Don't Panic, It May be Simpler than you Think!

Business Processes and Business Rules need not be Complex

By Larry Goldberg and David Pedersen

Introduction:

We often hear people say, "Our processes and business logic are extremely complex; they will be very difficult and expensive to understand and document." This same thought-process usually prevails whether we're contracted to re-engineer a process, re-discover an existing process, or create a new process. And, when we ask for existing documentation, we are handed stacks of process charts or told that the documentation is buried in the code. No wonder they think their processes are very complex, there are no views of the processes and business logic that is easy for everyone to understand.

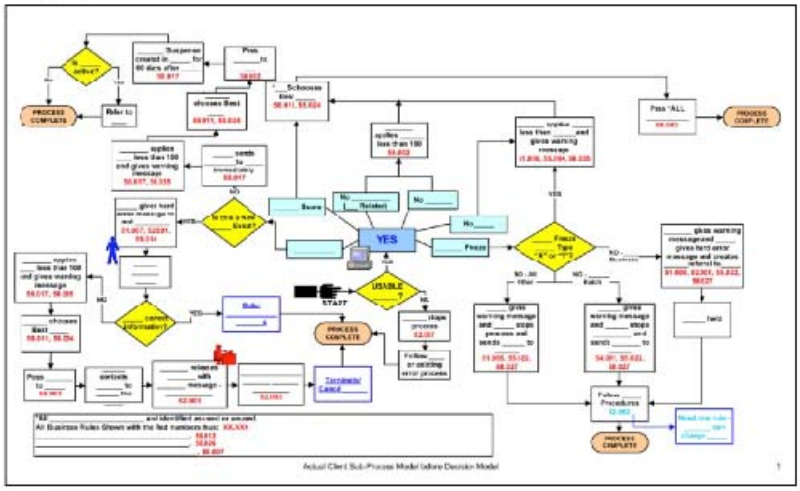
We're not suggesting that your processes are extremely simple, but would like to demonstrate through this article that they might be a lot less complex than you believe.

To demonstrate this point, look at the two process diagrams in Figure 1, taken from a real project. The "Before" chart is very complicated because the process logic and the business logic (or what you may call business rules) are mixed together. The business logic was embedded in the chart in the little red numbers that adorn many of the chart task boxes.

The "After" diagram is the same process, but using BPMN; the business logic has been removed from the diagram, leaving only process logic (that is, logic that requires sequence). The difference is not just that we have changed notation, but the fact that we removed the business logic from the process chart.

You may be saying to yourself; "The business logic has not been removed because there are diamond shapes in the "After' diagram?" In BPMN, the diamonds are gateways that define a branch or split in activity flow, they do not represent business logic. A gateway does not "decide" anything; it just specifies the path taken based on existing process data (including decision conclusions from previous tasks), and should not be confused with business decisions and business logic. In each case the logic is contained in the task, called a "decision task" that precedes the gateway. The decision task can pass the results of the decision to the gateway, which, based upon the data values received from the decision task, will route the process appropriately.

Before



After

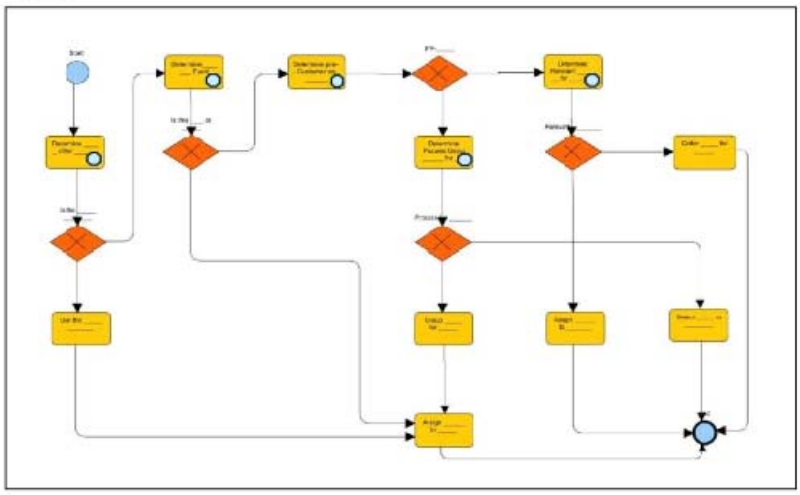


Figure 1: Before and After Using the Decision Model

Where did the Rules Go?

Looking at the process model after the separation of the business rules, the question naturally arises – "What happened to the business rules that adorned all the tasks in the 'before' process model?" The answer is; they have been separated from the process model and placed into separate structures. Whenever a decision is separated from a task, it is tagged with the octagon shape that denotes a business decision[1] (see "after" process model in figure 1 above). With the business rules removed from the process, they are now hosted in a separate model called a Decision Model. The diagram shows that there are several Decision Models, one to support each decision task (of course, the Decision Models are re-used when a decision task is reused).

[1] We use an octagon to denote a business decision task; it should be noted that BPMN 2.0 now has an official "business rule task" that has been ascribed a specific icon. OMG is in fact currently beginning discussion on the implications of decisions in BPM, and while that conversation is ongoing, we intend to continue to designate "business decision tasks" with the octagon shape, indicating that the task is represented by a separate Decision Model.

Figure 2 will aid in understanding this separation by showing how we connect the Process Model to the Decision Model and drill down to the actual business rules. The business process model illustrates how a process model decision task connects to a Decision Model. The octagon shape at the head of the Decision Model represents the business decision and is titled with the same name as the Decision Task. The rules are normalized into groups called Rule Families that are rigorously structured decision tables. Each tombstone shape below the octagon represents a Rule Family. The connections between the octagon and the tombstone shapes provide a high level view of the business logic and how the rules fit together to derive a decision. The Rule Families on the right contain the detailed business rules where each row in each table represents a single business rule.

There are principles we apply that ensure that these business rules are normalized with a high degree of inferential integrity. This not only means that they are correct from a logical and business perspective, but that each rule belongs only in one place and is not duplicated.

To further understand the Decision Model, it's simple elegance and value, we refer you to "A Primer on the Decision Model"http://www.thedecisionmodel.com.

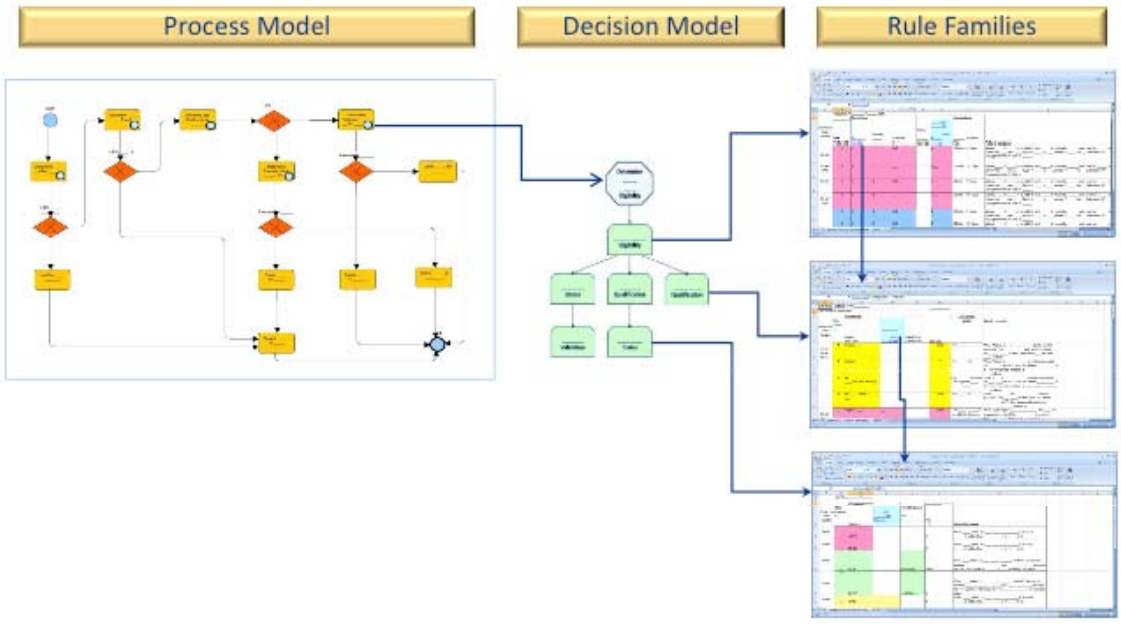


Figure 2: Organizing the Business Logic (Business Rules) into a Decision Model

Other Benefits

The Decision Model enabled us to discover that the business logic was incomplete, inconsistent, duplicated, and sometimes wrong. This model also made it possible for us to dramatically reduce the number of rules and discover that many of the rules could be reused. This process of analysis in the Decision Model provides three levels of normalization; this ensures structures with the highest possible level of logical integrity.

In the "Before" example, the company had, after a significant amount of effort, abandoned the process diagrams as being too complex and difficult to maintain. After we separated the business logic, we managed to greatly simplify the processes, and more importantly we were able to reduce the total number of processes by a half. And, it turned out that several of the processes, once the logic was removed, could be re-used.

Why Is The Simplification So Dramatic?

Separating the business logic from the process creates this dramatic simplification because the inherent structure of process and business logic is different. Processes are procedural (that is to say that it is a sequence of tasks and events, where the sequence is obligatory) and business logic is declarative (which is to say, sequence is irrelevant.) Trying to depict both in the same process diagram results in an "impedance mismatch". In other words, we get a diagram that doesn't depict the underlying truth. It's a little like using a topological map to determine the population density of a given geography. When we mix the procedural with the declarative it increases complexity, inaccuracy, and becomes difficult to maintain or easily change. The reality is that a process flow chart is not capable of documenting business logic in a rigorous and normalized structure.

Let Us Offer Further Proof:

We recently completed a scoping engagement for a major health insurance provider, who wanted to re-discover the business logic in five separate systems that were independently coded, but nonetheless used (or was thought to be using) the same business rules. The business was concerned that portions of the business logic may be inaccurate or inconsistent between systems, and ultimately wanted to consolidate the business rules into a single application, perhaps on a business rules engine, or as a set of business services.

The client's major concern was that there were a large number of rules and many of the business rules were very complex. When we started the engagement, the client's staff (business representatives, business analysts, and technical staff) was also very vocal on one count: the complexity of the business rules, and the complexity of the processes was very high.

The duration of the scoping engagement was two weeks. This included training the clients' business, analyst, and technical staff on the Decision Model; documenting one of the business processes implemented by each of these applications, identifying two business decisions in each of these processes, mining the business logic within those two business decisions, and documenting them into Decision Models. Once we completed these two business decisions we compared the differences between them in each application to consider their accuracy and consistency. In the last phase we used the scoping project metrics to create an estimate for a full project.

The client had a great team. At the conclusion of training, they had an excellent grasp of the Decision Model. This enabled us to dive head first into rediscovering the four business decisions and their business logic. In fact, as the project progressed, even shy participants were taking leadership roles. Everyone was participating and having a good time.

The team quickly discovered problems in one of the applications where process and decisions had been intermingled. To their surprise, as they separated the business process and business decisions they saw that the logic in the business decisions was significantly simpler than they had originally thought. More pertinently, they discovered that their main processes did not consist of

innumerable complex sub-processes, but a relatively few sub-processes that were re-used many times When the business decisions were removed from the process, each process became much simpler.

Conclusion:

These results were not surprising to us. In fact, they are typical of our experience. For example, one of the authors recently did a process improvement project for a "big four" accounting firms which involved implementing their Independence Policies into a single process across 130+ countries. Their Independence Policy was more than a thousand pages! They had the right to view their independence process and business logic as complex, but once we separated the business logic from the process, it became clearer, less complicated.

By separating your process and business logic into the appropriate, and separate models, you will likely discover that your processes are simpler than you think. John Zachman once said, "It occurs to me that once the underlying structure of a discipline is discovered, friction goes to zero! The processes (methodologies) become predictable and repeatable." The Decision Model is the underlying structure of business logic, and using it to remove logic from process will help reduce friction to zero.

Note: You can find more information on the Decision Model's simple elegance and value in the white paper; "A Primer on the Decision Model" http://www.thedecisionmodel.com. Portions of this white paper were taken from a book, due in the fall, called "The Decision Model" (von Halle and Goldberg 2009)

Authors

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Larry Goldberg, is Managing Partner of Knowledge Partners International, LLC. (KPI) with over thirty years of experience in building technology based companies on three continents, and in which the focus was rules-based technologies and applications. Commercial applications in which he played a primary architectural role include such diverse domains as healthcare, supply chain, and property & casualty insurance. Larry was co-editor of "The Business Rule Revolution" (HappyAbout.info 2007), the Editorial Director of the BDM Bulletin, a monthly e-publication of the BPMInstitute.org and joins Barbara von Halle in writing the monthly Business Decision Management column in Tdan.com. In addition he may be heard as track chair of the BDM Symposium at the Brainstorm conference, and at many conferences and industry events around the world. He and Barbara also conduct a very popular series of training seminars on Business Decision Management and the Decision Model, both in person and on-line. Larry can be found at www.TheDecisionModel.com and looks forward to hearing from everyone with and interest in decision management, business rules, Business Decision Management (BDM) and Enterprise Decision Management (EDM).

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