

Decision management in Blueriq

Within organizations decisions are made frequently and have an important impact on reaching the organizations goals. Decisions are made using logic, even if that is not always obvious. There are many organizations that have automated their operational decision making. Blueriq is a platform that is often used to automate (parts of) the decision making process.

This chapter discusses how decision management is supported in Blueriq by means of Decision Requirements Graphs.


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Decision Requirements Graph (DRD)

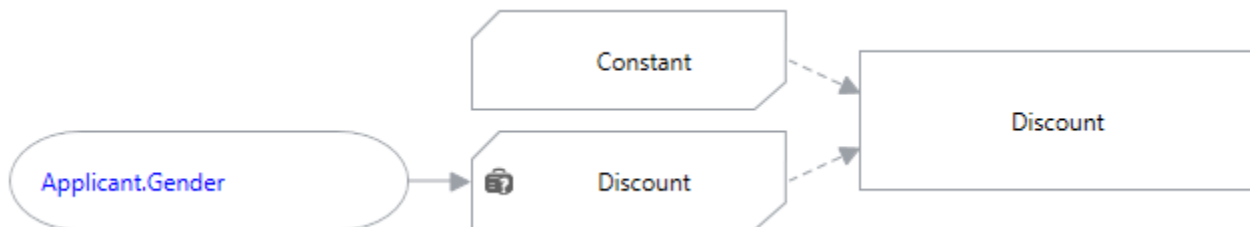
Blueriq adopted the Object Modeling Group (OMG) standard of Decision Model and Notation (DMN) with regards to the Decision Requirements Diagram (DRD). This means that Blueriq *generates* a DRD at design time in Encore, based on the decisions and sub decisions that have been modeled. Furthermore, Blueriq offers a DRD at design time and a slightly different DRG at runtime.

For more info on DRGs see [Decision Requirements Diagram or DRD in Encore](#)

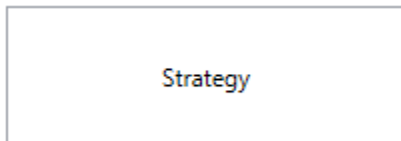
Design time Decision Requirements Diagram

When designing a decision, make use of the Decision Requirements Diagram (DRD), depicted by a scale icon: . (for more info on and where to open DRGs see [Decision Requirements Diagram or DRD in Encore](#))

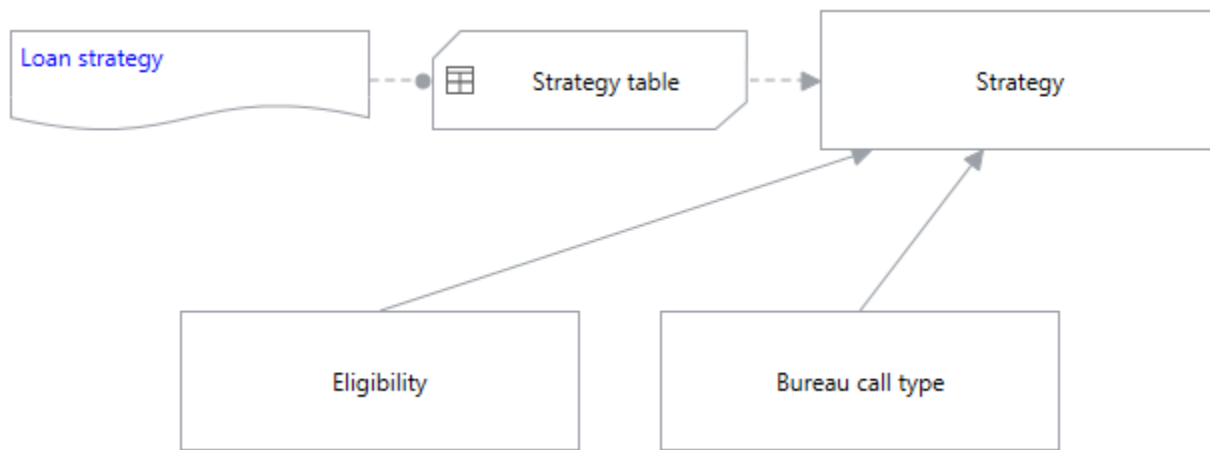
Let us say we are modeling a simple decision that determines whether someone will receive a discount on some sort of insurance. Females are eligible for this discount, males are not. The decision requirements graph will probably look something like the one shown below. In Encore, use Ctrl-click on the various elements to open them and verify that the discount is modeled correctly.



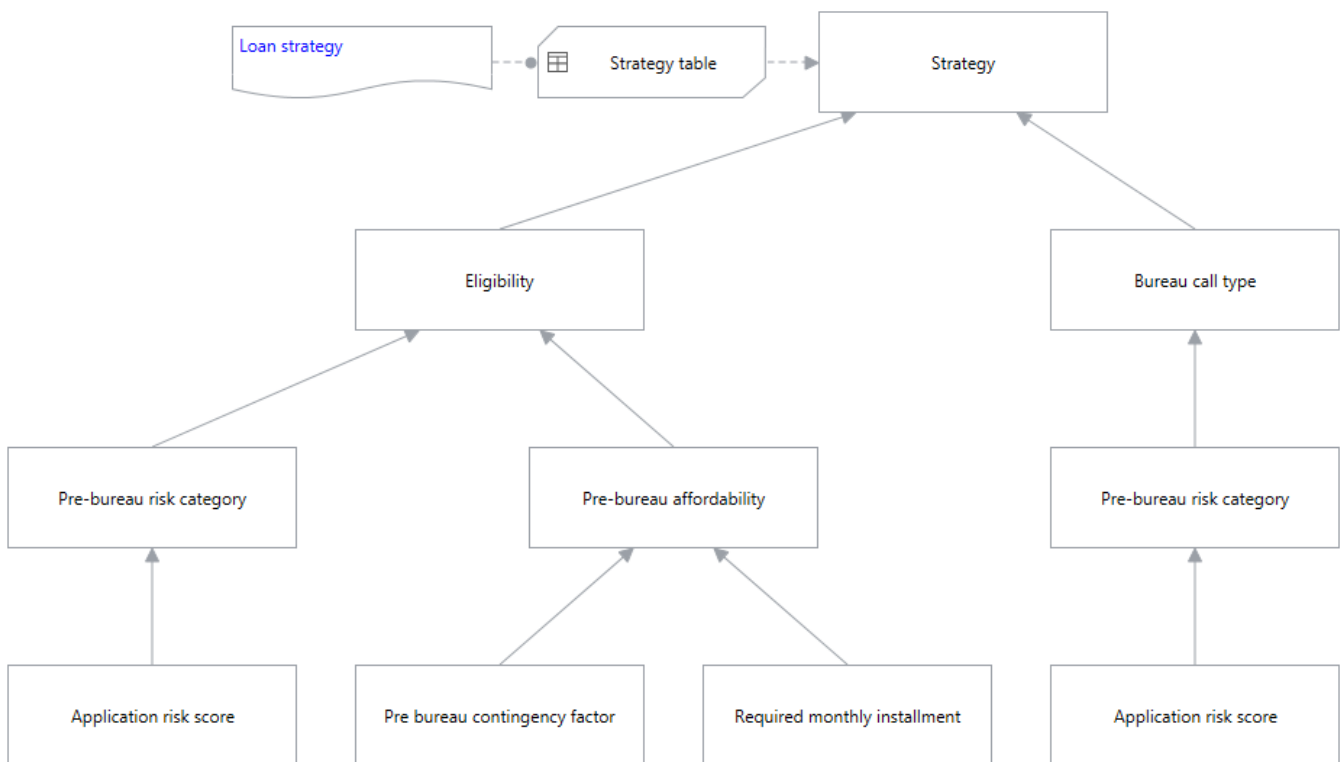
Although even for simple decisions the DRD is useful while designing or reviewing, the true strength of the DRD is exemplified when designing or reviewing multi-layered complex decisions. See the example DRD below, that shows the decision that determines Strategy. At level 1 this decision looks trivial.



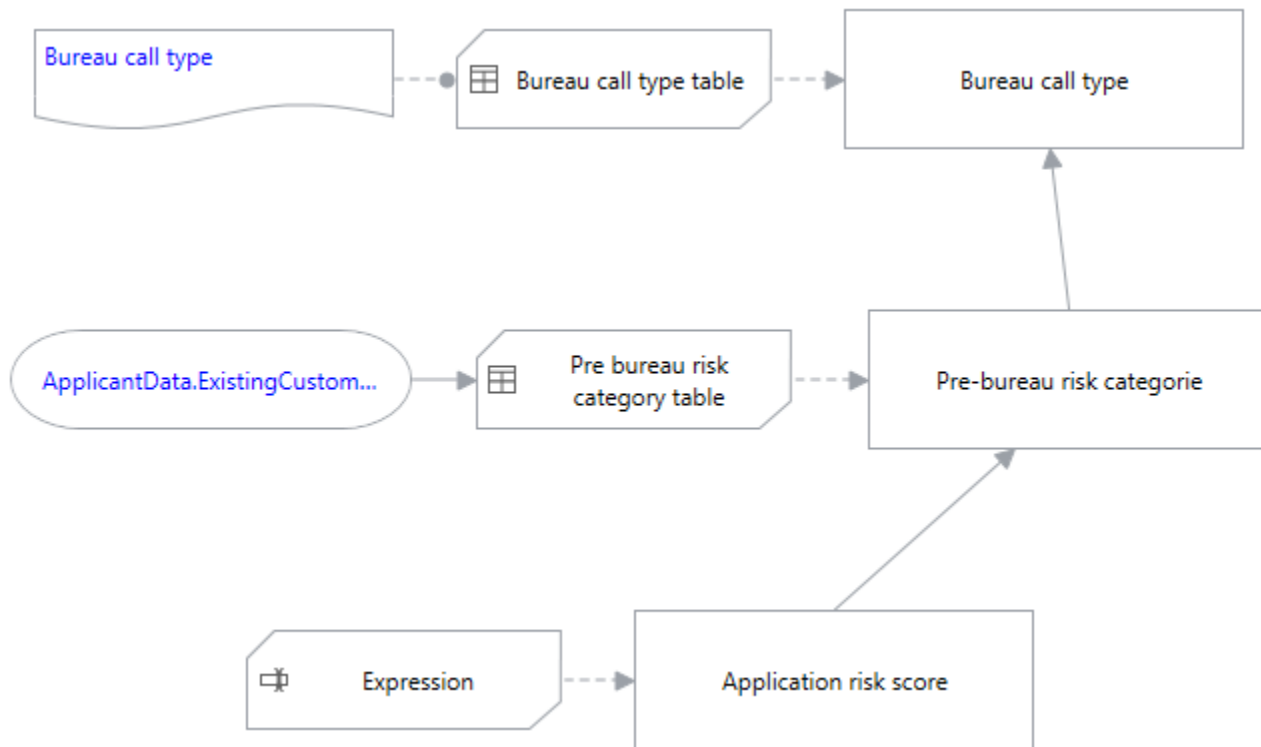
When expanded to the next level, it shows that the decision consists of two separate decisions.



At level 4 the we find that there are in fact many more decisions in play:




It is possible to completely expand all decisions, knowledge models, input data and sources in one single graph, but this will most likely result in a diagram that is not usable for any type of audience. Therefore it is advised to expand sub decisions in separate DRDs. Shown below is such a DRD for the sub decision Bureau call type.



In the examples above, knowledge sources are shown. These knowledge sources appear in a DRD when a specification is linked to a decision (decision table, business rule, attribute with expression, etc.).

Runtime Decision Requirements Graph

Although OMG's standard DMN does not contain any specifications for it, Blueiriq also uses a runtime decision requirements graph. This graph resembles the design time decision requirements diagram, but differs mainly with regards to the fact that it shows all given answers and derived values. See the example below.

By clicking the  icon in runtime, which is accessible via Runtime toolbar > Profile > Entity, a decision requirements graph (DRG) will be shown. This icon is only shown in case of default set and system set attributes; not on user set attributes. An example of such a runtime DRG is shown below.

Verzekerde.Kinderbijslag	
<i>Expression</i>	
Verzekerde.Kinderbijslag	188.573
Verzekerde.Kinderen	KindId819eab2-4513-475a-83a0-02471dd2a7f8
Kind.BedragKinderbijslag	188.573

1	Kind.BedragKinderbijslag	
2	<i>BerekenHoogteKinderbijslagPerKind</i>	
3	Kind.BedragKinderbijslag	188.573
4	Kind.RechtOpKinderbijslag	true
	Kind.Geboortedatum	2022-01-01
	Kind.BasisKinderbijslagBedrag	269.39
5	Sophie de Vries valt onder uw huishouden, daarom heeft u recht op kinderbijslag . Sophie is jonger dan 6 jaar, daarom ontvangt u 70% van het basiskinderbijslag bedrag (€269,39) voor dit kind. U ontvangt daarom €188,57(zie Artikel 12 2a).	

Kind.RechtOpKinderbijslag	
<i>BerekenRechtOpKinderbijslagPerKind</i>	
Kind.RechtOpKinderbijslag	true
Verzekerde.Ingezetene	true
Kind.WoontInNederlandEersteDagKalenderkwartaal	Ja
Kind.BehoortTotHuishoudenVerzekerde	Ja
Kind.BehoortTotHuishoudenAnder	Nee
Kind.Geboortedatum	2022-01-01
U heeft recht op kinderbijslag voor Sophie vanwege de volgende redenen: Uw kind is inwonend bij u (zie Artikel 7, eerste lid, a).Uw kind is jonger dan 16 jaar (zie Artikel 7, eerste lid, a).	

Kind.BasisKinderbijslagBedrag	
<i>Constant</i>	
Kind.BasisKinderbijslagBedrag	269.39


Elements

Every decision is built up of the following parts:

1. The first cell shows the name of the decision, which in fact is the attribute name that is derived, e.g. Verzekerde.Kinderbijslag.
2. The cell containing 'Expression' is the name of the business knowledge model, which is the logic element used. The text 'Expression' indicates that the calculation is performed by an expression which is put as default on the attribute. In case of a decision that is inferred by a decision table and this decision table contains a functional name, that functional name will be shown here. Otherwise, the technical name is shown.
3. The first row of the two-column table, which is shown in dark grey, is the name of the attribute and the value of the result.
4. The grey lines are:
 - references to input data. This is data which is necessary to infer the decision.
 - references to input from other decisions. These decisions are shown as child decisions (Kind.RechtOpKinderbijslag and Kind.BasisKinderbijslagBedrag).
5. At the bottom the description is shown of the decision. In fact, this is the justification text which is attached to the attribute.

Interaction

To interact with the decision requirements graph, a user can use the following functionality:

- Clicking a dark grey 'title' box will open it and will show all details. Clicking the '-' will bring the decision back to its small size and grey background.
- Clicking the '+' sign will show the child decisions.
- Clicking the  sign will set this decision as the main decision on top of the screen. By clicking 'Select previous' in the top left corner, it is possible to return to the previous diagram.
- Clicking and moving will move the complete diagram.

More information about the DRG in runtime can be found here: [Decision Requirements Graph or DRG in runtime](#)

Previous: [What is decision management?](#)

Next: [Designing decisions](#)