

Enhancing BPM with Business Rules

Increase your business agility by separating management of decision logic from mechanics of business process

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Organizations in many industries have improved operational workflow, and boosted profit, by adopting business process management systems (BPMS). While a BPMS can save time and cut costs by governing process, it can't *decide* what to do, given a particular circumstance.

For simple, routine tasks unaffected by outside conditions, that may be fine. But many of today's business decisions are made amid change and uncertainty. How do you, for example, track and detect evolving fraud schemes? Or price according to economic trends and risk levels? Or keep up compliance with new regulations? Or market to changing demographics?

Organizations that complement their business process management with business rules add intelligence to strong process design, making smart decisions and business agility a key ingredient of their operational excellence.

The answer lies with business rules, and a proper business rules management system (BRMS). A BRMS enables the *right* decisions to be made quickly, giving businesses the agility to react to changing regulations or fluctuating markets, or to modify or launch a program, such as new pricing strategies for a loan product or insurance policy.

This paper explores:

- The differences between BRM and BPM, and why each is a separate yet complementary discipline.
- The importance, and benefits of making changes independently to rules and process.
- What to look for in a BRMS to gain the most value.
- How to get started in implementing rules, without taxing resources or impeding other operations.
- Case studies illustrating the value businesses have seen from adding BRM to BPM.

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» Why Business Rules?

A process manufacturer enjoyed many benefits through the largest worldwide single instance of SAP. However, the manufacturer's Materials Masters process was not automated, and configuration of the system was difficult and error-prone. Its entire supply chain was dependent on the Materials Master, and the fact that it took a month to load one Material Master was unacceptable. Integrating FICO™ Blaze Advisor® system with SAP's BPM solution automated the Material Master creation process, thereby decreasing cycle time and the work effort that a new Materials Master required. The solution delivered over \$3.5 million in savings.

"Conceptually, business rules are the rules by which you do business. More practically, business rules can be considered statements of the actions you should take when certain business conditions are true."

—*"Smart (Enough) Systems,"* Prentice Hall 2007

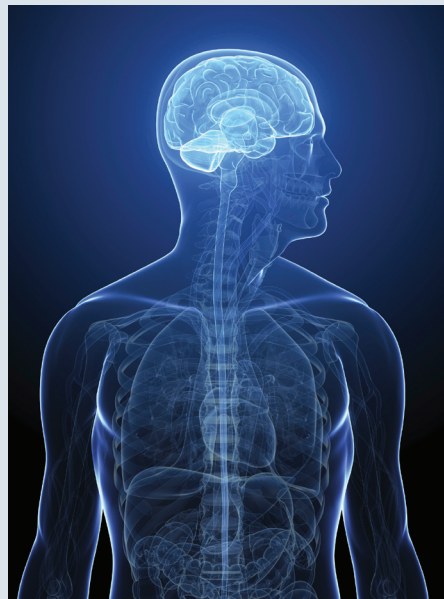
"Why do I need business rules when I already have a system of processes in place?" It's a fair question, and a great starting place to show how business rules and business process management perform distinct roles, and yet can be highly complementary.

Business rules are representations of the policies, regulations, laws, best practices and accumulated expertise that organizations use to make decisions. Business rules are formal statements, atomic elements of business logic, each representing an action to take in certain circumstances.

Business processes, on the other hand, employ methods, policies, metrics, practices and software to manage and continuously optimize an organization's activities and processes.

A simple analogy illustrates the different roles of business process management and business rules management, but shows how they are connected.

Figure 1: A Simple Analogy



BRMS is the Brain

- It makes decisions when exposed to events and supplied with relevant data.
- It does not physically perform any actions itself.

**It is getting colder, I just turned the AC on, it's normal.
It is getting colder, it is getting late too, I need a jacket.**

BPM is the Nervous System

- It carries information (Documents) from the organs (Departments) to the Brain.
- It transmits decisions taken in the Brain to the involved organs for a coordinated response.

Go to the closet, pick a black jacket that matches my outfit and put it on.

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Business rules management provides a brain for an organization's operations, while business process management acts like a nervous system. The brain can accomplish little on its own, but is able to make complex decisions based on the data it receives.

The nervous system meanwhile carries information from sensors, like fingertips or eyes and ears, to the brain, and then carries the resulting decisions back to the muscles so that the body can act on those decisions. The nervous system, like most business process management solutions, can make simple decisions and handle routine routing and escalation. But it needs the brain to make more complex, more critical decisions.

Business process management and business rules management have different intentions, outcomes, techniques and technology. Still, they can work together to achieve business agility, and each can be more effective when used in combination with the other. Combining BPM and BRM, however, doesn't mean that rules can be successfully implemented into a BPM system—a misconception among some firms currently using BPM technology.

» If All You Have Is a Hammer...

There is an old expression that, if all you have is a hammer, everything looks like a nail. Businesses that have adopted business process management and invested in a BPMS tend to see everything through that lens—they can see everything as a process, and consider their BPMS ideal for modeling everything that goes into their process, including rules. But this approach has risks.

A BPMS doesn't manage business rules or decisions properly

- » Business rules are reburied in the new process, which makes the process complex.
- » Inconsistency in business rules is likely.
- » Noncompliance caused by faulty business rules is likely.
- » Personalizing transactions for customers is hard.
- » You might not get the business agility you're looking for.

—“Smart (Enough) Systems,” Prentice Hall 2007

It's a risky approach for processes that are heavily decision-centric—such as loan originations—but also for those that are not. Why? First, no different than coding rules in legacy systems, rules will simply be re-buried throughout the BPMS, making them hard to find, understand and manage. That leads to inconsistency in decisions, and subsequent compliance and governance issues. It will also subvert process efforts: Rules shoe-horned into an existing process will result in more gateways and an overly complex process.

The value of externalizing rules management

On the other hand, organizations that consider business processes and business rules as complementary—and operationally separate—will see significant benefits. Companies can ensure complex decision-making does not inhibit business by externalizing business rules from business processes and linking the two through decision points within those processes.

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An insurance company used the FICO™ Blaze Advisor® business rules management system and a BPMS to enter, underwrite, rate and price premiums for business owner policies. The integrated system cut the overall work process by more than 80%, enabling agents and underwriters to issue, within a day, a policy that formerly took months to write. The insurance firm has seen a 400% increase in policies submitted without increasing staff.

Where different groups are managing business rules and business process, a common occurrence in larger organizations, they can work independently and concern themselves only with a clean, manageable interface. This separation of concerns means that two different kinds of artifacts (the business rules in a decision and the workflow in a process) are managed using suitable environments for maximum clarity and manageability.

Making changes independently makes sense

By separating business rules and business processes, an organization can make changes to each independently, either in a synchronized or unconnected effort. That means rule changes can be made rapidly, and updated more often, within the context of a stable process that might change only occasionally. As such, businesses can:

- Respond quickly to changing market dynamics and competitive pressures—such as modifying fraud detection rules or pricing rules.
- Easily reuse rules across processes, increasing end-user productivity and decreasing time to market.
- Make repeated, rapid rule changes during long-running business processes—such as commercial loans that might run for weeks—to ensure more accurate, up-to-the-minute decisions.

Independently changing rules from processes provides a major competitive advantage since rules must respond often to many changing business conditions: risk appetite, government regulations, economic trends, customer characteristics. As shown in Figure 2, businesses in many industries have regular decisions to make where these conditions apply.

Figure 2: Common Applications of Business Rules Across Industries

Banking	Insurance	Retail	Telecom	Government	Manufacturing
Authorizations	Underwriting	Marketing / Campaign Management	Call Center / CRM	Compliance	Product / Service Recommendation
Self-Service Web Inquiries	Claims Processing	Behavior Scoring	Problem Resolution	Collections	Sales Commission Calculation
Account Management	Fraud Management	Order Configuration	Personalization	Self-Service Web Inquiries	Manufacturing Process Improvements

Managing exceptions without adding complexity

Externalizing business rules—those that determine process paths and categorize transaction types—also helps businesses streamline their handling of exceptions, as well as unique processing of customer segments or product types. If rules are not separated, processes are compromised by large numbers of gateways and paths weaving through common tasks, in order to assemble tasks in the sequence needed to handle each possible set of business conditions. A BRMS will help simplify process design for straight-through processing of exceptions.

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Giving business rules a home

So, if rules should be externalized from a BPMS, where does an organization house them? How should they be implemented?

How an organization implements rules depends on how effectively it wants to manage them. As described above, rudimentary approaches—implemented as code or part of a process design—don't work. These types of implementations make rules extremely difficult, or impossible, to manage. That's especially true when many rules must be applied, when rules are complex or interact in complex ways, when rules change often, or when the business must or wants to develop enterprise-wide rules management. In any of these environments, a company needs a more sophisticated approach to business rules management.

» Manage Business Rules as a Decision-Making Regimen

A health insurance provider renewed its 30-year-old legacy system with a more agile system combining BPM and the FICO™ Blaze Advisor® system. The provider focused on claims, handling adjudication, payments, examination, pend, reactivate and reject processes. The combined solution increased agility and enabled business owners to get a better understanding of the decision logic so they could adjust the system themselves. In addition to vastly improving flexibility for future product additions and enhancements, they achieved a strong ROI by delivering consistent decision making and benefit calculations, and increased auto-adjudication.

Like business process management, business rules management is a management discipline and not just a set of software. More specifically, it is a *Decision Management* discipline. Business rules management involves identifying, controlling and governing ongoing changes in business logic so that a business can make decisions that are consistent, accurate and appropriate. That level of discipline requires that a business work within a system.

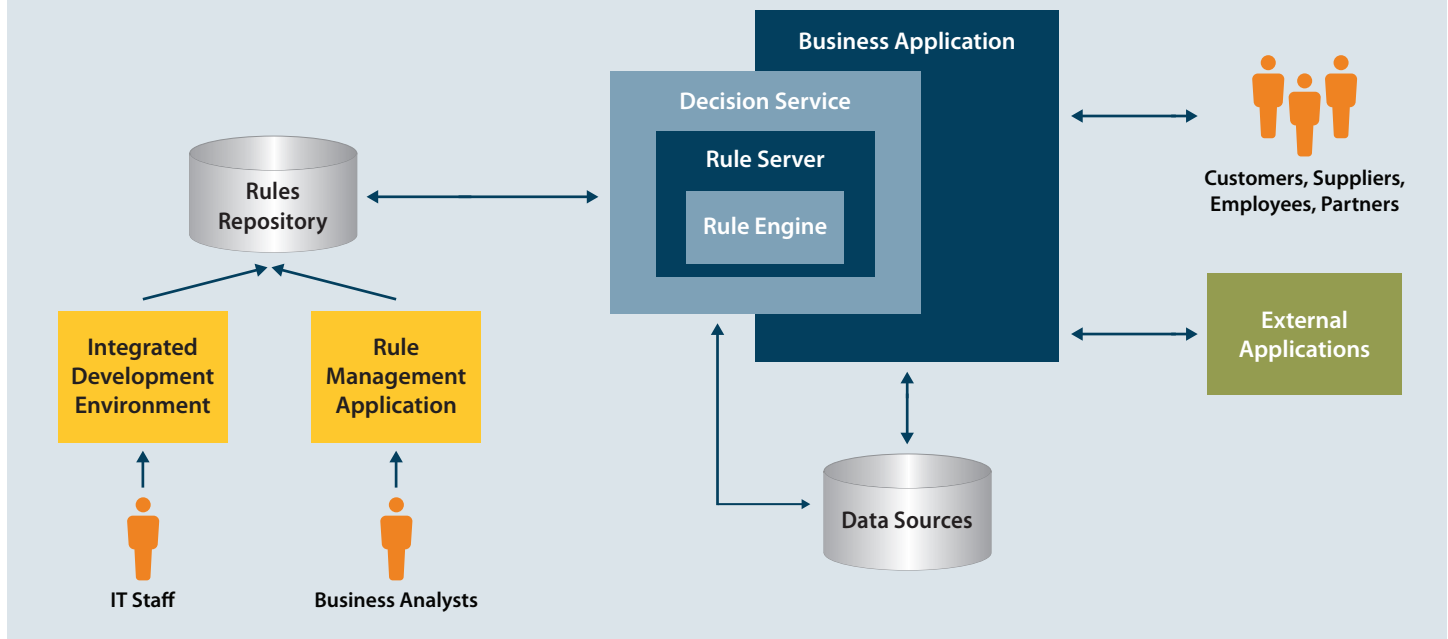
Even though effective process management and rules management are not just software, both disciplines can benefit from the right software systems. Software components can provide structure for businesses to build and operate effective business process management systems and business rules management systems. In the case of a BRMS, the right system can bring order—discipline—to common problems that impair businesses' decision making. A BRMS can help:

- Centralize the logic typically scattered across legacy applications, business processes, manuals and staff to increase control of rules management.
- Give business experts direct access to rule authoring and management to improve the consistency and agility of decisions.
- Define, store and report on business rules separately from other elements of business documents, processes, use cases and system requirements or code.

As an example, consider how the integrated software components of the FICO™ Blaze Advisor® business rules management system can help a business meet these—and other—challenges in deploying and managing business rules (see Figure 3, following page).

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Figure 3: Business Rules Management System Architecture



An innovative financial services organization wanted to be able to update loan pricing without involving its IT staff, while still delivering consistent decisions in hundreds of dealer locations. Loan applications are filled out online or at a dealer and then processed by a combined BPM / FICO™ Blaze Advisor® solution that handles the complex process, while using business rules to accurately and automatically price the loans. Different rules apply to prime, subprime and other loan categories. The new solution allows the organization to rapidly change these rules while delivering enterprise consistency.

At its center, a rule engine rapidly and reliably executes the logic of the business rules. Surrounding this engine, other components centralize data and give business experts hands-on control over rule development and management. A rule repository stores, manages, versions and controls all of the company's rules, giving different groups access to the rules as appropriate. Design tools for both technical and non-technical users allow the rules to be edited by business users, and integrated and deployed by IT professionals. And deployment infrastructure components ensure that the rules can be deployed as services—Decision Services—and integrated with business processes and other enterprise software components.

This type of BRMS ensures that rules can be controlled to establish consistency, rapidly updated to maximize agility and improved constantly by staff experts. It also streamlines rules management: Rules are defined declaratively so that changing one rule's definition should not require changes in another, and rules are order-independent and can be evaluated separately.

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Getting Started: How to Select a BRMS

To make the most of business rules management as a complement to business process management, organizations should research available BRMS technology looking for specific features.

Multi-Project Complexity

Rule management for a specific decision is valuable. However, businesses can enjoy even greater returns with reuse and easy management of rules across multiple decisions. To do this, a BRMS must allow corporate rules to be managed centrally while allowing departmental, product or region-specific rules to be managed in a more distributed fashion. But it also has to apply all the right rules quickly at the point of a decision.

For example, if a transaction requires approval based on product-specific rules as well as regional and corporate policies, then the BRMS must identify, load and apply these rules in real time. FICO™ Blaze Advisor® business rules management system provides the management tools for controlling these rules, sophisticated simulation and impact analysis tools to ensure the business knows what the implications are for proposed changes, and the runtime execution facilities needed to handle this complexity.

High Performance

Operational decisions typically must be made in real time and in high-volume, high-performance batch scenarios. A rule engine must be able to quickly process a high volume of rules and data—and handle complex data structures, such as those related to customers or households—with low latency. FICO Blaze Advisor offers a comprehensive set of execution modes and proprietary algorithms to meet all these performance needs.

Multi-Platform Capabilities

FICO Blaze Advisor makes it easy for organizations using legacy mainframe COBOL systems, as well as Java and .NET platforms, to quickly deploy rules logic and reduce development demands on IT staff. The system enables users to develop rule services that can be compiled out to 100% ANSI-standard COBOL, and allows the rule services to read and write data in COBOL copybooks. This significantly reduces coding redundancy and error possibility.

In addition to the value derived from reuse of rules across decisions, FICO Blaze Advisor also paves the way for even greater returns with multi-platform rule reuse. It allows rules to be reused between processes implemented on different platforms—for example, a back-end process on a Java platform and a people-centric process on a .NET platform—and between process and legacy systems. In addition, organizations using process and event-centric architectures can realize effective decision making across both since the rules logic is not embedded in either, but rather is available to both.

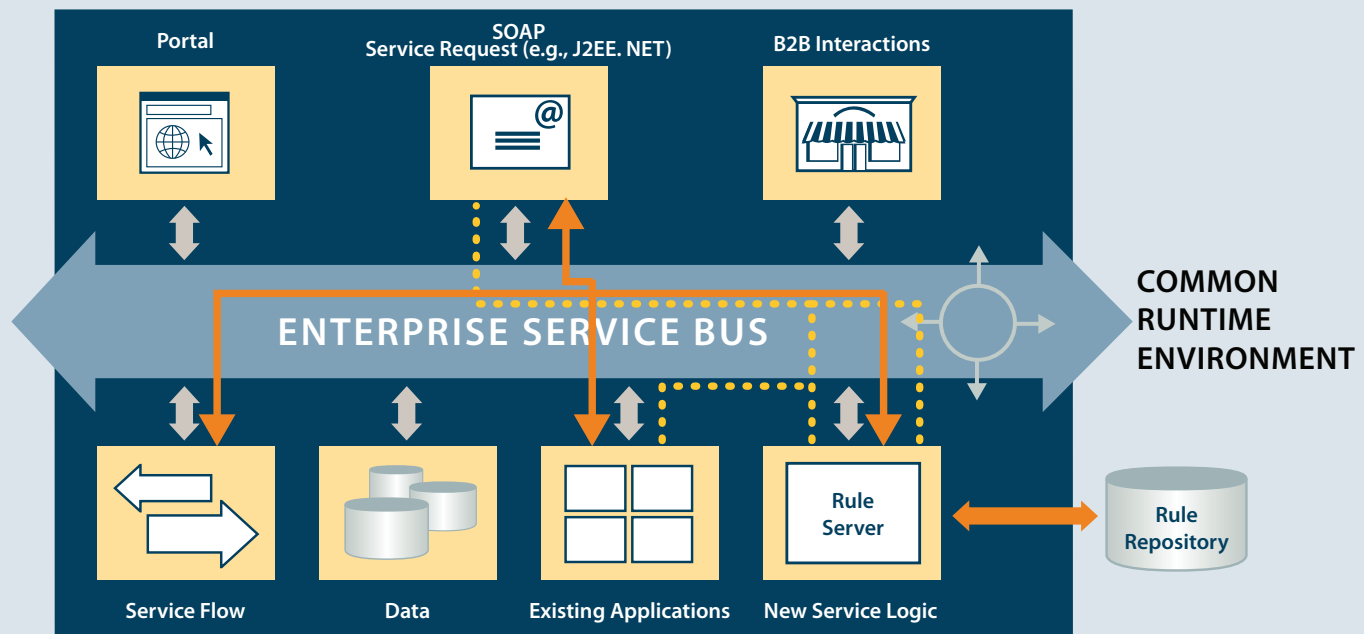
Analytics Integration

Advanced analytics can act as an extension to rules management, and can be embedded in select BRM systems, presenting another strong case for the separation of business rules and business processes. Decision-making tasks within a process are ideal for applying analytics to execute precise, relevant and targeted decisions. To support rule development, businesses with a sophisticated BRMS can institutionalize analytics into their day-to-day operations. FICO Blaze Advisor system's rule management technology makes it easy to identify when and where to apply analytic models for sharper decision making, and makes deployment of models straightforward.

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But how do rules management systems interface and work with the BPMS? How do the two “talk” to each other? Basically, as seen in Figure 4, business rules are exposed as services, and processes leverage these services by querying the rules engine when they reach decision points. The service-oriented nature of BRMS and BPMS make the connection a simple information technology task: Business rules are deployed as a service, and processes invoke those services.

Figure 4: How the BRMS and BPMS Work Together



» A Staged Approach To Launching Rules Technology

A major, enterprise-wide launch of business rules management may not be viable for many organizations. Instead, organizations can roll rules management out in smaller programs and pace expansion so that learning can yield best practices. This approach will lead to greater success with minimized risk, and will more likely result in organizational support.

A common best practice is to start with smaller pilot programs. The rules developers and BRMS team can select a particular business unit, or area of business such as a channel (for example, call centers and their platforms). Within an area of business, it's also wise to select a discrete set of initial rules to design and implement. In addition, selecting rules less subject to change can mitigate risk of error, or selecting some rules less subject to change, and a percentage of more volatile rules can provide a balance of safety and an opportunity to gain experience in quickly modifying rules.

Good candidate areas for adding rules can be found by looking at backlogs of development projects to find programs that have some degree of frequent and urgent changes (higher volatility with low latency), and that involve a high level of interaction with a business expert. These areas are likely to have the biggest payback in terms of reducing IT costs and getting new business strategies to market faster.

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Through a pilot program, the BRMS team can gain valuable experience in identifying, controlling and governing the ongoing changes in business logic required to make good business decisions. The team will also gain experience working across the entire BRMS architecture (e.g., rule development tools, rule repository set-up, deployment infrastructure) and researching an interface with the organization's BPMS. As the rules team develops skill in all these areas, it can then expand its efforts across the organization to other units or areas, and deeper into the organization with more complex rules technology.

» Conclusion

"Organizations should expect to blend rules and processes, and that means blending rules technology and process technology." Moreover "organizations that have a higher component of rules in and around their processes are encouraged to practice business rule management."

—Gartner, "The Art and Science of Rules vs. Process Flows," Jim Sinur, March 2009

The importance of sound, fast decision making has become pervasive in every industry. As such, businesses should view the automation of intelligent decision making just as they view the automation of business processes and actions—as a necessity. A BRMS, complementing a BPMS,

should be commonplace for organizations that do business in heavily regulated environments, frequently change business policies or products, require cross-channel consistency or simply need to respond to the market faster than their competitors.

Software AG Enhances webMethods BPM Suite with Business Rules

Recognizing that many of its clients' BPMS scenarios require decision support as well as process management technology, Software AG offers the full capabilities of the FICO™ Blaze Advisor® business rules management system in its webMethods Business Process Management Suite. Software AG, a leader in business process excellence, realized that even though webMethods' routing and integration server offers a strong process rule capability, its clients also needed greater strategic decisioning power and easy-to-use end-user configuration of complex logic. The integration of FICO Blaze Advisor into webMethods helps businesses in every industry gain a competitive advantage by quickly deploying and modifying business rules across business processes throughout their organizations. The solution gives businesses a means to automating and managing business-critical decisions with velocity and impact.

Learn more:

- Watch the webinar ***"Enhancing Business Process Management with Business Rules"***
- Download a ***trial version*** of the FICO™ Blaze Advisor® business rules management system
- Read the Insights paper ***"The 11 Secrets of Business Rules Success"***

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