Introduction to business rules

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A **Business rul**e describes the relationship between one [activity <](https://documentation.dcr.design/documentation/activities/>) and another. Business rules are sometimes also called "relations", or simply "arrows".

Type of business rules

Eight different type of business rules exists as outlined below:

Business rule	Arrow

Pre-condition	
Response	
Logical include	
No-response	

Include	
Exclude	
Spawn	
Condition	

Milestone	
Value	TBD

1. Pre-Condition / Condition / Milestone

The pre-condition, the condition and the milestone are similar rules which are explained below.

PRE-CONDITION

The **Pre-condition** creates a rules between an activity A and an activity B such that B can only occur if first A has occured and also A is not pending.

CONDITION

The **Condition** creates a rule between an activity A and an activity B such that B can only occur if first A has occured. Activity B could for instance be “Prescribe medicin”. For that to happen a medical examination has to take place, which could be activity A.

MILESTONE

The **Milestone** connection creates a rule between an activity A and an activity B such that B can occur initially. But if A becomes pending for a response connection by another activity C, then B cannot occur until A has ocurred.

A **Milestone** is simular to a **Condition**. A condition refers to first time execution of an event whereas a milestone refers to future executions of an event, i.e. block if the previous event has become pending again. The combination of a **Condition** and a **Milestone** is a **Pre-condition**.

Activity B could for instance be “Prescribe medicine” which normally happens after activity D, “Medical examination”. But C, “further examination needed” becomes activated in stead, then A, “2nd medical examination” has to happen before any medicin can be perscribed (activity B).

Fig 2: Milestone example

2. Response / No-response

The **Response** rule creates a rule between an activity A and an activity B such that B has to occur, at least once, at some point after A has occurred. B can occur even if A never occurs. But if A, then B. If activity A is a broken leg then an examination (Activity B) must take place at least once.

No-response

The **No-response** connection creates a rule between an activity A and an activity B such that B does not have to occur, if A occurs. B can occur even if A never occurs. A no-response removes the pending state of an activity and is the opposite of a response..

3. Logical include

The **Logical include** connection combines the Include and Exclude rules outlined below into a simpler rule. If the guard of the rule evaluates to true the logical include acts like an include relation, if not it acts like an exclude relation. The default *guard* is the value true which makes the logical include behave exactly as an include rule. Read more about guards below.

Visit example **logical include simplifies modelling** to learn more.

4. Include

The **Include** connection creates a rule between an activity A and an activity B such that the occurrence of activity A makes possible the occurrence of activity B if it wasn't previously included in the workflow. Activity B could be a "Perform medical procedure" which has been previously rejected by a physician. Activity A could be an approval from a physician with more seniority than the one that first rejected the medical procedure.

5. Exclude

The **Exclude** connection creates a rule between an activity A and an activity B such that B cannot occur if first A has occured. Activity A could for instance be "Reject medical procedure" and B "Perform medical procedure". The exclusion can be cancelled out if an activity with an include connection to B occurs.

6. Spawn

The **Spawn** connection creates a rule between an activity A and a subactivity B such that, when A occurs, a new instance of B is created. Activity B could for instance be “Meeting” and A be “Create meeting” as is depicted in Fig. 2.

Fig. 2: an example of the spawn condition

The spawn rule creates a new instance of the **multi-instance subprocess < https://documentation.dcr.design/documentation/multi-instance-subprocess/>** , which cab be considered a *template* for a collection of activities and subprocesses to be created.

Value

The **value** rule enables you to "copy" the value of one activity to another. In fact you can write any expression.

Creating Business Rules

To create a business rule from one object to another follow these steps:

1. Select an Activity by left click on it, it’s border will turn to blue this indicates as a source element from which connection will be made
2. Now right click on other Activity, Subprocess (including a form) or **Multi-instance subprocess < https://documentation.dcr.design/documentation/multi-instance-subprocess/>** and the menu below will be shown, click on required rule or available rule option and a rule will be made from the selected item to this item

Guards in business rules

Read more about how business rules can be *guarded* by expressions < https://documentation.dcr.design/documentation/using-data-in-business-rules-guards/>

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Delay and deadline in business rules

Read more about how business rules can express delays and deadlines < https://documentation.dcr.design/documentation/using-time-in-business-rules-delay-and-deadlines/> .

Related Release notes

RELEASE 6.9

< https://documentation.dcr.design/release_notes/release-6-9/>

- Welcome to generative AI in wizard
- Welcome to improved Activity Effects
- Import DCR graphs from BPMN and Excel

Release Date: August 29, 2023

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