



**How CIOs can drive growth,
business flexibility and innovation**

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Growth and business flexibility

In the Internet era, some companies became preoccupied with e-commerce as they rushed to gain a competitive edge. Others realised that e-business was not just about the transactions, but a completely new way of doing business. Similarly, people today rush into emerging technology and expect business to change suddenly rather than gradually.

The IBM Institute of Business Value (IBV) has produced a study, based on its wide-ranging business experience, on the value of flexibility. It looked at the business value of service-orientated architecture (SOA), and found that while 97% of companies which had invested in it had been looking for cost savings, 51% saw increased revenue growth, and 100% reported increased business flexibility.

Those companies which responded most quickly and effectively to business challenges were seeing the results of investing in SOA.

***What is SOA?** SOA is a business-driven IT architectural approach that supports integrating your business as linked, repeatable business tasks or services. SOA ensures that IT systems can adapt quickly, easily and economically to support rapidly changing business needs.*

A global survey of CEOs conducted by IBM indicates that innovation is a top priority. Business flexibility is key to achieving innovation through collaboration.

Innovation

All over the world, companies are pursuing growth again, rather than cutting costs. With competitive pressures increasing, due to advances in technology and the advent of globalisation, the focus is on profitable growth – and to achieve that, companies need innovation.

New ideas don't just come from inside the company but from blogs, partners, customers and even competitors. CEOs say that more of their new ideas come from partners and clients than from their own employees.

To act on those ideas, business flexibility must be top of the agenda.

Highlights

Business process innovation is the biggest differentiator, not product or service features.

Aligning business and IT can enable business process innovation.

The business process

Products and services can be copied – what makes companies different is the business process. Our study showed that it was business flexibility and collaboration that drove financial performance.

A CIO needs to bring business and IT together and see that they are aiming in the same direction, and to focus on those processes that will bring specific business advantage.

So the key questions are:

- *What are your company's goals and how do you align business and IT behind them?*
- *How do you drive them throughout your corporation?*
- *What flexibility and innovation are needed for them to be reached?*
- *What business processes need innovation in order to be successful?*
- *How does your company create an environment that encourages innovation?*

The technology

To be successful, companies have to be able to act upon their ideas. They need clear governance, a focus on the right processes and the flexibility to respond quickly to market forces.

That puts the focus on the underlying technology – but effectiveness comes from running the business side and the IT side in tandem, making the company more responsive to opportunities, customers and competitors.

Companies need to be flexible enough to identify new openings and respond to them rapidly and economically. They need to plan and manage demand, roll out new products quickly, and build on systems and information from mergers and acquisitions.

So this flexibility matters to a company's bottom line. Agility and flexibility enable companies not just to respond to the environment, but to change the environment. Successful CIOs combine the power of IT and business to drive the market into new places.

Highlights

SOA should be recognised as an organisation-wide business strategy, not just an IT project.

Executive support is critical to enabling business flexibility through SOA.

Your C-level peers need to see the advantages of SOA.

Make your case with simple messages that stress business value.

How do you convince the business?

SOAs use existing technology to align IT more closely with business goals, and bring efficiency, cost savings and productivity – but they need the backing of top management to spread across the organisation. Here are 10 tips to help sell the strategy:

1. **Don't call it SOA (outside the IT department):** *Explain the value and benefits in terms of cost reduction, productivity, competitive advantage and so on*
2. **Vision, not version:** *Outline the immediate and long-term results, not the software details*
3. **Build consensus through the company:** *Demonstrate the value of SOA through small test projects in different departments – and keep those department heads on board*
4. **Small projects, big impact:** *When selecting those test projects, concentrate on business processes with widespread, positive impact across the organisation*
5. **Watch the three-letter acronyms:** *Remember, jargon stifles understanding*
6. **Get to the powerful points:** *Avoid complex slides that distract from the central message*
7. **Conviction and prediction:** *You can bolster confidence in the strategy by publicly setting – and meeting – clear intermediate goals as the SOA is introduced*
8. **Quote and quote again:** *Not just analysts' research, but also specific successful examples in your industry and among your competitors*
9. **The close:** *Outline before-and-after scenarios of the impact of SOA*
10. **Qualify and quantify:** *Monitor how the process is working, sharing the results with interested parties. Remember to stress business benefits and bottom line results.*

Highlights

SOA provides the best option for supporting flexibility, growth and innovation.

SOA services can be combined in new ways to do new things.

Web 2.0 focuses on collaboration and an enhanced user experience.

SOA and Web 2.0

To make change easier, a flexible business requires flexible IT. The technology that best drives business flexibility, growth and innovation is SOA.

The SOA approach views a business as linked services and considers their outcomes. Because it is built on open standards, businesses can use existing technology and link together previously fragmented data and business processes. It gives a more complete view of operations, potential bottlenecks and areas for growth.

Services that join together to support business processes within SOA are designed so that different parts can operate separately from each other. Unlike traditional software development, any one SOA feature can be changed independently – making companies that have adopted SOA principles much more responsive to change.

Web 2.0 – the next generation of services on the Web – makes collaboration easier, while SOA makes the infrastructure flexible enough to cope with it.

Using Web 2.0 is like using a desktop application. A retailer deciding whether to issue a credit card could use the technology to tap different sources of information about a customer's credit-worthiness and buying habits; a manufacturer could measure more closely what is happening in the production process, and then make instant adjustments.

SOA enables companies to increase revenue and cut costs. It also encourages innovation through collaboration and flexibility.

- *Understand SOA and Web 2.0*
- *Develop the skills they require*
- *Understand their business implications.*

Highlights

Companies should take a business view of SOA to achieve innovation goals.

Learning from other companies

Companies should see SOA from a business, not an IT, point of view: by mastering SOA technology, they operate more efficiently, and adapt more quickly to innovation and business conditions.

A recent study by Mercer Management Consultants¹ showed that the entry point to SOA may be people, process, or information, or all three.

And 51% of the IBV interviewees saw their SOA deployment increase revenue, mostly by taking an existing process and unlocking its potential. SOA frees up IT to recombine its various parts in new ways to create new products. With SOA, the business strategist is free to innovate.

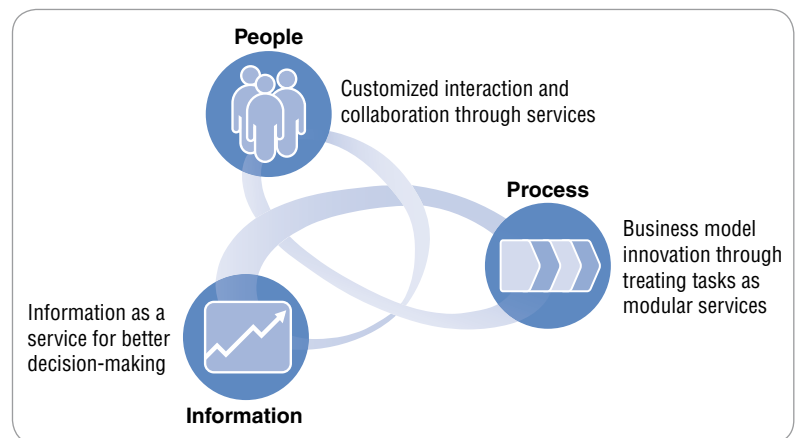


Figure 1
Companies are taking an increasingly business-centric approach to SOA.

Enterprise transformation can begin with a set of entry point projects.

Three companies illustrate the lessons to be learned. Whatever the entry point, what the customer seeks from SOA is enterprise transformation. For an overview, see Figure 2 on page 13.

¹ WebSphere: Quantified Customer Value (QCV) Study, Mercer Management Consulting, March 9, 2006

Highlights

Pacorini built a framework of integrated online processes for information retrieval and workflow.

People and collaboration

Success story: Pacorini

Pacorini is an international company based in Trieste, Italy, delivering coffee, metals, foods and general cargo. These goods are checked for quality and scheduled to arrive as they are needed in the customer's supply chain management process. Pacorini has maintained its competitive position with timely customer service – but its internal business processes were not integrated. It was a challenge to manage siloed information and to provide consistent customer service.

The company put in place an SOA to construct information retrieval and work processes using repeatable information services. It has implemented an order-enabled portal solution for both internal and external customers, and deployed a system-to-system order management solution with its largest coffee customer.

The communications standards developed with this customer are now being applied to nine of its other top 10 customers, and will be extended through other areas. Online ordering will enable the company to automate some 30,000 transactions this year, equivalent to four full-time employees.

Highlights

businessMart needed a solution to simplify interface management and provide a platform for the exchange of business process information.

Business processes no longer have to be conducted through the bottleneck of a portal centre, but rather could be processed in parallel.

Success story: businessMart

businessMart AG sets up electronic marketplaces and e-business systems for companies selling through catalogues, and now handles orders for more than 60 suppliers with nearly 3,000 customers and more than 25,000 orders a day. businessMart currently operates two sector portals, and additional projects are in preparation.

Better integration – but how?

businessMart AG's business is growing, so more and more outside systems have to be connected to the portal. Suppliers' and customers' computer systems were already integrated into the company's portal, but now it had to be expanded even further. businessMart wanted a reliable, flexible and controllable platform for exchanging business process information, with a simplified interface.

Conversion of the architecture

businessMart created an SOA and implemented it throughout the portal. Technology components were connected in independent individual modules, so that business processes could be dealt with in parallel in the allocated modules rather than through the bottleneck of a portal centre. The architecture connects the customer systems with the available applications, with a central interface for all the portal components. This means that new client computer systems can be integrated just as quickly as separate modules.

Highlights

The advantage of the new solution

The most important portal functions can now be used directly in the customers' usual software. To call up product details, the customer no longer needs to exit his or her own merchandise information computer system. These portal services are seamlessly integrated into the software. businessMart's customers profit from faster and more comprehensive possibilities for intervention: time-consuming, manual information processes are now digitised and more economical.

To integrate the customers' various backend systems, businessMart uses IBM SOA-enabled software to connect 16 different SAP systems. Marketplace participants can now simplify the flow of information, as well as increase sales and reduce procurement costs.

If there is a mistake or ambiguity in the order, the supplier or the customer is contacted, and can immediately remedy the problem, instead of taking time with telephone enquiries.

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.

Well equipped for the future

Now, the business model is expanding. In the future, companies will no longer exchange their order information only through contacts; they will instead allocate applications and have joint access directly to IT services. A portal will take over the interface management, keeping complexity at an acceptable level. businessMart was looking for a modern technology base, and found an engine for an evolutionary step.

Highlights

To become more competitive, COSCON integrated its existing EDI applications by deploying an SOA.

COSCON has experienced a dramatic increase in internal efficiency and has achieved higher levels of customer satisfaction.

Process***Success story: COSCON***

COSCON is China's largest shipping container company, with 127 container vessels which have shipped more than 320,000 containers to date to ports across the globe, each with its own regulations. To support these diverse requirements, COSCON had an electronic data interchange (EDI) system with 21 different applications with a variety of architectures and development languages supported on multiple servers. As business grew, COSCON's complex IT system meant the company could not respond quickly enough to customers demands.

Existing EDI applications were integrated by deploying an SOA. This enabled COSCON to connect its silos of data and software applications, allowing interoperation between its internal business and customers, partners and suppliers. This improved productivity and communication, enabling COSCON to react quickly to changing market conditions.

Changes to customs requirements in different countries come every two to three days, and under the current system, each change took nearly a month to complete – so the need for flexibility was urgent. Because of these demands, COSCON chose to implement its process integration using SOA. The process entry point was chosen so that the communication between IT and business could be improved as well.

COSCON focused on adding ports and reports for the business side, and was also able to meet customs regulations and integrate with many applications in different languages. COSCON deployed an SOA approach to consolidate multiple EDI systems and processes.

Internal efficiency has increased dramatically, customer satisfaction has improved, and the time taken to configure and modify the IT system has been cut from months to days. COSCON's business personnel and IT staff now understand each other's areas better too – a development that is crucial for business flexibility.

Highlights

Isolated business processes and outdated software limited ACI Global's ability to deliver innovative support services.

ACI Global's integrated, automated call centre will improve call response times and operator productivity.

Success story: Automobile Club of Italy

Another example of the process entry point is Automobile Club of Italy (ACI). ACI relies on technical support from ACI Global, which maintains a call centre providing 24×7 roadside assistance across Italy. ACI Global has agreements with automotive manufacturers, fleet and car rental agencies, tour operators, banks and insurance companies to provide multiple products and services through this call centre, which handles approximately six million contacts annually. The complete ACI operational network includes 3,000 assistance vehicles, 1,000 operating centres and 5,000 operators.

ACI Global had been generating value for its customers through new and innovative services that encouraged an increasingly rapid response to roadside emergencies. Unfortunately, isolated business processes and outdated software design were frequently delaying the launch of new products and services.

The company wanted a standardised, flexible design infrastructure to solve this problem, streamline the call centre, and speed up service delivery.

Now, with a newly-designed automated call centre, Centrale Operativa, built on an SOA, ACI Global expects automation and integration to lead to a 20 percent improvement in response times and a 30 percent increase productivity.

Highlights

Pep Boys set up its foundational technical base for SOA with a focus on connectivity and reuse.

Pep Boys started its IT transformation by replacing its outdated POS environment with an IBM Open POS solution.

Information***Success story: Pep Boys***

Pep Boys Auto employs more than 22,000 people at its 593 stores across America, and reported over US\$2.2 billion sales in 2004. Pep Boys differentiates itself from competitors by being the value alternative to car dealerships, providing exceptional customer service and serving all four segments of the automotive aftermarket – do-it-yourself, do-it-for-me, buy-for-resale and replacement tyres.

In 2003, the company realised it did not have the right architecture and applications for its point of service (POS) and service work order system. It set up its foundational technical base for SOA, focusing on connectivity and reuse. It used a standards-based approach, making approximately 45 calls to backend systems using Web services (WSDL interfaces). Pep Boys built roughly 200 functional services. No migration of data was required.

Then Pep Boys choreographed several retail processes and workflows consisting of 15 to 20 services, which enabled them to introduce new and enhanced functions, improving the way salesmen could help customers. This is where Pep Boys focused on the information entry point, and created a single view of the customer for various in-store activities. The initial pilot was completed in four months at 12 stores, and the total rollout was completed in April 2005.

This brought faster checkout, increased responsiveness to customer needs, and greater productivity and efficiency, and also enabled the company to take debit cards, which have a lower fee rate than credit transactions.

Highlights

Companies employing SOA entry points face process challenges and cultural issues, too.

Connectivity

People, process and information – though SOA is still in its infancy, these entry points promise to unleash capability much as the Internet once did. But there are process challenges and cultural issues as well as technical challenges. Figure 2 shows how the entry points work – from the 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. Linking these pieces together gives a company effectiveness and flexibility.

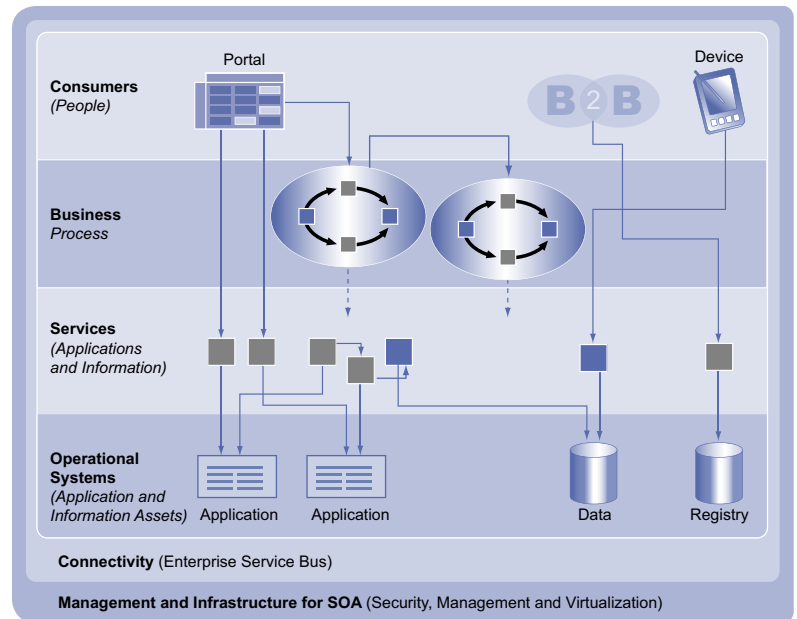


Figure 2
The flex-pon-sive* agenda through SOA.

Self-assessment

By answering a set of questions on **ibm.com/soa** about your business, your technology and your goals, you can check your own business readiness and IT readiness for SOA. The site also suggests projects to begin your enterprise transformation.

So your checklist includes:

- *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.*

Unlock the business value multiplier

When you start to link those three crucial entry points, your company's SOA business value accelerates. Entry points to start SOA projects deliver significant value on their own, but the effect increases dramatically when SOA capabilities are applied across the various aspects of a business. We call this the 'multiplier effect'.

It delivers 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. The real value is in creating flexible links between users, information and processes.

Clients are continually upgrading and changing processes, applications, databases and views into the business. Through SOA, all parts of the business can stay linked through that continual change.

Highlights

People-, process- and information-centred approaches will yield results that can deliver strong return on investment.

At the top of Figure 3 are the entry points we have been discussing. Companies get a higher return on their investment by combining the entry points of people, process and information. This increase in flexibility and responsiveness comes from the focus on business process management (BPM) and composite business services.

Composite business applications will become as predominant as the monolithic applications that exist today.

So your checklist begins here:

- *After your first SOA project, note the linkages of people, process, and information, with a view to adopting a broader SOA enterprise*
- *BPM is more than a technology; it is a discipline*
- *Composite applications will blend with monolithic applications. Check the SOA Business Catalogue at **ibm.com/soa***
- *Evaluate how your infrastructure and management support your SOA projects.*

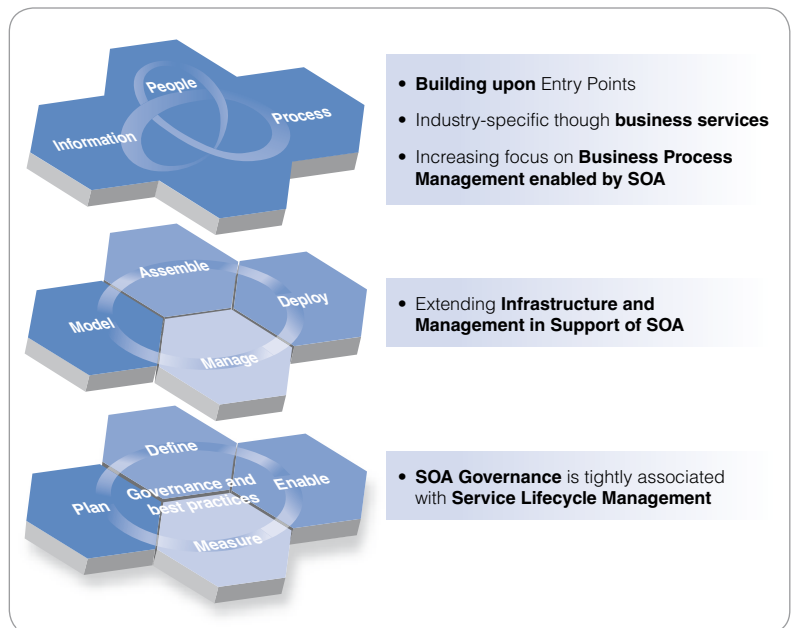


Figure 3
People, business processes, and information sources interact through SOA.

Background

Success story: s.Oliver

(From the IDC white paper sponsored by IBM, 'Service Oriented Architecture as a Business Strategy', doc 204313, November 2006.)

s.Oliver Bernd Freier GmbH & Co. (s.Oliver) is one of the fastest-growing clothes retailers in Germany, operating 289 mega stores either under its own management or with partners. Its collections change continually, and are sold in over 30 countries throughout Europe. s.Oliver aims to double its revenues from €820 million in 2005 to €1.5 billion by 2010.

The firm must be able to spot trends and turn over new styles and products quickly, maintain an attractive web presence, and support multiple languages and currencies – and still keep strong brand control.

The business challenge

Stefan Beyler, the company's new CIO and board member, realised that with many corporate divisions, and an expansive and fast-moving product portfolio, the firm's IT approach and systems environment needed to reflect the overall business strategy. He wanted speed and agility.

Highlights

s.Oliver reviewed the company's entire systems and application infrastructure with an eye toward innovation.

s.Oliver's CIO was faced with the challenge of creating an environment that could readily adapt to new business requirements and processes.

The firm needed to recognise and exploit market trends, apply modern logistics, employ e-commerce and mobile technologies, and continue to promote a highly collaborative and creative corporate environment.

The 100-strong IT staff is responsible for worldwide operations with a shared services model supported by two major data centres – one in Germany and the other in Hong Kong. s.Oliver's IT environment is a mixture of many applications that have been acquired over the past few decades, and it was becoming nearly impossible to manage all the resulting interface logic.

S.Oliver chose to use SOA to create an on demand business environment, which needed to adapt to new business requirements and processes, and manage increasing volumes of information, while maintaining efficiency and keeping down cost. It was to encourage growth and change but still enable the evolution of IT with minimal risk, disruption and expense.

The SOA solution

The company created the s.Oliver Federated Integration Architecture (SOFIA). In September 2005, the IT team began implementing information-centred services to support its highly critical order process and was live in production by the end of February 2006.

It was important to use software and technology that would operate with the existing application and data resources.

The IT environment also had to be accessible in different languages, and provide access to over 250 applications and centralised information services. Critical information had to be shared across the company to speed up processes and decision making.

One of the valuable features of the SOA is its inherent flexibility. s.Oliver can now respond quickly to market challenges and its IT team can deal with new product requirements without compromising upstream applications. There are also significant savings in the IT team because the new system is fully integrated.

From the start, it was crucial to deal with all the problems involved in SOA governance, such as 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.

Now, a team of eight IT professionals is dedicated to s.Oliver's overall SOA agenda, but in the long term the entire IT community must be involved. The company has had to add 'SOA thinking' to its existing IT strategy.

Highlights

SOA is about providing the business with what it needs

The company already had a robust IT governance practice in place; however, it needed to add “SOA thinking” to the equation.

For s.Oliver, SOA is seen as bringing competitive edge, allowing the company to introduce new products quickly.

Lessons learned and looking ahead

SOA is a business project, not a technology project, and it was most important to get full cooperation throughout the organisation.

Arranging IBM SOA training for the s.Oliver IT staff proved particularly useful.

One lesson from the s.Oliver experience is that it is up to the IT department to win cooperation by providing good portal and application features, and functions that have a clear impact on the business.

Next, the company plans to combine operational and non-operational data in its SOA environment, to support both transactional and data warehouse services. Service orchestration will be incorporated on its enterprise service bus for functional and process service requirements, and offline processing will be supported. The IT team will be investigating how to incorporate an SOA-managed client capability.

s.Oliver believes that SOA provides a competitive edge, giving it flexibility and allowing it to introduce new products to market quickly.

Highlights

Governance is designed to enable organisations to realise the full potential of flexibility.

PBC can now collect tax and customs payments from the local banks in real time by leveraging a cost-effective SOA.

PBC built an all-new treasury application infrastructure and SOA that will support more than 800,000 users.

Governance is critical

SOA requires efficient business and technology governance so that IT efforts meet business needs. Governance is designed to make companies as flexible as possible, and to enable them to realise the full benefits of that flexibility. Effective SOA governance is more than just technology – it is a lifecycle approach that brings together people, processes, information and assets.

The keys to effective governance are:

- *Establishing who makes decision about the SOA environment*
- *Defining appropriate services*
- *Managing the lifecycle of service assets*
- *Measuring effectiveness.*

Success Story: People's Bank of China – lifecycle of service assets in action

China's federal bank saved US\$1 billion in costs and improves the management of the country's treasury by introducing an SOA-based nationwide, realtime tax and customs payment collection system.

The People's Bank of China (PBC) employs some 100,000 people at over 2,300 branches. China's 600 million taxpaying citizens used to pay their taxes and customs duties to the PBC through the provincial governments. Inherent delays in this system allowed some provinces to accrue interest on the collections, which complicated management of the national treasury, and to simplify and accelerate the process, PBC wanted to collect directly from the local banks. That meant integrating its processing systems with thousands of different bank systems, so PBC had to create an efficient exchange system across all of China.

Highlights

It has done this through a cost-effective SOA. Open standards-based software now automatically routes 13 million transactions a day between PBC and the commercial banks.

PBC has gained business flexibility and seen savings of around US\$1 billion, and has cut out delays in the management of the national treasury. The treasury application infrastructure and SOA that was built will support more than 800,000 users, routing about 13 million transactions every day to and from the external institutions.

PBC can now interface with more than 150 diverse institutions across China, effectively centralising the collection of national treasury information. Citizens can submit tax and customs payments online through their bank accounts, and tax preparation that used to take four hours can now be finished in less than 10 minutes.

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

Infrastructure and management complete the picture

Companies have to plan the extension of their existing infrastructure and management capabilities to get the full benefit of SOA. They need to think about these issues in a different way. By linking people, process and information through SOA, they can save money, reduce risks, and ensure compliance – but they need efficient management to do so successfully.

The keys to effective governance are:

- *Establishing the right set of security for your services*
- *Defining management within the context of SOA.*

Highlights

For ING to continue its success, it needed to reduce the time and cost of managing employee access to information while ensuring that staff could quickly respond to business change.

Success story: ING and SOA-enabled infrastructure and management

ING, one of Europe's largest financial institutions, offers innovative and low-cost services through Web services, call centres, intermediaries and branch offices. But to continue its success, it needed to reduce the time and cost of managing employee access to information, and to ensure that staff could quickly respond to business changes.

Managers needed the ability to approve requests for authorisation online through electronic forms and intelligent workflows, and staff, the ability to change their passwords through a self-service system.

Setting up a centralised set of security controls meant that security components could be eliminated from each individual application. This not only made development and deployment cheaper, but also led to a more consistent security policy, and a simpler signing-on procedure.

Overall, this brought savings of €15 million (US\$20 million) a year, and cut the number of administrators concerned with security by 50 percent in 18 months. Spending on the help desk is expected to fall by 25 percent, regulatory reporting is expected to be quicker and cheaper, and new users should be able to use the system within 24 hours instead of 10 days.

Highlights

You start with by focusing on a real business problem, not on SOA.

A trusted partner like IBM provides both the business acumen and the advanced technologies to build your journey upon.

Summary

Both business and IT acumen are needed to implement SOA, and the process should start with a real business problem. How do you grow? How do you become more responsive? How do you ensure you have the right IT and business skills?

Success demands long-term thinking, flexibility and the ability to learn from what other companies have done.

- *Focus on the most crucial area for your industry*
- *Employ flexible IT – and SOA – to increase revenue in that area. The SOA entry points focus on business issues, and are based on solid experience*
- *Study and use the best practices of leaders in your industry and others, concentrating on business models and processes*
- *The necessary cultural change throughout the company depends on governance and a robust infrastructure.*



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