

LoExtractor - Rapid Authoring Tool to Support Workflow-Embedded Authoring

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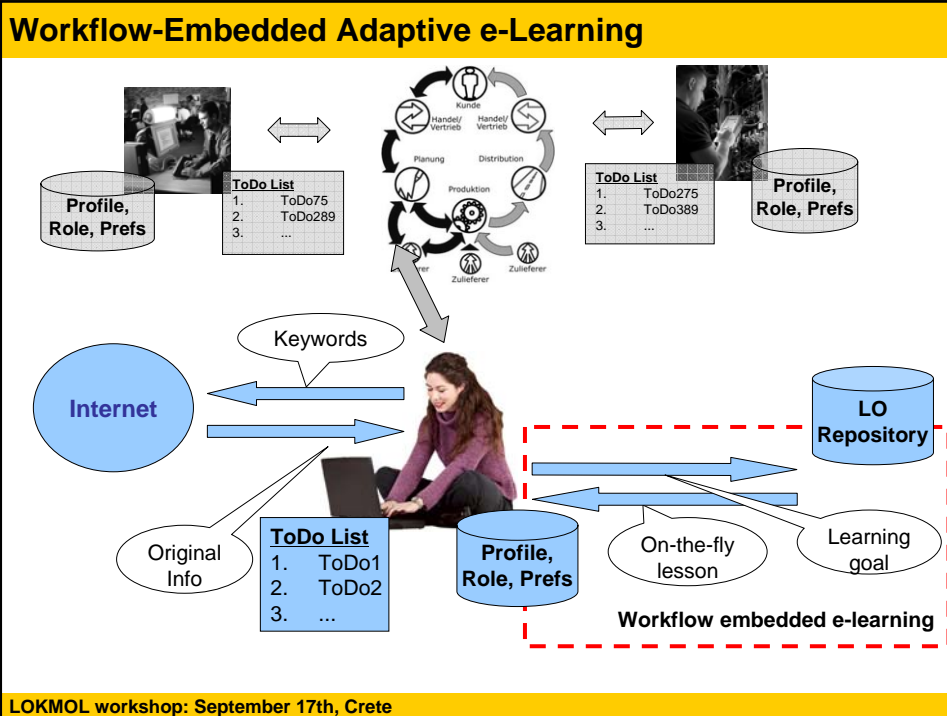
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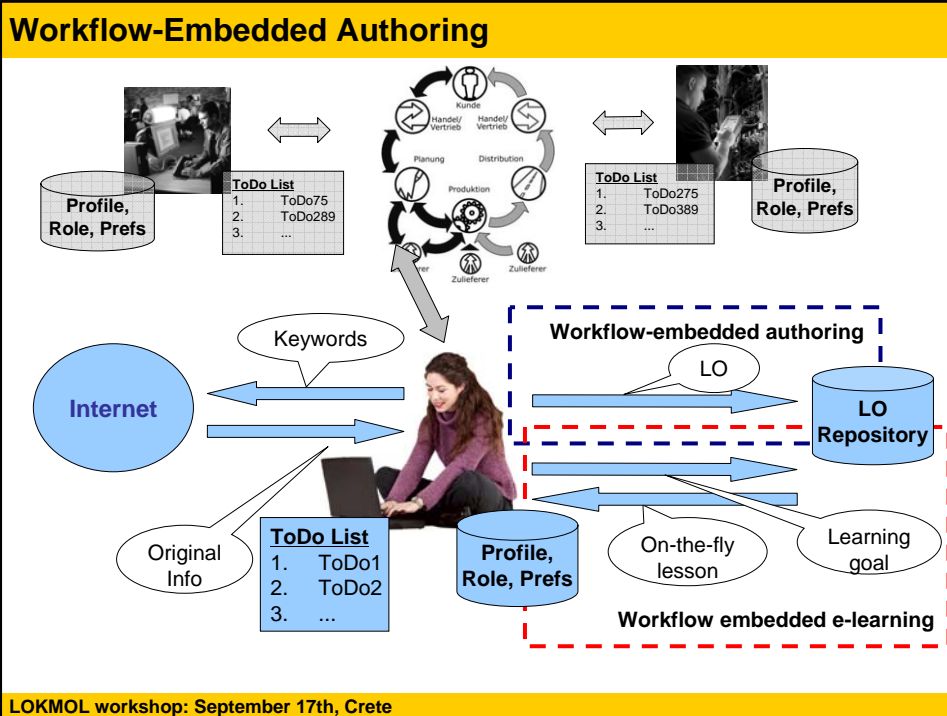
Outline

- Problem setting
- Workflow embedded authoring
- Requirements to the authoring process
- SLEAM authoring process
- LoExtractor authoring tool
- Identified problems
- Next steps
- Conclusion

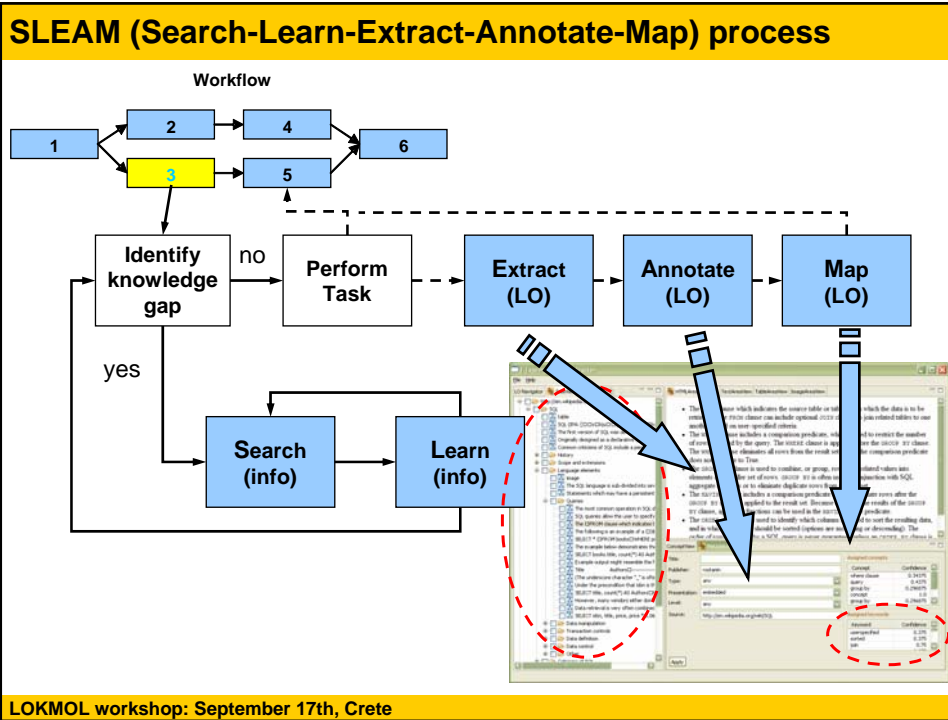
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- ### Problem setting
- Introduce process embedded e-learning in a small company or a team:
 - No learning content available
 - No budget available for creating content
 - No employees who can devote their time fully to content creation
 - Employees and managers have prejudices about e-learning of any kind
 - **BUT:**
 - Employees still spend their time to find necessary information in internet or DMS
 - Search results remain on local computers, bookmark lists and are not shared
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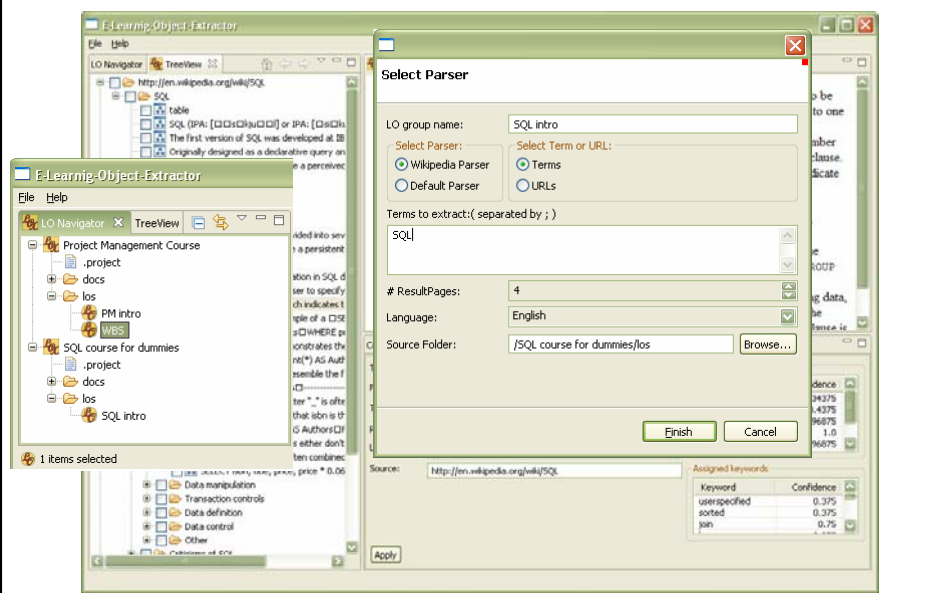


- ## Requirements to the authoring process
- Shall be embedded into the working process
 - Shall reuse existing learning content rather than create new one
 - From wikis and blogs
 - From company DMS
 - From internet or intranet
 - Results of the authoring process
 - Trade off "Quality/Time spent" should be considered
 - Shall be fine-granular reusable LOs rather than courses
 - Not the whole documents but their parts shall be extracted as LOs
 - Shall be annotated with minimal set of metadata (author, type and keywords) to support adaptive learning
 - Shall be mapped to the learning concept ontology (or concept map) to get computer-understandable semantics
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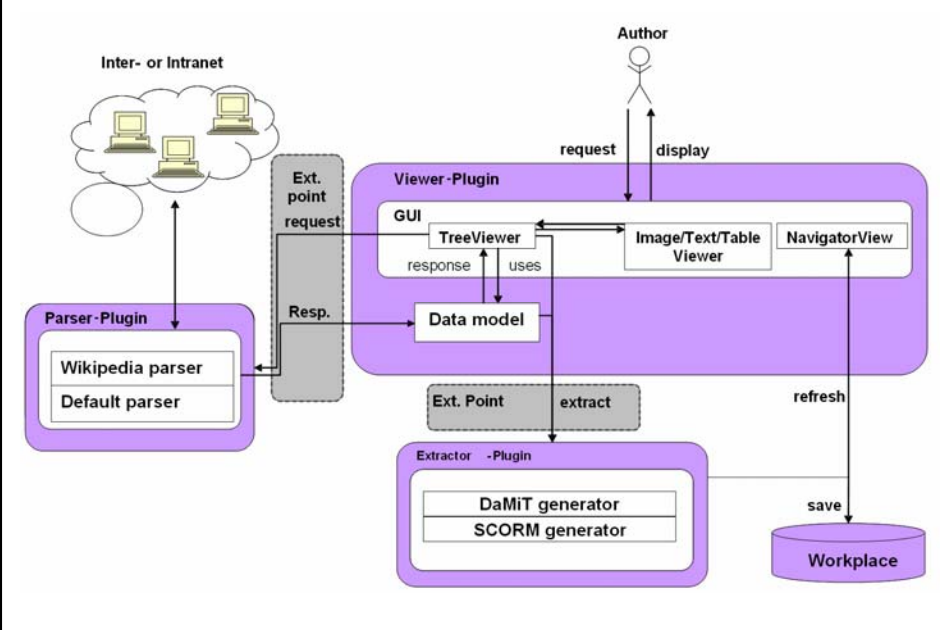
- ### LoExtractor authoring tool
- Purpose: support SLEAM authoring process
 - Search (only partially, e.g. in wikipedia)
 - Learn (not supported by LoExtractor)
 - Extract (browse and manipulate document tree)
 - Parts of document can be concatenated
 - Parts of document can be extracted as LOs
 - Annotate (extract and edit the metadata)
 - Publisher
 - Title
 - Type (e.g. definition, example, illustration)
 - Keywords (TF/IDF algorithm)
 - Level (any, difficult, medium, easy)
 - Presentation (embedded, illustrated)
 - Map (generate concept mapping proposals)
 - Concept map is prepared by LeCoOnt tool
 - Ranked automatic concept proposals (based on DocuTag system developed at DFKI)
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LoExtractor: snapshot



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LoExtractor: eclipse RCP-based architecture



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Identified problems

- Copyright problems
 - Protected documents must not be changed
- Low motivation of employees
 - Better integration into process of work is needed, e.g.:
 - integration of LoExtractor as browser plugin
 - starting it from the web-GUI of the corresponding Workflow- or Task- management system.
- Automatic metadata extraction
 - Type (definition? example?)
 - Level (difficult ? middle?)
 - Possible heuristics:
 - Wikipedia article – easy
 - Scientific paper - difficult



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Next steps

- Implement parser plugin for PDF-documents
- Use hyperlinks and links between document parts
- Integrate the tool into process of work, e.g. start from browser using Java Web Start
- Advanced metadata extraction
- Identify sources of Wikimedia content
 - Wiki-books, PM-pedia ...
- Evaluate SLEAM approach and LoExtractor tool

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Evaluation plan

- Individual test usage: creating set of learning objects covering the Project Management Body of Knowledge (PMBOK) standard (autumn 2007).
 - Feasibility of approach in individual usage has to be checked
 - Elicitation of new requirements for the LOExtractor tool
- Collaborative test usage: deploying LoExtractor at DFKI GmbH in knowledge management department (Spring 2008)
 - Feasibility of approach in collaborative usage has to be checked
 - Elicitation of new requirements for the LOExtractor tool
 - Elicitation of new opportunities of integration into working process
 - Will be conducted in parallel with workflow-embedded learning case study
- Real case study at project partner's side (Summer 2008)
 - Will be conducted in parallel with workflow-embedded learning case study

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Conclusion



- SLEAM (Search Learn Extract Annotate Map) authoring process is created to support process-embedded LO authoring and content repurposing in small enterprises or teams with limited budgets
- LoExtractor tool created to support the SLEAM process
 - LoExtractor helps employees to extract relevant parts of existing documents, convert them to reusable LOs and map to the ontology
 - LoExtractor has extensible architecture and can integrate new data sources as well as generate LOs in different formats

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Thank you for attention!

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See you also at the poster session!



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