

## An Introduction to BPM Suites

### 1 Why the Sudden Interest in BPM?

Business managers have talked about processes and process change for decades. Why, you might ask, have so many managers recently begun to talk about Business Process Management (BPM) and BPM Suites? Broadly, the answer involves two changes that have taken place in the past few years. The first is the widespread adoption of the Internet and the development of XML – the web protocol that makes it much easier to package data and link applications together. In essence, the Internet and XML have led to a quantum leap forward in our ability to integrate enterprise applications.

At the same time, workflow systems, first popularized in the mid-90s, have matured and are now widely used. In essence, when we refer to workflow systems in this context, we refer to systems that manage the interaction between employees and data. Early workflow systems were designed to manage document processing. Forms were scanned and stored in databases. Then the electronic versions of the forms were routed to employee terminals so that they could be processed. As soon as one employee finished with a *form*, it was automatically routed to the next employee who had to see it. By the late 90s, workflow systems had been integrated into Enterprise Resource Planning (ERP) applications to facilitate the interaction of employees with ERP applications. It was soon discovered, however, that the management of multiple workflow engines – one for each ERP application – was too complex. It became clear that it would be better to have a single workflow engine that could manage all the employees and all the applications used in a complete business process. This insight – combined with the drive on the part of Enterprise Application Integration (EAI) vendors to add workflow elements to their products and a similar drive on the part of workflow vendors to add EAI elements – led to BPM.

In essence, a variety of different people realized, more or less simultaneously, that it would be useful to create a single system that could handle multiple workflow applications while simultaneously handling the integration of the various software applications. The foundation for the creation of BPM systems that could manage the required complexity at a reasonable cost was made possible by the adoption of the Internet and XML. The impetus to proceed has been driven by companies that want to combine a wide number of different applications and subprocesses into single business processes that can be managed by a single system. Vendors have spent the past 3-4 years trying to determine how best to combine Internet technology, EAI techniques, workflow techniques, and a variety of interface and monitoring technologies into a single package that will make it easier for business managers to control, maintain, and change their business processes.

### 2 A BPM Overview

No matter what technology is incorporated in BPM products, companies will not acquire BPM Suites simply to obtain new technology. Businesses are interested in BPM products because they hope that BPM will lead to enhanced business performance, greater agility, and reduced risks. BPM Suites deliver enhancing business performance by offering business managers a way to effectively coordinate all the necessary human and technological resources required to perform a business process. At the same time, the development of a BPM system provides the business with an opportunity to review existing processes, automate additional activities, and remove redundancies. Once a BPM system is in place, it simplifies future changes and the routine maintenance of the process. In essence, an explicit model of the business process drives the BPM system. Once created, routine changes in the process can be made simply by changing the business process model.

Companies are just beginning to explore the use of BPM systems. There is, as yet, no agreement about what should be included in a BPM Suite or in a BPM system. Nearly everyone agrees that you begin by defining a business process, and, subsequently, use a BPM Suite to manage the runtime execution of the

process. Depending on which vendor or evangelist you listen to, you may also want to include simulation, business rules, optimization, XML services, monitoring, business intelligence, or industry-specific templates or frameworks in your BPM effort. It will be awhile before there is widespread agreement on exactly what should be included in a comprehensive BPM solution.

BPM vendors and users are working in a number of venues to define BPM standards. As the various standards become available and prove their value, BPM definitions will change to accommodate them.

In spite of a certain amount of hype and spin, which is inevitable in any new market, most companies that have studied BPM have concluded that BPM offers them an opportunity to improve the efficiency of their process management practices, while simultaneously aligning human and IT resources more effectively. In part, this is a result of the technological advances we mentioned earlier, and, in part, it results from a new willingness to think about processes in a more comprehensive way. As companies have become more international and have opted to rely on more extensive outsourcing, the boundaries around the modern company have become more permeable. We need new, more comprehensive ways of understanding exactly what is involved in a business process. Most companies, as we have already suggested, are just beginning to explore the uses of BPM. These companies typically limit the scope of their initiatives to a single function or department. Companies with more experience, however, are exploring more comprehensive uses of BPM. More experienced companies, however, are exploring the possibility of creating BPM systems that encompass entire value chains so that managers can track and control business processes that range from the supplier's supplier all the way through to the customer's customer.

Historically, business process change initiatives have often resulted in significant process improvements. Few efforts, however, have been documented in a way that has facilitated subsequent redesign efforts. New process improvement efforts typically began from scratch, analyzing and modeling again, as if the process had never been previously analyzed and improved. Equally frustrating, the management group that revised the process was often a different group than the IT group that automated the process.

BPM Suites are designed to create permanent models of business processes. In fact, the models actually control the processes when they are executed. Thus, a BPM system is a permanent process model that is used on a daily basis, and can, when the time comes, be changed and improved. Similarly, most BPM Suites are being designed to be used by both managers and software developers. In effect, managers help create the models and use monitoring data from the processes, as they are executed, to manage the processes. Software developers work with the same software tools to define exactly how software applications can be integrated to facilitate the process goals the managers specify. In effect, the creation of BPM systems initiates a new era in the way business managers and software developers work together to manage and improve processes. Instead of starts and stops, as teams switch from one project to another, BPM Suites make it possible to begin a spiral effort that manages the accumulation of knowledge and guarantees that subsequent efforts will always build on past efforts, thereby reducing future costs and facilitating faster and more efficient changes when processes need to be updated. Smart firms will use BPM Suites not only to improve and integrate their current processes, but to lay the foundation for a more agile and productive approach to managing process change in the future.

### **3 Key Drivers and Objectives**

Now let's consider some of the reasons why a company might adopt BPM in a little more detail.

#### **3.1 Lower Business Costs and Increased Efficiency**

A fundamental law of economics is that, when everything else is equal, organizations will naturally gravitate towards the lowest cost approach. When one thinks about the role of technology (and the IT department), it has always been primarily focused around driving efficiency – indeed all *systems* fundamentally aim to deliver on that objective.

BPM products generally support the automation of repetitive steps, integrating application systems as needed, and supporting complex decision-making. As a result, they provide a platform upon which firms can lower their fundamental operating costs while enhancing the value delivered. Some products incorporate sophisticated mechanisms to provide management with key metrics on process and team performance facilitating better utilization of available human resources.

### **3.2 Increased Adaptability, Flexibility, and Nimbleness**

More and more organizations are discovering that their ability to roll out new products and services is significantly inhibited by their existing systems, processes, and organizational structures. Existing systems have become ever more brittle and difficult to change. Effective BPM infrastructure will allow the firm to develop new products and services far more quickly than was previously possible.

By *wrapping* the core functionality of existing systems (and existing processes), developers can reuse their capabilities in new processes without affecting the legacy application. This allows the firm to insulate systems from each other, yet seamlessly incorporate them into a new composite process. This *ring-fencing* of core application functionality also enables legacy applications to be swapped out and replaced piecemeal, without affecting new applications based upon them.

### **3.3 Lower Cost of Systems Development and Support**

Modern BPM products provide increased developer productivity, significantly lowering the cost of systems development. For example, in one case study example, we found that instead of needing a team of 25 developers for 9 months, a UK-based parcels business needed just 4 people for 2 weeks to build customized extensions to their existing CRM system. Similar stories can be found in organizations looking to extend and customize existing applications. Today, virtually all functionality of any application can be reclaimed and reused in new BPM-enabled applications. But one thing is certain, as soon as an application is introduced into a production environment, the requirements of the users start to evolve.

Enabling the adaptation of these systems without recourse to expensive IT resources lowers the cost of ownership. Indeed, one of the key aims of most BPM Suites is to enable expert end-users to develop, adapt, and modify their business processes, along with the business rules that relate to them. As a general rule of thumb, the more a system can enable the users themselves to develop and deploy their own processes, the lower the cost of ownership will be for the resulting application.<sup>1</sup>

### **3.4 Lower Systems Implementation Risks**

Business executives are simply not prepared to put up with further expensive systems implementation failures. A litany of failed ERP, Supply-Chain Management (SCM), and Customer Relationship Management (CRM) projects have cast doubt on the ability of IT to deliver viable support for the business. BPM technologies provide a better way of organizing the IT development effort. By modeling an entire process and then making incremental, evolutionary changes, managers are able to introduce change with lower risk.

### **3.5 Better Governance and Compliance**

Around the world, governments are introducing more and more regulations. Most are already familiar with Sarbanes-Oxley and the Patriot Act in the US, while in Europe, it is Basel II and the new UK *Companies (Audit, Investigations and Community Enterprise) Bill*.

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<sup>1</sup> For example, in one environment we assessed for a major British Bank in the early 90s, changes to automatic letters used in the process had to be made by the IT department. As a result, the average *cost* of changing a letter was £4000. Today, we would expect BPM systems to use modern word processing applications. Such changes would not require the involvement of an IT specialist.

But these are just the tip of the iceberg in terms of what *Compliance* actually means. Realistically, Compliance includes the full range of how a business is run against the guidelines, policies, procedures, and practices that exist at every level of the firm. From a legal point of view (i.e., responding to regulation), compliance can range from the appropriate disposal of waste and hazardous materials through ensuring that staff is trained sufficiently to handle the work they are given.

Then there is the operational risk to the core brand of the firm. Seemingly small deviations in corporate governance and policies can have dramatic financial implications for the core brand. Ineffective internal controls can also be very expensive, as Allfirst – the Baltimore subsidiary of Allied Irish Banks – discovered. In 2002, it lost \$691 million because of one rogue trader and inadequate internal controls.<sup>2</sup>

Since BPM technology can impose a way of working on employees – controlling the ways in which decisions are made and modifications to the process are introduced -- it represents a critical enabler in ensuring compliance and effective governance. But a balance is required here. BPM products also provide the underlying capability to support a rigorous audit of what actually happens. With the right sampling and review procedures in place, it is possible to allow flexibility in the way processes are interpreted, while ensuring that the firm honors its compliance obligations.

### **3.6 Better Customer Service**

By shortening cycle times and ensuring that customer interactions are handled effectively, firms are generally able to drive up revenue and lower costs (fewer errors mean lower costs). Secondly, BPM technology enables firms to integrate their various customer interaction channels into consistent, *joined up* processes. In a sense, it provides the glue to tie together disparate channels of customer interaction, ensuring that cases of work are not lost, and, at the same time, increasing the value delivered.

They also make it easier to respond to variations in customer behavior. Customers do not always follow a nice, neat pattern. They want it their own way. Since BPM products can support multiple paths through a process, Customer Service Representatives can respond to the subtly different needs of the people they deal with.

## **4 Analyzing Your Company's Need for BPM**

While we can point to a number of common goals and objectives of BPM initiatives, it would be naïve to assume that all companies and industries share the same problems. There are several ways of categorizing the needs of firms – by industry, by the type of workers who will be affected, by size of the firm, by the firm's technological infrastructure, or by focusing on the specific processes you are considering for BPM.

### **4.1 Industry Sector**

There is a big difference between the core processes and needs of different vertical market sectors. For instance, it is hard to find a process within a Telco that is not already largely automated in some way. In Financial Services, most processes are oriented around the controls required to manage risk. Manufacturing businesses are mostly focused on the optimization of the supply chain and on meeting customer orders in a timely fashion, while in many governmental agencies it is hard to find a process that is optimized to meet the needs of the true customer. Many in the state and federal planners are now looking at BPM technology to support them as they transform their processes to be more responsive.

BPM vendors respond to this challenge with industry and application specific *frameworks* or *templates* that sit on top of their basic product offering. These niche application *templates* often give users a head start, allowing the customer to implement a viable system extremely quickly (in a few months) and then adapt the delivered processes to meet their individual needs.

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<sup>2</sup> Reported in "Running With Risk", *McKinsey Quarterly*, 2003 #4

The emphasis of vertical sectors also tends to favor different approaches. For example, in Financial Services, a primary goal for many firms is to ensure control and standardization of all processes. Yet, at the same time, the competitive environment often forces changes in processing rules on a daily basis. They do not want an employee to get creative with a bank draft. Moreover, because of their size, they need the capability to smooth out the peaks and troughs of work in the system, dynamically load-balancing the organization, while ensuring work is distributed to suitably qualified employees. To effectively utilize the resources at their disposal, managers need key performance metrics, right down to the level of the individual worker. So, for these businesses, audit and traceability are extremely important, along with rigorous control over the way in which change is introduced to the system. Management Information is critical, as is the ability to align skill level to the task in hand. On the other hand, those involved in other vertical sectors do not necessarily have these same issues.

## 4.2 Types of Workers

Traditionally, business software applications have been used to support the structured needs of *Back Office* workers with standard processes that integrate the workers with their supporting systems. In the Back Office, processes tend to be imposed as *Procedures* that are designed for efficiency and control, guarding against fraud and enforcing regulatory requirements. Generally, in the Back Office, it is assumed that processes change relatively little, while all sharing a common process model.

On the other hand, the requirements of Customer Service Representatives and those in the Front Office are quite different. Front Office workers require much greater flexibility to deal with the changing whims of customers and external entities. Customers seldom follow a standard course of activity and have a nasty habit of creating unplanned exceptions.<sup>3</sup>

Knowledge workers are generally poorly served by BPM technology (yet they are so important to the success of the firm). For knowledge workers, processes are usually based on unwritten best *Practices* that are ingrained in the *modus operandi* of the core of the organization.<sup>4</sup> They act more as a guide, and they need to develop as required by the business situation – reflecting an evolving business relationship, a refined understanding of a particular problem, or a greater pressure to fix some perceived *problem*. Empowered knowledge workers usually exercise their judgment in uncertain situations, meaning they need much greater control and ownership over the way things are carried out. Deploying BPM technology to support knowledge workers necessarily involves enabling their processes to evolve: The issue is not control, but the challenge is to enable reuse and change. This implies the need for knowledge workers to feel comfortable adapting (or selecting) procedures for their own use in the context of the case of work in hand. At present, it is very rare to find technology products or approaches that are naturally oriented towards the needs of knowledge workers. Indeed, we believe that this is an area where we will see the most product innovation in the future.

Of course, most organizations have all of these three quite different types of workers.<sup>5</sup> Yet firms continue to look for a single product on which to *standardize* BPM infrastructure. If that is your intention, then we would suggest that you concentrate on products' capabilities to enable change, since that will be one of the keys to supporting the widest range of usage scenarios.<sup>6</sup> Inevitably, as soon as you have implemented a system to support your business processes it will require modification – no matter how much analysis you do in advance.

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<sup>3</sup> There are a variety of strategies taken to deal with the needs of front office workers – these are explored more fully elsewhere.

<sup>4</sup> Notice that we are deliberately using the term *Practices* to describe the processes of Knowledge Workers. This is in stark contrast to the *Procedures* that are imposed in the back office. For more on this discussion see "[The Split Personality of BPM](#)."

<sup>5</sup> For the sake of simplicity, we regard the process support needs of Executives as similar to those of Knowledge Workers.

<sup>6</sup> For a wider discussion on the design strategies for process adaptability, see the section on Detailed Analysis.

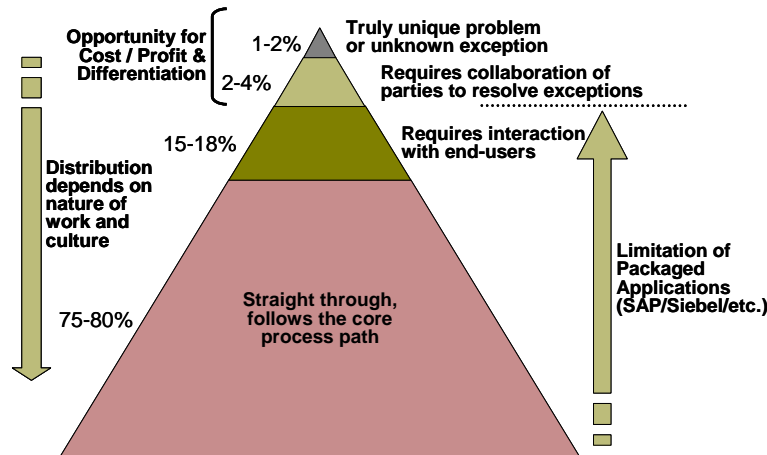
**4.3 Businesses Size**

Most of the products that get the headlines are oriented toward the needs of the major businesses. At the same time, however, 53% of available workers are employed by Small and Medium sized Enterprises (SMEs). Numerically, this group represents 86% of firms and is largely ignored by vendors in the BPM arena who are targeting the larger firms who are more likely to be early adopters.

**4.4 Types of Business Processes**

When companies first embark on a process-oriented journey, most tend to focus on the Procedural end of the spectrum (Back Office), only to discover that Practices are the real challenge (Knowledge Workers). While the notion of a neatly ordered process aligns with repetitive transactions, it does not truly reflect the reality of the real world. When knowledge workers interact with customers, they seldom follow the predicted behavior. The well-known 80-20 rule certainly applies – but it is even more complex.

Depending on the business context, one usually finds that the large majority of cases follow the expected pattern. This is typically around 70-80% of cases, which, because of procedural efficiency, consume about 20% of the available resources. The problem is that the other 20% of cases usually consume 80% of the available resource. Some of those cases can be handled through well-understood business rules, while others require a greater degree of collaboration.



**Figure 1. Distribution of Cases has a profound effect on the suitability of one product over another. In a process driven production environment, virtually all resources go into handling exceptions**

Small percentages of cases are truly unique and are usually handled outside the accepted *system*. Looking at this general issue another way, a relatively small percentage of the customers tend to consume the lions’ share of resources and can dramatically affect profitability. Reducing the top two tiers in the pyramid can have a dramatic affect on the business bottom line (i.e., standardizing the process).

But, in some situations, that is just not possible or practicable. Moreover, these numbers change depending on the business context and nature of the work. For example, imagine a support system for a group of Architects developing new building designs and remodeling interiors for customers. The system needs to help them track their projects and related documents, relationships with various sub-contractors, and interactions with local authorities who provide related planning permissions. Looking across the work in hand, one would find that the distribution of cases would probably be far more varied than the picture above would imply. The *Project Bid* process might initially have only 50% of cases following the core pattern (if there were such a thing), with perhaps a further 25% handled through custom rules designed in to a support system beforehand. All other cases would seem to require bespoke solutions that would have to be *invented* by the users. The system would have to facilitate end-users in adapting the process models underpinning their work. Such flexibility could be achieved by

enabling them to add process fragments to the parent process description for the case in hand. This library of process fragments would probably cover a wide range of potential scenarios and additions.

While this may appear a radically different problem from that faced by many businesses, the fundamental design approach is core to success in a wide variety of different scenarios. Leaving it to the individual users to add functionality to support the case in hand enables a far more flexible and adaptable environment overall. Suitable controls are enforced by ensuring that these changes are limited to selecting from a library of pre-developed process fragments.<sup>7</sup>

The problem with processes is that they are not always as you would expect. For example, most people outside of Insurance Claims would imagine that the processes used are relatively standard. Yet often, depending on the culture of the firm, quite the reverse is true. In the words of the Head of Claims at Commercial Union: “Every claim is an exception.”<sup>8</sup> He was lamenting the fact that insurance claims processing is inherently unpredictable. We could probably easily find another Insurance Claims business that would argue that, indeed, all claims-handling in their business is highly standardized.

## **5 How Vendors Position Themselves in the Market**

### **5.1 Generic Product Positioning**

There are at least two ways of thinking about how vendors position their products. In one case, we focus on their overall business strategy. In the second case, we think about the technology in the product. Let us start with a discussion of the former.

A popular way of modeling the business strategies was defined by Michael Porter in his classic book, *Competitive Strategy*.<sup>9</sup> In that book he suggests that there are really only three generic positioning strategies: Differentiation, Overall Cost Leadership, and Focused strategies. Figure 2 shows how Porter explains the three generic strategies. Some companies seek to offer the best generic product. They charge a premium, and expect customers to pay it to acquire what everyone perceives as the best all-purpose product available. Porter refers to this strategy as Differentiation. We tend to refer to it as the “best generic product strategy.” A second possible strategy is to go for volume sales. Companies pursuing this strategy offer a good product and sell it for less money than their rivals. This is the Overall Cost Leadership or “lowest price strategy.” (Note that you can not effectively pursue this strategy with a poor product. Companies will not pay less for an inferior product. What everyone would like is the best possible product for the least money.) Finally, there is a focused, or industry or domain specific, strategy. In this case, a vendor specializes in a specific niche – in insurance industry applications, for instance, or in supply-chain applications. Vendors positioning themselves this way seek to charge a premium while avoiding competition with the industry-wide market leader. They do this by allowing another vendor to occupy the market leader position, and they seek to charge a premium by offering special value to customers with a specific set of problems.

We have already noted that the current market for BPM suites is relatively immature. Most customers still do not know exactly what features they need in a BPM suite, and most vendors are still exploring the mix of features that will prove most popular. In such a market, all the vendors tend to position themselves as the best product for every possible company. There are not that many sales, and every vendor wants every sale it can get. Also, the really large vendors like IBM and Microsoft are usually slow to enter a new market. They wait until the market becomes more mature, and they spend time ensuring

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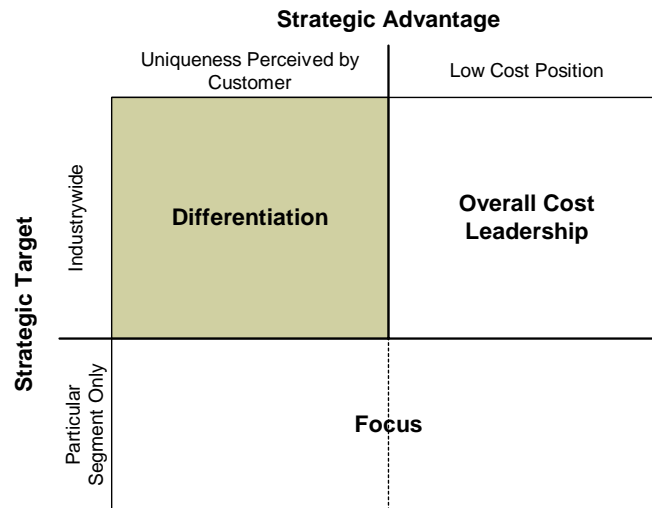
<sup>7</sup> See the section on Detailed Analysis for a wider discussion on Case Handling approaches.

<sup>8</sup> Commercial Union is now part of Aviva, the 5<sup>th</sup> largest Insurance group in the world, resulting from the merger of CGU and Norwich Union.

<sup>9</sup> *Competitive Strategy: Techniques for Analyzing Industries and Competitors* by Michael E. Porter, The Free Press, 1980.

that the products they eventually offer will be compatible with their other products and with their infrastructure offerings.

IBM and Microsoft are just beginning to roll out their BPM suites. In a year or two, when their products are established and they start to spend larger amounts of money to market their solutions, the smaller vendors that have dominated the BPM suites market in the last few years will begin to thin out. A few will have established themselves as serious contenders, and they will continue to position themselves as industry-wide, generic BPM suites. Most of the other BPM suite vendors will move toward a focused, niche strategy. In essence, BPM vendors who have been especially successful selling to insurance companies will add insurance-focused templates, frameworks, rules, or software components to their offerings to make them easier for insurance companies to use. They will charge a premium because their frameworks or components will make it faster and therefore less expensive for insurance company managers and developers to develop insurance processes using their products.



**Figure 2. Michael Porter’s model of competitive strategies**

As you read the reviews of the various products, you will see hints of early moves toward niche specialization. Some vendors already mention that their products are especially popular with specific industries. Others offer extensive support for the development of specific types of applications; for example, Chordiant has considerable strength in the development of CRM applications.

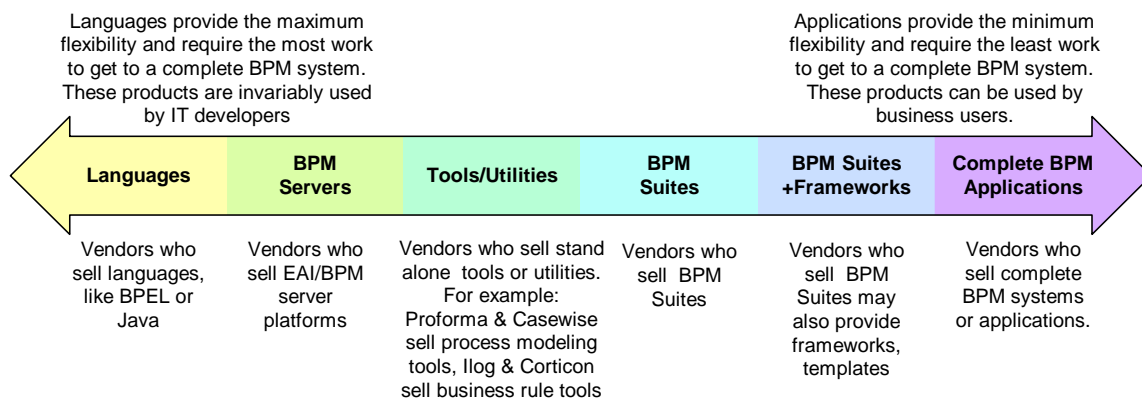
As we suggested earlier, the BPM suites market is still in the immature phase. Most companies are not yet ready to build extensive BPM applications, although there are the beginnings of dramatic growth in the sector. The large contracts that occur when major companies decide to standardize, companywide, on a specific BPM suite are only just beginning to happen. In the meantime, the vendors are evolving their products as rapidly as they can, in an effort to become the best possible generic BPM suite, while simultaneously charging a premium price. Put a different way, it is too early to point to specific products and suggest that one product is best for insurance applications, while another product is the product to use for heavy manufacturing process automation efforts. We expect that the 2006 survey will begin to report a more specialized market.

**5.2 The BPM Technology Continuum**

Now let us consider the technology that a vendor might include in its product offering. In effect, this is just a more specialized way of talking about market positioning. Figure 3 provides a picture of a BPM Product Continuum. On the left, we show BPM languages, like BPEL and Java. On the right, we show BPM-enabled applications or systems that are ready “out-of-the-box” to support a specific type of process.



Obviously, if you start with a language like Java, you can build any kind of BPM system you want. But it takes a lot of work, using only a language, to build a system. You need to start by developing all the utilities you normally find in BPM Suites – a modeling environment, employee forms generators, a BPM engine, and so forth. It requires a considerable programming team to develop a BPM application from scratch. Contrariwise, if you buy an application that is ready to run, you do not have to do much development, but the application is set up to manage a very specific set of business processes (e.g., a Call Center, Supply Chain Procurement, or Loan Approvals) and is really not fit to do anything else. Most companies opt for products that lie between the extremes, buying packages that provide more than a language, but less than a completed application. We have divided the continuum in-between into Servers, Tools/Utilities, BPM Suites, and BPM Suites + Frameworks. As you move from left to right, the products become more structured and provide more ready-made components, making it easier and faster to develop finished applications. Similarly, you pay less for a language, more for a tool, still more for a BPM suite, and considerably more for a finished application, reflecting the additional work that has gone into each successive level as you move to the right on the continuum.



**Figure 3. The BPM Product Continuum**

There are lots of packaged applications for sale. The difference between a conventional application and a BPM-enabled application is that the BPM application incorporates the elements found in a BPM suite. This means that the user can examine the process used in the application and the rules used to make decisions, and change them, as needed. In other words, a BPM application is defined so that users can examine the underlying process models and can modify the decision rules used in the application.

A BPM Suite includes a generic set of modeling tools that expert users, business analysts, and developers can use to specify a process that will be managed by its Engine at runtime. Some companies have created BPM Suites from scratch, developing each utility or tool in conjunction with every other. Others have created their BPM Suites by writing some utilities themselves while acquiring or licensing other tools or utilities from independent vendors. Thus, for example, about half of the BPM Suites on the market today do not include a native Rules Engine. Instead, they have licensed their rule engine from one of the Business Rule Management Tool vendors, and then embedded it in their BPM Suite. Similarly, some of the BPM Suites have recently replaced their earlier, native process-modeling tool with a process modeling utility acquired from a Process Modeling Tool vendor. In effect, the BPM Suite vendor switched its modeling utility to provide its users with a friendlier and more versatile process-modeling environment.

Similarly, some vendors use Microsoft's BizTalk to provide the enterprise integration engine for their Suite. Some even divide up the BPM engine, using a workflow-derived engine to handle interactions with employees and an independent integration engine to manage software applications.

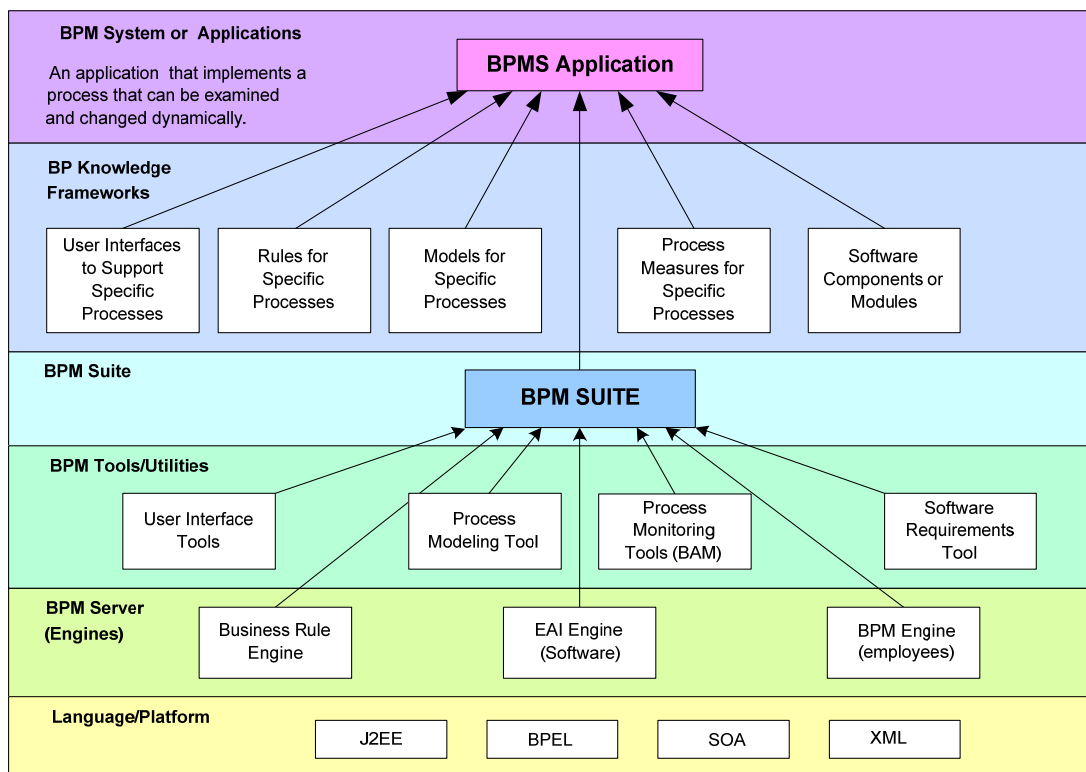
To be clear, BPM Engine, as we use it in this report, always implies managing the execution of the process (model) and its interaction with employees. The BPM Engine may also handle the execution of

software components used in the process. Some tools separate the BPM Engine, which handles the employee interactions, from the enterprise application integration (EAI) server or engine that manages the software component, creating, in effect, a BPM Engine and a separate EAI engine.

A BPM Suite vendor might package applications-specific knowledge with what is otherwise a generic tool. Thus, a BPM Suite might come with a Supply Chain framework that provided a generic process model of a supply chain process, and/or a set of rule bases for making supply chain decisions. Predictably, as the BPM Suites market becomes crowded and more competitive, some BPM Suite vendors will specialize in particular types of processes or in specific industries and tailor their tools to make them better for the development of one kind of application or another.

**5.3 The BPM Stack**

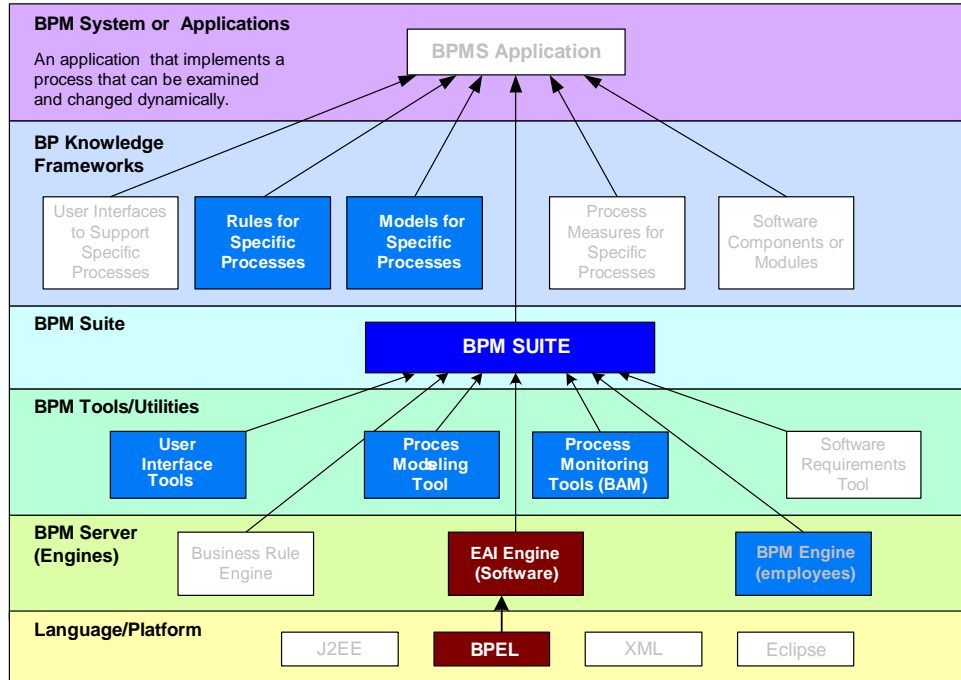
Figure 4 provides a slightly different way of looking at the BPM product market. It really makes the same point as Figure 3, but it does so in terms of a stack of software layers, rather than a continuum. In effect, Figure 4 is Figure 3, viewed at right angles.



**Figure 4. A layered view of BPM products or utilities**

Each layer sits on top of a lower level, using technologies defined at the lower level while adding additional utilities to integrate the levels below, to provide a more general functionality.

The key thing to keep in mind when you look at Figure 4 is that a company could develop a product or suite by developing its own tools and utilities and engines, or it could do it by assembling products that others have developed, incorporating them into its BPM Suite or BPM Application. Consider Figure 5, for example. Here we illustrate how a hypothetical BPM Suite might be assembled. Assume that the vendor wrote its own Process Modeling Tool, a User Interface utility, and its own BPM Engine, all in Java. Then it placed these on top of IBM's WebSphere Business Integration Server, which, in turn, incorporates BPEL (highlighted in brown). In this case, the BPM Suite combines some proprietary code and some code that it has licensed from IBM.



**Figure 5. A hypothetical BPM Suite**

Let us go further and assume that our hypothetical BPM Vendor created some process models for common insurance company processes and sets of rules that were commonly used in insurance company processes, and packaged those with the tool. This would result in a BPM package that was particularly productive for managers and developers in the insurance industry. And it would place the product a little to the right of many BPM Suites on our BPM Product Continuum.

In essence, vendors who emphasize server technologies are aiming for an industry-wide position. Vendors that end up sitting on top of Microsoft or IBM platforms and incorporating industry specific templates or frameworks are already moving toward a focused niche strategy.

## 6 What Features Might a BPM Suite Include?

Figure 6 provides an overview of one possible architecture for a BPM Suite. It shows both the key elements and various supporting elements.

As we review the products described in this report, we will consider each of the elements pictured in Figure 6. Moreover, we will consider the same topics in the same order each time to make it easier to compare the products.

### Product Overview

We will start each review by briefly characterizing the overall architecture that the vendor has used and what features it supports. Within this section, we will try to highlight the unique points about the products and its implications for process architecture and deployment.

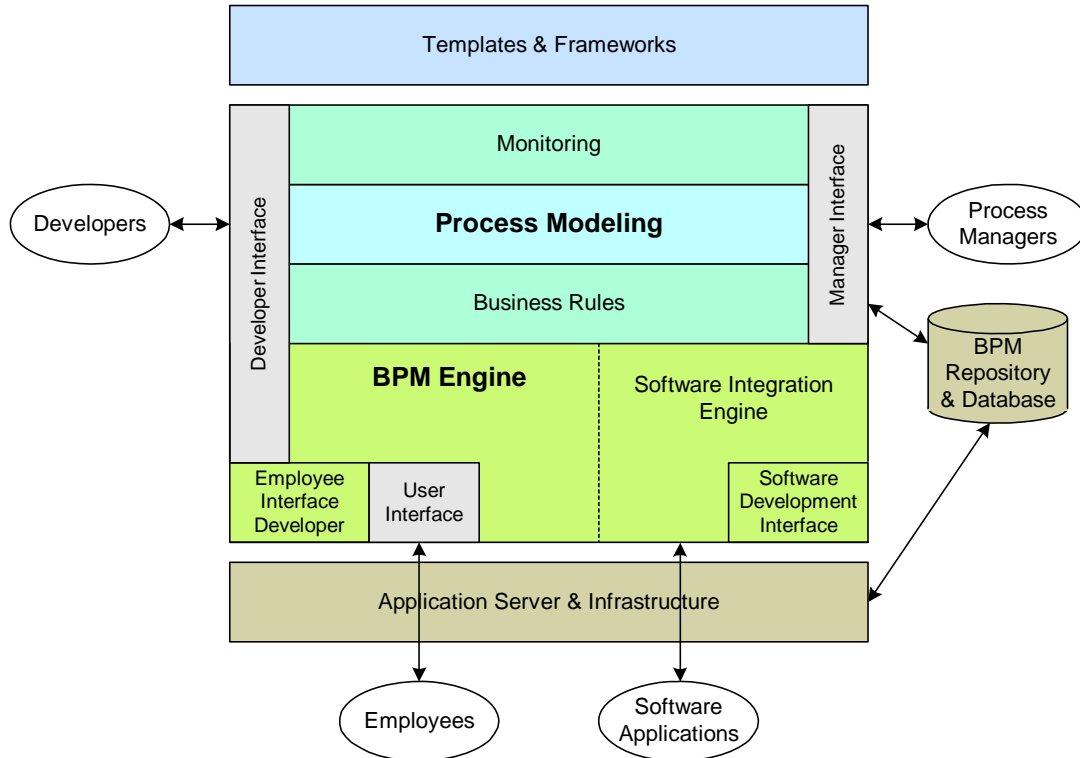


Figure 6. One Possible BPM Suite Architecture

**BPM Engine**

Next we will turn to the BPM engine included in the BPM Suite. We will focus on how the vendor has divided the elements among server and client platforms, the repository that it uses.

We will consider how the system accesses employees, how the employee (user) interface is generated, and how well the engine can scale to handle large number of users. We will consider how the suite manages software components and integration.

**Process Modeling**

Next we will consider how the vendor’s product supports process modeling. In conjunction with modeling, we will consider if the product supports simulation. We will discuss the interface that is provided to develop process models and how the semantics of the product support subprocess models and reuse. We will also reflect on how the product supports the forms, time, and simulation.

**Business Rules**

We will follow a general discussion of process modeling with an examination of support for business rules, if the support exists. We will consider how rules are used, what kind of rule entry and management interface the tool provides, and how the rules are managed at runtime.

**Integration**

Next we will focus on how the Suite works with other software applications and databases used in a business process. We will discuss integration in two senses – linking in other applications to a process model, and how the product facilitates reuse of its own functionality in other applications. We will also consider Web Services where applicable.

**Organizational Structure**

All products reviewed use some representation of the organizational structure to drive distribution of work. We will discuss the approach taken and its implications.

### **Process Adaptability**

Since it is impractical to assume that all cases of work will follow the standard pattern, we explore how the system can be changed to support the needs of the case of work in hand. This also includes discussion on how the Engine can support more flexible Process Architectures.

### **Process Lifecycle**

We move on to consider how the product supports the ongoing maintenance of a process once it has been defined. We are really looking for mechanisms to allow the firm to protect and enhance its process assets.

### **Monitoring**

We next look at how the tool captures data about events that occur at execution time – what facilities are provided to analyze, filter, or summarize that data, and what capabilities the tool has to generate manager dashboards to present that data to process managers.

### **Templates and Frameworks**

We will also consider if the BPM Suite comes packaged with any industry or domain specific templates or frameworks that make the Suite especially useful for the rapid modeling of specific types or business processes.

### **The Vendor**

We go on to briefly describe the vendor and its size and position in the market.

### **Costs**

Finally, we will consider the cost of acquiring the BPM Suite.