

# An Introduction to Business Process Management (BPM)

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## What is BPM?

BPM is a systematic approach to improving a company's business processes. For example, a BPM application could monitor receiving systems for missing items, or walk an employee through steps to troubleshoot why an order did not arrive. It is the first technology that fosters ongoing collaboration between IT and business users to jointly build applications that effectively integrate people, process and information.

BPM gives an organization the ability to define, execute, manage and refine processes that:

- involve human interaction, such as placing orders
- work with multiple applications
- handle dynamic process rules and changes, not just simple, static flows, (think tasks with multiple choices and contingencies)

Important components include process modeling (a graphical depiction of a process that becomes part of the application and governs how the business process performs when you run the application), and Web and systems integration technologies, which include displaying and retrieving data via a Web browser and which enable you to orchestrate the necessary people and legacy applications into your processes. Another important component is what's been termed business activity monitoring, which gives reports on exactly how (and how well) the business processes and flow are working.

Optimizing processes that involve people and dynamic change has been difficult historically. One barrier to optimization has been the lack of visibility and ownership for processes that span functional departments or business units. In addition, the business often changes faster than IT can update applications that the business relies on to do its work, thus stifling innovation, growth, performance and so on. But today, the pervasiveness of Web browsers and the emergence of simpler application integration technologies such as SOAP/XML have enabled IT to deploy technology that supports the business process across functional, technical and organizational silos.

## Can I see a quick example?

Suppose a large retailer buys an HR application to improve human resource management capabilities. The HR department, located at corporate headquarters, gets the new application and probably improves its HR department processes to take advantage of the software's features. However, the day-to-day activity of hiring, firing, pay changes and so on happens at the stores, rather than at corporate headquarters. Store managers don't use the application directly; they send information to headquarters and HR analysts to input it into the system. Through the use of Web and integration technologies, BPM provides store managers a defined process and user interface for performing each of the HR transactions they need to, enforces the business rules that HR needs, and submits transactions to the HR and related applications automatically.

Here's another: Consider a retail call center representative who uses a Web-based application that walks him through how to return two items from separate purchases with two different forms of payment bought weeks apart (so governed by different parts of the exchange policy). What a BPM application would do is walk them through the steps of the exchange. Rules are built into the system so there's no need to call for a manager's consultation or approval (unless the program directs him to do so).

To complete the transaction, the BPM application must call on siloed legacy applications that hold necessary information—for example, customer, inventory or logistics data. But to the call center rep, completing the product return appears as a seamless series of tasks. He is spared the effort of hunting down the siloed information himself. The application he uses is powered by a BPM platform that provides tools for:

- business analysts to model (and change) the product return processes and define the business rules that control how those processes behave
- IT to integrate the necessary legacy systems
- joint teams to build applications for the end user that enforce the process and rules
- management to review process performance (for example, time to resolve client return exceptions) and even adjust process parameters in real-time (for example, increasing the dollar threshold during peak periods to trigger management review and approvals of client returns)

With the leading BPM platforms, everyone is working on the same shared model, so changes to the process can be put into production very quickly. These platforms are called BPM suites (BPMS) because they provide integrated process modeling, real-time monitoring, Web-based applications and management reporting—all working together to support rapid process innovation.

## **What does BPM provide that other enterprise applications do not?**

BPM suites are integrated toolkits for building and managing tailored solutions based on a company's unique business processes. Other enterprise applications typically consist of prebuilt functionality, such as a human resource management application, with some capability to tailor the base functionality through configuration options. This usually means that companies implementing an enterprise application must choose between accepting the vendor's prebuilt business process behavior or paying the vendor to make expensive modifications that make upgrades costly or impossible. In contrast, BPM enables a company to cost-effectively and quickly model and change its business processes to meet the specific needs of the business.

Some enterprise applications have introduced workflow capability into their products to give users some ability to control the process behavior of documents such as an invoice or an engineering specification. BPM goes beyond traditional workflow applications in two ways. First, most enterprise application workflow is implemented through code. This means that programmers must develop and maintain it. BPM uses graphical process modeling tools that enable business users and business analysts—those most familiar with the process—to implement and manage the process definition. Second, workflow of the typical enterprise application is generally limited to document or task routing. BPM enhances workflow routing by providing an integrated capability to include rich user interfaces, system integration, rule processing (the rules necessary to determine which path you should take next in a process that has multiple paths—for example, an order less than \$500 does not need manager approval, but over that amount it does) and event handling (for example, steps necessary after a product recall: "Pull from shelves" notification must be sent to the chain of stores).

BPM is often used to integrate multiple enterprise applications and various internal and external users into a new process. Enterprise application integration products help you move data between applications; BPM adds interaction with people and the ability to support long-lived processes. People are involved in two ways:

- From a worker point of view. BPM represents units of work from the business process as tasks; each task contains work instructions, status, priority, due date and other attributes. Workers use BPM to monitor and execute the tasks that are assigned to them or to the workgroup to which they belong.
- From a manager or executive point of view. Managers and executives use BPM to monitor process performance by viewing graphical reports that summarize task status and alert them to process bottlenecks. They also frequently get involved with tasks by participating in approval or escalation process steps.

Many BPM products provide real-time insight into the process operation. The process-flow model of BPM allows management the ability not only to easily identify bottlenecks and inefficiencies in the process, but also to more easily modify the process to improve productivity.

## **How does BPM fit in with legacy, ERP and other enterprise systems?**

One of the strengths of many BPM products is ease of integration with other applications. Many enterprise applications are monolithic, focusing on solving a specific set of problems and making interaction or data sharing with other applications difficult or impossible. This often makes BPM an ideal approach for automating processes that require information from multiple enterprise applications. Facilitating the flow of information among these legacy systems can often provide significant productivity improvements.

Once it became clear that ERP systems were going to be a big piece of the enterprise systems puzzle but not the entire picture, middleware vendors emerged to help solve some of the vexing system-to-system integration issues. What remained were perhaps the hardest automation challenges of all: processes that changed and/or involved multiple subsystems, external processes and systems beyond your control, and perhaps most challenging—people.

BPM can be thought of as an integration layer that automates processes, includes legacy and other systems, and coaches users through the new process. Just as a typical business process (like introducing a new product) involves multiple functional areas, BPM integrates these areas and the existing systems that support them.

If you have already SOA-enabled your legacy systems, then BPM can move very quickly to address your process problems. If you do not have SOA or a middleware platform, then BPM will typically require custom integration to the necessary systems and data. The need for custom integration is usually not a barrier to BPM, since many modern applications have defined application program interfaces (APIs) or, if not, support direct-to-database integration using SQL.

BPM suites can also be used to build composite applications—that is, adapt a point solution bought by one department for a specific purpose for use by other departments. BPM acts as an umbrella, defines processes and uses system-integration capabilities without awareness or inconvenience on the user's part. A composite application recombines functionality from a variety of existing sources within an SOA for a new service. Using BPM to build composite applications can provide functionality that would otherwise be too costly or risky to obtain by modifying the existing applications.

## **What kinds of business processes are typically the best candidates for BPM?**

BPM investments can yield a high ROI in these areas:

- Dynamic (not static) processes. Dynamic processes change frequently; static processes seldom change. A good example of dynamic processes are those that must be adapted to regulatory compliance changes—for example, retailers modifying how customer information is managed due to changes in federal privacy law and credit card company mandates.

- Processes that involve people and, typically, cross business unit, division, department, workgroup or other functionally organized groups of people.
- Complex processes (such as an order-to-payment process). Complex processes require the orchestration of a variety of people from different functional departments using different software applications and/or data to do their step in the process.
- Measurable mission-critical processes—that is, improvement to the process would directly improve a performance metric that is measurable and important to the business.
- Processes that cannot be completed without calling on more than one legacy application (or a process that provides significant additional capability, like self-service HR functionality to employees).
- Processes with exceptions that are currently handled manually (for example, a furniture retailer's reliance on physical discovery and research into inventory aberrances).
- Processes with exceptions that require quick turnarounds.

Areas ill-suited to BPM include:

- legacy application replacement
- high-volume transaction processing (such as a point-of-sale application, although cross-channel returns might be a good target)
- processes with little or no user interaction
- processes that can be simply and cheaply automated with other tools

Sometimes, the most important part of a strategy is knowing what *not* to do, especially with a fairly horizontal capability like BPM. For a first BPM initiative, the process should be important—but not your most complex or mission-critical. BPM done right is a good example of the flywheel concept: Focus on a specific and quick solution where a visible business process improvement will foster momentum for broader and more sustained BPM implementations.

## **It seems like everyone is selling BPM; what does the BPM vendor landscape look like?**

Vendors present a broad array of solutions designed for many different industries and needs. At a high level, there are two basic camps of vendors: those that offer BPM as part of a legacy collection of products and those that sell only BPM suites (often referred to as "pure play"). Sometimes you can buy BPM solutions in the first category separate from the legacy system, and sometimes you cannot. For example, Filenet's P8 includes process capabilities that are usable only if you use Filenet's ECM solution, while [SAP's NetWeaver](#) technology can stand alone.

Vendors that offer BPM as part of a legacy collection of products tend to offer BPM capabilities that focus on and extend their legacy architectures. For example, a document imaging vendor will typically offer document-centric BPM capabilities, while a middleware vendor will emphasize the data-integration aspects of its BPM solution. In contrast, BPMS pure-play vendors often highlight their product's architectural purity, which means it is built from the ground up to provide integrated BPM functionality. BPM offered with legacy products is often add-ons of technology purchased from another company and then "bolted" on, often making for a fragile solution. Still, both solutions have their advantages and disadvantages.

Emerging in the BPM space are open-source solutions. The most well-known is jBoss jBPM. jBPM has improved substantially with recent releases; however, it lacks many of the functional

capabilities of platforms from leading commercial BPMS vendors like Lombardi Software, PegaSystems and Savvion (which do not offer open-source solutions). BPM features that are less robust in jBPM than in many commercial products include model simulation and graphical user interface (GUI) development.

Some key considerations when evaluating BPM vendors include:

- **Verify that the vendor's BPM platform is truly integrated.** Some vendor platforms have built bridges to modeling and simulation tools and call it BPM. Sometimes the reporting component is just an add-on. This "bucket brigade" approach really slows down the iterative nature of a real BPM approach to process improvement.
- **Don't let technology preferences taint an objective comparison of BPMS features and capabilities.** Thinking about a BPM tool based on Java versus .NET may be less important than basing one's decision on the BPM features required by business analysts for process modeling or the features required by workers to monitor and execute tasks. For example, don't fall in love with the flashiest rules engine. But don't get boxed in by your existing architecture or vendor partners when selecting a platform to drive process improvement across your organization. In fact, your BPM platform should be independent of legacy constraints so that you have the flexibility to replace source systems without affecting user-facing process automation.
- **Always take a good look under the hood.** Different vendors take very different approaches to implementing common BPM features, such as how the process model is linked to lower-level implementations or how a user interface is constructed and integrated into the workflow. Some vendors provide better support for heavy business analyst involvement in constructing a BPM application (which does not require substantial programming expertise), while others require substantial programming expertise for even simple development tasks. Some vendors offer well-defined, easy-to-use APIs to allow for custom integration to accomplish more unique requirements. Drilling down into the details will help you understand exactly how a particular vendor's product will fit with the skills and capabilities of your organization and best meet your company's specific needs.

## How is BPM related to service-oriented architecture (SOA)?

An SOA provides access to other applications. BPM uses SOA to include information from those applications into an improved process. If an SOA provides roads to your information, then BPM is the car that leverages that infrastructure to accomplish something useful.

In a nutshell, service-oriented architecture enables services that support business processes to be recombined for greater business agility. In more technical terms, SOA is an integration and architecture framework that supports loosely coupled services and enables interoperability among new and legacy systems. It allows those systems to expose part of their functionality to other applications in a standard way. (For more, see ["ABC: An Introduction to SOA."](#)) For example, an accounts payable system could expose an interface to allow other applications to add a debit item. BPM provides the ability to combine these exposed services from different applications into a new process.

Sometimes BPM initiatives serve as a driver to jump-start an SOA strategy. In a world where business executives are looking for direct value out of their IT investments, SOA by itself can be a hard sell since it can be difficult to explain the value in concrete, understandable terms, and thus makes it difficult to convey its value. One strategy to overcome this is to sell SOA as an enabler of BPM, since BPM is more concrete—it's easy to convey its value in enabling specific (and critical) business processes. By association, SOA does as well.

Still, one of the things to be concerned about is the quality of service that can be supplied by the applications providing the SOA service. This is of special concern when the providers of these services are in other organizations or even other companies. Applications using such interfaces need to be designed to degrade gracefully when those services are unavailable. Management should be sure to develop quality-of-service agreements with their SOA partners. These should include agreements on when and how interfaces are upgraded. The point to be made here is that if you use SOA as an integration strategy for BPM, you'll end up with critical business processes reliant on those services. If those services fail, then your BPM-managed business process will fail. So be sure you know, or can control, the quality level of any services upon which your BPM solution is based.

## **Are there any standards being developed for BPM?**

Yes, proponents of BPM are attempting to follow the success of other technologies and establish a solid foundation of industry standards that will support continued growth and customer acceptance.

Customers are interested in standards because they may make it easier to move their applications to other BPM vendors, find developers, manage interactions with other BPM systems and external partners, and drive down costs. Unfortunately, the broad capabilities represented by a typical BPMS and myriad interest groups have resulted in standards emerging for only sections of the typical process management lifecycle (that is, design, execute, manage).

Today, the most important standards are:

- BPMN (business process modeling notation)—focuses on the graphical modeling of business processes.
- BPEL (business process execution language)—an evolving standard that focuses on process execution and system-to-system communication.
- BPML (business process modeling language)—an XML-based execution language standard based upon Pi-Calculus and Web services.
- BPQL (business process query language)—focuses on the administrative and monitoring aspects.

Most notable is that each of these (and the many others not listed) focuses on one small aspect of what is typically addressed by a BPM product. The challenge will be to integrate these standards into a lifecycle of continual process improvement with BPM.

Are there any developed or developing standards that would allow portability of total BPM applications to different vendors? No, not even close. Standards might allow development of some adjunct products (such as reporting and analysis) to make use of some BPM data in the

future, but for now, standards are not really playing a significant role (other than marketing) in BPM products.

The more significant standards at this point are those in areas of importance to BPM, such as SOA, XML documentation standards, and so on.

## **What does BPM cost? What are the hidden costs?**

A typical BPM project requires licensing a BPMS from a vendor, training internal staff and hiring outside assistance for your first BPM initiative. Like other software platforms, there are many different types of licenses available: enterprisewide agreements, per processor, per process, per developer, per user, etc.

Now that BPM has gained traction in many large enterprises, BPM vendors are pursuing mid-market companies and reducing license fees to match the budgets of these smaller buyers.

For a typical implementation that leverages a leading BPMS, you should plan for \$250,000 to \$500,000 to address a meaningful process in your organization. (This cost includes the first two bullets below.)

Potential hidden costs include:

- having to license and deploy multiple development/test/production environments to support multiple BPM initiatives
- additional application and database server licenses
- staff to provide the care and feeding of servers
- internal cost of direct involvement from business users to participate in process modeling, business rule definition, user interface design, testing and rollout activities
- change management and training costs associated with convincing your users to evolve beyond event-driven to task-driven work (event-driven: workers "know" what tasks to do and in which order because that's the way they've always done it; they prioritize their work based on events as they happen, often using the "squeaky wheel rule"; task-driven: the logic built into the BPM solution defines tasks, their order and relative priorities, workers monitor a task list to know what to work on)

## **What is involved in implementing BPM?**

Similar to other software implementations, BPM requires both business and technical resources and activities. Effective BPM is based on an ongoing iterative design/develop/deliver process improvement lifecycle. Although the usual cast of characters will be involved (executive sponsors, project managers, business users, business analysts, technical architects, software engineers, quality assurance and infrastructure specialists), the role they play may be very different with BPM.

In a typical enterprise package implementation, business users are included in up-front planning and requirements definition. After that, they don't typically get involved in a substantial way until user acceptance testing. BPM implementations, on the other hand, will require constant participation from key business users and analysts as process models are developed and

supporting application elements are implemented in an iterative fashion. Many business users and IT staff are not used to an ongoing collaborative approach to implementing software; this makes planning, training and change management key components in a successful BPM implementation. (For more on change management, see ["ABC: An Introduction to Change Management."](#))

Another potential challenge with BPM is the behavioral change required by participants in the process. Often, BPM requires users to move from an event-driven to a task-driven work paradigm (event-driven: using the "squeaky wheel rule"; task-driven: the priorities built into the BPM solution determine tasks' order).

For many workers, using a BPM application will involve monitoring an inbox of tasks with prescribed priorities and work instructions, rather than concentrating on the task that seems most pressing. For some organizations, well-planned and executed training is enough to make the transition, but for others, implementing task-driven work processes can require a major cultural transformation.

## Top 10 lessons learned from real-world BPM projects

DO	DON'T
Start with an important process	Try to fix your most complex process first or everything at once
Establish a simple ROI metric for your initiative that is meaningful to your business	Go overboard with process performance metrics
Stop modeling and start implementing	Wait for complete consensus on the new process before getting something up and running
Insist on multiple iterations	Allow scope creep—your first process should be operational within 60 to 90 days with an organized plan for future releases
Use business process needs to compare offerings	Focus on technology or assume BPM vendor offerings are all the same

## How do companies organize their BPM projects? Who should own a BPM initiative, business or IT?

(Also see, ["Who Controls Business Process Improvement."](#))

A typical BPM project includes an executive sponsor, business analysts who have detailed process knowledge, IT staff who can enable the necessary data and systems integrations, and developers who build user interfaces that guide users through the new process. Consultants are often used on initial projects, but the goal should be for the organization to be self-sufficient on future BPM initiatives. Often, BPM initiatives require staff from different functional areas of the

organization. The project team may resemble a typical IT project, with the exception of increased involvement of business staff in process modeling and user interface design.

BPM often comes into an organization through the IT group. This sometimes makes IT the de facto leader of BPM projects, especially for early BPM efforts. IT's cross-functional mission also fits well with enterprise BPM capabilities. Many organizations have established internal process improvement teams, and BPM is a natural fit with their cross-functional mission.

However, BPM is an *approach* to continual process improvement that leverages technology. Ongoing process change requires intimate knowledge of the process and improvement capabilities. In addition, the BPM team has to be empowered to make decisions quickly. These factors make the business owners more suitable to lead and drive BPM initiatives, with facilitation, examples and integration support provided by IT.

## **How do I build a business case for BPM?**

First, you need to analyze the opportunities within your particular organization to determine if BPM will help or just add to the confusion and legacy burden. Remember, BPM is an approach to solving these problems and will likely outlive a particular vendor's platform in your organization.

BPM is most valuable as an enterprise capability; however, it is usually brought into an organization to tackle a specific process pain point. It then spreads in a "viral" nature as internal champions see the initial results and apply BPM to other pain points. For example, HR processes often serve as an entry point for BPM in an organization.

Here are the high-level steps in building a BPM business case:

- Identify candidate pain points/broken processes.
- Pick a few and analyze specific payback into an opportunity chart.
- Build an ROI model.
- Identify revenue growth, cost reduction, compliance and cost-avoidance benefits.
- Identify intangible benefits.

## **How do I measure and actually get ROI from a BPM project?**

Success with BPM is almost always measured with a clear, simple business metric, such as:

- reduced number of returned shipments
- reduced cycle time for special orders
- increased dollars recovered from credit disputes
- increased consistency of task completion/improved productivity
- reduced time required to onboard new employees

If you can't identify a metric that is meaningful to your business partners, you need to step back and evaluate if you have identified the right target process for BPM.

The right metrics also help keep the project team focused and the business owners engaged. Since BPM is an iterative approach, keeping everyone involved is crucial to working through the limitations of early releases and actually getting the business to use the solution. Measuring and reporting actual results is required, especially when changing the everyday work habits for business users.

For example, if process exceptions are being posted as tasks on a user portal, management needs to monitor the use and throughput of that portal. If users are not going to the portal often enough, the BPM solution can be modified to deliver tasks to the user's e-mail inbox instead of the portal.

In summary, maximizing your return from BPM requires:

- picking the right process targets
- assembling the right team
- following an iterative methodology
- staying focused on the business goals to drive further improvements and user involvement

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