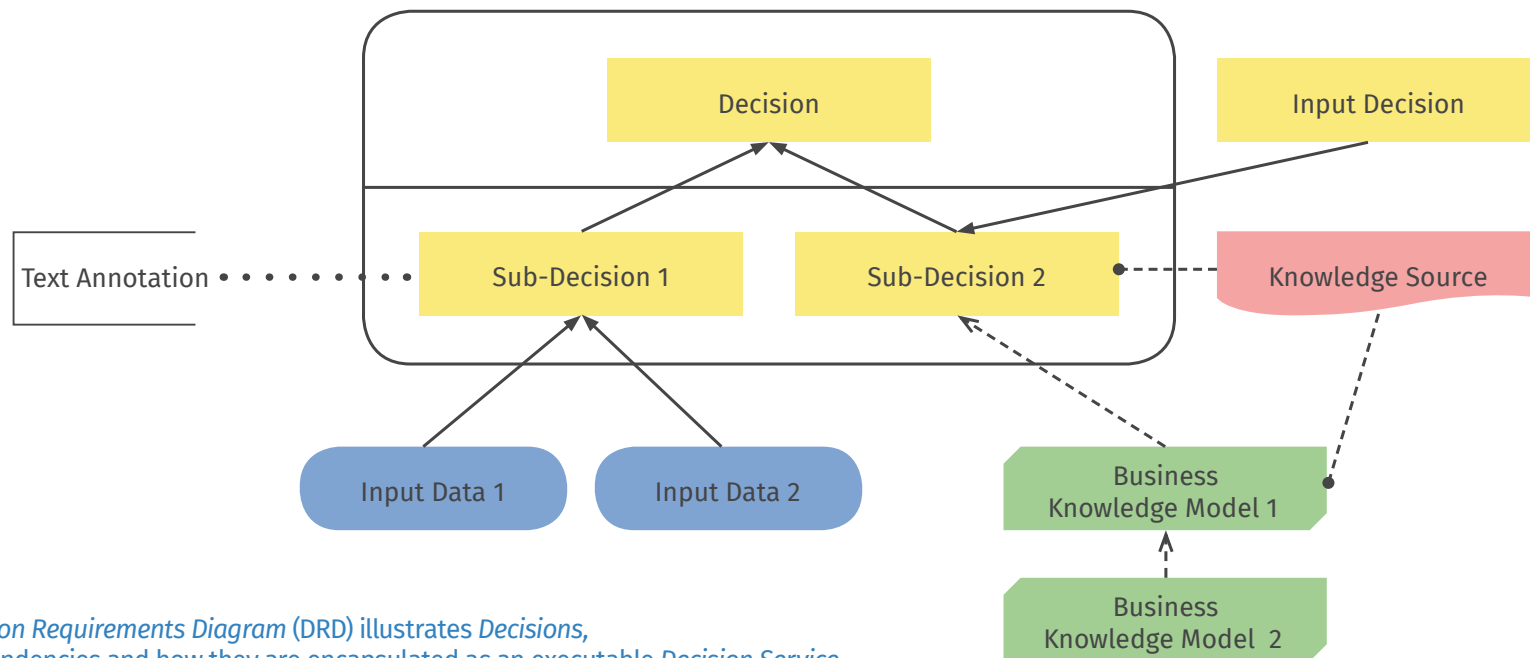


# DMN - The Decision Model and Notation

## Decision Requirements Diagram & Decision Services



The *Decision Requirements Diagram (DRD)* illustrates *Decisions*, their dependencies and how they are encapsulated as an executable *Decision Service*.

- Decision** A *Decision* represents the act of determining an outcome from several inputs using decision logic.
- Input Data** *Input Data* denotes the information needed as input by one or multiple *Decisions*.
- Business Knowledge Model** A *Business Knowledge Model (BKM)* represents reusable business logic.
- Knowledge Source** *Knowledge Sources* represent authorities that have an influence on a DRD element, e.g. policies, regulations or people.
- Decision Service** A *Decision Service* defines a technical boundary for execution and automation of *Decisions*.

- Information Requirements* connect an *Input Data* or a *Decision* with a *Decision* that needs the *Input Data* or *Decision*
- Knowledge Requirements* are used to invoke a *BKM*. They point from the *BKM* to the *Decision* or *BKM* invoking it.
- Authority Requirements* point from a *Knowledge Source* to other elements that are influenced by the *Knowledge Source*.
- Text Annotations* are used to add explanations or comments.
- An *Association* links a *Text Annotation* to a DRD element.

## Boxed Expressions

**Literal Expression**  
A box containing just one expression that defines how an output value is derived from its input values.

FEEL expression

```
base price + discount
```

**List**  
*Lists* are used to represent multiple values. It is represented as a vertical list of boxed expressions that are numbered starting from 1.

Position	List entries
1	"United States"
2	"Germany"
3	"Switzerland"
4	"Singapore"

**Context**  
A *Context* allows to define names for partial or intermediate results. This way, decision logic can be broken down into smaller steps.

Context entry name (variable)	Context entry value (boxed expression)
IsStudent	true
Course	"Business Administration"
CurrentSemesterNo	4
MaxSemesterNo	6
if CurrentSemesterNo > MaxSemesterNo then "Contact Student"	

Result box (optional)

**Relation**  
A *Relation* is like a spreadsheet or a relational database table. It is a list but every element is a *Context* with the same entries.

Position	Column names (variable)		
	Name	Birthday	Gender
1	"Peter"	date("1985-07-23")	"M"
2	"Alice"	date("2000-12-14")	"F"
3	"Bob"	date("1970-01-14")	"M"

Entry values

**Function Definition**  
A *Function Definition* allows to define a custom function. It can be invoked from *Literal Expressions* or from a *Function Invocation*.

Parameter list

```
(Base, Percentage, Years)
```

Body (any boxed expression)

```
Base*Percentage / 100*Years
```

**Function Invocation**  
The *Function Invocation* allows to call a *BKM* or a *Function Definition*, pass parameters and receive the result.

Eligibility Rules	Parameter name	Parameter value to be passed
Applicant	Application.applicant	
Product	Product.wkn	
Country	Bureau.location.country	

Boxed expression or name of the BKM or function to be called.

**Decision Table**  
The *Decision Table* is a tabular representation of multiple rules to make a decision. Rules fire based on the values of one or multiple inputs. In its simplest form, the rules of the *Decision Table* define different conditions for the inputs and if all of a rule's conditions are fulfilled, the *Decision Table* produces the output value(s) specified in one or multiple output columns of that rule. However, depending on the *Hit Policy* of the *Decision Table*, its behavior may be different from that.

Hit policy	Input columns	Output column	
	Existing Customer	Risk Score	Risk Category
U	true, false		"HIGH", "MEDIUM", "LOW"
1	true	<10	"LOW"
2	true	[10..50]	"MEDIUM"
3	true	>50	"HIGH"
4	false	<10	"MEDIUM"
5	false	>=10	"HIGH"

Input entries

Output expressions

Allowed values