

# E-BUSINESS

BUILDING SUCCESSFUL COMPANIES

BUSINESS AGILITY

## Making Business Processes Manageable

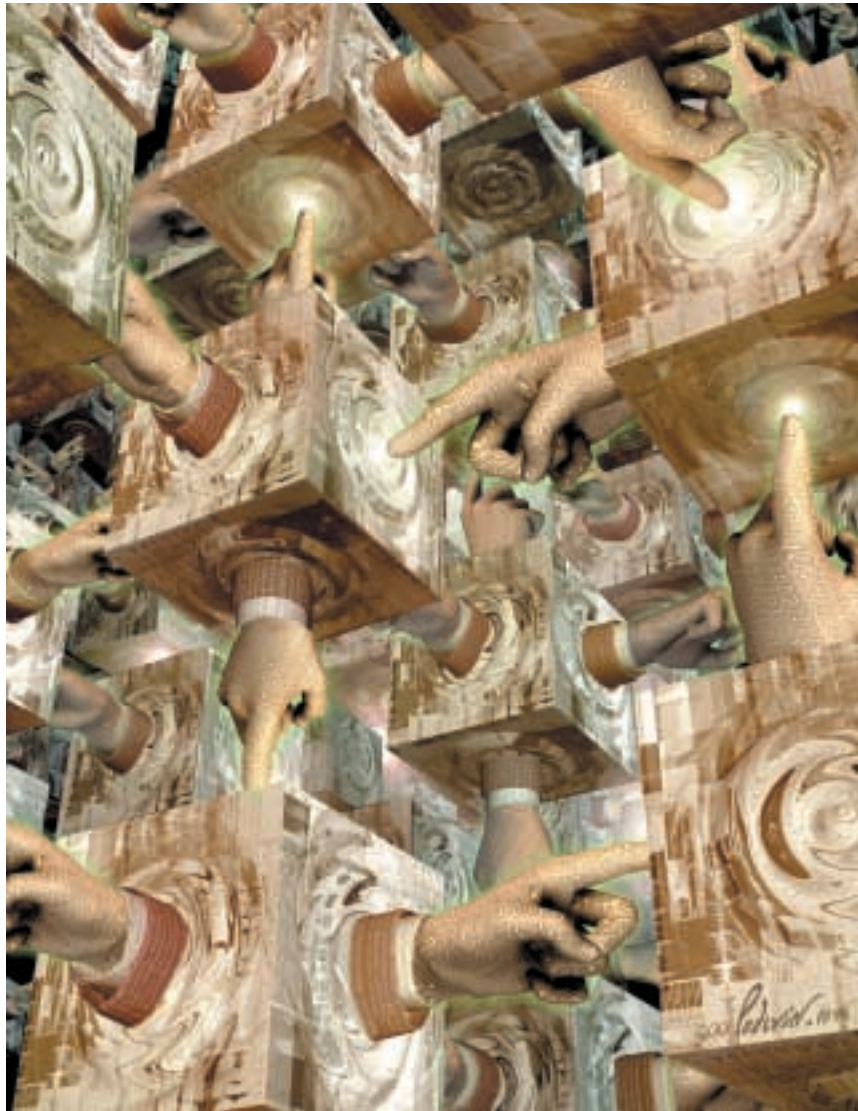
COMPANIES ARE UNDER PRESSURE TO PERFORM BETTER

BY HOWARD SMITH AND PETER FINGAR

**W**HAT HAS SURPRIS- ed everyone in the past few years is how challenging it has been to actual- ly conduct e-business. One of the reasons is that companies have found it difficult to manage their business processes, especially when those stretch across multiple companies, countries, software applications, and systems. But that is about to change.

It must change, because sharehold- ers still expect companies to fulfill the promise of e-business. As CSC Research Services research fellow Doug Neal says, "Companies are under pressure to per- form better, faster, to do more with less, and to be super-pleasing to customers. This means changing the way they manage their business processes, al- lowing them to innovate around their own strategic processes, while simul- taneously collaborating with partners and customers."

ILLUSTRATION FOR IW BY JEAN FRANCOIS PODEVIN C/O THEISPOTSHOWCASE



## E-BUSINESS

### Why Is It So Difficult?

Many companies tried to make their business processes more manageable 10 years ago by reengineering them. At the time, reengineering typically meant designing a new process, then implementing it through a one-time systems and organizational change program. These efforts were more about redesigning processes than about making those processes easy to change and combine with those of partners. Similar problems existed with enterprise resource planning (ERP) and other packaged solutions that emerged later. These packages implemented best-practice processes but did so by ingraining business processes in the software applications that supported them. These solutions had all the flexibility of wet concrete before they were installed and all the flexibility of dry concrete after installation.

Achieving process collaboration inside the enterprise has been difficult enough. Getting processes to collabo-

rate across the networked enterprise is far more difficult. B2B participants may have informal designs for the processes they need to implement, but as they refine those designs they also have to change the technical implementations that support them. This may be possible in simple cases, but in more complex cases, such as advanced supply-chain design, the project may never be completed. According to Ismael Ghalimi, the CEO of Intalio, a vendor of standards-based Business Process Management Systems (BPMS), "upgrading applications or adding new suppliers or business units can cause the technical integration activities to escalate out of control." Adding process tools and best practices to existing middleware approaches helps, but it would be preferable if something similar were embodied in the platforms that support applications.

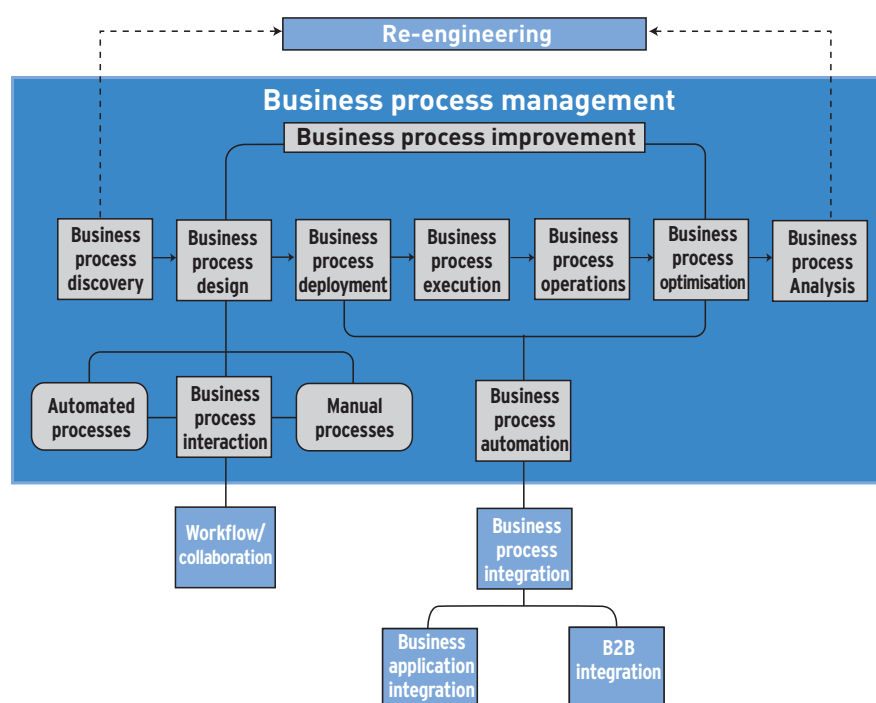
In the networked enterprise, collaboration isn't restricted to any one process do-

main. Collaboration is now 360 degrees, going on at all points on the compass. This creates a many-to-many integration task, and existing tools and techniques simply aren't up to the job. IS departments often try to develop business processes by performing bottom-up technical integration, stitching together systems components that never were intended to work together at the business level. They soon find that these projects denude their budgets and return on investment and that delivery-time scales are often unacceptable to the project sponsors. Not only that, but the ability to change processes thereafter, to develop custom variants, or to optimize processes on particular business channels is hard or impossible.

Not all integration problems are technical. Collaboration requires sharing representations for processes that once were proprietary, and this is not an easy step to take. But if companies are under pressure to be better, cheaper, and faster, they will have to do only what they do best. Whatever a company doesn't do well has to be done by someone else. Hence the growth in process outsourcing and the sourcing of external services. If commerce is to be truly collaborative, the underlying business processes must collaborate, too, both within and across firms. This must be achieved at the business level and from the top down, leveraging existing systems in the enterprise. That is, collaboration must start from the business purpose, not the technical constraints.

## BPM Terminology to Note

Establishing standard terminology for process management is important to avoid confusion in the marketplace.



### What Is Needed

What business needs is not a one-time fix for individual processes but a connected systems environment that can flex and recombine as required by changes in the market. Most companies now want more control over their own processes, more interaction between their processes and those of their partners, and some control over and monitoring of processes performed on their behalf by partners. Firms are also seeking to expose discrete business competencies as processes they can sell to others or through channel partners. To do all this, firms need to understand the processes that underpin their

core business competencies. In short, they need a BPMS capability, not a new suite of enterprise applications.

The situation is similar to the period before the invention of the relational database management system. Business data used to be embedded in applications. As the volume of data grew and the connections between data sets in different applications became important to the business, it became obvious that data should be managed outside the application architecture. For example, managers wanted to analyze the data for business-performance indicators. To achieve this, the new methodology for data management was built on a formal model called the relational data model. Today this is commonplace. By allowing a company to manage its data apart from the applications that use it, the database management system (DBMS) supports a variety of data models and data-management tasks and tools. The IT industry as we perceive it today is largely founded on the DBMS. Today's enterprise applications are primarily concerned with manipulating, reading, and writing data tables—in other words: clerical tasks. This has a profound implication; such applications are stovepipes. Business logic, connectivity, data model, and time all exist within the individual application. Creating and managing end-to-end processes has to date depended upon complex middleware solutions. Not only is this expensive, it is overly complex.

New process-management systems offer a potentially more cost effective, manageable, and simpler alternative. One immediate benefit will be the ability to align processes more directly with organizational objectives. Business processes literally define the firm and represent the source of all competitive advantages and market differentiation. Business processes are complex, constantly evolving, long-lived, numerous, and unique. As the drive toward automation, collaboration, and process outsourcing continues apace, processes have the potential to overwhelm the firm. Process-management systems are tools for managing that complexity.

In this climate, standard processes delivered in the form of standard applications also available to competitors are less and less attractive. Businesses want to shape their processes themselves, perform continuous and incremental process improvement without impediment from technology, and simultaneously exploit low-cost, best-of-breed application compo-

## A KEY ENABLING TECHNOLOGY IS BUSINESS PROCESS MODELING LANGUAGE (BPML), PUBLISHED BY THE BUSINESS PROCESS MANAGEMENT INITIATIVE

ponents. Powerful new process servers will support this approach, providing a hybrid environment combining the best of component application engineering and the best of process engineering. The era of stovepipe applications will eventually give way to the era of process manufacturing.

### A Process Language

The first step is to make processes explicit by abstracting them from application software. This is hardly new. Decades ago, operating systems were recreated by abstracting memory management, file access, and graphical user interface from applications. Database management systems removed both the management of data and the management of the schema. Today, business rules are held and managed in a separate environment. Process management is the next logical step.

One of the key enabling technologies is Business Process Modeling Language (BPML), published by the Business Process Management Initiative (BPMI.org). The new language—which, like SQL, has a strong mathematical foundation—is a methodological way to represent and interact with any business process.

In effect, the process-management system abstracts processes out of the application code and by doing so provides

a powerful new capability to business: the ability to analyze, deploy, design, execute, operate, and optimize processes independently of the applications built on them. The applications get an end-to-end view of the business, looking down from above. They see the whole process, not just the changes in data as the process executes. The processes such systems will support will be reliable, transactional, and distributed. They will allow collaboration between processes designed independently by different organizations. Like other standards, the value of BPML will be perceived only by demonstrating the power of a process-management system to the business.

### Reengineering Redux

According to Lynette Ferrara, director of e-business research at CSC Research Services, "process management is heralding a renaissance in reengineering, process thinking, and organizational design. This renaissance is not being driven just by technical innovation. Just as in the first wave of reengineering in the early 1990s, tinkering with existing ways of doing business is not enough." The payoff for this effort will be the ability to deliver on the vision that grabbed management attention a decade ago with reengineering.

The next article in this series will look at process-management systems in more detail—their architecture, relationship to middleware, workflow and how they can form the basis for new process aware applications. **IW**

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## E-BUSINESS

## DIGITAL TAPESTRY

## The Fourth Tier

DON'T CLOSE THE PATENT OFFICE YET: HERE'S THE XML-NATIVE TIER



BY PETER FINGAR

**IN 1899, THE HEAD OF THE UNITED STATES PATENT OFFICE,** Charles Duell, was credited with arguing to close the Patent Office because “everything that could have been invented, has been invented.” Fast forward. In 2001, the head of Oracle, Larry Ellison, argued, “There will be no new architecture for computing for the next 1,000

years.” Then in the Financial Times, when asked if he had advice for would-be tech entrepreneurs, Ellison says, “Sure—get out of the tech business. It’s too late.”

Enter, stage left, Harvard alum and entrepreneur Joe Bellini, CEO of eXcelon. Joe talks about winners, losers, and killer apps in the decade ahead. In the world according to Bellini, the market is going through a major platform shift similar to the early 90s when companies like Oracle developed software to allow data to interoperate regardless of hardware platform. This commoditized the hardware vendors, because corporations no longer had to purchase applications based on the hardware they had bought. Embracing the three-tier client/server computing architecture, many new killer applications were born, first of the ERP genre, and later more process-oriented applications like i2 and Siebel.

The current platform shift we are seeing is based on the ability to automate inter-enterprise systems across the value chain, and move and manage the data and content that power those systems—in real-time. What’s needed in the real-time extended enterprise is a fourth tier to “flex” and “extend” in the face of ever-changing XML-based content. As services pass “state” and content from one to the other they need to do it in a reliable and extensible way (the X in XML). The nature of these systems is to take data as XML, augment it to ensure progress in

the business process, and pass it along.

This shift in platform from three-tier client/server to four-tier distributed Web services demands native XML database management systems (XDBMS) for flexibility, transactional persistence, and ex-

### WHAT IS NEEDED IS A FOURTH TIER TO “FLEX” AND “EXTEND” IN THE FACE OF EVER-CHANGING XML-BASED CONTENT.

tensibility, without compromising performance, scale, and reliability. In the fourth tier, relational bolt-ons for XML lose their edge. Though relational database systems can be used to build real-time systems, as soon as a step in the process extends its data set, the relational document-type definition (DTD) would need considerable hardware and software overhead to implement the change. Early results indicate that native XML database systems result in 70-percent reductions in business-process cycle times delivering cost/performance ratios needed for competitive advantage. Hello, real-time enterprise.

This isn’t the first time relational technology has broken down. With the relational architecture, the ERP companies weren’t able to solve for demand, material, and capacity simultaneously for supply chain planning, costing their clients mil-

lions due to poor plans and schedules. By utilizing an in-memory object database, start-up i2 was able to solve the simultaneity problem and create a killer app.

Just like the last platform shift where we could interoperate data, the extensible high-performance fourth tier will cause many underlying layers to be commoditized. Monolithic apps become commoditized since they are too expensive, too inflexible, and too hard to maintain. EAI becomes commoditized since it makes no sense to integrate at the data/apps levels when the new shift allows integration at the business-process level. EAI vendors

will react and try to climb the food chain with business process management (BPM) products, but if they can’t persist with long-lived transactions, they will fail.

Application servers become commoditized since the hardware vendors will give them away as part of their strategy to drive market share for the Web-services-based architectures.

Don’t close the patent office just yet. While the relational approach will continue to dominate the three-tier, intra-enterprise “systems-of-record,” the fourth tier provides the domain of high performance “systems-of-process” powered by native XML database management systems. The next killer apps are being built now in the fourth tier where cost-effective quality of service and responsiveness mean competitive advantage. **IFW**

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