aposdle
learn @ work

Modelling in APOSDLE

Methodology and Tools

aposdle– New ways ...
... to work, learn and collaborate

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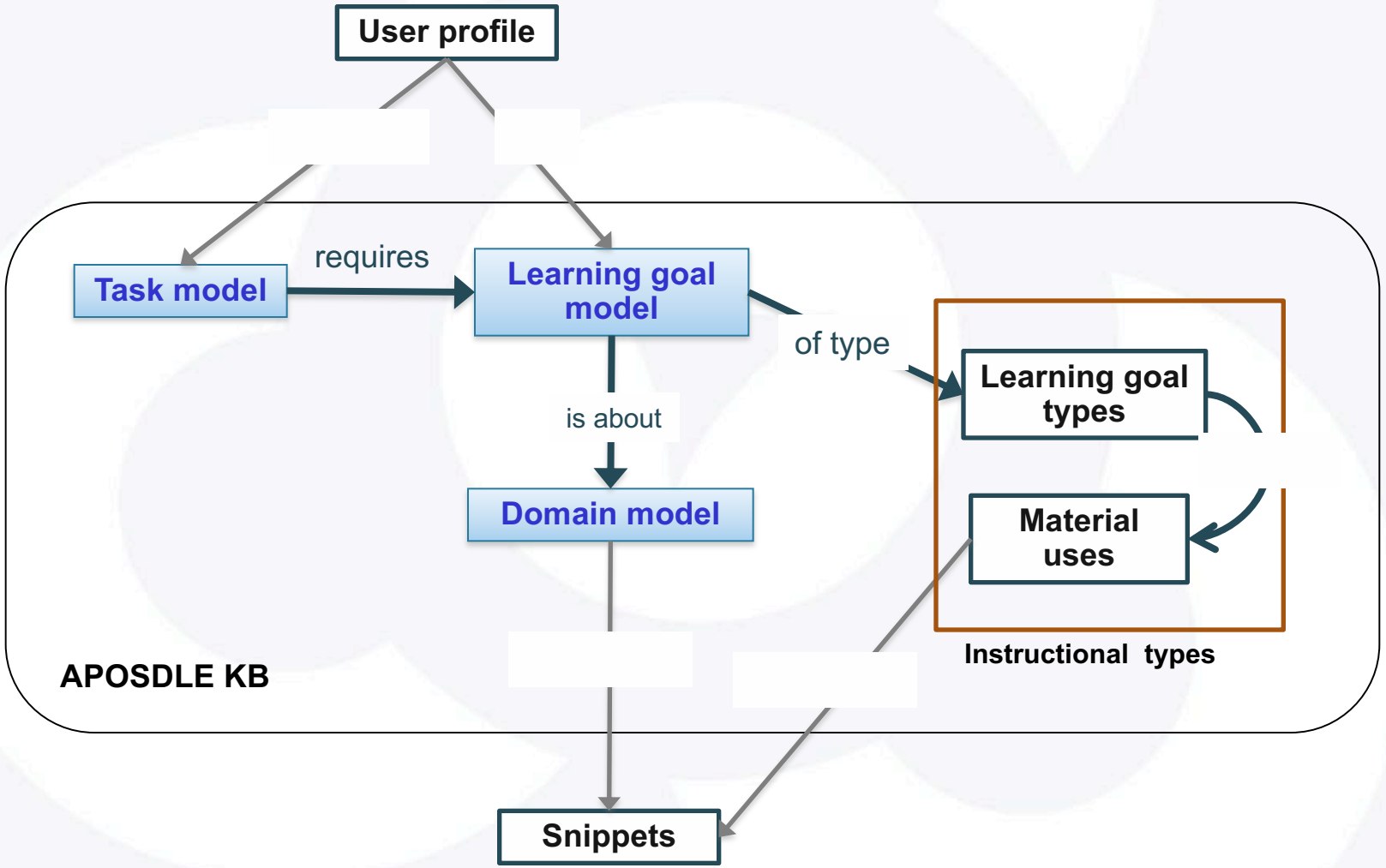
Information Society Technologies

Knowledge in APOSDLE

- The APOSDLE approach to work-integrated learning is based on:
  - a general purpose learning platfrom +
  - a knowledge base.
- The knowledge base formalises the environment in which users operate:
  - their learning (business) domain;
  - the tasks (activities) they should perform;
  - their learning goals;

[See definition of Enterprise Model in Fox, M.S., Gruninger, M.: Enterprise modeling. AI Magazine 19(3) (1998) 109–121]

The APOSDLE Knowledge Base



The problem of modelling

- The core part of the KB is domain dependent but models are often not available in the enterprise;
- Conflicting requirements:
  - Quality of models vs cost of modeling
- Complex modeling team:
  - Several domain experts (domain/task/learning goals/…);
  - Knowledge engineers;
  - Different knowledge engineering skills;
- GOAL: Devise a "methodology" and tools to support:
  - Cost effective development of good integrated models;
  - Effective collaboration between different actors;
  - Right granularity for APOSDLE;

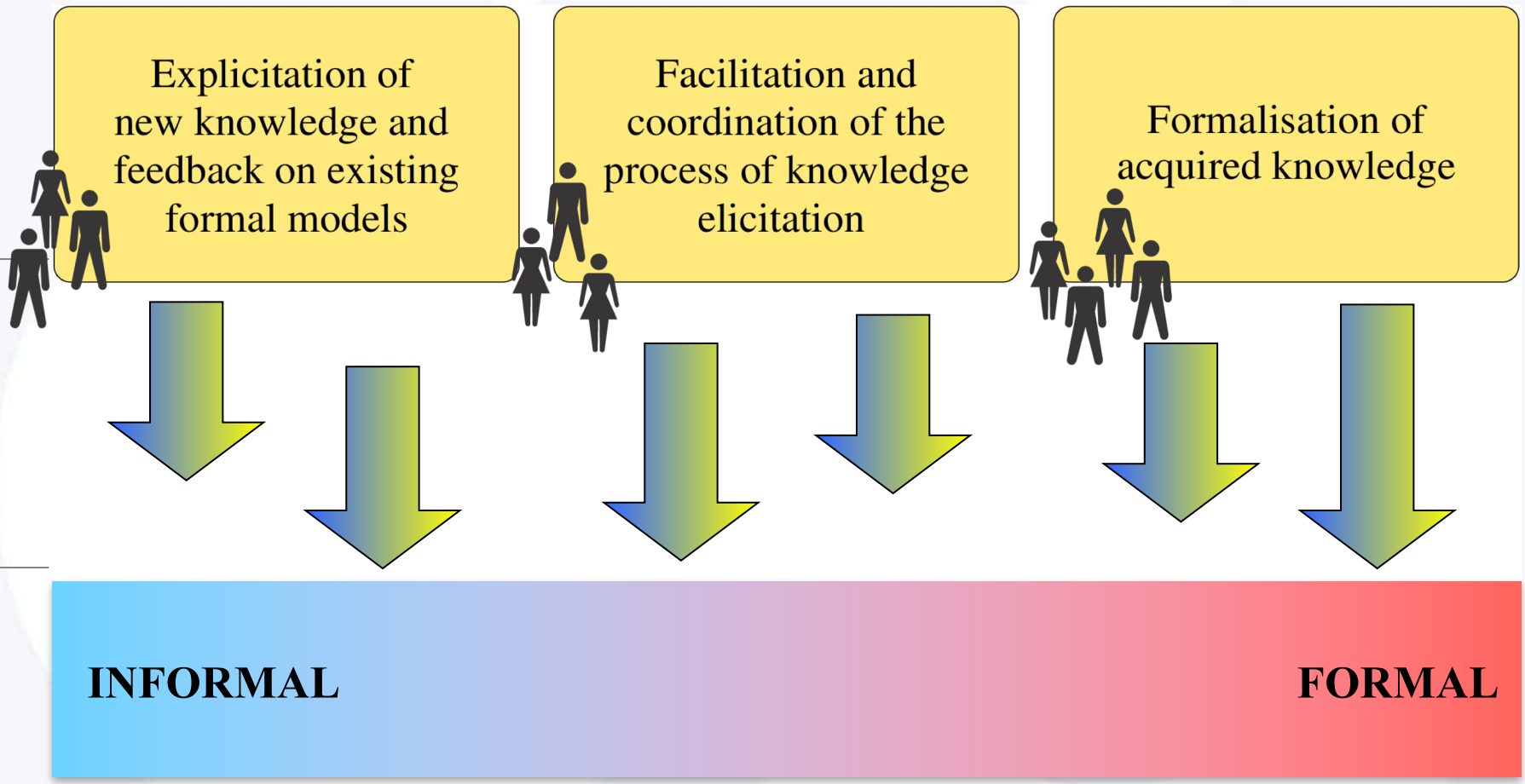
Our approach

- A methodology to guide the applications partners in the construction of a good integrated model:
  1. domain and task modelling;
  2. learning goal modelling.
- A new tool to support modelling based on two pillars:
  1. Semantic MediaWiki

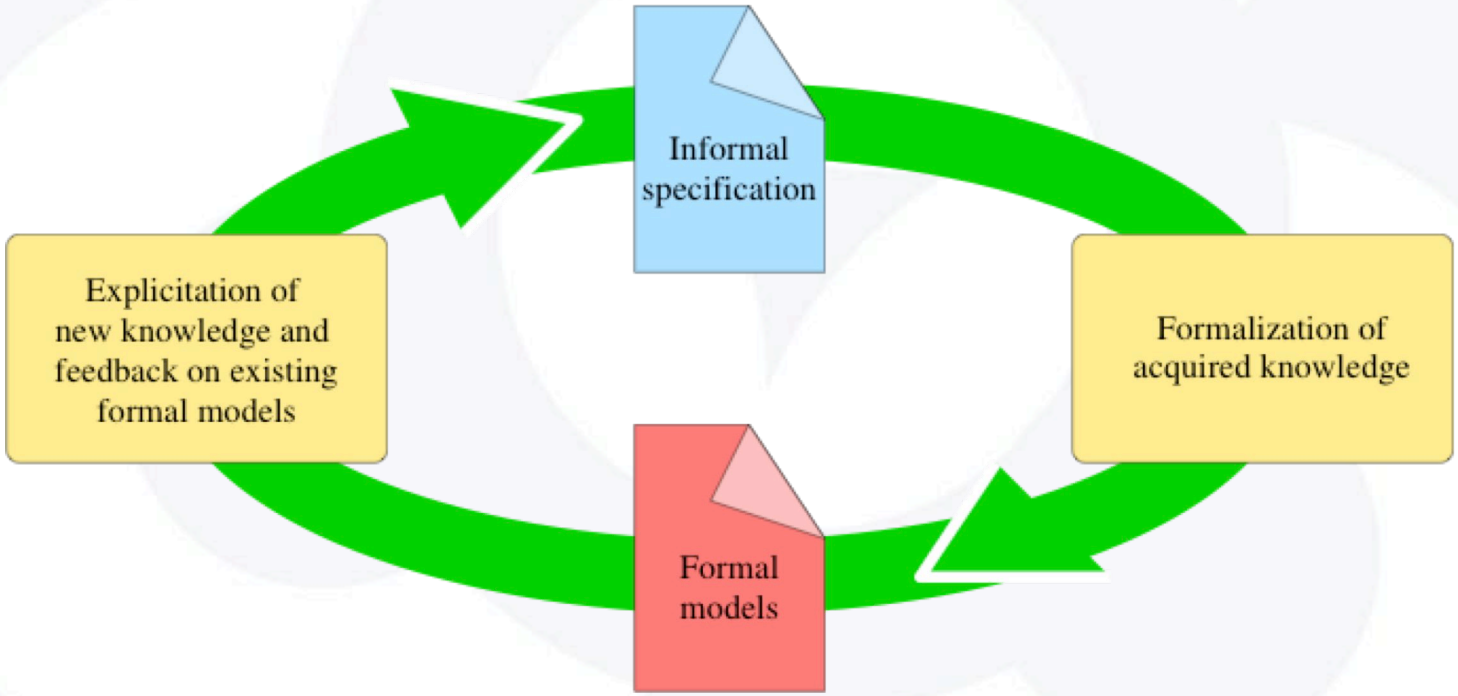
     → Collaborative (enterprise) modelling
  2. Tight integration between informal and formal modelling

     → Informal/formal alignment of knowledge

Collaborative modelling



Alignment of informal/formal knowledge



The APOSDLE methodology

Steps	Tools
1. Scope & Boundaries and Resources Collection	Written guidelines
2. Knowledge elicitation a) Domain Experts b) Digital Resources	Knowledge elicitation techniques KnowMiner
3. Creation of domain model **Requires knowledge of** task model	**Mo**delling Wi**Ki** tool
4. Domain and Task Model Validation	Manual Guidelines Automatic Checks
5. Modelling of learning goals	**TACT** tool
6. Validation of learning goal model	Automatic checks

Automatic Alignment

MoKi: the Modelling wiKi

- Built to support our approach:
  - Collaborative modelling;
  - Informal/formal alignment of Knowledge.
- Built on top of Semantic MediaWiKi;
- Why a (semantic) wiki?
  - wikis support collaborative editing;
  - users are quite familiar with wikis;
  - wikis do not require any software installation on the client side;
  - Semantic information provided in the wiki can be automatically extracted to create the formal models.

Ideas behind MoKi

- Facilitate an informal but structured description via templates;
- Hides the complexity of formal modelling to domain experts;
- Allow import/export of formal models;
- Insert/reuse of already existing techniques for modelling (e.g., Know miner).

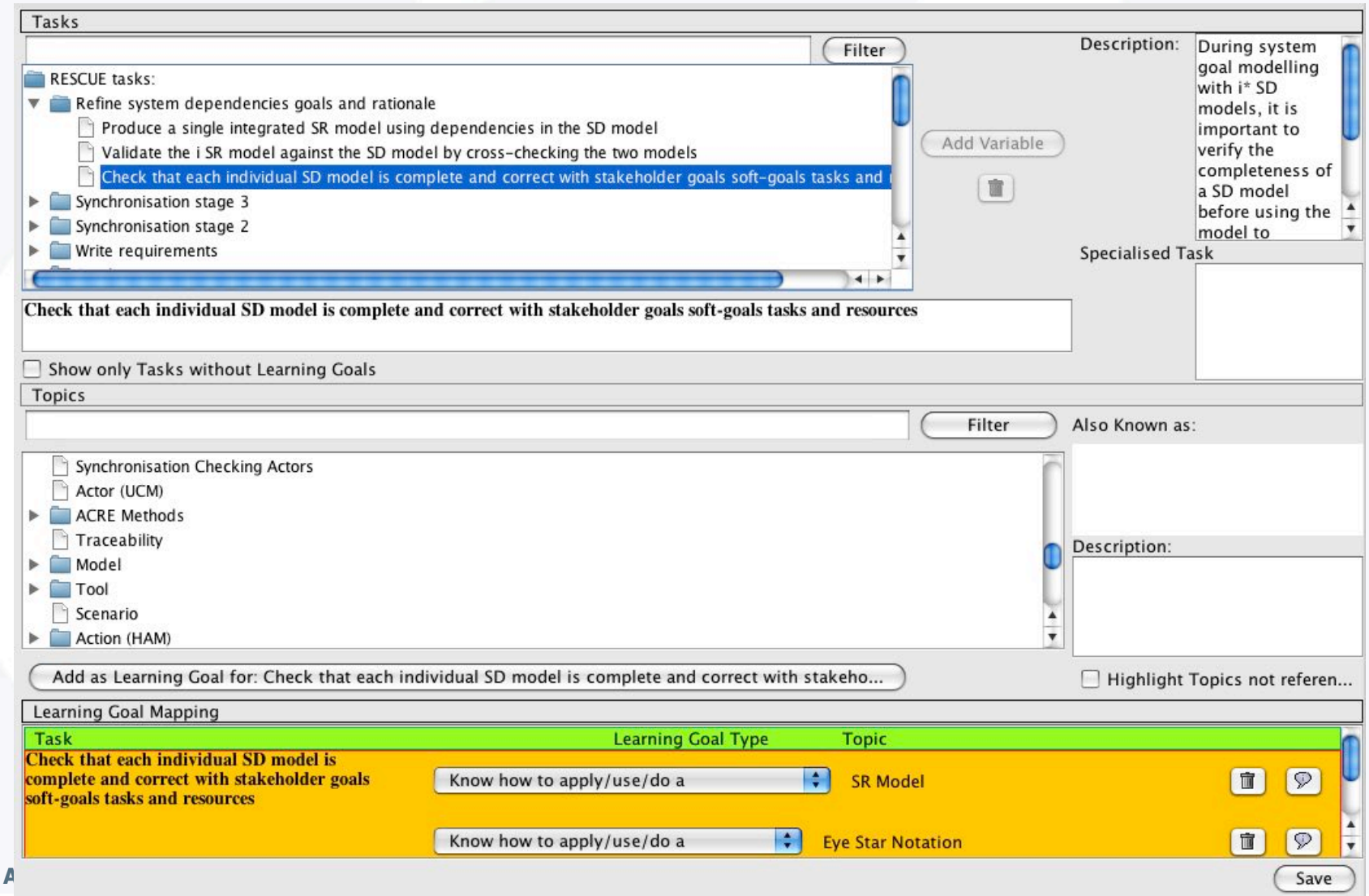
- DEMO.

TACT: the Task-Competence mapping Tool

- Model learning goals as a bridge between tasks and topics (domain concepts);
- Refines the "Knowledge required" relation between tasks and topics contained in MoKi with learning goal types;
- Friendly user interface which hides how the learning goals are actually stored in the learning goal ontology.

- Plans to insert TACT in MoKi to have a single interface/tool.

TACT: Task-Competence mapping Tool



Modelling in APOSDLE

- Currently devising models for Third prototype:
  - Information and Consulting on Industrial Property Rights
    - Tasks: 13. Domain Concepts: 94. Learning Goals: 291
  - Information Technology Infrastructure Library (IT management topics)
    - No Tasks. Domain Concepts: 100.
  - Electromagnetism simulation domain
    - Tasks: 47. Domain Concepts: 115. Learning Goals: 59
  - Innovation Management
    - Tasks: 141. Domain Concepts: 133. Learning Goals: 248
  - RESCUE (requirement engineering methodology)
    - Tasks: 77. Domain Concepts: 78. Learning Goals: 103
  - Statistical data analysis domain:
    - Tasks: 19. Domain Concepts: 71.

Things we are working on…

Extend MoKi to:

- Model ontology main elements;
- Model workflow and process aspects (eg with graphical tools);
- Better integrate informal/formal modelling;
- Include validation steps;
- Include TACT.