

Process, Workflow, and Rules

Why do you need to care????

Dan Morris and Joel Brandon

Authors of

Relational Systems Development, McGraw Hill, 1998

Re-engineering Your Business, McGraw Hill, 1994

and

Just Don't Do It, McGraw Hill, 1998

Rules are the embodiment of all the institutional knowledge on how the operation should function. As efficiency improvement lies in process, effectiveness improvement lies in rules. Both processes and rules must be considered together if improvement is to take place.

But, in many cases the rules are hidden in computer applications or in memos, notes, emails and verbal instructions. Often they have become extremely complex and nuanced interpretations of some old written or unwritten policies and arcane sets of original rules. Also, all too often the real rules that run a company are locked away in people's minds. They know what to do and they have learned the rules that govern their work – or at least their interpretation of the rules.

The problem is that rules today are in jeopardy of leaving the operation as people leave the company. And, along with the loss of the rules is also the loss of the company history on all the nuances and interpretations of the rules.

This paper is meant to address the question of why business managers and IT professionals need to be concerned about their processes, their workflow and the rules that govern activity and decisions.



The pace of business activity has been accelerating and the acceleration shows no sign of slowing. If anything, it seems to be speeding up. That is a serious problem for most businesses, who find themselves limited by their inability to react quickly or even be proactive. The simple fact is that those who find a way to move quickly will likely win in this race.

But what is causing this limitation? Why can't companies react quickly? Why can't problems in the operations be eliminated and why can't quality be improved? Or, more simply stated, "Why can't we optimize the operation and keep it optimized?"

The simple fact is that few businesses really control processes as they flow from business organization to business organization. Fewer still recognize the difference between *process*, which is cross-organizational, and *workflow*, which is the order in which activity in an organization unit is performed. And, to make things interesting, in most companies, process and workflow change largely without ongoing planning or operational design.

To improve work at the organization level it is necessary to eliminate all unnecessary activity and to streamline all work. This is where the negotiation between process and workflow needs may come in. It is possible for a work step to be absolutely unnecessary from the workflow perspective, but critical from the process perspective. So, you cannot simply cut seemingly unneeded work steps. Similarly, you cannot simply change a workflow because you want a process step change. You could introduce a lot of unneeded work. Thus the need to look at both the process and the workflow.

Models of the operation, if they exist, are generally out of date and are usually very high level. This lack of up-to-date visibility into how the operation really functions is a fundamental problem in most companies. In addition to this lack of full process understanding and an ability to look at how changes in the business unit workflow may affect upstream or downstream process components, businesses also face a second fundamental problem with controlling activity and optimizing activity. This is that few business models we have seen include information on

- the data that is flowing through the operation
- how the data is transformed and used
- the application systems that operate on the data
- the automated functionality that is used to support each activity in the workflow.

Because of this, IT support is often separated from considerations of business operational change. IT simply receives “business requirements” from which they must modify applications or either build or purchase new applications. In addition, for the most part, these requirements are focused on the current operation and not a future business operating design.

Throughout any analysis of the business operation and its IT support, management must deal with another problem – figuring out what are the correct rules (policies and procedures) that govern decisions and all non-discretionary activity.

Rules are the formalization of the corporate operational intelligence. They govern, the who, what, why, when, where and how of the operation and are embodiment of the experience needed to run the business and comply with the laws that govern the business. They determine if the business is effective and efficient. They also determine if the operation will provide consistent results and if the product that is produced will be high quality.

Rules are commonly embodied in policy and procedures manuals. In most cases, these manuals are several years old and consist mostly of memos and emails that interpret the base policy or procedure. In many cases no two of these manuals (mostly papers stuffed

into a notebook that is too small to handle the number of pages in an unorganized manner) will be the same because some emails and/or memos will have been missed and others misplaced before they made it to the manual. In almost all cases the complexity of these manuals renders them almost useless as a ready place to look up answers and most operations rely on the memories of people who have been in the operation for a few years. So, most rules are somewhat interpretive.

Nevertheless, these three components (process/ workflow, IT application support and business rules) define a business operation. Without a firm understanding of all three at a detail level it is impossible to control activity or any change to that activity.

Gaining Control

While most business operations do not have the type of control noted above, it should be mentioned that to a large part, in the past this level of control was simply not available because the tools to support this control were in their infancy. Also, in most cases, management theory focused on improving the myriad of daily operational challenges that plague every business operation and doing well enough to perform acceptably.

The problem is that today, acceptably is not good enough. Staff levels have dropped. Work expectations have increased. Budgets have shrunk. Legislative requirements are more complex than ever, increasing compliance risk. Meanwhile, competition now includes international pressure as well as the more normal US based pressures. And, in most companies, the ability of IT to support the operation is in question, while cost reduction pressure is forcing service cutbacks and even application development and maintenance outsourcing to offshore programming factories.

We believe that new Business Process Management (BPM) tools and supporting operational management and change techniques have changed the business operating limits of the past. These tools support a new level and quality of process and workflow modeling that allows management to view their operations very differently than in the past. Supporting these tools (and in some vendor's products, imbedded within the product suite) are "rules engines" that provide a type of library for the rules of any organization, process or the entire company.

In about 2003, a new technology was emerging that has evolved into what we now refer to as Business Process Management or BPM. This technology now allows companies to approach change in a very different and more responsive manner. But BPM is much more than technology. It is a variety of concepts, methods, approaches, and techniques that all need to work in harmony to deliver real speed of change, flexibility in what can change, control over change, and independence from the technology factors that limited the what, how and when of change in the past.

The importance of these tools, with their supporting internal libraries of models, information, and rules, is that they offer a level of order and operational information

access that has been needed but never available. But, while just having access to this information is a major step forward, the real breakthrough is that based on these models, information and rules, BPM tools can generate operational applications. These applications govern the activity, the operational decision making for workflow management, leveraging any number of small single function applications to supplement the company's legacy applications.

This environment takes commitment and work to set up. However, once in place, it allows for very rapid change in any part of a process or a business operation's workflow. It also supports a new level of management reporting and a new level of work management. But, as important as these capabilities are, the most important advancement of this BPM based operating environment is that it makes operational optimization attainable and sustainable.

The key innovation is the speed of change that this operating environment delivers. The inability to deliver rapid change has been the single element that has precluded real optimization and has made sustainable improvement virtually impossible.

However, the biggest change for most managers is the shift to a process view of their operations. This requires building the relationships necessary to not only optimize their part of any process their operations are part of, but also to optimize each of the entire processes they support.

Responsive

Customers/patients, suppliers, collaboration partners, internal users are all clamoring for increased responsiveness on the part of the business operation. The predictable result is that the business operation has increased its demands on IT – IT is at the core of any change. But, given the tools that IT has had and in most companies is still limited to, these demands go largely unmet and business frustration continues to grow.

Transformation level improvement in this operating environment has been elusive. We could not deliver this level of change fast enough to make it effective. The problem has been an inability to change our IT applications fast enough to make a difference. This is the reason we could not reach optimization, let alone sustained optimization. At the operational improvement level we have had more success because the scope of change has been greatly reduced. However, the operation remained plagued by an inability to evolve in an efficient manner and we have seen the growth of operational “white space”. This is activity that is either unsupported or under supported by IT. It is the manual work commonly known as “work arounds” and it plugs up operations with undocumented activity, red tape, and needless controls and rules. As companies try to deal with this phenomena more “white space” work is created and audit just keeps adding new controls and rules. And, things just keep slowing down and error just keeps increasing.

But this cycle is based on old technology, concepts and approaches. It can now change.

At a high level, BPM is an approach that puts process at the center of all business operation. It invokes the past techniques and lessons learned from Business Process Improvement and before that Business Process Re-engineering.

Processes can be defined working backward from products looking at what it takes to create each component. This creates an activity hierarchy. The hierarchy is used to identify all the components and activities needed to produce the components and shows the construction relationship between the components. Once the components levels are passed and the hierarchy shows the activities needed to create the components, the activities can be flowed to show relationships. This provides a process flow map. The process flow shows the order that all work must be performed. But, this has absolutely no relationship to where the work is performed or who performs it. There are no ties the organization at this point. That is why process maps are a pure look at the work and why they are the only place that fundamental change (big picture improvement) can be made. But, this change cannot be implemented from process maps because they are not related to the organization.

Organizations are where work is performed. They perform groupings of like activities that may come from multiple processes (as defined above). This grouping of work is done for efficiency. So, processes are really pulled apart and the work assigned to different organization units where it best fits into what they are doing. This provides a clear boundary between looking at process and looking within a business unit at the work it performs. This is a distinction, that is often not made and many call both process and workflow by the same name. However, it is a distinction that is critical when looking at optimization and continuous improvement to deliver sustained improvement.

We believe that change must be related to the business operation to be implementable. That is why process based change must be converted to operation based workflow to be implemented. But, as we have stated, no part of the organization will perform complete processes as shown in the process maps. Process activity is generally assigned to various business units based on the type of work each unit is currently performing – work is given to business units doing like work. Within any business operation, the work is broken further and divided among its workflows. So, it is necessary to relate each activity in the process map, activity by activity, to the organization and within the organization to the workflow that it is part of. This is necessary because work design in the business or clinical unit is based on the efficient organization of activity. This organization of activity is done without regard to how any activity fits into a process. This is also necessary because any given work activity can be part of multiple processes.

We propose that business and clinical operations can realize transformation level change only through process redesign. As noted above, these activities form an “end to end” view of what it takes to make or deliver something. This process view is the only place fundamental improvement can be found. It is also where real cost reduction and some

types of problems resolution reside. However, it is also where the greatest disruption to the operation can originate and thus where the greatest risk will be found.

This risk is directly related to the fact that unless changes are optimized in both the process and workflow views of the business, they can cause tremendous harm. It is very possible to make process changes that cannot be implemented or that introduce inefficiency and errors into the workflow. This is true for activities, applications, workflow management, rules management and data management.

Today process and workflow modeling are supported by Enterprise Process Modeling tools. These tools allow you to define the operation's processes in components related to organization and then recombine them as process. This allows you to deal with both process and workflow. In addition, these tools allow you to define KPIs for the operation and measure progress and performance. They also allow you to look at strategy and initiatives that support strategy as it applies to any part of the operation and determine how the operation needs to change to support the strategy or initiative. Through these models and the data they can organize, a very different and interactive type of executive reporting can be considered.

By taking this further through a new ability to model the operation and control the operation's work as it flows through the organization, more traditional BPM tool suites allow managers to define the operation in models and control the execution of work at each step or activity in the operations workflow. Problems can be associated with activity, and operational improvement can be driven by activity level monitoring and reporting. Performance improvement methods such as Six Sigma can be applied at this level to help focus ongoing change.

Weaving through this entire change process is the overall logic of the organization – its rules. Because these rules define the decision logic of the company, it is imperative that they are complete and accurate. Because the business can be expected to change constantly, it is important that any operation use these business workflow models and their rules as the foundation for operational change simulation and then deployment.

So, where do rules come from?

Rules come from throughout the business operation and from IT applications. They can be pulled from documentation, from people in interviews and from a “harvesting” process that pulls them from computer programs. For example, rules can be taken from:

- Policy manuals
- Procedure manuals
- Regulations
- Guidelines
- People's memory
- KPI definitions/measurement formula
- Standards (quality, timing, routing, etc.)

- Contracts
- Memos, emails, notes
- Best Practices
- Process maps
- Forms
- Reports
- Data Models
- Existing software logic
- And more

The method that will be used for finding rules will be very different depending on the source – business documentation/staff interviews or IT applications. The skills needed to find and define the rules will also differ between those who focus on the business operation and those who pull rules from existing legacy application systems. It will be necessary to consider this fact when setting up any rules definition team. The rules from all sources will need to be converted into the rules definition entry form of the rules engine the company uses.

A great many rules in the business operations will be informal and simply agreed upon by the people using them. This is especially true in places where the rules have evolved into a complex mix of notes and emails. Today, the real risk is that in a downsizing or just due to turnover, these rules and the knowledge behind them can easily be lost. This has hurt many companies. For this reason, it is important that business operational rules definition include both the rules that are in some written form and those informal rules that “really run the business” and exist in “people’s heads”.

Rules harvesting is done to find the rules imbedded in legacy software applications. This is approached using specialized IT software that reads computer programs and extracts the rules. These rules will be defined as a series of “if, then, else” statements from program code. In many Rules products, these definitions will be entered into the rules engine library directly by the definition programs. These rules libraries typically also store an English translation of the rule, so harvested rules will thus need to be translated somewhat and an English definition entered for business management use.

An example is a major Pharmacy Benefit Management company is involved in creating a comprehensive rules library. It has approached rules definition by harvesting rules from their legacy applications. When this is completed, they will turn the definition of rules over to the business areas for the addition of current business rules. This will form a comprehensive rules library where both IT analysts and business managers can look up rules and reuse them in changing the operation or its systems.

Obtaining rules from either document review or interviews should be considered to be an iterative activity. Rules today are often hidden and difficult to find. Once found, they are often difficult to interpret. But, once accepted, the rules should be added to the rules

libraries for reuse, reference and ongoing modification of the business, BPM generated applications, and legacy applications.

Rule identification and definition, should be considered to be a specialized activity. People defining rules must be trained in their identification and in negotiating their definitions with those who use them. These people must also be trained in converting the rules definition from English to the formatted “language” used by the rules engines.

All rules, regardless of their source, must be reviewed by a group with the authority to make decisions on how the business will operate and how rules will be checked for their applicability, accuracy, relevancy in the future, conflict with other rules, duplication, clarity and legality. Interpretive rules must be especially checked for intent and real meaning and then put through the review process. In this way the rules of the operation will be refined and all unnecessary rules will be deleted. The result will be clear, consistent rules and a much more effective business.

Once defined and entered into the rules engine and its library, the rules must be managed and their use controlled. This will require a new function in most companies, but it is critical to the ongoing reliability of the rules library. This person or group will have the authority to change a rule or to version it. They will also have the responsibility for a rule’s continuing relevance in the business and the accuracy of its use. To support this quality assurance function for rules, it is suggested that a company work with their rules vendor to define definition, format, quality and other standards. This will allow the company to leverage the experience of their rules vendor.

Using Rules

While this support in itself is worthwhile, it pales to near insignificance when the BPM tool’s ability to use the workflow models along with other relevant supporting information and a combination of business and data rules to produce “executable applications”. These applications are associated with each activity in the workflow and essentially automate it by calling the rules to deliver data entry screens, edit the information, process the information against logic arguments, and deliver a result to the business user and other applications through databases. The key point in this capability is that once the models are defined and the rules placed in the rules engine, the models and rules can be modified very fast and supporting BPM based applications and their links to legacy applications can be regenerated and tested quickly. This delivers true flexibility.

In this approach, the models and rules define the business and how it operates. The applications that are generated and environment they create “is” the business operation because the operation is run using the BPM based environment. Everything that is performed is a step in the model that is supported by the BPM environment. At each activity in the operation these models are “executed” as BPM applications, their links to legacy applications, the legacy applications and their data manipulation are performed and passed to the next activity. In this way the BPM business environment is a melding of the manual effort with the automated effort and the two support one another in a truly

integrated operation. This is a significant departure from the traditional IT approach where the applications are built separately from the business operation as a group of business “requirements” and then implemented into the operation. Because the two are not tied together, the business and the applications evolve along separate paths and the ability of the application to support the business wanes over time.

As mentioned above, all rules are placed into formal Rules Engines. These engines provide the libraries and access programs needed to deliver rules to the legacy and BPM generated applications. The rules engines support the formalization of all the logic, decision, information use, information transformation and performance rules in the business operation. These rules will vary from simple “if x, do y” rules to very complex sets of decisions that link through some derived output from another rule set. Where the workflow models are the realm of the business analyst or business operations manager, the rules are the realm of a new type of quasi business/quasi technical person called a rules analyst. The rules engines themselves vary in ability with the more desirable ones providing support for rules entry and rules validity checking – rule completeness, conflict, circles (without a defined exit point), and more. Some rules engines do this checking only during actual execution or use and others do it as the rules are entered. All, however, pass the sets of rules to the BPM tools at the time the BPM applications are executing or being used. This passing is based on the order in which the workflow is actually performed and reflects varying paths through the operations based on the outcome of each activity or step. This allows the actual execution of the applications supporting each step and its rules to reflect the work that is being performed by a person and the decisions that are being made in the processing of the work.

This rules passing is also true for any legacy application that has externalized its rules to a rules engine. In this case the legacy applications call the rules engine much the same as a BPM application will. The advantage of this externalization is that a rule change in the rules library will be made once and the change will then be available to every place in the legacy programs that the rule is used. This greatly reduces the time needed to make changes to legacy applications and the risk associated with the rule change.

Benefits Delivered by Controlling Rules

Rules updating and alignment to the operational process and workflow activity they support delivers several benefits.

First is operational consistency. Rules will be updated and complexity reduced or eliminated. Rules will be understandable and meet operational and legal requirements. This allows the operation to be in compliance with legal operating and reporting requirements and for all staff to apply the rules in the same way. This delivers consistency. Assuming the rules are properly vetted, this also brings agreement on how decisions will be made and how work will flow (business operation scenarios). In Health Insurance, this equates to consistent claims processing – if a claim is processed several times as a test, it should deliver the same result each time.

Second is that this is the only way any operation can optimize. It is also the only way any operation can *remain* optimized. This is simple fact. In the past optimization was impossible. As practitioners, who have been involved in a great many improvement efforts in many industries we can say with conviction that our teams have delivered more than significant improvement. We have dramatically changed business operations and even whole businesses. But, we have never been able to reach optimization and we have never been able to deliver sustained optimization – nor has anyone else, regardless of their claims. The reason has been the lead times needed to support change. With BPM and rules, that has now changed and we can help operations change fast enough to allow changes to reflect current needs and activities. This speed is what allows companies to optimize.

A third benefit is operational quality. Once the process, workflows and supporting rules for any part of the operation have been defined and made visible to management, the rules can be reviewed for relevancy, legality, accuracy, etc. This is a redefinition of how management wants the business to operate that once again puts managers in firm control of their operations.

The fourth benefit is operational flexibility. Once the operation is exposed and change can be made quickly by simulating a change and then executing it by changing models and rules, management can control the way the operation evolves. Changes can be tried and improvement measured. Additional improvement can then be made in the same way and the operation evolves through a continuous improvement. All other opportunity, industry or legal based changes can also be supported quickly in the same way.

Summary

The simple fact is that the business operation naturally changes at a much faster pace than IT groups can keep up with – as witnessed by the years long backlogs in almost every IT shop. Without very rapid IT application change, the real needs of the business cannot be met and without this, the operation cannot optimize, let alone remain optimized. This is simple fact. It is also simple fact that without this ability to change rapidly collaborative efforts cannot be supported properly and IT cannot be used to deliver competitive advantage.

Author's Biography

Dan Morris has spoken internationally on business transformation at over 20 conferences, including the Gartner Group's BPM Summit in June 2005 where he spoke on BPM Methodologies. He is the co-author, with Joel Brandon, of three books on business transformation *Relational Systems Development*, McGraw Hill, 1998, *Re-engineering Your Business*, McGraw Hill, 1994, and *Just Don't Do It*, McGraw Hill, 1998. Dan has published over 50 papers and articles on various transformation topics. In addition, Dan has presented his approach as a guest lecturer at the University Of Illinois School Of Business. Dan has been a CIO, a Senior Consultant with PWC, and an Executive Consultant with IBM Global Services. He has also been a Senior Principal with Infosys in the Insurance, Healthcare and Life Sciences group where he served as the Practice Director for BPM Consulting.

Joel Brandon is the co-author of *Relational Systems Development*, McGraw Hill, 1998, *Re-engineering Your Business*, McGraw Hill, 1994, and *Just Don't Do It*, McGraw Hill, 1998. Joel has spoken internationally at conferences in Europe and South America as well as the US. He has published over 20 articles and papers on business improvement and has managed BPM consulting efforts for 14 years. He has been a CIO, a Director of Applications Services, a Director of Computer Operations, and a Partner with Morris-Brandon Consulting. His special areas of interest are BPM, business managerial economics, and methodologies.