Applying BPM & SOA for new opportunities

Mergers & Acquisitions made easy applying BPM & SOA

Enterprise Modernization & SOA

SOA as an enabler for Green IT

Cost Cutting Through the Use of an Integration Competency Center or SOA Center of Excellence

Technology Innovation to reduce Capital and Operational expenses

Applying BPM and SOA to reduce IT expenditure

Cloud Oriented Architecture

About Wipro
Mergers & Acquisitions made easy applying BPM & SOA

Driving M&A success
Applying BPM-SOA is a key enabler for the seamless integration of IT systems in an M&A Scenario as the organization transforms the processes of the merged entity. BPM-SOA helps streamline and leverage IT systems of the core processes of the two merging entities and build services to make the processes repeatable and transportable for easy integration.

Introduction
Adoption of BPM-SOA plays a strategic role for organizations to integrate processes to be successful in competitive environment. The success of a merger/acquisition is based on seamless integration of processes of the two companies and increased ability of the merged entity to retain and grow customers by providing better customer value.

Understanding the business environment
Organizations enter into mergers/acquisitions with either of the following strategic intent:

• Increase market share by increasing their customer base or geographic spread
• Achieve related diversification (for example, Investment Banks are becoming universal banks)

The integration model for the process transformation of the merged entity is defined based on the strategic intent of the merger/acquisition.

Scenario 1: Increasing customer base or geographic spread
• Model 1: In an acquisition scenario, the integration strategy would predominantly be focussed on transformation of processes of the acquired entity and to align with the systems and processes of the acquirer (i.e. Model 1).
• Model 2: In the case of a merger, the integration strategy could follow one of the two paths.
  • A best of the breed approach may be followed i.e. after a close analysis of the operations and systems of both the entities the best of the processes is chosen for the merged entity.
Applying BPM SOA for new opportunities

- Co-existence of both the operation systems i.e. in this model the operations are just integrated to co-exist. This would generally be quick fix solution some organizations apply during an acquisition to enable rapid integration of operations. But the organizations adopt a best of breed model described earlier gradually to optimize systems and evolve processes that best increase value to customers.

Scenario 2: Related diversification
In this scenario, operations of the two entities will be complimentary for which a co-existence model would be most suitable. However, there should be high focus on system level optimization like customer information and product administration.

Integration Elements for the various M&A scenarios
The goal of any integration is to enhance stakeholder value by providing better products and services to customers in the long run while providing continuity and consistency in offerings to customers. There are three types of integration:

1. Business Integration
Business integration initiatives focus on streamlining the products and services of the merging entities to offer a unified offering. Applying BPM will have a huge effect on optimizing the processes to enable this integration.

2. Technology Integration
Here, the focus will be on system integration to enable seamless operations when most of the offerings of the merging entities are complimentary. Having higher level of SOA maturity is the key to success in technology integration.

3. Operations Integration
In this case the focus is on expanding standardized systems availability across all the locations of the merged entity. This is to drive quick streamlining of the processes to leverage the benefits of combined products and services. New technology strategies like Software as a Service (SAAS) and Shared services models (location independence to systems) are other effective ways for rapid deployment of new systems.

Leverage BPM- SOA in their M&A Journey
As described above the appropriate elements of integration should be suitably applied based on the strategic intent of an M&A. Key issues in adoption of the various elements of integration is detailed below:

<table>
<thead>
<tr>
<th>Model 1: Shift to acquiring firm’s operations</th>
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<tbody>
<tr>
<td><strong>Business Integration</strong></td>
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<tr>
<td>• Migrating the business processes of the acquirer organization to acquired organizations</td>
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<tr>
<td>• Training employees of acquired company on new business processes</td>
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<tr>
<td>• Studying the suitability and scalability of the business process in the new environment</td>
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<tr>
<td><strong>Technology Integration</strong></td>
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<tr>
<td>• The process of Data migration will be the key challenge in enabling technology integration</td>
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<tr>
<td>• Data and applications related to specialized products and services will have to be integrated to the core systems</td>
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<tr>
<td>• The additional complexity and scale of the new IT systems will require investment in infrastructure</td>
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<tr>
<td><strong>Operation Integration</strong></td>
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<tr>
<td>• Key challenge is in accessibility, scalability and standardization of existing IT systems across new locations</td>
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Source: Wipro
Key benefits of BPM-SOA adoption in the integration process:

- Well modelled business process can be tested for the new KPI's, and bottlenecks can be identified early saving lot of time and cost
- SOA is about adopting industry standard domain and information model which helps in data migration and application integration as required
- The acquiring company can deploy SOA enabled shared service in the ‘Enterprise Software-as-a-Service (SaaS)’ model then scale up many of the systems to newer locations. This process would be made easier and less time consuming with SOA.

Benefits of BPM-SOA adoption in this integration process:

- Well modelled business process can be tested for the new KPI's, and bottlenecks can be identified early saving lot of time and cost
- Lower maintenance cost for solutions aligned to the complex business processes can be achieved if they are built as business services
- A well defined SOA architecture incorporating Enterprise Service Bus (ESB) will provide location agnostic capability, thus reducing time and cost for technology integration
- Adopting SOA at enterprise level using Enterprise Architecture (EA) framework like TOGAF will optimally map business capabilities to IT capabilities.

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**Model 2: Choosing best of the breed approach**

<table>
<thead>
<tr>
<th>Business Integration</th>
<th>Technology Integration</th>
<th>Operation Integration</th>
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</table>
| - As the operational process and systems would be a combination of both firms, the core IT systems to support the respective processes will have to be retained. | - Customer data would reside in systems across the two firms. Integration of data can follow one of the following approaches:  
  1. Migrate the data to one database, which would be a time consuming approach  
  2. Applying a broker model to save time and provide flexibility to consolidate over time | - Key challenge is in accessibility, scalability and standardization of existing IT systems across new locations |
| - Training of employees on new process | | |
| - Scalability of the business process in the new environment will have to be analyzed | | |

Source: Wipro
Case in Point:

As a part of the Application Transition Program for leading auto finance major in the US, Wipro developed a technology platform to automate back office business processes for e-mail imaging integration and collections integration. It involved migrating the manual and localized processes (lacking robust workflow controls due to the myriad applications) to a new platform solution to enable greater flexibility and efficiency. The net result is an improvement in process efficiency by up to 30%, improvement in customer service and management control as well as reduced support cost for back office operations.

Model 3: Co-existence

This model is adopted mostly as an intermediate step, before moving to a best of breed approach. The key issues involved here are related to the complexity of technology integration, for integrating systems of both the firms.

Benefits of BPM-SOA

A well defined SOA architecture incorporating Enterprise Service Bus (ESB) will provide location agnostic capability, thus reducing time and cost for technology integration.

Conclusion

Applying BPM & SOA for integrating processes in an M&A scenario helps the new entity to leverage the core competencies of a firm, and build solutions that are repeatable/transportable. BPM-SOA helps achieve robust integration at all three levels – Business, Technical and Operational, across the different applications in all scenarios emerging from the strategic intent of the M&A. BPM-SOA should be applied considering the issues related to appropriate M&A integration model adopted by the organization. Only a successful integration can result in an entity that has streamlined and optimized processes that would help in the growth of the organization. Thus BPM-SOA plays a pivotal role in ensuring the success of a Merger and Acquisition.

Parthasarathy Gopalakrishnan
Many organizations are embarking on a journey to modernize their IT systems to meet changing business needs. Other major reason for modernization is to reduce cost and reduce risk. Service Oriented Architecture plays a major role in Enterprise Modernization.

Introduction
Information technology in the form of early legacy implementations has been providing high operational benefits to enterprises, like speeding up the process time, reducing error and improving consistency of operations. Enterprises, having realized these basic benefits, started panicking as these IT systems were unable to cope up with the dynamic changes in business. Business processes of any enterprise are highly dynamic and high agility is expected in the associated information technology (IT) systems. Also, there have been major advancements in technology over the past decade. These drivers underline an opportunity for the modernization of enterprise systems.

Traditionally, systems were designed to operate in discrete mode with limited real time integration. Such designs were created primarily due to lack of technology capability or of vision in designing the system landscape. Discrete operations of systems will create issues of redundancy, inconsistency, and increase in processing time and operating cost. Service Oriented Architecture (SOA) is designed to address these issues and to provide business optimization for an organization.

Hence the key focus of an enterprise modernization is to apply a paradigm SOA system in the IT landscape of the organization. This approach addresses the drivers of modernization and SOA adoption together. The key benefit of this exercise is cost effective modernization and reduction in TCO in the post modernization scenario.

Enterprise Modernization
The modernization of legacy systems can be achieved by multiple means, including enablement, re-hosting to open system, rules externalization, application simplification or even hybrid models. The decision on the modernization option is highly context specific.

• Re-hosting a legacy system (say, mainframe) to an open system brings a significant reduction in the maintenance cost of a system. Traditionally, the cost of maintaining legacy systems is higher. Many re-hosting solutions are available in the market with a proven track record in terms of cost saving and effectiveness. A tool based approach in re-hosting ensures a faster and error-free modernization process.

• Rules externalization is the process of extracting business rules from the legacy system and deploying it in an external configurable system. This reduces the maintenance cost as the change of business rules is made easier and faster than ever before.

• Web enablement of a legacy system helps to expand the reach of a system to a wider audience. Also, increased revenue from web enablement will be a long term benefit for an organization. Many cost effective solutions can be used for realizing this approach.

Process Modernization
The discipline of process modernization, although old, has increasingly adopted newer techniques, tooling and technologies for incorporating process improvements. In the early 90s the process modernization projects focussed on re-engineering. However the focus has now shifted to identifying the best practices, automation and creating and assessing performance measurements. The basic objective of process modernization is to achieve work simplification, visibility and control. Today, BPMS suites have evolved to support business processes modernization by bringing the key aspects of process, people and technology together.

SOA in modernization
Modernization initiatives can have a strategic or a tactical approach. Strategic modernization is carried out to align the IT systems with corporate standards and vision. The role of applying SOA in modernization will be a classic example of following a strategic path towards Enterprise Modernization.
Legacy system design has had minimal focus on reusability, while any modernization that is aligned with SOA vision ensures a great deal of reusability in the organization. Modernization focused on the improvement in the reusability factor results in huge cost savings in the long term. It also ensures a reduction in the footprint of the code base.

By enabling real time integration of multiple systems in an organization, SOA provides a tremendous cost savings through increased process efficiency improvement and reduced in cycle time. Enterprise modernization paves the way for this as all legacy systems will be morphed to participate in a seamless integration paradigm. Modernization of legacy systems by applying SOA does not need drastic re-writes of applications but can be achieved through simple service enabling techniques. A classic example is SOA modernization of an insurance domain where multiple policy admin systems, claims, reinsurance system etc can communicate in real time and thereby improve the process efficiency and reduction in cycle time.

In legacy systems issues such as un-interrupted down time can be resolved by modernizing these applications and hosting them on a platform with niche efficiency. An SOA based solution helps in effective granular monitoring and rectification of such issues. An emerging trend in modernization of legacy systems is the adoption of Software as a Service (SaaS) pricing model in the modernization solution. This ensures that customers pay for services on a pay-per-use basis. It also ensures that legacy systems can be centralized by a hosting company and reused by multiple customers. This reusability is achieved by legacy program rationalization, service enablement of legacy programs and effective governance. The SaaS model helps the organizations to share the investment with peers and there by benefit from a huge cost saving.

These factors substantiate the claim that adopting modernization solutions designed as per SOA can reduce costs.

Case in Point
A leading securities customer of Wipro technologies had a trading system built on a legacy language. This system had green screens and was monolithic in nature. It had a challenge of integration with other systems and non-web UI makes the user experience a bitter one. Wipro modernized the entire trading system with SOA principles, thus ensuring a means for seamless integration with other systems. This also ensured the reusability of services reducing costs of further development. Modernized web-enabled solution also enhanced usability experience of end user community.

Challenges in modernization to SOA

- There is no proper documentation for most of the legacy systems. This introduces a risk in the modernization project where the choice of modernization is rewrite existing applications. It is a high category challenge and hence the mitigation plan for this challenge is key to deployment of effective modernization solution. A strong rules extraction framework can reduce the risk and ensure successful modernization. Organizations like Wipro Technologies have vast experience in this applying framework to handle complex modernization projects.

- Dependent systems of legacy architecture may be impacted during the process of enterprise modernization. Performing a detailed impact analysis of the legacy program using a tool based approach will largely mitigate this challenge.

- An implicit requirement in modernization is retaining or improving the non functional requirements of a legacy system, and most modernization solutions will provide sophisticated mechanisms to handle this challenge. It could be handled by cluster/load balancers, caching frameworks, and security solutions of the modern era.

- Designers and developers in any organization are traditionally tuned to an application-based view of the IT landscape, but SOA needs a service-based view. This large quantum shift may have few initial hiccups but will be adopted in the course of time.

Conclusion

Enterprise modernization should not be perceived as an expense, but rather as a potential saving for the bottom-line of an enterprise. Strategic modernization initiatives towards SOA will generate high tangible and intangible benefits to the organization. The success of a modernization initiative largely depends on comprehensive vision and proper planning of the exercise. The best place to begin modernization initiatives is to assess and rationalize the existing IT landscape.

Sankara Subramanian
Reducing the Carbon Foot Print in the environment has become an important imperative for global organizations. In large enterprises, IT systems contribute to 2% of the total carbon emission and there is a huge scope for reducing it significantly.

Why Green?

The adoption of Information Technology across organizations continues to grow at a rapid pace. This, in-turn stimulates greater demand for conventional energy needs (i.e. electricity) and also generates a significant amount of e-waste. These two factors alone have resulted into approximately contribute 2% of the total CO2 emission in the world.

Green IT is a paradigm espoused by organizations, for initiatives aimed at reducing carbon footprint. Conceptually “Green” explains initiatives to build a sustainable existence and growth model so that the planet Earth remains habitable. It imbibes a message to limiting the consumption of resources meant for our future generations.

The resources that IT systems use are electricity, materials and space. Resource wastage happens in the form of heat dissipation, lower than expected utilization of the major IT resources, and computer servers. Green IT essentially means reducing resource consumption and resource wastage to cause lower carbon emission.

SOA and Green

The first step in any ‘Greening’ process should be the measurement of current state, because “what gets measured gets controlled”. One of the parameters that can be easily measured is electricity consumption across data centers.

SOA helps in this process by making this data available as service, from sources such as an ERP application, payments application or any utility application. Such a service once built, can be used to create ‘Green Dashboards’ which can provide the right visibility to the stakeholders. These services can also be useful in building applications for reporting regulatory compliance. With further enhancements, this measurement can be taken to the next level of granularity in terms of electricity consumption for: servers, cooling and other devices (such as power distribution units etc).

As the number of IT applications for monitoring and controlling the carbon emissions is slated to grow, use of these applications themselves should not add to the carbon emissions, i.e. applications with lower carbon footprint. Since SOA principles promote reuse, adoption of SOA will help in lowering the carbon footprint of the application.

SOA and Virtualization

Virtualization is an option that leads to Green - IT infrastructure. Most of the large Green IT initiatives today exploit virtualization at all levels to reduce resources consumed by IT. Virtualization works at many levels of IT architecture. For Service Oriented Architectures, the following levels are relevant:

- Application virtualization
- Operating System virtualization
- Hardware virtualization

Wipro Carbon Management Solution

Wipro offers a Carbon Management Solution which helps enterprises model, measure, manage and monitor their carbon emissions; and monetize reductions in carbon emissions. It will enable enterprises to participate in mandatory reporting programs. This solution is offered in a SaaS model and is capable of integrating with enterprise systems for easily accessing sources of emission.
Analysis of the concept of Services in SOA and its suitability to virtualization will help in understanding how this combination enables Green IT.

In SOA, services are represented by service definitions. Service definitions define virtual end points. The definitions of these end points are stored in a service registry. So the client of a service is completely isolated from the implementation and location of the service.

The isolation of implementation and location are basic requirements for virtualization. If the client of an application is dependent on the application’s location, operating system or hardware, it will be very difficult to virtualize the application, but with the help of SOA, we have the opportunity to move the service providers (i.e. the applications that implement the back end logic of the services) anywhere.

Use cases

(i) The best use case for Green IT in the current market scenario is the data center. There is a huge opportunity here for potential cost savings.

Data centers consume more energy per square foot than any other part of an office building. Energy consumption in the data center is predominantly from two loads: servers and cooling. Reduction in energy consumption here leads to cost savings.

Reducing the cost by reducing number of servers, which in turn reduces the power consumption (also reduction in floor space) and cooling needs leads to cost savings. Reduced cooling needs will in turn lead to lower power consumption i.e. more cost savings. Further savings can be realized in terms of reduction in the staff needed for data center operations.

Virtualization and Cloud computing technologies offer great means of reducing costs associated with Data Center operations. Adoption of SOA creates a foundation for virtualization and cloud computing.

(ii) Enhancing the brand value by going Green is another major use case.

Today, organizations take proactive measures to disclose their carbon footprint, and this is being done to meet the obligation of social responsibility. Awareness about being Green among the consumers is going up and these consumers prefer to consume the services or goods produced by the companies which have undertaken to meet this social responsibility. Going “Green” could help in strengthening the brand name of an organization. Organizations would see greater value in proactive preparedness to meet the compliance norms related to Green, which would come into effect in the near future. SOA plays a crucial role by making the data available from required applications to measure such compliance as a service.

Planning SOA for Green IT

• Identify virtualization opportunities in the architecture
• Establish a Green Data model for representing entities to be measured, controlled and communicated
• Identify the right tools available to compute the carbon footprint. Develop services to provide data to such tools and establish the right measurement mechanism
• Expose application features as services to enable high degree of reuse
• Ensure that services follow the basic SOA principles of location and implementation independence
• Leverage service virtualization standards like OGSA (Open Grid Service Architecture)
• Evaluate software available in the market for workload distribution management. Such software allows applications to request capacity from the cloud for a specified duration, and use the capacity during the allocated time. Such strategies increase capacity utilization, avoiding the need for new servers for each new application.

Summary

With large scale depletion of our hydrocarbon energy sources and denudation of forest cover, our planet cannot sustain the energy consumption needs required to sustain the levels of growth being experienced by global economy. We have the choice, and opportunity, to wait, and think about whether we need to continue exploiting our living environment, or if we can build a more sustainable growth model.

Going green was an expensive proposition earlier, but new technologies have lowered those barriers. SOA, along with virtualization technologies present a great opportunity for IT divisions to contribute to an organization’s green initiatives.

Prajod Vettiyattil, Sanjay Narang, Prasanna Hegde

“Companies that slow down or cancel strategic IT initiatives due to general economic slowdowns are the least likely to prepare for and appreciate the benefits of SOA”

Wipro
Cost Cutting Through the Use of an Integration Competency Center or SOA Center of Excellence

Top-performing integration competency centers (ICCs) can help companies achieve significant cost savings on application integration projects. Such savings will be particularly useful to IT organizations should the economy become challenging in 2008 and 2009.

Key Findings

• ICCs can save an average of 30% in integration application and data interface development time and costs, and 20% in maintenance costs, and achieve 25% reuse of integration components.

• Integration projects (frequently as part of wider service-oriented architecture [SOA] initiatives) often run between $250,000 to $1,000,000, which means that the potential savings can easily be $100,000 or more.

• Through 2010, many ICCs will fall short of those benefits because of insufficient sponsorship and other organizational execution problems.

Recommendations

• Every IT department of any size should have an ICC (although the ICC might be only one full-time equivalent [FTE] covering all ICC roles in small IT departments).

• Establish clear measurements of ICC benefits (linking them to business objectives) and communicate them to upper management and sponsors.

• Demonstrate and communicate daily that ICCs save money.

• Recognize that organization and governance drive application integration and SOA project costs.

• Continuously watch out for and proactively avoid classic ICC hurdles.

ANALYSIS

The Integration Competency Center

An application ICC is an organizational unit that routinely addresses several integration planning and control issues through a common set of defined technologies, methodologies and policies. This leads to reduced costs and risks, better manageability and significant economies of scale in terms of technology and skills. ICCs are also frequently used to drive SOA projects and, thus, include additional roles, such as management of SOA governance, and are sometimes renamed to SOA centers of excellence (COEs). This expansion of the ICC’s roles and responsibilities often results in the ICC evolving into an SOA COE.

Typical Cost of Integration Projects

Integration projects vary widely in terms of scope and cost, but the following are typical costs associated with small, midsize and large integration projects:

• Software License Fees for Integration Software: Typically $1 to $200,000; minimum $20,000; maximum more than $2 million (these fees are usually spread out in several integration projects, all using the same technology)

• Software Maintenance: 18% to 22% of the initial discounted software license fees

• Consulting Services From Integration Software Vendor: $12 to $20,000 (60 to 100 hours at $200/hour – but this can be consistently skewed upward because of the current weak exchange rate of the U.S. dollar)

• Services of a General System Integrator
  • Small project: $200,000 (one to two times software licenses fees)
  • Midsize project: $900,000 (four to five times software license fees)
  • Large project: $10 million (10 times software license fees)

• ICC Personnel
  • Typical: Five to eight FTEs
  • Minimum: Two (one for small IT departments)
  • Maximum: More than 50

• Hardware (may be capitalized) and Network Costs of Advanced Integration: 50% to 80% of the initial discounted software license fees (This percentage actually decreases sharply for more-powerful and advanced hardware configurations.)
One-Time Cost to Implement Recommended Action(s)
Integration projects (frequently as part of wider SOA initiatives) often run from $250,000 to $1 million.

Getting Your ICC to Work: Classic ICC Hurdles
There are three major, lethal “showstoppers” for the ICC.
• **Unclear corporate governance policies that muddle the ICC’s decisions:** This is probably the most-common reason why the benefits of application integration initiatives are diluted, and one of the most difficult and time-consuming problems to solve.
• **Selection of a suboptimal integration suite product:** To start addressing application integration, companies often try to select the “best” integration platform that can address their initial integration requirements, hoping to avoid investing in further platforms. Most of the time, however, this is wishful thinking. In most cases, more than one product is the best fit for diverse integration requirements; thus, forcing the company to use only one product for all projects is more likely to lead to failure.
• **Underestimation of integration costs:** Some companies don’t realize how expensive application integration is. Sadly, these same companies also don’t realize how expensive the lack of application integration is.

Other common ICC hurdles include:
• **Difficulties in setting up an ICC from scratch**
• **Pre-existing and conflicting political alliances with installed integration vendors**
• **Evaporation of the business sponsorship**
• **Lack of intraenterprise communication on the ICC’s existence and benefits**
• **Unclear measurement of ICC benefits**
• **Internal IT department organizational issues**
  • Preventing all ICC functions (or several noncooperative ICCs) from working effectively together
  • Causing suboptimal cooperation between the ICC and other IT departments

How the ICC Reduces Integration Project Costs
An ICC provides an organizational platform to address the various integration issues through a common set of well-defined technologies, methodologies and policies. This leads to reduced cost and risk, better manageability and significant economies of scale in terms of technology and skills. Because integrating applications is costly, error prone and requires a long learning curve, it is somewhat common sense that isolating all the resources who do integration work in a single group within the IT department will put those skills in common and leverage them, promoting reuse.

Typically, in application integration and SOA projects, implementation decisions are made in separate development groups. Unless strict governance provides the necessary coordination, different groups (or even individual programmers) will take different and uncoordinated decisions, multiplying the diversity and driving the reuse down. Imposing decision rules and localizing them into the ICC appears to be the closest option at hand, but it’s not that simple.

SOA projects will be easier in companies that have an ICC. However, those skills are not enough to make the associated decisions or to ensure those decisions are endorsed companywide. SOA requires more-formal discipline and governance than the ordinary structured integration work, especially between the ICC/SOA COE and the rest of the company. To extend its responsibility into driving the growth of an SOA, an ICC needs to adopt new structured procedures, in addition to the ones already in place, for the design, reuse, operation and maintenance of services.

Gartner primary research indicates that the ICCs main measured benefits are reductions in application and data interface development time and costs (approximately 30%) and in maintenance costs (approximately 20%). Those reductions are mainly driven by the reuse of integration components across several projects, which is, on average, 25%. Several other intangible benefits include the availability of near-real-time key information and improved quality of business processes. These benefits result in dramatically shorter deployment time, and quicker operation and maintenance for the integrated applications.

Range of Potential Net Savings in 2008 and Annualized Savings in Future Years From Recommended Action(s)
ICCs can save an average of 30% in integration application and data interface development time and costs, and 20% in maintenance costs, and achieve 25% reuse of integration components, which means that potential savings can easily be $100,000 or more.

ICC Take-Up
ICCs are mostly found in large companies, which frequently have more than one and federate them through a careful split of the areas of influence. Most midsize companies haven’t yet created an ICC,
but many will as they implement more-sophisticated integration tools, Web services and SOA projects.

The ICC carries out projects, such as integrating the processes of order-to-cash, loan origination or claims adjudication across disparate applications and systems, and sets general guidelines and standards for integration work. These projects have high business value, have to put together different and diverse portions of an IT infrastructure, and have to reuse the integration interfaces across different, integrated applications. In most ICCs, reuse of all the integration work is essentially automatic, because decisions on how to perform integration work are taken in the ICC, and reuse is part of the “good housekeeping rules” by which all effective ICCs work and deliver value.

What Will Happen When the ICC Guidelines Are Followed

When the majority of integration work for a company is funneled through the ICC, ICCs save an average of 30% in integration application and data interface development time and costs, and 20% in maintenance costs, and achieve 25% reuse of integration components. Top-performing ICCs save even more. Integration project costs often run between $250,000 to $1 million over several years, which means that the potential savings can easily be $100,000 or more.

What Will Happen If These ICC Guidelines Are Not Followed

Integrating more and more applications is not an option for any IT department nowadays. The real choice is between doing it with a structured approach or on a piecemeal basis, increasing the population of one-to-one connectors, which soon becomes unmanageable and costly to maintain. These costs are sunk into people’s time. They are difficult to flesh out and expose, as quite a lot of these one-to-one connectors are frequently done with little management approval or supervision. They are easy and inexpensive to implement, but costly to operate and maintain. If organizations don’t implement an ICC, then their integration costs can only go up dramatically.

One common argument against the ICC is that it is expensive, because organizations must allocate people to it. But those are not net new FTEs, because integration work needs to be done in one way or the other, and organizations would allocate FTEs to integration in the context of projects anyway. So having these FTEs in a common shared organizational body would help optimize the use of skills that are hard to find and take a long time to build up. This is remarkably close to common sense.

About 10% of ICCs will actually disappear, because executives will find them ineffective. Another 10% (especially in large and multinational enterprises, or in merging entities) will lose peripheral business unit focus and will be federated into global and centralized ICCs. Federated ICCs are a good idea (multiple autonomous ICCs in an organization that are not federated in an effective fashion normally cause several issues) and deliver benefits, but while the various ICCs’ consolidation process is in progress, the typically long setup of appropriate governance mechanisms around them will somewhat dilute the benefits. The majority of ICCs (about 45%) will remain operational, but partially deliver the anticipated benefits because of issues (mainly organizational) that the company, the CIO or the business sponsor is not able or cannot take the time to resolve. The remaining 35% will be fully successful.

Advice/Recommendation

Every IT department of any size should have an ICC. Its benefits quickly pay off the organizational challenges that must be addressed while an ICC is created. ICCs/SOA COEs are absolutely vital in every SOA project out of the pilot stage. Growing an SOA will form ICCs in companies that don’t have any, but will cause significant organizational turbulence, because most SOA decisions will involve several constituencies in the company (for example, process architects and developers) that might not be used to working together.

A Word on SOA Cost Savings

Because an SOA is about isolating and recombining (frequently, pre-existing) functionality, the majority of SOA projects include a lot of integration work. IT cost savings are frequently flagged by SOA technology vendors as one of the main benefits of SOA. Data from mature SOA implementations confirms that successful SOA projects do lead to IT cost savings in the medium to long term. Modular systems are easier to modify and update/upgrade, leading to significantly lower maintenance costs for established IT systems. Costly software testing can also be positively affected via SOA, because consumers need only be concerned with the service contract, not the service implementation. This, in turn, enables the service implementation to be tested independently and consistently, thereby reducing the cost and time required for software testing.

However, surveys indicate that it takes a considerable amount of time (typically two to three years) before leveraging services covers enough application functionality to reverse increasing IT costs. Even SOA projects having reuse as a primary objective (a minority compared with all SOA projects started to get agility) typically takes one to two years to start reducing project cycles. So SOA in itself is not a quick fix against spiraling IT costs: ICC/SOA COE economies of scale, as described above, are typically much quicker to “kick in.”
Technology Innovation to reduce Capital and Operational expenses

e-Enabler - for rapid development of SOA based applications with low TCO

Introduction

When organizations look for new business models and managing costs, they look for innovative IT solutions to tap new opportunities. Projects may have been revisited / stopped because it is recognized that their business cases are no longer valid. This includes many SOA initiatives, even when these were projects based on sound long term business cases at the time of initiation.

Part of the challenge is the myopic approach to stall SOA-based projects merely going by the established view that investment in SOA requires a long term perspective – bringing reuse through time.

Advantages of SOA in an uncertain business scenario

A deeper analysis reveals many advantages in overcoming immediate challenges by adhering to the ground rules of SOA adoption while being aligned to the long term plans.

a. In order to implement SOA, existing systems are investigated and rationalized. This forms an excellent chance to improve consistency and coherence as well. While the case is cost reduction, the effect is a much better foundation to build business class services.

b. Streamlined processes ensured through services connected through interfaces that provide a dynamic provisioning of realized capabilities as and when required.

c. Attention to robust and layered architecture is necessary because investment can be reduced. This requirement can be taken as a step to evaluate and design a Service-Oriented-Architecture based solution.

d. Organizations want to ensure effective risk management and there is a mandate for implementing efficient governance processes, which is a critical need for SOA implementation.

e. Practical SOA Adoption is gaining acceptance where SOA is applied in areas where immediate ROI’s are visible. These initiatives can be aligned with a strategic SOA roadmap so the processes can be easily integrated when organizations are ready to make more investments.

SOA is a long-term IT methodology and also considered to be a long-term business function. On true adoption, it should not be susceptible to short-term economic or business dynamics.

e-Enabler

At Wipro, we have leveraged the collective experience of the large SOA implementations and developed an approach to realize the above mentioned benefits of adopting SOA. In conjunction with our strategic partners IBM, SAP, Oracle and SUN an SOA we offer a jumpstart platform, called e-Enabler, for rapid development of SOA based applications with low TCO to our global clients.

During SOA adoption phases, a common observation is the exponential increase in complexity as new functionalities are loaded on to existing IT System.

This complexity can be attributed almost principally to sub-optimal architectural design. The consequence of immature architectural design results in increased time and effort with every addition of a new functionality. It also leads to rising and disproportionate, often unjustifiable, support cost.
In the “On Demand” era, one of the key requirements is to meet changing business requirements with flexibility and speed.

The SOA platform (e-Enabler Solution Kit) captures the essence of “On Demand” by providing a SOA-based prescriptive architecture. The solution helps achieve flexibility and speed in meeting client demand, an enterprise framework to expedite the application time-to-market with rapid compliance to SOA, and an application management process to ensure successful execution and delivery.

**Enhanced Benefits**

There are a number of architectural frameworks that have tried to address the common architectural problems by providing options to separate concerns, but fall short by not emphasizing the notion of services as defined by SOA. Also, these frameworks have no repertoire of components/services that can be used to get business benefits like effort saving, off-the-shelf compliance to standards or quality of services. The uniqueness of e-Enabler is that it addresses all of these in the same platform.

Enterprises having such platform for rapid SOA enablement are much better placed to flash that ‘promised-agility’ needed to compete in today’s business requirement when investment decisions are stringent and planned for high ROI.

These potential opportunities for redesign of architecture, governance, and rationalization of legacy systems – will indirectly enable adoption of the key principles of SOA. SOA is needed more now, because organizations would be using more of their IT budget towards ‘high leverage’ projects as opposed to reinventing, re-securing, reintegrating and rebuilding the wheel for each new project.

Wipro’s robust capability for SOA adoption with the e-Enabler platform is perfectly poised to ensure mitigation of the above explained concern.

Ritwik Batabyal
Applying BPM and SOA to reduce IT expenditure

Optimizing spend in current scenario
Applying BPM and SOA provides the flexibility, agility and reusability in enterprise processes and IT systems. It improves time to market and reduction in cost of building composite applications. In order to achieve this, organizations should focus efforts on proper planning, governance and optimization of IT and business processes.

Introduction
Service Oriented Architecture is an architectural style that makes IT system flexible to meet the changing business needs of an organization. Applying SOA principles help in reducing time-to-market and lower costs of implementing IT systems.

BPM on the other hand, focuses on improving and managing business process to enable an organization meet its business objectives efficiently. Applying SOA and BPM requires a strategic approach and needs sustained efforts over a period of time to realise desired benefits.

The focus of BPM SOA initiatives to reduce cost differs based on the maturity of SOA adoption in organizations. Organizations in the early stages of the SOA journey are focusing on cost effective solutions for building the SOA infrastructure. Organizations in mature adoption stages that have a good portfolio of services built over the years are focussing on controls that can reduce cost of service delivery, improve time to market and increase reuse.

BPM implementations enable operational excellence by improving business performance and reducing cost. But, many of the BPM implementations end as process modelling exercises and workflow automation solutions. Organizations have to focus on BPM efforts that can bring business value by identifying and optimizing the right processes.

This article analyses key constraints that organizations have to tackle to reduce cost and explain strategies that can be applied in the short term to help reduce Total Cost of Ownership.

Key constraints increasing costs on BPM SOA initiatives
SOA Infrastructure
Today, many enterprises use a host of Integration Middleware, SOA Middleware and SOA Governance tools accumulated from different vendors. This would have accumulated over a period of time owing to factors such as siloed efforts from different business units, mergers and acquisitions, inherent constraints in existing integration technology. This leads to additional cost of integrating existing applications, difficulty in negotiation prices with vendors, constraints of skilled resources with expertise in multiple tool sets and increased development and maintenance effort.

And, organizations in early stages of their SOA journey face the burden of bearing the upfront infrastructure cost for various projects.

Service Delivery
Most of the enterprises are developing services as a part of project life cycles. This leads to duplication of SOA resources across LOB’s, inflexible service design and overall reduction in reuse potential. The organizations which have a focussed approach through Integration Competency Center (ICC) are also facing some of these issues due to lack of focus on SOA Governance.

SOA resources also lack alignment to business domains making service identification and reuse analysis difficult to implement.

Application and Business Process Portfolio
Complexities of Mergers and Acquisitions, lack of process governance across lines of business/ geographies, similar/ redundant processes and multiple manual handovers in the business processes (across IT and Business) are leading to increase in cost of ownership.

Service Portfolio
Duplicate services or multiple versions exist due to siloed efforts in different projects, development of integration oriented services, inadequate project timelines and inflexible designs of IT applications. The total cost of maintenance increases year-on-year due to these duplicate services.
SOA Quality Assurance
Organizations need to adopt an exclusive strategy for testing SOA services than those normally adopted in regular application testing. The services testing cost increases proportionate to the number of users of these services while testing. This is because; changes have to be tested with users online. There is no test automation at present and there is duplication of testing efforts across service providers and consumers.

Key Strategies that can be adopted to reduce TCO
This section highlights key strategies that help in reducing Total Cost of Ownership (TCO) and improving operational excellence while implementing BPM and SOA solutions.

Optimizing cost of SOA Hardware and Software
- Product consolidation can reduce operational costs and future development costs in the following ways:
  - Expertise of SOA consultants can be cross leveraged easily
  - BPM – SOA infrastructure from a single vendor can interoperate better and lead to quicker resolution of product level issues
  - Optimal utilization of Hardware for deploying the SOA platforms
  - Open source products can be used by organizations in early stages of implementing BPM and SOA. Organizations with advanced adoption stages of BPM-SOA can utilize Open Source products for non-core less-critical processes. The strategic requirement and roadmap of SOA adoption should determine the adoption of appropriate products.
  - Hardware consolidation for less critical and non-real-time (offline processes) helps in reducing the cost.

SOA Competency Center
- SOA Competency Center is a natural evolution of Integration Competency Center (ICC) concept with appropriate governance and controls in place to ensure SOA adoption.
  - In the absence of a SOA Competency Center different development groups in the organizations make independent decisions resulting in different standards/patterns for implementation and reduced service reuse. Deploying SOA Competency Center can reduce cost by streamlining implementation efforts through effective enforcement of governance and process controls.
  - Similarly, a Business Process Competency Center would provide an integrated view on business domain, business process, modelling and rules. This will help in streamlining and optimizing the business processes across the organization.
  - Resources across all areas of expertise (architects, process consultants, modelers, and developers) can be cross leveraged across projects in a competency center model there by reducing cost.
  - A strong knowledge management initiative is critical to successful adoption of competency center model. Best practices, re-usable assets, frameworks and standards are constantly improved at the competency center which would help in reducing the cost over the project life cycle.
  - A domain centric alignment of key resources (SOA Architects, Process Consultants) would help build the domain knowledge within the IT organization and can go a long way enabling reuse.

Application and Business Process Rationalization
- Application Rationalization enables easier alignment of applications to business process and minimizes cost by eliminating redundant applications and helps focus investment on more critical applications.
  - Automated Business Process Discovery technique could be used to collect information from processes to re-model, make improvements and save cost.
  - Optimization of business processes as part of rationalization efforts will help leverage the SOA services to enhance the benefits of reuse & standardization.

Service Rationalization
- As redundant services across the enterprise increases the cost of maintenance, service rationalization exercise should be undertaken to reduce TCO.
  - Service rationalization needs a clear strategy and a roadmap for rationalization considering the new business services that will be developed in future. Services have to be tested and certified for all existing consumers after rationalization exercise to enable easier adoption of rationalized service.
Business Process and Service Testing

- Business Process and Services Testing using specialized testing tools (independent of GUI or delivery channel) can provide significant cost reductions and agility.

- Delivering testing services as a centralized SOA Quality Assurance service enables better impact analysis across consumers and acts as a consolidated test repository for all services.

Software as a Service (SaaS)

- For a short-term cost savings, enterprises can partner with other business to use “Software as a Service”, instead of developing services from scratch.

- A detailed analysis has to be done to use SaaS, as the dependency to the external vendors can impose risk on availability of the service, when the vendor is out of business.

Cloud Computing

- Many companies would resort to SOA to leverage the resources provided on the cloud. A careful analysis of data integration requirement between the cloud and the enterprise has to be performed before deciding to leverage cloud services.

Case in Point

Wipro has helped a leading Insurer in USA to adopt some of these strategies as part of their SOA program. A competency center was set up and over 50 business services were delivered to production over the last 2 years. A 30% increase in productivity was achieved by leveraging Competency Center model by following established patterns and increased reuse. The customer is also leveraging the benefit of SOA testing, to perform delivery-channel independent testing of the services. Also, service identification is done upfront and many existing interfaces have been leveraged to create services addressing all the service consumer requirements.

Conclusion

The use of SOA in principle helps reduce TCO of the IT systems. This article discussed key constraints that have to be tackled and the key strategies that could be adopted to reduce the Total Cost of Ownership. Some of the key strategies include deploying BPM and SOA competency centers, leveraging process and service testing solution, implementing effective governance and controls etc. Organizations should look at investments in these directions, as applicable to the strategy outlined for their BPM - SOA adoption journey.

Ramesh Ranganathan, Sasi Koyalloth
Cloud Oriented Architecture

“Much like the aurora borealis, which emerges when solar winds, charged particles, and Earth’s atmosphere collide, “the cloud” is emerging at the convergence of three major trends — service orientation, virtualization and standardization of computing through the Internet.”


The emergence of Service Oriented Architecture (SOA) as a practice of defining and delivering an Enterprise Architecture, has enabled a high degree of collaboration and reuse across organizational and technology boundaries. One of the fundamental objectives of SOA is provide better alignment between the business and IT. SOA enables IT to be flexible and responsive to the changing business needs and not constrained by the existing implementations.

The powerful capabilities of solutions enabled by SOA when combined with emerging paradigms including virtualization and cloud computing define the evolving architectural model for next generation IT solutions.

CLOUD ORIENTED ARCHITECTURE

The diagram below depicts logical view of cloud-oriented architecture showing different layers in the architecture and the various architectural building blocks and/or techniques used in each of the layers.
VIRTUALIZATION

Virtualization is a broad term that refers to the abstraction of the IT resources. Virtualization enables better or optimum use of the computer resources through abstractions. A resource here can be computer hardware, storage, operating system, network, middleware and applications. There are different forms of virtualization techniques in use for different layers in the architecture. Viz.

- Hardware and OS Virtualization
- Platform Virtualization and
- Service Oriented Applications

Cloud Computing

Some key characteristics of cloud services are:

- They are off-site offered by a third party service provider
- They are accessed via internet
- Minimal skills required to implement. Most of the implementation is done through configurations / customizations.
- Self service and near real time provisioning of the services.
- Usage based pricing model

The elasticity of resources without paying a premium for large-scale is a definite advantage that cloud computing has to offer.

ENABLING CLOUD ARCHITECTURE

As described, Virtualization conceptually is an abstraction of the IT resources, and they can be hardware, OS, network, platforms, data, services, business processes and applications. The abstraction / separation of concerns for each of these enables better sharing of the resources and allows the organizations to build better solutions using different sourcing and delivery models.

Standardization plays an important role in improving the accessibility of an IT resource via interoperability and portability of the solutions.

Cloud computing, described as a next-generation service delivery model, is a natural progression from tactical virtualization to strategic service delivery using all the related enablers viz., SOA, virtualization, and standardization of computing. Cloud promises to make the long held goal of providing IT services as utility a reality.

Integration of these different techniques including cloud computing, virtualization, SOA complements each other to build next generation solutions driven by the now evolving architecture which we call as the ‘Cloud Oriented Architecture’.

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<th>Utility Computing</th>
<th>Software as a Services (SaaS)</th>
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<td>Platform as a Services (SaaS)</td>
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<td>Infrastructure as a Services (SaaS)</td>
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BPM SOA Offering

Business Innovation for growth and productivity is a key value derived from a flexible and agile enterprise enabled by SOA. Wipro finds SOA to become pervasive across the enterprise, establishing an environment wherein business, technology, and operations evolve without interdependent constraints and dynamically align to achieve strategic business objectives and address stake holder needs.

Wipro has been a major services provider in the SOA market for many years, viewing SOA to be a strategic imperative for the F1000 clientele that the firm serves. Wipro provides comprehensive services to provide high business impact to its customers across all phases of SOA adoption maturity.

Our industry, horizontal, technology and infrastructure solutions and assets, including proven methodologies, tools and frameworks, provide innovative and flexible approach in deploying solutions to drive business agility. We consistently drive successful business change through our combined BPM-SOA approach, in-depth process knowledge, technology and architectural strengths.

Wipro offers services that embrace the broad range of customers’ business, technology and operations needs in all of the phases in their SOA journey. Key offerings include: BPM - SOA Consulting and Business Process services; SOA Application adoption services; SOA Integration services; Legacy Modernization; ESOA Package Application services; SOA Engineering services; Process Outsourcing services.

About Wipro

Wipro Technologies, a division of Wipro Limited (NYSE:WIT) is the first PCMM Level 5 and SEI CMM Level 5 certified global IT services organization. Wipro Technologies was recently assessed at Level 5 for CMMI V 1.2 across offshore and onsite development centers. Wipro is one of the largest product engineering and support service providers worldwide. Wipro provides comprehensive research and development services, IT solutions and services, including systems integration, information systems outsourcing, package implementation, software application development, and maintenance services to corporations globally.

In the Indian market, Wipro is a leader in providing IT solutions and services for the corporate segment in India, offering system integration, network integration, software solutions and IT services.

Wipro also has a profitable presence in niche market segments of consumer products and lighting. In the Asia-Pacific and Middle East markets, Wipro provides IT solutions and services for global corporations. Wipro’s ADS’ are listed on the New York Stock Exchange, and its equity shares are listed in India on the Stock Exchange - Mumbai, and the National Stock Exchange.