

Enhancing BPM with Business Rules

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

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» Summary

Organizations in many industries have adopted Process Management and Business Process Management Systems (BPMS) to great effect. Benefits such as reduced costs, improved agility and decreased errors have been achieved in a wide range of processes. As organizations have become more sophisticated, more experienced in their management of process they are increasingly turning to Business Rules to complement their Process Management solutions. They have found that for some problems Business Process Management is not enough and that using Business Rules to manage critical decisions increases the range of problems they can solve and the effectiveness of the solutions they develop. To see why you need to understand what business rules are, how they differ from business processes and what the consequences of managing, or failing to manage, business rules can be.

» Introducing Business Rules

Introducing Business Rules

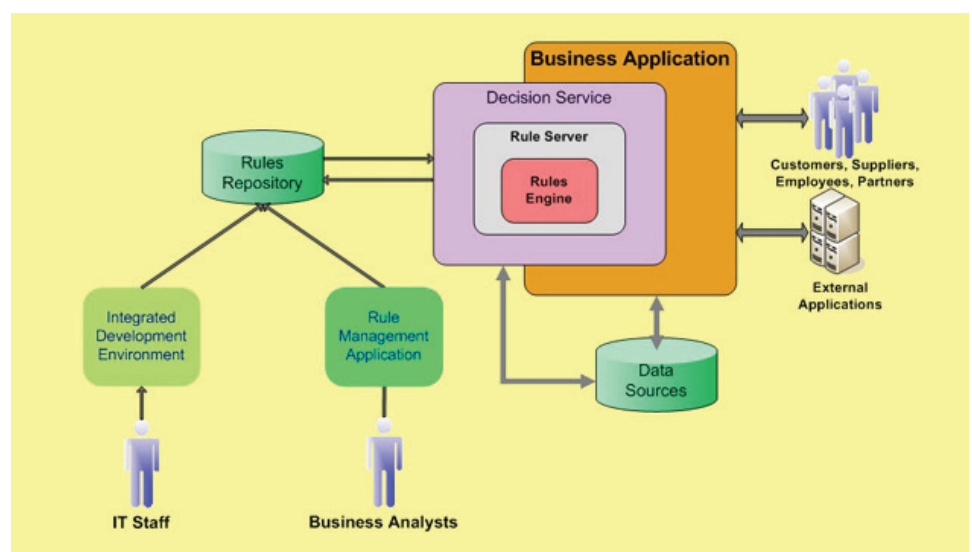
Conceptually, business rules are the rules by which you do business. More practically, business rules can be considered statements of the actions you should take when certain business conditions are true. “
—Smart (Enough) Systems”, Prentice Hall 2007

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 that should be taken in certain circumstances. These elements of business logic can be implemented as code, as instruction manuals or even as elements of a process design. These approaches have limits, however. A new approach is needed when there are many rules to apply, when those rules are complex or interact in complex ways, when those rules change often or when the business must or wants to manage them directly. In this environment a company needs to manage their Business Rules.

Business rules management

Business rules management is, like business process management, a management discipline and not just a set of software. Business rules management involves identifying, controlling and governing the ongoing changes in business logic that are required to ensure that a business makes decisions that are consistent, accurate and appropriate. Just as business process management often involves software such as a business process management system or BPMS, business rules management generally requires a business rules management system or BRMS. A business rules management system, like FICO™ Blaze Advisor®, is a complete set of software components for managing and deploying business rules. It centers around a rule engine, an execution component that rapidly and reliably executes the logic of the business rules. A rule repository stores, manages, versions and controls the rules, allowing 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 as well as integrated and deployed by IT professionals. Finally deployment infrastructure components ensure that the rules can be deployed as services—Decision Services—and integrated with business processes and enterprise software components.

BUSINESS RULES MANAGEMENT SYSTEM ARCHITECTURE



An insurance company used the FICO™ Blaze Advisor® business rule 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 percent, enabling agents and underwriters to issue within a day a policy that formerly took months to write. The insurance firm has seen a 400 percent increase in policies submitted without increasing staff.

Managing business rules in this way allows the logic currently scattered between legacy applications, business processes, manuals and the people working in an organization to be brought together. These rules can then be controlled to improve consistency, rapidly updated to maximize agility, and improved constantly by those who understand the business.

Business rules should be defined, stored and reported **separately** from other elements of business documentation, business processes, use cases and system requirements or code. Business rules should also be defined **declaratively** so that changing one rule's definition should not require changes in another and so that the rules are order-independent and able to be evaluated separately.

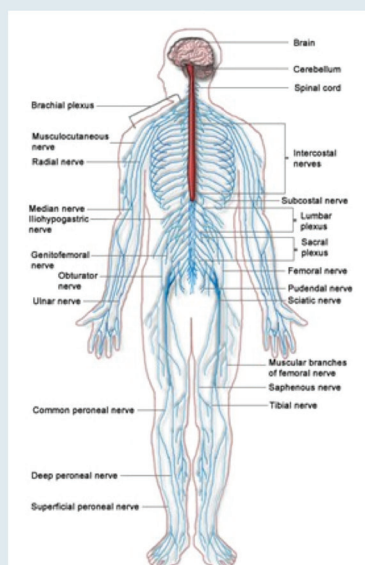
These two things are not the same

Business Process Management is a management practice that provides for governance of a process environment toward the goal of improving agility and operational performance. Business Process Management is a structured approach employing methods, policies, metrics, management practices and software tools to manage and continuously optimize an organization's activities and processes.
—Gartner Inc.

A simple analogy illustrates the different roles of business process management, and business rules management: 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 out 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, and more critical, decisions.

Business process management and business rules management are different just like a brain and a nervous system are different. They have different intentions, different outcomes, different techniques and different technology. They work together to achieve business agility and each can be more effective when used in combination with the other.

A SIMPLE ANALOGY



- BRMS is the Brain
 - It does not DO anything
 - It sits there and, when exposed with relevant data, can make a decision

**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 the black jacket that matches my outfit and put it on

- 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

Business process management allows organizations to rapidly model, assemble, deploy and govern a sequence of tasks to deliver business value. Business users can determine the sequence of these tasks and can reuse these tasks across multiple processes. Non-technical tools for modeling processes and managing them give business users end-to-end visibility for their processes and enable them to manage the performance of those processes effectively.

Business rules management has a complementary, but different, set of consequences. Managing the business rules behind business decisions allows organizations to effectively manage how they determine what actions to take and how they select what to do next. Business users can specify and manage the logic behind these decisions, thereby representing the regulations, policies and expertise involved. The rules for decision-making tasks can be defined and rapidly evolved as business needs change and the rules that guide and

constrain these decisions can be reused across the organization so that related decision making is handled consistently and correctly. Business rule management gives business users precise visibility into what was decided and why. It enables them to manage the actions being taken as their business needs evolve.

» 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. Those who have adopted business process management and invested in a BPMS can 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. Like hammering a screw, this approach has risks.

Some decision-centric processes such as loan origination are virtually impossible to effectively implement using a BPMS. For many processes, however, the risks of managing processes using a BPMS without considering decisions and using a BRMS are more subtle if no less damaging.

First and foremost the rules for your decisions will not be managed and understood but re-buried in the new process. Just as coding the rules or business logic that drives decision-making in legacy applications made those rules hard to find, understand and maintain, so defining them using a BPMS will bury them almost as completely. Focusing on the decisions only after the process is defined will also increase the complexity of your process, putting more tasks and gateways into your process than are really required.

In addition, the rules you do develop are much more likely to be inconsistent, thereby increasing the risk that you will have compliance and governance issues with your process. Just as defining processes in code or only in manuals results in hard to change and inconsistent workflow, so managing rules as code or process elements will result in inconsistent and inflexible decisioning.

The value of business rules management

Organizations that consider business processes and business rules as complementary will see significant benefits. Processes that use business rules to externalize decisions are simpler, with complexity of decision-making handed off to software and an approach specialized to support decisioning. Companies can ensure complex decision-making does not obscure the core business by externalizing business rules from business processes and linking the two through decision points within those processes.

Where different groups are managing business rules and business process, a common occurrence in larger organizations, these groups 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.

A Health Insurance provider renewed their 30 year old legacy system with a more agile system combining BPM and the Blaze Advisor solution. They 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.

An innovative financial services organization wanted to be able to update loan pricing without involving their 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/Blaze Advisor solution that handles the complex process while using business rules to accurately and automatically price the loans. Different rules apply to prime, sub-prime and other loan categories. But the new solution allows them to rapidly change these rules while delivering enterprise consistency.

Independent change

Business rules can be easily reused across processes and shared between decisions, increasing end-user productivity and decreasing time to market. The effective separation of business rules and business processes means that changes can happen independently, with process and rule changes either synchronized or not as required by the business. This allows rapid change to rules such as pricing rules or fraud detection rules in the context of stable business processes. A stable process that might change only occasionally can use a decision that is updated more often, perhaps weekly or daily based on changing market dynamics and competitive pressures. Separating the update cycles of business processes and business rules also allows for changes to business rules during long running processes. If a process runs for weeks, as it might for instance in the case of issuing complex commercial loans, then the business rules that must be applied might change during that period. An organization can ensure more accurate, up to the minute decisions if the business rules are loosely coupled and bound into the process only when they are needed not when the process is first instantiated.

In a loan origination process, for instance, a bank is likely to include tasks to determine the risk of the loan and to price it. These decision making tasks—How risky is this loan? What is a profitable price for this loan?—are based on policies such as those describing the bank's risk appetite, on government regulations such as those banning discrimination and on past experience, such as customer characteristics strongly correlated with losses. The rules that describe these decisions can change whenever any of these sources change—when new regulations are published, when new risk models are developed and or when the bank changes its policies. Changes that affect the overall process, however, are less common and driven by a different set of business needs such as a change to how documentation is received and handled.

Manage exceptions without introducing complexity

One of the most common problems with processes is that handling exceptions and providing unique processing for different customer segments or product types can make for extremely complex processes. Large numbers of gateways connected to other gateways, paths that weave through common tasks to assemble them in the right order and multiple, very similar, processes that handle transactions of different types are all symptoms. Companies can eliminate unnecessary steps and simplify the process flow by externalizing the business rules that determine the path and that categorize and process the different types of transactions. Handling exceptions with business rules will focus the process design on the default case, thereby simplifying it and increasing straight through processing.

» FICO™ Blaze Advisor® business rules management system and Decision Management

Organizations considering business rules management as a complement to business process management need to adopt the right technology. They need a business rules management system that supports multi-project complexity, handles high-volume transaction processes, is multi-platform and that can become the basis for true decision management.

FICO™ Blaze Advisor® is an enterprise-class Business Rules Management System. It offers several benefits to organizations considering a BRMS as a complement to their Business Process Management approach. FICO™ Blaze Advisor® supports the multi-project complexity inherent in most enterprise deployments; supports high-volume, high-availability, high performance systems required to run day-to-day operations in large organizations; and it is multi-platform, supporting Java, .Net and COBOL deployments.

Multi-project complexity

The value of business rules and of a BRMS in managing the rules for a specific decision is clear and well established. Yet for most organizations this is just the beginning. Being able to reuse business rules across decisions and being able to manage all the rules required by all the operational decisions that

The largest worldwide single instance of SAP delivered many benefits to this process manufacturer. However their Materials Masters process was not automated and configuration of the system was difficult and error prone. Their entire supply chain was dependent on the Materials Master and the month it took to load one material master was unacceptable. Integrating Blaze Advisor with SAP's BPM solution automated the material master creation process thereby decreasing cycle time and the work effort a new Materials Master required. The solution delivered over \$3.5 million in savings.

must be made can offer even higher returns. 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. The right rules must be applied, and applied quickly, when a decision is made. So if a transaction requires approval based on product-specific rules as well as regional and corporate policies then the BRMS must be able to identify, load and apply these rules in real-time. FICO™ Blaze Advisor® provides the management tools for controlling these rules, sophisticated simulation and impact analysis tools to ensure the business knows what the implications are of proposed changes, and the runtime execution facilities needed to handle this complexity.

High performance

Operational decisions must be made in real-time and in high-volume, high-performance batch scenarios. The rule engine must be able to process quickly with low latency when there are many rules to process. Significant data volumes, like those found in large batch jobs, cannot overwhelm the rules engine. In addition, the rules engine must be able to handle complex data structures, such as those related to customers or households. FICO™ Blaze Advisor® offers a comprehensive set of execution modes and proprietary algorithms to meet all these performance needs.

Multi-platform

The value of a BRMS in allowing the reuse of sets of rules related to corporate policies, external legislation, customer segmentation or industry best practice across decisions is well established. Multiple decision making tasks can share rules, thereby ensuring consistency and boosting reuse. The use of a multi-platform BRMS such as FICO™ Blaze Advisor® also allows these 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 processes and legacy applications. Organizations using both process and event-centric architectures can also ensure consistency and effective decision making across both approaches by ensuring that decision making is not embedded in either but rather is available to both.

Beyond business rules to decision management

One final advantage of a clear separation of business rules and business processes, when combined with the use of a powerful BRMS like FICO™ Blaze Advisor® to manage the rules, is the opportunity to utilize analytics. Embedding analytics, especially advanced analytics such as data mining and predictive analytics, in operational business processes has been shown to be enormously productive. Analytic best practices stress the importance of institutionalizing analytics, of making them part of the day to day operations of an organization. Decision making tasks, decision points, within a process are ideal for applying analytics. The value of analytics to an organization comes from their ability to improve decision-making, making it easier to make a precise, relevant, targeted decision. Clearly identifying and managing decisions within a process makes it clear where analytics can be applied and the use of a BRMS like FICO™ Blaze Advisor® that can consume advanced analytics makes the effective deployment of analytic models straightforward.

» Conclusion

In a study, undertaken by independent research company Strategic Focus, of Milpitas, CA, it took 38% less time to build, deploy and test applications with a combined process and business rules environment than it did with a modern Java development environment. Further, it then took 58% less time to change the completed application.

—Business Rules are from Mars & Processes from Venus by Derek Miers

Business process management and business rules management are different yet complementary approaches. The software used to support these approaches—Business Process Management Systems and Business Rules Management Systems—are also not the same. The effective use of a BRMS to manage business rules and decisions complements the use of a BPMS to manage business processes. The BRMS can

Software AG and FICO partner to deliver Best-in-Breed BPM-BRMS solution

webMethods, a Software AG product, is the leading integration server for managing data flow and application callable interfaces. Realizing that many BPMS scenarios required decisioning as well as process management and integration, Software AG decided to embed a best of breed business rules management system into their universal framework. Although webMethods has a strong process rule capability, it did not deliver the decisioning power and end-user configuration of complex logic that they needed. Embedding FICO™ Blaze Advisor® in the background of their framework allowed them to bring best of breed rules technology and robust management of flexible business rules into their routing and integration server.

manage decisions, thereby allowing an organization to quickly and accurately decide what should be done. The BPMS can ensure that these actions are taken in the correct sequence and connect them into the broader process. The combination allows for effective straight through processing while maximizing the agility of the solution.

Both BPMS and BRMS offer improvements in business/IT collaboration, providing tools that allow these two organizations to work together on a common definition of how the business operates. Both allow the behavior of systems to be exposed to business users so they can make their own changes, control their own destiny, without having always to refer to IT. A BPMS allows business users to define and manage the flow of information and to coordinate the various groups involved in a process. A BRMS allows

business users to embed their know-how into these processes. This ensures that processes need not wait for people to manage worklists and that the decisions that drive the process onwards can be made quickly, accurately and compliantly. FICO™ Blaze Advisor®, with its multi-platform support and enterprise-class support of complexity and performance, is ideal for organizations that want to manage processes AND decisions more effectively.

A BPMS focuses on how a process should be carried out. It helps standardize processes, facilitates collaboration and compliance, defines and manages workflow, automates steps, and provides activity monitoring, alerts, process reporting, and integration. What it doesn't do well is decide what should be done. Smart (Enough) Systems, Prentice Hall 2007

The combination of process management and decision management, of BPMS and BRMS, is a powerful one. It is a necessity for organizations that do business in a heavily regulated environment, that need to change business policies or information products frequently, that need cross-channel consistency, that need pricing or marketing flexibility or that simply need to respond to the market faster than their competitors.

about FICO

FICO (NYSE:FICO) transforms business by making every decision count. FICO's Decision Management solutions combine trusted advice, world-class analytics and innovative applications to give organizations the power to automate, improve and connect decisions across their business. Clients in 80 countries work with FICO to increase customer loyalty and profitability, cut fraud losses, manage credit risk, meet regulatory and competitive demands, and rapidly build market share. FICO also helps millions of individuals manage their credit health through the www.myFICO.com website. Learn more about FICO at www.fico.com.

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