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Execute 

OMiLAB Training Module 2

Modelling Case

A guided example

Use Case

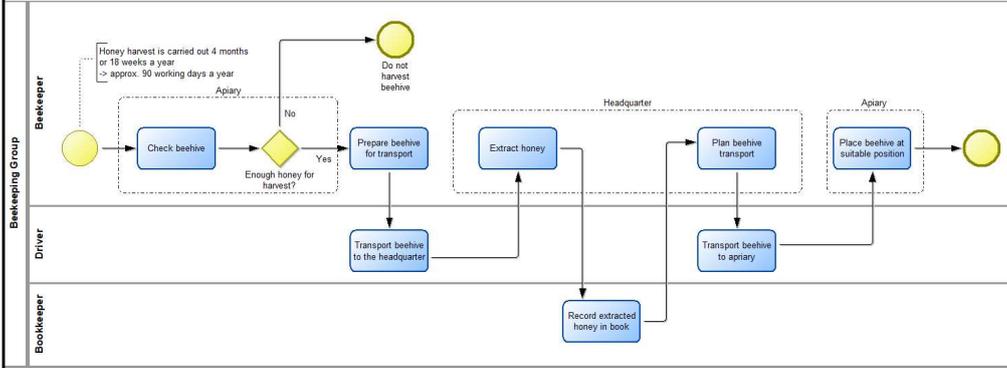
A beekeeper brings his beehives for the honey harvest from the apiary to the headquarters to extract the honey there. This is done in 4 months (or 18 weeks) a year, which corresponds to about 90 working days a year. First, the beekeeper must check the hive on site. Only when enough honey has been collected in the hive for harvesting, it is prepared for transport. Otherwise the beehives are not harvested. As soon as the beehive is ready for transport, it is transported to the headquarters by a driver. In the headquarters the honey is extracted. Afterwards, the extracted honey is recorded in the book by the accounting department, and the transport of the hive is planned. Furthermore, it is transported back to the apiary and placed at a suitable position. The transport is again taken over by a driver hired for this purpose.

- On average, 8 kg of honey is harvested per beehive. Always 5 beehives are transported at once.
- How much working time is needed on average to harvest 1 kg of honey?

Task 1: Model a BPMN model for the text above.

Task 2: Simulate this process to answer the question.

Sample Solution Task 1



Process Times & Probabilities for Task 2

Task	Execution Time	Waiting Time	Resting Time	Transport Time
Check beehive	5 min	0 min	0 min	0 min
Prepare beehive for transport	8 min	0 min	0 min	3 min
Transport beehive to the headquarter	24 min	2 hours divided by 5	0 min	0 min
Extract honey	30 min	5 min	0 min	0 min
Record extracted honey in book	5 min	0 min	0 min	0 min
Plan beehive transport	7 min	0 min	0 min	2 min
Transport beehive to apriary	24 min	0 min	0 min	0 min
Place beehive hat suitable position	8 min	0 min	0 min	0 min

Probability there is enough honey for harvest: 50 %

Live-Simulation

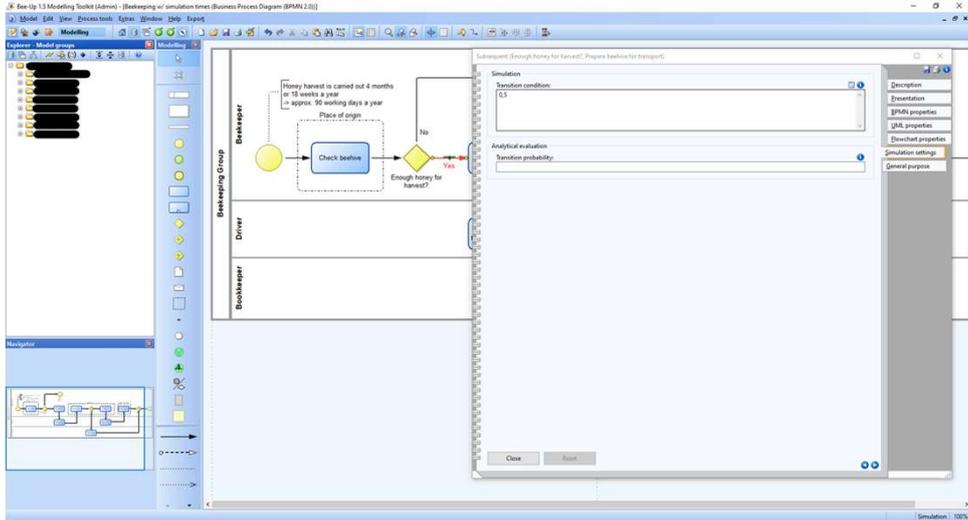
Times & Cost for Tasks

The screenshot displays the OMILAB software interface. On the left, a tree view shows a project structure. The main workspace contains a process diagram with a task named 'Check beehive' (a red rectangle) and a decision diamond labeled 'Enough honey harvest?'. A text box above the task states: 'Honey harvest is carried out 4 months or 18 weeks a year or approx. 30 working days a year'. An arrow labeled 'Apply' points from the text box to the task. The decision diamond has a 'Yes' path leading to the task and a 'No' path leading away. A swimlane on the left is labeled 'Beekeeper' and contains the task and decision. Below the swimlane, the roles 'Driver' and 'Bookkeeper' are listed. A 'Navigator' window at the bottom left shows a small overview of the process. A 'Check beehive Task (BPAN)' configuration window is open on the right, showing the following parameters:

Property	Value
Execution time	00:00:00.000
Waiting time	00:00:00.000
Ready time	00:00:00.000
Transport time	00:00:00.000
Costs	0.00

The configuration window also includes tabs for Description, Task type, Task properties, Loop properties, Time/ Costs, Additional properties, RACI properties, Simulation settings, Simulation results, RQE properties, and General purpose.

Probabilities for Gateways



Path Analysis Settings

The screenshot displays the OMStudio interface with a BPMN 2.0 diagram for a beehive management process. The diagram is divided into three swimlanes: Beekeeper, Driver, and Bookkeeper. Key activities include 'Check beehive', 'Prepare beehive for transport', 'Extract honey', 'Plan beehive transport', 'Transport beehive to apiary', and 'Place beehive at suitable position'. A decision diamond asks 'Enough honey for harvest?'. A 'Simulation - Path analysis' dialog box is open, showing the following settings:

- Numbers:
 - Number of simulations: 4
 - Working days per year: 90
 - Hours per working day: 6.0
- Settings:
 - Input parameters: Standard
 - Agents: Agents...
- Passive components:
 - Program calls: Deterministic simulation
 - Start value: 1
 - Log file: None
 - Short: Disabled
 - File name: [empty]

Numbered annotations in the image: 1 points to the 'Simulation' menu, 2 points to the 'Simulation' button in the toolbar, and 3 points to the 'Simulation - Path analysis' dialog box.

Result Path 1

The screenshot displays a simulation software window titled 'Beekeeping' with a BPMN diagram and two result windows.

BPMN Diagram:

- Start Event:** A yellow circle representing the start of the process.
- Task:** 'Check beehive'.
- Decision:** 'Enough honey for harvest?'. A note above it states: 'Honey harvest is carried out 4 months or 18 weeks a year -> approx. 30 working days a year'.
 - Yes:** Leads to 'Prepare beehive for transport'.
 - No:** Leads to 'Do not harvest beehive'.
- Task:** 'Transport beehive to the headquarter'.
- Task:** 'Extract honey' (located in a 'Headquarter' pool).
- Task:** 'Record extracted honey in book'.
- Task:** 'Transport beehive to place of origin'.
- Task:** 'Plan beehive transport'.
- Task:** 'Place beehive at suitable position' (located in an 'Apiary' pool).
- End Event:** A yellow circle representing the end of the process.

Path analysis - Results: Path 1:

```

Path analysis - Results: Path 1
-----
Process: Beekeeping of simulation times
Path 1
-----
Number of simulations: 10000
Spot criterion: Probability
Probability: 10.000%
Execution time: 00:00:01:01:00
Waiting time: 00:00:00:00:00
Planning time: 00:00:00:00:00
Transport time: 00:00:00:00:00
Cycle time: 00:00:02:01:00
Costs: 0.000000

Beekeeping of simulation times (Business Process Diagram (BPMN) 2.0)
-----
Start Event (SPAR): Start Event (SPAR): 17:00
Task (SPAR): Check beehive
Exclusive Gateway (SPAR): Enough honey for harvest? -->
C1
Task (SPAR): Prepare beehive for transport
Task (SPAR): Transport beehive to the headquarter
Task (SPAR): Extract honey
Task (SPAR): Record extracted honey in book
Task (SPAR): Plan beehive transport
Task (SPAR): Transport beehive to place of origin
Task (SPAR): Place beehive at suitable position
End Event (SPAR): End Event (SPAR): 17:00
    
```

Path analysis - Dynamic model: Beekeeping of simulation times:

Path specific

Criterion (descending order):

Probability

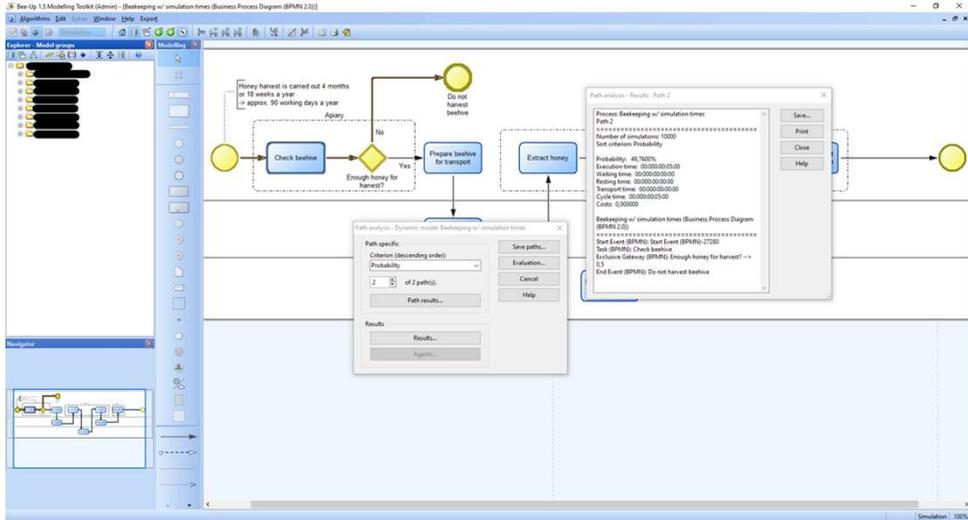
1 of 2 paths:

Path results:

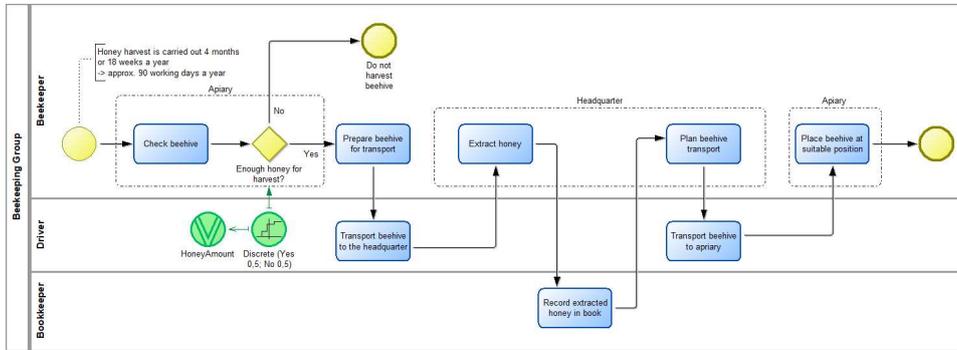
Results:

Save paths... Evaluation... Cancel Help

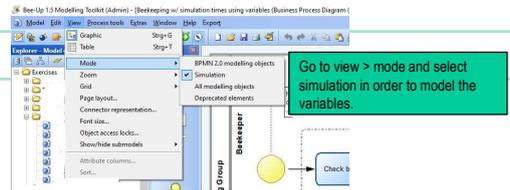
Result Path 2



Simulation Using Variables



Task 3: Try this on your own.



Solution Simulation with Variables

1. Draw the variable and the random generator
2. Double click on the arrow
3. Go to tab „Simulation Settings“
4. Click the small window button
5. Choose the variable
6. Choose the value
7. Add
8. Apply
9. Repeat for all paths

The screenshot illustrates the configuration of a transition condition in a BPMN 2.0 simulation. The main diagram shows a process starting with a 'Check beehive' activity, leading to a decision diamond 'Enough honey for harvest?'. The 'Yes' path leads to a 'Result' output, while the 'No' path leads to a 'Subsequent (Enough honey for harvest?, Do not harvest beehive)' activity. The 'Simulation Settings' window is open for the 'Subsequent' activity, showing the 'Transition condition' tab. A green arrow points from the 'Transition condition' window to the 'Result' output. Red boxes and numbers 5, 6, 7, and 8 highlight the steps of selecting the variable 'HoneyAmount', choosing the value 'No', clicking 'Add', and clicking 'Apply'.