CHAPTER 1

The SOA Governance Imperative

Since my last Service-Oriented Architecture (SOA) book, in which I dedicated an entire chapter to the topic of SOA governance, industry interest in governance has exploded. The challenges of enterprise SOA governance have moved to the foreground across the IT industry as interest in SOA has increased, and as the many SOA practitioners out there have reached the same conclusion: SOA governance is mandatory for any measure of SOA success. Understanding and implementing effective SOA governance has become a corporate imperative, and thus the topic requires the depth of coverage that this book provides. Yet, despite all the interest in the topic, governance is one of the most misunderstood, emotionally charged, and enigmatic concepts in the industry. We will attempt to address these challenges in the chapters of this book.

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THE INEVITABLE SOA TREND

SOA is one of the most important trends in Information Technology today. SOA is now a top priority in most organizations. SOA is receiving all this attention because of the great potential value it offers to those who pursue it. If an organization achieves a mere fraction of the total potential value of SOA, it will be significant to that organization's bottom line, competitive posture, and overall operational effectiveness. That is why SOA is such an important strategic initiative to pursue. SOA makes too much sense technically and financially *not* to implement.

I like to define SOA as a combination of a Business Model, an IT strategy, an architectural approach, and an implementation pattern, all predicated on the concept of "Services."

In the SOA business model sense, an organization is essentially an economic engine assembled from a combination of internal and external processes and capabilities, all of which in combination enable the end-to-end execution of business processes that achieve the organization's objectives. A for-profit corporation is created to make money for its shareholders. Thus, maximum profits are achieved by optimizing execution of business

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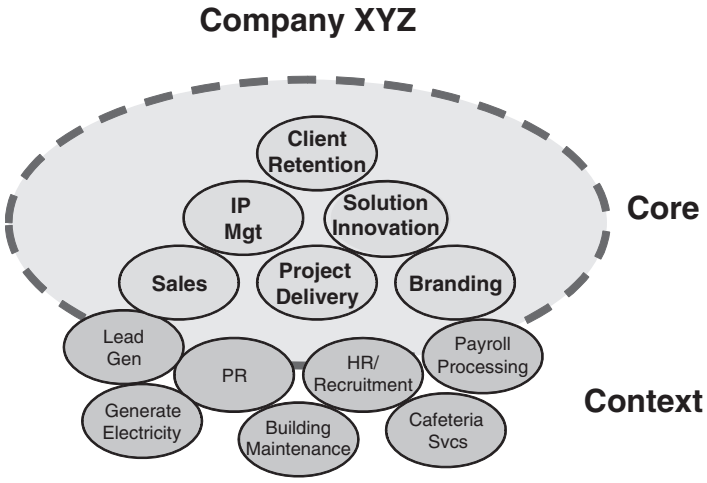

Exhibit 1.1 Core vs. Context (Make vs. Buy vs. Rent)

transactions. If an organization can accomplish business transactions more efficiently and at a lower cost by performing them internally, it will do so. If, however, overall efficiency and cost optimization is achieved by others outside of the organization performing those transactions, the best model is outsourcing of those functions. These ideas are derived from the work of Ronald Coase, whose work on transaction theory provides a perfect foundation for SOA as a business model.[1] (See Marks and Bell 2006 for a discussion of Ronald Coase and transaction theory applied to SOA and services.)[2] Exhibit 1.1 illustrates the concepts of core and context, and as an extension, the combination of internal and external services to optimize the overall transactional cost and efficiency of an organization.

Per our set-up discussion above, a corporation continually evaluates the relative cost of performing business transactions internally versus externally to best optimize its overall profitability. In fact, Ronald Coase would argue that the relative size of a company, and its interactions with the marketplace, are ultimately based on relative costs of business transactions. Combining the transaction theory of Ronald Coase with the core and context concepts of Geoffrey Moore give us a tremendous foundation to apply SOA concepts to.

Many small businesses outsource human resources, payroll processing, and even their Information Technology (IT) in their early startup days, instead focusing on the innovations that will help the company grow.

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However, as those functions become more critical to the enterprise, and as the cost of performing them is lower than in an internally-provided service, the organization may eventually insource those functions. In this manner, the service-oriented business model is one of optimizing core and context processes (per Geoffrey Moore's book *Living on the Fault Line*[3]), and leveraging service providers as necessary to achieve the overall optimal structure of internally- and externally-provided transactions in support of the business model. This is SOA as a business model.

SOA as an IT strategy is an extension of the SOA business model. An SOA-enabled IT strategy explicitly embraces concepts of service providers and service consumers, and seeks to optimize IT services provided to the business by leveraging SOA concepts. Thus, the combination of IT services will be optimized through a combination of internally- and externally-provided services, which helps realize the profitability goals of the enterprise. The SOA IT strategy perspective also means that there is an SOA strategy, that the SOA strategy enables the SOA business model, and that it is expressed technically through a clearly defined and articulated enterprise architecture and the resulting portfolio of services that, when exposed and implemented, enable the optimal end-to-end execution of business transactions for maximizing profit. Again, this is from the perspective of a for profit enterprise.

SOA is also an architecture approach or paradigm, along with a supporting implementation pattern that realizes that architectural approach in support of the IT strategy and the SOA business model. SOA extends an organization's enterprise architecture to include concepts of services, both logical and physical descriptions of services, as well as the required SOA infrastructure and tools, and the SOA platform for service design, quality assurance and testing, and service runtime operations.

The SOA implementation pattern includes the implementation of the SOA platform and enabling technology as well as the SOA-enabled services/software development lifecycle (SDLC) that accommodates both service provider processes and service consumer processes of the enterprise. The SOA implementation pattern enables business applications or capabilities to be assembled through the consumption of services provided through the SOA architecture and SOA implementation patterns. The assembly of business applications from reusable services is how an organization realizes SOA value through services reuse, integration avoidance, agility through application assembly and rapid time to market, and the many other benefits of SOA.

Although the definition is technically accurate, SOA is far more than an ''architecture'' comprised of ''services.'' SOA is an architectural approach and operating model predicated on the concept of reusable ''services,'' or chunks of business logic or business processes that are shared by enterprise consumers. Services are message-invoked modules of business logic, process

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activities, chunks of data that offer value to the enterprise through the sharing and reuse of these modular services. In an SOA, services are exposed using a standards-based interface that abstracts or "hides" its technical implementation from the service consumers. When consumers access the functionality of a service, they do so via its exposed interface using message-based communications. The service interface, by virtue of its standards-based construction, offers a simple mechanism for service consumers to find or discover a service, develop a client or access mechanism to the service, and then begin consuming the service in support of a desired business outcome. The technical complexity of the implementation is hidden behind the service interface, which enables a more simplified model for building service-based applications.

SOA offers many business and IT benefits to an organization. From a business perspective, the following SOA benefits are typically expected:

- Business agility
- Reduced time to market
- Easier to do business with
- Reduced technology costs
- Right-sized business model based on core and context—can add or subtract service providers easily

From an IT perspective, the following SOA benefits are often targeted:

- Reduced software development costs
- Reduced software maintenance costs
- Reuse of services accelerates application delivery
- Reuse of services increases software quality
- Allows easier procurement of application software as services
- Allows faster IT response to business change
- Provides for graceful evolution of IT architecture, which leads to lower operating costs and total cost of ownership

SOA as a business or IT initiative presents several challenges with which organizations must contend before they can begin to realize the benefits of SOA. An SOA strategy is a critical requirement. An SOA business case should be established. An SOA reference model and SOA enterprise architecture should be created.

First and foremost of these is an actionable SOA strategy. An SOA strategy is essential to help focus and galvanize organizational efforts, identify the appropriate uses of SOA for business benefits, and to explicitly identify the business or mission outcomes desired from investing in an SOA

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initiative. SOA governance is mission critical to guide and manage all the "moving parts" of an SOA strategy. An enterprise SOA governance model must be informed by an actionable SOA strategy, since SOA governance helps enable the realization of your SOA strategy.

In our experience, most organizations have skipped the definition of a reasonable SOA strategy, and until recently the same organizations have bypassed developing an enterprise approach to SOA governance. However, as interest in governance intensifies, this should spur a concomitant interest in SOA strategy development as well. To set the stage for the remainder of the book, let's explore the rise of governance as a discipline, the industry and business drivers for governance, and then translate that into the SOA-specific instantiations of governance.

INTRODUCTION TO GOVERNANCE

SOA governance, information technology (IT) governance, and corporate governance are currently hot industry buzzwords. But what is SOA governance really? What is governance in the general sense? Governance is a simple concept to understand, yet it is made complex by vendors, management consultants, and opportunists who see the increasing emphasis on governance as a chance to augment or enhance their power base in an organization. However, governance, be it IT, SOA, or corporate, does not have to be that complicated.

Governance is the process of making correct and appropriate decisions on behalf of the stakeholders of those decisions or choices. In its corporate application, governance is the process of ensuring the best interests of a company's or organization's stakeholders are met through all corporate decisions, from strategy through execution. In its IT application, governance focuses on appropriate oversight and stakeholder representation for IT spending and overall IT management.

Corporate governance has become critically important as a result of corporate accounting scandals, stock option backdating and related corporate mismanagement episodes. Corporate governance is essential to apply oversight and balanced stakeholder representation for all corporate decisions relating to hiring and retaining key executives, executive compensation, strategic direction and execution. Corporate governance in publicly traded companies is the process by which firms are managed to ensure stakeholder interests are met by corporate decisions. Stakeholders include shareholders, employees, management, and even customers. The corporate governance process is normally achieved by a board of directors, who are either appointed or elected to provide objective, balanced

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oversight on such key issues as executive compensation and performance and corporate strategy and decision making. The board of directors normally is comprised of inside and outside directors to ensure all stakeholder interests are represented in a balanced fashion. When corporate governance fails, it is usually because of a lack of objectivity (e.g., board members appointed by the Chief Executive Officer [CEO] of the organization, or board membership weighted too heavily toward inside interests versus external shareholder interests). Most recently, corporate governance has been in the news due to the stock option backdating scandal. Corporate governance failed in this case due to a lack of decision transparency, which enabled a few executives to unilaterally or multilaterally enrich themselves by backdating stock option agreements. In the general sense, any governance will fail if stakeholders of critical decisions are not engaged in the processes of governance. This is why governance is first and foremost about engagement of critical stakeholders in key decisions of an organization.

INTRODUCTION TO ENTERPRISE SOA GOVERNANCE

What is enterprise SOA governance? SOA governance is the process of ensuring all business and IT stakeholders' interests are served by the planning, funding, and execution of an enterprise SOA initiative. One of the early pioneers of SOA governance is the company WebLayers, located in Cambridge, Massachusetts. WebLayers defines SOA governance as follows:[4]

> *SOA governance is the ability to ensure that all of the independent (SOA) efforts (whether in the design, development, deployment, or operations of a service) come together to meet enterprise requirements.*

WebLayers developed the concept of a policy-driven SOA governance approach where in effect SOA governance is predicated on developing, formalizing, and enforcing a body of SOA policies that ensure conformance to enterprise SOA business and technology goals. In my opinion, this whitepaper paved the way for the industry to understand the scope, breadth, and criticality of policies in a SOA governance framework.

However, SOA governance must be approached from an enterprise perspective and from a comprehensive and holistic viewpoint. An enterprise approach to SOA governance offers a more robust model than focusing narrowly on SOA governance. While explicitly defined SOA policies are essential to formalize and encode the enterprise requirements for SOA

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governance, SOA governance must also address the convergence of other forces such as organizational structure, IT and governance processes, organizational culture, behavior and political dynamics, and metrics that help measure governance. Thus, to better address the holistic nature of SOA governance, I defined SOA governance as follows:[5]

> *SOA governance refers to the organization, processes, policies, and metrics required to manage an SOA successfully. A successful SOA is one that meets defined business objectives over time. In addition, an SOA governance model establishes the behavioral rules and guidelines of the organization and participants in the SOA, from architects and developers to service consumers, service providers, and even applications and the services themselves. These behavioral rules and guidelines are established via a body of defined SOA policies. SOA policies are specific and cover business, organizational, compliance, security, and technology facets of services operating within an SOA.*
>
> *SOA governance consists of the organization and processes required to guide the business success of an SOA and Web services. SOA governance defines and enforces the Web services policies that are needed to manage a SOA for business success.*

While this definition is sound, I realized that a simpler definition would help clarify governance and SOA governance in particular. Therefore, we will augment the complex and detailed SOA governance definition above with a more simple and elegant definition:

> *SOA governance is doing the right SOA things the right way for the SOA stakeholders.*

Let us break this definition down a bit more. There are three fundamental elements to this definition of SOA governance: (1) Do the right SOA things; (2) Do the right SOA things the right way; and (3) Do the right SOA things the right way for the SOA stakeholders. This definition can thus be expanded as follows:

> *SOA governance is the definition, implementation and ongoing execution of an SOA stakeholder decision model and accountability framework that ensures an organization is pursing an appropriate SOA strategy aligned with business goals, and is executing that strategy in accordance with guidelines and constraints defined by a body of SOA principles and policies. SOA policies are enforced via*

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a policy enforcement model, which is realized in the form of various policy enforcement mechanisms such as governance boards and committees; governance processes, checkpoints, and reviews; and governance enabling technology and tools.

This SOA governance definition will be used for the remainder of this book.

Weill and Ross emphasize the allocation of decision rights in their book on IT governance, which is really the process of deciding what to do, how to do it, and who has a vote. Relating our definition to theirs, SOA governance is focused on setting priorities and applying SOA to the appropriate universe of business challenges; SOA governance involves implementing SOA according to company processes, architecture, and technology standards, and in alignment with business priorities; and finally, SOA governance explicitly involves the business and IT stakeholders in the decision-making process for input, review, and approval, and enforcement of key decisions relating to SOA.

The challenge is, with SOA, there are many more ''right things'' to perform the ''right way.'' SOA governance adds many more architectural and technology dimensions to the governance equation, as well as the horizontal processes of a services/software development lifecycle (SDLC) that span design time activities, quality assurance and testing, and runtime governance and operations. Thus, SOA governance includes fundamental elements of IT governance, while adding many technical issues that require integration into the governance calculus as well. As for the stakeholders, they are the same by and large as the IT stakeholders except for two fundamental differences: First, SOA done right offers a more direct business engagement model via process modeling and analysis than previous IT architecture and development paradigms offered; second, SOA requires more internal coordination across more moving parts in order to for it to deliver on its business and IT promises.

GOVERNANCE AND RESOURCE MANAGEMENT AND ALLOCATION

Many people equate governance with management and allocation of resources and assets, such as financial and budgeting decisions, human resources, and physical assets. Weill and Ross discuss governance of key categories of assets, such as:[6]

- Human resources and personnel
- Financial assets

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- Physical assets, such as buildings, property, equipment, and similar fixed assets
- Intellectual property, such as patents, trademarks, copyrights, trademarks, brands
- Information, data, and IT assets
- Relationship assets, such as customer, supplier, and regulatory relationships

In this sense, then, governance is essential where the allocation and management of critical corporate resources impacts corporate performance. Decisions relating to the management of human resources have a direct bearing on organizational performance, as well as legal and financial implications; and thus human resources can fall under a governance process. Certainly, key executive hiring and firing decisions are made by subcommittees comprised of members of the board of directors, and those decisions often fall under the Securities and Exchange Commission (SEC) reporting requirements for public companies. The same can be said for financial management, physical assets, intellectual property, IT assets, and others.

The irony is that IT governance became important after the Internet hubris of the mid- to late-1990s and the Y2K hype when IT spending seemed to spin out of control without clear accountability to the business and without a direct connection to business performance. In other words, the rise of IT governance is a backlash against the unchecked and seemingly ''reckless'' IT spending of the go-go 1990s. IT governance was necessary to get control of ''those IT guys'' and ensure they would not be able so spend corporate funds on IT toys without appropriate checks and balances. Governance was about proper oversight, transparency, and stakeholder involvement in critical decisions, ultimately the appropriate use of IT funds on behalf of the business stakeholders.

Now, with the rise of SOA and enterprise SOA governance, the meaning and emphasis of governance varies dramatically depending on what your interests are. SOA in and of itself can mean the strategic aspects of SOA, such as strategy development, program and initiative selection, and funding and budgeting. Of course, SOA governance also entails the architectural dimensions of SOA, the services aspects of SOA, the software delivery and service development dimensions of SOA, and the operational management dimensions of services in the SOA. The following are major forms of enterprise governance that are common across industry:

- **Corporate Governance**. Transparency, oversight, and conformance to corporate policies and support for key corporate decisions by the board of directors.

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- **IT Governance.** Transparency and oversight for IT funding, actual IT spending, and input into key IT decisions.
- **Architecture Governance.** Oversight and conformance to the enterprise architecture (EA) standards and policies of the organization, as well as input into key enterprise architecture (EA) decisions.
- **SOA Governance.** Definition, execution, and oversight of an SOA business and technology strategy, along with ensuring technical oversight, interoperability, and enforcement of technical policies for the architecture and services that comprise the SOA.
- **Services/Software Development Lifecycle (SDLC) Governance.** Governance of services from concept to requirements, design, construction, quality assurance and testing, publishing/registration, consumption, composition, orchestration, provisioning, management, maintenance, deprecation, and retirement. Lifecycle governance often is broken into design-time governance and runtime governance, separated by quality assurance and testing, service registration and publishing.
- **Program Governance.** Oversight of major programs, projects, and initiatives from a cost, schedule, and performance perspective, often performed by a program management office (PMO) process.

We could add data governance, portfolio management, and many other dimensions into this list. What should become clear is that "governance" means slightly different things for each of these areas. While they all generically still mean "doing the right things the right way for the stakeholders," the right things, right ways and stakeholders are all different for these governance focal points.

However, when does the transition from "management" to "governance" occur, and for what kinds of assets or decisions? Governance is not the same as management, yet they are intrinsically related to one another as we will see below.

DO NOT CONFUSE GOVERNANCE WITH MANAGEMENT

Our definition of governance is critical to bear in mind as you begin developing your SOA governance model. Governance is often confused with management. In one sense, both are management activities. Governance provides management and oversight for critical activities or decisions where stakeholder representation is an imperative. Management is about execution of all business or organizational activities once the decision is made. Management activities usually do not require external stakeholder involvement or representation, whereas governance activities nearly always have

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stakeholder interests across multiple domains or constituencies involved. Both are related, and both are necessary in an SOA governance model. However, governance is essential where critical decisions require stakeholder involvement, and where those decisions have strategic or serious impact on business, IT or process performance. Do not confuse management processes with governance processes.

Governance is also focused on more critical aspects of the business, where management is focused on all aspects of the business, some of which may be the focus of governance oversight. One of the real challenges in SOA governance is determining what must be governed, and how, versus what must be managed as parts of normal IT or business management. In this book, we will separate out the domain of management from the domain of governance. When in doubt, ask if something is being governed versus managed. Good management processes can reduce the need for governance, but good governance requires good management.

GOVERNANCE IS ABOUT RESULTS AND APPROPRIATE USE OF RESOURCES

Without governance, there will be no results. Governance is focused on ensuring appropriate use of resources in an organization to drive the organizational actions that will bring about the desired results. Resources in a for-profit organization include funding, personnel, organizations, capital assets, and even intellectual property.

Often, a discussion of governance finishes with a statement roughly equivalent to the following: ''Funding is the ultimate governance mechanism.'' What most practitioners would agree with is that funding is a primary governance enforcement and incentive mechanism, and judicious use of funding models can facilitate the realization of an effective and transparent governance model for your organization. Governance ensures that organizational resources are allocated to important initiatives, and that they are consumed and leveraged wisely. Therefore, governance must focus on critical aspects of the business where allocation of resources, and oversight of the use of those resources, is possible. SOA governance should follow the same approach.

INFORMATION TECHNOLOGY GOVERNANCE

But how did IT governance become so popular? IT governance is not that different from corporate governance. IT governance is the process of ensuring all IT stakeholders' best interests are being met in the planning, funding,

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and execution of IT for a given organization. IT governance became important when IT spending ballooned out of control in the late 1990s with the combined hype of Year 2000 and the rise of the Internet.[7] As IT spending got more and more out of control with little return on the investment, business leaders realized little to no impact on their business operations. In fact, in many cases, business leaders did not have much say on how IT spending was managed or how IT dollars were allocated to various initiatives. This lack of input and transparency led to an IT backlash, where many CIOs were reined in, fired, or placed under the oversight of the finance functions. The major change resulting from all of this was the establishment of an IT governance process, where the roles, responsibilities, and decision-making processes of IT planning, funding, and execution were managed by joint business and IT leaders, many times with business leaders having much more influence over IT decisions. Much like the rise of corporate governance, IT governance helped make IT spending and decision-making processes more aligned with the business and corporate stakeholders of the organization.

IT PROCESS FRAMEWORKS: ITIL, COBIT, CMMI, AND OTHERS

Several IT governance frameworks and models have blossomed over the years, particularly to facilitate better governance, process definition, and controls for IT. Major IT governance, process, and architecture frameworks are available for implementation, such as Control Objectives for Information and related Technology (COBIT), Information Technology Infrastructure Library (ITIL), Capability Maturity Model Integration (CMMI), and The Open Group Architecture Framework (TOGAF). These are all major process definition and standardization efforts for IT best practices, governance and audit/financial controls. These frameworks all substantially overlap, are inconsistent, approach IT from differing perspectives, and require "substantial interpretation before implementation."[8] Furthermore, the United States lags in adoption of these frameworks, which is a paradox because the Unites States leads in technology innovation, and especially in the context of SOA and its related technologies and disciplines.

The adoption of ITIL best practices, CMMI certification, and other processes seem to be sub-optimized, lacking overarching governance models to manage these processes. In fact, our experience is that IT governance competencies are wide and varied, with no single organization representing enterprise-wide IT governance for all the necessary decisions required. Most often, high-performing governance models at least demonstrate control

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over a few key governance dimensions, such as enterprise architecture, planning and budgeting oversight, configuration management, and IT operations readiness. Organizations with baseline competencies in some form of governance will have a far easier time adopting or extending these to SOA governance, while those without a basic governance foundation will suffer mightily to add SOA governance disciplines to their enterprise.

IT GOVERNANCE APPROACHES

IT governance is still an immature discipline for the most part, despite the IT management frameworks mentioned above. One of the more insightful IT governance approaches was developed by Peter Weill and Jeanne Ross in their book *IT Governance*.[9] Weill and Ross provide an excellent, high-level perspective of IT governance by simplifying IT governance down to five key decisions and six IT governance constructs. Weill and Ross define IT governance as follows:

> *IT governance: Specifying the decision rights and accountability framework to encourage desirable behavior in the use of IT.*[10]

Weill and Ross essentially focus IT governance on five key decisions:

1. **IT Principles**. Codifying the role of IT in supporting the business through fundamental IT principles that help with alignment and decision making.
2. **IT Architecture**. Defining enterprise integration and technology standardization requirements. (We prefer to treat this category of governance as EA, and expand the definition to include the business architecture, application architecture, technology/infrastructure architecture, and the information architecture.)
3. **Infrastructure Requirements**. Determining shared and enabling technology services, such as data centers, networks, telecommunications, desktops, and computing capacity, that are required by the enterprise.
4. **Business Application Needs**. Specifying the business need for commercial off-the-shelf or internally developed IT applications, as well as the ownership, support, and maintenance for these business applications.
5. **IT Investment and Prioritization**. Determining what initiatives, programs, and projects to fund and how much to spend. These decisions are made during the annual strategic planning processes, as well as during the execution year. This process also includes adding and cancelling

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planned IT investments based on business performance as well as emergent business needs.

In addition to focusing on key IT decisions, they also described various "archetypes" for making these decisions, which include business organizations, IT-only organizations, cross-functional organizations, and more. They list the archetypes as follows:[11]

- **Business Monarchies**. A group of business executives or individual executives (CxOs) make key IT decisions. This construct includes senior business executive committees that may or may not include the Chief Information Officer (CIO). This does not include individual IT executives making decisions independently.
- **IT Monarchies**. Individuals or groups of IT executives make key decisions.
- **Feudal**. Business unit executives, key process owners, or their delegates make key IT decisions at the business unit, regional, or process level. There is no shared IT decision making with a corporate headquarters or centralized IT function.
- **Federal**. A governance structure where decisions are coordinated between a centralized corporate IT organization and individual business units, strategic business units (SBUs), or geographic or regional structures.
- **IT Duopoly**. A governance structure that involves two parties—the IT leadership and one other organization, for example, business executives.

Weill and Ross provide a compelling and simplified overview of IT governance and some of the fundamental decisions that must be made, by whom, in order to drive better IT and business performance. However, IT governance requires a deeper level of analysis than Weill and Ross provide, and SOA governance goes far deeper, as we will see.

Weill and Ross provide an excellent basis for the key IT decisions that must be made, and describe various organizational models to help allocate IT decision rights to the enterprise stakeholders. However, they fall short in providing details of how IT policies and decisions are enforced across various processes (e.g., software development lifecycles, architecture governance processes, strategic planning, and execution processes, etc.). Furthermore, they do not develop the concept of policy or a corresponding policy enforcement model for complete IT governance coverage vertically and horizontally in an enterprise that integrates enabling technology, governance processes, and organizational constructs as a comprehensive governance policy enforcement model. Their emphasis is placed on the organizational

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model dimension of governance, not on the total policy enforcement context for IT policies. As such, it is an incomplete governance framework.

We will explore the many facets of SOA governance in the chapters that follow so that you will not only understand what must be governed in order to capitalize on a SOA initiative, but how to begin designing and implementing SOA governance to ensure you realize the value of SOA. The rise of SOA can be considered to be an inevitable evolution of IT based on the industry adoption of key technology standards and the continued persistence of IT integration and business agility challenges. Below we discuss the SOA governance trend and how to enable SOA governance to be successful.

WHO ARE THE SOA STAKEHOLDERS?

One of the reasons SOA governance is more complex than IT governance is that SOA governance adds many more governance requirements and processes, and therefore more governance stakeholders, into the equation. In addition, as we have emphasized, the fundamental difference between management and governance is that governance requires stakeholder representation. Governance is an oversight process that ensures appropriate stakeholder representation for key enterprise decisions. Who are the stakeholders in an SOA initiative? There are a multitude of SOA stakeholders, as Exhibit 1.2 illustrates.

There are business stakeholders, which includes business unit executives who are concerned with driving revenue, sales, and profit by servicing customers with great products and services. These stakeholders are consumers of IT resources and thus will also be consumers of SOA and services. Their interests include the desire to increase market responsiveness and customer service, while driving IT costs out of their business.

IT stakeholders include IT executives, enterprise architects, project managers, business analysts, developers, and outsourcing partners. These stakeholders represent the service provider roles in an SOA initiative. Their interests include supporting business goals, increasing effectiveness of information exploitation, increasing IT efficiency and reusing of architecture and services, and speeding delivery of products and services to customers.

Service consumers are also stakeholders in an SOA initiative, as are service providers. These two groups of stakeholders are joined by the SOA/services development lifecycle process, which receives services requirements and demand from consumers and then produces services that can be consumed and composed into business processes and applications for end users and customers. In fact, these stakeholders are best joined by re-engineering the systems development lifecycle to accommodate SOA and services. In our

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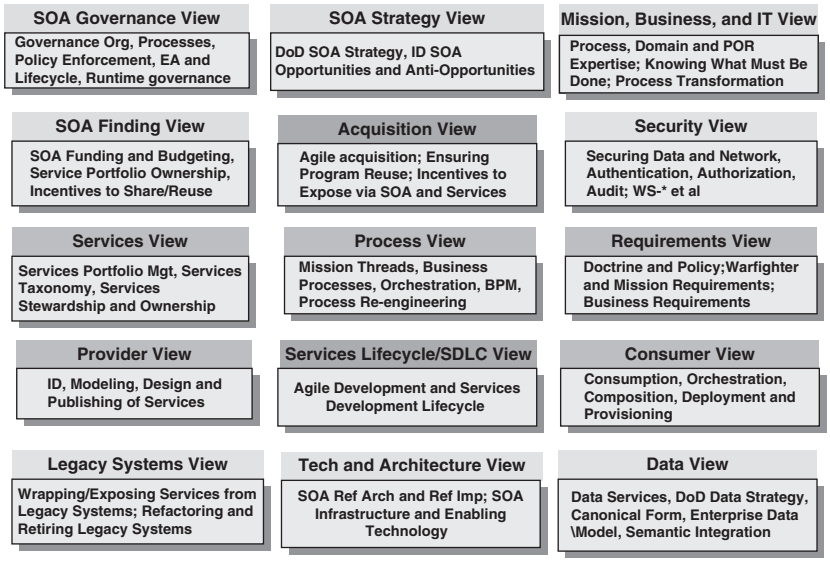

Exhibit 1.2 SOA Governance Stakeholder Landscape

experience, most SDLC processes are not well-suited to SOA or services, even in their most agile instances. Agile development does not directly translate into an SOA/Services SDLC, although an SOA/Services SDLC process will be far more agile than its precursor. It has to be.

Because the nuances of SOA demand a holistic approach to governance, there are more stakeholder requirements and perspectives to consider in an SOA initiative than the usual IT application delivery view. The bottom line is that all of these interests are valid in an SOA initiative, and all of these roles are stakeholders in an SOA. The real challenge of SOA governance is defining the critical stakeholders and ensuring their interests are served by the SOA strategy, planning, and execution through effective SOA governance. The following questions will help frame the high-level requirements of enterprise SOA governance:

- What are the goals of your SOA initiative? What must be governed to help ensure these goals are realized?
- Who are the primary stakeholders of your SOA initiative? Is your SOA business-driven or IT-driven?
- What key decisions, assets, or resources must be governed today? What are the key governance concerns and challenges you must overcome to realize the targeted benefits of SOA?
- Who owns the processes, assets, and resources that must be governed?

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- What outcomes do we seek from SOA governance? How will we measure performance of governance?

SOA governance is confusing to many organizations for a variety of reasons. In many cases, SOA governance is approached from too narrow of a perspective, such as services governance, technical design governance, or SOA platform governance. These SOA governance perspectives represent the technical stakeholders of the SOA initiative very well, but do not articulate the requirements of other business and IT stakeholders.

Another common tendency is to focus on higher-level governance activities, such as the service portfolio management or funding and budgeting processes, too early, when most organizations do not even have a ''portfolio'' of services available to manage nor enough governance maturity to successfully address these challenges. Oftentimes, focusing on governance basics will go a long ways toward enabling success with more challenging dimensions of governance. We address this later.

Of course, accompanying these are two other very interesting forces: Too many stakeholders may be vying for control of governance, or there may be complete apathy toward governance of any kind. This dichotomy is very real depending on the culture and relative governance maturity of the organization, as well as the political dynamics that may surround and affect all other factors. We have seen both, and the governance model implementation roadmap must be structured to take into consideration both perspectives.

ADDRESSING SOA STAKEHOLDER BIASES

Governance is essential to represent the needs of your stakeholders. However, you must realize that while all stakeholder perspectives are valid, they must be balanced with the needs and requirements of the enterprise. There are some natural SOA stakeholder biases to watch for as you begin formulating your SOA governance model:

- **Services Governance**. Focus is too narrow in scope: Many SOA governance enthusiasts mistakenly restrict SOA governance focus to governing services from a technical design- or runtime perspective. In this mode, the focus tends to be technical service design, service interface design, and service implementation.
- **SOA Security Emphasis**. While critical, security often focuses only on technology issues and not business or process issues, and does not encompass organizational requirements or business decisions.

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- **Partial SDLC Governance**. Design-time bias or run-time/operations bias: Another common stakeholder bias derives from focusing on either design-time governance of services, which emphasizes compliance to architecture and technical design standards, or on run-time governance, which emphasizes operational requirements for performance, quality of service (QoS), service-level agreements (SLA), and security. IT Bias: SOA governance focused on optimizing IT goals, which often are concentrated on service reuse, design-time governance, and architecture and technical compliance. These biases tend to emphasize provider-side goals of SOA, which center on reuse and provider-side optimization.
- **Business Bias**. SOA governance focused on how SOA and services drive business goals for speed to market, business value, and process optimization, as opposed to IT biases toward reuse and technical or architecture compliance. In my opinion, there is not enough focus on the business stakeholders yet, as organizations are still very immature with their SOA initiatives and the supporting SOA governance that supports those SOA strategies. You must understand the natural biases and tendencies that accompany these various stakeholder perspectives, and incorporate them into your governance model. These will become more apparent as we decompose the requirements of enterprise governance in subsequent chapters.

SOA GOVERNANCE IMPACTS IT GOVERNANCE AND ENTERPRISE ARCHITECTURE

A key consideration when planning SOA governance is that it will have a rather profound impact on your current IT governance processes as well as your current enterprise architecture process. Oftentimes SOA governance efforts will expose weaknesses in both governance processes. Exhibit 1.3 depicts how an SOA initiative will impact IT and enterprise architecture governance.

For example, SOA initiatives will always stress IT strategic planning processes, project submission and approval, project management processes, funding and budgeting decisions, asset ownership issues, and portfolio management processes (if they exist). Many of these IT governance processes are not very robust, and thus SOA exposes the absence or fragility of these processes very quickly.

Enterprise architecture (EA) governance processes will similarly be challenged by the inception of an SOA initiative. Depending on the

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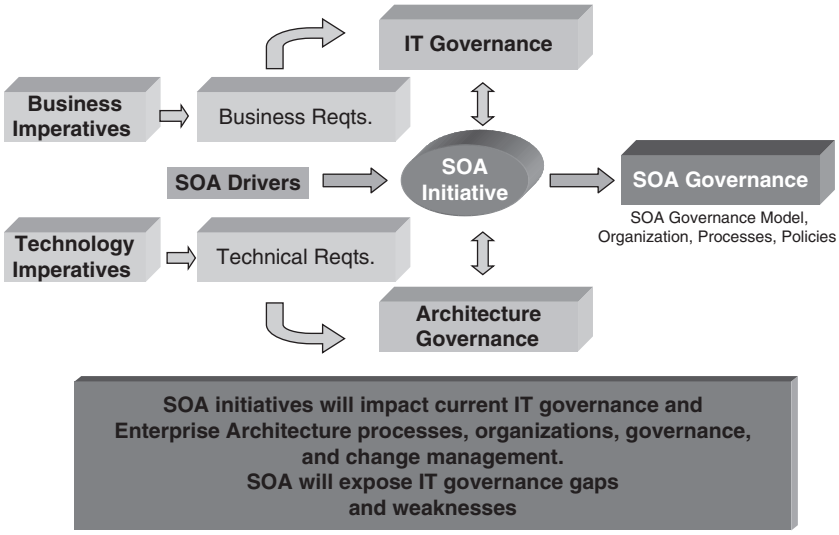

Exhibit 1.3 SOA Governance Impacts Existing Governance Organizations and Processes

robustness of current enterprise architecture disciplines, organizations will have a relatively easier time introducing SOA governance into their EA governance model, especially if they have already formalized architecture governance processes, policies, and oversight of projects as they are managed through the project delivery process in that organization.

SOA governance will place greater demands on those IT organizations whose EA discipline is lacking or whose architecture governance is weak to nonexistent. In these scenarios, many times the EA organization, process, and capabilities must be upgraded in order to successfully accommodate a SOA approach. If there is not an EA organization or discipline, one must be established with executive sponsorship in order to support fundamental SOA.

Our experience from the field suggests that when an enterprise has implemented a rock-solid EA process as well as appropriate architecture governance processes and mechanisms, SOA governance is easier to implement. Adding SOA governance to an existing and successful governance paradigm is easier than starting from scratch. However, transitioning from a poor governance paradigm to a more effective, policy-driven governance framework can be equally challenging.

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SOA GOVERNANCE REQUIREMENTS VARY BY SOA MATURITY

Another SOA governance misconception is that once you implement an SOA governance initiative, you will not have to revisit it again. This is patently false. SOA governance is fluid, evolving, and dynamic. SOA governance is a sustained and ongoing capability for your enterprise. The requirements for ongoing SOA governance will vary based on the organization and the relative maturity of SOA in that organization. Exhibit 1.4 depicts an SOA adoption lifecycle model that illustrates the fundamental phases of SOA that an organization will proceed through on its journey to some SOA steady state.

These SOA adoption phases in Exhibit 1.4 are described in detail below:

- **SOA Inception**. Initial SOA and Web services pilots and proof of concepts (POC) occur here, where early learning and gaining SOA experience for a core team of practitioners are the project goals.
- **SOA Strategy and Planning**. This phase often follows the SOA Inception phase and attempts to align all SOA activities under a coherent strategy and roadmap for execution under the sponsorship and leadership of a corporate executive. Our field experience shows that many organizations proceed directly to the next phase, SOA Governance Model Development, *prior* to developing an SOA strategy. We advise doing them in parallel, starting with the SOA strategy and beginning the SOA governance model development shortly thereafter.

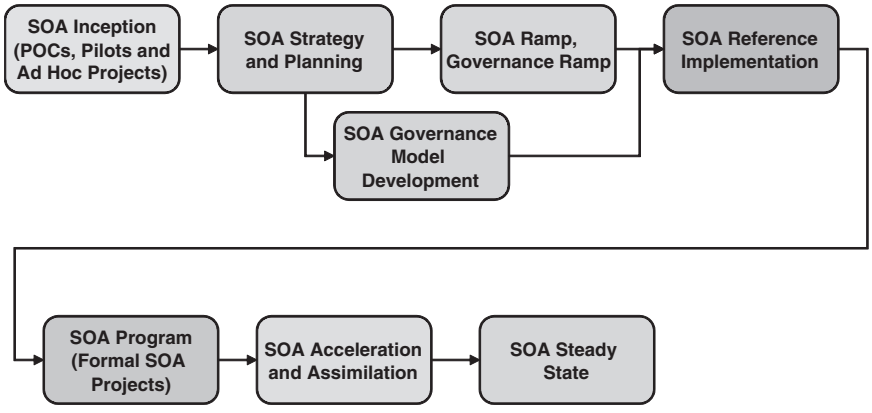

Exhibit 1.4 SOA Adoption Phases (Preferred)

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- **SOA Governance Model Development**. This phase involves development and implementation of an SOA governance model that aligns to and supports the realization of an organization's SOA goals and objectives. As mentioned above, often the SOA governance phase is started before an organization has defined its SOA strategy. Thus, the first gap to close in order to implement effective SOA governance is the development of an SOA strategy.
- **SOA Ramp and Governance Ramp**. This SOA adoption phase is focused on preparing for the formal, programmatic execution of an SOA initiative in an organization. SOA ramp activities include training for the core team, developing reference architecture artifacts, service design and interoperability standards, specifying and acquiring the SOA development, testing and run-time platforms, defining the SOA development lifecycle, implementing SOA governance processes, and organizations and artifacts. The ramp activities will prepare the organization for SOA execution according to the defined SOA strategy and under the oversight of the SOA governance model.
- **SOA Reference Implementation**. The SOA reference implementation phase is a milestone phase. Once the organization has done its preparation and ramp activities, it can begin to implement its first true SOA project. This project should be carefully selected, planned, and executed such that it represents, on a small, controlled scale, your SOA end state. This is what we mean by a SOA reference implementation. It represents your end-state SOA implementation from a business, process, governance, and technology perspective, and includes or implements most or all of the many facets of SOA that you will require to realize the benefits of SOA according to your SOA strategy and SOA governance model. The SOA reference implementation phase represents a major milestone and a major organizational win if it is performed well, and will serve as the nucleus around which your team will iterate and expand its SOA capabilities, processes, governance and implementations.
- **SOA Program**. The SOA program phase is where your organization is beginning the formal execution of SOA projects in accordance with your SOA strategy and SOA governance model, and leverages your SOA Reference Implementation as the platform for execution. Programmatic execution of SOA in this phase will begin slowly, with a few programs or projects, and will accelerate as your maturity evolves. In our experience, many organizations attempt to transition directly from the SOA Inception phase to the SOA program phase by skipping SOA strategy and planning, SOA governance model development, and SOA ramp and governance ramp. These organizations often will stall under

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this scenario, or will end up with a very limited bottom-up SOA implementation with limited business value.

- **SOA Acceleration and Assimilation**. The acceleration and assimilation phase of SOA adoption is where the organization leverages the reference implementation to add new SOA capabilities, add new processes, expand the consumption and development of new services, and accelerate the adoption of SOA by its IT and business consumers. The SOA acceleration and assimilation phase is where SOA becomes internalized by the organization as the primary means by which business capabilities will be enabled by the IT organization, and the primary means by which the IT organization will operate. This phase involves rapid iterations around the SOA reference implementation core, expansion of SOA governance, and achievement of a repeatable SOA realization model.
- **SOA Programmatic Execution**. In the SOA programmatic execution phase, SOA has become a standardized and repeatable model for the delivery of business capabilities and solutions via services. This phase represents the point at which the SOA strategy is being executed crisply and steadily as a formalized program. SOA governance is robust and guides all SOA activities from strategic planning through sunsetting and retirement of services. This phase represents when an organization should be delivering SOA value through rapid delivery of service-enabled capabilities, where reuse of services is accelerating, and where desired organizational benefits can be measured and demonstrated.
- **SOA Steady State**. By the time an organization reaches the SOA steady state adoption phase, the phrase ''Service-Oriented Architecture'' and the ''SOA'' acronym will probably not be in use anymore. SOA will have become the fundamental model by which IT services are delivered. These will be no other model except for services. This phase of SOA adoption is a long way off, but it represents some point at which SOA is the clear and assumed model for business and IT. It will have become so ingrained in the organizational culture that services are just a natural way of architecting and delivering business solutions. At SOA steady state, SOA governance will be natural and infused throughout the organization. The SOA strategy will become just another aspect of both the business and IT strategies, and will not necessarily be documented separately anymore. At SOA steady state, the next big IT trend will probably be well on the way, and we'll be exploiting the opportunities that the SOA wave created for us.

As you might surmise, the activities, processes, capabilities, and SOA governance requirements are all different for the various SOA adoption

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lifecycle phases. We will detail some of these SOA governance differences in Chapter 8. In the meantime, review the SOA Adoption Model and determine where your organization is in its SOA maturity. After you have done this, write down the SOA governance processes, boards, policies and enforcement mechanisms you have in place now. Then examine the next two stages of SOA maturity and consider what additional SOA governance requirements you may have to consider as you add more services and expand SOA to more projects or to an enterprise level. What you will realize from this exercise is that SOA governance is an evolving, changing, and sustained activity, and your organizational requirements for SOA governance will vary based on internal organizational factors as well as relative SOA maturity.

SOA BILL OF RIGHTS

As our definition of SOA governance states, enterprise SOA governance can be summarized as doing the right SOA things the right way for the SOA stakeholders. The author (2006) captured many of these ''rights'' in a whitepaper entitled ''AgilePath's SOA Bill of Rights,'' which is excerpted below:[12]

> *Service-Oriented Architecture (SOA) is being vigorously pursued by most organizations today. That said, SOA is still a very new discipline. There are many aspects of SOA that must be carefully planned and executed to avoid common pitfalls such as wasted effort, misspent funding, and inappropriate application of SOA concepts. So, while we applaud these early SOA adoption efforts, we are compelled to offer our ''SOA Bill of Rights.'' These are the essential SOA elements and capabilities that you* must *get right in order to ensure your SOA success. AgilePath's SOA Bill of ''Rights'' are listed below and explained in detail:*
>
> - *Pursue the* Right *SOA Strategy*
> - *Apply SOA to the* Right *Challenges*
> - *Identify and Build the* Right *Services*
> - *Build Your Services the* Right *Way*
> - *Get your SOA platform* Right
> - *Establish the* Right *SOA Governance Model and Policies*
> - *Encourage the* Right *Organizational and Cultural Behavior*
> - *Achieve the* Right *SOA Results*

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PURSUE THE "RIGHT" SOA STRATEGY

A SOA strategy is critical to establishing the appropriate business and mission context for your SOA initiative. But what constitutes the "right" SOA strategy? While there are recurring themes in our clients' SOA goals and objectives, the exact SOA strategies pursued are very much customized to the specific requirements of a given organization. Agility. Faster time to market. Reduced software maintenance costs. Faster application development. Reduced application development costs. Reduced integration costs. Be easier to do business with. Software reuse. We believe the SOA strategy must be business aligned and mapped to urgent "fix-it-or-else" imperatives in your organization. The following statements summarize what makes an SOA strategy "right" for your organization.

- Business aligned—maps to business and IT imperatives, supports business or mission goals
- Focuses on clear business or mission needs—addresses desired business outcomes and has business sponsorship
- Targets appropriate SOA opportunities within a realistic time horizon using a SOA Opportunity Roadmap
- Leverages SOA where services add value, make sense, solve business problems or create new opportunities; SOA is not the solution for every challenge you face.
- Has a business case associated with it, but more importantly achieves clear business value

SOA GOVERNANCE IMPLICATIONS

A well-conceived SOA strategy is essential so that SOA governance is aligned with, and leads to the successful execution of, the SOA strategy. The SOA strategy defines the "right SOA things" to focus on, targeted at key enterprise imperatives, and sponsored at the executive level.

An SOA strategy and roadmap is essential. You must have clear business goals and alignment identified up front, and you must have business support for SOA to maximize SOA value.

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APPLY SOA TO THE "RIGHT" CHALLENGES

SOA is not a solution for every challenge in your organization. SOA offers tremendous business value when applied to the right areas. However, if you apply SOA to the wrong challenges, you may end up creating more problems. Where are services, Web services and non-WSDL-described services beneficial to your organization and what's the difference between them? When can an organization benefit from sharing an enterprise assets as opposed to building and maintaining their own silos of assets? How can your enterprise benefit from sharing consistent information across business processes? How can real-time event services eliminate inaccurate data and data latencies which can result in bad decisions and dissatisfied customers? The point is to seek SOA opportunities where the fit of reusable interoperable services returns the most value to the business, as dictated by the SOA strategy being pursued. We recommend creating an SOA *Opportunity Roadmap*™, or a short list of the high-value areas of your enterprise where SOA and services solve immediate problems and offer great potential value. This will become an ongoing aspect of your SOA maturation process, continually identifying and applying SOA concepts to new opportunities over time.

SOA GOVERNANCE IMPLICATIONS

SOA governance provides the overall decision-making framework and processes for determining how best to allocate and focus resources on SOA initiatives. SOA governance should define the SOA principles that align with strategic goals and imperatives, and that will ensure effective application of SOA to appropriate problems or opportunities. The SOA Opportunity Roadmap is one device to help identify, evaluate, prioritize and execute SOA-centric projects to support the SOA strategy under the guidance of SOA governance.

IDENTIFY AND BUILD THE "RIGHT" SERVICES

Without services, you cannot have an SOA. Furthermore, an SOA comprised of services with no business or organizational value is well nigh worthless. Therefore, getting your services right is essential. What are the right services? The right services support business and mission objectives.

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The right services are derived from your SOA strategy and align with your future direction. The right services support your SOA goals. The right services offer a balance between immediate value and long term investment. The right services should be reusable and shared to ensure rapid return on investment, short payback periods and cost avoidances.

The right services can be quickly identified by examining the SOA opportunities that are documented in your SOA strategy. By performing a process decomposition operation on each of the opportunities in your SOA Opportunity Roadmap, you can quickly identify processes, applications, and candidate services that meet the criteria for being the right services. Of course, to really ensure these are the right services, you must perform service modeling and design activities on the candidate services to achieve appropriate functional scope, encapsulated functionality, granularity, and reusability as well as assessing risk and business fit. Getting the right services is a function of focusing on the right SOA opportunities using an SOA Opportunity Roadmap that supports your SOA strategy.

SOA GOVERNANCE IMPLICATIONS

Building the right services is an extension of "doing the right SOA things." Identifying and building the right services is based on targeting the right SOA opportunities and processes for SOA enablement. These, naturally, are selected based on the SOA strategy and SOA governance framework.

BUILD YOUR SERVICES THE "RIGHT" WAY (DESIGN-TIME GOVERNANCE)

Once you have identified the right services, whether they are existing services or candidate services mapped to your SOA strategy, you must still build them such that they enable the business value you desire. That means building your services right so they are reusable, composable, atomic, stateless, extensible, and agile. In other words, build them the right way. For example, there is a lot of debate about SOAP/WSDL Web services versus RESTful services in the industry today, which in our opinion is the wrong debate. The debate should not be about which technical services paradigm is better than the other, but about when and how to match the appropriate

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technical implementations of services to the needs and demands of your enterprise. This is why an SOA strategy is so important. Any services that do not support the SOA strategy must be postponed. Any technical service implementation approaches that do not support your SOA strategy or enable services interoperability and reuse must be avoided. There may well be a use for both SOAP/WSDL and RESTful services in your SOA, but you must understand the business and technology issues that support this decision and plan accordingly. This must be an explicit choice rather than one you discover after the fact. We suggest mapping your SOA services taxonomy to the various service technologies and implementation models available, and then making the right choices based on your SOA strategy and Opportunity Roadmaps.

If your SOA strategy calls for orchestration of processes using BPEL, then you should invest in a portfolio of SOAP/WSDL Web services that lend themselves to composition. If your SOA strategy is based on leveraging infrastructure and technical services, be sure you invest in robust SOA enabling technology that exposes security and authentication services, logging and audit services, and related technical components across all application development activities. If you need to expose legacy mainframe functionality as XML Web services, these may impose a different set of Web services design conventions on your organization.

Bottom line: Building your services the right way is subjective to your organization's requirements, its SOA strategy and goals, and what services add value to its business and customers. However, in all cases, we urge you to leverage industry standards to build your services the right way, which will ultimately help you solve integration challenges, increase agility, improve data accuracy, increase customer service, and more. Building services the right way is essential once you've identified the right services.

SOA GOVERNANCE IMPLICATIONS

Building services the right way refers to the design-time SOA governance processes for applying industry standards, internal design principles and patterns, ensuring conformance to EA and SOA enterprise architecture extensions. In addition, building services the right way relates to ensuring appropriate governance oversight as SOA projects proceed through your project delivery process, or SOA/Services Software Development Lifecycle (SDLC), with appropriate quality assurance and testing processes.

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GET YOUR SOA TOOLS PLATFORM "RIGHT"

This SOA "right" is essential to the realization of your SOA strategy, yet our field experience shows that many organizations implement their SOA technology platforms before they understand their services requirements. When we say get your SOA platform right, we mean making sure your SOA run-time technical platform supports your planned and current services and your target state architecture. Ensure that your SOA platform does not place dependencies or limitations on your services. Understand the trade-offs of investing in various SOA platform elements such as service registries, enterprise service buses (ESBs), Web services management tools, and SOA security solutions.

Many organizations invested prematurely in UDDI service registries before they had any services available, or even an SOA strategy and roadmap to guide their investment decisions. Similarly, before buying an enterprise service bus, make sure you really need one. Perhaps your organization's messaging and integration requirements can be addressed by Web services management (WSM) solutions or other alternatives. Most likely, you will end up with both solutions anyway, but if you are budget-challenged and can only implement one or the other, understand what you are buying with your SOA platform investments. Below are a few guidelines to consider as you try to get your SOA platform right:

- **Services-Driven Platform Selection**. Select your SOA platform based on the requirements of your services. This is what we mean by services-driven. If you pick your SOA platform before you understand what services you will be building, you may end up with a mismatch of SOA enabling technology and services requirements.
- **SOA Strategy–Enabling**. Be sure your SOA platform supports your SOA strategy and enables the right services that support your SOA strategy. Your SOA platform should not limit the realization of your SOA goals and objectives.
- **Provides the SOA Platform Core Functions**. Be sure your SOA platform will eventually include coverage for the four core SOA platform requirements: Web Services Management (WSM), Reliable Messaging/Transport (ESB, WSM or other messaging solutions), Service Registry (UDDI), and SOA Security. Start with these core functions before you get distracted by orchestration tools, BPEL engines, and other ancillary tooling.
- **Separate Your Services from Your Platform**. Make sure your platform supports your services, but do not let your platform constrain your services. Decouple your services from your SOA platform.

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SOA GOVERNANCE IMPLICATIONS

SOA governance provides the decision-making framework for specifying, selecting, and implementing your SOA platform, tools, and technologies. However, your SOA platform will also provide the means to automate certain design and run-time aspects of services as well, such as service registries and metadata repositories, Web services management tools, and messaging infrastructure, among others. Thus care must be taken to govern the selection of SOA platforms and tools, since these will support your technical SOA governance processes for design and run-time policy enforcement.

CREATE THE "RIGHT" ORGANIZATIONAL, CULTURAL, AND BEHAVIORAL MODEL

Along with SOA governance comes the essential yet softer side of SOA: organizational challenges, cultural issues, and the behavioral reinforcement of governance and policies. These are aspects of SOA that are underemphasized because they are difficult to manage, and because it is much easier to buy a vendor software solution than focus on the processes, culture, and behavior that actually make SOA take hold. We will discuss Conway's Law and the implications of organizational structure on enterprise governance and IT/SOA governance.

Consider the following suggestions to help you get your organization and culture right for SOA:

- Understand how your corporate structure inhibits or supports your SOA governance model and enforcement of policies
- Determine how your corporate culture can assist the migration toward SOA or, conversely, how it may not support it
- Latch onto corporate mantras where possible with your SOA initiative
- Determine how to weave SOA goals into organizational and personal incentives
- Use reviews, incentives, rewards, and penalties to achieve a culture of SOA
- Be sure your SOA metrics and scorecards include organizational and individual metrics for success.

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Many organizations ignore corporate culture and behavior. SOA, however, demands attention be paid to incentives for appropriate behavior and conformance to the architecture. Be creative, and be bold. Your current IT architecture is a behavioral artifact. If you want to achieve SOA, you must change behavior first and then architect forward.

SOA GOVERNANCE IMPLICATIONS

SOA governance provides the key frameworks, principles, and policies for making appropriate decisions in an enterprise. In order to achieve SOA success, SOA governance must transition from a body of explicitly enforced policies to a fabric of culture, norms, and behaviors implicitly understood by the collective makeup of the organization. The outcome of good SOA governance is appropriate SOA behavior as defined by the SOA strategy and SOA governance model goals.

ACHIEVE THE "RIGHT" SOA RESULTS

What are the right SOA results? They are the goals and objectives you identified in your SOA strategy. The right results are those that support your business and mission objectives. Use metrics and SOA scorecards to track SOA value and results. Demonstrate how SOA is helping your business consumers achieve their goals, and also ensure you are improving IT delivery as well. Caution though: Do not let your SOA be reduced to a reuse project or get hijacked as a technology initiative. Explicitly align your SOA initiative to support your business and mission objectives. Consider the following suggestions to help you achieve the right SOA results:

- Consider establishing a SOA Value Hypothesis to test the value you can achieve via a SOA in a number of controlled experiments. Do not bet on a big bang model. Implement SOA incrementally based on your desired end state.
- Work backward from your desired business end state and set clear, intermediate goals for your SOA projects and initiatives. Use a hypothesis-based approach to test assumptions and expected SOA results. Estimate expected value and benefits from controlled SOA implementations, and then adjust strategies and initiatives according to the results.

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- Assiduously track your progress through clear metrics that prove SOA value and business value.
- Use Big Hairy Audacious Value (BHAV) as the gauge of SOA success. Be bold yet realistic with your SOA goals. Do not settle for reuse as the end state and ultimate objective of your initiative. There is much more enterprise value to be realized. You just have to plan for it.
- Stay the course and work through difficult challenges. Anything worthwhile takes sustained effort. SOA takes work, and SOA is worthwhile.

SOA GOVERNANCE IMPLICATIONS

Achievement of the "right" SOA results brings us back full circle to our SOA strategy, goals and objectives. SOA governance, as we have maintained, must be tightly aligned with the SOA strategy and explicitly linked to the SOA goals. The right results will follow from SOA governance, which again ensures we are doing the right SOA things the right SOA way for our SOA stakeholders.

ESTABLISH THE "RIGHT" SOA GOVERNANCE MODEL AND POLICIES

SOA governance is essential for managing the decisions and policies of your SOA. You must get your SOA governance model right to achieve your SOA goals, period. SOA governance establishes alignment of your SOA strategy to your business, as well as defining the enterprise architecture policies and interoperability standards for the services in your SOA. SOA governance is a must! SOA governance is more than the technical policies and design standards for building reusable interoperable services. SOA governance also establishes the decision framework for funding SOA efforts and initiatives, for assigning ownership of various classes of services, as well as ensuring appropriate development lifecycle processes support SOA. Below are a few SOA governance considerations to get your governance model right:

- **SOA governance is more than technology and tools**. Many vendors are on the SOA governance bandwagon with service registries, repositories, distributed enforcement tools, and more. However, before you can successfully implement the tools, you must establish the SOA processes, policies, and enforcement mechanisms that support and enable SOA

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success. Separate the process of governing SOA from the supporting technology and tools. *Do not buy any SOA technology or tools and expect to solve your SOA governance needs*. This simply is not possible.

- **Govern the "right" things**. SOA governance means establishing roles and responsibilities for many things, such as funding and budgeting, services ownership and portfolio management, and software development lifecycle governance. However, as you begin to establish SOA governance, focus on two or three critical areas that you must get control of first. Some areas to consider first include EA processes, service design standards, service interoperability standards, and establishing clear accountability for various types of services. Focus on areas where you are weak and need to assert SOA governance and policy enforcement.
- **Expect changes to your current governance processes**. SOA governance impacts your current business and IT governance processes, as well as your current enterprise architecture processes. In our experience, implementing SOA governance properly almost always involves slight to major organizational changes. You can implement SOA governance in phases to more gradually adjust to the governance demands of SOA. However, get your processes, organizational model, and policy enforcement model right first, then consider implementing SOA governance tools.
- **Do not mistake governance with implementing governance boards**. This is the first and most common mistake we see in the field—mistaking the implementation of governance boards for effective governance. While some boards are going to be necessary to implement your SOA governance model, the boards are just one of many governance mechanisms you have available in your SOA governance toolkit. But, if you begin with boards first, before you know what you are trying to govern, you will waste time and end up starting over. Implement boards for the right reasons, but only after you have a clear understanding of why you need them. Boards do not equal governance.
- **Do not go "overboard" with boards**. Boards and committees are perfectly appropriate governance mechanisms, but they are not the only ones. Do not implement too many additional boards, whether they are standing, virtual, or event-triggered. Attendance on boards requires a time commitment, and too many boards, virtual or otherwise, will chew up a lot of preparation and participation time.
- **Any governance will feel like over-governance initially**. When you first implement SOA governance, it may feel like it is heavy-handed to your organization. It may feel as if the SOA police are here to stay. This feeling is a natural result of transitioning from lack of governance or informal governance to explicit, policy-driven governance. When you

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begin enforcing policies using clear, transparent, and enforceable policies, it will seem like you are over-governing. You *are*, and you *must*, in order to assert control over key SOA activities. You must remember to temper this by focusing on critical SOA governance concerns (e.g., SOA Reference Architecture, services design standards, implementation patterns). Over time, SOA governance policies and expectations will not be new, and thus you will be able to remove some governance processes as SOA governance becomes part of the fabric and culture of your enterprise. This will take a few years. In the meantime, be prepared to over-govern.

- **Staff boards with rising stars.** One way to gain support for SOA governance is to send a clear message that it is crucial for the organization. The importance of SOA governance can be demonstrated by appointing senior executives to the initial governance boards, and by selecting corporate rising stars to participate as well. The worst thing your organization can do is staff governance boards with marginal performers who do not have anything better to do.

SOA governance is an essential aspect of SOA to get right. Do not cut corners on establishing clear policies that align with business and IT goals and your SOA strategy. Think of this as your SOA operating system—you must get it right.

COMMON SOA GOVERNANCE MISTAKES

SOA governance is immature. This relative immaturity of SOA leads naturally to many mistakes in how organizations implement SOA governance. These mistakes come in a variety of shapes and sizes, depending on the approach to SOA governance. As with any new technology trend, software vendors rush their ''new'' tools to market to solve the problem, usually ahead of an organization's ability to take full advantage of the tool. The normal progression then is that the tool replaces the more appropriate focus on processes and outcomes.

Another SOA governance trend is the opportunistic repositioning of software tools as ''SOA governance'' solutions. Web services management (WSM) tools are now ''runtime governance tools.'' Metadata repositories are now ''design-time SOA governance platforms.'' And network routers and security appliances are now runtime governance policy enforcement solutions. Regardless, the overarching message here is simple: Do not reduce SOA governance to a software tool, and do not confuse opportunistic product repositioning as a true SOA governance solution.

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The following is a partial yet representative overview of common SOA governance mistakes we have seen in the short time SOA governance has been top of mind for IT executives. See if your organization is guilty of any of these approaches.

- **Buying a Tool versus Implementing Robust Processes.** As described above, this SOA governance mistake is very common. Many organizations believe that they address SOA governance by implementing software tools before defining processes, policies, and organizational models to support their SOA governance requirements. Many organizations, for example, have acquired service registries, metadata repositories, and other related software tools in anticipation of meeting all of their SOA governance challenges. However, very quickly these organizations realize that they are only able to govern a small segment of their SOA policies—the technical policies for services design and run-time governance for security for example. The point is that many of these policies can be automated using tools and technologies. However, the large preponderance of SOA policies are business and process policies for conformance to architecture, reuse, and other decision-making processes. In other words, many business, process, and conformance policies cannot be automated very easily, and these are the critical aspects of SOA governance that must be managed for success. Tooling can of course facilitate these SOA governance processes, but tooling cannot replace them. This SOA governance mistake results from entrusting software vendors too much, or from engaging opportunistic consulting firms for SOA governance when they do not have the insights or credentials to implement SOA governance.
- **Mistaking Governance Boards for SOA Governance.** Another common mistake we see is mistaking the implementation of governance boards for the implementation of SOA governance. Certainly governance boards will most likely be necessary to provide a means for stakeholder participation in SOA governance key decision-making processes, but do not assume that governance boards are effective in their governance. SOA governance is more than an organizational model. SOA governance requires policies, processes, alignment to strategy and goals, and metrics to help monitor progress and performance. Governance boards, then, are one of multiple governance mechanisms that will be used to implement SOA governance. They are one of the tools in your SOA governance tool box, but not the only one and perhaps in some ways not the most critical. This mistake is also a common result of entrusting your SOA governance model to consulting firms that do not have the skills or experience to develop and implement SOA governance.

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- **Overcomplicating the Model—Too Many Boards**. In many cases, we see organizations attempting to implement holistic enterprise governance processes when in fact they need focused SOA governance. There are many ways in which one may overcomplicate SOA governance: In one scenario, the organization implements too much governance complexity by implementing too many boards and committees. This heavy organizational footprint often fails because it requires too much organizational overhead and friction too early in the SOA adoption process, and normally before most firms have proven to themselves that SOA can deliver on its potential. In another scenario, there is a mismatch of SOA governance processes and policies to the current demands for SOA governance. For instance, many times we see inexperienced consulting firms pushing sophisticated portfolio management models of governance upon their clients when basic SOA governance gaps have not been closed yet. Why would you need service portfolio managers for a complex collection of service portfolios when you have not even defined basic services design patterns and implementation standards, and do not have an SOA run-time platform specified and implemented yet? You see the challenge. Normally, service portfolio management is a more mature SOA undertaking, usually unnecessary until the organization has enough services to merit a portfolio management approach.
- **Oversimplify the Governance Model—Lack of Process Coverage**. Another common mistake is oversimplifying SOA governance by omitting key processes or by implementing software tools on the assumption that they provide that process for you. We addressed the software tool issue above. The lack of governance process coverage derives from the absence of an overarching perspective and reference model for SOA governance. This oversimplification normally occurs when governance novices attempt to derive an appropriate SOA governance model from the bottom-up, or from a partial or incomplete frame of reference. For example, if my experience is metadata repositories, my governance process will center on design-time service governance. If my experience and interest is EA, my SOA governance processes will emphasize enterprise architecture governance over other processes. In most cases, organizations have not devised a solid Services Development Lifecycle for the robust and repeatable development, testing, and implementation of services in the context of a SOA strategy. The solution for this mistake is leveraging an SOA governance reference model to help identify and map key governance processes, identify gaps, and then implement robust governance processes supported by appropriate tools and technologies.
- **Reduce Governance to an Event or Milestone versus a Sustaining Process**. A very common, almost universal, SOA governance mistake is

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the assumption that SOA governance is an event or a milestone. ''Once we implement SOA governance, we're all set.'' SOA governance is not an event, a ''one and done'' kind of activity. Rather, it is an ongoing, sustained process of reviewing SOA and services on an ongoing basis. SOA governance must be managed, evolved, measured, and tuned based on the relative maturity and progress of SOA adoption. You must evolve and manage your SOA governance model, processes, principles and policies, all as you maintain alignment to the business and IT strategies as well as business and IT goals. SOA governance is a process, to be sustained and managed over time. Your initial SOA governance model will not be your end-state SOA governance model.

- **Overly Technical Governance—Focus too Narrowly on Technical Policies.** One of the most common mistakes we see is focusing too narrowly on technical service policies and run-time governance. This is a mistake only if the other aspects of SOA governance are ignored. The technical governance issues must be addressed; however, they must be addressed from an overall SOA governance perspective, working top-down from the SOA strategy and goals, and then determining what SOA governance will help ensure realization of the SOA strategy and goals, using metrics to track progress. The most interesting aspect of the technical governance focus is that most of these SOA policies can be enforced using automation and software tools. However, the most challenging SOA policies to define and enforce are business and processes policies, which are difficult to automate and normally require manual enforcement via governance boards, reviews, and manual process checkpoints. These are the policies that drive behavioral and cultural changes, and thus demand the most attention and offer the most value. The body of SOA business and process policies most directly affect the value of SOA and an organization's ability to capitalize on their SOA investments.
- **Substitute Governance Processes and Policies with Faith-Based Governance.** The last SOA governance mistake we will discuss here is substituting a formally defined SOA governance model, processes, and policies with *kumbaya* governance or what I call ''faith-based governance.'' Kumbaya governance is where an organization entrusts its SOA governance to informal processes and personal empowerment rather than an explicit, policy-driven, formally defined governance model and clear, unambiguous processes. Under kumbaya SOA governance, we hold hands, believe in each other, and trust that something good will happen. Voila!!! SOA governance happens. But optimally effective SOA governance does not and cannot happen this way. SOA governance requires an explicit governance model with clear policies, well-defined processes, clearly-defined roles and responsibilities, and

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alignment to the organization's SOA strategy and goals. Only under these conditions can SOA be governed and the value proposition of SOA, achieved. Kumbaya governance does not work, period.

RIGHT-SIZED SOA GOVERNANCE: HOW MUCH GOVERNANCE DO WE NEED?

Many organizations are anxious about governance, especially when it is construed as adding layers of overhead and interfering in decision making processes that are not broken. Weill and Ross observe that all organizations have some form of governance or IT governance. Whether the current governance is explicit or effective is a completely separate inquiry. While SOA governance does have many moving parts and requires integrating many perspectives and stakeholders in SOA decisions, SOA governance does not have to add tremendous complexity. Yet SOA governance will add new processes, extend current IT governance processes, and require more attention be paid to SOA-centric activities.

In order to keep things in perspective, we break out Henry David Thoreau's famous quote: *"That government is best which governs least."* SOA governance is best implemented a little at a time, as much as is needed to control key processes and decisions, and by implementing as much as necessary to ensure SOA success. Any amount of SOA governance is more than most organizations want, regardless of the nature of it. That said, SOA governance is essential and therefore you must get it right. Enough to govern critical SOA governance requirements, and yet not so much that innovation and progress is stifled. A better SOA governance quote might be as follows:

That governance is best that governs best with the least.

You must always ask yourself if your SOA governance model is right-sized for your organization, culture, and current SOA objectives.

SUMMARY

SOA governance does not have to be complicated, but it often can be, owing to the many valid stakeholder viewpoints in a SOA initiative. In order to make sense of SOA governance, there are a few dynamics to keep in mind.

- All the stakeholders' views are valid, yet all are not as critical early on as they will be later.

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- Representing all SOA stakeholders is difficult. Assuaging them with SOA governance is more challenging.
- Governance will not be fun or easy.
- You will have to over-govern in the short term. This will be uncomfortable.
- You will inevitably take decision rights away from some individuals and organizations, while assigning them to others. This transfer of authority and control will anger people. Deal with it.

IT governance is also extremely important based on the structure of the IT function in an organization. The structure and organization of IT similarly has a dramatic and direct effect on how SOA governance must be structured.

Notes

1. Ronald H. Coase, "The Nature of the Firm", *Economica* 4, 1937, pp. 386–405.
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3. Geoffrey Moore, *Living on the Fault Line, Revised Edition: Managing for Shareholder Value in Any Economy*, HarperCollins, 2002.
4. WebLayers Whitepaper: *SOA Governance*, 2005, p. 9.
5. Eric Marks and Michael Bell, *Service-Oriented Architecture: A Planning and Implementation Guide for Business and Technology*, John Wiley & Sons, 2006, p. 248.
6. Peter Weill and Jeanne Ross, *IT Governance: How Top Performers Manage IT Decisions for Superior Results*, Harvard Business School Press, 2004, pp. 6–7.
7. See Eric Marks, *Business Darwinism—Evolve or Dissolve: Adaptive Strategies for the Information Age*, John Wiley & Sons, 2002.
8. Charles T. Betz, *Architecture and Patterns for IT Services Management, Resource Planning, and Governance: Making Shoes for the Cobbler's Children*, Morgan Kaufmann, 2007, p. xxii.
9. Peter Weill and Jeanne Ross, *IT Governance: How Top Performers Manage IT Decisions for Superior Results*, Harvard Business School Press, 2004.
10. Ibid., p. 8.
11. Ibid., p. 59
12. Eric A. Marks, "AgilePath's SOA Bill of Rights: Aspects of SOA You Must Get Right" AgilePath Corporation, 2006.