



Personalized Web Learning: Merging Open Educational Resources into Adaptive Courses for Higher Education

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Problems of MOOCs



- High number of participants, but also high number of dropouts, 90%
 - Rigidity of MOOC learning: „One-size-fits-them-all“
 - Different learning goals inadequately known and taken care of
 - How can we reduce this number of dropouts ?
 - still, 10% of 28.000 participants is a very large number

- Cost of production rather high
 - 50.000 € or \$ minimum
 - Almost impossible to keep up to date
 - Not adequate for higher education teaching

Small OER



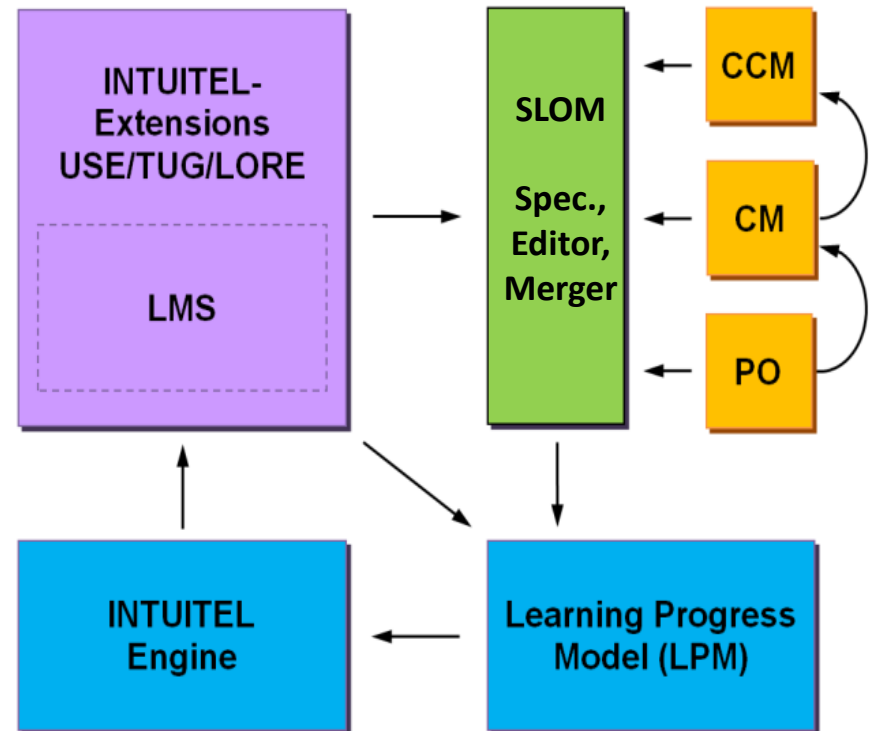
- Small Open Educational Resources on the rise
 - Most of them very small, e.g.
 - short texts with expert content
 - Short videoclips (3-5 min) explaining something
 - Seminar/conference videos

- Can we join these small OER into concise courses offered for free
- Possibility A: Physical merge => lose all advantages
- Possibility B: Website with links => what concept ?
- Possibility C: Join them dynamically according to learner's needs.
 - Extend Learning Management Systems LMS

INTUITEL System - Software



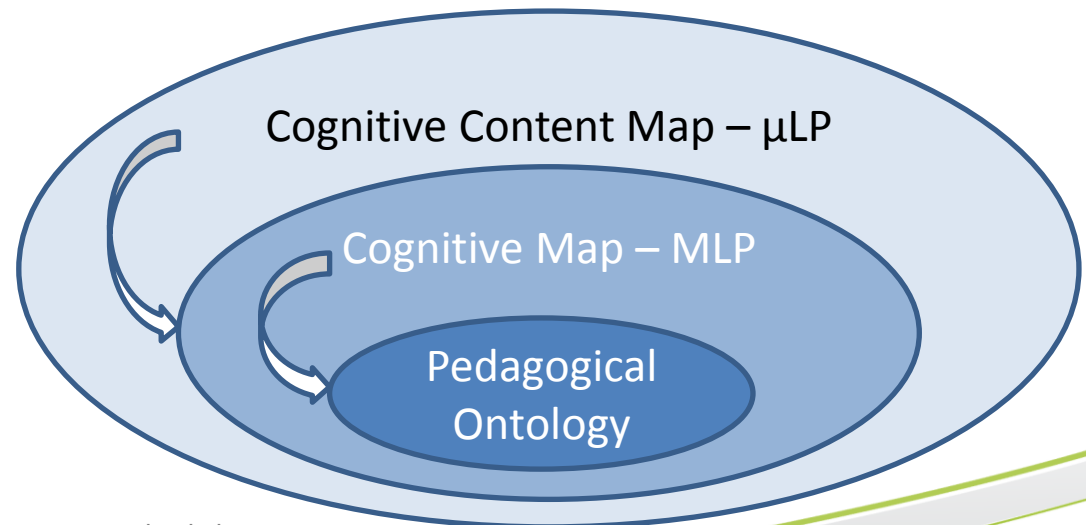
- EU Project
<http://www.intuitel.eu>
 - 12 partners
- Extend 5 market relevant LMS (ILIAs, Moodle, Clix, eXact, Crayons)
 - Up and running
- New meta data format SLOM
 - Link content which is semantically annotated
- Software will be available also in a royalty-free version



INTUITEL System - Knowledge



- Pedagogical Ontology:
 - Terms and relations from pedagogical science, written as OWL file
- Cognitive Maps:
 - Domain of knowledge, CM are concrete instantiations of the pedagogical ontology.
 - Concept container and macro learning pathways (MLP)
- Cognitive Content Maps:
 - Associate the learning content to the cognitive map
 - Micro learning pathways μ LP



Plus:
Metadata model
Metadata packaging model
Metadata editor/merger/importer

Personalized Web Learning – Example



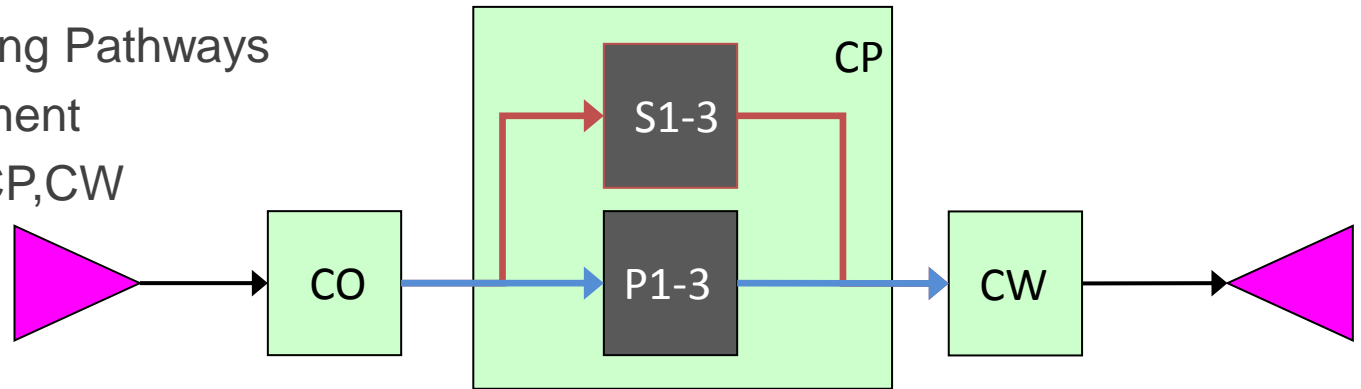
- A series of video clips covering a technical product by their URI
 - Knowledge objects are
 - O = Overview – name, how does this thing look like
 - I1 – I3 = Introduction – what is this thing doing
 - T1 – T3 = Technical details - how does it work inside
 - M1 – M3 = Maintenance work – what to do if detail X is broken
 - S1 – S3 = Sales pitch – how much does it cost to the outside world
 - P1 – P3 = Production pitch – resources needed
 - W1 – W3 = Wrapup – short summary of details
- Concept container
 - CO consisting of O and I1-I3
 - 3 different C2-x consisting of Tx and Mx
 - CP consisting of S1-S3 and P1-P3
 - CX consisting of W1 – W3

Example continued

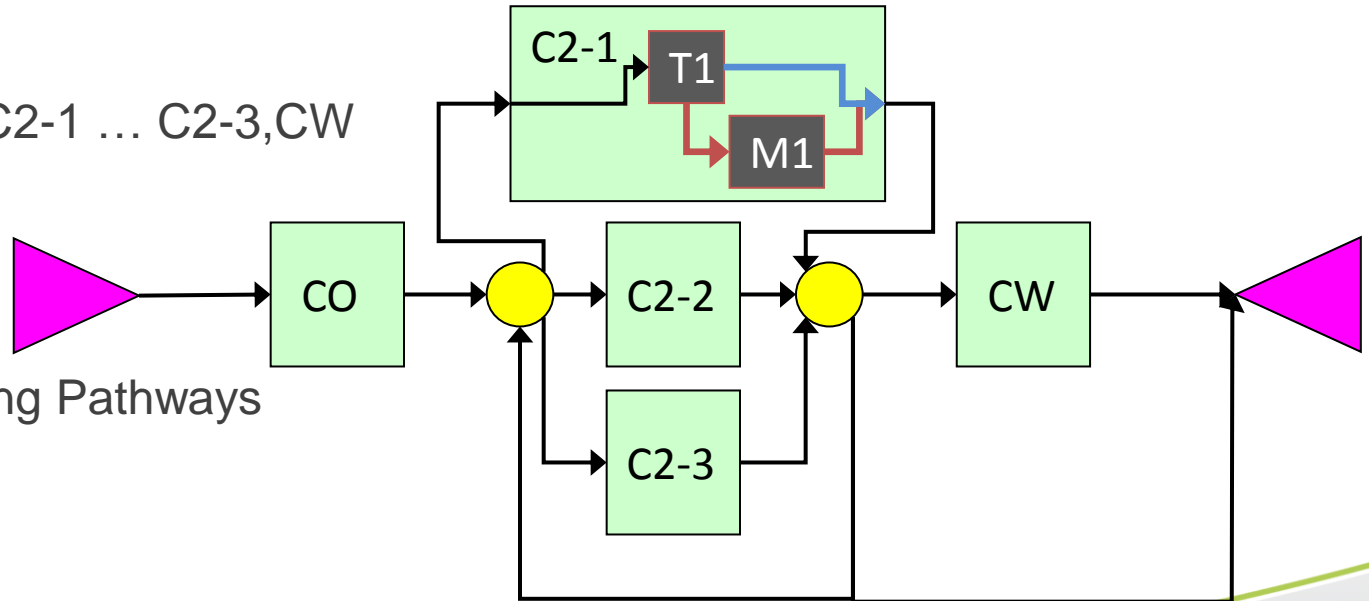


- Makro Learning Pathways

- Management
- CO,CP,CW



- Tech
- CO,C2-1 ... C2-3,CW



- Micro Learning Pathways

- Internal
- External

Wrapup



- Adaptivity according to
 - learner behavior
 - didactical model or company needs
- The small OER are not copied, but only linked
 - May reside anywhere on the internet (also locally)
- Course may be open – or not at all
 - Depends on the intention of the owner of the INTUITEL system
- A certain learning pathway is not enforced
 - Freedom of choice maintained
 - Cognitive decision of learner needed

Project State



- Overview video available
 - <https://www.youtube.com/watch?v=GbWBJmCFXtw>

- Interfaces available
 - For Download and installation in ILIAS and Moodle
 - Tech spec for other implementations
 - Ontologies available for download

- Proof of recommendation concept in April
 - <https://www.youtube.com/watch?v=hisDyDFpVM0>

- INTUITEL Backend in testing
 - 3 months ahead of schedule

- INTUITEL Tool Suite in testing
 - In schedule

INTUITEL Partners



Hochschule Karlsruhe
Technik und Wirtschaft
UNIVERSITY OF APPLIED SCIENCES



University of
Reading



Fraunhofer

IOSB

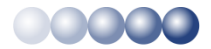
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