



Ten Pillars for World Class Business Process Management

— Vitria Technology, Inc.

► Hurwitz Report



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This paper addresses the fundamental uses of a business process management system in today's business environment, outlines benefits and returns for BPM, and highlights the essential functional elements of an effective business process management solution.

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A Hurwitz Group white paper written for:

Vitria Technology, Inc.
945 Stewart Drive
Sunnyvale, CA 94086
Tel: 408 212 2700
Fax: 408 212 2720
www.vitria.com

Published by:
Hurwitz Group, Inc.
111 Speen Street, Framingham, MA 01701 ► Telephone: 508 872 3344 ► Fax: 508 872 3355
Email: info@hurwitz.com ► Web: www.hurwitz.com

July 2001

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EXECUTIVE SUMMARY

Today's businesses operate in a complex world defined by the convergence of increasing customer and partner demands on enterprise information, rapidly changing markets and opportunities, and heterogeneous IT infrastructures needed to execute on business decisions. Enterprises rely on their business processes to guide them through this complex ecosystem. Unfortunately, the complexity that this ecosystem presents can lead to serious disconnects between the processes business leaders would like to have in place and the processes that actually run the business. In addition, opening the enterprise to a multitude of Internet touch points places increasing pressure on a business. While management may be prepared to change business processes quickly and effectively, IT may not be able to keep up with the pace of change. Both management and IT will benefit from a flexible software solution that enables the management of business processes.

Whether the business processes are proven and have been in place for a number of years or whether new processes are being created to meet emerging opportunities, enterprises need a solution that can cohesively weave together business processes wherever they reside in or across the extended enterprise. Enterprises will gain significant returns in the areas of operational efficiency and preservation and reuse of current IT assets when implementing a business process management (BPM) solution. BPM is visibility, understanding, and control over processes that reside anywhere in an extended enterprise and cross any combination of people, systems, and corporate boundaries. Because business process management is a strategic proposition, enterprises should understand the fundamentals of the

solutions available today. Having a solid foundational knowledge of the key requirements of business process management will ensure that implemented solutions will create a flexible IT infrastructure and enable the business to meet its revenue, efficiency, and growth goals.

Introduction: What Is BPM?

A successful business is built on a foundation of business processes that align resources to achieve goals. Whether delivering goods and services to customers, collaborating with partners, or coordinating employee efforts, sound business processes are unifying threads that bind together the fabric of an enterprise's products, brand, and value. Business processes are the heart of an enterprise's identity; they are the steps taken to create a new product, manufacture an item, assemble multiple parts into a finished good, synthesize a raw material for production, answer a customer inquiry, procure supplies, negotiate a partnership, or deliver a product to the market. The point is that each business has unique characteristics that are embedded in the processes. In a commodity market, managed business processes define advantage. In an open market, managed business processes create opportunity. All too often, however, enterprises do not have adequate understanding of or control over their processes. Management might have a model of an ideal process, but the reality of the execution of that process might be strikingly different, leading toward redundancy, error, gaps, and inefficiency. As a result, businesses without agile control over their processes often impede their own success. Without business process management, processes become quickly locked up into isolated units. But what is business process management and why is it critical to a successful enterprise?

In short, business process management is the ability to have end-to-end visibility and control over all parts of a long-lived, multistep information request or transaction that spans multiple applications and people in one or more companies. Business process management means harnessing and enhancing the value of business processes however large or small, wherever they reside within the extended enterprise, and whomever they involve. Naturally, companies have always created some type of process management system to varying degrees. These earlier solutions might have been custom-built combinations of workflow, document management, or systems automation with large amounts of custom coding needed to round out the capabilities. Typically, no one tool has been capable of providing a satisfactory solution and has left enterprises with large functional gaps and added complexity. With the technology available today, however, enterprises have powerful software solutions available that make potent business process management a reality. A BPM solution is a graphical productivity tool for modeling, integrating, monitoring, and optimizing process flows of all sizes, crossing any application, company boundary, or human interaction.

This paper will address the fundamental uses of a business process management system in today's business environment, outline benefits and returns for BPM, and highlight the essential functional elements of an effective business process management solution.

Managing the Enterprise: The Uses of BPM

To understand the uses of BPM, we must begin with the building blocks of the processes involved. These are the assets that fulfill a process. These assets are employees, customers, partners, applications, and databases all working toward a specific business goal. Each of these assets has an intrinsic value and part to play in the unifying process. Additionally, each of these assets interfaces with a process in a unique way. BPM entails integrating the value of each asset, providing a seamless interface with an asset, and coordinating the efforts of all assets to achieve a specific goal in a given sequence within a set amount of time. Therefore, in highlighting the four tenets of BPM — modeling, integrating, monitoring, and optimizing — we define each:

- ▶ **Modeling.** Graphically defining or building a business process representation that accounts for: all needed process assets, multiple steps, subprocesses, parallel processes, various process fulfillment paths, business rules, exception handling, and error handling.
- ▶ **Integrating.** Connecting the process assets so that they can seamlessly exchange information to achieve business goals. For applications this means using APIs and messaging. For people this means creating a workspace on the desktop or wireless device for fulfilling their part of the process.
- ▶ **Monitoring.** Providing a graphical administrative console that shows processes that are in progress, completed processes, and associated business metrics for each process.
- ▶ **Optimizing.** Analyzing, through a common user interface, the monitored processes to look for inefficiencies, coupled with the ability to act on or change processes in real-time to minimize inefficiencies.

These four tenets of BPM should not be considered as separate from each other. They are symbiotically linked and represent a cohesive set of actions that deliver on the promise of BPM. Enterprises can employ a BPM solution to handle a variety of business processes, ranging from simple to complex.

In a simple use case, BPM provides intelligent event management built on top of a publish and subscribe messaging infrastructure. This usage is an intelligent message flow that synchronizes the various activities of process assets. For example, a customer may log on to a web site and fill out a change of address form. This form is then intelligently routed to the CRM system that maintains the customer records. The new data is updated in the CRM system through the integration layer, and a completion notification email is sent back to the customer

as well as to the appropriate sales representative, who might then choose to follow up with a phone call. Even in a simple model such as this, an exception might occur. Perhaps the customer inadvertently enters an incorrect zip code. The CRM system cannot process the change without further information. With BPM, the intelligent flow can automatically push the exception to a sales representative for personal attention or an error email can be sent to the customer. The point is that one of the most important uses of BPM is to handle exceptions. Most companies that have managed processes spend their time handling exceptions. When building a BPM solution from scratch, these exceptions need to be custom-coded into the solution. This is not an efficient or scalable tactic to handle exceptions. Nearly 80% of programming time for BPM is spent in exception management. Therefore, a powerful BPM solution will alleviate this burden by enabling developers to build a visual model that allows for exceptions. The BPM solution can then generate the code necessary to integrate the exception into the process assets.

In a more sophisticated use scenario, BPM provides end-to-end life-cycle management of information requests or transactions that are actually made up of many steps. Refer to Figure 1:

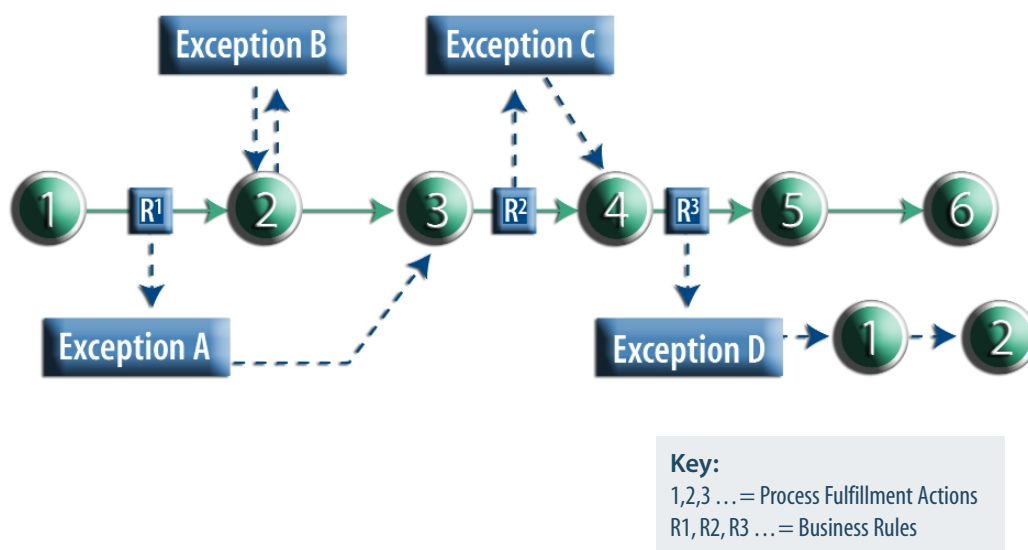


Figure 1. Sample process map.

In this scenario, the process map represents a B2B purchase order that is coming in from a trading partner. At Step 1, the PO document comes into the enterprise and is processed for its contents. Step 1 includes several subprocesses that include sending an acknowledgement of receipt. At this point Business Rule R1 is applied, which is a rule designating who will process the order because of the dollar amount. If the dollar amount exceeds a given limit, the PO is routed to a higher level manager for approval. Exception A represents the path in which the process will flow if the PO needs to go to a higher level manager.

Exception A is a separate business process that bypasses Step 2. If the amount is within established parameters, it moves to Step 2, which is an automated step that populates the enterprise's order entry application. At this point, the PO might be missing a specific element needed by the order entry application. If this is the case, Exception B kicks off and an alert email is sent back to the trading partner requesting the additional information. The process management system needs to maintain the state of this process until the information is added in and can fulfill this step in the process. Once it is fulfilled, the order moves back into the normal process flow and on to Step 3, which is a check inventory step. R3 is a business rule that is applied if the inventory is not available. The rule outsources the request to a third-party provider, which is represented by Exception C.

Once the inventory is secured, Step 4 is initiated, which is securing logistics for the product. R4 is a business rule that moves the product into a new delivery process if the product needs to be shipped overseas. Exception D is the overseas delivery process, with separate billing and shipping requirements. If the product will be delivered within the country, the process moves to Step 5, which is the bill generation step. At this point the bill and the product are shipped to the trading partner in Step 6. The process comes to completion.

With a robust BPM solution, a company can:

- ▶ Model this process from start to finish.
- ▶ Generate the necessary integration among the various systems that the process crosses.
- ▶ Create exception handling and alternative processes.
- ▶ Monitor the health and fulfillment cycle of the process.
- ▶ Assign fulfillment assets according to workload availability.
- ▶ Change the process for added efficiency.
- ▶ Add or subtract application assets to fulfill the process.

The point is that this is an example of a business process that is triggered by a partner, fulfilled through a combination of in-house and outsourced resources. Companies have multitudes of these kinds of processes that often reside in the heads of just a few individuals or within the silo walls of a specific application. BPM breaks down the process barriers inherent in most businesses and creates a much more flexible and optimized process-oriented environment.

Benefits of BPM

A powerful BPM solution will benefit your enterprise both tactically and strategically. It will positively impact business practices and IT infrastructure. Building a better business is the goal

of a BPM solution and these are some the key areas in which companies will recognize a substantial return. BPM will put the squeeze on inhibitors to business success. Shaving time, costs, and errors off your businesses core processes will yield substantial return.

BPM solutions are designed to attack the disconnect that occurs when management makes decisions based on market pressures and opportunities and IT implements applications that will execute a business process. To this end, BPM is the accountability layer that captures how management decisions are implemented, guides on-going decision making, and provides the necessary abstraction layer for IT to plug in the best application for the job. When management moves to capture a business opportunity, IT will have the vehicle in place to drive the company to the opportunity. This translates into much shorter delivery time for bringing new products and services to market, spawning a more agile enterprise.

Shortening cycle times creates a lower cost for delivery within the IT department. With a strong BPM solution, IT can reuse existing process models and modify them as needed to implement a new service. This saves on development costs, training, and maintenance. Additionally, the business can lower costs on warehousing and logistics as the enterprise can move closer to a just-in-time delivery model. Savings in enterprise costs can be passed on to customers, yielding competitive advantage in the market, greater customer loyalty, and greater market share opportunity.

Additionally, executing a BPM solution is a pathway to internal employee efficiency. Enterprises can eliminate costly and slow manual steps that can be more effectively executed when automated. There is a time savings as well as an accuracy boost when processes are automated. This frees up employee resources and enables the enterprise to better deploy its skilled employees to deal with situations that require informed employee decisions. Through automation, employees can focus on high value tasks, not time-consuming regularities. Enterprises can intelligently route processes to the right people with the right skills at the right time. This is particularly critical in customer care and service efforts. Automating steps saves time for current employees and saves training costs for new employees.

IT benefits from having a clear cut separation of the business processes from the underlying applications that fulfill the processes. The application architecture becomes more like a plug-and-play environment. Best-of-breed applications, custom applications, and repurposed applications can be fit into a variety of processes in a more seamless manner. This approach is a much more efficient way for IT to fulfill business goals, maintain integration logic, and handle changes or exceptions to a business process. IT becomes more operationally efficient.

BPM Solution Elements: The Top Ten List

Hurwitz Group has identified ten elements that must be at the core of a strong BPM solution. Enterprises should look for these requirements when choosing a solution. However, this is not a comprehensive list, but rather a foundation for BPM success.

- ▶ **Unified process automation and workflow model.** Because fulfilling business processes requires the combination of automated applications and human actions, process models must reflect and integrate both systems and people. Processes are rarely completely automated. Knowledgeable employees are needed to make key decisions as well as handle exceptions and errors. One process model that incorporates the entire process and its incumbent steps is essential.
 - **Benefit.** One model simplifies how the business understands and manages its processes. The purpose is to create an ideal, collaborative synergy between people and systems.

- ▶ **Direct model execution and manipulation.** Building a process model is only a stage in implementation. When the unified model has been created, the BPM solution must be able to generate the necessary integration code needed to pull the appropriate applications and people together into the run-time environment. This requires the BPM solution to have versatile and powerful adapters for handling the application integration, a robust messaging infrastructure for communications, and a rich user interface for publishing work items to employees. Furthermore, the process model must be separate from the underlying applications and people so that changes in the application architecture will not break the process model and changes in the process model will not break the integration logic among the assets. Model-based execution and manipulation enables the business decision makers to be insulated from the technical complexities of the computing environment, while at the same time preserving the integrity of the computing assets and making them available for any business process that requires their services. Enterprises must be able to change their processes rapidly and through a flexible model-based environment. This reduces the time and costs of maintaining and upgrading applications and processes.
 - **Benefit.** The direct model leverages and makes the most use of the business knowledge and skill base already in-house. The shortage of highly skilled technical workers and the common misunderstandings that occur between business and IT make it essential for BPM tools to be highly usable by business analysts who work from an easy-to-understand model, not from a specialized code-based environment.

- ▶ **State management.** The BPM solution must keep track of the states of all processes regardless of their length, complexity, or current status. Because a business process is your business, enterprises need to have accurate control over what state a specific process is in. This will increase visibility and understanding of the process for added customer care, partner planning, and employee efficiency. Also, maintaining current and historical state information will enable identification of problems, bottlenecks, added optimization, and greater return-on-process efficiency. State management is a proactive, action element that empowers users with the information needed to make business decisions and changes that will positively impact the process flow.
 - **Benefit.** Informed, process-based decision-making relies on knowledge of how the business is performing at any point in time. Managers armed with this knowledge will be able to diagnose inefficiency and make necessary changes.

- ▶ **Time-based exception management.** Exceptions to processes are often more the rule than the exception. Business complexity, customer demands, and market changes often dictate quick decisions and changes to status quo business processes. Strong exception handling capabilities are needed to adequately cope with the dynamic nature of business. Additionally, exceptions by definition require special handling usually in a short window of time. Consequently, a BPM solution must be able to intelligently coordinate time rules with exception handling. Key customers and partners may be relying on an answer to an exceptional situation within a short amount of time. Your business must not jeopardize its relationships by missing a deadline or a response in a timely fashion. Time-based exception handling makes this a reality for your enterprise.
 - **Benefit.** Because so much of a business involves exceptions and special handling, automating these will improve productivity and decrease costs.

- ▶ **Robust process monitoring and analysis.** On-going and real-time monitoring of business processes is crucial for achieving better operational efficiency. In this sense, a BPM solution becomes a critical knowledge center for an enterprise's entire operations. Immediate knowledge of how moving processes are affecting business performance provides the critical means for improvements. Sound business decisions rely on the ability to trust that your company can react and support new processes, changes to existing processes, and termination of faulty processes. Monitoring the health of the process environment enables business leaders to make such informed decisions. These decisions are also informed by acquiring intelligence about how your business handles its processes or reacts to change. This requires rich, analytical

processing executed in multidimensions across multiple categories such as time, speed, quantity, etc. BPM can be a strategic control center for managing the requirements built into service level agreements, process optimization, customer service, partner guarantees, but only if it has analytical capabilities that offer multidimensional, real-time, and historical views.

- **Benefit.** Quickens time-to-market based on accurate analysis. Honing, optimizing, and guiding the business in light of process fulfillment enables quicker reactions to change as well as improvements to resource allocation.
- ▶ **Nested model support.** Many business processes are made up of a number of subprocesses that feed the larger one. This quickly creates a lot of complexity for organizations, often making BPM seem to be a daunting task. Therefore, the BPM solution must be able to support the use and reuse of small subprocesses in coordination and subordination to a larger, controlling process. This gives process owners more granular control over their individual subprocesses, and it also gives executives an abstraction away from complex subprocess coordination. Further, the BPM must be able to dynamically invoke a subprocess to complete a step. The user must have the capability to add a new subprocess into an existing process and have the solution automatically at runtime bind the subprocess into the higher order process. The BPM solution should enable this feature for both static invocation and dynamic invocation of subprocesses. In other words, users can set up a call to execute a specific subprocess invocation, or they can make a choice at the appropriate time as to which subprocess will be invoked. If all a manager needs to know is that a purchase order has been approved so that billing can occur, then there is no need to show the multiple routes and steps that were needed to approve the PO. Nested model support makes this happen.
- **Benefit.** Better management decisions can be made from drilling in on the significant layer of a complex process, and at the same time by having the right degree of abstraction, leaders can better understand how business is achieving its goals and responding to market conditions.
- ▶ **Concurrent model support.** Business processes most certainly trigger more than one business event. As a result, a BPM solution must be able to support concurrent or parallel process models. These concurrent models must be able to execute independently, but also must be able to join for full completion of a given process. If one of the concurrent models fails, then the other model must be able to complete its processing and maintain its state until the failed process is brought back online and the completion results are merged together for the convergent flow of the process.

- **Benefit.** No matter how advanced processes become or how the business model evolves, the BPM solution will be able to support the goals. Multiple events need to be processed simultaneously to serve a demanding market. No business runs on a single thread of business processes. The complexity of the business environment requires a solution that maps to and supports complexity.
- ▶ **Standards based.** Because the BPM solution will be touching all aspects of the computing environment it is imperative that the solution be built with and support standards. It should support UML, importing of UML models, WFMC, XML, and vertical industry XML standards. Additionally, because BPM is a strategic layer that must work in coordination with the entire enterprise architecture, a BPM solution must support and work seamlessly with an enterprise's application integration layer. Coordination with the lower level data and application transformation layer will eliminate unnecessary processing and erroneous data conversions between the two systems. Unified process and data integration based on open standards will improve the overall implementation and success of BPM. As the list of standards grows, enterprises should be sure to have a BPM solution that is extensible enough to incorporate emerging standards.
 - **Benefit.** Business can adopt new technology that will easily complement existing technology assets. New technology progress can make proprietary solutions quickly obsolete. Standards-based computing is insurance that an investment will continue to pay dividends.
- ▶ **High scalability.** In a complex deployment, a BPM solution could be handling hundreds of processes in various stages. The solution must be able to scale to effectively handle an enormous computing challenge like this. Having a federated architecture that relies on centralized administration, but has no single point of failure because components can be physically distributed is key to ensuring high scalability. A strong BPM solution will scale horizontally in terms of handling extended process times as well as vertically in terms of a high number of processes running concurrently.
 - **Benefit.** Regardless of how the business grows, the software can facilitate growth, not inhibit it or become unusable with increased deployment and usage.
- ▶ **High reliability.** Because BPM is central and strategic, the solution must have automatic failover and ensure the integrity of transactional hand-offs between the BPM system and the underlying integration system. Messages must not be lost, whether they cross applications or firewalls. Whether a process runs B2B or within

an enterprise, business leaders must have absolute assurance that the BPM solution will reliably maintain the process should any drops happen in the computing environment.

- **Benefit.** Business keeps running at all times and can afford no gaps due to software failure in delivery of goods and services.

These ten pillars of BPM outline the fundamentals for a great solution. Enterprises looking for guidelines should keep these propositions in mind. Ultimately, software must be in service of business goals. The above fundamentals will help ensure that your enterprise stays focused on its business goals when implementing a BPM solution.

Conclusion

Computing environments are becoming increasingly complex. A typical enterprise has built up a number of separate systems that ultimately need to cooperate and collaborate to fulfill a business process. Business processes flow through multiple touch points both inside and outside the firewall, and as companies take greater advantage of the Internet, processes could become even more highly distributed. Having a cohesive solution to pull together business processes, model and understand them, integrate and automate them, manage and optimize them, will make any enterprise more successful at serving its customers, lowering its production costs, increasing its employee efficiency, and bolstering its partner relationships. Implementing a BPM solution that supports the ten pillars of BPM will enable the enterprise to better grasp its own future and guide itself toward success. Such BPM solutions will yield tactical efficiency and effectiveness and strategic insurance for a highly optimized and proficient enterprise.



About Hurwitz Group

Hurwitz Group, an analyst, research, and consulting firm, is a recognized leader in identifying and articulating the business value of technology. Known for its real-world experience, consultative style, and pragmatic approach, Hurwitz Group provides strategic guidance to its clients by delivering analysis, market research, custom content, and consulting services. Clients include Global 2000, software, services, systems, and investment companies.