

Unlocking the Power of SOA with Business Process Modeling



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CGI believes that the service-oriented architecture (SOA) approach, combined with an accompanying business process modeling (BPM) strategy, allows financial institutions to reach more fully their desired state of business agility.

Making the shift to SOA

It's difficult to control costs and manage relationships if your institution is mired in redundant applications serving different products and channels. Accumulating layers of functionality—as well as sibling applications resulting from mergers and acquisitions—results in a partially connected hodgepodge of patches, interfaces and processes that require huge resources to maintain.

Tower Group estimates that 72 percent of U.S. banks' IT budgets in 2005 was spent on maintenance alone, and reports that 40–70 percent of all activities are identical across banks' lines of business. As these institutions face intense competition from traditional players and new market entrants, this model has to change.

One solution that many organizations are turning to is service-oriented architecture (SOA), which Gartner predicts will account for 80 percent of technology development projects by 2008. CGI believes that the SOA approach offers a number of advantages that will help financial institutions reach the state of desired business agility. For example, SOA shifts the control of business applications from IT to business users, allowing them to modify, enhance and configure business offerings without the need for large software development projects.

CGI views SOA as being all the more effective when leveraged with an accompanying business process modeling (BPM) strategy. Before outlining five main benefits of the SOA-BPM combination, here are CGI's definitions for these two approaches.

About SOA and BPM

SOA is a software architecture approach that breaks down complex operations into simple business functions that can be reused by several applications and made readily available using open standard protocols across the network. These functions also can be combined to produce composite services that perform complex business processes according to predefined policies, security standards and service level agreements.

An application implements an SOA when the business logic or individual functions are modularized and presented as services that are independent of the business applications that use them. Application developers and system integrators can build applications by composing one or more services without knowing the services' underlying implementations. This leads to increased productivity and shorter development timelines when the need to create new offerings arises.

SOA allows organizations to take advantage of existing IT investments and, more significantly, enables the creation of new services that model complex business operations through the use of BPM. In this way, financial institutions can turbocharge the SOA investment by implementing BPM.

BPM is a set of technologies and standards for the design, execution, administration and monitoring of complex, automated business processes. A business process is the progression of information exchange activities, each of which represents the work of a person, system or process toward some business goal. BPM offers the capability to orchestrate complex system interactions and is itself a service capable of communicating and exchanging data.

The SOA-BPM combination has the ability to provide real-time visibility into business processes across multiple systems, potentially on disparate platforms. With the aid of intuitive tools, business users can represent these business processes through interactive diagrams rather than programming language algorithms.

The SOA-BPM combination allows your business analysts to directly and quickly develop a solution, bring it to market and drive more revenue—all without the need for a lengthy software development process.

Five benefits of the SOA-BPM combination

The SOA-BPM combination can deliver newly found business agility for process-intensive industries, such as financial services, where core business applications, such as residential mortgage processing, involve manual labor and integration with multiple internal and external applications. The following are five main benefits that the SOA-BPM combination can achieve.

Improve time to market

While moving to an SOA-oriented environment yields a host of discrete services that provide specific pieces of functionality, the services must still be tied together to provide any meaningful business functionality. Traditionally, this entails having a line of business (LOB) work with an IT department to integrate the services through a lengthy software development process. However, through the SOA-BPM combination, the use of BPM tools and technology allows the LOB to, in many cases, tie together SOA-compliant services within a short time frame. This puts the business analyst in the driver's seat and allows the organization to quickly develop a solution, bring it to market and drive more revenue.

Take, for example, a bank that wants to add a new credit card product that uses an external fraud service. Because this outside service has a cost, the bank decides to check only those loans that are potentially approved (i.e., post-decision). With SOA-BPM, a business analyst takes an existing process that uses a pre-decision fraud service and modifies it to use the new external fraud service post-decision. Thus, new products your business develops can be implemented quickly by copying and easily modifying similar business processes from existing products.

Maximize investments

SOA initiatives give you the power to drive your best ideas and concepts deeper into the organization, and BPM tools and processes let you craft solutions that are more closely aligned with your business needs. Managers are no longer forced to decide between using an existing application that is a poor fit for their needs or investing a significant amount of money to develop yet another custom solution. The SOA-BPM combination allows for the selection of services that, when combined together via automated process flows, meet your requirements. If part of the solution is unavailable within your organization's library of services, you only have to invest in the development of the specific functionality that does not exist within the organization as a whole.

For example, for some LOBs, such as credit cards, providing customer-tailored pricing is paramount to winning business. However, for mortgage products the pricing is driven by the secondary market. For the credit card process, a decision engine can tier the customer prior to a pricing call. For the mortgage process, the decision engine can be bypassed and a call can be made directly to the pricing engine. With SOA and BPM, you only need to invest in the functionality you require.

Make better use of existing assets

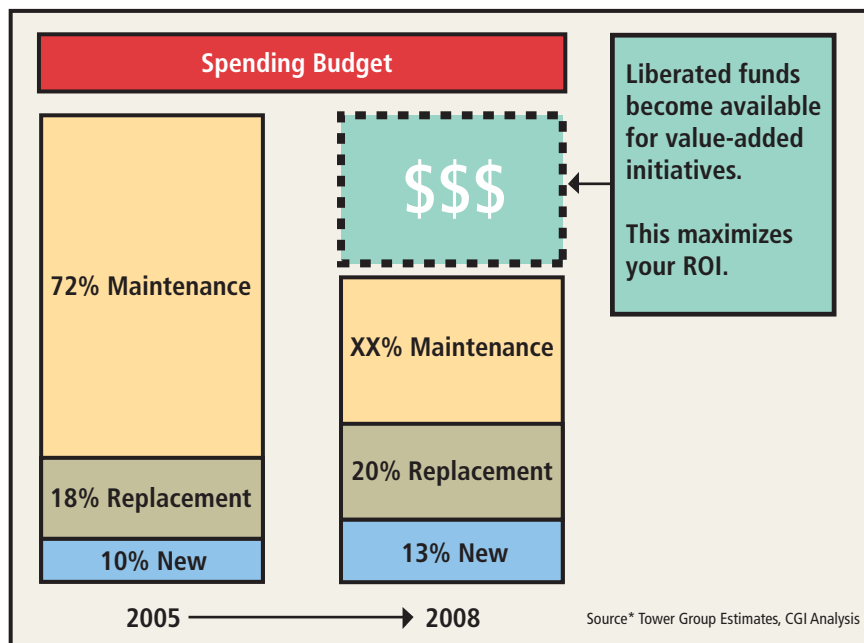
If your enterprise has already embarked on an SOA strategy—or has yet to begin—you will find that using SOA and BPM together boosts the power of your existing assets.

Many financial institutions have significant investment within their existing applications, which have been accumulated over time and are often the result of merger and acquisition activity. The SOA approach to enterprise architecture

SOA with BPM allows organizations to expand the use of their current investments and legacy systems in new ways—with minimal cost and time—and permits an evolutionary, rational approach to application development.

suggests that you take inventory of those current assets, identify duplicate functionality, and select those components that serve as your best services. With SOA tools and standards, legacy components built on old technology can be exposed as SOA-compliant services. This allows you to pull the service out of a single silo within your company, integrate it into your enterprise-wide architecture, and make it available for use by the entire organization. This in turn enables you to liberate funds spent on maintenance and make them available for new business initiatives.

Liberation of fixed costs due to application maintenance



The commonly used techniques to achieve this are the creation of web services wrappers (also known as web services front-end or facades) for your legacy systems and the use of technology adapters services, usually implemented in the enterprise service bus. The creation of the service wrapper involves defining its service contract and registering it with the service directory, thus making it available across the organization. The actual service implementation occurs behind the service contract, and any client systems become unaware of the actual technology in use by the legacy asset, which acts as the service provider.

Suppose you want to leverage the decision engine mentioned above to perform customer tiering and pricing within your mortgage business. The customer tiering used by the credit card group can be modified as needed in a mortgage-specific strategy. Copying the business service call for the decision engine from the credit card process into the mortgage's business process allows for quick deployment. This also expands the use of a current investment or legacy system in new ways with minimal cost and time.

Reduce costs and risk

Using SOA and BPM together permits an evolutionary approach to application development. Services are developed and exposed as specific initiatives require them. Automated business processes are developed and evolved to meet the specific requirements of the organization. Over time, progressively greater reuse is

A critical success factor of SOA-BPM is the adoption of industry recognized technology standards, which allow the architecture to be portable and executable in almost any chosen hardware and software environment, eliminating the need to be tied to any specific vendor.

recognized as multiple LOBs use these existing services and processes. This evolutionary approach reduces costs and risk and provides for a more rational approach to dealing with inevitable changes in technology and business priorities.

By coordinating the interaction of services through the use of automated business process flows, you can limit the scope of changes and reduce the effect that these changes will have on other systems and business processes.

Imagine that you want to upgrade the credit bureau retrieval service—now leveraged by your entire business—to support not only single-bureau reports, but also to support tri-merge reports. By replacing the credit bureau service for the specific product's business process, you can isolate the roll-out to a specific LOB or mortgage product for the initial implementation. As that new service is proven in production, you can gradually roll out the service to the remaining LOBs. The ability to limit and isolate changes greatly reduces the risk and costs of rolling out system enhancements.

Achieve vendor independence

CGI believes that a critical success factor of SOA-BPM is the adoption of industry recognized technology standards. We should note that unlike previous technology trends, SOA does not bind the organization to specific vendors or technologies. The following table highlights some important standards for creating an SOA solution.

| Standard | Meaning | Definition and Usage |
|----------------|--|--|
| J2EE | JAVA 2 Platform, Enterprise Edition | J2EE is an application server environment for developing and deploying enterprise applications written in the Java programming language. The J2EE platform consists of a set of services, application programming interfaces (APIs) and protocols that provide the functionality for developing multitiered, web-based applications. |
| XML | eXtensible Markup Language | XML is a markup language that allows you to define the tags (markup) needed to identify the content, data and text in XML documents. This allows information and services to be encoded with meaningful structure and semantics that computers and humans can understand. |
| WSDL | Web Services Definition Language | WSDL is a service contract, implemented in XML, for describing web services that are implemented using SOAP and made accessible from the UDDI directory. These web services are published for remote invocation using the XML-based messaging protocol (SOAP). |
| SOAP | Simple Object Access Protocol | SOAP is a lightweight protocol for the exchange of information in a decentralized, distributed environment. |
| UDDI | Universal Description, Discovery and Integration | UDDI is a directory of information about web services, recording their capabilities, location and requirements in a universally recognized format. |
| JDBC | Java DataBase Connectivity | JDBC is an API that provides cross-database connectivity and access to other data sources. |
| J2EE CA or JCA | J2EE Connector Architecture | Sun's J2EE Connector Architecture provides a Java solution to the problem of connectivity between the many application servers and today's enterprise information systems. |

CGI brings the SOA-BPM synergy to financial institutions through its Enterprise Originations architecture, a solution that serves as an evolutionary and cost-effective agent for change.

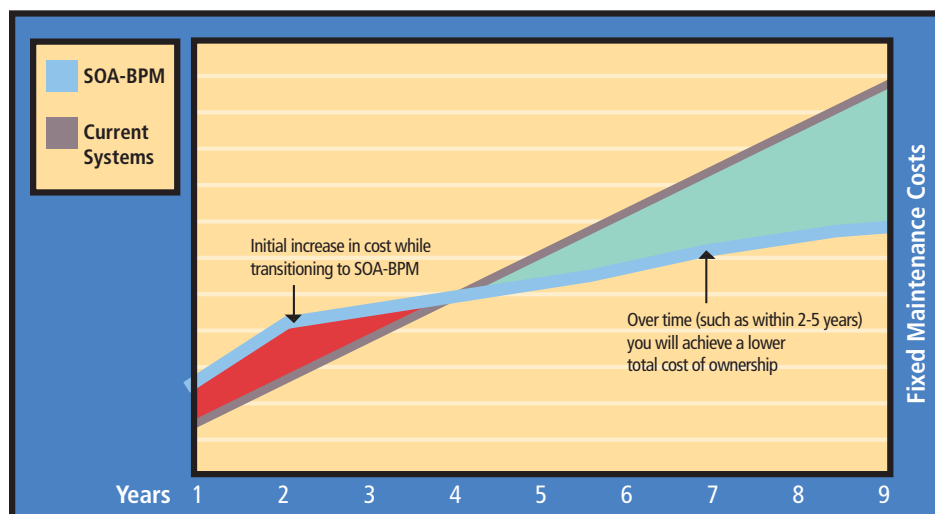
| Standard | Meaning | Definition and Usage |
|----------|------------------------|--|
| ESB | Enterprise Service Bus | ESB is middleware software that enables application integration across different platforms, programming models and messaging standards. The services that ESBs should provide include transport, routing, quality of service, mediation, event management, composition and decomposition, system management, security, data protocols and policy management. |

All of these standards play an important role in the creation and definition of the SOA approach, as they allow the architecture to be portable and executable in almost any chosen hardware and software platform. As a result, the organization is not tied to any specific hardware, operating system, database or application server vendor.

SOA-BPM in action

If improving time to market, maximizing and making better use of investments, reducing costs and risk, and achieving vendor independence sounds like it will boost your competitiveness, consider CGI's recommended SOA-BPM approach. In spite of an initial increase in cost, this approach lets you achieve a lower total cost of ownership over time.

The SOA upfront investment and long term ROI



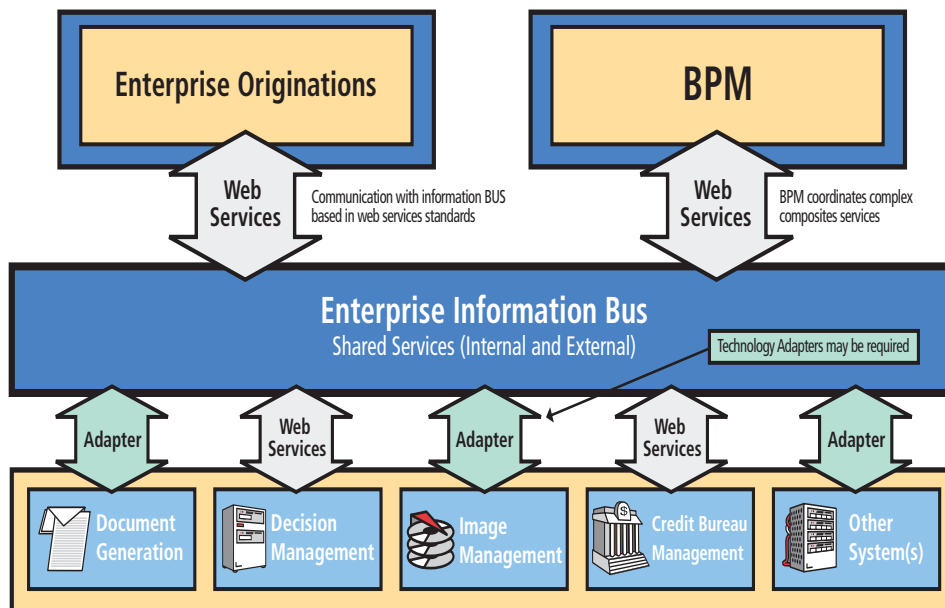
CGI brings the SOA-BPM synergy to financial institutions through our Enterprise Transformation solution series, a family of enterprise-wide, SOA-enabled solutions focused on the customer. The series is part of CGI's vision to help financial services clients replace dead-end technologies with highly flexible application platforms that reinvigorate their businesses.

The first of the series is Enterprise Originations[®], a customer-centric solution for new account originations. Through our Enterprise Originations architecture, clients can start small by migrating products and services one at a time until they reach a single, SOA-based, holistic view of all customers. The architecture leverages middleware software technologies that deliver capabilities, such as service location transparency and load management, and allows for the use of standard tools and the integration with other SOA infrastructure components.

Applying SOA with BPM helps organizations escape the “technology noose,” freeing up capital and sparking growth from the best possible source: your existing customers.

With Enterprise Originations and the application of SOA with BPM, organizations can escape the “technology noose,” freeing up capital and sparking growth from the best possible source: your existing customers.

Enterprise Originations: SOA + BPM architecture



CGI brings the SOA-BPM synergy to financial institutions through our Enterprise Originations architecture. The solution serves as an evolutionary agent for change while allowing organizations to improve time to market, maximize and make better use of investments, reduce costs and risk, and achieve vendor independence. Enterprise Originations, a customer-centric solution for new account originations, enables organizations to start small by migrating products and services one at a time until they reach a single, SOA-based, holistic view of all customers.

About CGI

At CGI, we're in the business of satisfying clients. For 30 years, we've operated upon the principles of sharing in clients' challenges and delivering quality services to solve them. A leading IT and business process services provider, CGI has approximately 25,000 professionals operating in 100+ worldwide offices.

In the credit management field, CGI works with clients to synchronize all customer contact points across an organization, a strategy we believe serves as a company's key competitive differentiator.

Combining credit expertise; consulting, systems integration and outsourcing services; and market-leading solutions, CGI provides the latest strategy and tools to deliver faster, more targeted services with greater consistency.

For more information, send an e-mail to credit.solutions@cgi.com or call (703) 227-4502.

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