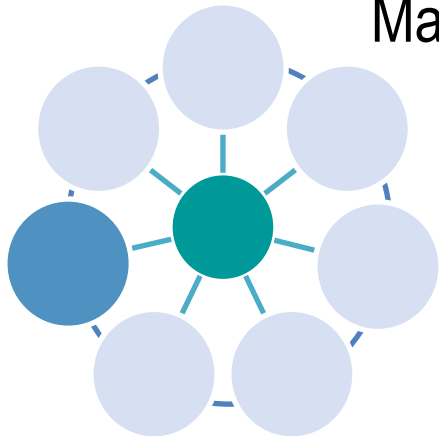




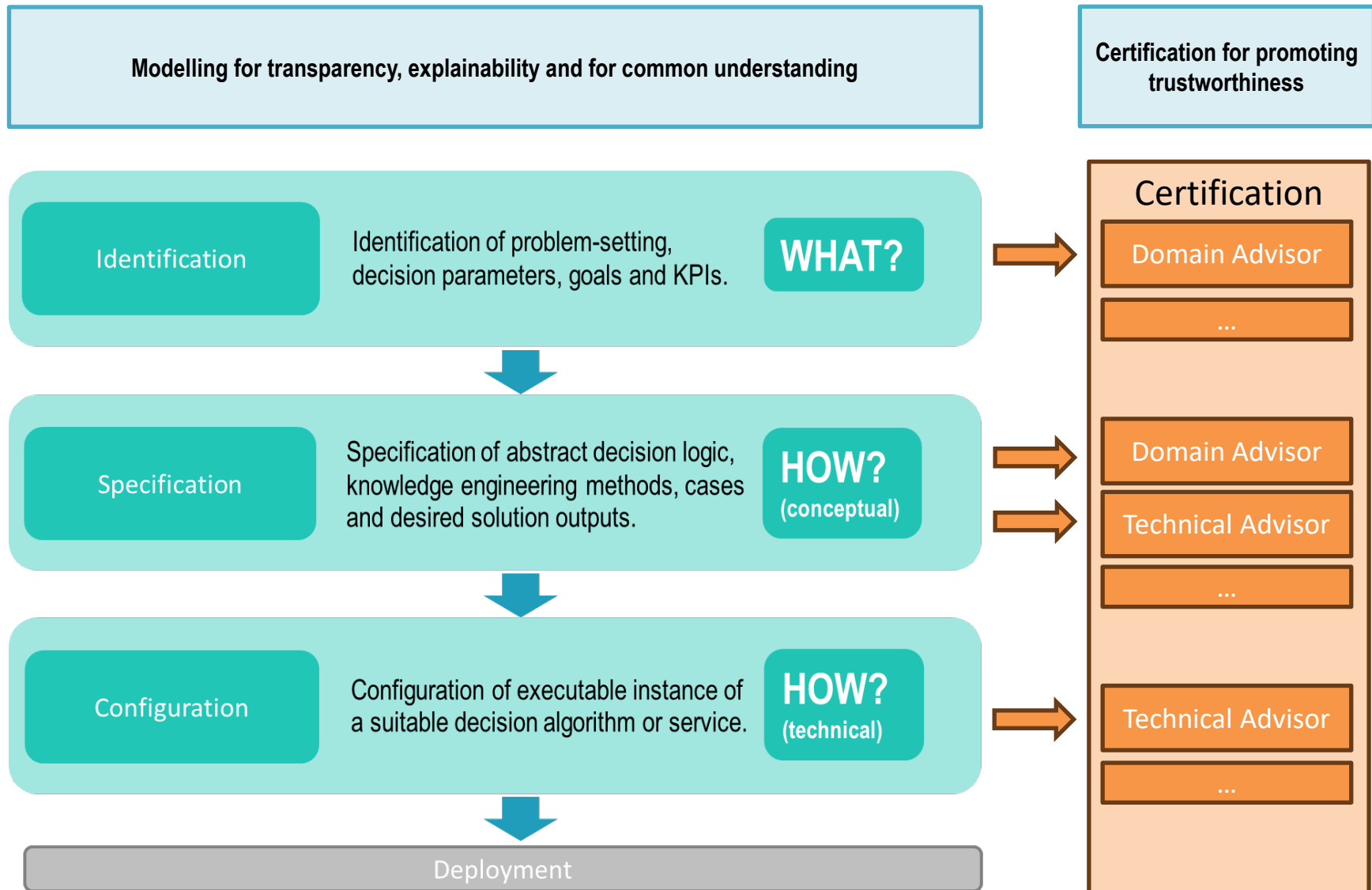
RT 6: Model-based Knowledge Engineering for Decision Support

Lead: BOC / OMiLAB

Marlene Mayr (BOC) & Christian Muck (OMiLAB)

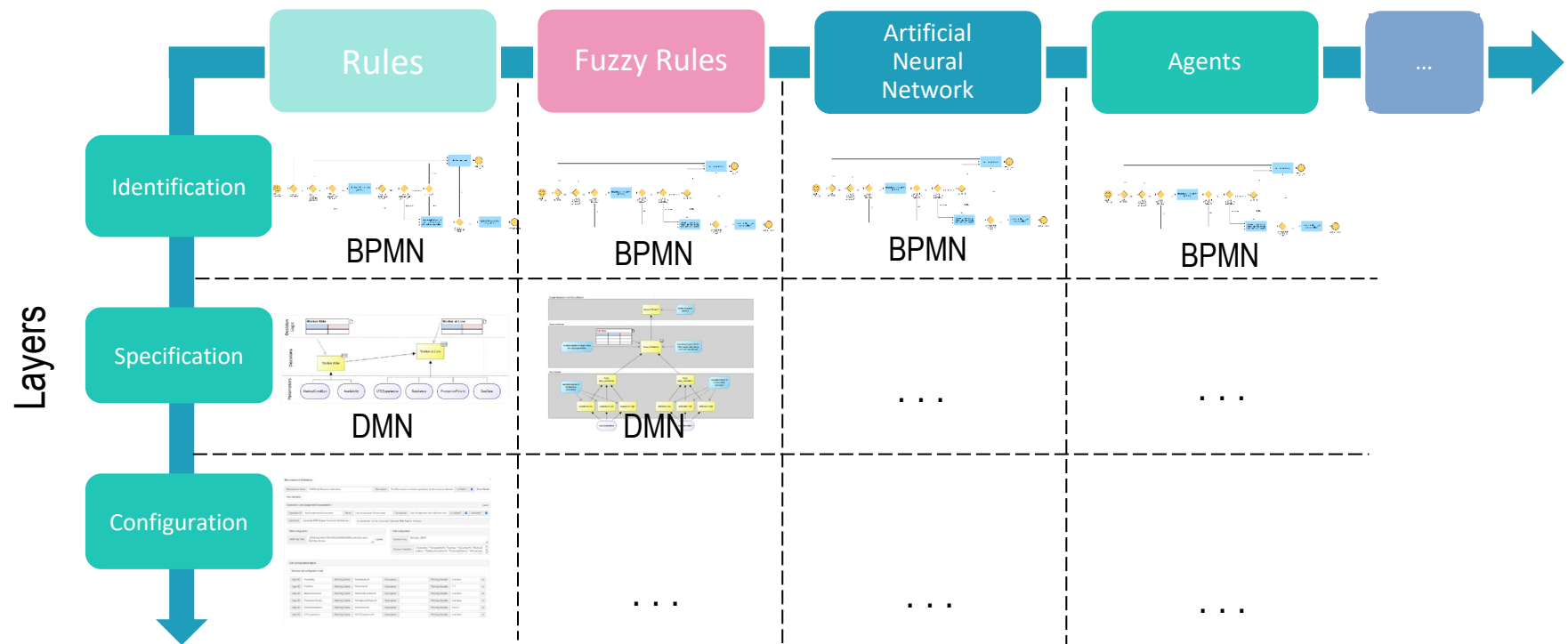


Methodology: Modelling for AI in FAIRWork



Method applied to Workload Balance Scenario and outlook

Applied Algorithms and potential further Approaches



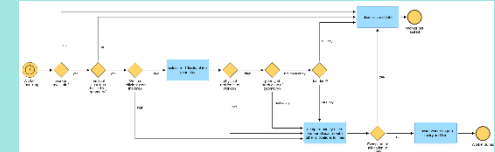
Goal is to decrease the semantic gap between the problem setting and the executable AI solution and to identify a meta-model for the methodology

→ Bottom-up approach

EXAMPLE: Fuzzy Logic

Identification

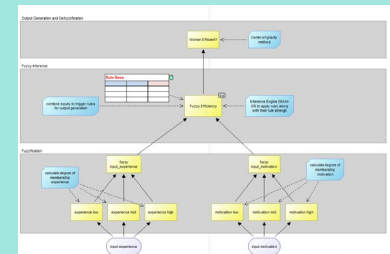
Using Scene2Model and BPMN to define the worker allocation scenario and the corresponding decision processes.



BPMN model describing the identified parameters

Specification

Selection of fuzzy rule-based approach, definition of a DMN model and abstract decision logic.



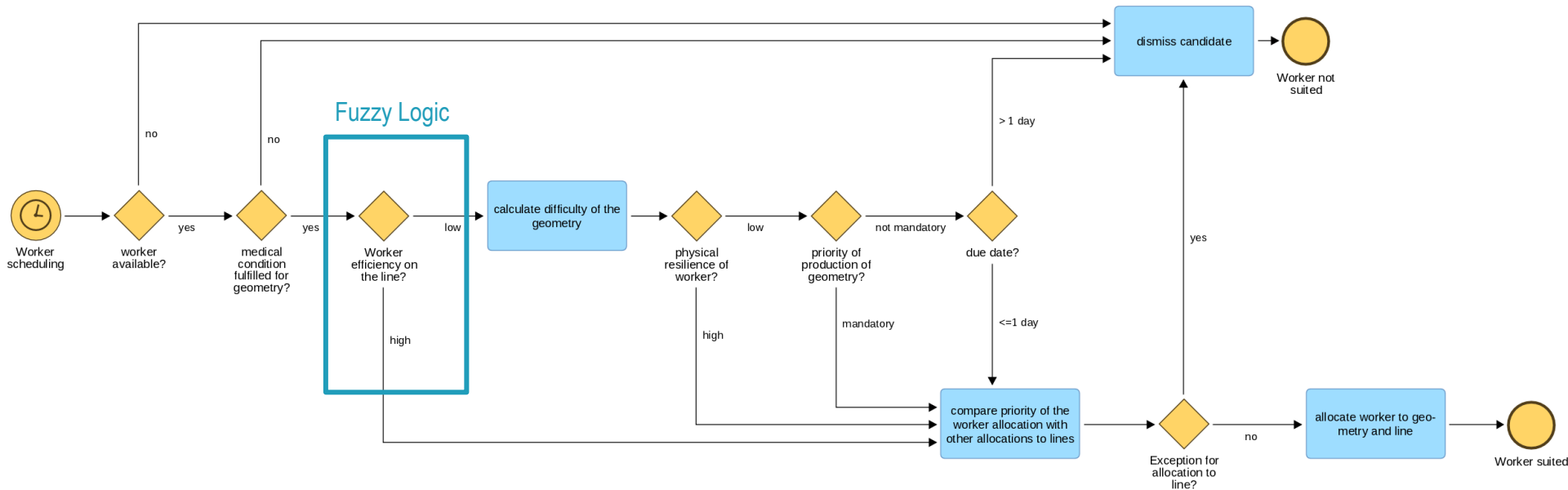
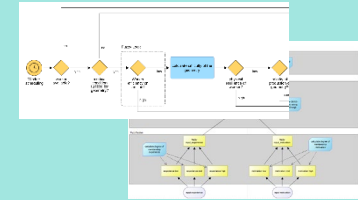
DMN model describing parameters and decision logic

Configuration

Deployment

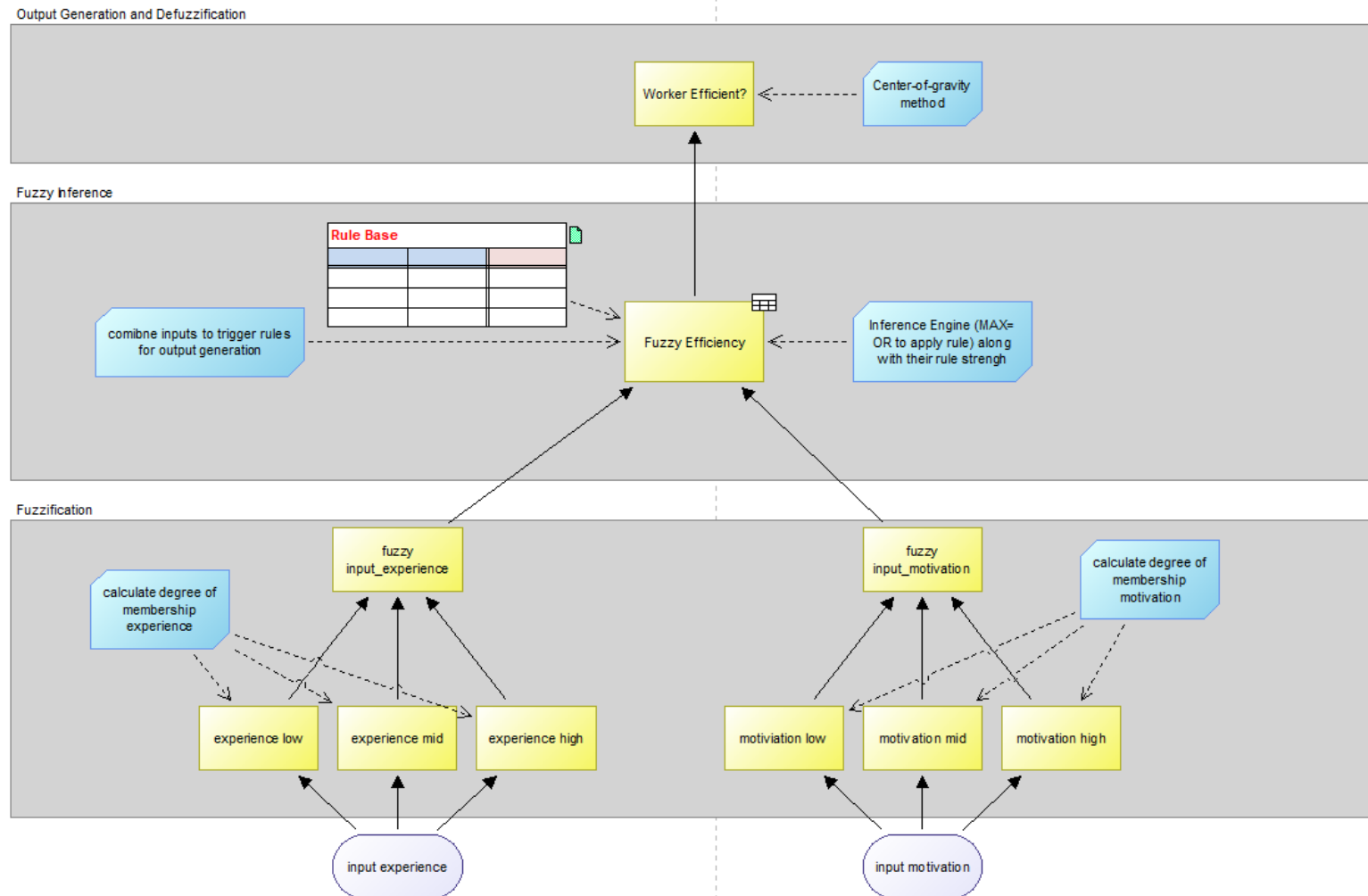
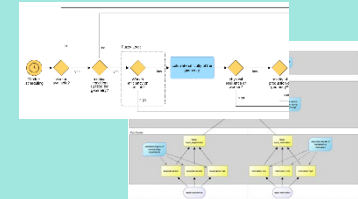
Specification

1. Selection of fuzzy rule-based approach
2. Definition of abstract decision logic



Specification

1. Selection of fuzzy rule-based approach
2. Definition of abstract decision logic



DEMO – Model Certification

The screenshot shows a web browser window with the address bar displaying `127.0.0.1:8080/model-signature/`. The page title is "Model Signature Services". Below the title, a paragraph states: "This service allow to sign and visualize all the users that signed an ADOxx model." This is followed by a "Requirements:" section with a bulleted list of prerequisites, including the Olive Microservice Controller, ADOxx SOAP service, MySQL, and LDAP. A "Notes:" section follows, mentioning default users and passwords. At the bottom, there is a "Model Signature" section with a form. The form includes a dropdown menu labeled "Select the ADOxx model to load:" with the placeholder "--Select a model--", and four buttons: "Load ADOxx Model", "Load External Model", "Sign", and "Verify". The browser's taskbar at the bottom shows various icons and the system clock indicating 14:07 on 28.03.2024.

Model Signature Services

This service allow to sign and visualize all the users that signed an ADOxx model.

Requirements:

- The Olive Microservice Controller reachable at `http://127.0.0.1:8080/micro-service-controller-rest/` including the microservice with id `b64d00b4-b480-45cd-bd51-515494625682`
- The ADOxx SOAP service active on localhost port 80 (`CC "AdoScript" SERVICE start port:80`)
- MySQL running on localhost port 3306 with user "root" and password "password" loaded with DB under `CONFIG/DB/model_questionnaire.sql`
- LDAP running on localhost port 10389 loaded with config under `CONFIG/LDAP/user_ldap_schema.ldif`

Notes:

- The following users are available by default: `model_owner`, `technical_advisor` and `domain_advisor`. Default password is 'password'.

Model Signature

Select the ADOxx model to load: --Select a model--

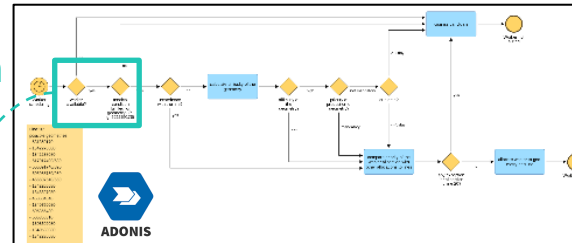
Load ADOxx Model Load External Model Sign Verify

Conceptual Modelling for Knowledge-based Decision Support

Identification

omission
criteria

6 Decisions

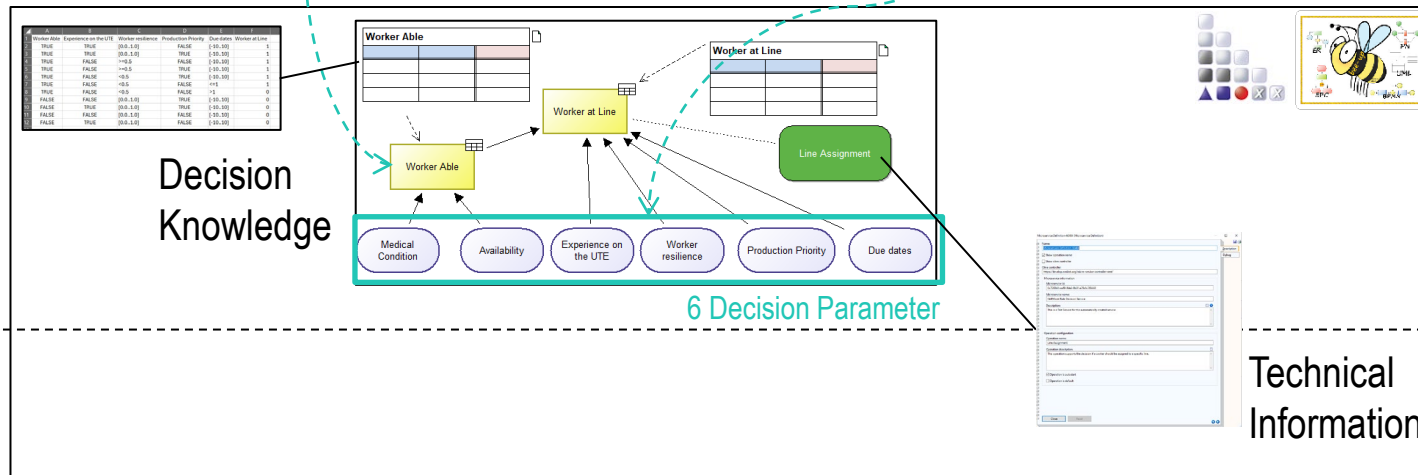


Specification

Decision
Knowledge

6 Decision Parameter

Technical
Information



Configuration

Olive Controller

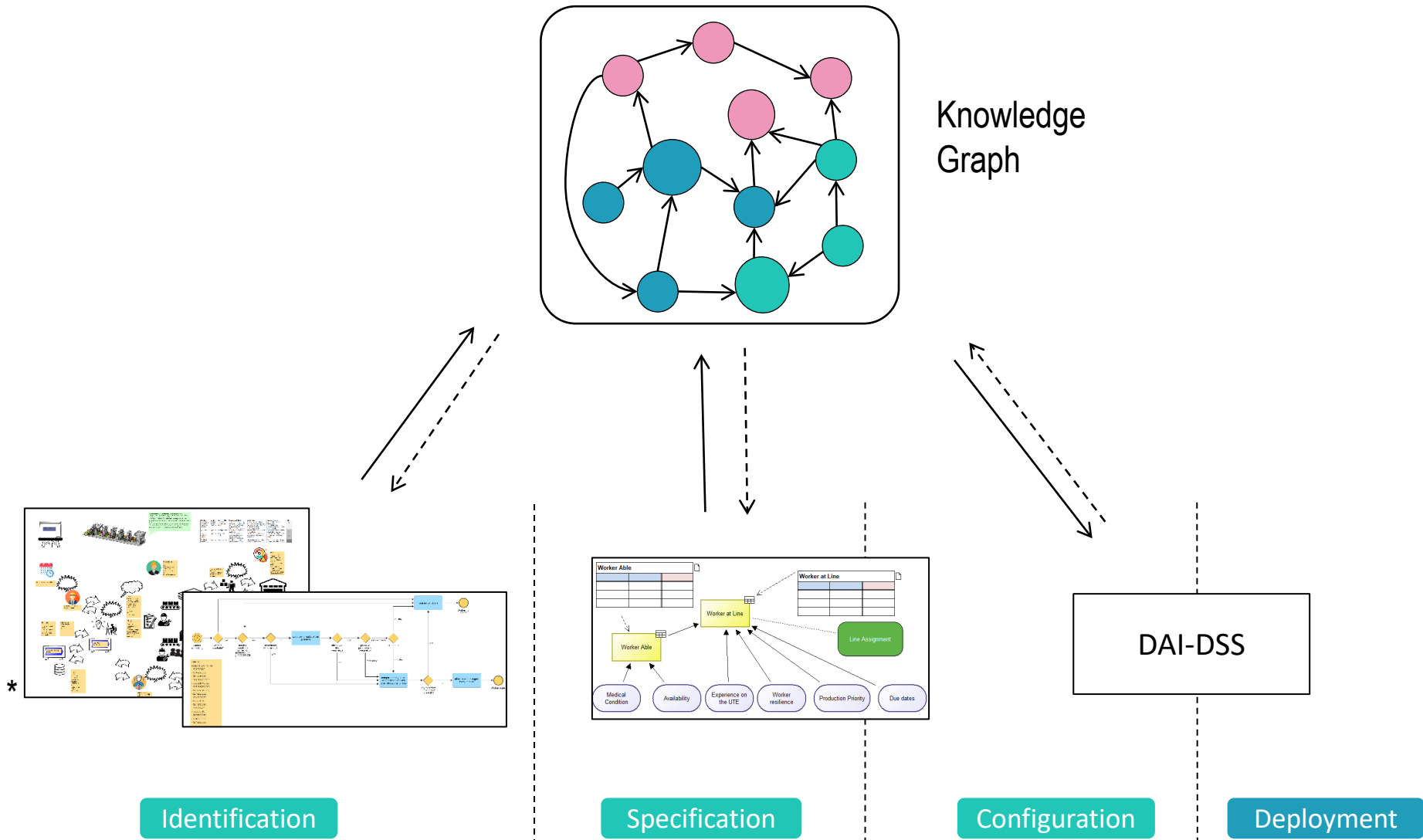
Rule-based Decision
Service

REST Endpoint



Deployment

Support the Model-based Decision Support Design



Next Steps:

Model-based Knowledge Engineering for Decision Support

- Use additional AI algorithms (focus data-driven)
- Identify relevant aspects for common metamodel
- Support the model-based decision support design