



An introduction to **Business Decision Management**

A White Paper

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1. Introduction

With the major releases of BPMN 1.2 in 2009 and 2.0 in 2011, process modeling was maturing along with an organization's process discovery practices. By now, most people familiar with BPMN have heard of decision modeling notation (DMN) for business decision management (BDM); however, they might not know how to incorporate DMN into their modeling practices. Prior to DMN for BDM, an organization's business rules practices were frequently separate from the process modeling efforts. If your organization wishes to combine process modeling with decision modeling in BPMN/DMN, you will need to know how to start managing decisions as assets. That is: changes to the process discovery steps, the information the teams gather and the choices made. In this whitepaper, we will describe the basics of business decision management and decision modeling and how it changes the old ways of process discovery in BPMN.

Organizations do not adopt BDM practices simply to add another methodology. They add BDM for the improvements in performance and productivity. Becoming mature in BDM can improve critical vertical business areas such Product Life Cycle Management, Supply Chain Management, and Customer Onboarding. It can also help critical cross-operational processes, especially risk and compliance frameworks. By making decisions and the elements that drive them more visible, an organization can improve the decision in a precise, surgical manner. In addition, the changes can be rapid; agility is improved in the target practice.

1.1 Incorporating Business Decision Management

Many enterprises have made a shift in recognizing that the business decision is a first-class citizen in the business's operating infrastructure — like processes they are assets that must be managed. In addition to incorporating the competitive advantages of analytics, the three prevalent reasons for this are:

- › Decisions create important business results and the attributes of the decision are important sources of critical metrics
- › Decision can be an organizing principle for designing business processes
- › Improving decisions can yield important performance benefits, often exceeding what is available through business process optimization alone

It is obvious that decisions are critical; what are less clear are the characteristics and attributes of a business decision. To wit, BDM is built up from the related practices of Business Process Management and the Business Rules approach. These methods have led the way in establishing practices that discover, model and analyze the elements of the business. Today, BDM has joined business process management as a critically complete practice that complements BPM and adsorbs business rules.



By now, most organizations with a focus on Business Process Management have already established practices in process discovery and many also have a business rules practice. Often times these practices are only loosely coupled at best. The experienced team has modeled a large number of processes in BPMN, and they have digitized the core. The steps of cultivating a process description into a model with activities, events, gateways, and interactions are well known.

For process discovery, BPMN is an OMG standard and BDM uses a related standard, the decision model and notation (DMN). The purpose of DMN is to provide an understandable symbolic representation of a business decision. The purpose of BPMN is to provide a symbolic representation of a business process. Both notations share similarities; they consist of shapes and connecting lines. The objectives of BPMN and DMN are as different as the objectives of the Business Process Management and Decision Management. Business Decision Management (BDM) is the control, management, and automation of repeatable business decisions by effectively applying business rules, analytics, and optimization technology. Business Process Management (BPM) is the identification, understanding, and management of business processes that support an organization's business model.

A business rule is a statement of the action to be taken when a specific set of conditions are true. Essentially, it is an atomic logic step that uses data and knowledge to evaluate part of a question associated with a business decision. Business rules "meet" processes through decisions captured in BDM. Rules encapsulate the logic of a decision into an understandable form. Arguably the simplest form of a business rule is the decision table. Decision tables contain numerous business rules and generally support one decision or sub-decision.

Business processes frequently need the output of critical decisions to decide how to comply. In a supply chain: the process needs to know what products must be ordered, what transportation should be used and which vendors can provide the product. In medical insurance: the process must know what benefits are available to the claimant, if a therapy is covered for the signs and symptoms, what is the client's co-payment. There are many examples of many different industries and market segments.

1.2 Introduction to Business Decision Management (BDM)

BDM is a new discipline that identifies, catalogues and models decisions, particularly operational decisions, in the enterprise. It also quantifies their impact on performance and creates metrics and key indicators for the decisions. In business decision discovery, decisions are identified through the analysis of business objectives, process models and use cases. Upon identification, the components of the decision are catalogued. The properties of the decisions are also detailed.

Decision management allows an organization to control, manage, automate and improve the repeatable decisions at the heart of its business by effectively applying business rules, data and analytics. With respect to business processes, BDM enables the development of simpler, smarter, and more agile business processes.



2. Type and Origin of Business Decisions

Business decisions take place at the three levels of business:

- › **Strategic**- these decisions have long-range impacts. They might include entering new lines of business, acquisition of companies and assets.
- › **Tactical**- these decisions involve existing lines of business. Tactical decisions include go-to-market plans, responding to immediate opportunities and taking advantage of short-term market advantages. Tactical decisions occur more frequently than strategic decisions.
- › **Operational**- these decisions are 'baked' into existing business processes and practices. Operational decisions occur very frequently, sometimes scores of thousands each day. Examples include establishing the prices of items, the discounts offered, and basic business decisions.

BDM increases understanding of the attributes of decisions: the data required, the logic that decides and the source of knowledge. In addition, decisions have other attributes including frequency and objectives. BDM can model any type of decision; however the focus is mostly on the operational decision.

3. Operational Decisions

Operational decisions are the high – frequency decisions that take place within heavily used processes such as customer orders, delivery requests and manufacturing assembly line directives. Practical examples of operational decisions might include what discounts to offer, how to assign loyalty points, and which mode of transportation to use. Operational decisions mostly fall into one of three business areas:

1. Compliance and Financial Controls- these are decisions that arise as a need to comply with rules and regulations provided by government and other controlling authorities
 - › Financial Compliance decisions concern the timing and reporting about:
 - › Tax reporting
 - › Money Laundering
 - › Market Abuse
 - › Environmental Compliance decisions can include:
 - › Pollution discharge reporting
 - › Movements of hazardous materials
 - › Worker safety



2. Operational Control- these are decisions that are meant to direct and control business processes and business practices
 - › Operational controls affect business processes and practices. This is the broadest area of operational decisions. These include decisions concerning:
 - › Employee Hiring, who to hire and for what reasons
 - › Vendor selection, what trading partners to purchase products and services from
 - › Product positions, how to price and discount product offerings
 - › Highly complex operational decisions- these are critical decisions that might include the logic of thousands (or even hundred thousands) of business rules including:
 - › Health Care Coverage, what therapies, medications and procedures are covered for a diagnosed medical condition(s)
 - › Pension Benefits, the benefits due an employee in a defined benefits program
 - › Credit Risk, the determination of the credit risk, especially the loss given default under an IRB approach in Basel III
3. Risk Management, decisions that are designed to limit the exposure of risk that a business faces by conducting business activities
 - › Risk Management decisions includes:
 - › Financial Risk, the cumulative risk that business operations create and how to limit or report threshold values on
 - Accumulating debt
 - Insurance liability exposure
 - › Counterparty risk, the risk that occurs from partners and customers

These three areas are broad ranging, complex and require comprehensive frameworks to be properly managed. BDM aids in the creation of this framework by formalizing the data, logic and knowledge of these operational decisions. Many of these decisions can invoke hundreds of sub decisions, each with separate sets of business rules. Each top-level decision should create precise guidance to compliant processes. Despite the wide range of subjects covered by the three areas, operational decisions have these common characteristics:

- › High volume- they are made frequently and could even be made thousands of times each hour.
- › Low latency- decisions must be made within the lifespan of an ordinary process instance, sometimes at sub-second speed
- › Low variability- limited specific directives are output from the decisions.

There is a benefit to rapidly responding to an event, especially events that are generated by human interaction with systems. There is a declining value to the response over time. Customers loose interest in their shopping cart. They place their orders based on the most rapid response and optimal purchase prices quickly fade. Digitizing the decision and removing unnecessary human interactions accelerates the response to customer-focused applications.



Operational decisions intrinsically are composed of input data, logic and knowledge; however these decisions have other implicit characteristics:

- › Highly repeatable- the expected outcome for the decision should be across a narrow range. Non trivial impacts on business objectives
- › Have measurable impact, the decision is directly connected to the allocation of assets, the creation of sales and the ordering of products and services
- › Can be digitized, the logic of the decision can be expressed as a business rule

Operational Decisions are gatekeepers for a processes progress. The operational decisions generally do not invoke subjective determinations, yet these determinations can be part of the input. Forward progress in the process is halted until the decision is made. Once a decision is made there are a specific set of directives provided to a compliant process.

4. BDM Benefits

When an organization starts to manage their decisions as assets, a number of overarching benefits begin to accrue:

- › Managed Decisions are controlled
- › Managed Decisions are more accurate
- › Managed Decisions are targeted to the intended domain

When decisions are managed, the logic, input data and knowledge are documented, exposed and published for all stakeholders to review. Experts and process participants alike can contribute to the understanding and accuracy of the decisions. Decisions are also connected to process guidance and outcomes —the decision precisely directs the process.

Overall business decisions provide better operational controls, compliance and more consistent process results with fewer errors. When a change needs to be made, the BDM organization knows where to make the change and what processes are impacted.

The benefits of BDM are extensive. Highlights are listed in the table below

Compliance	Operations	Risk
Fewer fines, lower legal costs	More consistent results, better aligned with management objectives	Better financial outcome, reduction in financial risk
Rapid promulgation of regulatory changes	Optimized offerings	Limit risk accumulation, better selection of partners
Impact analysis for change	Better alignment with management objectives	Lower operational risk
Rapid implementation of regulatory changes	Faster decision making	Better seize opportunities



5. Manual Decisions Delay Processes

In addition to these direct benefits, business decisions that are digitized improve processes. There is the possibility that a previously manual process can be fully automated through digitizing the underlying decisions.

For instance the BPMN process below, the entire process is delayed by a user interface process if there are any hazardous materials involved. An analysis of the information noted that a larger portion of the hazardous materials order could be handled by an automatic decision.

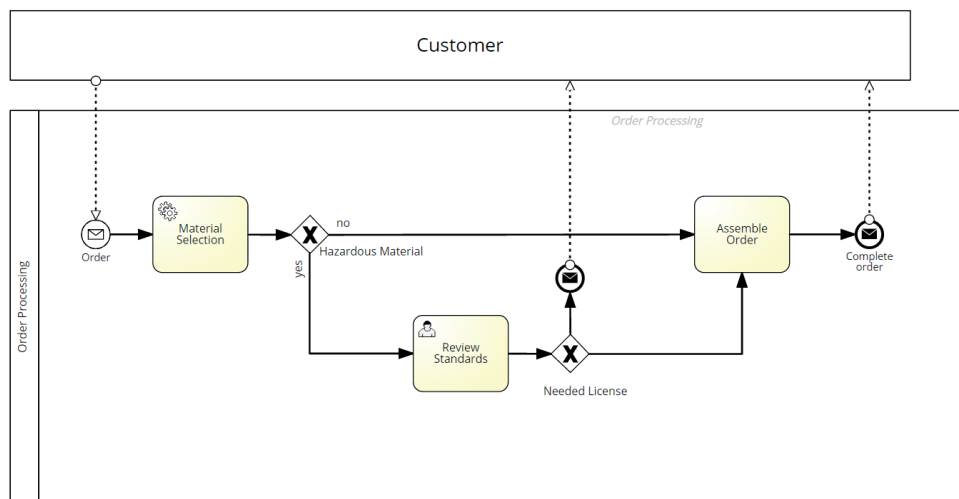


Figure 1, a process with a manual decision.

As a result a digitized decision was added that attempted to determine if a hazardous material license was needed to complete the order. In figure 2, many of the decisions were automated and only a portion of the decisions need a human task review.

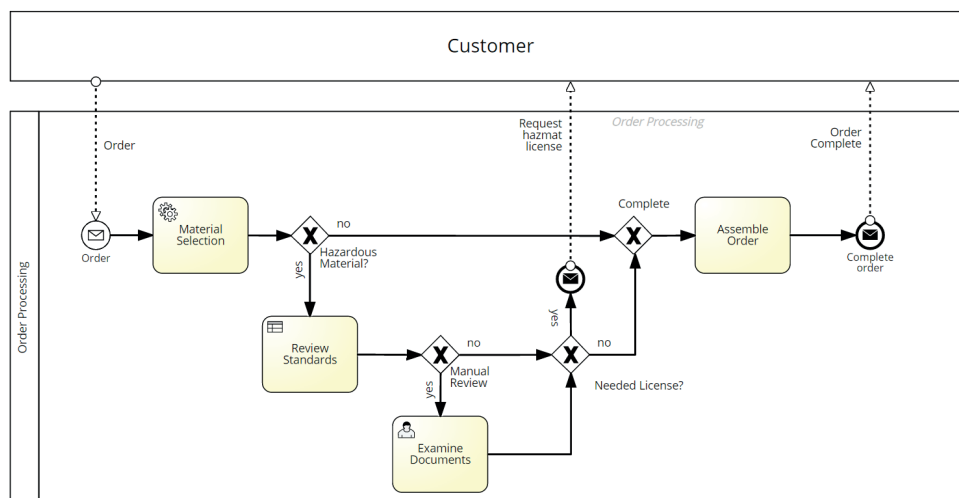


Figure 2, an automated decision replaces the manual decision and now only a portion of the processes are stopped with a manual review.



5.1 More Benefits

BDM transparently manages decisions that are important to compliance, operations and risk controls. BDM positions decisions for improved:

- › Agility- decisions are readily changed because the logic is identified and the processes connected
- › Accuracy- precise targeting of processes and practices
- › Adaptation- the factors that decide are understood and exposed for change. Coefficients of decisions including weighting factors, redline values and metrics can be optimized

Whenever decisions are modeled separately from processes, business processes changes are less frequent. Decisions can be changed without having to change the process application.

5.2 BDM: Rules with Purpose and Agility

When an organization separates the management of decisions from the operating infrastructure, changes are simplified. The means and mechanism of change are clearer because the data and the logic is more exposed and visible. Decisions and processes often change for different reasons yet it is possible for decision change to dictate process change and vice versa.

Changes to decisions are often due to:

- › Rules and policies change, legal rulings and legislative updates can changes the logic of rules, new outcomes can be dictated
- › Competitive practices and marketing Campaigns are seasonally updated. New products with new target demographics might be part of a sales campaign
- › In credit score cards, weights of evidence can change as economic conditions change (employment, value of equities, etc.)

As mentioned earlier, decisions are the outcome of multiple, sometimes numerous, business rules. Business rules are directly connected to the questions posed by the decisions. So, business rules are the keys to the granular control of decisions, process compliance and outcome. Business Rules provide:

- › Easily changeable logic that is applied to a decisions information and answers the questions
- › Improved visibility by placing the rules into connected decision tables
- › Answers to the how, where and why for management



6. The Signavio BDM Method

Just as Business Process Management, Business Intelligence and other methods have approaches, tasks, deliverables and technologies: so does BDM. The objectives of Signavio's BDM are to uncover, model and manage business decisions to achieve substantial improvement in KPI's, compliance, operational controls and risk management. These decisions are not limited to operational decisions. Management decisions can also be the target.

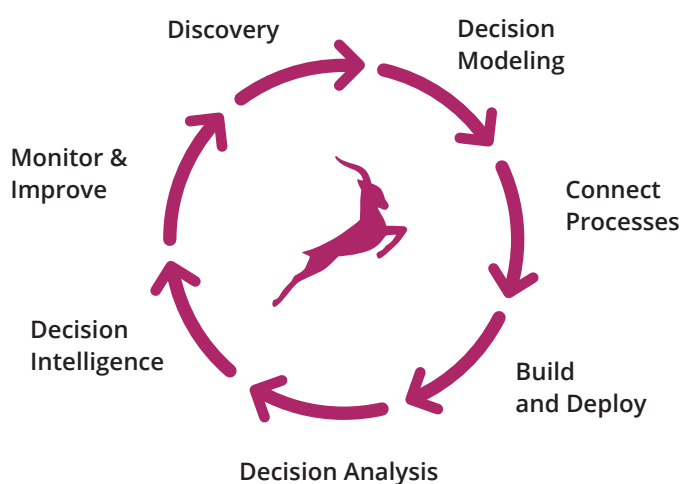


Figure 3, the steps of the Signavio Business Decision Management Method

As shown in figure 3, the core steps of a decision management approach are:

- › Discovery of the decisions that meet the criteria we have described
- › Modeling the decision's elements in DMN
- › Connect the decisions to processes
- › Build and Deploy the decisions
- › Analysis of the characteristics of the decision
- › Develop Decision Intelligence and Instrumentation
- › Monitor and Improve the performance of the decision based

The objective of these steps is to first stabilize the business decisions and then provide a basis for improving them over time. In addition, the Signavio product provides capabilities that permit



the decisions to be easily connected to processes even if they are yet to be built and deployed.

6.1 Decision Discovery

Business Decisions are composed of:

- › The questions that are answered by the decision. For example what mode of transportation should be used, which certified employee should calibrate the equipment?
- › The data that is input into the decision. For example, contract lists, schedule of employees, and material grade
- › The logic that processes the data. These are the if-then statements that are evaluated against the data
- › The stakeholders. The owners of the decision and the authority to make the decision

In the discovery phase of BDM, we identify the important, logic-rich decisions. The focus is particularly on the processes in operational, compliance and risk management areas. Sources include business processes, use cases, business cases and business plans.

Initially, key decisions will be the focus of the objective of the programs. These will be the obvious drivers of the program. For instance, if an organization wishes to improve the supply chain, then decisions will be related to:

- › Contracting Practices- when to negotiate contracts for large-scale purchases
- › Vendor Practices- how to select trading partners
- › Sourcing decisions- how to meet pricing and scheduling requirements

Exploration of the outcomes related to a substantial corporate business decision often leads to the examination of scores of sub-decisions and hundreds of data inputs. As discussed in the introduction, these decisions appear in related business processes, in use cases, agile stories or as a specific requirement.

Additional techniques, especially useful in identifying decisions that could be automated, managed or improved using business rules and predictive analytics are:

- › Review Business Processes, particularly BPMN models
- › Examine Performance Measures
- › Examine BI Reports
- › Examine Legacy Systems, Written Business Plan

In most cases, the large critical decisions will be immediately obvious. You will be searching for details of the larger decisions — in some cases the micro-decisions. Across the written documents and diagrams: scan for decision key words such as:

- › Determine (therapy eligibility requirements)
- › Select (the best contract)
- › Choose (the transportation methods)

For each decision identified, plan to model the decisions in DMN and include them in the overall analysis. We will discuss the Decision Model and Notation and how to use this input in the next section.



6.2 Model & DMN Overview

Decision modeling in DMN is a critical aspect of the methods of BDM. To understand the basis for the elements of DMN, an understanding of the elements contributing to any decision is needed. A simple definition of a business decision is helpful. A business decision is a resolution of a choice and the choice should be stated in the form of a question. It is intuitive to assume:

- › Decisions must have information to resolve the questions
- › Decisions should be driven or motivated by experience or laws and regulations
- › Decisions must apply logic or deductions to the information

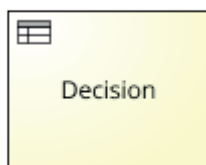
As described here, DMN mirrors these intuitive concepts with three key shapes- **decisions, input data, and knowledge sources**. Decisions must generally be made by someone in authority, even if the decision is digitized.

To understand decision modeling in DMN let us consider the following use case:

“An order processing system decides to offer discounts to customer that are current on their accounts and have made a certain level of purchases. All customers with current accounts receive a 5% discount. Customers with more than \$10,000 in purchases will receive an 8% discount. The order process calls the decision before calculating the extended costs.”

6.2.1. Basic DMN Elements

Decisions



In DMN, the rectangle denotes the decision and contains at least its name. A decision selects, settles or determines an output from a number of inputs by applying some decision logic. Decisions can be decomposed into sub-decisions and reused in other decisions. Decisions implicitly retain their sub-decisions when used in the other decisions. Top-level decisions frequently select an action from a range of possible actions. Sub decisions decide these actions. Often, the lower level decisions will simply provide input to other decisions. Because of this hierarchy, as enterprises model their decisions, a highly complex and dimensional decision model will emerge. So it is important for the DMN tool to promote understanding through the visualization and intuitive navigation of the structure of these related decisions.

DMN represents all decisions the same way at every level of granularity. There are no subtypes.



Fundamentally, decisions are the core of the DMN standard. When organizations model decisions, they create Decision Requirements Diagram (DRD) for one or more decisions. In most cases, the modeling team will create one master decision diagram for each area of focus. To create a repository of decision requirements, as a minimum, these properties should be recorded for each decision:

- › Question and Allowed Answers- decisions answer a question posed by a business context. Decisions resolve a question by providing data that directs actions to be taken
- › Business context- the point where the decisions arises is the business context. Often a process might need to resolve something. The business context is where the question is raised
- › Organizational context- Organizations are stakeholders in the decision and the process that is guided by the decision
- › Related Business Process- often decisions direct many processes

Input Data



In DMN, the oval denotes input data. As a minimum, the oval should contain the name of the data. Decisions act on input data that can be provided internally by sub decisions or externally from process messages, queues or signals. When a model connects a decision to a process activity, the input is from the data that is created by prior activities. In a business process, the

input data is often a structured data type such as an employee, contract, or purchase order. Other input data can be a stream or a fact hierarchy.

It is important for the DMN modeling tool to provide a dictionary of data types and terms that the modelers can use across DMN and process models. Terms of the decision should be mapped across related decisions to help create important model impact analysis across models. In addition, the modification of connected processes and decisions frequently requires new data elements. A centralized dictionary is critical for coordinating this data and meeting organizations specific needs.

Information Requirements

The primary requirement link, shown by a solid arrow, is an information requirement. These are used to show the inputs to a decision. If a decision requires a piece of information, then it will have an appropriate information requirement link. The element at the blunt end of the link is required by the decision at the arrow end.



Knowledge Source



DMN denotes knowledge sources with a document shape that contains at least its name. Knowledge sources connote the origins, sources and documentation for the constraints controls and objectives of a decision: often a compliance description. Sources include codes, regulations or policies about how an entity must make a decision. If the origins of knowledge sources are compliance regulations, sources can also include best practices from professional organizations and non-profit NGO's. Governing agencies and regulating authorities issue regulations and legal documents that detail the compliance requirements—these are important knowledge sources for a compliance decision. The owners of the documents frequently update the knowledge sources. Highly regulated enterprises must keep track of the changes. Releases of decisions should track changes to versions of the knowledge source. A comprehensive DMN solution should provide connections to external document management solutions.

Decision Requirements

The four shapes—decisions, input data, knowledge sources, and business knowledge models — comprise the nodes in all decision requirements diagrams. The links between these nodes are requirements links, denoting one of three kinds of requirements.

Knowledge Requirements

If Business Knowledge Models are being used then Knowledge Requirements show how those Business Knowledge Models are invoked to make decisions.

Authority Requirements

Authority requirements show where the process needs to go to find out how to make a decision. Shown by a dashed line with a round end, authority requirements identify that the element at the blunt end is an authority for the element at the round end. This allows for a knowledge source to be linked to a decision to show that it contains some of the knowledge needed to make that decision. Authority requirements are purely documentary and have no impact on execution.



Decision Requirement Diagrams (DRD)

Figure 4 below depicts a DRD for the customer discount example.

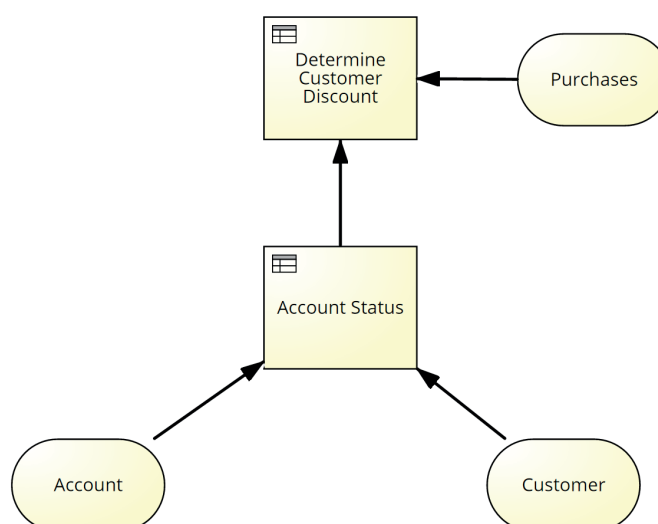


Figure 4, A DRG for customer discounts

These three elements — **decisions, input data, and knowledge sources** — can be combined to create Decision Requirement Diagrams. The relationships created by adding requirements links to these diagrams produce a network of linked elements and form the basis of a decision model.

In BDM, multiple decision requirements diagrams would be developed. The DRD model will contain all the specified relationships. There are no prescribed diagrams, and no master diagram must show all the requirements relationships in which a given element participates. Experience suggests that there are a number of ways to use the diagrams. These include creating decision models that support user stories and process-specific decisions. Another suggestion is to create business decisions across the organization that can be consolidated and simplified.

Decision Logic in Decision Tables

The DMN standard includes many details on detailing logic in decision tables. A critical part of decision modeling is the creation of business rules and expression logic in decision tables.

Consider the rules embedded in our customer discount example:

“An order processing system decides to offer discounts to customers that are current on their accounts and have made a certain level of purchases. All customers with current accounts receive a 5% discount. Customers with more than \$10,000 in purchases will receive an 8% discount. The order process calls the decision before computing the extended costs.”



When modeling these 'rules' or logic in the written requirement, evaluation of the inputs against expressions will settle the questions posed by the decision. In this case our question is 'What discount should we give to our customer?' In our assignment of output, we create a rule for each combination of the inputs. This selects the way individual rules are evaluated in a decision table. A solution for the customer discount problem is presented here.

UC	Inputs		Outputs		Annotation
	Account Status ¹	Purchases	Discount		
	{Current,Late}	Number	[0..1]		
1	≠	Current		0	Account anything but not current, no discount
2	=	Current	< 10000	0.05	Current, less than 10,000
3	=	Current	≥ 10000	0.08	Current, Greater than 10,000

Figure 5, a decision table solution for the example problem

NOTE: A more extensive discussion of modeling is needed to adequately cover this topic. The topics would include, hit policies, completeness and expressions.

6.3 Connect Processes

BDM is a process enabler. Every business process must act on decisions that are made within the enterprise. With regards to processes, business decisions:

- › Simplify the process, activities and scripts can be moved to the business process
- › Provides a mechanism for adaptive intelligence
- › Adds agility to business models and operations

In terms of simplicity, the business decision can move a nest of gateways into a single decision table. Data scripts that retrieve data for gateways to act can also be moved into the business decision. The output of a decision is frequently more than a simple 'Yes' or 'No'. The answer to the questions can be a person or a material asset. For instance, the business decision can provide direct answers to the questions:

Who can calibrate the gas chronograph in lab 6?

What computer should be issued to the new engineer?

In addition, these decisions can be built to provide fine grained control of a business process.

Organizations already familiar with the benefits of process modeling will experience a mind shift in thinking about their process discovery/optimization process. Combining decision modeling in DMN with process modeling in BPMN creates more focused processes. Process details move naturally into DMN decisions. Using DMN alongside BPMN increases clarity and reduces the number of BPMN shapes needed to capture a process, and limits the need for depicting complex access to data sources.



A decision-driven process acts on the outcome of the evaluation of decision logic in several possible ways, including:

- › Changing the sequence of activities that are taken after a decision, including what the next activity or process that is required to meet the directive of the process
- › Selecting between the paths on the diverging or the splitting side of a gateway
- › Deciding who or what participant should perform the needed activity
- › Creating data values that will be consumed later in the process

Inputs into the decision include data:

- › To help identify events or process-relevant conditions
- › That must be validated for correctness
- › Used in calculations

The decision can be thought of as a meta-gateway with merging inputs (events and data) and splitting outputs that direct the process in an overarching way (i.e., participants, tasks, and gateways).

Integrating business process modeling with decision modeling, as well as event processing, can create comprehensive, agile solutions in many problem domains. Without decision modeling, process modeling in BPMN can both overcomplicate a model with logic and miss critical design details. As decisions are modeled, things will be discovered that the process must do to accommodate the results of those decisions. Exploring decisions will lead to the discovery of implicit process events, activities, and sequences.

In our example the order process, in BPMN is connected to the decision from figure 4.

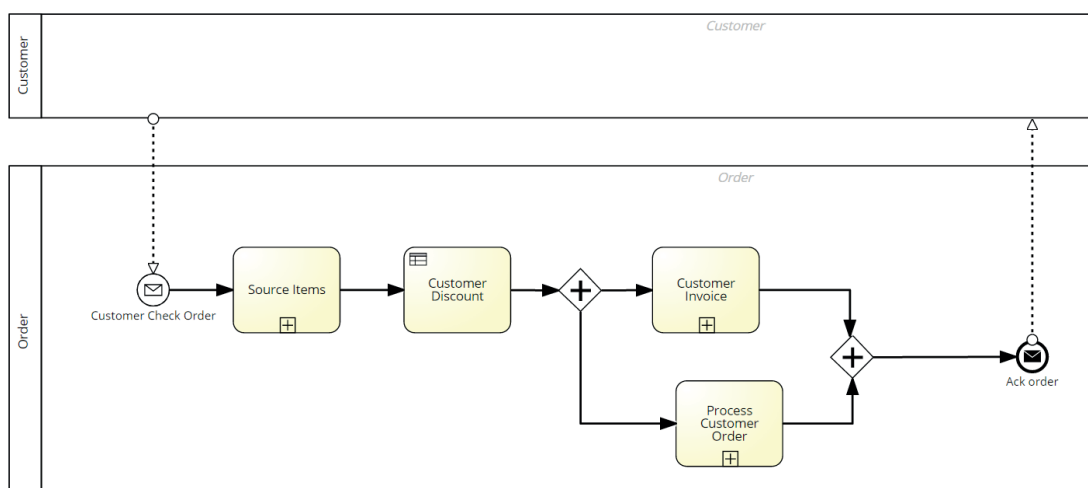


Figure 6, BPMN Diagram showing rule task that invokes the customer discount decision

The 'rule' activity is traditionally used to connect a DRD to the BPMN diagram. The output discount is applied to the customer invoice.



6.4 Build and Deploy

Once a model has been validated, tested and simulated it can enter the application development cycles of the organization. It is critical for the source designs to remain consistent with the deployed artifacts. The logic created by the decision modeling must remain consistent with the specifications of the DRD.

6.5 Analysis

In general, decision analysis aims to evaluate the performance of an executional decision model. Analysis of decisions requires data associated with versions of the decision. This data should include all the changes and permutations that occur along the logic steps of the decision. With this an organization can perform decisions. This level of analysis can permit a 'decision yield'. A decision yield approach would evaluate the interaction between decision and performance along five dimensions: precision, cost, speed, agility, and consistency. That information can be collected and calculations can be performed by the decision management systems that companies increasingly use to guide employee responses or execute fully automated decisions.

6.6 Business Intelligence

The decision model can be explicitly transformed into a star schema, a decision-process schema, for BI and data visualization. For a comprehensive decision, facts from the process should be added to the relevant fact table. The attributes of the schema would be the input data and the evaluated conditions of the decision table, these attributes can be facts or dimension, depending on the nature of the data. Generally an input fact, such as the purchases data from our example, will result in both a fact table and a dimension of the evaluated logic from the decision table. Each execution of a decision with added process facts would be a row in the table.

The resulting data warehouse is critical for assessing the performance of the decision and the compliance of the process.

6.7 Monitor and Improve

Operation decision models should be simulated to develop the relevant metrics. With the benefit of a DMN model and a decision-process schema, decisions can be monitored and analyzed for improvements.

Decision improvements potentially include:

- › Improve process responses, exploring specific and aggregate responses
- › Explore Different Decision-Making Approaches

With simulation, the decision model can confirm the impact of proposed changes. Deploying the change will be vastly simplified since the business logic is exposed and easily changed.



7. Conclusion

BDM is a critical new method that every organization should consider. All compliant, process-based platforms should support executable business processes as directed by business decisions and defined by an ongoing evolution of businesses operational needs. Business Decision Management adds an important new dimension to process modeling. Decision models are mechanisms that can drive system changes and allow process to accomplish a high level of dynamic interaction. Some of the expertise will be technical, and some is business, but all are model driven.

As suggested earlier, decisions generally create five different outcomes that govern and control business operations. Decisions direct the:

- › Order or sequence of a process' tasks, decisions, and internal events
- › Selection of who is included in and assigned to a task
- › Selection of the course of action
- › Selection of what is to be retained, its validity, and duration
- › Detection, control, and responses to events

In the new world of collaboration between the business units and IT, the business processes, decisions, and business rules will be supported and maintained visually and expressed as BPMN/DMN. Moving forward, organizations need to model their operational processes using a combination of process models in BPMN and decision models in DMN. Combining process-, event-, and decision-centric thinking in a linked set of models makes for easier management, a more agile organization – and enables organizations to meet their intended goals.



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