

Own your process, own your information, own your business with SOA

Leverage synergies between process management, information management, and governance for greater business value



Contents

- 2 Executive summary
- 2 Breaking down the barriers to SOA success
- 3 SOA: Designed to drive enterprise-wide change
- 4 SOA connectivity and integration require focus on business value
- 4 Tata Group achieves first-mover status in highly competitive market
- 5 Business process management aligns IT and business goals in the SOA
- 6 Build in process governance
- 6 Spotlight delivers real-time business views, savings with SOA
- 6 Tap into exponential information growth
- 7 Control information access
- 7 District Health Bureau in China uses SOA to speed and improve patient care
- 7 Summary
- 8 For more information

Executive summary

SOA has the potential to enable IT to support business transformation by reusing—and reducing the maintenance costs of—their existing applications. Yet the reality is that many SOA projects have resulted in disappointment, because organizations have approached the task from a purely technological perspective. The most successful SOA stories are, in fact, based on business and IT collaboration, driving synergies and innovation across the enterprise. In other words, SOAs that are created within an IT vacuum are doomed to failure. SOA is not an IT activity. SOA is an architectural style that must be pervasive throughout all aspects of the enterprise, and across business and

IT boundaries. Executed properly, SOA can drive greater business agility and cost optimization, but it must draw on an architecture built to:

- Streamline and optimize business processes.
- Break down application silos and rigid IT systems.
- Broadly take advantage of information and analytics.
- Free business execution from application constraints.

The discipline of BPM and the architectural style of SOA are best when executed together in support of agile business and IT optimization and alignment. At an enterprise level, this requires the establishment of a robust and scalable environment that will preserve business performance and business integrity during the continuous transformation that is the inevitable result of business agility.

Turning information into a trusted asset is a key component of an SOA environment. Because processes, services and information assets are all interrelated, they need to be architected in the context of a business solution. Using IBM's Information as a service patterns and principles, enterprises can easily make information accessible in a standardized fashion across the SOA fabric of the enterprise.

This white paper details why building in BPM, information management and SOA governance across the enterprise is critical to SOA success. It also presents real-world examples of IBM customers that have done so and are now reaping the benefits of SOA, including service reuse, business agility and business transformation.

Breaking down the barriers to SOA success

It is not unusual for enterprises to embark on the SOA journey only to find themselves with less-than-positive results. Some SOA projects begin on a smaller scale, focused on a departmental project aimed at demonstrating ROI in order to gain executive buy-in. Instead, organizations find they are faced with silos of services that never get reused, and they are unable to provide

ROI. Lacking that evidence, SOA projects can stall indefinitely. Yet the business world is accelerating at a breakneck pace, and enterprises are now facing:

- Customers who expect instant results.
- Volatile economies and credit markets that can affect businesses overnight and demand tremendous adaptability and agility.
- The slowing of the “superpower” and the emergence of new economies that are capitalizing on a digital, flat world.

For IT leaders, the result is a need to deliver flexible systems that can rapidly adapt to changing business expectations without increasing budgets. These leaders must find ways to drive services reuse and reduce maintenance costs of their existing applications—while simultaneously engineering the infrastructure for business growth. In light of these requirements, service oriented architecture (SOA) continues to be recognized as the means by which businesses can effect rapid and profitable change.

“A recent IBM survey of 300 global executives revealed that organizations that are significantly outperforming their industries are much more focused on growth than their peers and are driving agility by adopting work practices and transforming their business processes to be more dynamic, collaborative and connected.”

—A New Way of Working, Insights from Global Leaders. IBM Institute of Business Value, 2010.

This white paper details why building in business process management (BPM), information management and SOA governance across the enterprise is critical to SOA success. It also presents real-world examples of IBM customers that have done so and are now reaping the benefits of SOA, including service reuse, business agility and business transformation.

SOA: Designed to drive enterprise-wide change

SOA has the potential to enable IT to support business transformation by reusing—and reducing the maintenance costs of—their existing applications. Yet the reality is that many SOA projects have resulted in disappointment, because organizations have approached the task from a purely technological perspective. The most successful SOA stories are, in fact, based on business and IT collaboration, driving synergies and innovation across the enterprise. In other words, SOAs that are created within an IT vacuum are doomed to failure. SOA is not an IT activity. SOA is an architectural style that must be pervasive throughout all aspects of the enterprise, and across business and IT boundaries.

Perhaps some of SOA's implementation challenges have to do with the different goals of its stakeholders.

- **To business executives and analysts**, SOA is a set of services that a business wants to expose to customers and partners, or other portions of the organization.
- **To the IT architect**, SOA is both an architectural style that requires a service provider, a requestor and a service description, and a set of architectural principles, patterns and criteria that addresses characteristics such as modularity, encapsulation, loose coupling, separation of concerns, reuse and composition.
- **To software and system developers**, SOA is a programming model, complete with standards, tools and technologies such as web Services, as well as a middleware solution optimized for service assembly, orchestration, monitoring and management.

Each perspective is accurate, at least in part. However, it is important to realize that service creation and application integration deliver flexibility and cost savings, but fail to provide the transformational results that are part of the promise of SOA. For

this reason, a collaborative approach between IT and the business is crucial to SOA's success. What is often overlooked is that crossing the divide between SOA failure and success is a "two-way" relationship that calls for developing the right plans, requirements and solutions together, based on shared concepts and understanding. And studies bear out that aligning business and IT efforts can double the productivity gains of those efforts undertaken in isolation.¹

SOA is a broad architectural approach that must be closely aligned with business objectives by:

- Leveraging prepackaged best practices most relevant to the industry and business for rapid deployment.
- Taking back control from applications and integrating processes, data and decisions.
- Adding intelligence to interconnected applications to facilitate ease of reuse.

When an SOA incorporates business process execution, connectivity and integration, and business information and insight, all supported by robust governance, it can create a dynamic business network with enormous business opportunities. By fluidly connecting and managing all the shifting elements within the business network, and optimizing the processes that drive it, a business can quickly outmaneuver competitors, respond to market changes and seize a larger share of today's demanding customers. In short, SOA is key to transforming the business for profitable growth.

SOA connectivity and integration require focus on business value

Most organizations focus at least initial SOA efforts on connectivity and integration. Lured by the promise of fewer coded application changes, IT rightfully views SOA as a means to speed service delivery. Indeed, services reuse is an essential SOA deliverable that maximizes existing investments and reduces service delivery and maintenance costs. However, organizations can lose perspective on gaining business value from this newfound connectivity, focusing instead on integration over business value. Data should not move untouched through the network. Rather, it should be routed, transformed, added to or extracted from, making it more suitable for the receiving application(s).

To leverage the information that is being moved from application to application, it is essential to use a strong messaging backbone and an enterprise service bus (ESB) combined with a service registry and repository. Solutions such as these provide the any-to-any connectivity that drives new composite applications that can integrate all the elements of your business network, including people, business processes and information. They can provide seamless messaging and enrichment that allow businesses to transform themselves and what they offer to their customers and partners without increasing the complexity and other burdens of their infrastructure.

Tata Group achieves first-mover status in highly competitive market

Business need

When the Indian government decided in 2004 to grant a precious few licenses for direct-to-home satellite TV broadcasting, Tata Group, one of India's oldest business conglomerates, recognized the significance of the opportunity. To achieve first-mover status in this burgeoning market, Tata needed to attain the highest levels of customer satisfaction, in light of regulatory demands.

Solution

The company built a robust, flexible business model and SOA to launch Tata Sky satellite broadcasting service. This "greenfield" project, in which a business is built from scratch, was the first of its kind in India.

Benefits

Launched in just six months, Tata Sky achieved 1 million connections in the first year and eight million connections within three years. In addition, it achieved an in-home installation goal within a specified time limit and provided seamless integration of customer service across all channels, including call centers, over-the-counter and via the web. All of this was achievable by taking advantage of IBM's expertise in operational and business support systems as well as business process definition, from which Tata created a strong joint solution within a highly compressed timeframe.

Business process management aligns IT and business goals in the SOA

Commonly in enterprises today, business processes will cross multiple geographic, corporate and functional boundaries, presenting a challenge of maintaining business performance and business integrity through the continuous transformation that is the inevitable result of business agility. This balance of agility, performance and integrity is the strength of BPM and SOA when executed together.

BPM allows IT to define workflows in real time and enables the flexibility needed to achieve transformation, by allowing the business to respond appropriately and competitively regardless of the business situation or timeframe. To enable this, processes necessarily must be decoupled from specific resources—a capability that only SOA provides.

Because BPM provides a sharp focus on flexible and dynamic process design as well as process orchestration and automation through IT enablement, it also provides the foundation for the agile business optimization and IT responsiveness necessary within a successful SOA. Process is how business drives outcomes, and SOA is key to improving business process execution. With BPM, organizations can streamline and orchestrate end-to-end business processes across people and systems.

Only three percent of companies report that they have achieved process excellence.²

As the technical representation of the business strategy, business processes must be aligned with business goals. Infusing BPM into the SOA is one way to achieve this. Without BPM, an SOA lacks:

- A disciplined approach to process definition and optimization.
- Context for business operational excellence and for managing business operational risk.
- Explicit metrics for the business value of service reuse.

While both BPM and SOA have value on their own, they are undoubtedly best when executed together to achieve business and IT agility, optimization and alignment. BPM provides the business context, understanding and metrics, and SOA provides a governed library of well-architected service and information building blocks. Organizations seeking to dynamically optimize investments, drive operational excellence and manage business risk must employ both.

To flexibly automate processes, another key characteristic within an SOA, business functions must be exposed up front as a portfolio of well-architected building blocks, without which the enterprise is forced to take processes offline to recode applications. This approach is not only time-consuming, it also directly affects customer-facing services and introduces business risk. SOA supports BPM by providing the technical ability to create necessary process independence and allowing for rapid implementation of modeled processes. Together, BPM and SOA can evolve business processes from automation to a state of “managed flexibility.”

BPM with SOA delivers:

Agile business and IT alignment. Without business process insight, operational process monitoring and the ability to dynamically change business rules and policies, business evolution stalls. These capabilities all rely on the agile business and IT alignment enabled by an SOA.

A reliable, adaptable and scalable environment. Maintaining business performance and integrity in the face of change requires a reliable, adaptable and scalable environment, organizationally as well as technologically. There is no value to the business if processes and services are not reliable, cannot scale to the demands of use or leave critical business information vulnerable to corruption or misuse. From a business and IT alignment perspective, IT systems must be designed based on a deep understanding of the business and its goals while ensuring the business can be confident in the reliability of the IT systems on which it depends.

Agile library of process and service building blocks. BPM enables IT to create, manage and govern an agile library of process and service building blocks with which enterprises can construct a business vision, understand the collection of existing processes and solutions in the context of that vision, and define and execute the right projects with the right scope.

In other words, the convergence of SOA and BPM directly supports agile business optimization and IT responsiveness, maximizing—for the entire enterprise—the value generated from investing in change.

Build in process governance

From a business process perspective, operational excellence is based on:

- Process integrity—to protect against problems like incomplete transactions and information inconsistencies.
- Process resilience—to ensure that processes keep running under adverse conditions and despite information systems failures.
- Process scalability—to ensure manageability, appropriate response times and adequate throughput.

To be successful, BPM and SOA need to be based on robust and scalable information systems that provide these three key capabilities, all of which must be properly addressed to ensure business excellence throughout the enterprise.

Spotlight delivers real-time business views, savings with SOA

Business challenge

Australian retailer spotlight needed to gain control of its IT systems and provide business managers with a timely, single view of product, price, sales and inventory information to help them make better decisions.

Solution

The company restructured its IT organization by service-enabling business processes and achieving end-to-end control using IBM WebSphere Process Server, which provides visibility into product, price, sales and inventory information.

Benefits

Spotlight now has the ability to provide real-time views of critical business information. And, by implementing a single process control point for five disparate systems, the company was able to deliver a substantial savings in IT overhead thanks to newly streamlined business processes.

Tap into exponential information growth

“People can spend up to 70 percent of their time looking for information. More than 60 percent of CEOs: Need to do a better job leveraging information.”

—IBM Attributes and Capabilities Study, 2005; Client Interviews 2004; IBM CFO Study, 2006

Police call logs, emails and RFID signals can contain data that represents significant business value. Yet organizations increasingly are overwhelmed by the sheer volume of data they are expected to manage, much of which is unstructured and, therefore, more difficult to extract and make actionable for the business. Even so, today's volatile economic climate places increasing pressure on IT to analyze data more quickly to facilitate business decision-making. The challenge is in unlocking the data and transforming it into useful information—and effectively and efficiently distributing the right information, at the right time, to the people, processes and applications that are reliant upon that information to make better business decisions.

The role of information in the SOA is to provide:

- Understanding about the information concepts required to support the business.
- Consistent, scalable access to those concepts.
- Quality, integrity and governance of those concepts.

To drive better business outcomes, organizations must transform information into a strategic asset, providing trusted, accurate, integrated and consistent information in the right context. In short, organizations must begin to take back control from their applications by integrating processes and data to support the business—and begin using information as a service. The purpose of information as a service is the alignment of data architecture, or more broadly “information on demand,” with a service oriented architecture to support the business. By using information as a service in the context of an SOA, enterprises are immediately able to expose information as a controlled and reusable service to a broad range of consumers, since separating and integrating information is much easier in—and, in fact, is an intended outcome of—an SOA.

For instance, if a customer transaction is submitted, an SOA can take the relevant customer data from the transaction and combine it with other data to trigger an on-the-spot customer loyalty offer. Or, a message about a pending threshold in an energy grid can be combined with signals from electricity meters to help a utility company prevent an outage. Here, information becomes a transformative asset that can mean the difference between success and failure.

Together, SOA and information management can:

- Provide trusted and integrated information, both structured and unstructured, that can be used within processes and applications.
- Improve governance of how and where information is used.
- Expose trusted and integrated information from structured and unstructured sources to a broad range of consumers.
- Limit service creation to avoid services sprawl.
- Improve information consistency and trust.
- Limit and control information access so that it can be more effectively decoupled from consumers for greater reuse.

Control information access

Just as it is important to ensure that information is available for reuse across the enterprise, it is equally important, especially in light of mounting regulatory pressures, to control information access—to make sure that it is delivered to the right people, at

the right time and in the right context, whether the consumers are inside or outside of the organization. An SOA can support information governance by enabling organizations to conduct master data management and apply SOA governance to other services, just as they do to their information services. Enterprises can easily create and enforce policies at the development level to define how information is exposed, then enforce those policies at run time.

District Health Bureau in China uses SOA to speed and improve patient care

Business challenge

The District Health Bureau in China manages a broad network of community healthcare initiatives and is also responsible for implementing the Chinese government’s community healthcare policies. With more than 500 medical centers and 22 hospitals, the bureau needed a unified healthcare management system, including electronic medical records (EMR), that it could share among all service providers to speed and improve healthcare delivery for one million people.

Solution

The bureau deployed an EMR system based on SOA, integrating vital patient information and comprehensive medical histories from multiple disparate systems, enabling users to exchange and share medical information among all the medical facilities.

Results

The new SOA vastly improved patient care. Since deployment, the bureau has experienced faster, more timely, healthcare delivery; the ability to make more informed medical decisions; reduced appointment wait times; earlier detection and control of potential epidemics; integration of all medical resources and information among local medical institutions; and faster, lower-cost diagnoses.

Summary

SOA is a technical discipline, but it is not, in fact, an IT activity. It is a broad architectural approach that must be undertaken by aligning IT and business expectations and goals. SOA projects initiated as an IT activity are most certainly doomed to failure. Instead, SOA must be seen as a way to drive business transformation by improving the way the company is using information and business processes to enable smarter business outcomes.

Executed properly, SOA can drive greater business agility and cost optimization, but it must draw on an architecture built to:

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The clients highlighted in this paper represent a broad approach to SOA, one that includes a foundation of integration and connectivity, and a focus on business process improvement and using information as a strategic asset to deliver powerful business results. These clients are just a few of thousands of customer engagements through which IBM is helping organizations around the world to realize the benefits of SOA through proper business process management, information management and governance.

For more information

For more information about how IBM WebSphere solutions can help you build agility, services reuse, cost savings and governance into your SOA, contact your IBM representative or IBM Business Partner, or visit ibm.com/software/solutions/soa

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¹ "When IT Lifts Productivity," Stephen Dorgan and John Dowdy, McKinsey and Co., 2004

² Forget Process Excellence, Most Companies are Process Ignorant, AIIM Market Intelligence – 2008



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