRES GOVERNANCE, AND GOVERNANCE REQUIRES ACTION

SOA is, as phrased in many research and vendor publications, fast becoming “just another business tool.” Buying tools and using them takes money and staff; using them effectively takes guidance and experience in standards, policies and practices – in effect, governance.

But more than being just another tool, SOA is really a strategic set of standards and practices. Therefore, to succeed, SOA requires investment in strategic management of those standards and practices.

While there is no hard data stating unequivocally that governance will lead to SOA success, there is plenty of evidence throughout history pointing to business and technological failures based on a lack of defined and executed management. And in Saugatuck interviews with business and IT executives that have endured SOA failures, every one cited a lack of effective rules of engagement, technology and management practices, or strategic executive involvement.

This paper has provided insights and guidance to help executives understand and cooperate to overcome these issues, and leverage what already exists. Saugatuck strongly encourages any enterprise, of any size, to seek more guidance as the move toward SOA, or toward more SOA implementation and involvement. The costs, and the risks, of not doing so will delay any strategic advantage to the point where it is no longer an advantage – it will be a necessity, and playing catch-up is almost always more complex and costly.

