# Transforming Business

## HP SOA
## Optimize the Business Outcomes of SOA

Featuring research from
Gartner

This edition of Transforming Business provides CIO insight into the SOA journey, and looks at HP's SOA capability, which is enabling IT to be a strategic partner with the business.

## Table of contents

# Executive Summary

Today's enterprises are reliant on IT to drive business value. Software applications drive mission-critical business processes. IT is now measured on how quickly and cost effectively it can deliver high-quality applications that produce business results. Compounding the challenge for IT, the competitive landscape is causing a demand for increased business agility. IT is responding by embracing SOA.

The service-oriented approach delivers IT systems as a set of reusable services that are assembled to create a composite application that automates a business process. This "assembly approach" accelerates the time to market for new applications and reduces IT costs. As a result, organizations can react faster, seize new opportunities and respond more quickly to competitive threats.

However, to successfully adopt SOA and achieve the benefits promised, companies need to adopt new processes around governance, development and operation. Creating these new processes is clearly a risky endeavor. Attempting SOA without these processes is even more risky.

## SOA reduces cost and increases agility

SOA shifts the focus away from the nuances of underlying technologies toward abstracted services that make sense to the business. Services generally correspond to a common, repeated business function, such as "add customer" or "check credit." Critically, services are designed to be reused, and this requires a new way for developers and project teams to think and work. New services need to be built specifically for reuse, and not as stove-piped systems with narrow, constrained functions. In addition, services need to conform to enterprise-wide mandates on quality and must adhere to business and IT policies. They need to be easily accessible and simple to adopt. The goal is for application developers and business analysts to be able to easily find and reuse services to construct new applications and compose new business processes.

By enabling business services to be used and shared by multiple business processes or composite applications, SOA achieves a number of business benefits:

1. Since common services can be reused rather than being built for each application, applications can be created more quickly. This helps organizations achieve competitive advantage by rapidly seizing new opportunities and responding to threats.
2. Because applications are built from reusable components, it is simpler to re-order the processes of the application. Flexible applications create flexible business processes, making the organization more agile and adaptable in the face of changing business requirements.
3. Because reusable services can be maintained in a central location, service reuse creates greater efficiency and lowers maintenance costs.
4. The ability to respond quickly to new regulatory requirements helps companies avoid governmental penalties.
5. Services that are re-used by many applications should be tested more thoroughly, both by QA organizations and through higher usage. Higher-quality services have clear benefits of fewer service outages and performance problems.

## SOA success demands solving many challenges

If not properly implemented and deployed, SOA can disrupt the business. There are many difficulties that inhibit the successful adoption of SOA. These include:

1. Lack of ability to discover services prevent constituents from consistently finding them.
2. Consumers recreate since they don't trust / can't control a service even if they can locate it.
3. Testing of services designed for reuse is difficult and time-consuming, so there is typically insufficient testing.
4. There is no reliable way to define, measure and enforce service-level agreements between the provider and consumer.
5. Changes to the service infrastructure impact the availability & performance of the service.
6. There is insufficient visibility into the requirements for a service, whether it is a high-level business requirement or a functional, performance or availability and service-level requirement.
7. Services are created and deployed without enough regard for corporate governance or suitability for reuse.
8. Your organization does not have the right skill set to take your SOA program beyond an initial pilot or proof-of-concept project.

Source: HP

# SOA has Unique Lifecycle Phases

SOA is not a product but a journey that every organisation looking to increase flexibility, standardization, agility, control and alignment of IT with Business has to traverse. Once an organisation completes the planning phase, of performing a readiness assessment, building a business case and choosing the right starting project, the above mentioned challenges of building and deploying can be grouped into three phases of a simple SOA lifecycle: initiate, where you define the services; build, where you develop and ready the service for deployment; and operate, where customers use the services. In each phase, the challenges affect three unique stakeholders:

- The providers, who create services and publish them for reuse.
- The consumers, who use services as part of their composite applications to create the mission-critical application.
- The CTO office, which represents the global view of the enterprise.

**Initiate phase**

During the initiate phase, providers want others to see value in their services and that their services comply with enterprise policies and other governance requirements. In other words, they want to know whether they are building a service that has broad applicability or reuse value. Consumers want to know how they can find and trust services. Consumers won't use a service they can't explicitly trust, and because the service is out of their control, this trust must be established for an SOA to be successful. And finally, the CTO needs to validate the service taxonomy so that the enterprise will work on the right services. The CTO wants to manage service-development efforts as a portfolio, making trade-off decisions and investing in services that provide the greatest business value.

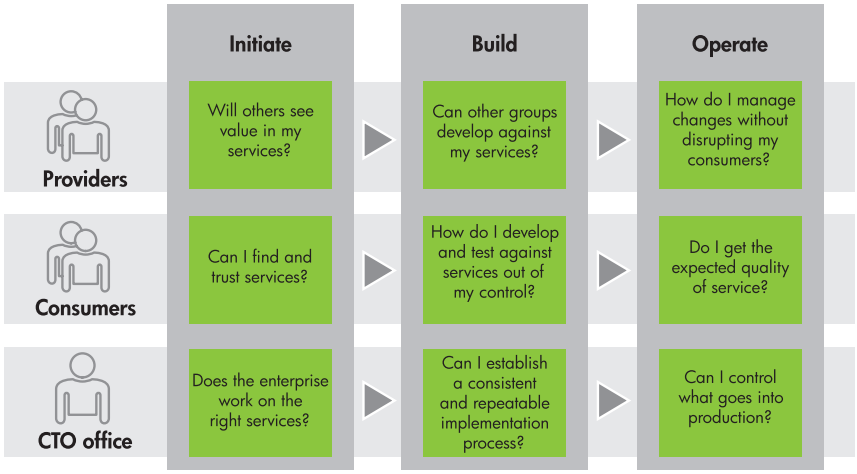
**Build phase**

During the build phase, providers want to be sure that other groups will be able to develop against their service and that the service is interoperable and developed for broad use. They also want to know whether the service will be able to scale in production as demand comes online. Consumers want to know how to develop and test against a service that they don't own. They want to be assured that the service will be well-documented and meet quality and performance requirements. The CTO wants to establish a consistent, repeatable implementation process and to establish standards and guidelines for how services are created and shared.

**Operate phase**

In the operate phase, providers want to know how they can manage service changes without disrupting consumers. They need to be able to seamlessly add new consumers without reducing service performance and availability. And, they need to deploy new versions without disrupting consuming applications. Consumers want to know how they can get the expected quality of service. They need to be sure services will be high-performing and predictable. The office of the CTO is asking how they can control what goes into production. They want to eliminate unauthorized "rogue" services. And they want to manage the process of change to eliminate chaos.

**Figure I. To control business risk, you must address challenges encountered across the service lifecycle**




Source: HP

## Hong Kong Government

The Office of the Government Chief Information Officer (OGCIO) of the Government of the Hong Kong Special Administrative Region draws on the capabilities of Service-Oriented Architecture to implement a new e-services infrastructure.

**Service-Oriented Architecture for a service-oriented government**

In the past decades, the growing need for governments to deliver comprehensive and reliable services for their citizens has led to rapid advancement in IT adoption. One of the most prominent cases in point has been the Hong Kong Special Administrative Region, which has widely embraced technology in almost every aspect of government. For instance, to provide more convenient and easier access to government information and services, e-options have been provided for over 1,200 government services since 2003.

*"We have already begun to see the difference an SOA solution makes in building Hong Kong's reputation as a digital city. This new architecture makes it possible to offer a new technology infrastructure, embedding common services required by the e-government framework. We can now deliver far better services to our constituents, reduce overall costs, remove duplicated resources and enhance our efficiency in e-services delivery."*

Mr. Stephen Mak
Deputy Government Chief Information Officer
Hong Kong SAR Government

## Helvetia Patria Versicherungen (HPV)

Helvetia Patria needed to expand its business in the face of increased competition in a deregulated European insurance market. The company also needed to control costs and increase data accessibility by streamlining and simplifying its sales processes. The challenge was to do this while accommodating the needs of multiple national organizations – each operating autonomously, and each with its own IT infrastructure and data, different business cultures and practices, and different languages. HPV's vision was the eBusiness Center, an online ecommerce capability that would provide a competitive advantage – and the foundation for accommodating future technologies, growth, and change.

**Service Oriented Architecture pays out large benefits**

Using the SOA approach in the eBusiness Center helped HPV substantially reduce time to market for new products and expand distribution channels. Reducing time to market for new products creates significant opportunities for partner and customer linkage by enabling innovative business ideas to quickly "go live".

*"With the use of the eBusiness Center, the technical implementation time for new products decreased by three to four times."*

Mr. Didier Beck
CEO
eBusiness Center Solutions, Helvetica Patria Versicherungen

## Starwood Hotels and Resorts

In an effort to eliminate redundancy, improve overall operational efficiency, and handle traffic spikes and rapidly increasing server loads, Starwood began a multi-year program to convert it's IT environment and core, legacy mainframe reservation applications to SOA. With both room reservations and Starwood's Preferred Guests customer-loyalty program running as a set of services and over $1 billion in bookings, the IT department needed a way to manage and control how services are created, shared, and changed.

**SOA Governance and Lifecycle Management**

IT management recognized they needed a way to gain visibility and control over services, and turned to HP for help. Using HP Systinet, they found a platform that allowed them to easily advertise services for reuse, accelerating adoption amongst third-party partners, while also giving them the ability to control how service are created and deployed.

The change in systems is expected to save Starwood as much as $20 million annually in operating costs alone.

*"A key economic benefit of SOA is service reuse, but this is impossible to achieve without a simple mechanism for advertising and discovering services."*

Mr. Israel del Rio
Senior VP of Technology Solutions & Architecture
Starwood Hotels and Resorts

Source: HP

**Service-oriented architectures are complex constructions. Many enterprises are uncertain about how to start the journey to SOA. Gartner's best-practice approach will enable an SOA effort to take off, while also limiting the initial technological and organizational investment.**

## WHAT YOU NEED TO KNOW

Choosing a starting point for your service-oriented architecture (SOA) journey is far from trivial. In fact, many organizations are overwhelmed by the potentially enormous impact of SOA on their application development, deployment and integration approaches, as well as the potential implications of SOA for IT processes, organizational structure and governance. The result has been inertia, where many organizations effectively delay any SOA-related initiatives based on a lack of clear guidance on how and when to begin. The best approach to overcoming this inertia is to proceed with a succession of small projects, solidly linking each one of them to a combination of business and technology value metrics right from the start, and measuring project success against these metrics in a well-documented approach that is widely understood by IT personnel as well as business sponsors. Although this approach will, in almost all cases, result in a slower, more iterative adoption of SOA within the organization, it will also help ensure that this adoption is evolutionary, less risky and, ultimately, far more sustainable.

## STRATEGIC PLANNING ASSUMPTION(S)

In 2006, lack of working governance mechanisms in medium to large (more than 50 services) post-pilot SOA projects will be the most common reason for project failure (0.8 probability).

## ANALYSIS

### Context

When enterprises break through the hype, understand what SOA really is, and see the benefits it can bring to their own companies, a potentially crippling issue comes up: "I want to try SOA, but where do I start?" Similarly, other organizations have run one or two SOA scoping pilot projects and want to start tackling the big picture (for example, from an enterprise perspective), but they are unsure how to effectively prioritize the steps involved, which technology component of SOA to start developing from first, or how to approach the big issue of funding. This research provides guidance to clients seeking a structured approach to planning and initiating the series of activities through the first, sensitive steps of the long journey to companywide SOA enablement (while also helping to reinforce the fundamental truth that SOA is, and will remain, a journey, not a destination). This research will also help clients avoid the most-common pitfalls and take best advantage of a maturing SOA endeavor.

### Analysis

**Step 0: Understand Practical Realities and Avoid False Promises**

There are two common approaches that clients take at this stage. Although these approaches might work in some cases, they are quite risky, and we would not rate them as best practice:

**Approach 1:** Embark on an SOA "crusade," collect SOA case studies and success stories, bet your professional credibility, and build a comprehensive, enterprisewide business case. The odds of success with this approach are slim, at best. That is not to say that the motivations are wrong: SOA certainly has the potential to deliver benefits that can fundamentally transform the business, and the clever calculations of return on investment typically contained in these business cases are generally right. Unfortunately, the sad reality is that few board members (or other senior business sponsors) will be convinced by them, mainly because of the high level of upfront technological and organizational investment required, but also because of negative experiences with past, grandiose IT initiatives with similar objectives and overly optimistic promises. There is a tiny minority of lucky cases in which the push for SOA comes from senior business executives with a vision and firm grasp of how the conceptual benefits of SOA can be translated into strategic business benefits. Where that scenario exists, however, it is quite likely that the SOA initiative would start anyway, even without an overly comprehensive business case.

**Approach 2:** Quickly select some technology aggressively marketed as an SOA "solution," implement the product, and hope the resulting deliverable is an SOA implementation and approach that provides all the benefits that have come to be associated with SOA. For example, the technology

might be an integration suite, an enterprise service bus (ESB) or a Web services framework. The chances of this approach working will typically be higher than the previous example, because:

- The technology for SOA is getting better.
- Architects are smart people.
- The project scope will be more effectively limited by the actual capabilities and functionality available within the product.
- The technology might address a short-term need to solve a pragmatic task, instead of being selected to build a companywide infrastructure.

The risk of this approach is that SOA will inevitably be connected to a particular project or solution, rather than being properly understood and positioned as an architectural approach that cuts across individual projects and, more importantly, transcends particular products or technologies. In addition, this approach risks SOA being categorized as yet another IT fashion wave, somewhat marginally linked to business value, and always in competition with whichever other project is more urgent. Committing investments to SOA in this approach is always a struggle, and small "hiccups" in the project (very likely, especially at the beginning of the SOA journey) will easily and incorrectly be linked not to the inevitable learning curve but instead to SOA as an architectural approach. This sets up the frequent situation whereby skeptical budget holders, or other project managers competing for funding, have ammunition to effectively (if mistakenly) position SOA as "just another technology trend" or, worse, "a solution looking for a problem." Once this belief has become ingrained, counteracting and overcoming this challenge can be difficult and time-consuming.

Instead, we suggest pursuing a much more gradual, progressive, low-initial-investment, credibility-building, linked-to-business-value approach, which will typically be much safer, incrementally demonstrate SOA value and generate support for the approach, and help to produce a far more effective foundation for ongoing SOA initiatives. In this way, the focus will be on smaller business cases for smaller, leading-to-SOA projects that are tightly linked to a quick return of business value and easier to justify. This approach will, in most cases, ultimately require a longer period of time to transform your core IT infrastructure into an SOA. However, because every project – especially in the beginning – is strictly linked to business value and quick returns, the pressure (and associated risk) of extending the coverage of SOA over the whole IT infrastructure is somewhat diluted.

**Step 1: Identify Business Pain**

"Business pain" is certainly something that today's companies and their IT organizations are almost never short of. No IT organization has unlimited time, money or resources. Project prioritization is an essential part of any drive toward SOA. The value of SOA ultimately derives from its usefulness in helping drive business value in such areas as process visibility and consistency and improved business agility and responsiveness. Prioritization should, therefore, also be centered on the areas of greatest business opportunity and/or threat. Business opportunities (as well as business pain) can manifest themselves in many ways, but almost invariably come associated with one or more IT constraints. For example, for an insurance provider, the business pain might be a long time to market of new insurance products, which seriously impairs the ability to compete with other, more nimble insurance operators. The flexibility in the IT systems to support a new offering is critical in addressing this type of business pain, and SOA approaches can help by enabling more cost-effective and standardized access, modification and extension of these core IT systems.

In this first step, IT knowledge and technology priorities are secondary to process knowledge and business priorities. Identify well-understood (and widely agreed-on) business pain (as in the example above), decompose it in a series of factors (in the example above, the business pain might, for example, be due to internal slow auditing procedures, overcommitting of resources to other projects or a lack of flexibility in the IT systems) and choose one (the lack of flexibility in the IT systems, for instance) that has an immediate IT counterpart that you know SOA can address.

**Step 2: Measure the Business Pain**

For a project to be a good candidate for a pilot, you have to be able to measure the business pain associated with it in a numerical way. In the example above, it might be the number of weeks it took to have IT support for a new insurance product, averaged on the last five or so products. This type of historical data is frequently available in companies and, in general, is precisely measured. The important thing is to have a simple, quantifiable metric, unequivocally measured, that business people with no IT background can easily understand and relate to as a problem.

**Step 3: Select the Pilot Project**

This is far from trivial. SOA project candidates should have a narrow-enough scope to ensure proper communication and minimize the risk of project failure, but at the same time be significant enough to illustrate the potential full value of an SOA approach. In the example above, improving the time of implementation of all products via one massive IT initiative is simply far too ambitious a scope for a pilot project. When this is the case, divide and conquer – partition the problem in smaller areas, where the measure of business pain is still valid. Maybe there is a particular line of life insurance policy products where a streamlined, service-based product construction is possible, which will reduce average time of implementation.

Likely SOA pilot project candidates should not be highly mission-critical. As a general "rule of thumb," good SOA pilot projects tend to have two characteristics: high visibility and as-low-as-possible risk. By high visibility, we mean the project in question is important enough to the business to ensure initial funding as well as ongoing attention from the sponsors (this also helps shift focus away from technology-led initiatives driven purely by IT). By low risk, we mean that the project does not entail significant modification, extension or enablement of core, mission-critical business processes, and it minimizes the amount of new technology used (so don't introduce business process management and an ESB at the same time as a pilot project). In other words, a good pilot project is one in which delays during the project won't negatively impact core business operations. Users should employ Figure 1 as a conceptual model when identifying potential SOA projects.

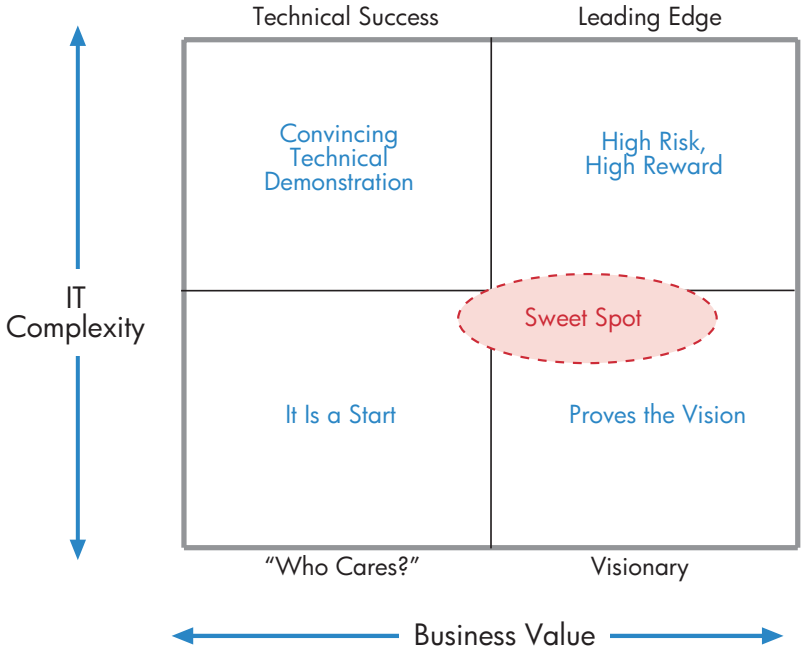
There is a "sweet spot" for SOA pilot project candidates, where the IT complexity is lower than average, but the business value is high. Hitting the spot is far from easy, but it has high payback.

**Step 4: Run the Pilot Project**

For the first projects, use simple architectures and minimize the upfront technology investment by using:

- Straight SOAP Web services (that you can run on a number of developing environments) over HTTP.
- Test products available from SOA suppliers – especially small ones – keen to sell into your company's future, more ambitious SOA projects.

**Figure 1. Evaluating Potential SOA Projects: IT Complexity and Business Value**




Source: Gartner (August 2006)

- A growing number of open-source products, typically application servers and ESBs (which will soon reach enterprise use quality – but make sure this does not increase the pilot project's risks).

**Step 5: Measure the Business Pain Again, and Get Credibility**

It is time to measure the business pain again. Thanks to the pilot project, our insurance provider can now implement new life insurance products in a fraction of the time it took for previous products. Prove it, show how easy it now is, and demonstrate business value. Remember how high the business pain was before the project, state how much it has gone down after the project, and tell everybody. It is the only way to get credibility and start raising the attention of businesspeople. Now go back to Step 1 and run another pilot project or two, slightly bigger and/or more complex, on different but, if possible, related IT areas (for example, different types of life policies), to leverage the skills and infrastructure deployed in your first pilot and expand the scope of your SOA project.

## Key Facts

**What Will Happen in the Meantime**

While you are carrying out your initial projects, each one of which addresses real business pain and is not likely to require excessive efforts for its justification, a few important and pleasant side effects will happen:

- The number of reusable services, available for later projects, will grow.
- You will understand through experience how important it is to manage the proliferation of reusable services and to enforce design policies.
- IT's credibility (and your own credibility as a professional) with the business will grow, as will the potential budget you'll be able to secure for future, more-ambitious projects.
- Starting from an integration competency center or from initial project-related resources, you will begin the long process of ramping up SOA-related competencies (those individuals are likely to be part of your SOA center of excellence that will gradually form project after project).
- The technology infrastructure supporting the nascent SOA initiatives will gradually grow; depending on the types of projects you run, you will incrementally require one or more of the following technology pieces:
  - A registry/repository, to manage (store, catalog, discover) all the artifacts that are a part of implementing SOA.
  - A portal product, which can provide the technology for a tactical first step toward SOA.
  - Service management capabilities, to understand which applications are using which services, and with what frequency.
  - Initial business process management capabilities, to model business processes and link them to reusable services.
  - Various specialized integration technologies (for example, adapters) and data transformation utilities.
  - An ESB, to scale up your SOA infrastructure, support different types of services, and manage them all from one place.

**And Just When You Thought You Could Relax ...**

Several other issues will crop up. Here are some of them:

- Now that you understand the role of the various technology components in an SOA, you might want to start a structured vendor selection exercise, to identify the technology (single vendor/best of breed/best of brand) on which you will base your mature SOA.
- Your credibility has gone up, so more and more possible projects are in front of you, and demand management is the skill you really need.
- You realize that avoiding service proliferation through SOA governance is a condition of survival.

Welcome to the beginning of SOA maturity: Most of Gartner research on SOA is in front of you, and your journey has just begun.

Gartner RAS Core Research Note G00142375,
Paolo Malinverno, Michael Barnes, 16 August 2006

## The SOA Transformation Journey

HP believes that the most effective way to deploy an SOA across an enterprise is through a journey of business-driven steps that gradually transforms the enterprise's IT architecture.

To help customers in their journey, HP provides a suite of consulting and implementation services supporting the lifecycle of SOA adoption (see Figure II). From assessing the value of SOA, through to mapping future and current states, creating a roadmap, development, enablement, implementation, and management, we work to guide you through your journey.

HP also provides focus and assistance for our customers in areas that we and our clients consider the most critical and challenging in SOA adoption, being:

- Quality of the services being implemented.
- Management of their heterogeneous SOA environments.
- Governance of SOA as it develops and matures.

## Getting started with HP's SOA Agility Assessment

When you are ready to create your own SOA roadmap, HP Services works with you to assess your readiness and help you set goals.

We collect data using our unique HP Agility Assessment questionnaire to produce a profile that identifies the relative level of agility across your core business processes and the importance of agility for those process areas. This then allows identification of areas where investment in SOA has the greatest potential and select appropriate metrics for assessing success.

We then analyze your current environment to understand the maturity state of your enterprise's SOA adoption, using HP's intellectual property and learning's, including the use of the HP SOA Domain Model and the HP SOA Maturity Model.

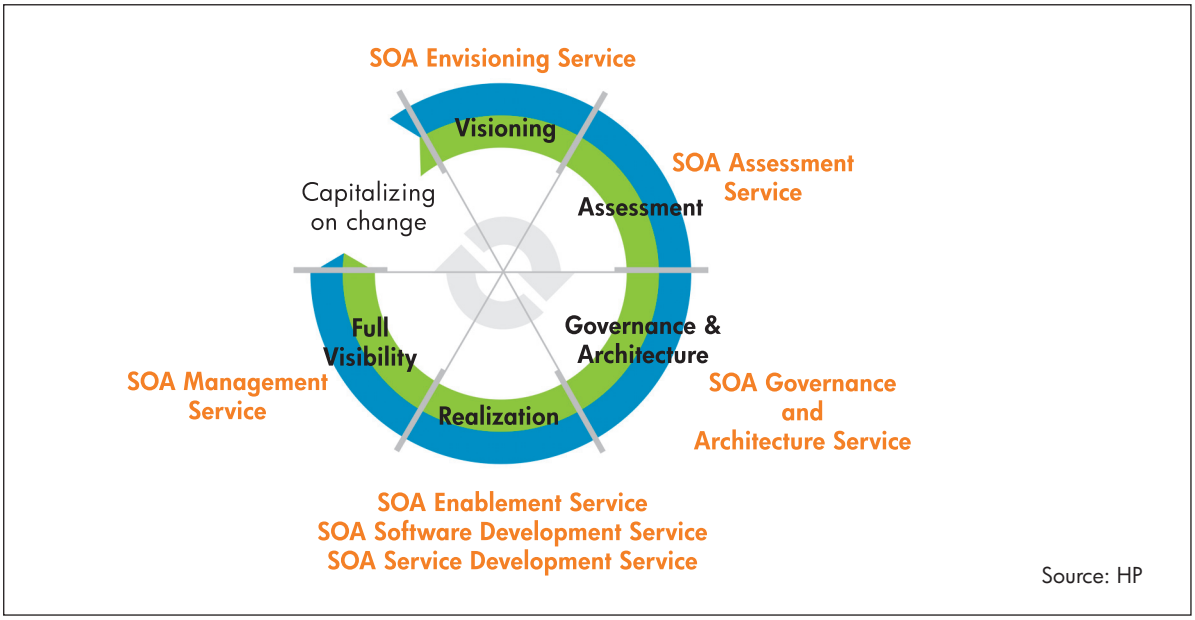
Through a facilitated customized workshop, we co-create your SOA roadmap, including milestones that will help your organization meet your SOA goals.

Post engagement, HP provides a report that describes your enterprise's SOA vision, transformation roadmap, and key recommendations for realizing the vision. We will also present roadblocks to SOA adoption, devise a timeline of priority activities, and identify indicative return on investment contributors.

## HP SOA Domain Model

To effectively assess, design and manage all aspects of SOA adoption, HP has identified a set of eight SOA domains. The HP SOA Domain Model provides a core framework for the planning and execution of an enterprise SOA program.

**Figure II. Mapping the SOA Transformation Lifecycle to HP SOA Services**




Source: HP

The HP SOA domain model outlines the key areas of capability, activity and assets needed to successfully adopt and operate an SOA. The eight primary domains comprising the model have been identified during analysis of many different SOA programs including both programs within HP and within customer enterprises.

Together, the HP SOA domains describe the complete set of competencies, capabilities and assets that an enterprise requires in order to successfully plan, deploy and operate an enterprise SOA. The Domain model is depicted in Figure III, along with the sub-domains of influence.

## HP SOA Maturity Model

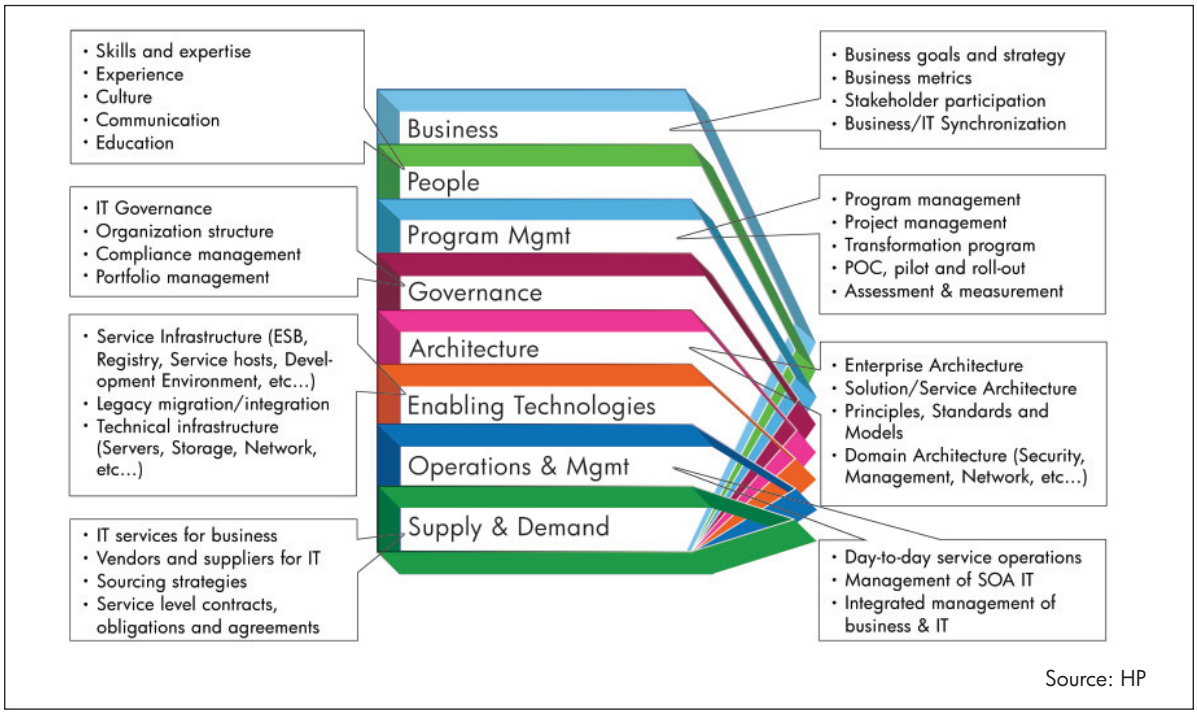
The capabilities and assets that are required to support an SOA are acquired, developed and evolved over time as the enterprise's SOA matures. The HP SOA Maturity Model is unique HP intellectual property that provides a comprehensive 'deep-dive' of the maturity of an enterprise's environment with respect to SOA adoption, using best practices, that helps to assess, plan and manage enterprise SOA transformation.

Working with you and applying these models, HP Services assists in determining maturity in the key domain areas, helping focus on where you need to apply resources and effort to better achieve the overall business goals and objectives of your enterprise.

By using HP Services you can optimize the outcome for your business at every stage of the SOA lifecycle. When planning an SOA deployment, HP enables you to take an integrated approach that increases the bonds between the stake-holders and leverages your assets across the lifecycle. Next, we look at HP's Business Technology Optimization (BTO) SOA capability.

Source: HP

**Figure III. SOA Domain Model provides a core framework for SOA planning and execution**




Source: HP

## The HP Business Technology Optimization (BTO) strategy for SOA success

BTO helps you make sure that every dollar invested in IT, every resource allocated and every application in development or production meets your business goals. Unlike software offerings and methodologies that focus on internal IT processes, BTO optimizes the strategic functions between technology and business. It supports a complete lifecycle approach for managing SOA implementations, giving IT leaders the confidence that services are designed, developed, adopted, implemented and managed properly. It defines a process that spans from pre-production planning and development, testing and tuning through deployment into the production environment.

## Start with the area of greatest pain: suggested approach to SOA

The HP BTO strategy is deployed using HP optimization centers. These centers provide specific solutions for each of the initiate, build and operate phases of the SOA lifecycle. HP provides a complete solution across the entire SOA lifecycle: SOA governance, quality and management. While we generally recommend that, after the basics of assessment and business planning, customers start by addressing governance issues first, you can easily start wherever you need to—at the area of greatest pain. While you will eventually need to address all the different challenges that SOA poses, our solution allows you to start where you feel pain right now based on the state of your deployment and on your business needs.

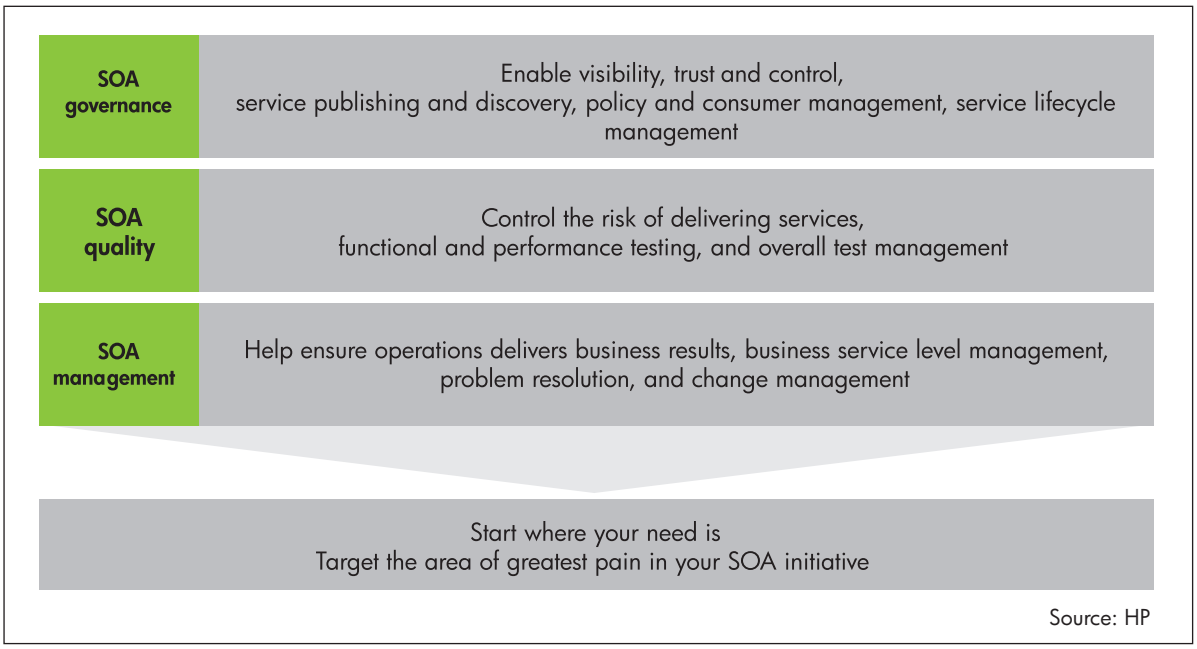
## SOA governance

HP SOA governance offerings enable you to deploy a controlled yet flexible service-oriented environment. Leveraging technology developed by Systinet, and deployed through HP SOA Center, the products provide a system of record and set of SOA governance applications.

By acting as a single system of record for discovering and understanding business services, HP Systinet gives customers greater visibility into how services are published and discovered. HP Systinet also provides policy management that enables policies to be created and automatically enforced to make services consistent and interoperable before they're put into production.

HP offerings also increase quality, predictability and transparency between consumers and providers, increasing trust. Equally important, SOA governance helps customers manage the lifecycle of business services so they can effectively manage change.

**Figure IV. You can start with BTO for SOA by addressing the area of greatest risk to your business outcome and building from your initial success**




Source: HP

HP Systinet, which integrates with our SOA quality solutions, includes the following capabilities:

- SOA repository: Manage services, metadata, artifacts and relationships.
- Registry: Achieve standards-based access and interoperability.
- Design policy management: Automate policy and conformance validation.
- Contract management: Formalize consumer/provider relationships.

## SOA quality

A market-leading SOA quality management platform, the HP SOA quality solution covers all aspects of the quality assurance lifecycle. It provides test management, functional testing and performance validation, allowing quality stakeholders to make intelligent go/no-go decisions regarding whether to release a service into production.

The HP SOA quality offering consists of HP Quality Center and HP Performance Center software. Integrated with HP Systinet, the centers provide a full spectrum of capabilities for managing quality, automated functional testing, business process and manual testing, load and performance testing and diagnostics for faster time-to-resolution of issues. HP SOA quality offerings provide the following capabilities:

- Traceability from service requirements to test cases and defects.
- Automated creation of tests based on the service definition.
- Full functional testing of services, provided by HP Service Test.
- Validation and optimization of the performance of services.
- Metrics for go/no-go decision making.
- The ability to diagnose and triage problems.

## SOA management

The HP approach to application management for SOA is focused on helping companies achieve the expected value from SOA-based applications as they are deployed in IT operations.

HP Business Availability Center includes capabilities to help businesses manage and optimize SOA environments so that business services deliver the levels of performance and availability that all constituents expect. HP Business Availability Center, which integrates with HP Quality Center and HP Performance Center, works with HP SOA Manager to provide a comprehensive set of capabilities for SOA management.

**Run-time policy management:** Systematic control of services and their supporting infrastructure requires policy-driven, model-based automation that can be induced at run-time. HP SOA Manager treats an SOA as a single system, so that as disparate lifecycle changes occur, it can keep business services and their supporting infrastructure synchronized and well-behaved.

**Service-level management:** Maintaining trust between providers and consumers requires that they agree to specific service-level agreements (SLAs). Providers must then manage the services and provide visibility into how the SOA is delivering the actual services in real time, as well as provide a clear understanding of their historical performance.

**Availability and performance management:** The process of monitoring services and composite applications in production in the complex SOA production environment is challenging. HP is an acknowledged industry leader in monitoring performance and availability from the end user's perspective, prioritizing events according to the impact to the business. It is important that availability and performance management of SOA applications be done in conjunction with traditional applications, leveraging a single set of applications. This enables operators and applications personnel to detect and triage issues, manage problems and diagnose root causes using standard processes and tools, regardless of the underlying technology.

**Problem resolution:** Maintaining performance requires rapid resolution of problems. Using HP Business Availability Center, you can isolate performance issues in an SOA distributed environment, and facilitate fast problem diagnosis so that the root causes of performance and availability issues can be determined quickly and mean-time-to-repair can be reduced.

**Change impact:** Change in an SOA environment is rapid. You need to reduce the risk of frequent changes in SOA environments by predicting the impact of planned changes, identifying the possibility of change collisions and monitoring changes that have been implemented so that they function correctly.

**Discovery of SOA services:** To achieve the previous benefits, you need to have an up-to-date service dependency map. HP lets you automatically discover services, their relationships and the underlying infrastructure supporting them – as well as to discover rogue services.

Source: HP

# Building a Service-Oriented Architecture Business Case: Effective Communication Is the First Step

Gartner

**The first step in creating a service-oriented architecture (SOA) business case is to clearly link conceptual SOA capabilities and characteristics to IT and business benefits. IT organizations that effectively bridge this communication gap will be able to identify the metrics necessary to quantify SOA value.**

## Key Findings

- Clear agreement and communication of SOA-related IT and business benefits across the organization provide the foundation for measuring the return on investment (ROI) of SOA.
- IT organizations seeking SOA project funding must directly link IT benefits to business needs, then must define target metrics in business terms. This will provide a baseline for project prioritization and measurement because metrics are then quantifiable and meaningful to business owners.
- A structured approach to SOA value measurement is useful in ensuring well-defined, well-understood and agreed-on SOA-related project scope, requirements and expectations.

## Recommendations

- Because business managers and executives speak a different language from the IT organization, avoid direct discussions of SOA technology details, characteristics and conceptual benefits when dealing with nontechnical staff. Instead, focus on linking SOA characteristics to major business opportunities and threats using quantifiable business benefits.
- Drive SOA adoption with a multistage process by first understanding SOA capabilities and business priorities, then by selecting projects that directly complement these capabilities and address business priorities, and finally by linking SOA-enabled capabilities to value metrics by explicitly defining quantifiable business benefits.

## STRATEGIC PLANNING ASSUMPTION(S)

Through 2010, a lack of working SOA governance arrangements will be the most-common reason for SOA failure (0.8 probability).

SOAs will be used in more than 50% of new, mission-critical applications in business processes designed in 2007, and in more than 80% by 2010 (0.7 probability).

## ANALYSIS

With the widespread adoption of SOA, challenges associated with SOA projects are emerging. Technology-related issues remain significant, particularly in runtime management, monitoring and testing, all of which are critical to overcoming SOA-related performance, reliability and interoperability issues. However, through 2010, the biggest barriers to SOA adoption will be nontechnical issues related to inadequate governance, lack of clear value metrics, poorly defined requirements and scope, and insufficient business involvement in project prioritization and service identification.

From an implementations standpoint, knowledge of SOA technology, governance and project management requirements remains spotty. Nonetheless, most organizations understand the conceptual benefits of SOA as a means to enable improved operational agility and flexibility, while improving overall process visibility and consistency. However, without a structured approach to measuring business value and ROI, organizations will struggle to secure the SOA-related project funding necessary to drive further adoption. SOA projects will fail if they don't deliver measurable benefits in improved operational agility and flexibility, enhanced process visibility and consistency, and cost reduction.

## Asking the Right Questions

One of the most commonly asked questions among Gartner clients is, "How do we sell SOA to the business?" This is not surprising. During the past two to three years, awareness of SOA has grown steadily among IT technical staff. Unfortunately, there has been little corresponding growth in awareness among business staff. It's tempting – but wrong – to conclude that IT must do a better job of selling the benefits of SOA to the business.

The real question IT staff should be asking is, "What are the business objectives, priorities, opportunities and threats within our organizations, and can IT leverage SOA as an approach to addressing these?" IT organizations must understand that SOA is only one architectural construct at their disposal. It is not the only option, or necessarily the best in all cases.


Gartner advises against trying to sell SOA to the business as if this architectural approach has inherent business value. The last thing business staff need from IT is yet another apparent solution disguised as a three-letter acronym. Business staff do not (and should not) care about technology for its own sake, only technology that can provide a meaningful, positive impact on the business. Neither do business staff need to care about technology initiatives or evolving architectural approaches, only about opportunities for the organization to leverage such technology initiatives or architectural approaches to meet well-defined business objectives. SOA, like all IT initiatives, must be viewed as a means to an end, not as an end in itself.

## Capabilities Do Not Equal Benefits

A well-defined SOA business case is essential for securing the appropriate level of business buy-in and for ensuring that SOA project requirements, expectations and deliverables are clearly defined and documented. By definitively linking conceptual SOA capabilities all the way to business metrics, organizations can prioritize and justify SOA-related project spending at the start of a project and can validate spending at project conclusion. The first step in this process is to clearly link conceptual SOA capabilities and characteristics to IT and business benefits, typically through a project-centric approach. Organizations must begin by linking the generic, anticipated benefits of SOA to the requirements of a given project. The following two examples highlight this process.

- **Example 1:** An insurance company leveraged SOA to automate core business processes and to improve process visibility, efficiency and adaptability. SOA capabilities were instrumental in achieving this goal, particularly the use of well-defined interfaces, standards-based access and loose coupling. Project justification, however, required more-tangible objectives that directly linked to measurable business metrics. Improved debt collection among home loan customers was identified as a key, tangible business benefit of process improvement. The metric used to justify the project and measure success was the arrears factor for existing home loans, which improved by 15% as a direct result of this project. The company decreased the amount of money owed by home loan customers by 15%, thereby delivering direct, measurable financial impact to the bottom line.

- **Example 2:** A container shipping company undertook an SOA initiative to rationalize its core, port operation systems and to improve overall business agility and responsiveness. Incremental deployment, reuse and standards-based access were critical SOA capabilities for meeting this objective. None of these capabilities, however, could be directly measured in business terms. The metrics used to justify the project and to measure success were the number of legacy applications required to support port operations and the time it took to respond to change requests. This organization successfully replaced 21 overlapping legacy applications with one standards-based, SOA-enabled application, thereby reducing maintenance costs. Additionally, average response time for change requests decreased from two weeks to three days, thus transforming an area of weakness into a competitive advantage.

As the examples illustrate, SOA is not an IT-led initiative driven by technology. It is an architectural approach that helps the IT organization (in partnership with the business) better reflect business and organizational reality, thereby reducing technical barriers to business process flexibility. Unfortunately, SOA value discussions are often skewed toward a focus on technical characteristics, or IT capabilities understood only by IT staff, including:

- Architectural partitioning
- Incremental deployment
- Reuse

- Standards-based access
- Loose coupling

These IT capabilities are essential to the overall value of SOA and are critical characteristics that help define SOA. From a business standpoint, however, they are meaningless. Overly focusing on IT capabilities as primary value drivers for SOA adoption will fail to justify increased spending on SOA-related initiatives and may alienate the IT organization from the business personnel IT is seeking to engage. Understanding capabilities enabled by SOA is necessary but not sufficient for identifying and measuring value. The challenge is to translate intangible benefits (such as capabilities) into tangible benefits (such as metrics).

IT organizations don't need to become business experts. Instead, they must learn enough about business language (such as business terms and acronyms) to gain credibility. As part of this learning process, business priorities (and, in some cases, business languages) will vary by group. IT organizations must engage all business groups to be a true partner in delivering business value.

In short-term SOA project planning, however, this is not realistic. Instead, to properly account for time and resource constraints, IT should focus on specific areas of business pain and/or opportunity, gradually expanding SOA-related engagements across the business as SOA project experience ramps up. Although a project-centric approach is most effective, organizations must link specific, targeted SOA projects using an SOA center of excellence tasked with strategic, big-picture responsibilities and, in particular, with balancing long-term benefits (reuse as one example) and short-term, project-specific objectives.

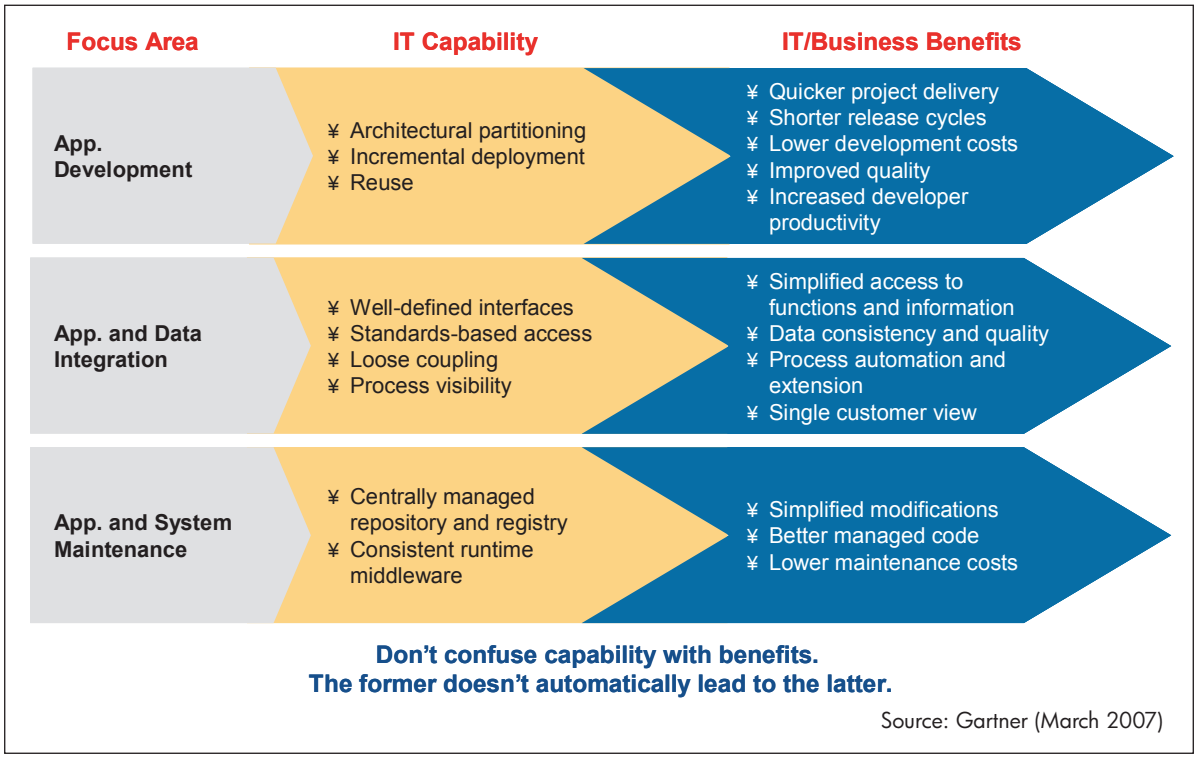
Figure 1 illustrates examples of the business and IT benefits that can be derived from primary SOA capabilities and characteristics. For further clarification, SOA capabilities and characteristics are categorized by the primary IT focus area or discipline to which they relate (such as application development, application and data integration, and application and system maintenance).

The list represents some of the most common business and IT benefits associated with SOA projects but is not exhaustive. It is not the objective of this research to define all examples of business value associated with SOA. Organizations face challenges and opportunities within their respective markets based on many unique business factors (such as customer demand, competitive landscape and geography). Although significant overlap is likely, organizations should create and define their own list of SOA-related IT and business benefits.

## SOA Project Selection Best Practices

Securing agreement on and widespread communication of SOA-related business and IT benefits among different groups within the organization are critical first steps in identifying likely SOA projects. Once this base level of communication is assured, the IT organization should select SOA projects with an understanding that SOA value is based solely on its effectiveness in positively impacting pre-defined, commonly agreed on business objectives and opportunities, such as those outlined above.

**Figure 1. Structuring the IT Conversion**




Source: Gartner (March 2007)

IT staff should not expose business staff to SOA as an acronym. Instead, IT should follow these best practices.

Leverage your knowledge of the IT project backlog. Work in partnership with key business staff to identify business objectives, opportunities and threats and to prioritize projects that IT can tackle in part by pursuing an SOA-based approach.

Use your technical understanding of SOA capabilities and characteristics to determine which projects identified in conjunction with the business are a good fit for SOA-related investments, keeping in mind that SOA as an approach will likely not be applicable to all IT projects, only to those where demand for frequent modifications, extensibility and consistent service delivery across multiple consumers are critical success factors.

Further narrow the number of projects under consideration by selecting projects that can validate SOA as an approach and can justify upfront investment costs in skills and tools/technology. The most appropriate projects tend to be low risk (meaning the inevitable delays and bugs common to any new IT initiative will not have a catastrophic impact on core business operations) and high visibility (meaning there is clear interest and buy-in from relevant business sponsors). Projects that fit this profile tend to be transformative and directed toward enabling features, capabilities or services that are new or significantly enhanced, such as multichannel initiatives aimed at enabling more consistent and timely information access and/or delivery to a broader array of constituents.

## The Bottom Line

IT and business staff have different perspectives, needs and expectations. Agreeing to a common language helps drive a common understanding of how best to measure SOA value. By doing this, organizations will greatly increase the likelihood of successfully leveraging SOA for tangible, measurable business benefits. As a first step, IT organizations must think beyond the conceptual benefits of SOA capabilities and must understand the potential impact of these capabilities on business operations. Once this hurdle is overcome, IT will be in a position to work with the business to craft an SOA business case that accurately reflects the priorities of the organization, while ensuring that the value of SOA-related projects is well-understood and measurable.

Gartner RAS Core Research Note G00146259,
Michael Barnes, 2 March 2007

## HP's SOA journey to eBusiness competitiveness in the PC market

HP has gained valuable first-hand experience in using SOA to address its own business challenges. The following provides an insight into how HP leveraged SOA to design and implement an eBusiness PC capability that has generated measurable efficiencies and cost savings, and enabled both revenue and market share growth.

## Business situation and key challenges

After the HP/Compaq merger was completed in 2002, the new HP faced staggering integration challenges that had to be addressed while the company strove to meet aggressive business targets. HP's IT organization (HPIT) was tasked with a very challenging objective: to rationalize and consolidate legacy infrastructure and applications while simultaneously cutting $1 billion in operating expenses. At the same time, maintenance costs had reached an all-time high, and HP's eBusiness PC capability verse its competitors was limited. The ensuing budget cuts meant that doing business as usual just was not feasible.

## The top six post-merger challenges for HP's eBusiness PC environment

1. **Budget cuts were "de rigueur."** Employees had to rethink the way they worked
2. **The HP/Compaq merger was a key impetus for change.** Rationalization, consolidation and integration were needed immediately
3. **Too many online storefronts existed (approximately 200).** Consolidation was mandatory
4. **Consolidation required simultaneous revisions of front-end and back-end systems.** Such coupling would cause repetitive reworking
5. **An eclectic collection of technologies existed.** Rationalization and integration were required
6. **Business objectives needed to remain on track.** Systems had to remain operational during the change period

These challenges presented HP with a conundrum: How could HP continue doing business effectively while making the necessary changes—and concurrently remove $1 billion in operating expenses? A service-oriented approach provided the right formula for success.

## Setting the Objectives

In order to tackle the challenges exacerbated by the existing environment, HP eBusiness developed a clear set of objectives:

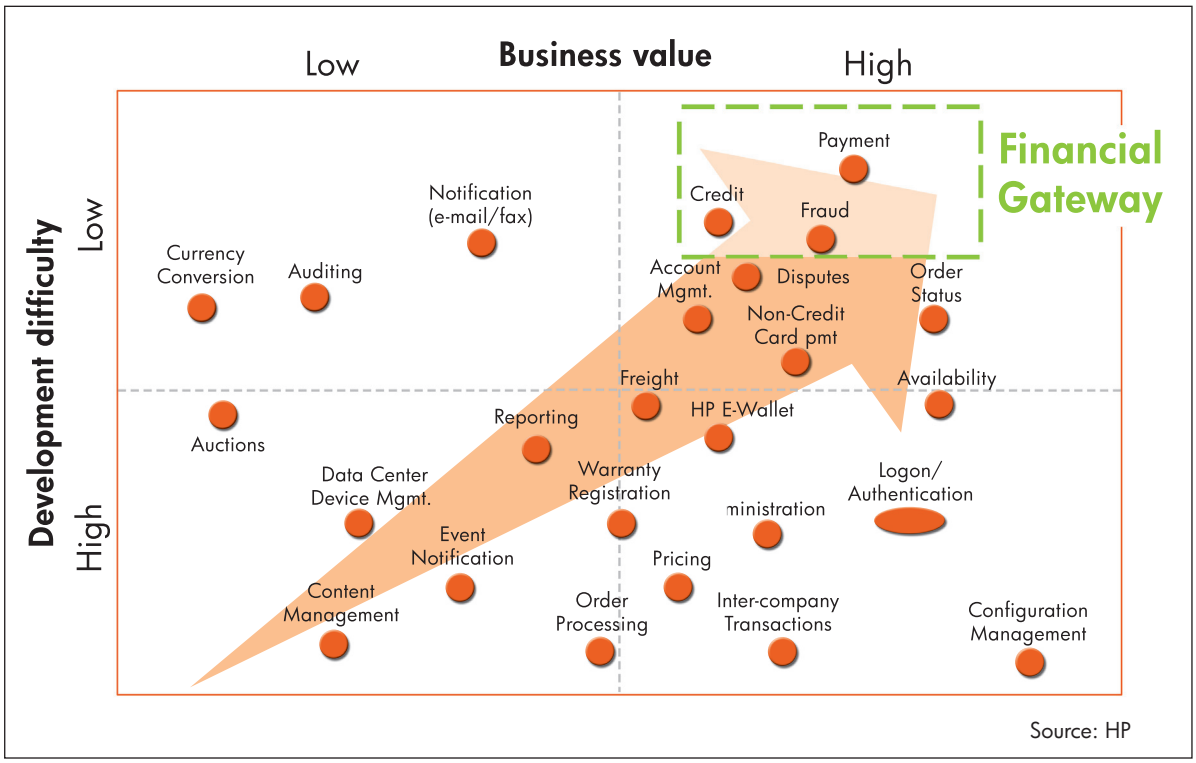
- Define an architecture approach that enables:
  - Simultaneous consolidation and evolution of customer-facing storefronts and back-end systems without repeated integration.
  - Improved ability to adapt rapidly to changing business requirements.
  - Increased centralized development that also allows regional customization and deployment.
  - Use of multiple legacy technologies.
- Identify ways of doing business with reduced budget.
- Globally standardize eBusiness processes.

## Selecting the Pilot Project – Financial Gateway and Fraud Management

The Services Value Quadrant shown in Figure V helped HP identify an ideal candidate for service selection. It demonstrates why the Financial Gateway provided a good place for HP to start. The return was high and the development difficulty was low.

**Financial Gateway Overview:** Each of HP's 200 eCommerce storefronts had its own financial processing solution, which was driving up the costs for the processes in screening orders for fraud. One credit card processor, for example, was identified with 39 individual contracts, all operating with different terms and fee structures. Security policies were not being adhered to consistently. Also, hidden and manual processes hindered management's visibility into fund flows, fraud, and charge-backs.

**Figure V: Identifying the ideal candidate for service selection**




**Solution:** HP created a single Financial Gateway composite solution using HP's Payment Gateway Service and Fraud Manager Service. The Financial Gateway enables credit card authorization, payment, and settlement in more than 200 currencies, as well as payment via leasing, purchase order, and eCheck, plus configurable fraud checking and address validation.

## Qualitative and Quantitative Outcomes

Implementing SOA has delivered significant outcomes to HP (refer Table 1), enabling the Personal Systems Group to redefine customer value, resulting in revenue and market share growth, with improved profitability.

Source: HP

**Table 1: HP SOA eBusiness Qualitative and Quantitative Outcomes**

| Qualitative Outcomes | Quantitative Outcomes | |
|---|---|---|
| • Improved, consistent, customer experience<br>• Enablement of rapid revenue growth<br>• Transaction fee/discount rate decrease<br>• Decreased incidence of fraud<br>• Standardization of financial systems and processes<br>• More modular assets that are easier and cheaper to change | • Released more than thirty services accessible via hp.com<br>– e-commerce customer storefronts<br>– Partner Portals<br>– Direct B2B connections<br>• Supported higher volume online interactions<br>– 1.2M+ logins per day<br>– 5M+ visitors per week<br>– $10B revenue handled per year | • Increased support from business, operations and IT sponsors<br>– SOA investments over past three years: 65% service production; 35% service consumption (portal and storefront user interfaces)<br>• Lowered cost to serve<br>– $16M annual asset retirement savings<br>• Reduced time to deliver<br>– Cut implementation time and cost by as much as 50% for consumers of shared services |

# Bringing it all together

The adoption of SOA helps enterprises address problems, meet challenges, and open up opportunities. The SOA journey will not be the same for every enterprise. Even in the same industry, and in the same marketplace, there are differences among enterprises due to history, core capability, business needs, value proposition, and future strategy.

In a world of ever-changing business conditions and rapidly developing technology, it is imperative to include assessment as a fundamental part of any SOA program. Assessment plays a key role in preparing to embark upon the adoption of SOA, providing you with a firm basis upon which to develop goals, strategy and plans.

By implementing a careful regime of assessment on an ongoing basis, you can confidently develop strategy and goals based upon fact rather than guesswork and execute your enterprise SOA program to realize strategy and achieve goals in a controlled environment, thereby maximizing the value returned by your investment.

## Review your environment today with an SOA Maturity Self-Assessment

To help you along your SOA journey, HP is offering an online SOA Maturity Self-Assessment tool. This tool can help define the maturity levels (or ratings) your organization has achieved – in relation to the entire survey group, as well as to peer organizations in your industry. Based on your maturity level, the soft copy report you will receive includes recommendations to help you take the necessary actions to move your organization forward and reap the business benefits that SOA makes possible.

Visit www.hp.com/go/soa to do your SOA self-assessment now

For more information go to www.hp.com/go/soa, contact your HP representative, or send an email to soa@hp.com



invent