



# Adaptive Discovery™

## Accelerating the Deployment and Adaptation of Automated Business Processes

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*The Information contained in this document is accurate as of September 2004. Because of the speed at which technology is advancing, the information recorded herein is dated and may have changed since this document was authored.*

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## Introduction

The benefits of Business Process Management (BPM) are well documented. For example, a recent study from Gartner found that 78% of successful BPM projects delivered an internal rate of return greater than 15%, with some returns as high as 100% or 360%.<sup>1</sup> The study also found a strong focus on business processes with significant human involvement, rather than pure system to system integration efforts. In addition to financial returns, users consistently cite the ability of BPM to reduce errors, improve service levels, and increase visibility as important benefits. Because of these results, Gartner expects that BPM will continue to move up as an investment priority for organizations seeking competitive advantage.

The first step in BPM is to discover and define processes targeted for automation and improvement. While the high-level concept of processes and their importance is easily understood, the details often are not. The need to “discover” the details of processes and develop detailed process maps to capture the flow of activities is a significant and time-consuming challenge for BPM projects. Until those details are uncovered, the process cannot be automated.

This paper first explores the challenges of “process discovery”. It then presents Adaptive Discovery™, a new innovation from Ultimus that accelerates the deployment and adaptation of automated business processes in a practical, efficient manner. This patented technology simplifies the discovery effort, shortens deployment cycles, and enables process changes to be implemented quickly and easily. With Adaptive Discovery, the effort required to succeed with BPM, and continuously adapt and improve processes, is less than ever before.

## Business Processes are Dynamic

Business processes are everywhere in organizations. Some have been defined with a great deal of detail and rigor. For example, loan processing is a core function for financial institution that has many personnel dedicated to the effort. As a result, the details of how loans are processed are typically well understood. On the other hand, the vast majority of processes in a business are not well defined or documented. They have evolved over time as a result of simply doing business, with people making decisions on how to address situations on the fly. If successful, the decisions are applied for similar situations and over time become the accepted process. If unsuccessful, other approaches are tried until ones that work are found. Processes evolve iteratively, almost following Darwin’s theory of evolution. Often, the exact mix of tasks, participants, rules and systems change based on the specifics of each case of a process. As processes evolve they become increasingly more complex in order to respond to the variety of situations within the organization.

For example, consider how a company responds to prospects when they require a price quote—a “Quote Process”. The goal of the process clearly should be to provide the customer with an

accurate, competitive quote as quickly as possible. Sounds pretty simple, right? However, the details behind this “simple process” become complex as soon as one digs deeper into the business requirements, such as:

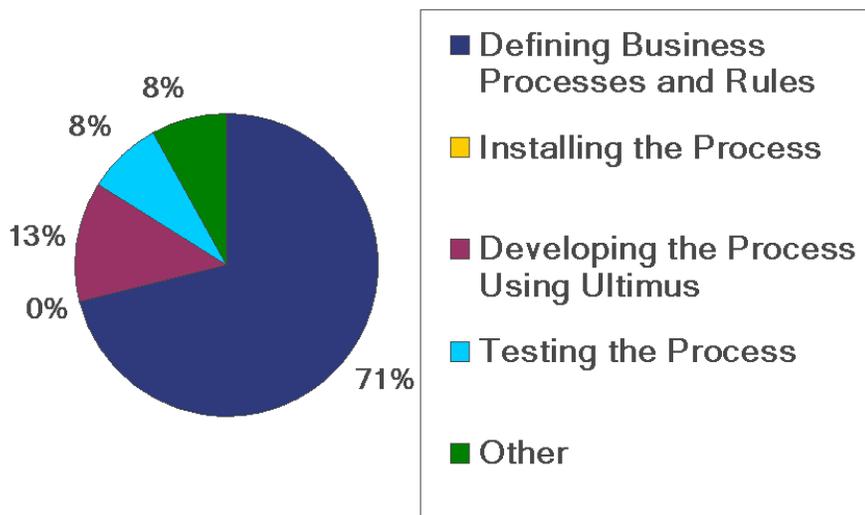
- Are quotes for existing customers handled differently than new prospects?
- How are requests that require some customization handled?
- Does the process change for large orders?
- How does a desired delivery time frame impact the process?
- Does the timing of the request (i.e. end of year) impact process?
- How do competitive pressures or changing business conditions impact the process?

To understand and automate processes, business users and IT professionals must work together as a team. Business users own the process. They know what the process is intended to do and how it should flow. They make decisions and adjust the process as often as necessary to meet their needs. IT owns the technology infrastructure that is used when these processes are automated. They understand the need to manage data, integration, and systems operations.

The combination of technology infrastructure, process flow, and business requirements all needs to be discovered and translated into a process map to enable automation to occur. This process discovery effort, and adjusting the process map to keep pace with change, is the most significant challenge of BPM projects.

## The Challenge of Process Discovery

In 2003, Ultimus conducted a survey of all team members involved in implementing BPM using the Ultimus BPM Suite. The survey results showed that the vast majority of time and effort spent on a project was defining processes and their associated rules.



To fully discover a process, IT personnel and business representatives must work together to define process maps. These maps and supporting documentation specify the details of a process. Some aspects of process definition efforts mirror traditional application development, including:

- Capturing data requirements;
- Identifying all possible tasks that must be completed;
- Determining which existing systems to leverage (to get information from, send information to, or use to automate entire steps); and
- Choosing how to present and collect information from users in electronic forms/user interfaces.

Other details are more specific to business processes:

- What conditions dictate the flow of work from step to step;
- Who should complete each step; and
- How to deal with exceptions that change the flow of work.

To capture this information, the process teams develop detailed process maps. Process maps visually capture the flow of a process and the conditions—or business rules—which cause different paths to be followed.

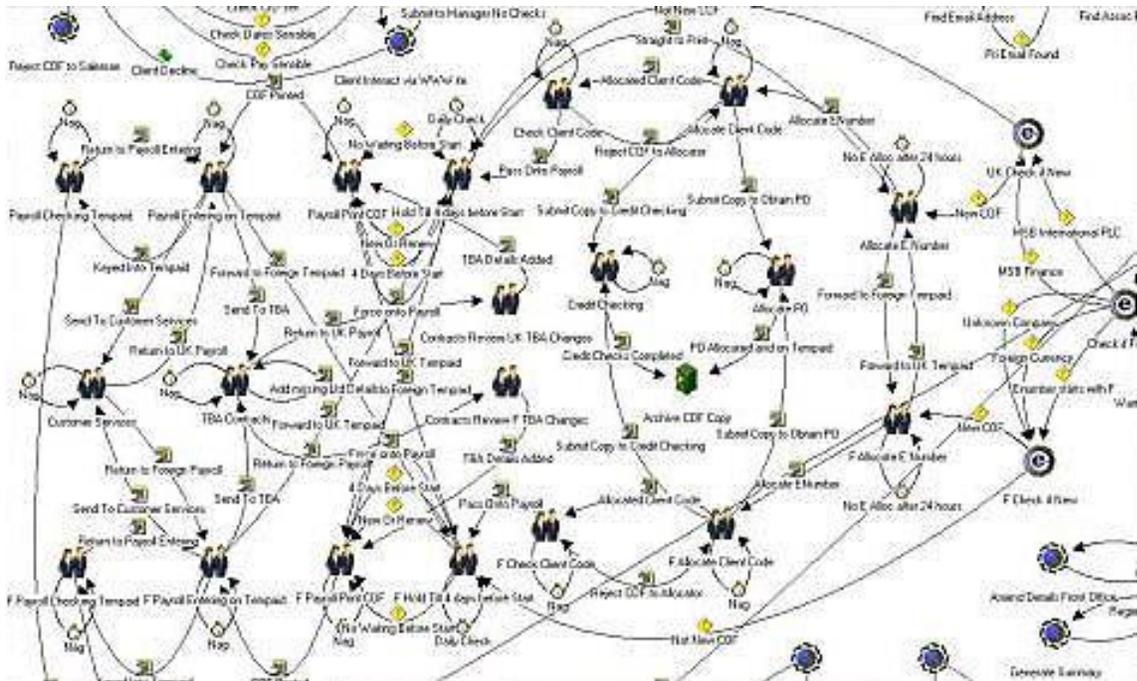
Unfortunately, there is growing evidence that developing detailed process maps (aka models) may be a waste of time and money. Organizations that have undertaken efforts to develop complete maps for processes are often surprised by their lack of value, as reflected in the passage below:

“I was talking to a large company’s chief architect at a conference last November. His conclusions were stunning: his company had just gone through a complete mapping of all their processes.”

“They had come to the conclusion that because of the way they had modeled the processes, the **resulting definitions were far too complex and, consequently, brittle**. Nobody could comprehend the impact of any changes, let alone move the enterprise architecture to a BPMS.”<sup>2</sup>

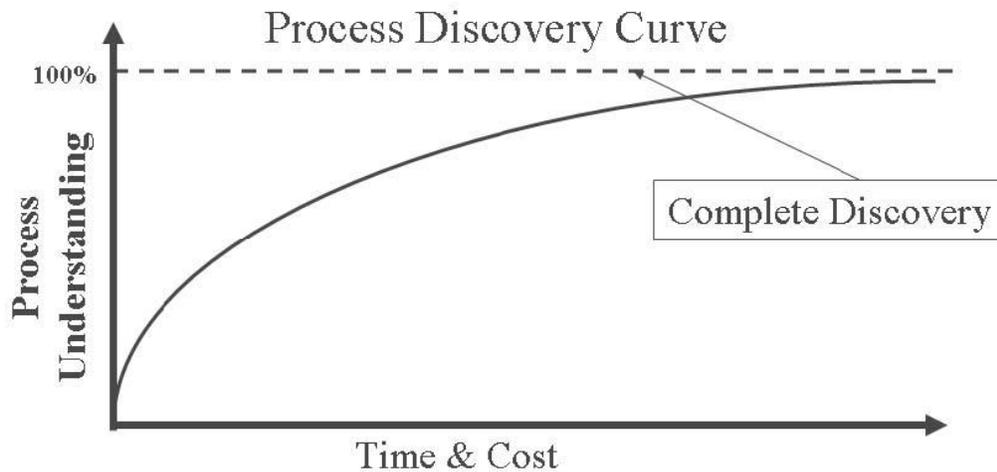
The problem with detailed process maps is that their graphical nature, while initially of high value to promote understanding, loses its value as complexity increases. Even when following best practices for mapping, the effort to follow graphical flows (and understand the details behind the pictures) is too great. Instead of promoting clarity and understanding, they increase complexity and confusion.

To illustrate this consider the sample portion of a map shown below.<sup>3</sup> This map, created in a typical BPM product—not Ultimus—captures all of the possible paths into and out of steps.



Clearly, once this is done, the map provides little to no visual value in describing the process. In fact, it provides no value to anyone who was not involved in the original mapping exercise. It might even scare people away from the process, even though the automated process is delivering significant value to the customer.

While graphical maps that show every path can be confusing, that is not the only problem. The experience Ultimius has gained from deploying BPM solutions at over 2,000 customers has shown that it is difficult to get a complete understanding of processes. The diagram below reflects the typical experience.



During the early stages of process discovery, a lot of information is uncovered quickly. As time goes on, the amount of new details will diminish. Organizations begin implementation when they feel they have a complete definition. In reality, they usually discover new rules and issues even after the process is deployed. Process maps and modes are never actually complete because change is always happening.

This constant change associated with business processes can put considerable strain on IT departments as they strive to understand, capture, and implement process requirements. A significant portion of these requirements exist only in the minds of the process owners, who apply that knowledge as needed in response to business conditions. Defining and formalizing these rules and flows is mandatory, from IT's perspective, and next to impossible from the business perspective.

The simple reality is that while both business and IT share a common goal - a system that works for business and is manageable – the nuances of processes, individual perspectives, and other work activities often get in the way of the two groups working well together. It is a bit of a “Catch-22” that is often the source of friction between IT and business:

- **For IT** - To deploy business applications and respond faster to the needs of business users, IT must understand the business needs better. However, understanding the business needs in detail is challenging because they are constantly changing and IT personnel are often overburdened.
- **For Business** - To work closer with IT departments, business users must become part of design teams. However, working on a design team takes time that keeps business users from performing their primary work activities.

For BPM to be successful, business people must own their processes. At the same time, the computing infrastructure to support the automated processes must be owned by IT. This requires both IT and business to be equipped with technologies that addresses the dynamic nature of business processes.

## **Adaptive Discovery™**

Adaptive Discovery™ is a patented technology innovation from Ultimius that allows automated processes to be deployed without requiring complete process maps and definitions. Instead, process experts define the flow, rules, and recipients of work on the fly, when needed. The process “learns” from these decisions and follows them automatically for future matching cases, without involving the process experts. In this way, processes are defined and enhanced the same way they evolve in business—in response to real world business decisions and requirements.

Equally importantly, once the flows and rules are captured, they can easily be changed by the process experts, either to optimize the process or adapt to new business conditions. This ability to change easily also makes Adaptive Discovery valuable for well-defined processes (where rules are all pre-defined), simplifying the effort to change rules as the business evolves.

Process experts are closely aligned with the business teams—with detailed knowledge of the process, the business environment, and the impact of the flows and rules they are creating. These individuals may report to the IT organization or to the business unit itself—it doesn't really matter. But their role is clear—they ensure that the process can change and adapt quickly to support unique business needs.

Adaptive Discovery fosters a new level of cooperation between IT and business - one that is consistent with the way both groups should work today:

- **IT** – “Owns” the infrastructure and develops, deploys and manages the consistent, technical aspects of processes—such as data, forms, and integration. This is similar to traditional application projects and an area of strong expertise for IT professionals.
- **Business** – “Owns” the process and manages the dynamic business aspects of processes—such as flow, rules, exceptions, and user roles—through process experts.

Adaptive Discovery simplifies the process discovery effort, accelerates deployment and adaptation of processes, and eliminates many of the causes of friction between IT and business users of BPM.

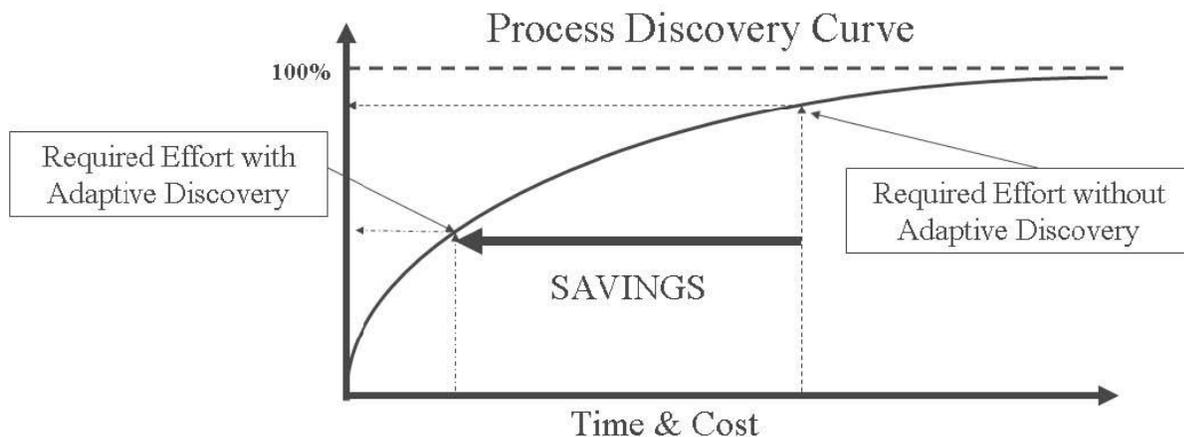
## How Adaptive Discovery Works

First and foremost, Adaptive Discovery compresses the scope of the up-front discovery effort. During discovery, the focus of the discovery team—a team that still includes business and IT representatives—is on the well-defined, tangible aspects of a process. Primarily, this involves defining the underlying IT infrastructure and technologies required for process automation:

- Identify all the activities or tasks required in the process;
- Define all data requirements, inputs and outputs;
- Identify integration requirements with existing or new systems;
- Establish user interfaces to support user interactions; and
- Establish a high level understanding of the general process goals.

Less time and effort is spent on the more dynamic process details, such as process flows and exception handling. If these details are well understood they can be included up front. If not, then Adaptive Discovery can be used to define them once the process is deployed.

With Adaptive Discovery, the process discovery curve does not change, but the point at which implementation can begin does.



By reducing what needs to be defined before implementation, the time and cost of discovery can be dramatically reduced.

Adaptive Discovery also means that details that are needed to handle specific cases will only have to be discovered if and when they are needed. Once these details are discovered, they are remembered by the system. As the system is used more and more, it becomes smarter and smarter, requiring less and less intervention by the process experts. Furthermore, whenever new contingencies arise, the system pro-actively involves the process expert and adapts to the change without requiring additional development by IT in most cases.

## Adaptive Discovery in Action

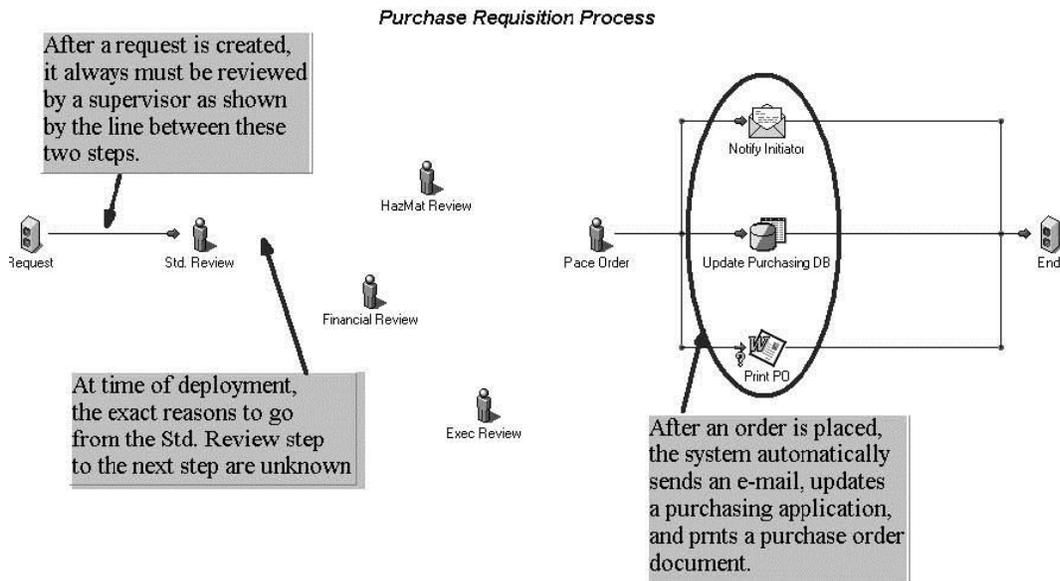
To illustrate how Adaptive Discovery works, consider this example. When deploying a purchase requisition process, the BPM team may have learned a number of details, such as:

- Initial requests must always be approved by the requestor's supervisor.
- Sometimes purchase requisitions need to get finance or executive management approval
- Certain types of materials require review by the Hazardous Materials team.
- Once all required approvals are attained, an order is placed by the purchasing department.
- After the order has been placed, a number of things happen. The requestor is notified; a purchasing database is updated; and a hard copy of the request is printed for filing.

However other information vital for automating the process may not be available:

- The factors that determine when a purchase requisition has to be approved by finance.
- The factors that determine when a purchase requisition has to be approved by the executive team.
- The information that determines when the Hazardous Materials team needs to get involved.

All of this is depicted in the process map shown below.



Adaptive Discovery enables the BPM team to implement and deploy the process based on what is known. Only the known routes and rules are predefined. Without Active Discovery, the team would have to discover all of the rules for routing after the “Std. Review” step before they could deploy it. Otherwise, the process would not work.

As the process is used, the Ultimus Adaptive Discovery technology detects when the BPM Server does not have the information about what should happen next in a process or who should do the next work step. When this occurs, a message is sent to a process expert (or group of experts). The process expert uses his knowledge of the business and the context of the current incident to create a rule that defines what happens next (an action), and why. This is done in an easy-to-use application called the Ultimus Director that is designed specifically for process experts. Once he defines the rule, he applies it against the current case, causing the desired activities (routing or other actions) to occur.

Now that the rule has been discovered, future cases of this process will use that rule to determine routing or task assignments. Cases that meet the criteria of the rule will no longer require any intervention by the process expert. If none of the existing rules apply, the process expert will be involved again. As the system is used more and more, the system learns all possible rules and routes, and everything flows automatically without any involvement from the process expert.

The Ultimus Director also allows process experts to add rules and event actions at any time, not just when the system is processing active incidents. This means that if some rules are identified during the discovery phase, they can be included immediately; requiring less real time involvement from the process expert. Additionally, if changes are needed, the expert can make them at any time; actively managing the process and optimizing the flow whenever needed.

## **Adaptive Discovery Benefits**

Adaptive Discovery provides many benefits for business process owners, IT departments and for organizations that adopt it.

### **Benefits for Business Process Owners**

- Less time is required from the business process owners during process discovery and system design (business users get to do the jobs for which they were hired).
- Tension with IT is diminished since the hard to define requirements don't have to be defined in excruciating detail until they are actually needed.
- Rather than trying to anticipate all rules, routes, and roles; real world information is used to define them—only when they are needed—mirroring the way the rules work today.
- The process expert has the ability to respond to change quickly, without complete reliance on overburdened IT personnel.
- Business clearly owns the process.

### **Benefits for the IT Organization**

- IT responsibility in BPM shifts to focus primarily on the tangible, more infrastructure-like elements that are suited for IT's expertise—data, forms, integration, and operations.
- IT is not forced to capture every possible rule and flow for business processes. The business owners are now responsible and can control the rules themselves through their process experts.
- No longer is IT considered the default —owner of processes; nor can IT be blamed for issues that occur outside of the infrastructure elements.
- IT clearly owns the infrastructure for BPM.

## Benefits for the Business

- The value of BPM can be realized much faster, at a lower cost.
- Friction between IT and business users is reduced.
- As processes are deployed faster, the benefits multiply.
- Significant competitive advantages are achieved.

## Summary

BPM can drive significant improvements in operational efficiency and effectiveness, but those improvements cannot occur if the company gets stuck in process “analysis paralysis.” Adaptive Discovery breaks through this by working the way business works today—discovering process details on the fly and adapting the process behavior to address key issues quickly and easily.

Unlike every other approach that require processes to be defined in excruciating detail before any automation can occur, Adaptive Discovery lets you choose when you want to deploy, letting experience and real world needs drive the timing and details of process definition. It also makes changing processes in response to new business conditions simple and painless. By making process discovery easier and on-demand, Adaptive Discovery overcomes a major hurdle to success with BPM and shortens the time it takes organizations to capture the competitive advantages of BPM.

1 Source: *BPM Benefits Survey Shows Continued Strong Results*, J. Sinur, Gartner, Research Note SPA-23-1715, June 23, 2004

2 Source: *Microsoft's Next Frontier*, Jean-Jacques Dubray, Architect, Attachmate. Available at [www.bptrends.com](http://www.bptrends.com) 3 Source: *Implementation Study: MSB International PLC*, Upside Research, ©2003. Available at [www.upsideresearch.com](http://www.upsideresearch.com)