


## Putting It All Together



I am on the North Carolina coast today, and I am surprised to learn that more than 2,000 shipwrecks have occurred off these coasts. Why so many? Hurricanes, treacherous shoals, unpredictable weather, and war caused the majority of the wrecks. My family and I rented jet skis and went exploring around the area to check out and learn about the history. It was neat to see how many other captains had “learned” about the ways to predict and avoid such hazards in the area and were able to successfully reach the North Carolina shore.

In the same way, this final chapter helps companies create a plan for their journey toward innovation. A set of guiding principles and goals is the focus of this chapter as you continue your flex-pon-sive\* journey.

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## GROWTH, BUSINESS FLEXIBILITY, AND INNOVATION ARE THE RESULTS OF A FLEX-PON-SIVE\* COMPANY

In some ways, today's business environment is similar to the Internet era, when in the rush to embrace the Internet and to get a competitive edge, companies became preoccupied with e-commerce. In fact, instead of imagining a hybrid world, everyone said that "clicks would replace bricks" and that retail would be changed forever. Others thought that it was about more than transactions; they saw the larger vision of e-business. E-business was a new way of doing business. You can see the similarities to where we are today—the rush to adopt emerging technology and the misconceptions that business changes suddenly instead of gradually.

And today there is a bigger world emerging on the horizon. From the work that IBM has been doing with business leaders and from its client engagements, they have produced a study by the Institute for Business Value (IBV) on the business value of flexibility and SOA in this new world. The results showed that those companies moving to the flex-pon-sive\* world were seeing the results in flexibility from SOA; 97% justified their first SOA project based on cost, 100% saw increased business flexibility, and 51% showed increased revenue growth. The 30 customers who produced these results are plunging into today's innovative and flex-pon-sive\* world with an understanding that was lost in the e-business world. This new model requires that businesses change, but at an incremental pace. This study complements the CEO study that we analyzed at the start of this book, which showed that companies were primarily pursuing growth again and only secondly cost-cutting. Since that study was completed, competitive pressures have only increased—due to advances in technology, the rapid advent of globalization, and the consequent flat world. If there's any change, it's the insertion of an important qualifier—profitability. Profitable growth is now at the top of the list.

And in a follow-up study, our recently released Global CEO Study 2006, 765 CEOs in every major industry told us that the pressures

to achieve profitable growth had introduced a new mandate—the need to innovate:

- Two-thirds of the CEOs believe their organizations will need to introduce fundamental, radical changes in the next two years to respond to competitive pressures and external forces.
- Fewer than half say they've managed this magnitude of change successfully in the past.

With the growing sophistication about how and where innovation occurs, companies know that business flexibility is the driver. New ideas don't just come from inside their company, but from wikis, blogs, partners, customers, and even competitors. This world requires collaboration to solicit the ideas and flexibility to respond to those ideas. The insight is that CEOs now say that more of their ideas for innovation come from partners and clients than from their own employees.

The interesting commonality here is that all these new ideas come from some sort of collaboration, but to act on those ideas, business flexibility must be a number-one priority.

Among all the CEO areas of focus we examined, business flexibility and collaboration showed the clearest correlation with financial performance, whatever the financial metric—revenue growth, operating margin growth, or average profitability over time. Beyond product or service innovation, more CEOs are looking to business process innovation as a key competitive advantage. As one CEO put it, “Products and services can be copied. The business process and the model is the differentiator.” Another CEO commented that new product introductions in his industry offered only one month of market exclusivity before they are duplicated in the marketplace.

This whole discussion is key because it shows that a few of the top areas we need to tackle are the alignment of business and IT, especially around joint goals, and a focus on those processes that will allow companies to differentiate themselves.

This book helps address these key questions:

- What are your company's business goals, and how do you align your whole company, including business and IT, around those goals?
- What governance mechanisms and mandates do you have in place to drive those goals throughout your corporation? Chapter 6, "SOA Governance and Service Lifecycle," addressed how to think through governance, one of the most important indicators for success.
- What flexibility and innovation are needed for those goals to be reached?
- What business processes need innovation to be successful? Chapter 3, "Deconstructing Your Business: Component Business Model," detailed one method to determine the core processes that you should focus on for success.
- How does your company create an environment of innovation and the power to act upon it?

A company cannot continue to succeed if it comes up with some superb ideas through powerful focus and collaboration, but fails to act upon them or is not flexible enough to respond quickly to market forces. Governance and a focus on the right processes coupled with flexibility to act are all critical for a flex-pon-sive\* company.

So the bottom line is that companies must have change to innovate. Given that every business is so tied to technology, this conclusion places a premium on the underlying technology that runs your company.

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## NOW, HOW DO YOU CONVINCe THE BUSINESS?

Behind every successful service oriented architecture (SOA) is the Business. With its promise of using existing technology to more closely align information technology (IT) with business goals, we have seen that SOAs have proven to help companies realize greater efficiencies, cost savings, and productivity.

Still, as many IT managers have learned, without executive endorsement, an SOA will be relegated to the confines of IT as opposed to being recognized as an organization-wide business strategy. While no two organizations are exactly alike, there are consistent themes that arise when aiming for approval to build an SOA.

For those many IT leaders who are facing the seemingly daunting challenge of presenting the importance and value of an SOA strategy to the executive suite, following are ten tips for selling SOA to the Business Leader. A few tips.

1. **Don't call it SOA:** Explain the value and benefits in business terms that reflect the organization's goals such as cost reduction, productivity, competitive advantage, etc. before diving into a technical conversation.
2. **Vision, not version:** Outline the immediate and long-term results from this strategy while avoiding discussions about specific version numbers.
3. **Build consensus throughout the company:** Prove the value of SOA through small, test projects conducted with volunteer departments in the organization. Make sure to include those department leaders when you later roll out the SOA.
4. **Start small yet live large:** When selecting those small test projects, choose to integrate and automate those business processes that can have the most widespread, positive impact across the organization.
5. **Knay on the TLA:** While it's easy to get caught up in the technical jargon that is fully understood among peers, remember that three letter acronyms (TLA) can sound as eloquent as pig Latin when trying to convince your CEO of a major, new strategic undertaking.
6. **Get to the powerful points:** Without relying on complex slides that can deter from the true purpose of the meeting.
7. **Conviction and prediction:** Articulate goals for each step along the SOA path. By publicly stating and achieving realistic goals

for the organization based on an SOA—increasing productivity or decreasing costs by XX percent—you can bolster confidence in the project and overall strategy.

8. **Reference third party validation (see the next section in detail!):** Cite analyst data on the growth and adoption of service oriented architectures and point to relevant SOA success stories within your industry (and by your competitors).
9. **The close:** SOA what? Outline specific before-and-after scenarios of the impact of SOA on your particular organization to help disarm any naysayer and gain CEO approval.
10. **Qualify and quantify:** Set goals, track performance, and refine methodologies at every step along the way. Be sure to share the results with interested parties on a regular basis to demonstrate the success of your company's SOA journey.

The opportunity to evangelize SOA to company executives is rare. To make the most of your extended elevator pitch, remember to articulate business benefits, reiterate bottom line results, and illustrate the company-wide value of an SOA.

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## SOA AND WEB 2.0 BECOME THE ENABLERS

A flexible business—a flex-pon-sive\* business—requires flexible IT. Innovation requires change and SOA makes it easier for companies to change. Given this focus on business flexibility, growth, and innovation, the technology that most expedites these business goals is service oriented architecture (SOA). According to most of the analyst firms, SOA will become the de facto standard for business flexibility and collaboration among companies.

As we discussed in this book, SOA is all about an approach that views a business as linked services and considers the outcomes they bring. Because it is built on open standards, it is a way for businesses to tap into their existing technology investments and flexibly link previously fragmented data and business processes, creating a more complete view of operations, potential bottlenecks, and areas for growth.

As we learned, advances in open standards and software-development tools have made SOA applications easier to develop.

However, this does not mean that everyone is deploying SOA applications; the market is at the early stages of adoption. Services that join together to support business processes within SOA are designed in such a way that different parts can operate independently of one another. Because of this, any one feature can be changed without breaking other parts of the application. This makes companies that have adopted principles of SOA much more responsive to changing business requirements than those that rely on traditional software development, with one feature change potentially derailing an entire application.

The companies that master SOA technology operate more efficiently than their competitors and adapt more quickly to changing business conditions in their industries. And as we discussed earlier, Web 2.0 facilitates the collaboration aspects, and SOA enables the infrastructure for flexibility.

A great example is a retailer deciding whether to issue a credit card to a customer. It could use the technology to tap different sources and pull together information on a customer's creditworthiness and buying habits. A bank can use the same computing services to handle account transfer requests, whether they are coming from a teller, an ATM, or a Web application, avoiding the need for multiple applications. A manufacturer could measure more closely what is happening in its production process and then make adjustments that feed back instantly through its chain of suppliers.

SOA enables profitability through revenue growth and cost cutting. SOA enables innovation through collaboration and flexibility.

Your checklist for becoming a flex-pon-sive\* business should include the following:

- Understand SOA and Web 2.0. Chapters 3 and 4, "SOA as the DNA of a Flex-pon-sive\* and Innovative Company," start to articulate what you need to consider, but the goal of this book is not to make you technology experts. Rather, the goal is to provide you with enough information to ask the right questions to begin your journey.

- Develop the skills needed to embrace these new technologies.
- Understand the business implications of the new technologies.

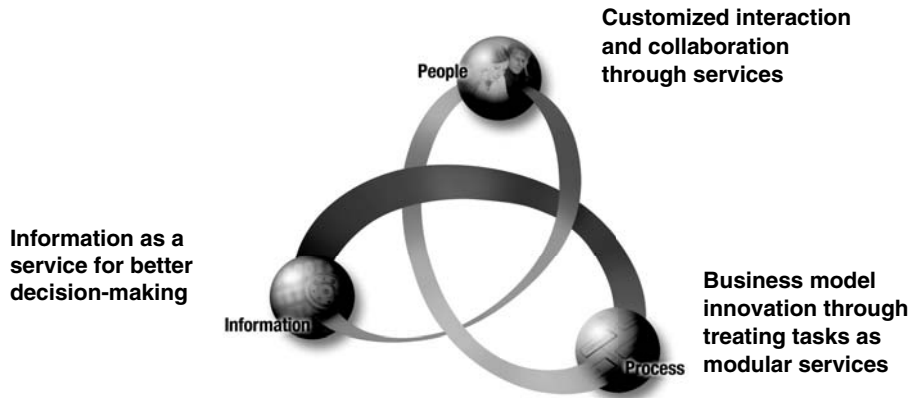
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## LEARNING FROM OTHER COMPANIES IS CRITICAL AROUND THE ENTRY POINTS

The companies that master SOA technology can operate more efficiently than their competitors and can more quickly adapt to changing business conditions in their industries. Meeting innovation priorities requires the ability to change flexibly, and companies should take a business-centric view of SOA (as opposed to an IT-centric view) to achieve these innovation goals (see Figure 11.1). As discussed in Chapter 4, “SOA as the DNA of a Flex-pon-sive\* and Innovative Company,” a recent study of more than 500 companies conducted by Mercer Management Consultants showed that these companies are approaching SOA from entry points of people, process, and information, or all three. The lessons learned from the SOA entry points are furthered by the IBV study about SOA business value. This study of approximately 30 customers reveals some other lessons about revenue growth and cost cutting. 51% of the clients interviewed for this study expected their SOA deployment to grow their revenue, primarily by unlocking the potential of an existing process. To explore this in a real-world setting, review a bank’s processes, such as a residential mortgages system, credit card system, or loan-servicing system. Following the IBM case study, an evaluation of those processes should reveal reusable parts, such as “submit loan application,” “perform credit check,” “determine credit line,” or “calculate interest rate.” SOA enables IT to recombine these reusable parts to create new products, such as a tailored home equity line of credit. With SOA, the business strategist is free to innovate.

Companies that started from one of these entry points have stories to illustrate the lessons that can be learned from other companies’ experiences. Enterprise transformation powered by an SOA is really the holy grail the customer seeks. This enterprise transformation can begin with a set of entry point projects as a way for customers to start their transformation journey.





Source: IBM Global CEO Survey, 2006

**Figure 11.1** Companies are taking an increasingly business-centric approach to SOA.

## PEOPLE AND COLLABORATION

### CASE STUDY

#### PACORINI

Pacorini is an international company based in Trieste, Italy. It delivers coffee, metals, foods, and general cargo. The company processes these goods for quality control and schedules them to arrive just when they are needed in the customer's supply chain management (SCM) process. A highly regarded company, Pacorini has 22 locations and 550 full-time employees; it comprises several different companies across three continents and 11 countries. As a market leader in the delivery of green coffee, Pacorini has historically maintained its competitive position by offering timely customer service. Although it used advanced technologies and leading SCM software, the company's internal business processes were not integrated. It was a challenge to manage siloed information and to provide consistent customer service in a 24x7 world. Consequently, Pacorini was concerned about its ability to stay ahead of its competition.

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Starting with an analysis of its current business processes to define priority tasks and link them using streamlined workflows, Pacorini built a framework of integrated online processes. The company put into place an SOA to construct information retrieval and work processes using repeatable information services customized to fit every task in a consistent manner. The company has implemented an order-enabled portal solution for both internal and external customers. It has also deployed a system-to-system order-management solution with its largest coffee customer in Italy. Pacorini is now in the process of applying the communications standards it developed with its largest customer to nine of its other top ten customers. In the future, it will extend this solution to customers in metals, freight forwarding, and distribution areas. Online ordering will enable the company to automate approximately 30,000 transactions this year, a projected savings equivalent to four full-time employees.

### **CASE STUDY**

#### **BUSINESSMART AG**

A second example of the people entry point is businessMart. businessMart AG was founded in February 2000 and currently employs a workforce of 28. businessMart conceives and realizes electronic marketplaces and e-business systems for commerce, industry, and handicraft in sectors with catalog-based articles. Measurable improvements and savings are achieved with consistent orientation to the sector processes of its customers and to the in-depth integration of the suppliers and customers' computer systems. The broad spectrum of businessMart's services ranges from conception through technology modules, all the way to the founding of independent, market-leading portal-operating companies. businessMart now carries out the ordering processes of more than 60 suppliers with nearly 3,000 customers and more than 25,000

orders per day. businessMart currently operates two sector portals and additional projects are in preparation.

### **Better Integration—but How?**

The continuous growth of the portals gives businessMart AG increased transaction revenues and clear growth in subscribers. Accordingly, more outside systems need to constantly be connected to the portal. The decisive head start in technology—the far-reaching integration of the suppliers' and customers' computer systems into the portal—was to be expanded even further for a more economical conversion. businessMart went in search of a solution that would significantly simplify the interface management and provide a reliable, flexible, and easily controllable platform for the exchange of business process information.

### **Conversion of the Architecture**

businessMart created an SOA and implemented it throughout the entire portal. Within that context, the technology components were connected in independent, individual modules, or “services.” Using the modules, business processes no longer needed to be conducted through the bottleneck of a portal center, but instead could be processed in parallel in the allocated modules. The architecture connects the customer systems with the available applications, using a central interface for all the portal components. Using component architecture enables a significantly faster development. The computer systems of new clients can now be integrated just as quickly as separate modules. Efficient and reusable application modules are created, resulting in software maintenance and care that is significantly more economical. In addition, the consistent use of fallback rules ensures that the system stability is not threatened by the failure of a single (outside) component.

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### **The Advantage of the New Solution**

The decisive additional value arises for the customers of businessMart AG through the now unrestricted transferability of individual portal services to outside software systems. The most important portal functions can now also be used directly in the customers' usual software via web service interfaces. To call up product details with pictures, exploded diagrams, operating instructions, or even supplier searches, customers no longer need to exit their own merchandise information computer system. These portal services are seamlessly integrated into the software and passed online from the portal. The customers of businessMart profit from faster and more comprehensive possibilities for intervention: Time-consuming, manual information processes were digitized and have thus been made more economical.

For the integration of the customers' various back-end systems, businessMart uses IBM's SOA-enabled software to connect 16 different SAP systems. Now marketplace participants can simplify the flow of information as well as increase their sales and reduce their procurement costs.

In e-business, the contribution margin killers are unclear order positions that generate manual questions by telephone and annoyances through wasting time. This step can now be processed significantly more efficiently through the portal: If the system recognizes an obsolete article number, an unclear entry of a packing unit, or even a format error, the supplier or the customer is contacted in real time. The supplier or customer can immediately remedy the problem directly in the portal through a correction or by creating a conversion rule.

### **Well Equipped for the Future**

With the transfer of the portal functions to the customers and suppliers' systems, the first step was taken in the expansion of the business model. In the future, companies will no longer exchange

their order information only by means of contacts; they will instead allocate applications and have joint access directly to IT services. A portal will have to take over the role of the interface management to keep the complexity at an acceptable level for the market partner. While in search of a modern technology base, businessMart also found an engine for an evolutionary step.

## PROCESS

### CASE STUDY COSCON

COSCON is China's largest shipping container company. As a leader in the shipping and logistics services market, COSCON has 127 container vessels and has shipped more than 320,000 containers to date. Its ships are regularly deployed to ports across the globe, each with its own regulations. To support these diverse requirements, COSCON had an electronic data interchange (EDI) system that consisted of 21 different applications, with a variety of architectures and development languages supported on multiple servers. As COSCON's business continued to grow, its complex IT system hampered the company's ability to respond quickly to its ports of call and its external and internal customers.

To become more competitive, COSCON integrated its existing EDI applications by deploying an SOA. The open standards-based technology approach enabled COSCON to connect its silos of data and software applications to allow its internal business to better interoperate with its customers, partners, and suppliers. This solution leveraged the existing resources within COSCON and augmented it with a solution that improved productivity, allowing for more efficient communication and enabling COSCON to quickly react to changing market conditions.

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With countries constantly changing their customs requirements, with a change occurring every two to three days and almost one month per change required in the current system, the need for flexibility—becoming flex-pon-sive\*—was critical to deployment. Because of these demands, COSCON chose to implement process integration using SOA. The process entry point was chosen to improve the communication between IT and business as well. Some of the processes COSCON chose to focus on were adding ports and reports that the business side needed. By using the process to create business services of the key tasks, COSCON was able to meet government (customs) regulations and to integrate with many applications in different languages. COSCON deployed an SOA approach to consolidate multiple EDI systems and processes.

COSCON has experienced a dramatic increase in internal efficiency and has achieved higher levels of customer satisfaction. COSCON can now respond more quickly to the changing regulations set by foreign ports. In addition, COSCON has reduced the time it takes to configure and modify its IT system, from two to three months to just two to three days. This time savings and greater development efficiency has resulted in higher customer satisfaction levels and has offered sizable cost savings. In addition, it allows COSCON's business personnel to communicate with IT staff and better understand the IT system, and the IT people can also better understand business operations. As we discussed earlier, this alignment of IT and business is crucial for business flexibility.

“Over the past few years, we have witnessed an increase in demand for our shipping services,” said Mr. Ma Tao, Deputy General Manager of Information Technology at COSCON. “This increased interest has placed additional pressure on our business, helping us realize that we needed to revamp and invest in our internal technology infrastructure to position our business for future growth.”

**CASE STUDY****AUTOMOBILE CLUB OF ITALY**

Whether navigating the crowded streets of Rome or maneuvering the narrow roads that hug Italy's coastline along the Adriatic Sea, drivers count on the Automobile Club of Italy (ACI) to deliver emergency roadside assistance.

As the nationwide provider of roadside services, ACI relies on technical support from ACI Global, which maintains a call center that provides 24x7 assistance. ACI Global has agreements with automotive manufacturers, fleet and car rental agencies, tour operators, banks, and insurance companies to provide multiple products and services via its call center. Center operators handle approximately six million contacts annually, using advanced technologies to provide customers with timely and effective service.

The complete ACI operational network includes 3,000 assistance vehicles, 1,000 operating centers, and 5,000 operators.

ACI Global strives to develop, implement, and maintain value-added services that simplify the operations of its customer companies. The firm had been generating such improvements primarily through continually offering customers new and innovative services that encouraged increasingly rapid response times to roadside emergencies. Unfortunately, isolated business processes and outdated software-design efforts limited ACI Global's ability to redefine its business offerings, frequently delaying the delivery of new products and services.

To satisfy customer expectations for new and innovative services and speedy response times, ACI Global wanted to implement a standardized, flexible design infrastructure that would encourage the rapid creation and delivery of new business functions, in turn streamlining several call center processes and shortening service delivery.

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ACI Global worked to design and implement an automated call center called “Centrale Operativa” built on an SOA. Now ACI Global staff members can leverage the SOA’s open standards capabilities to easily design new support services for customer operators, including automated call-routing systems and improved call tracking and management. The SOA also encourages the reuse of code and processes to further streamline the creation of new services.

ACI Global expects automation and integration to lead to a 20% improvement in customer call response times and a 30% increase in call center operator productivity.

These lessons were learned:

- It was very important up front to involve all the stakeholders.
- Focusing on the business needs made for a smoother production rollout.

## INFORMATION

### CASE STUDY

#### PEP BOYS

In 1921, four young neighborhood entrepreneurs in Philadelphia, Pennsylvania, pooled \$200 each to start what has become the largest automotive aftermarket retailer in the United States. Today Pep Boys Auto employs more than 22,000 people at its 593 stores in 36 states and Puerto Rico, and reported more than \$2.2 billion in sales in 2004. Pep Boys differentiates itself from competitors by being the value alternative to car dealerships, providing exceptional customer service, and being the only retailer that serves all four segments of the automotive aftermarket—do-it-yourself, do-it-for-me, buy-for-resale, and replacement tires.



Pep Boys is leveraging SOA to drive its business goals. In 2003, Pep Boys started to analyze its point of service (POS) and Service Work Order System (for bay service) and realized it did not have the right architecture or applications. The first thing the company did was set up its foundational technical base for SOA with a focus on connectivity and reuse. In this phase of its SOA deployment, Pep Boys leveraged a wide array of existing systems, including IMS/CICS/Old Java. They used a standards-based approach, making approximately 45 calls to back-end systems using web services (WSDL interfaces). They built roughly 200 functional services, with no migration of data required.

For the next phase, Pep Boys extended its deployment to include choreography of several retail processes, including returns and invoicing/billing. They choreographed processes/workflow consisting of 15–20 services. This put the key pieces in place to push new and enhanced functions to its employees in the store. The capabilities enabled by its SOA allowed sales reps to have enhanced, more productive customer interactions. The sales reps were able to turn POS screens around so that they could up-sell and cross-sell using new functionality. At the same time, Pep Boys created and was able to use a single view of the customer for various in-store activities. This is where they focused on the information entry point. The initial pilot was completed in four months at 12 stores, and the total rollout to 590+ stores was completed in April 2005.

Pep Boys started its IT transformation by replacing its outdated POS environment with an IBM Open-POS solution—a next-generation POS configuration built on Java technology-based 360Commerce software running on IBM Store Integration Framework, a specialized instance of an SOA architecture for retail customers, comprising hardware, an operating system, and services from IBM.

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The business benefits of this SOA entry point of information in combination with other SOA entry points were that Pep Boys experienced faster checkout and increased responsiveness to customer needs, and enhanced employee productivity and efficiency. “Now we can take debit cards, which have a lower fee rate than credit transactions,” explains Pep Boys’ Bob Berckman, Assistant Vice President.

## CONNECTIVITY AND REUSE

### CASE STUDY

#### U.S. OPEN

The U.S. Open is a tennis event sponsored by the United States Tennis Association (USTA) that is a not-for-profit organization supporting over 665,000 members. It devotes 100% of its proceeds to the advancement of tennis. The USTA leverages SOA to support its business goals and has partnered with IBM since 1990 as its technology supplier. More than 4.5 million online viewers tuned into the United States Tennis Association’s (USTA) U.S. Open held in 2006.

The USTA created an integrated scoring system for the U.S. Open. This scoring system helps collect data from all courts and then stores and distributes the information to USOpen.org, the official website of the U.S. Open. The ability to immediately and simultaneously distribute scoring information—with IBM supporting more than 156 million scoring updates for the US Open in 2005—is illustrative of the value and capabilities of a larger technology industry trend known as SOA. The technology supporting the U.S. Open is an example of how SOA can help an organization use its existing computing systems to become more responsive and more closely aligned with the needs of its customers and partners.

For example, umpires officiating at each of the U.S. Open matches hold a device they use to keep score. These devices feed into a

database that holds the collective tournament scores. From there, the constantly changing scoring information is fed to numerous servers that can be accessed through the U.S. Open website. When visitors go to USOpen.org and click the “Live Scores” link, they see the scoreboards for all 18 courts that are updated before the visitors’ eyes. This is then used to present visitors with instantly updated scoring information that is presented on the site’s On Demand Scoreboards and the “matches in progress” pages.

More specifically, the U.S. Open’s scoring system relies on an integration middleware that is a critical part of an SOA. Software acts as an Enterprise Service Bus to transform the messages in-flight from the courts to the devices and to the U.S. Open Web site. A database is also used to support the distribution of the scores and statistics.

Scores and statistics can also be instantly viewed on the Web site and compared with past U.S. Open events and similar competitions. Additionally, IBM technology is helping support the integration of information and statistics related to the tournament, such as individual scores and how they compare with current and past performance of the players and competitors.

When you consider the speed at which these matches are played, you quickly understand how the technology that supports the U.S. Open needs to keep pace as play-by-play results are accurately shared all over the world. The USTA’s selection of SOA ensures that fans around the world have a virtual seat to the U.S. Open, with scoring information delivered as it happens on the court.

Linking all of the tournament’s information and delivering scores in real time requires a sophisticated information technology (IT) infrastructure that can be easily accessed and understood by USTA subscribers, many of whom are not IT professionals. The USTA is at the beginning stages of an SOA, and the USOpen.org site will be able to accommodate a growing audience of tennis fans worldwide.

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In fact, nearly 660,000 fans attended the 2005 U.S. Open, making it the world's largest annually attended sporting event. Also, USOpen.org is among the top five most-trafficked sports event Web sites. The site has seen a 62% year-over-year traffic increase, with 4.5 million unique users, 27 million visits, and 79,000 concurrent real-time scoreboards in 2005. Additionally, since SOAs are scalable and flexible, they can easily meet the demands of the constantly changing USOpen.org Web site and the anticipated heavy site traffic produced by 27 million visits—with each visitor spending nearly an hour and a half per visit.

These case studies show that a central element of SOA is the repeatable business tasks that make up processes with modular, interchangeable software so that reuse is possible. Reuse of these services is one of the main drivers of flexibility. In addition, connectivity through an ESB is a key technology that companies need to select for their needs.

## CASE STUDY

### SPRINT

In 1899, Cleyson L. Brown sensed the need for a viable alternative to the Bell telephone company and launched the Brown Telephone Company in Abilene, Kansas. In doing so, he began what would become one of the most successful and innovative telecommunications companies in the world: Sprint ([www.sprint.com](http://www.sprint.com)).

After over a century of visionary leadership, Sprint has firmly cemented its reputation in the industry. The company has been first to market with nearly all the telecommunications technologies that inform how Americans communicate today. From the first fiberoptic cable and first digital switch implementations, to the first transatlantic fiberoptic phone call, to the only nationwide Personal Communications Service (PCS) network, Sprint has consistently proven that it is a leader in the telecommunications marketplace.

Sprint now counts over 26 million customers in more than 100 countries, offering them products and services that span traditional phone service, data solutions and Internet services. Sprint's Business Mobility Framework (SBMF) is the most recent extension of the company's innovative heritage and its commitment to providing products and services that help customers find new, more efficient and more profitable ways to do business. The SBF—a combination of network capabilities, a business approach and a development philosophy—aims to reduce both the cycle times and costs associated with enterprises that want to improve operational efficiency while offering new, mobile-oriented products and services to customers. It enables enterprise developers to extend their applications to mobile workers without having to be experts in mobile technology or the corporate IT environment. As it turns out, the SBF has opened even more doors than Sprint anticipated.

### **Focusing on Core Competencies to Tap New Markets**

Sprint is adept at serving its customers. For years, the company has rightfully prided itself on exceptional service delivery and support. What the company's management realized, however, according to Rodney Nelson, senior product manager at Sprint, was that the enterprise market was underserved.

"We realized there was a lot of untapped value," says Nelson. "Within our carrier network, we had a lot of services that people wanted." Services, in this case, meant application functions developed internally that could be extended to other companies for inclusion in their applications.

For example, Sprint developed a locator application in response to recent U.S. 9-1-1 emergency regulations that makes cell phone location information available to emergency personnel, who can then use that information to track people in need of assistance.

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Sprint realized that this service—the location piece of its application—would be very valuable to customers who manage truck fleets or need to track delivery drivers, or to any company presently using Global Positioning System (GPS) technology.

However, in order to get that value into the hands of the people—the enterprise customers—who could use it, Sprint had to envision and create a gateway whereby enterprise users, regardless of the platforms on which their applications are written, could have access to the service.

Other services include cell phone presence (indicating whether a cell phone is on or off), text messaging and sending voice extensible markup language (Voice XML) messages directly to mobile or wireline phones—integrating voice and data alerts. For example, an airline might broadcast a Voice XML message regarding a delayed flight to everyone on the flight list—to the most appropriate device.

### **A Standards-Based Path to Success**

Since Web services employ standards, anyone, regardless of their technology environment, can make use of the services Sprint has extended. Literally millions of IT developers can include Sprint services within their applications, and can do so easily.

In most enterprises, at least half of the applications are legacy applications, and the other half typically is made up of commercial off-the-shelf (COTS) applications. To integrate new services into these applications would be time-consuming, complicated and expensive. With Web services and Sprint, however, that manual integration is no longer necessary. Developers need only to integrate the Web Services Description Language (WSDL) into the code and connect to Sprint, where the service is run.

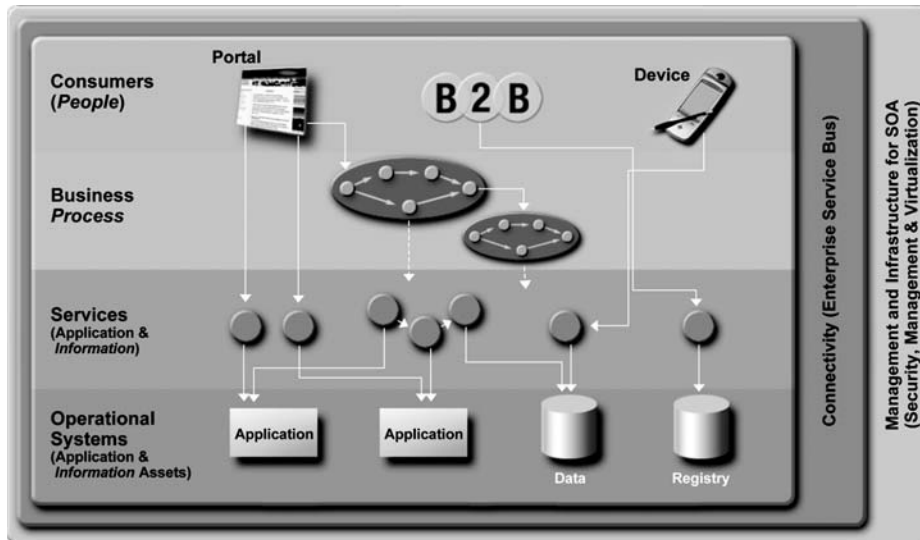
**The Benefits Are Much More Than the Sum of Their Parts**

Sprint has gained numerous new business opportunities, become a leader in the field of mobility workforce enablement and firmly positioned itself to remain a visionary in telecommunications.

Sprint customers that have implemented Sprint's services have seen exceptional cost savings. Developers report that implementation time and effort have been reduced between 40 and 50 percent compared with, most notably, traditional GPS application development. In addition, the time to acquire a location from a cell phone is 30 seconds with Sprint; traditional GPS devices can take up to six minutes. The location information is more accurate, and instead of implementing GPS systems—which can range in cost from US\$1,000 to US\$3,000—drivers simply need to carry a cell phone, which in some cases is free.

Sprint didn't have to build a whole new IT structure to support this new service. Through its SOA, Sprint just had to unlock and expose capabilities it already had embedded in other processes and applications. This is another great example where SOA is enabling market innovation advantage.

Though in its infancy now, these SOA entry points promise to unleash capability similar to what the Internet—the prior technology evolution of comparable magnitude—already did. Companies employing SOA entry points face more than just technical challenges—there are process challenges and cultural issues, too. In Figure 11.2, you can see an example of how the entry points work in the real world. From the users and consumers at the top, where the services are exposed to people, to the way that processes are broken down into reusable assets made up of application and information components, this picture shows a more powerful, flexible view for companies that can link these pieces together.



Source: SOA Community of Practice, SOA Solution Stack Project

**Figure 11.2** People, business processes, and information sources interact through SOA.

A great way to get started on this flexible IT piece of the equation is to take a self-assessment. In fact, with the assessment at [www.ibm.com/soa](http://www.ibm.com/soa), you can jointly assess both the business readiness and IT readiness. Answering a set of questions about the business, your technology, and your goals shows your location on a maturity curve. It also suggests projects to begin your enterprise transformation and help you learn the areas before a larger rollout.

You should perform these checklist items:

- Understand what other companies are doing with flexibility and SOA
- Determine how your company can best use an SOA entry point
- Take the SOA assessment to see where your company might begin
- Begin a pilot project to learn the SOA framework



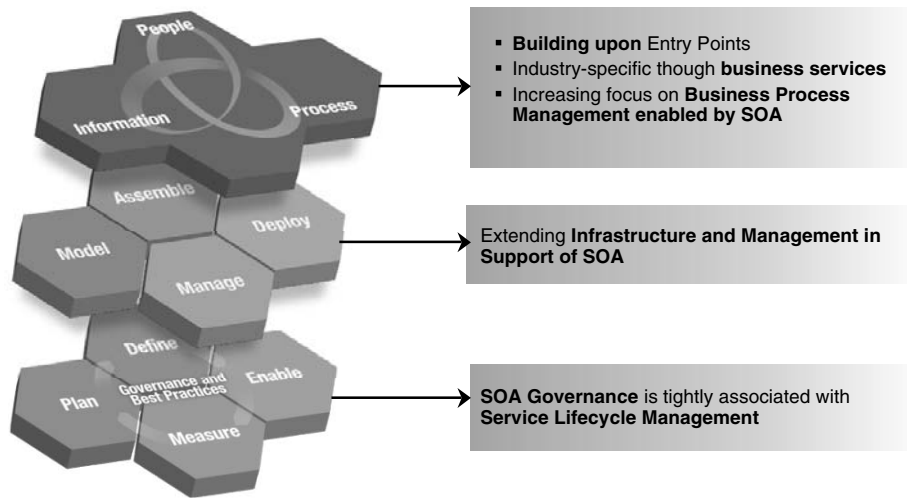
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## UNLOCK THE BUSINESS VALUE MULTIPLIER

The next step to SOA value comes when you start to link across the entry points of people, process, and information. This is when you start to realize a Multiplier Effect and your company's SOA business value accelerates. Creating entry points for SOA projects can deliver significant value on their own. People-, process-, and information-centric approaches yield results that can deliver strong ROI. However, the power can be exponential when clients apply SOA capabilities to people, process, and information aspects of a business in combination. We call this the Multiplier Effect and it changes the way you approach SOA.

The Multiplier Effect promises to deliver even greater value to clients by linking people, process, and information through SOA. The promise is that businesses will not only be integrated, but also built for change—built to adapt as market conditions demand greater attention by all parts of the business and shifts in resources. It's no great accomplishment to hard-wire a few databases to a user interface that, in turn, presents information mapped to a particular process. The real value is in creating flexible linkages of all three entry points in a dynamic environment. Clients are continually upgrading and changing processes, applications, databases, and views in the business. Through SOA, all parts of the business—its people, the key processes, and the critical information—can stay linked and supported through that continual change.

In Figure 11.3, begin your view from the center, where you can see the entry points we have been discussing. The companies that have started their journey have seen a higher ROI by combining the entry points of people, process, and information. This increase in flexibility and responsiveness comes from the focus on BPM and composite business services, which are made up of prebuilt, domain-specific modules that form highly customized applications. Composite business applications will become as predominant as the monolithic applications that exist today.

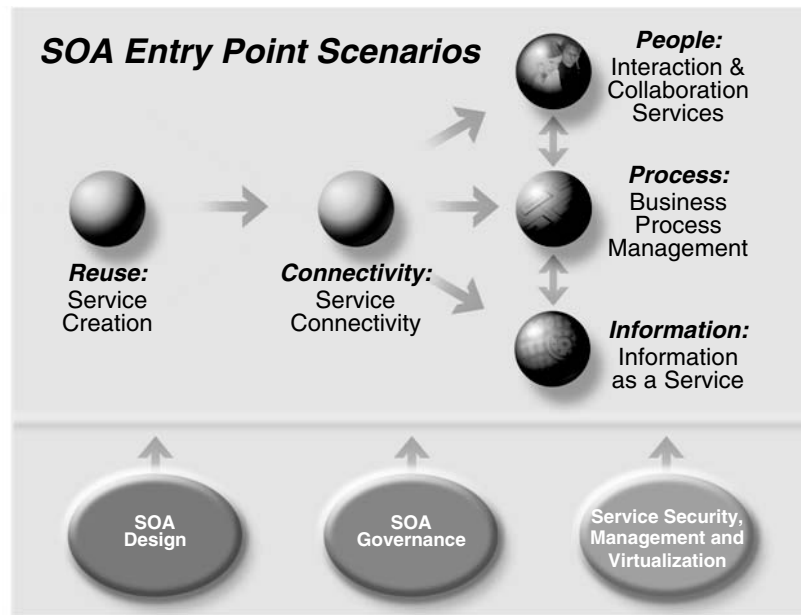


**Figure 11.3** The flex-pon-sive\* agenda through SOA

Those same companies, which have seen the value of moving up the stack, also see the power of the right infrastructure. Security, management, and virtualization are all different in a highly flexible SOA domain. These infrastructure services enhance resilience and security to accommodate decentralized services.

Add these items to your checklist:

- After your first SOA project, begin to see the linkages of people, process, and information. As you incorporate an SOA approach to address an immediate business problem, progress on the path to a broader SOA enterprise adoption. These projects generally incorporate reuse and connectivity, and involve information, process, and people (see Figure 11.4).
- BPM is more than a technology—it is a discipline.
- Composite applications will blend with monolithic applications. Check out the SOA business catalog (at [www.ibm.com/soa](http://www.ibm.com/soa)) to see where the future is moving.
- Make sure you evaluate your infrastructure and management capabilities to support your SOA projects.



**Figure 11.4** SOA entry point scenarios based on more than 3,000 SOA engagements

For a case study on the overall value of SOA and the impact of combining entry points, s.Oliver is a great example. Working with Sandra Rogers, Program Director, SOA, Web Services, and Integration at IDC, we explored this German company's approach to combining the SOA entry points and its best practices.

### CASE STUDY

#### AN IDC CASE STUDY: s.OLIVER

(From the IDC whitepaper sponsored by IBM, "Service Oriented Architecture as a Business Strategy," doc 204313, November 2006)

#### Background

s.Oliver Bernd Freier GmbH & Co. (s.Oliver) is a multinational retailer of apparel and accessories for men, women, and children. Founded in 1969 in Rottendorf, the company is one of the fastest-growing

*continues*

textile companies in Germany. With more than 2,350 employees, the firm currently operates 49 mega stores under its own management and approximately 240 stores that it runs in conjunction with partners. Its continuously revolving collections are represented in 1,000 branded shops and departments, and distributed through 1,330 stores in over 30 countries throughout Europe. s.Oliver's aggressive growth strategy has the company in line to double its revenues from €820 million in 2005 to reach €1.5 billion by 2010, fueled by further geographic expansion and partnering models.

The fashion industry is very fast-paced as companies such as s.Oliver compete to stay ahead of the curve of consumer preferences. The firm must be able to quickly identify trends and turn over new products, continually introducing new styles and products to stay competitive. Such volatility places heavy demands on the firm's IT environment to be in lock-step with the business, with the latest product information, and subsequently support these offerings throughout all operational aspects of the business, from creation through the entire order and fulfillment process.

The company also must frequently enhance its web presence with features to support what has increasingly become a critical go-to-market and partner-integration channel. With its international reach, s.Oliver must support multiple languages and currencies, yet maintain strong brand control.

### **The Business Challenge**

When Stefan Beyler, CIO and board member, joined s.Oliver in 2002, he and his team completely reviewed the company's entire systems and application infrastructure with an eye toward innovation. With many corporate divisions and an expansive product portfolio that typically turns over every four weeks, the firm's overall IT approach needed to be addressed in a whole new way. The company's systems environment had to better reflect the overall business strategy; therefore, according to Beyler, s.Oliver's strategy was

not about installing a new application, system, or server. Its strategy was all about speed and agility. The firm must be able to recognize and exploit market trends in real time, apply modern logistics, leverage e-commerce and mobile technologies, and continue to promote a highly collaborative and creative corporate environment.

The company's IT staff of nearly 100 employees is responsible for worldwide operations, with a shared-services model supported by two major data centers, one in Germany and the other in Hong Kong. s.Oliver's IT environment is a heterogeneous mix of many applications that have been acquired over the past few decades, including two major ERP systems and varied database and information sources. Thus, the team needed to manage a tremendous amount of interface logic (estimated at 1,500 data interfaces), and with such a rapidly changing business environment, keeping pace was becoming a daunting and nearly impossible task. The cost of making changes to application integration logic, which required custom coding, was also a widening concern.

Beyler was faced with the challenge of creating an environment that could readily adapt to new business requirements and processes, and manage increasing volumes of information. With corporate expectations of maintaining efficiency and keeping down cost, holistically changing over the company's existing base of applications was not an option. Utilizing SOA to create an on-demand business environment was determined to be the ideal approach that s.Oliver needed, as it would provide the mechanism to address growth and change, yet allow the IT environment to evolve in an incremental fashion with minimal risk, disruption, and expense.

### **The SOA Solution**

The company created the s.Oliver Federated Integration Architecture (SOFIA). In September 2005, s.Oliver's IT team began

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implementing information-centric services to support its highly critical order process and was live in production by the end of February 2006.

One of the critical requirements for s.Oliver's evolving SOA strategy is to utilize technology that can coexist and leverage its heterogeneous application and data resources. It is also important for the company that any new software introduced adhere to open standards for interoperability and investment protection, to minimize future vendor dependencies. The company chose to leverage an IBM suite for BPM enabled by SOA.

Another important part of the s.Oliver IT environment is its use of the people entry point and portal infrastructure to provide access to more than 250 applications and centralized information services, simplifying the user interface and addressing multiple languages the company must support. The portal also enables collaboration and distribution of critical information across the enterprise to facilitate faster processes and decision making.

One of the key business values behind the SOA construct is its inherent flexibility to address change, allowing s.Oliver additional speed to market. This platform allows the IT team to incrementally address new product requirements with minimal impact to upstream applications. The company is recognizing significant cost savings from the reduced efforts of the IT staff to continually maintain hard-wired integration logic.

By applying its SOA strategy, the IT team has thus far been tremendously successful—a sure sign is the volume of requests flowing in from the business. “An interesting point to note,” stresses the s.Oliver CIO, “is that the business stakeholders do not see these as SOA projects, nor do they need to have any technical understanding of what a service entails. It is all about providing the business with what it needs.”

To facilitate achieving this level of business alignment, normally a business leader is involved with each project to provide that critical link. A team of eight IT professionals is dedicated to the overall SOA strategic agenda. However, for its long-term success, the entire IT community must support the vision and adhere to the reference framework.

Beyler points out the criticality and complexity of outlining and addressing all the processes involved for SOA governance. This includes guidance on how to determine and document requirements, development practices, versioning, monitoring and management, security, and assignment of responsibilities for the many tasks involved in creating and maintaining services. The CIO notes that there is a lot to learn, and it requires a good level of process understanding. The company already had a robust IT governance practice in place; however, it needed to add “SOA thinking” to the equation. To support further automation and SOA governance, the team also anticipates it will leverage a services registry and repository solution in the near future.

### **Lessons Learned and Looking Ahead**

According to Beyler, “SOA is a *business* project, not a technology project,” and the most significant contributor to its success is addressing the people aspect of the equation. This involves rallying support throughout the entire IT organization, convincing developers through IT operations to cooperate across the many processes and dimensions of SOA design and governance. One activity that Beyler noted to be extremely useful was arranging for IBM SOA training for the s.Oliver IT staff. He noted it was very helpful to have the workshop’s agenda address the many activities and roles throughout the IT and SOA lifecycle.

Success, however, involves cooperation and acceptance across the entire business. Many IT organizations look to corporate management to help drive cooperation in the development and use of new

*continues*

technology. However, to Beyler, it is the IT department's ultimate responsibility to drive adoption throughout the company by providing good portal and application features and functions that have an impact on the business.

One of the next technical milestones the company has set its sights on will involve combining operational and nonoperational data within its SOA environment, to support both transactional and data warehouse services. Another will be incorporating service orchestration on top of its Enterprise Service Bus to facilitate functional and process service requirements. Another key business requirement for s.Oliver will be to support offline processing; thus, Beyler and his team will be investigating how to incorporate an SOA-managed client capability.

For s.Oliver, SOA is seen as an enabling competitive differentiation for the company, allowing the company to rapidly introduce new products to market across its many businesses and lines. From a business perspective, the company plans to address functional business processes within its SOA environment to take advantage of the flexibility this architecture enables, including tasks involved in bringing products from design through production, supply chain management, and sales.

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## GOVERNANCE IS CRITICAL

If this book has done nothing else but convinced you of the importance of governance as your company moves forward, then that alone is worth its weight in gold. SOA requires an efficient business and technology governance mechanism to make sure that IT efforts meet business needs, and as a means of controlling what services are deployed and how those services are used.

Governance is designed to enable organizations to realize the full potential of flexibility. It addresses issues that, if left unattended, might be inhibitors to gaining the flexibility and time-to-market benefits associated with SOA—essential issues surrounding the



lifecycle of a service. Effective SOA governance is more than just technology. It calls for a lifecycle approach that integrates an organization's people, processes, information, and assets.

In its internal use of SOA, IBM found governance to be that secret to success. "From our point of view, SOA governance is an integral and significant aspect of our overall IT governance, which includes managing process, applications, data, and technology," said Catherine Winter, Team Leader for IBM Enterprise Architecture Governance. IBM started by identifying the appropriate process and roles/responsibilities set up the IBM Architecture Board to govern and manage the SOA environment. This governance strategy helped optimize IT assets across the entire corporation.

Address these keys to effective governance:

- Establishing decision rights for your SOA environment
- Defining appropriate services
- Managing the lifecycle of service assets
- Measuring effectiveness
- Changing the Culture
- Aligning IT and Business

### CASE STUDY

#### PEOPLE'S BANK OF CHINA

China's federal bank avoids \$1 billion in infrastructure and development costs and eases management of the country's treasury by implementing a nationwide real-time tax and customs payment-collection system based on an SOA.

Owned by the Chinese government, the People's Bank of China (PBC) has been the driving force behind the Chinese commercial banking market since 1949. PBC, which serves as a clearinghouse for the Chinese banking industry, employs approximately 100,000 people at 32 first-line branches, 300 second-line branches, and 2,000 third-line branches.

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The federally run People's Bank of China (PBC) collects and processes tax and customs payments from all of China's 600 million tax-paying citizens. Historically, the nation's 32 provincial governments would first collect the payments from local banks and then submit the collections to PBC. Delays in this process, as money changed hands from the banks to the provinces and finally to PBC, allowed some provinces to accrue interest on the collections, which complicated management of the national treasury. To simplify and accelerate the process, PBC wanted to collect directly from the local banks. However, such a change would require it to integrate its tax- and customs-processing systems with thousands of different bank systems. The challenge was for PBC to create an efficient exchange system across all of China, without investing massive amounts of time and money in integration-development projects.

PBC can now collect tax and customs payments from the local banks in real time by leveraging a cost-effective SOA. By enabling seamless integration among the disparate banking systems, open standards-based software automatically routes roughly 13 million transactions per day between PBC and the commercial banks, while minimizing the need to hard-code integrations. PBC can efficiently add to or modify the services in the SOA as needed, to accommodate new requirements or implement new functionality with relative ease. PBC has seen business results of an estimated cost-cutting of approximately \$1 billion in infrastructure and development costs by taking the SOA approach, and eased management of the national treasury by eliminating processing delays. In addition, it gained business flexibility—flex-pon-siveness\*—needed to adapt and improve the exchange system in the future.

To accomplish these goals, PBC built an all-new treasury application infrastructure and SOA that will support more than 800,000 users. Through the SOA environment, they route messages (transactions) to and from the external institutions, handling about 13

million messages per day. To ensure a smooth development process for the system's real-time transaction applications, a team of 20 developers, 10 testers, five analysts, one project manager, and two executives added new processes and development methodologies to the SOA environment. Because of this focus on the Lifecycle of Service Assets through Development and Delivery, PBC will be able to reuse application components to integrate new applications quickly and maintain existing applications easily.

The business value of PBC's SOA environment is that PBC can now easily interface with more than 150 diverse merchant banking, tax, and customs institutions across China, effectively centralizing and standardizing the collection of national treasury information. Using the solution, citizens can submit tax and customs payments online in real time via their bank accounts. Tax preparation that used to require as much as four hours to complete can now be entered and submitted in less than ten minutes.

PBC is able to easily adapt to changing LOB requirements. The integrated environment helps speed the bank's development process and eliminates wasted resources.

In total, the integrated, SOA-enabled system will help PBC save more than \$1 billion in national treasury infrastructure, maintenance, and development costs.

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## INFRASTRUCTURE AND MANAGEMENT COMPLETE THE PICTURE

To realize the value of SOA initiatives, companies are taking a planned approach to extending existing infrastructure and management capabilities in support of those projects. SOA requires thinking about these areas in a slightly different way. By effectively securing the infrastructure across the people, process, and information boundaries spanned by SOA projects, you can save money, reduce risks, and ensure compliance. Managing efficiently to gain

visibility and control of SOA services and the components underneath them is critical for SOA project success.

By nature, SOA services can be virtualized. Making sure the infrastructure to support services is virtualized allows clients to place and prioritize the services for optimal business performance.

Address these keys to effective governance:

- Establishing the right set of security for your services
- Defining management within the context of SOA
- Determining your virtualization needs to drive performance and the right use of resources

## CASE STUDY

### ING

In 2005, ING became the sixth-largest European financial institution, based upon market value, up six positions from only one year earlier. According to ING executives, this change is a reflection of the company's success in offering innovative and low-cost customer-focused services through a variety of distribution channels, including web services, call centers, intermediaries, and branch offices. However, like many companies out there, ING was facing a growing number of industry regulations and increasing sophistication of its business services. For ING to continue its success, they needed to reduce the time and cost of managing employee access to information while ensuring that staff could quickly respond to business change. Focusing on its entitlement program, ING needed a streamlined approval process that leverages electronic forms and intelligent workflows to enable managers to request and approve authorization requests online. In addition, it was important to their business goals that ING provide a self-service capability so employees could change their passwords without the assistance of help-desk personnel.

The implementation of a common identity management system was a key milestone on the journey to deploying a broader, strategic SOA environment for ING. The removal of security components

from each individual application enabled the implementation of a common, centralized set of security controls. This allows the organization to reduce development and deployment costs, ensures the consistent application of security policy, and provides users with a simple, convenient single-sign-on capability across a wide range of services. The benefit of this decision was a host of business benefits: the total projected savings of €15 million (\$20 million) a year, a projected 50% reduction in the number of administrators assigned to support identity management processes within 18 months, an anticipated 25% savings in help-desk administrative costs, the ability to reduce time and cost associated with regulatory reporting, and the ability to reduce turn-on time for new users from 10 days to less than 24 hours.

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## SUMMARY

To begin the journey of becoming a flex-pon-sive\* company takes both business and IT acumen, with a special focus on your business models and processes. As we discussed in Chapter 1, “The Innovation Imperative,” your journey begins with a focus on a real business problem, not SOA. How do you grow? How do you become more responsive? How do you ensure that you have the right skills needed on both the business and IT sides? Start small on your journey and build those needed talents and capabilities; in the long run, SOA will enable your success.

Those who succeed have the longer term in mind—they’re flex-pon-sive\* in a global world—and they leverage the best practices and learning of other companies. Maximize your company’s journey with a shorter time to value:

- Focus on the area that will change the game in your industry.
- Address the area of focus with flexible IT—and SOA—to begin growing your revenue and ensuring flexibility. The SOA entry points are built on business-centric views and are flexible enough to fit your needs. These entry points are more than just hype; they have solid experience woven into the patterns for success.

- Leverage the best practices of others in your industry and those outside. Remember that the new game is the focus on business models and business processes.
- Implement governance, which is critical for cross-business cultural change and a secure, robust infrastructure that is needed to scale and support your SOA projects and undertakings.
- Include a trusted partner such as IBM that provides both the business acumen and advanced technologies to build your journey upon. Because the world is changing, it is not just about technology—it is about the combination of business and IT.

I started this closing chapter discussing the number of shipwrecks off the North Carolina coast due to the unpredictable nature of the forces of nature and man. Today's time seems to be very similar to that N.C. coast. Your success depends on your business's ability to weather unpredictable times and to drive change into the marketplace. It is an adventure that truly takes you to all parts of the world in a global economy. To succeed, similar to those captains of the sea, you will need tools to enable your success.

This book provided you with several of those tools:

- The Component Business Model, to determine which processes to focus on (Chapter 3)
- The business-centric entry points enabled by SOA, to help your business deploy SOA at the rate and pace you need for real business results (Chapter 4)
- A technology roadmap and SOA reference architecture and lifecycle (Chapters 4 and 5, "SOA Key Concepts")
- The business case approach for innovative ideas around process and models, to serve as a framework (Chapter 7, "Three Business-Centric SOA Entry Points")
- More than 30 case studies and examples that can shed light on others' journeys and lessons learned from more than 3,000 real-world businesses (Chapter 9, "The Top 10 Don'ts!"; Chapter 10, "Case Study: IBM"; and throughout)

- Maturity models, to determine where you are and what the right approach is for your business (Chapter 7)

Regardless of where you start, your journey toward competitiveness in business model innovation is enabled by the new language of business—SOA and Web 2.0. Becoming a flex-pon-sive\* company drives your business to new levels of growth and flexibility in the marketplace. It becomes your language for business success.

