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# The business of process integration

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## Substitute of Abstract

"Imagine if you didn't have common electric outlets and plugs in your house, and every time you bought a new appliance, you had to wire up the appliance to the wires in your wall. And everybody's wires in everybody's walls were different. And everybody's appliance wiring was different. That's really the way it works today with trying to integrate business software applications." – Paul Margolis, founder of the Open Applications Group (<http://www.openapplications.org/>).

**Keywords:** integration, ERP, enterprise applications, Business Process Management (BPM), Service Oriented Architecture (SOA)

The paper describes the value of application integration and the place of business process management. It focuses on the duet BPM-SOA as the successful solution to build the adaptive enterprise of the near future.

## Introduction

Enterprises grow or change in order to meet market demands and remain competitive – new business requirements drive the expansion of IT resources. Successful business development depends greatly on the ability to update, integrate, customize and deploy applications rapidly and provide fast, reliable, interactive data access to end users. In order to be effective, organizations must rigorously manage the change in business processes. Comprehensive business integration is required to manage these increasingly complex information resources in a cost-effective manner. Applications and databases must be blended using an approach that not only provide access to the information and business processes within the system, but also compounds their value as an integrated unit.

The business environment is constantly changing, competitors are breaking in by aggressively pricing their products, new technologies are coming up, customers are demanding more transparency in their order status. All stimuli require responses, timely and effective, responses that need to be implemented fast, but *controlled*. The processes changes need to be strictly managed.

Getting applications to work with each other remains a big challenge for many companies. Like some incompatible puzzle parts, these applications are a big hassle for the companies, keeping them from investing in potentially innovative software that could bring real benefits. On the other hand, the *cost of integration* is high and is growing, because it is not limited to installing new applications only. The larger expense in time and money comes from the huge task of maintaining the integrated system. Some like to call it "the dirty little secret of applications software".

In an enterprise system, it is critical that ERP applications don't operate in a vacuum but communicate with all applications that feed data into a particular process. Even though the magic word and main aspiration for ERP is integration, in many companies applications for SCM or CRM are still disconnected from core ERP systems. Big vendors have tried to lessen the burden by developing their own integration technologies – SAP Netweaver is a good example here.

### Aiming for internal and external efficiency improving

In today's business environment, budgets are stretched and companies have less resources to invest in new information technologies. IT managers became more selective about how and where worthy capital is invested.

As organization expands, there is a growing need for *information flow between various divisions and departments* within the organizations. Integration ensures that different compartments can share information and work together easily, increasing efficiency and lowering operational expenses and resource use. Moreover, integration between departments results in better information for enhanced decision-making.

Application integration and business process management provide a scalable mechanism for reliably upgrading business and integrating existing and future systems to enable efficient information retrieval and performance analysis.

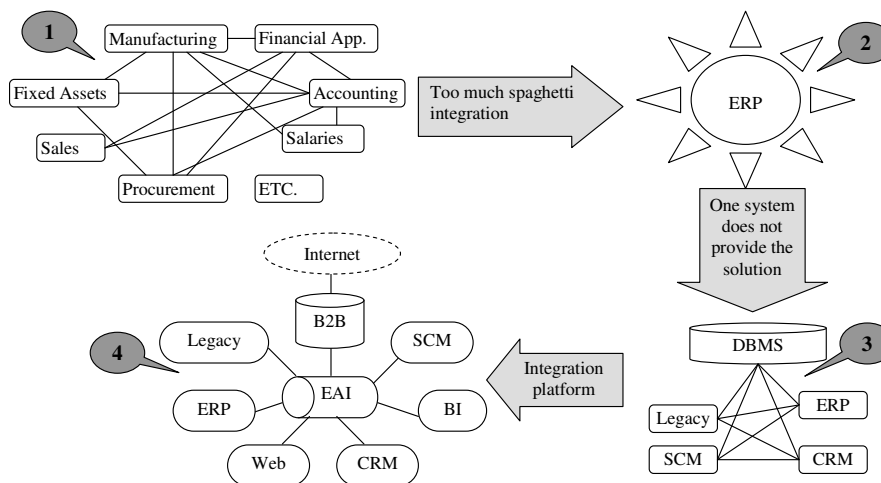
One of the most important aspirations of the present-day enterprise is to *better integrate with its customers and suppliers* to reduce costs and improve revenues. Open standards are required so that organizations can integrate solutions and their underlying business processes from multiple vendors based on existing and future requirements.

Furthermore, in order to meet the demand for online services, organizations must expand their extranets, adding functionality and accessibility to corporate data. An expanded extranet requires that applications be integrated with the web portal in an efficient and secure mode, so that customers have immediate access to financial data and transaction functionality.

### The integration avenue

The information system practice demonstrates that many applications were designed to meet the requirements of a particular problem and business process, without regard to the end-to-end business processes and other application islands of the organization. A large company could have applications that support finance, accounting, human resources, sales and other departments, without any association between the systems or underlying business logic. Attempts to eliminate redundant data entry and the many errors it naturally created eventually led to application integration efforts.

As companies seek to share information across these systems and implement new enterprise spanning processes, they build customized interfaces for the required application integration (see Figure 1). After a while, multiple interfaces get to be built between applications without taking into consideration the architecture of the global environment.



**Figure 1. The enterprise applications integration trail**

Approximately fifteen to twenty years ago, organizations began assimilating their legacy systems in specific industries or divisions by integrating enterprise applications via

data transformation and routing, event triggering, process automation, and adapters. *Enterprise resource planning* (ERP) was the first major achievement for the integration challenge, but it didn't last, as new applications arose. Besides ERP, *customer relationship management* (CRM), and *supply chain management* (SCM) vendors were flourishing at the dawn of the 20<sup>th</sup> century. More and more enterprises automated their transaction systems with ERP software while including the information systems from CRM and/or SCM software.

The *point-to-point integration* involves the development of specific integration solutions – based on traditional client/server tools and communication middleware – that can meet integration requirement of the enterprise applications. The pros are low costs and quick implementation, while the main problem appears when the number of point-to-point integrations increases. More new applications need to be added – that's when administration and maintenance become complicated and the risk of error increases considerably. Costs are no longer low...

EAI emerged as a strategic initiative in the beginning of the new century and got to more than 2 billion USD market last year. In the last five years, *business process integration* (BPI) solutions, namely business process modeling, *business-to-business* (B2B) connectivity, and vertical industry process templates were built on top of these *enterprise application integration* (EAI) systems.

We should point here that the integration (see Figure 1) is categorized into two types: internal integration and external integration. *Internal integration* includes all the integration aspects within one enterprise. While EAI is the typical example of internal integration, *external integration* covers all the possible integration patterns across multiple enterprises (B2B).

Today, the market offers BPM solutions that incorporate both the EAI and BPI functionality in addition to functionalities such as workflow, business activity monitoring, web services, rule engines, and portal capability.

### **Process integration requirements: BPM and SOA**

An *integration project* is about tying together disparate systems (operating systems, different applications, multiple databases) and entities (organizational units, maybe geographically dispersed). It attempts to solve an organization's challenges in business processes and workflow management.

Business processes play a more and more important role in enabling business application integration and collaboration across multiple organizations.

A *business process* is a chain of events that achieves a business requirement. Most activities associated with doing business are referred as processes.

In the business practice an enterprise needs to integrate distinct business processes, not considering the underlying technical infrastructure. Therefore, the end result could comprise several applications and data elements that are *integrated* to produce the desired outcome.

*Business Process Management* arrived on the integration scene as a structured approach employing methods, policies, metrics, management practices, and software tools to manage and continuously optimize activities and processes. Some analysts consider it as a management subject that oversees the business process environment, with the declared target of improving agility and operational performance.

The emerging architecture for the integrated enterprise is *service oriented*, which represents individual business logic components (parts of existing applications) and recomposes them into new business processes in response to the evolving business environment or even in anticipation. In a shorter definition, AMR Research gives a good encapsulation of SOA as "a standard-based approach to managing services made available by different software packages for reuse and reconfiguration".

*Service Oriented Architecture* (SOA) is a conceptual architectural perspective and design philosophy to think about "what a business does" in more granular terms so that a business can be a mix of core, internal functions and outsourced ones provided by other businesses.

Speaking of the architecture for the integrated enterprise literature also markets the *web services*. Web services express a physical architectural idea and a set of standards and techniques for integration. It's the IT view of integration, while SOA is the business view of integration.

After the strategy phase, where desired process changes are identified and objectives stated, the integration project follows the next phases:

✓ *the design phase*, when the functional business processes and the supporting technologies are documented in process models. As part of SOA, the functional processes are treated as service "consumers" and software applications as service "providers";

✓ *the implementation phase*, concerned with the implementation of the technical services that were modeled for functional business processes. For this phase a service repository is valuable, in order to relate technical service descriptions to functional process description. The enterprise services are treated in detail; the currently available services are mapped and a scale for future needs is designed;

✓ *the control phase*, that is critical in establishing if the defined objectives were achieved. Then, the performance capabilities of SOA are measured in the final system. The BAM (Business Activity Monitoring) component not only evaluates the success, but it identifies the weak points in the IT architecture.

The described phases materialize into a *BPM lifecycle*, as the results of the control phase serve as input for continuously improving and optimizing business processes.

A well executed integration project enables the enterprise to quickly adapt to changing business situations without interruptions in the business activity. BPM facilitates the observation and analysis of processes, time and resources implicated, making the necessary adjustments to meet the changing requirements.

## **Conclusions**

By escalating the software choices, the market offers at least four categories of applications that enterprises must integrate: ERP, CRM, SCM, and specific vertical applications.

It is imperative in today's business environment for organizations to have a consolidated view of information stored in multiple applications and databases, and a strenuous execution of business processes. More and more companies recognize that the solution lies in finding a way to better integrate existing systems and processes into the organization.

Many businesses have tried to solve the integration problem by staying with only one vendor. The drawback is about getting less than expected, mainly because one software provider is unlikely able to offer 100% of the business applications required in an organization. Even if the internal integration is, let's say, solved, the external drivers require integration to business partners such as customers or suppliers. Single sourcing one's own software doesn't fix the problem.

Another widely adopted solution is the point-to-point integration (see the 3rd stage in Figure 1).

Even so, complexity is hard to manage, and the step forward leads to EAI, based on SOA and BPM. What's the connection between these two? Many organizations have BPM and SOA initiatives, but most of these efforts are independently initiated and often disconnected. BPM initiatives typically start in the business area and SOA in the IT

department, driven by the developers' interest in newer technologies and easier application integration.

We emphasized in this paper that BPM and SOA are co-dependent: BPM puts a business face on SOA as a key enabler of process flexibility for automated tasks, and SOA delivers the BPM performance improvement results faster, with greater agility for constant change.

However, there's a lot more to come here, as the interest in SOA is just beginning. The challenge is to couple SOA and BPM, aiming not only the operational performance, but the business process excellence.

## References

1. Fotache D., Hurbean L., Solutii informatice integrate pentru gestiunea afacerilor – ERP, Editura Economica, Bucuresti, 2004
2. [http://www.agora.ro/index.php?qs\\_sect\\_id=1947](http://www.agora.ro/index.php?qs_sect_id=1947)
3. <http://www.openapplications.org/>
4. <http://www.sap.com/solutions/netweaver>
5. Malone T. W., Laubacher R., Scott Morton M. S., Inventing the organizations of the 21st Century, MIT Press, Cambridge, 2003
6. McAfee, A., Will web services really transform collaboration?, in MIT Sloan Management Review, 6 (2), 2005
7. Sinur J., Hill J.B., Predicts 2007: Align BPM and SOA Initiatives Now to Increase Chances of Becoming a Leader by 2010, [http://mediaproducts.gartner.com/reprints/global\\_360/article3/article3.html](http://mediaproducts.gartner.com/reprints/global_360/article3/article3.html), 2006
8. Travis B., Ozkan M., Web Services Implementation Guide, Architag Press, 2002
9. \*\*\*, Which Technology for Tomorrow's EAI?, The Insider's Guide to Business Integration, <http://www.ebizq.net/topics/eai/features/1597.html?page=3>, 2002