

## Many Happy Returns?

Different measures of SOA success make finding real ROI a difficult job

By [Geoff Koch](#)

**March 1, 2007** — **GalaxyPlus Credit Union Systems got its first taste of service-oriented architecture in 2005. That was when the 200-person division of Fiserv, based in Troy, Mich., set out to expose its core account and loan creation offerings as services. What followed was a tale with several tried-and-true SOA themes.**

The GalaxyPlus IT team was hobbled by a legacy, mainframe-based system; a database that was capable only of accepting precompiled SQL statements written in PL1 and C; and tool sets that did not support SOA-mandatory XML. Given contractual obligations and competition in the market, the company could neither charge its customers for the infrastructure upgrade nor ask these customers to migrate from their own mostly IBM/AIX-based platforms.

The solution was one part do-it-yourself hand-coding and one part vendor-assist. GalaxyPlus programmers wrote their own JDBC driver to get around their database issues and then selected an open-source Java EE application server, JBoss, to host the application.

### REACHING NEW MARKETS

Compared with the option of building a new application from scratch, bolting on a new Java- and open source-based service to the old system helped to save on development time and infrastructure costs. But the real payoff, said GalaxyPlus IT development manager Dan Carnell, was the ability to access new markets. Today, GalaxyPlus' new account and loan creation services are integrated into CRM applications used by credit unions, thus making it easier for credit union call centers to sell new loans or accounts to their members.

"The services we created spawned an entirely new product line," said Carnell, a 17-year industry veteran who previously worked as director of application programming at Quicken Loans. "This group now brings in significant revenue for GalaxyPlus.

"Our goal now is simple—to build flexible solutions to service not just our 300 clients, but thousands of diverse credit unions," he continued. "That's a powerful way to examine our return on investment—the sky's the limit."

That, for better or worse, is a pretty good encapsulation of the thinking about return on investment, or ROI, associated with SOA projects today.

Most vendors and early adopters agree that the easiest SOA benefits to measure include reduced IT and development costs and faster time-to-market. However, the same crowd seems to find any discussion of these benefits to be downright boring. Instead, like Carnell, many reserve their most enthusiastic language for promises of a paradigm shift in IT that points directly to new customers, markets and profits.

The problem is that few reliable rules of thumb exist even for doing a rough calculation of any projected SOA benefits, industry-changing or otherwise. But there are ways to "guesstimate."

### 'GUESSTIMATING' ROI

One approach borrows heavily from the world of business process optimization, which involves the sometimes tedious work of scouring workflows for inefficiencies and then religiously monitoring the workflows with a variety of scorecards. Another option is to assign numerical values to attributes such as complexity of systems, services and processes and then do the math to come up with the relative value of various SOA choices. A third way is to compile the growing number of survey results about expected SOA payoffs in various business categories, then use the accumulated wisdom of the crowd as a measuring stick for one's own SOA efforts. A fourth tack that's unfortunately consistent with the ignominious tradition in IT of trafficking in FUD—fear, uncertainty and doubt—is to talk about the perils of being carried along by the SOA wave only to drown in costs associated with managing a growing and unruly stable of services.

Most of these methods carry the whiff of quantitative respectability, though many interviewed for this article said that, for the time being, attempts at measuring SOA ROI yield only highly subjective and very rough approximations of true value.

**“There’s always a huge fudge factor in terms of just how you account for all the intangible assets and costs,” said Bill Hayduk, founder and president of IT services organization RTTS in New York City. “So much of the ROI calculation depends on the person doing the calculating.”**

## **C IS FOR COST**

Still, SOA advocates are not going to be let off the hook anytime soon when it comes to pitching new projects that have some grounding in business and financial realities, especially given who’s on the receiving end of the pitches. More than 50 percent of respondents in BEA Systems’ November 2006 “SOA Cost Benefit Survey” said that top executives—the CIO (22 percent), CTO (18 percent) or CFO (12 percent)—were the primary SOA sponsors within their organizations.

C-level approval for big IT endeavors is nothing new. But it may be a mistake, at least according to BEA, to use a traditional IT yardstick for measuring the potential value of a services-based approach. In a July 2006 Exec2Exec newsletter, the company pointed out that typical IT projects affect just one line of business and a limited set of business processes. In contrast, the tentacles of a SOA project often reach throughout an organization.

Help desks may receive fewer calls due to proactive governance and monitoring. Developers may see their productivity increase as they move to a more incremental approach to coding. System architects may benefit from having a strong, extensible foundation for future projects. And by exposing SOA interfaces to customers and business partners, a company conceivably can shore up existing value chains and even, à la GalaxyPlus, reach new markets.

These and other SOA claims too often sound breathless. One way to do a sanity check is to steal best practices from business process optimization, another discipline that looks out broadly on a business’s day-to-day landscape. In a Sept. 16, 2006, Web seminar sponsored by Sun Microsystems, titled “ROI of SOA,” Pradipa Karbhari gave a thorough account of how to first build a business case and then measure the impact of a SOA implementation.

Karbhari, national director of Web services and SOA at Milwaukee-based technology consultant SilverTrain, emphasized the importance of thoroughly cataloging mundane business operations and their many subtle inefficiencies. Are electronic orders somehow being delayed in the entry phase? Are the preferred customers getting the right discounts? How accurate is the shipping date promised to the customers?

Understanding the answers to questions like these is one way to estimate the potential value of a SOA project, Karbhari said in her presentation. The answers also can be used to build scorecards that attempt to show cause-and-effect relationships between subterranean changes to IT plumbing and bigger-picture business objectives.

Say the goal for next quarter is to grow overall revenue by 20 percent. Hitting this target, in Karbhari’s example, depends in part on increasing online sales, which in turn might be nudged along by improvements to customers’ online experience when it comes to order entry, discounts and ship dates.

This kind of operational forensics work is tedious, and many a hotshot technologist has quietly groaned when the operations wizard expert stopped by for a visit, clipboard in hand. Yet these same methodologies seem to point the way to a respectable set of SOA ROI estimates—though Karbhari admitted the set is incomplete.

“The challenge is that the architecture itself doesn’t offer a quantifiable means for organizations to calculate a return,” she said. “Instead, the architecture needs to be considered in the larger context of business process optimization and business agility and as more of a long-term investment.”

## **DO THE MATH**

A career coder might blanch at the prospect of inventorying his employer’s many workflows and instead prefer the model suggested by David Linthicum, a SOA consultant based in Reston, Va. Linthicum, a former associate professor of computer science and a prolific author, advocates an approach that limits its analysis to the more familiar confines of IT.

In a November 2006 article, titled “Determining the ROI of Your SOA,” Linthicum outlines a straightforward, quantitative model based on two of the most enticing SOA promises—saving money by reusing services and making money by quickly adapting to new business conditions.

The value of reusing services, according to Linthicum’s paper, depends on at least three variables—the number of services that are reusable, the complexity of services and the degree of reuse from system to system. A system composed of 100 potentially reusable services with an overall degree of reuse of 50

percent and an average services complexity of roughly 300 function points has an overall value of 15,000 function points (100 services x 0.50 x 300 function points per service).

According to Linthicum, most firms know roughly what they're paying per function point, an ISO-recognized metric to express the amount of business functionality an information system provides to a user. So his simple equation is one way of measuring gross value from a SOA deployment. The final step, subtracting implementation costs, gives the net value of the system.

Using a different set of three variables—the degree of change over time, the ability to adapt to change and the relative value of change—a similar equation can be used to assign a dollar value to the increased agility that comes with SOA. Here, however, the margin for error starts to feel uncomfortably large. How, for instance, do you assign a specific value to the ability to adapt to change?

"Determining... SOA's ROI is not an exact science," Linthicum wrote in his concluding paragraph. "[B]ut with some analysis and some realistic data points, you can figure out how much value your SOA implementation has brought you, or will bring you."

## **SURVEY SAYS**

Insecurity runs deep in IT, and no matter how thorough a company's self-assessment of a given technology strategy is, even the smartest managers eventually start looking for validation in the market at large. When it comes to SOA, what these managers will see is a raft of surveys about the expected value from an all-services, all-the-time approach.

Unfortunately, several of these surveys spring from vendor-sponsored research that, like it or not, is a fixture in the technology industry. BEA's aforementioned SOA Cost Benefit Survey—a survey of North American and European companies with annual revenues greater than US\$1 billion conducted by GCR Custom Research—indicated that 40 percent of firms expected to spend \$1 million or more on SOA efforts during the next 12 months, a shockingly high number especially since the same survey reports most of these companies are currently engaged in only two or three SOA projects.

"A million dollars for a couple of SOA projects—wow," wrote Joe McKendrick, SOA research consultant and ZDNet contributing editor, in a November blog posting. "That seems kind of high, and beyond the reach of most organizations. I don't think most managers can go to management requesting a million dollars for a few SOA projects."

Broadly speaking, however, the BEA survey is consistent with other, more independent market research. For example, companies in the BEA survey said they expect their SOA deployments to trim integration costs by 18 percent and maintenance costs by 20 percent. A July 2006 survey by AMR research found similar savings in initial costs (20 percent) and total-cost-of-ownership (22 percent), categories roughly analogous to the two used in the BEA survey.

Compared with the BEA survey, the AMR research was based on a much broader and deeper sample. More than 1,000 people, 651 of whom were using or considering SOA projects, completed Web-based surveys. Respondents were split roughly evenly between the United States, Europe and Asia and came from manufacturing, retail, telecom, banking and other industries. Nearly half of those in the SOA sample came from companies with annual revenues of less than \$100 million.

Among the other expected tangible improvements from SOA in the AMR results:

- Increase ROI by 22 percent.
- Improve employee productivity by 27 percent.
- Reduce errors by 28 percent.
- Increase users of the services-enabled application by 22 percent.
- Shorten time to receive measurable value to the business by eight months.
- Decrease implementation times by eight months.

These and other survey results from many market research firms—Forrester Research plans to apply its Total Economic Impact model to SOA later this year—suggest another passable way to decide whether a SOA project is worth it. Namely, if the implementation won't result in payoffs in line with industry norms, it probably is not.

## **FUD AND OTHER FUNNY BUSINESS**

Yet another way to think about ROI comes from the flip side of the mostly sunny attributes spelled out in SOA-related market research and marketing material. This darker line of thinking, which predictably warns against the wait-and-see approach, holds that nothing can hold back the rise of loosely coupled services and that, ready or not, SOA is set to sweep into nearly every IT organization. Businesses that have plans to manage and govern this inevitable bloom of services, many of which will spring from users who may be savvy about business problems but naive in the ways of IT, will succeed. Those that don't will fail.

Of course this is FUD at its finest, invariably doled out generously by vendors or consulting firms that stand to make a buck from SOA-branded software or professional services. However, at least one analyst said it's probably not prudent to completely ignore the warning.

"Enabling certain business users to manage and evolve business processes without direct IT involvement is one of the most ambitious of SOA goals, and for good reason—such a vision requires bulletproof governance as well as mature tooling that's only now beginning to reach the market," wrote ZapThink senior analyst Jason Bloomberg in a January 2007 ZapFlash research note.

Beyond the nod to governance, Bloomberg's comments hint at another trend in SOA analysis that, aside from providing another way to think about ROI, may have profound implications for in-house technologists of all stripes. Namely, SOA seems to be simultaneously eroding and elevating the place of IT in business.

Asked about SOA ROI, Bob Eve, vice president of marketing at SOA data services firm Composite Software, wrote that one measure of success in a recent SOA-based portal project was that "IT operations didn't need to get involved." Through its media representative, Serena Software wrote that SOA, "by creating clear and concise definitions of business applications and associated bills of material," should make it easier to move IT tasks offshore.

Is this the further marginalization and commoditization of technology? Perhaps. But in anecdotes like these, Iona Software CTO Eric Newcomer also sees a surge of SOA-inspired efforts by companies to finally reconcile their IT spending with their overall business objectives.

"Up to this point in time, IT has been much more focused on automating previously manual activities, and the ROI was easier to calculate," said Newcomer. "Now that the majority of manual tasks has been automated, corporations are starting to take a look back, rationalize what they've done and align spending with corporate instead of departmental goals."

What's most surprising is that it's the services-focused approach itself that seems to hold the key to evaluating IT as more than a cost sink and instead as a bona fide means to reach new markets and customers.

"Without something like SOA in place," said Newcomer, "it is difficult, if not impossible, to measure IT investment relative to its impact on top-line revenue."

So to measure the return on investment from SOA, it sounds like you first have to implement...well...SOA.

<http://www.sdtimes.com/article/special-20070301-01.html>