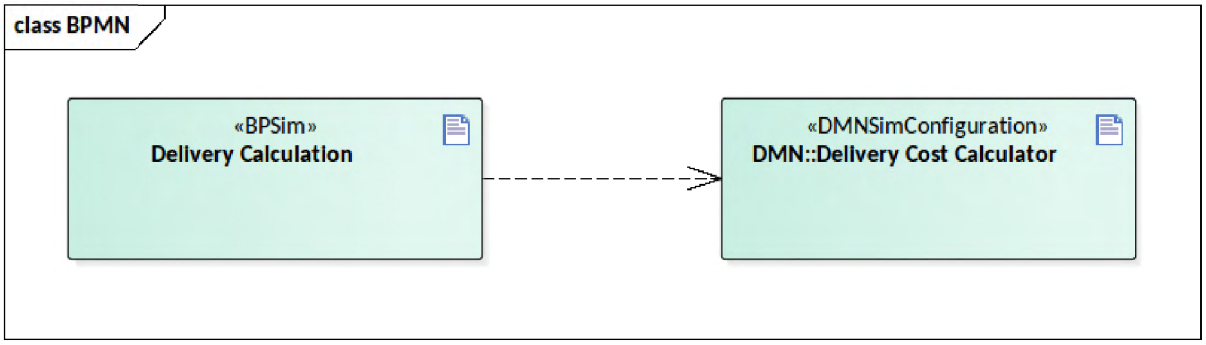
BPMN Integrate with DMN Delivery Cost Calculation

The *BPMN Integrate with DMN Delivery Cost Calculation Example* demonstrated how to integrate DMN's Business Knowledge Model into BPSim configuration.

- Dependency connectors from a BPSim Artifact element to DMNSimConfiguration Artifact elements represent the usage relationships.EA allows a BPSim model to use multiple DMN models.



- There are two ways to let BPSim expressions use DMN model:
  - DMN's BusinessKnowledgeModel (demonstrated in this example)
  - DMN's InputData + Decision
- DMN's Business Knowledge Model

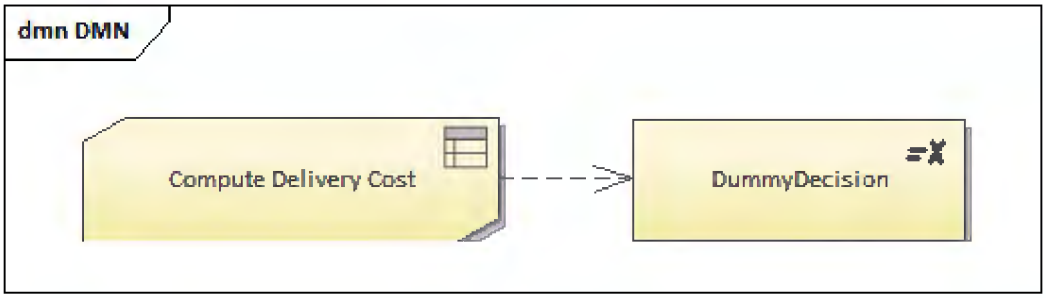
DMN Expression

Compute Delivery Cost | Input Parameter Values for Simulation

(Total Weight, Amount)

U	Amount	Total Weight	Delivery Cost
1	<=200	>40	60
2	<=200	(30..40]	50
3	<=200	(20..30]	40
4	<=200	(10..20]	30
5	<=200	<=10	20
6	(200..300]	>40	30
7	(200..300]	(30..40]	25
8	(200..300]	(20..30]	20
9	(200..300]	(10..20]	15
10	(200..300]	<=10	5
11	>300	-	0

In order to generate this BKM element, you have to connect it to a decision. This "Dummy Decision" (the name can be changed to suit your needs) serves like a BKM Library. If you want multiple BKMs enrolled for this decision, simply connect all of them to this decision element.

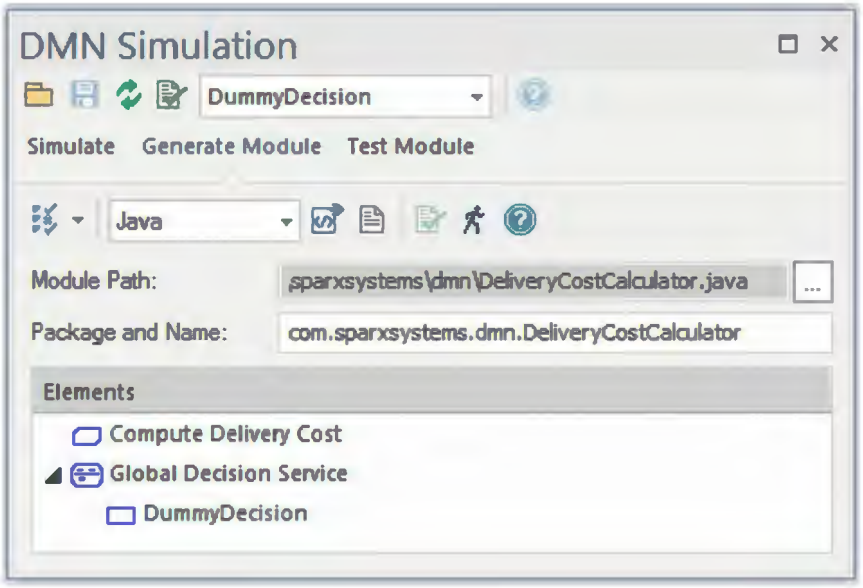


The benefit of this design is that, you only generate the BKMs you wanted in the DMN Module. For example, you have 100 BKMs defined and you only want to generate 5 out of them, you can simply:

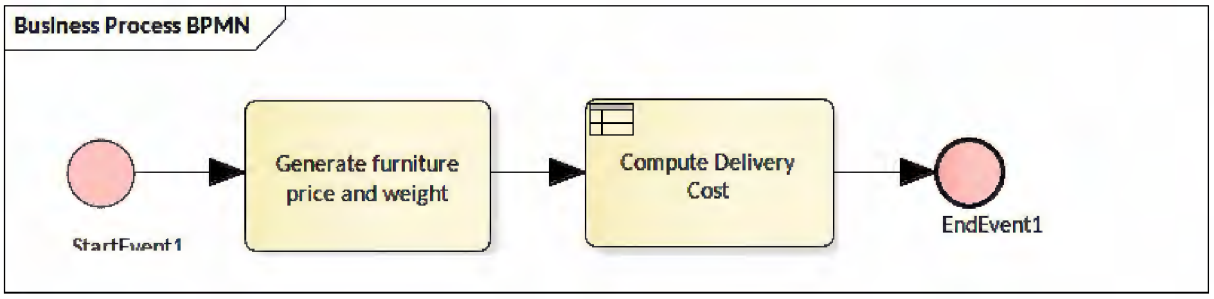
- Create a decision with meaning full name to group these 5 BKMs;
- From the Combo box, select this decision, then all "invoked" BKMs will be included

Note: This is not a real invocation, the Knowledge Requirement connector only helps to group BKMs to this decision.

Then generate this model in Java language with DMN Module name and package provide, an Analyzer Script will be automatically created and executed. If your model is correct, then the compilation will succeed.

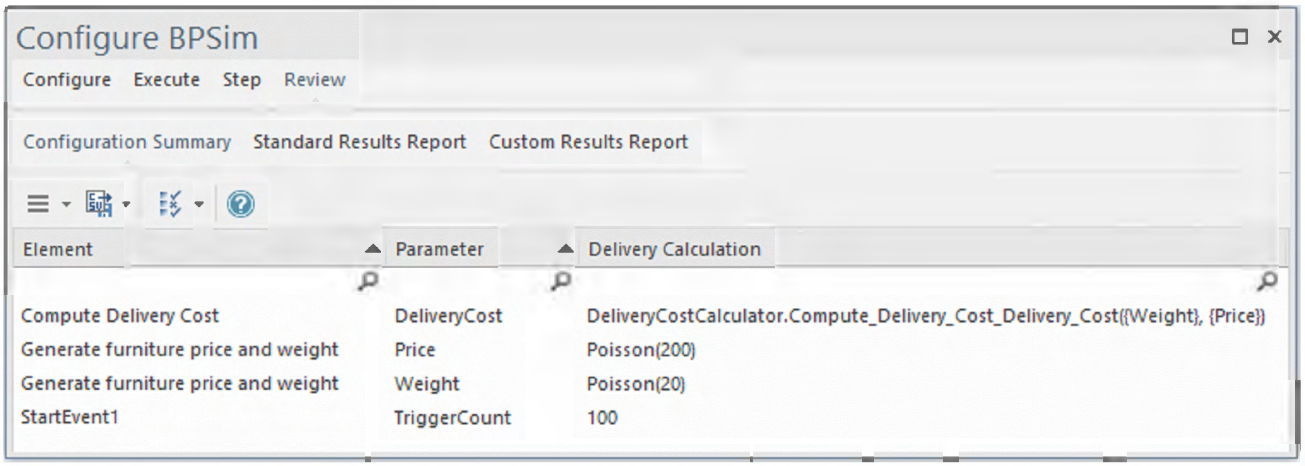


- BPMN Model with BPSim Configuration



In this example, we defined 3 double type Properties: Price, Weight and DeliveryCost.

- Price: use Poisson distribution with a mean value of 200
- Weight: use Poisson distribution with a mean value of 20
- DeliveryCost: the expression is configured to call a BKM defined in the DMN module



Steps to simulate the BPMN model with DMN integration:

1. Ensure Java Environment. (install JDK and JRE)
2. Generate DMN Module in Java Language from DMN Model.
3. Configure dependency connector from BPSim Artifact to DMNSimulation Artifact
4. Ensure the Expression Language for BPSim is set to Java (Not XPath)
5. Configure BPSim property parameter values by IntelliSense supported Expression
6. Execute the simulation

Note: Steps 3, 4, 5 are already configured if the model is exported from EA patterns.

How to Integrate DMN Module in BPSim Artifact?

1. Set the Expression Language to "Java".
2. Create a dependency connector from BPSim Artifact to DMNSimulation Artifact.
3. Configure BPMN Tasks to assign values to BPSim Property parameters.