The "IMKER" case study uses the domain of bee-keeping to provide students with a setting for the design of different system aspects through modeling with the bee-up tool. Various modeling languages for different views on the system, like data, processes or IT, can be employed in this setting. Additionally the setting can be used for the application of models together with different environments, which can include objects like robotic arms or aerial drones.

bee-up is a tool realized using a meta-modeling approach, which integrates and extends several modeling languages that gained wide popularity in the community within one overarching, hybrid meta-model. It does not enforce a specific procedure when solving a problem. Instead it provides various functionalities for utilizing models. In addition different types of models are available, which can be employed according to the requirements of the task at hand.

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**Annotate**

Annotate text to extract relevant information as a preparation for modeling.

**Use**

- Simulate: BPMN
- Generate: SQL
- Semantic Transform: RDF

Use models with functionalities, like simulation or RDF export, to gain value.

**Apply**

Apply modeled scenarios with other environments, like cyber-physical systems.

**Extend**

- e.g. ADOxx speech
- Extend available functionality through open interfaces, web- or micro-services etc.

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