Technology solutions

Achieving business-driven SOA

Point of View

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Executive summary

A successful service-oriented architecture (SOA) initiative is one that focuses on achieving key business goals rather than just technical proficiency — it is business-driven SOA. By aligning SOA initiatives with well-defined enterprise strategies, companies can better contain costs, comply with governance mandates, meet competitive challenges and position themselves to keep pace with changes in market conditions.

The transition to SOA

SOA is an approach to application development, integration and management that leverages existing technology to build, change or extend business applications quickly and cost-effectively.

Under pressure to respond swiftly to shifting market dynamics and comply with internal and external mandates while minimizing costs, organizations are turning increasingly to service-oriented architecture (SOA). But SOA can only be effective when enterprises are focused on the right strategic business initiatives — and when the technologies being implemented are aligned appropriately with those initiatives.

Moreover, the value of SOA implementations should not be judged using the same metrics as other technology deployments. SOA initiatives are only truly successful if their effects cascade throughout the enterprise, moving past technological transformation to having a positive impact on an organization's strategic focus, internal processes and governance directives, as well as the roles and responsibilities of its people. Calculating the return on investment (ROI) in SOA therefore involves measuring the impact on the business.

We believe that a business-driven methodology for implementing SOA — employing an SOA maturity model to establish a common language and approach across the organization — can help organizations align their IT resources more effectively with business objectives, guide SOA initiatives toward completion, and support ROI objectives with existing and new IT capabilities.

More than a technical challenge

SOA is an approach to application development, integration and management that leverages existing technology to build, change or extend business applications quickly and cost-effectively (Figure 1). Although SOA is an IT concept, the implications of implementing it go well beyond technology. And, not incidentally, many of the business issues SOA is particularly well positioned to address correspond to those on which CIOs are currently most focused.

Companies decompose their key business processes into discrete, loosely coupled services, each of which fulfills a specific function.

A recent Forrester survey indicates that 75% of Global 2000 organizations will be using SOA by the end of 2009. Some 60% of current users are expanding their use of SOA, and a substantial number recognize SOA's strategic business value and are using it on a sizable portion of their solution delivery products.[1]

The fact is that SOA is very much alive. The data shows that:

- **The majority of enterprises use SOA.** In the Forrester Enterprise And SMB Software Survey[2], North America And Europe, Q4 2008, 75% of IT executives and technology decision-makers at Global 2000 organizations said they will be using SOA by the end of 2009 — and this survey was conducted *after* the current financial and economic crisis began. SOA penetration gradually tapers off as organization size decreases, but this is to be expected: The larger the enterprise, the larger and more complex its technology base and thus the more immediately apparent the value of SOA. Only 25% of Global 2000 respondents said that they have no plans for SOA.

- **Current SOA users are expanding their use of SOA.** Across all current SOA users in Forrester's Enterprise And SMB Software Survey, 60% say they are expanding their use of SOA. More to the point, 24% of current SOA users say that it has delivered most or all of the benefits they expected, and 36% say that it has delivered enough of what they expected to justify expanding their SOA adoption. Only 1% of current SOA users say they have seen little or no benefit.

- **SOA users are applying SOA to substantial portions of their solution delivery work.** SOA is clearly beyond the stage of being a toy to try on a few scattered projects. Across all the SOA users in Forrester's Enterprise And SMB Software Survey, 22% apply SOA to 25% or more of their solution delivery projects, while another 43% use SOA on 10% to 24% of their projects.

- **Many understand that SOA supports strategic business transformation.** Even more importantly, across all sizes of organizations, a substantial number of SOA users understand that it has strategic business value. Nearly 30% of current SOA users reporting using it for "strategic business transformation" — and seeing SOA's strategic business impact comes only when you understand something about doing SOA right.[1]

[1]"SOA: Dead Or Alive?", Sharyn Leaver, Forrester Research, Inc., July 10,2009

[2]"SOA is far from dead, but it should be buried. Doing SOA Right Opens The Door To A Much Bigger Architecture Vision" Forrester Research, Inc., May 11, 2009

SOA is particularly poised to help them do this. Companies decompose their key business processes into discrete, loosely coupled services, each of which fulfills a specific function. These services can be reused over and over again in various combinations to develop applications that support particular business processes rapidly and cost-effectively. Applying technology to a business problem then becomes a matter of "assembly" rather than creating functionality from scratch. This makes it much easier to reap a positive ROI within a short time frame. And because of the modular nature of these services, if something needs to be changed quickly — say, in response to a new compliance directive — those changes are localized because of the loosely coupled nature of services, and they are implemented consistently across the enterprise thanks to reuse.

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For these reasons, organizations now are using SOA as a way to automate and improve specific tasks and processes that may have fallen off the radar screen in recent years. Generic examples might include an employee onboarding process or an account-opening process. In many cases, these processes are supported partially by legacy technology but perhaps were never addressed by an enterprise resource planning (ERP) application. These types of processes can be good pilot initiatives to develop SOA competencies and begin to demonstrate results, particularly to help reduce organizational costs and total cost of ownership.

In the short term, however, SOA may be the most effective approach to helping organizations meet key compliance milestones. Given the requirement to change rigid, hard-coded systems to reflect greater flexibility, transparency and traceability, businesses need to be able to respond quickly and cost-effectively. Using SOA to remediate a compliance concern can be a way to reposition a compliance mandate into an opportunity to invest in business process improvements.

Lastly, organizations are establishing strategies, developing competencies and creating blueprints to build out SOA environments that reach across the enterprise. This constitutes a major shift in how IT can align around business priorities, deliver on real, cost-effective improvements in business processes, and deliver cost savings and productivity gains back to the business.

An important part of this equation is companies' understanding of how key vendors in the technology stack, such as Oracle, SAP and IBM, are evolving their products and platforms to support SOA enablement — so that companies can evolve their investment along with them. This allows CIOs to put strategies in place that protect their existing IT investments while taking maximum advantage of this new systems architecture paradigm at the lowest possible cost.

SOA initiatives have a greater chance of achieving expectations when the focus is on business outcomes rather than technology. Yet making this shift in perspective is often the most difficult part of implementing SOA.

Implementation methodology and the SOA maturity model

We believe there are two key elements to successful SOA deployment:

- First is an approach that organizations can use to increase the chances that their SOA efforts are indeed going to produce the desired business results.

- Second, an SOA maturity model, such as the one we use with our clients, that provides all organizational stakeholders — business users and technologists alike — with a common framework for looking at SOA across the enterprise and for building an incremental path to gain business advantage.

Business-driven SOA approach

SOA initiatives have a greater chance of achieving expectations when the focus is on business outcomes rather than technology. Yet making this shift in perspective is often the most difficult part of implementing SOA. It involves shaping IT capabilities around business priorities instead of shaping your business initiatives around what IT can deliver currently.

A first step in an effective SOA approach, then, is to look at your business as a set of interdependent services. Services are simply tasks that someone or something performs — tasks that are candidates to be automated, standardized and optimized. For example, in a bank it might be something as simple as checking an account balance.

That sounds like an easy thing to identify, but it can require a major shift in thinking because we tend to classify services like that by how they are done. Thus, a bank will think of checking an account balance as something customers do by asking a teller, using an ATM or accessing their home banking account. It's not unusual to have separate technology infrastructures to support each of these ways of doing something.

In retail, an example might be managing how a product is purchased across multiple channels. It is common to offer goods at brick-and-mortar stores, over the phone and via the Internet. Each sales channel produces a need to process credit card payments, and it is typical today for these to be implemented using separate technology infrastructures for each channel. This sounds like an obvious opportunity for improvement, but it can require a major shift in thinking because we tend to align system capabilities with the business units they serve, instead of recognizing that it is a single business service that is common across the enterprise.

A business-focused SOA approach isolates the technology portion of the service — in the retail example, connecting to and interacting with the credit card processor — from the business portion of the service and engineers it so

that the technology is available to all business processes no matter where they exist in the enterprise.

This modular approach to defining business services results in an IT infrastructure that's much more flexible and better aligned with business priorities. And because each SOA project is tied to a business outcome, it's easier to measure success.

In other words, the point is not to create hundreds or even thousands of services and hope that some of them are relevant to and reusable within your business. Rather, it is to identify the company's key business processes, detach them from their existing technology implementations and build independent modules that are immediately — even urgently — relevant to the organization.

The SOA maturity model

In addition to using the above approach, an SOA maturity model can help enterprises by providing a realistic starting point, a vision for the future state, and a step-by-step path forward to building out their SOA environment.

One of the key ways to manage this is by aligning the maturity model with industry-standard structured methodologies such as the Software Engineering Institute's Capability Maturity Model (SEI-CMM) and supporting SOA implementations of products as a unified technology stack or in combination with other interoperable vendor products. The core SOA model is vendor-agnostic and supports industry standards such as XML, XSLT, WSDL, SOAP, J2EE and .NET. However, the model supports extensions that map vendor-specific products to the needs of any given organization.

The first step in implementing the model is to perform a current-state assessment of an organization's existing SOA environment. Depending on the assessment's results, an organization is classified into one of five categories. Specific recommendations of the business and technology initiatives companies should execute are then provided based on the "level" they have reached.

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- **Level 1: Initial Services.** When embarking on SOA, companies need to establish IT architectural leadership. They also must begin institutionalizing the use of SOA concepts for developing or modifying enterprise applications. Organizations that realize a positive ROI from implementing standards-based SOA technologies within IT are taking their first step toward achieving business benefits.

- **Level 2: Architected Services.** At this level, organizations must create partnerships between business and technology stakeholders for SOA governance. IT also needs to extend SOA processes to business units to facilitate collaboration on improving business processes. Organizations should be able to begin calculating the ROI derived from business-related activities at this point.

- **Level 3: Business and Collaborative Services.** Once SOA-architected services have been implemented, organizations must continue deepening the partnerships between business and technology units in order to meet governance mandates. Additionally, they should begin to support full business processes via SOA, and they should be able to prove significant ROI from their ability to both reuse services and rapidly respond to changes in the business environment.

- **Level 4: Measured Business Services.** At this stage, organizations can finally effect a transformation from reactive to real-time business processes. By defining and meeting business-oriented performance metrics, they can measure ROI based on SOA's positive impact on the business.

- **Level 5: Continuously Improved Business Services.** Finally, organizations reaching this level must implement enterprisewide leadership that aligns business initiatives with the SOA strategy. At this point, ROI will be the result of SOA-supported continuous improvement in meeting the organization's overall strategic goals.

SOA can help CIOs' efforts to measure and communicate IT value to business executives.

By being vendor-independent, the SOA maturity model can be applied easily to IT environments and applications that use a mix of software from different vendors, or to implement products such as Oracle Fusion and SAP NetWeaver. It can also address a broad portfolio of applications or focus on a single part or process within the business. What is critical, however, is that it advocates an approach to SOA that is aligned thoroughly with business goals.

Delivering business benefits

Taking a business-driven approach to SOA not only helps organizations create a more robust and flexible IT infrastructure, it also may be their best opportunity to align technology initiatives with business outcomes.

Better IT-business alignment is one of the top advantages SOA offers. By coordinating and integrating business-related strategic initiatives with business process priorities, SOA makes it possible for systems to keep pace with the dynamic pace of change in market conditions. Unlocking the closed and proprietary architectures of legacy systems, business unit executives can move forward faster and with lower IT support costs. Less time, budget resources and energy are spent on expensive maintenance; more can be invested directly into new products and services. On the IT side of the enterprise, CIOs can achieve higher internal customer satisfaction among business executives and managers.

Improved IT governance is another key benefit of SOA. Unexpected and underfunded mandates to comply with new compliance regulations, demands to rapidly integrate the systems of an external organization because of an acquisition or merger, or orders to launch new products within unreasonable time frames can all be achieved more easily and cost-effectively through SOA.

Finally, SOA can help CIOs' efforts to measure and communicate IT value to business executives. By completing the IT initiatives that support strategic business initiatives within a shorter time frame and promoting higher-quality standards, SOA helps IT organizations reduce the frustration that frequently accompanies large-scale technology deployments and boosts the CIO's credibility and standing within the organization.

Using SOA to build composite applications through reusing existing technology assets also helps companies improve productivity and agility.

Business success

Companies moving to SOA must do more than focus on technological transformation. Instead, they must realize that SOA is more about business success than technical proficiency.

If implemented properly, SOA can bridge the divide between business and IT. By leveraging the insights derived from the SOA maturity model, organizations can realize benefits accruing to the business and position themselves to respond quickly to future competitive challenges.

Using SOA to build composite applications through reusing existing technology assets also helps companies improve productivity and agility. As a result, organizations can begin to bring new products to market faster, reach new customers and seize promising new revenue opportunities while minimizing development and operational costs.

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