



DELPHI GROUP

# Third Generation BPM: The Last Mile for E-Business, the First Step for Web Services

## WHITE PAPER

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*Increased velocity in every aspect of business has brought processes management to center stage. While first and second generation Business Process Management (BPM) was restricted to rigid enterprise processes behind the firewall a new generation of BPM is pushing processes definition out to the critical touchpoints of organizations where customers and partners interact in complex value webs. These third generation BPM solutions promise to alter the value chain in a manner as radical as interchangeable parts altered manufacturing.*

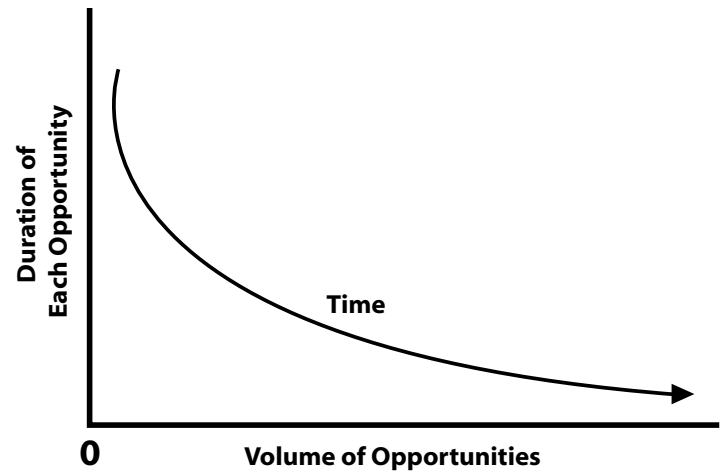
### Towards the Singularity

The nature of time is changing. From the volatility of equity markets to the shrinking of product life cycles, and in nearly every aspect of our lives the metronome ticks ever faster. At the heart of this new velocity lies one of its most visible catalysts, the Internet, which has become both a boon and a bane to global enterprises. On the one hand, it has given the world a common platform on which to conduct business – e-business. On the other hand, it has shortened cycles and improved efficiencies to the point that competitive advantage dissipates at the speed of light. Like early jet aircraft trying to break the sound barrier, as we approach markets of zero latency, organizations seem to break down as their internal processes shudder under intense pressure and velocity – integrity is compromised, risk increases, profitability erodes.

The reason is clear. Unfortunately, most enterprises have simply not been able to speed up their internal business processes at the same rate as the external Internet links to customers and business partners. Without the ability to dramatically improve reaction times and reliability within the process, doing business at Internet speed makes little business sense.

## Web Services – The Next Wave of Work

Often touted as the new frontier in business process management, Web services represent a new model for the syndication of work objects. Simply put, Web services provide a library and a distribution mechanism for individual work objects. A work object could be a simple process, such as the approval of a purchase order or the filing of a time sheet. Every business has a standard set of services, which reside on its internal information systems. At the same time these processes are common to many companies. Rather than build each one from scratch companies could broker these processes through service providers or specialized syndicates of business objects for specific vertical industries. Although very new in practice the concept of shared business objects has been around for nearly two decades. Third generation BPM is one of the cornerstones of Web services since they can act as the backbone for mapping and coordinating vast libraries of business objects to the processes they are best suited for.



We can sum up the problem and the opportunity in a simple framework. As the volume of opportunities increases the duration of each opportunity decreases. Taking advantage of these ever-smaller windows of opportunity requires not just speed and agility but increased integrity. Systems and processes have to more reliable than ever.

While the connectivity of the Internet and most organization's internal networks have put the resources and the information needed to accomplish virtually any task no further than a mouse click away, the processes management tools needed to accomplish these same tasks are often obtuse and inaccessible to the vast majority of knowledge workers.

At the same time most business leaders know that their enterprise's external relationships are only as good as their business processes. Those processes are the means for creating and delivering products and services to customers. They also understand the inherent benefits of transforming business processes into e-processes, managing knowledge, and building enterprise models for complex processes. What they often fail to realize is that the solutions to each of these problems has to be just as distributed and diffused as the knowledge workers and know-how they own.

*Unfortunately, most enterprises have simply not been able to speed up their internal business processes at the same rate as the external Internet links to customers and business partners.*

Business process discussions are not new. The topic has been around for the better part of the industrial age. What is new is the role of the Web in delivering new economies of scale to the way in which businesses are connected and coordinated through the Web. This is specifically true of the way in which Web services are evolving as a mechanism for the instant distribution of business process objects in a just-in-time fashion across the Web. (see sidebar)

Recent developments in Web services, business process modeling and definition have created a quick succession of evolution in the tools used to define and manage business processes. The result is three new generations of BPM during the last 30 years.

## The Three Generations of BPM

There are three distinct generations of BPM tools. Each one has mirrored the technological and economic context of its time. This is especially true in the progression from relatively static process models for relatively static economic climates to rapid response BPM tools for today's volatile economic climate.

### Generation 1

Software engineering – hardwiring the business rules as software code. This tied the business to the software and made large parts of business permanently inefficient.

### Generation 2

Business engineering – abstracted the tools by which the business process could be defined but did not connect this definition to any sort of

instantiation in software, thereby creating a chasm between business speak and techno speak. The result was that the time to enable many core business processes was shortened but most processes still defied definition because they were not worth the time to define or were too individualized to warrant definition.

### Generation 3

Value Web engineering – allows each professionalized component of a process to be defined and collaboratively integrated with the rest of the process. This opens the door to a much more flexible, perpetual process definition and life cycle enablement.

Third generation BPM is a quantum leap forward for one overwhelmingly simple but heretofore elusive feature; the independence of process model and process logic (Process FLOW vs. Process RULES). In past generations of BPM these were intimately tied together making it impossible to easily change a process.

Prior to 3G BPM, companies had the technology to create a BPM process and interface for the end user that would account for most of the logic required to process “items” of work. 3G BPM provides a single view into the three base requirements for accomplishing work; first, provide the data relative to the task, second, manage the process or flow; third, assign the role, people or person responsible.

By defining each separately, you can also separate the logic of processing each item into its own unit or object. Delivery of the work items becomes a selection based on the user's preference. If a user wants to receive alerts with email or pager, they simply select that medium. On the other hand if they would like to get files and items that require edits, they send them to their portal.

This novel approach allows for the creation of vast libraries of syndicated objects that can be shared across global value webs. The implication of this is so enormous that it is difficult to fully comprehend in today's very isolated and proprietary process

flows. An analogy is to consider how important it is to mass manufacturing that parts be interchangeable meeting standard rules and tolerances for interfacing with other parts as opposed to being built individually for each automobile.

Consider this fundamental problem, let's call it the Process Dilemma. It goes like this, each individual will choose the tools that allow him or her to do *their* job in the most expeditious way, but this may not end up being the fastest way for the organization to execute the process. It is a problem that we have all experienced or contributed to in some form. We naturally pick and choose the fastest route for our own tasks, falsely assuming that this will speed the entire process. The fallacy lies in the myriad interfaces between people, which almost always involve information systems governed by differing rules and conventions.

*Third generation BPM is a quantum leap forward for one overwhelmingly simple but heretofore elusive feature; the independence of process model and process logic*

At this point in business and information technology evolution, the problem of disconnected data and applications should be moot: it is not. Enterprises routinely try to build bridges between data islands created by desktop applications, ERP systems, accounting, inventory management, and so forth. Clearly this is not going to be solved by creating singular monolithic applications. We somehow have to create integrity in business processes that will cut across an increasingly more complex and varied IT landscape.

What makes this problem especially complex is the fact that it appears at each of the three touchpoints of any business, namely employees, customers, and business partners (see sidebar on Touchpoints). And each of these employees, customers and partners wants to define and create their own touchpoints – to, in effect, personalize their experience with you.

Even if you get your own enterprise in order and can mandate a single rigid set of applications and processes (which is admittedly a stretch of the imagination) you would never be able to do the same for every partner and customer.

## **Bridges and Islands: Connecting the BPM Touchpoints**

So, how do you address the highly personalized needs of each employee, customer and partner across a maze of applications?

The limitation and the challenge for BPM has always been the lack of an effective means by which to push the process definition out to the extremities of the organization, where the work gets done – the touchpoints. The debate has always pitted the benefit of this sort of empowerment with the need for high integrity enterprise rules. In other words, if you let everyone define his or her own processes then you are back to the process dilemma where personalization impedes the flow of work. But what if we could establish set rules for processes and still allow the touchpoints to define their own process flows? Rather than standing in the way of individual notions of personal productivity, BPM could facilitate the establishment of business rules and then automatically enable their execution in a highly personalized context, but always consistent with enterprise procedures or objectives. In a word integrity with flexibility. Sound complex? Not really. This is the basic formula for all living organisms. The building blocks of DNA are four amino acids with specific rules governing how they bind together. Yet their combinations result in millions of species of life.

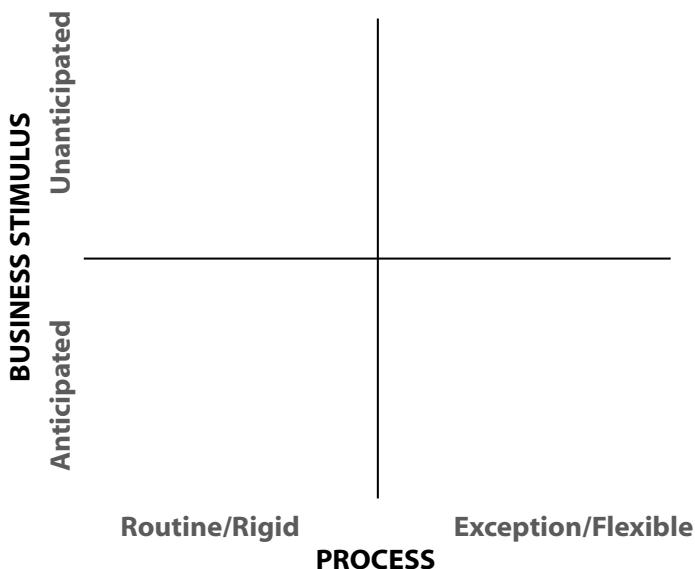
The goal is to bring integrity to the process without stifling the creativity of an organization to respond to its environment (i.e. evolution).

In practical terms the idea is to integrate the existing workflow and business processes using a library of standard objects, or rules, that help produce information flow that can be mapped directly to the desktop. Rules are easy to change,

and when used to create process templates they can result in a high level of process automation, which means new, more meaningful ways to capture, manage, and use key information.

What becomes clear as you examine your processes and workflows is that becoming exceptional at your business means becoming extraordinarily efficient at handling exceptions. Whether it is dealing with people, information or the steps of a workflow, in each instance it is dealing with exceptions that defines successful organizations. Very few transactions are routine or unexceptional. It is probably true that out of four transactions, one is routine and three are ad hoc. While this may seem problematic on a logistical level, on a business level it means three-quarters of your business represents significant opportunities to enhance or improve your business. In fact you could easily claim, as shown in the illustration below, that most of your business processes are exception-driven and very few are static.

Addressing the three quadrants outside of standard, rigid transaction-based systems that respond to anticipated business stimuli using routing processes requires something far more flexible and dynamic than the business process solutions available to date.



## The Touchpoints of BPM

Each touchpoint represents a significant area of potential process or quality improvement, and competitive advantage. Most importantly, touchpoints represent areas where human interaction is often at its most intense.

Touchpoints can be regarded as the periphery of an enterprise's central nervous system. As in human anatomy, it is the extremities that define the efficiency of our interaction with the world around us. Dexterity, mobility, and adaptability depend primarily on the nimbleness of our peripheral nervous system; fingers, toes, hands, feet, arms, and legs define how well we can react to events around us. Granted, the genesis of all reaction is in the brain, but actions are not expressed there; the brain sends messages to the appropriate extremity.

In this same way an enterprise may have outstanding strategies, plans, and tactics, but they must be *enabled*, through actions taken to satisfy customers, educate and leverage workers, and negotiate trade with suppliers.

If the fundamental premise of business is the liberation of human potential, and its application to the areas of greatest value, then BPM must increase *human* interaction at these touchpoints while simultaneously streamlining the tiresome and repetitive tasks that otherwise consume employees' time and energy.

## From e-Process to Web Services

There is incredible flux in e-commerce today. As the tenets of the New Economy crumble under time-proven business axioms, companies are scrambling to figure out how to do business on and with the Web. For example, the market trend towards Business Process Outsourcing, Business Service Providers and Web services is being driven by a senior management edict to focus on core competency. Simultaneously, markets are lashed by the disintegration of value chains, whose myriad participants are trying to reinvent themselves as core competency providers.

Few would argue that a focus on core competency is misguided but still we struggle to figure out how to string together and constantly reform the myriad interchangeable pieces of a value chain. We are undergoing a basic shift in the way we view the organization and the value chain.

Perhaps the truest words of wisdom here come from a source of great authority on the subject, Peter Drucker. Strategy, according to Drucker, not ownership, will define the organization of tomorrow. It is such a subtle point but increasingly it is becoming one of the central themes in how economies and organizations will evolve. Drucker's point is simple: for the entirety of the industrialized age, ownership has been the linchpin of organizational scale and success. Control over a value chain, a market, a partnership, an employment relationship, has required explicit ownership over the factors of production – if not outright ownership of the entire value chain.

This has steadily eroded as highly vertically integrated industries have disintegrated into more molecular structures.

In the context of BPM this presents what may be the central challenge. How do disintegrated organizations align around strategy in the absence of ownership? Often, they end up understanding or owning pieces of the process, but lack the sense of cohesion that integrates process links into a reliable, integrated, flexible workflow.

Some see the answer in creating many vendor levels of integration, disabling any sense of focus on “what we do best” for the customer or partner. e-process is almost impossible in such a diffuse product or service environment.

Many see the key as control and ownership of Web transactions. Nothing could be further from the truth. Transactions take care of themselves, and are the least expensive or complex aspect of the process. The people component is the most costly, and the way people use the process must be streamlined with easy-to-use tools.

The answer is simple in statement but has presented the daunting challenge of BPM. Process objects must be easily syndicated throughout an industry so that they can be shared by all of the current and potential participants of a value chain. The rules of these objects must be separated from their flow so that individuals can quickly alter the flow without being encumbered by the process rules; and the means of defining process flow must be accessible to everyone.

## Choosing the Solution

As with any new technology movement, it is likely that the market space for e-process will become a crowded one requiring astute evaluators to consider carefully the solutions they choose.

To help we have defined five components that are essential for any true third generation e-process solution. An e-process solution that does not adhere to all of the five rules presents a significant challenge in enterprise or cross enterprise deployment.

1. Process Professionalization - Provide the ability to create collaborative exceptions (the 80% of processes that cannot be defined by Generation 1 or 2 tools)
2. Process Independence - Divorce flow from rules
3. Role-Based Process Organization - Defining process components interchangeably to conform to roles rather than individuals
4. Process Syndication - Provide syndication of rules as business objects
5. Processweb Engineering - Build e-processes for core competency economies

Each of these speaks to a series of supporting functions and features, which can be expressed in different products through different mechanisms. However the fundamental components are essential.

Here is how each of these five components should work in practice:

**1. Process Professionalization – Provide the ability to create collaborative exceptions (the 80% of processes that cannot be defined by Generation 1 or 2 tools)**

The most challenging aspect of partnering and sharing business objects is that of adapting them to each individual's way of work. We call this process professionalization. It is the fundamental reason why most of us use relatively simple tools such as Excel to do 80% of our work, outside of the corporate IT systems. Tools that allow for adaptation to My way of work are always preferential to those that require my adaptation to someone else's way of work. 3G BPM must work intimately with the professionalization tools that I am accustomed to. This involves "speaking" directly to existing desktop tools as well as legacy backend systems that need to be integrated with my desktop. Now imagine this challenge across a multitude of organizations and it becomes clear that 3G BPM is critical to any sort of complex partnering arrangement.

**2. Process Independence – Divorce flow from rules**

Past generation BPM restricted users to a process flow and business process rules that were defined to meet the perceived needs of an entire community of users. Although there are clearly regulatory environments that mandate rigid adherence to business rules or process flow, even these involve sub tasks that fall outside of the reach of the "restricted" process. Ultimately it is these beyond the horizon parts of the process that slow down extended processes. These weakest links must be accommodated somehow if significant process improvements are to result.

Divorcing the flow from the rules in such a way that users can evolve processes on their own without compromising the core integrity of the processes is essential for 3G BPM solutions.

**3. Role-Based Process Organization – Defining process components interchangeably to conform to roles rather than individuals**

The rapid mobility of people due to both technologies, such as wireless, and changing organizational cultures that place greater value on fluid structures have established a mandate for role-based processes. In this environment items of work should not be directed to individuals but rather to roles. Being able to map these on the fly as the organization's topography changes is critical. For example, BPM tools that use person-based routing for approvals are bound to be plagued by the insurmountable problems of availability and immediacy of access. Role-based solutions will find the fastest track to a resolution by identifying the skills, competencies, and authorities needed to accomplish a particular task without regard to the availability of any one person.

**4. Process Syndication – Provide syndication of rules as business objects**

Although it is still years off, the idea of a Web services architecture that allows for the syndication of processes as business objects is the ultimate end game of 3G BPM. A process syndicate would allow businesses to share, barter, buy and sell, core processes as easily as they buy and sell

product and professional services today. The first step in this evolution is establishing a componentized BPM architecture that allows for the creation of business objects that can easily be mapped to the flow of any organizations processes.

### **5. Processweb Engineering – Building e-processes for core competency economies**

Two equal but opposing forces are defining the industrial and economic landscape of today's corporations. The first is the rapid consolidation of businesses through Mergers and Acquisitions. The second is the increasing trend towards partnering in all value chain activities. At first



the commonality between these two is difficult to discern. However, both rely on tight partnering arrangements. Clearly M&A is the most intense form of partnering. To make either scenario work we need to substantially enhance an organization's ability to coordinate activities across a unified processweb. 3G BPM must provide this capability through not only the component based architecture of the product, as was pointed out in the discussion of syndication, but also by supporting an interconnected process ecosystem that could build upon the component architecture.

## **How Nobilis Meets the Five Rules of 3G BPM**

The Nobilis 3G BPM tool, Nobilis *Ci* provides a series of capabilities that map closely to the five rules of 3G BPM. The capabilities break down into eight core areas of functionality as shown in the diagram below.

### **Process Professionalization**

Nobilis *Ci* externalizes process logic into a rule set that is configured by business users in a ProcessWriter™.

It's not news that users do not want to change their needs to meet the limitations of their IT infrastructure. As a result users frequently fill in the holes and limitations of traditional enterprise software, with their own solution in order to automate their business activities and customize them to their needs and requirements. For example, who hasn't used Excel for mission critical data where an ERP was simply too rigid, restrictive, or just not a good fit.

The clear requirement for 3G BPM to enable automation that matches the business user's desired "way to work" is critical and is addressed in Nobilis *Ci*'s ability for the business user to define, refine, and manage the automation of their business activities through an intuitive visual interface called the Nobilis ProcessWriter™.

Starting with activity templates and process rule sets that are matched to the needs of their specific domain, business users can configure processes to meet their specific requirements for true professionalization of their process automation. By then storing these extensible rule sets in the Nobilis Process Warehouse, refining them over time, and reusing them across multiple processes, the expertise of the business user is incorporated in automation solutions that match the business user's preferred "way to work."

The result is a combination of business process backends that conforms to organizational standards with an exception-processing engine that can be customized to each user, while learning from these exceptions to create a richer library of business objects.

### **Process Independence**

Nobilis *Ci* separates process logic from process flow.

Business users require a means to evolve the rules and logic that drive their processes without threatening the integrity of the overall process itself. Previous generation BPM required edits to the code controlling the process flow in order to change the logic driving the process. Nobilis *Ci* separates the process logic from the process flow, enabling users to evolve their logic without threatening the integrity of the flow itself. Furthermore, business users are restricted to the access of their specific piece of an overall process.

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### **Nobilis Key Feature:**

Another aspect of this capability is what Nobilis calls Context Driven Data Management and Allocation – effectively intelligent process management based on context conditional process logic.

Previous generations of BPM systems relied on a document metaphor, moving instances of work to process participants with little regard for the conditional context that differentiated one piece of work from another. Nobilis *Ci* provides advanced data management that enables the intelligent allocation of information based on applying business logic to data conditions.

Nobilis ProcessWriter™ allows users to define the scope of data, bind data to a process, and allocate data to participants during process execution. Through the use of pre-built rules, data can be manipulated at the start and throughout the process. In this way, data is available not at the application layer – through SQL calls to other applications – but at the process layer, tied to the

## **Getting to ROI: A Case Study**

### **Problem**

A global manufacturer of Engineered Materials faced a challenge in expanding its business. Faced with growing competition and increasing costs across multiple distribution channels, this manufacturer had to gain control over the pricing of its products and the chaotic approvals process that stemmed from widely divergent pricing that depended on multiple variables. The chaos evident in this process artificially extended the cycle time between the initiation of a sale and the end receipt of a payment.

The original process involved a paper-based procedure of quoting prices based on a set of variables including product type, grade, tonnage, delivery method and a variety of other factors. Prices were supposed to be based on a price list and then adjusted for deviations across the many variables. When a price was quoted to the customer, the salesperson would submit a price deviation form which would require a varying number of approvals depending upon product type and other factors (organization, delivery method, etc.). The varying requirements of price deviation approval and the manual nature of controlling the process through faxes, email and letters led to approval cycle times of weeks or months. The fact that many forms were filled out improperly or were missing information led to chaos in sorting out many approvals and many customers were billed incorrectly. The chaotic nature of the process resulted in long lead times for executing sales, missed opportunities, and net receivables of greater than 90 days.

### **Solution**

A solution to the problem required that a layer of control and process automation be applied to streamline the process for efficiency, adherence to policy, and the elimination of mistakes in

manual entries. Utilizing Nobilis Software to determine the business flow or activities associated to sales, order fulfillment and billing was step one. The activities represented the entire process from quote submission by the sales person to the client receiving and processing the purchase order. The steps were examined for possible redundancy in data as well as communication points as to the status at any point in the “order’s” lifecycle.

The Nobilis BPM platform then provided the business users in the sales cycle the ability to define the activities, business rules, and process logic that made up the pricing and approvals process and configure a process agent to execute and monitor the process. Each user could configure a process, change a process and interact with others in the process as required. Customers were also given the ability to participate by subscribing to notifications and updates as the order was fulfilled.

Future enhancements to the baseline system will include the incorporation of a set of Nobilis Web services to extend into the shipping and fulfillment by each department, further extending the business into individual entities and exposing the logic of each as a Web service driven by Nobilis.

## Results

Today Nobilis has streamlined approvals based on roles, eliminated most errors and cases of missing information that were prevalent with forms, and slashed cycle times from weeks to days. Opportunities that required fast approvals no longer pass the company by, and manpower that used to spend days every month reconciling approvals may be utilized elsewhere. Altogether, the improved process based on Nobilis reduced turn-around order timing from quote to cash receipt from 90 to 40 days. The savings estimated over the year of production is estimated at 10 million dollars.

process engine itself. This architecture enables the Nobilis *Ci* platform to allocate and control data across a myriad of unique process participants.

### **Role- Based Process Organization**

Nobilis *Ci* enables role-based process definition and participation through multiple means of communication.

Early BPM relied on a definition of process participation that was based on specific individuals using specific means and addresses for contact (such as e-mail addresses). Today’s rapid pace of change in personnel and the technologies used to support their communication (portals, wireless, etc.) requires a more nimble and flexible BPM platform. Nobilis *Ci* enables role-based process automation that supports the role definition that already exists in the organization, including directories, databases and documents. As the preferred means of contact for any individual in a given role changes, Nobilis *Ci* can change the means of communication to interact with each participant through his or her desired means of contact – through e-mail, portal inbox, or wireless device.

### **Process Syndication**

Nobilis *Ci* provides for the syndication of process objects through a componentized architecture that uses business objects as process rules.

Because of its ability to fully leverage the potential of the Web as an interconnected business platform 3G BPM will thrive on process professionalization and syndication. As rule sets and process activities are offered as independent business objects and Web services, the Web will become a highly interconnected process ecosystem. These component business rules and process activities, developed and improved by business users who have domain expertise, will be made available as referencable services for reuse in processes across, and beyond, the enterprise.

Nobilis *Ci* is designed from the ground up to support a distributed process architecture.

The platform includes a set of rules that enable users to search a UDDI directory, select a service, and bind that service to a Nobilis rule with conditional process logic for the terms and conditions of its use. Nobilis also enables users to register a service on a public directory and push the service to fulfill a request based on that registration. This provides a componetized process architecture that makes Web services practical for business users.

Over time, as business users develop expert rules and objects that are refined with their own domain expertise, they may offer those objects as available Web services, syndicating their own professionalism and turning activities which were previously cost centers into services which can be operated as profit centers.

### ***Processweb Engineering***

Syndication is only feasible, however, if the BPM solution supports processweb engineering – simply put the ability for application developers and users to construct applications using these rich libraries of components. Activities within business processes and the rule sets that make up process logic should be components that live as independent business objects. Because 3G BPM will thrive on process professionalization, intellectual property and expertise will be embedded in business logic in the form of objects. These sets of process rules must be portable, customizable, reusable, and extensible. Nobilis *CI* provides a platform for business users, IT resources, and software developers to externalize process logic from applications and automated processes. Since the product has been designed as an externalized process layer for Application Developers on an OEM basis it is especially suited for this use.

The Nobilis Process Warehouse also provides for configurable vertical rule sets to support vertical application vendors. The same componetized architecture that makes it a ready platform for OEM use, allows Nobilis *CI* to support Web services as well, and provide the underpinning

to support an interconnected process ecosystem across the Web.

### **Conclusion**

Nobilis represents a new generation of BPM solution that addresses many of the problems that have limited past generations of BPM. It has been specifically designed to work within the current architecture of the Internet and in the context of the trend towards Web services. Its specific emphasis on personalization and professionalization make it a strong BPM tool for highly volatile business climates where roles, process rules, and flow are constantly changing. This is especially evident in its intelligent process management facility of Context Driven Data Management and Allocation.

Nobilis' ability to address the Five Rules of 3G BPM provides a solid foundation for organizations who are attempting to develop broad-based BPM solutions in highly distributed and volatile environments.

**About This Document:**

*The information contained in this opinion is intended to provide an overview of a specific product and vendor at the date of publishing. Facts presented have been verified to the best of our ability with the vendor and actual users of the product where indicated, however, Delphi cannot insure the accuracy of this information since products, vendors, and market conditions change rapidly. Delphi Group makes no implied or explicit warranties, endorsements, or recommendations in this report nor should such warranties be inferred from its contents. A complete assessment of your specific application, the method of implementation for a given product or technology, and the current state of that product must be considered in order for a recommendation to be made on any product's suitability for your purpose, needs and requirements.*

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