

1. Executive Summary

1.1 Introduction to “SOA Alliance”

1.1.1 Situation

A number of leading research reports show that the vast majority of CIO/CTOs have formally explored and in many cases begun implementation of pilot SOA initiatives. Described as a 4th wave of enterprise IT, recent surveys conducted by InfoWorld, Yankee Group, Webservices.org and others show that over 75% of CIOs have investigated and are planning SOA initiatives in the next 12 to 18 months.

SOA, however, is not a well traveled road and lacks many of the shared experiences, assets and patterns required for widespread and reliable IT adoption. Moreover, without a common language and industry blueprints, SOA may fail to deliver the promised benefits of intra and inter-enterprise services reuse and process interoperability – instead adding more custom logic and methodology to IT legacy.

Over the last 10 years there have been a number of significant alliances and consortiums in the IT industry that were created to accelerate emerging computing paradigms. Examples include the JCP (Java Community Process), Eclipse, and Liberty Alliance which were formed to gain industry consensus on standards as well as implementations of key technologies and architectures that effect the business of IT. With every alliance, we witnessed thought leader companies coming together to drive a working solution to key architectural changes in IT.

1.1.2 SOA Alliance Charter

The SOA-Alliance is a (proposed) non-profit, industry body responsible for leading the development of Service Oriented Architecture (SOA) as a prevailing and dependable enterprise computing paradigm. SOA-Alliance members guide the maturity of SOA by defining common, acceptable methodologies, principles and requisite ecosystem components (e.g., certifications, curriculum, languages, architecture, etc) to enable SOA as a standard discipline.

The mission of the Alliance is to support the acceptance and implementation of open SOA philosophies which include associated technologies, applications and services, based on international standards, and support the interoperability, advancement and convergence of technologies that enhance the Service Oriented Architecture market.

Modeling the Liberty Alliance, the goal of the SOA Alliance is to bring together a broad spectrum of customers, academics and vendors to define an extensible model for SOA, including patterns, roadmaps and best-practices that help companies rapidly and flawlessly evolve through the various phases of SOA. The SOA Alliance will offer a safe harbor that is unbiased by a single vendor or vendor network – instead led by IT leaders who are committed to building a rational framework.

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1.2 Industry Background

Today, there is a lot of hype around Service Oriented Architecture (SOA) and it is expected to continue until the industry matures around SOA. Most of the early adopters (generally large enterprises) have already adopted SOA and are well on their journey. Enterprises are well distributed across the spectrum of the initial phases of implementing SOA are now starting to encounter hurdles that they are unable to resolve by themselves. Following are some of the market condition that are slowing down their effort.

- Every major vendor claims to have adopted SOA and have published their own view and reference architecture around SOA
- Every major standards body has multiple working / expert groups attempting to define the SOA Blueprint or SOA Reference Architecture from their point of view.
- Even though SOA is in the initial phases – there are not sufficient development and management tools
- Enterprises are attempting to solve the similar problems and there isn't a forum for sharing best practices across the industry. Various product vendors, system integrators, analysts have all attempted to share this out – and once again this information has been lost in translation because of lack of common vocabulary across the industry

These market conditions add to the confusion resulting in delayed adoption of SOA. The purpose of this SOA Blueprint is an attempt to provide the end user / consumer perspective which hopefully shall influence both the vendors and the standards. .

1.3 Current Status of Business Systems

Traditionally, IT has been taking orders from business owners, resulting in IT strategies that are application or integration-focused. In addition, governance and funding models have pushed both business and IT stakeholders to do whatever it takes to meet a particular business unit or department need. Predictable waves of mergers and acquisitions have also introduced new code and methodology to an already fragmented architecture – rarely with sufficient resources to complete business-systems integration. This approach has resulted in IT deploying multiple systems that performed the same tasks within an enterprise or business unit. The duplication is manifested in infrastructure services such as authentication, single sign-on, and data marts, as well as applications (packaged and custom), such as sales force automation (SFA), quoting, and order management. One can only imagine the complexity of attempting to make modifications to this portfolio that reflect a change in business process or accommodate an acquisition.

In the best case, as each business unit or department implemented its own solution, IT teams integrated the systems using a point-to-point or EAI approach that connected the application to both up-stream and down-stream systems. To track the transactions across

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the business process, they propagated some key values across the applications—although inconsistently—and created multiple operational data stores (one for each business unit) to track key performance indicators.

To provide a seamless user experience, IT organizations, at the request of business owners, built portal applications to connect to multiple backend applications, data marts, and master data.

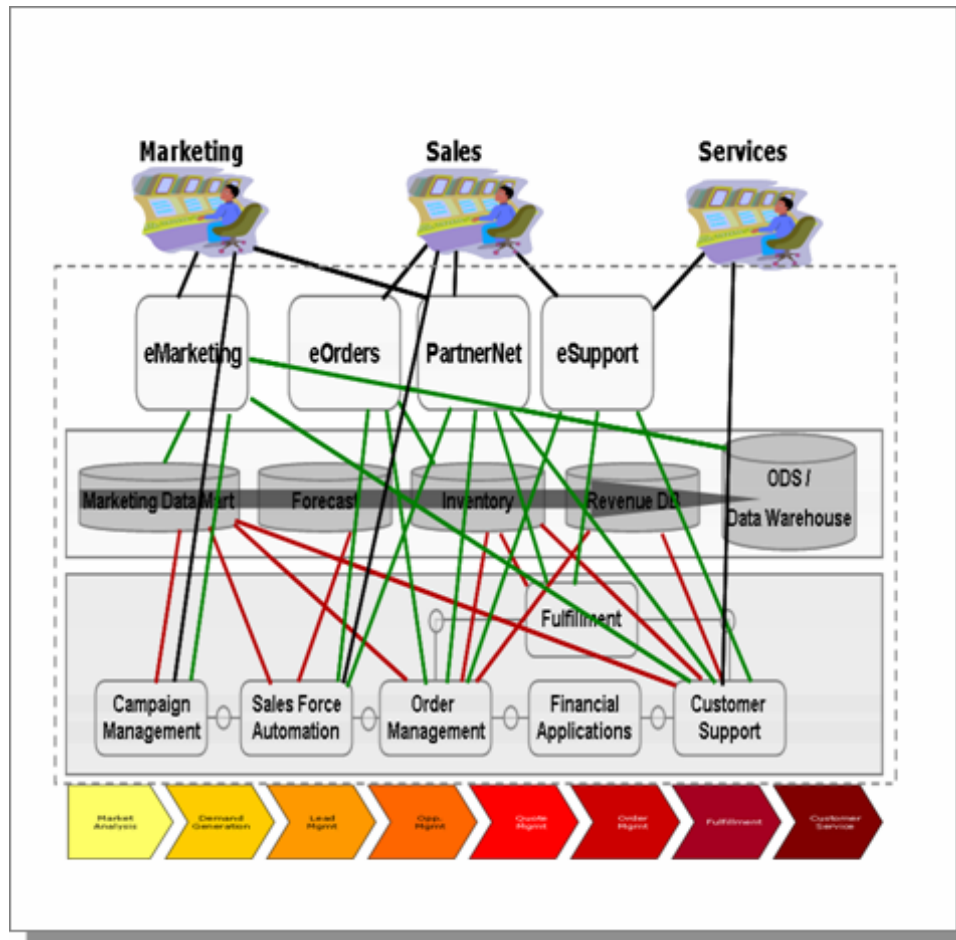


Figure 1: Current Best Case Enterprise Architecture

While effective from an architectural standpoint, this best case solution is extremely complex and expensive to maintain, particularly as enterprises are under pressure to increase revenue, while reducing costs. Due to this complexity the delay in providing new business capability creates a perception of conflict between Business and IT organizations. Both these organizations are attempting their best to solve the business problem the way they know best and they feel that they are in conflict with each other. Business Problem

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While IT organizations are looking at SOA and attempting to educate business on the benefits of SOA – businesses are facing their own challenges.

- *Globalization:* This is resulting in business having to be agile just to survive, especially due to the cost difference between the various geographies and the tendency to people to buy the cheapest product / service that meet their needs
- *Economic Pressures:* Even though corporations have record cash reserves, market growth remains anemic. This is resulting in substantial merger and acquisition activity which in-turn is putting additional pressure on both Business and IT organizations to integrate disparate people, processes and systems.
- *Business Process Outsourcing:* This has been a trend for a while and is expected to grow exponentially over the next few years. This enables enterprises to focus on their core business and outsource non-differentiating services. Examples of BPO are Human Resources, Call Centers, Marketing Campaigns, Office Facilities, Data Center Management, etc. However, this does create additional complexity for IT organization by having to integrate business processes / data back to the core business .
- *Regulation Compliance:* Enterprises have to comply to the various government regulations to be able to stay in business. Some of the recent new regulation such as SOX, required IT organizations to go back and review and retrofit all existing business systems to be compliant which is diverting scarce IT resources and funding away from development of new business capability.
- *Technology:* New business capabilities that are available with new technology resulting in business challenges on how to move forward.
- *IT Investments:* Most of business investment in IT is towards reducing the cost of IT and not-necessarily towards creating new business opportunity.

1.3.1 IT Problems

IT organizations have traditionally been asked to do more with less and recently it feels like they have been asked to do a lot more with a lot less. The following are some of problems that IT still faces:

- *Globalization:* In a majority of cases, today's business investment decision span diverse geographies, cultures and associated infrastructure capabilities. Rare is the case where IT is engaged upfront in the decision process and thus able to influence expectations and alternatives.
- *Economic Pressure:* IT capital and operating expense budgets have been substantially reduced since the late 90s. IT organizations have responded by out sourcing non-core functionality as well as adopting the off-shore development model – thereby freeing some discretionary spend for development of new business capabilities that are generally being directed to regulation compliance

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infrastructure and have increased the need for infrastructure investment which the business fails to recognize

- *Business Silos:* In most cases, the LOB decision makers across an enterprise do not understand the benefits of shared infrastructure and business logic. Nevertheless, their MBO structures and the normal politics that define most corporations provide little incentive for sharing and collaboration.
- *Lack of cohesive Business Information Strategy:* The corporate governance generally works very well for the corporations and most of the time does not necessarily have a cohesive business information strategy to measure their progress,
- *Governance & Organizations:* This has pushed both Business and IT stakeholders to do whatever it takes to meet a particular business unit or department needs. This approach has resulted in IT developing multiple systems that perform either identical functionality or conflicting algorithms across division and business units. The duplication is manifested in infrastructure services such as authentication, single sign-on, and data marts, as well as applications (packaged and custom), such as sales force automation (SFA), quoting and order management.
- *Standards:* At last count at the end of 2004 there were 54+ various standards bodies addressing various aspects of SOA.
- *Technology Refresh:* Getting business buy-in for upgrading systems support is about to expire.

1.3.2 Transformation Required

These market conditions have a tendency to create conflict between the business and IT organizations. Business would like IT organizations to be agile, while reducing or keeping the budget flat. IT organizations need investment to refactor legacy and develop more agile and productive infrastructure, while also adding new business capability. It has been proven multiple times that the traditional governance, organization and project management model will not be successful in resolving this issue. As a matter of fact, the traditional IT model could significantly disadvantage companies as they retool to meet the new market imperatives (e.g., compliance, globalization, process commoditization). The only way to meet these challenges requires both Business and IT transformation.

Revenues, costs, and implementations aside, most business and IT executives agree on one fundamental business principle: their business processes differentiate them from their competition. For some, it may be the way they handle their supply chain, for others, it may be their ability to bring new, innovative products to market.

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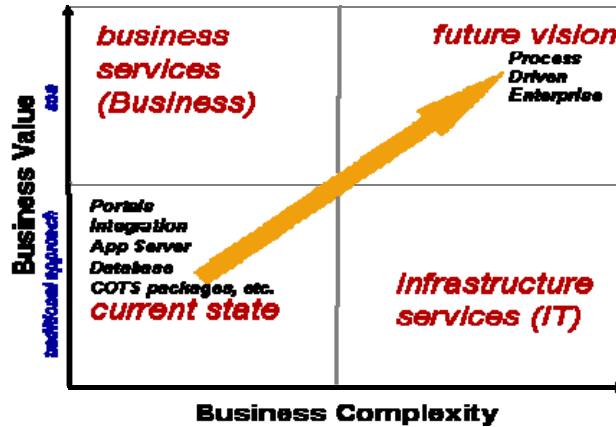


Figure 2: Business Value v/s Complexity

However, the approach to obtaining that competitive process advantage often varies considerably among members of the business and IT operations teams. For example, some business operations teams prefer to demonstrate “quick wins” to validate an approach, while IT operations teams prefer to build out the infrastructure. For both teams, the right answer is likely a Service-Oriented Architecture (SOA) approach.

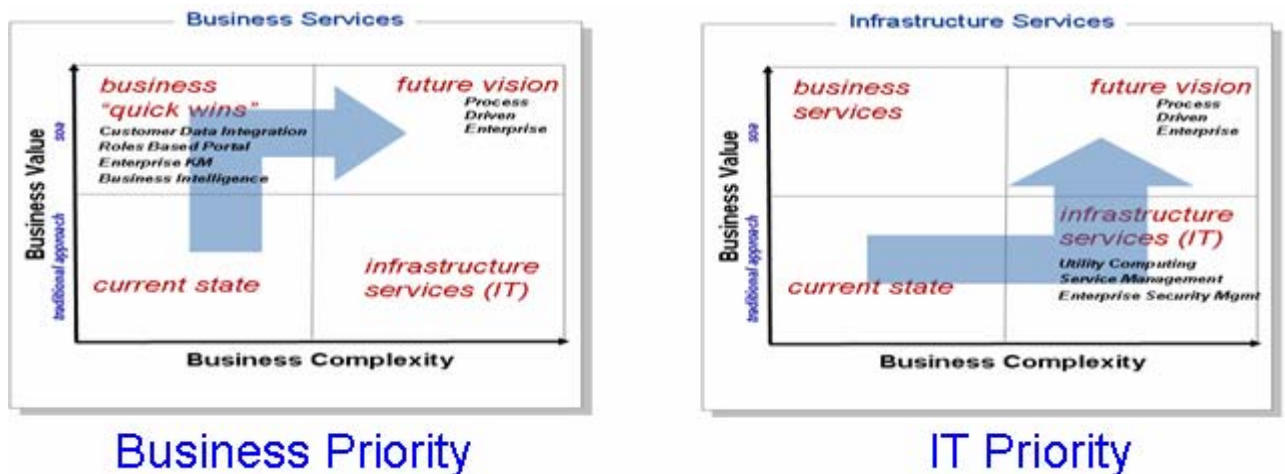


Figure 3: Conflicting Business & IT Priorities

1.3.3 Recommended Approach

The following is a recommended approach, based on experience, for developing a roadmap to resolve this perceived conflict.

- Develop an information strategy that identifies key performance metrics.
- Develop an SOA Blueprint that includes business principles, reference architecture, roadmap, governance and organization, business benefits, etc.

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- Identify “quick wins” to demonstrate the business benefits of adopting SOA
 - Business currently expects, on an average, IT to take 15 to 18 months from inception to deliver new business capabilities (applications). This time frame is expected to reduce by adopting SOA and the key learning is to manage business expectations.

Adopting SOA requires IT organizations to identify the Infrastructure Services required to deliver business solutions. It is important to demonstrate “quick wins” to the business to show value and keep them engaged. As the Infrastructure Services is based on the SOA principles of coarse-grained, loosely coupled, and standards-based services, it enables IT to be proactive. It provides IT with the ability to be responsive to the changing business needs by providing them with global solutions, with reduced application and infrastructure complexity, increased reuse of business services and service orchestration capabilities. In short, this approach enables IT organizations to meet the market challenges by transforming itself along with the business.

1.4 SOA Lifecycle Approach

The section deals with the definition and the life cycle of Service Oriented Architecture. At a high-level it is close to Enterprise Architecture with a distinct emphasis on Business Processes. Unlike Enterprise Architecture approach – SOA requires both business and IT transformation but does not replace the existing Business and IT governance and organization model. It is a methodology that enables enterprises to be agile.

1.4.1 Defining Services Oriented Architecture

Service Oriented Architecture means different things to different folks. To an IT Architect, it means the overall enterprise architecture definition and the process that enables IT to develop and deploy business capability rapidly. To the LOB-IT liaisons it means the governance, organization and the process for project/program management. For them SOA means defining the various business building blocks that could potentially be reused which shall help them reduce cost. And finally for the CIO - SOA is basically the IT Strategy for delivering business capability.

The Architect shall generally go to the vendor sites for product details, case studies, best practices which they shall then compare to other publications and standard sites such as The Server Side, W3C, JavaSoft, OASIS, etc. whereas the LOB-IT and CIO's would typically attend some CIO Forums or subscribe to some very specific journals, articles etc. targeted specifically for them by vendors or analysts. It is very unlikely that the decision maker would review many sites - they would depend on their trusted advisors to do this for them. Again - everyone is looking at SOA from their point of view.

SOA is the business operations strategy for leveraging information to meet their objectives, such as increasing overall revenue, increasing customer satisfaction, improving product quality, etc.

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Both business and IT stakeholders need to partner to define the strategy and the roadmap to achieve stated objectives. The purpose of this Blueprint to help define the SOA Lifecycle, best practices, approaches, templates, common vocabulary, etc. for the Business and IT community.

1.4.2 SOA Lifecycle stages

The SOA Lifecycle can be broken down into three stages of the SOA Lifecycle

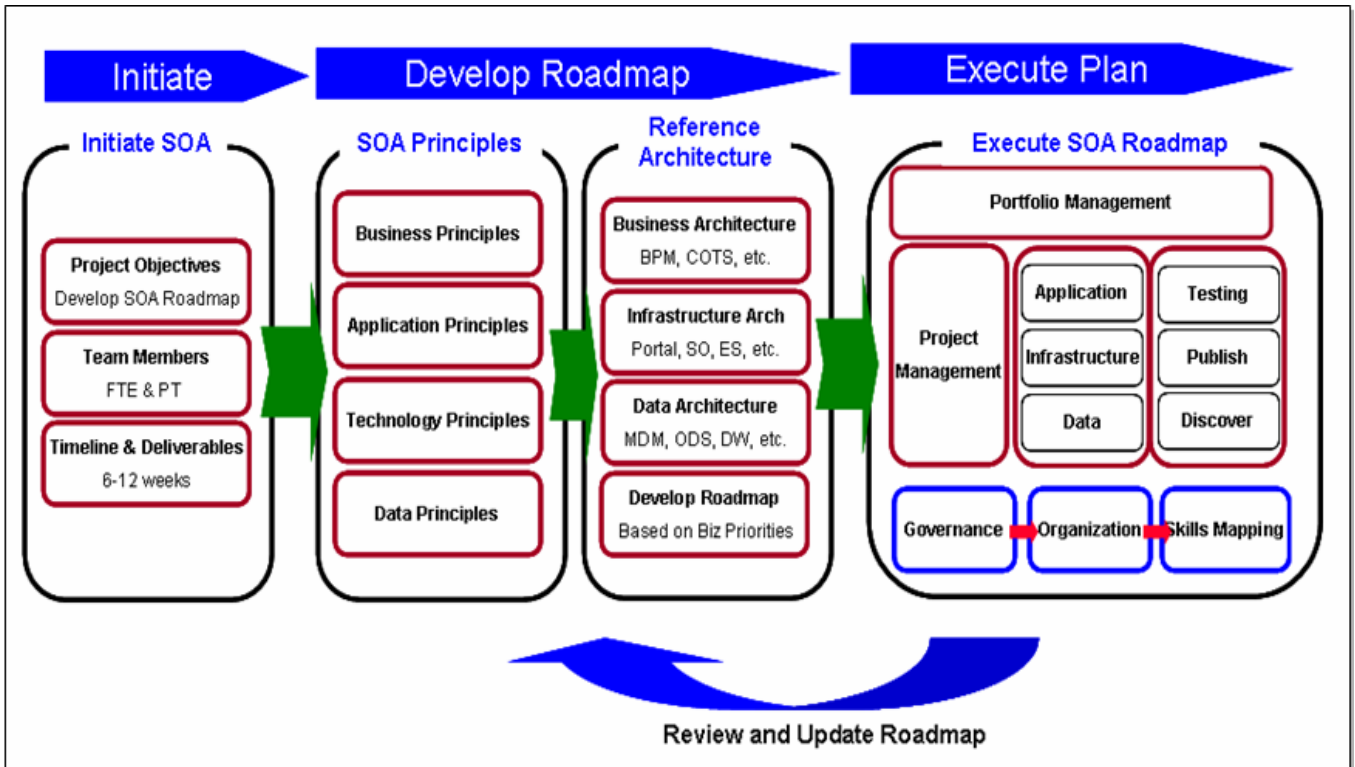


Figure 4: SOA Lifecycle

1.4.2.1 Initiate SOA

Describes the approach of getting started with SOA – explain how to go about establishing a project team, objectives, timeline & deliverables, etc. and can be used either at an enterprise or LOB level w

1.4.2.2 Develop Roadmap

Describes basically the process for conducting an SOA assessment for the organization, develop the SOA Principles, defining the Reference Architecture (End-State) and developing the roadmap to achieve the final vision.

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1.4.2.3 SOA Execution Plan

This describes how to go about executing towards the SOA roadmap. This is broken into two sections. The Governance, Organization and Skills mapping shall be based on the Reference Architecture and Roadmap and IT Organizations will have to switch from Project Management to Portfolio Management. However, business is still used to funding and reviewing IT projects and that shifts is not expected to happen overnight. IT organizations shall have to provide a Project Overview for the Business but review it as a Portfolio within IT.

The SOA Execution Plan needs to be reviewed on a regular basis and the roadmap needs to be updated whenever there is major change to the plan.

1.5 Intended Audience

This document is intended for the following audience:

- Business and IT leadership team to understand how to start and manage SOA across the enterprise / LOB
- Enterprise Architects who shall basically be driving the vision, roadmap and architecture of each of these implementations
- The Program Management Office to understand and learn how to manage a portfolio of sub-projects within an overall Business Project
- The Project Teams to understand how to map the dependencies and develop a timeline that meet the business expectations
- The vendors who shall be providing solutions and tools to provide new business capabilities to the end users (Business & IT)
- Various standard bodies so that they can get a better understanding with use cases of how the end users (Business & IT) plan to leverage technology to meet their objectives

1.6 Deliverables

The SOA Blueprint is composed on multiple sections. Following is a brief description of the sections and deliverables.

SOA Blueprint Section	Section Description
Starting with Service Oriented Architecture (SOA)	Models on how to get started with SOA which includes assets to help frame the discussions. In addition, document resource

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	allocations process & skills sets required to implement SOA.
Reference Architecture	The “Future Vision” of the enterprise with detailed architecture diagrams, component descriptions, detailed requirements (wherever possible), design patterns, opinions about standards, patterns on regulation compliance, standards templates, etc. and potential code assets from members.
SOA Framework	SOA Framework that enables IT organization to manage the SOA Lifecycle. Includes templates for defining SOA Principles, capture AS-IS state, develop roadmap, etc.
Governance & Organization	Documents various patterns and best practices around Governance & Organizations. Shall also include links to best practices by various analysts, vendors, systems integrators, publishers, resources skills etc.
Service Development & Deployment Cycle	Defines details process for service management. Shall include description, input, deliverables and templates for each of the phases defined in the SOA Framework patterns section.
Revision Cycle	Defines detailed process for periodic review and update of the SOA Principles, SOA Reference Architecture and SOA Roadmap.
Appendix	<p>Contains the various assets such as:</p> <ul style="list-style-type: none"> • Frequently Asked Questions? (FAQs) • Common Vocabulary (or links to ones already defined) • Links to various templates