

eLRC

LADIE

*towards a Learning Activity
Design Reference (LARM) Model*



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Overview

- Project overview
- Top-down/bottom-up approach
- Learning activities data collection
- Translation to use cases
- Gap analysis – mapping to the DialogPlus taxonomy
- LARM and guides produced
- Walk through of a use case
- LADIE architecture
 - Development of the reference model
 - Pedagogical guide
 - Implementation guide
 - Services guide
- Next steps

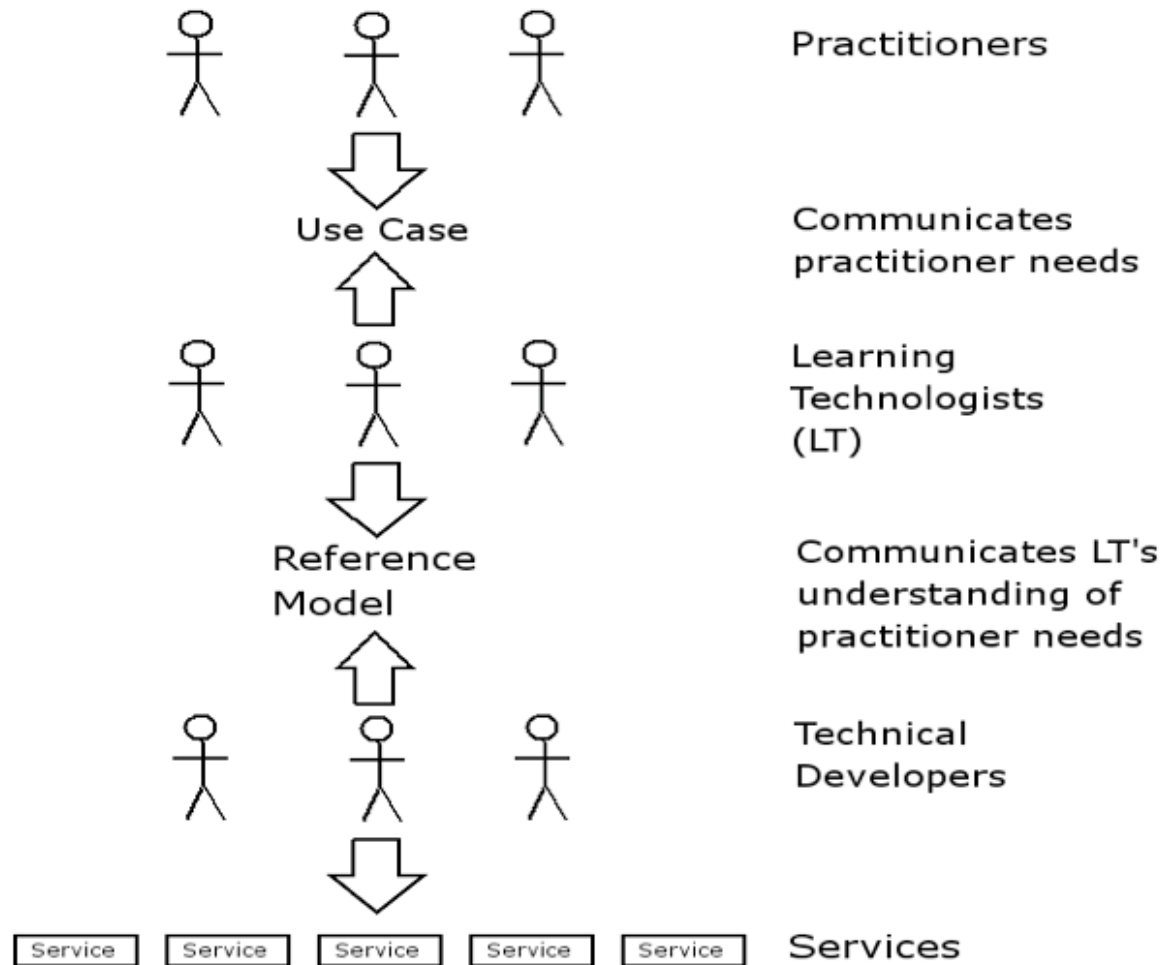
Aims

- To develop a learning activity reference model firmly based in practical experience of teaching and learning which permits flexibility and creativity for teachers and is not narrowly defined by available technology
- To consider the design, construction and execution of learning activity in a way that can be used and shared by multiple institutions and learners at all stages of lifelong learning

Philosophy

- Rooted in Practice
- Informed by effective approaches to teaching and learning
- Expressed in a well defined and understood vocabulary
- Independent of proprietary software

3 layer approach



Bridging the gap between practitioners and technical developers

Activities

- Pedagogical and technical reviews
- Workshops developed
- Four workshops run
- 16 (usable) use cases produced
- Gap analysis
- Creation of LARM
- Production of three-layers of LARM

LADIE approach

- LADIE used a ‘top-down’ and ‘bottom-up’ approach, documenting the requirements of effective learning activities
- Top-down
 - through a series of workshops between practitioners and learning technologists
 - by using templates mapped to DialogPlus with supporting crib sheets
 - promote dialogue needed between practitioners and technical specialists in plain English
 - Series of learning activities produced
 - Pedagogical layer produced

LADIE approach

- Bottom-up
 - Learning activities were translated into the form of ‘use cases’
 - Technical team mapped use cases onto existing interoperability standards and specifications
 - LADIE architecture was defined from the use cases
 - Implementation and services guides were produced
- Gap analysis
- LADIE use cases mapped against DialogPlus taxonomy
- Identified the pedagogic focus of LADIE use cases
- Identified the types of task LADIE gathered

LARM Guides

- Pedagogy Guide
 - Aimed at tutors and practitioners
- Implementation Guide
 - Aimed at learning technologists
- Services Guide
 - Aimed at vendors and developers

Gap analysis

- Mapped LADIE use cases against DialogPlus taxonomy
- Identified the pedagogic focus of LADiE use cases
- Identified the types of task LADIE gathered
- Analysis of tasks vs tools, taks vs techniques, tasks vs roles and interactions

Taxonomy of learning activities

Context			Activity taxonomy					
Context	Outcomes	T&L	Type (What)	Technique (How)	Interaction (Who)	Roles (Which)	Tools/resources	Assessmnt
Aims Pre-requisites Subject Environment Computer-based Lab-based Field-based Work-based Audio-based Simulator Video Lecture-based Seminar-based Time Difficulty Skills Creativity Critical analysis Critical reading Group/team work IT Literacy Numeracy Oral communication Practical Problem solving Research	Cognitive Knowledge State Recall List Recognise Select Reproduce Specify Draw Finding out/discover Pronounce Recite Comprehension Explain Describe reasons for Identify causes of Illustrate Question Clarify Identify Understand Application Use Apply Construct Solve Select Hypothesize Infer Calculate	Associative Instructional system design Intelligent tutoring systems Elaboration theory Didactic Behaviourist Training needs analysis Cognitive Active learning Enquiry-led Problem-based Goal-based scenarios Reflective practitioner Cognitive apprenticeship Constructivist-based design Situative E-moderating framework Dialogue/argumentation Experiential learning Collaborative learning Activity theory	Assimilative Reading Viewing Listening Information Handling Gathering Ordering Classifying Selecting Analysing Manipulating Adaptive Modelling Simulation Communicative Discussing Presenting Debating Critiquing Productive Creating Producing Writing Drawing Composing Synthesising Re-mixing Experiential Practicing Applying Mimicking	Assimilative Information Handling Concept mapping Brainstorming Buzz words Crosswords Defining Mindmaps Web search Adaptive Modelling Communicative Articulate reasoning Arguing Coaching Debate Discussion Fishbowl Ice breaker Interview Negotiation On the spot questioning Pair dialogues Panel discussion Peer exchange Performance Question and answer Rounds Scaffolding Socratic answer	Individual One to one One to many Group based Class based	Individual learner Group leader Coach Group participant Mentor Supervisor Rapporteur Facilitator Deliverer Pair person Presenter Peer assessor Moderator	Assimilative Word processor Text, image, audio or video viewer Information handling Spreadsheet Database SPSS NVIVO Bibliographic software Microsoft exchange PDAs Project manager Digital image manipulation software Mind mapping software Mind mapping software Search engines Libraries Adaptive Virtual worlds Models Simulation Modelling Communicative Electronic whiteboards Email Discussion boards Chat Instant messaging Voice over IP Video conferencing	Not assessed Diagnostic Formative Summative

Walk through of a Use Case

- Teacher uses concept mapping and a discussion forum, followed by a diagnostic test
- Typical, in having
 - A number of different components
 - In sequence and in parallel
 - Blended learning
- Core components
 - Discussion
 - Quiz
 - Brainstorming
 - Concept Mapping

Use case

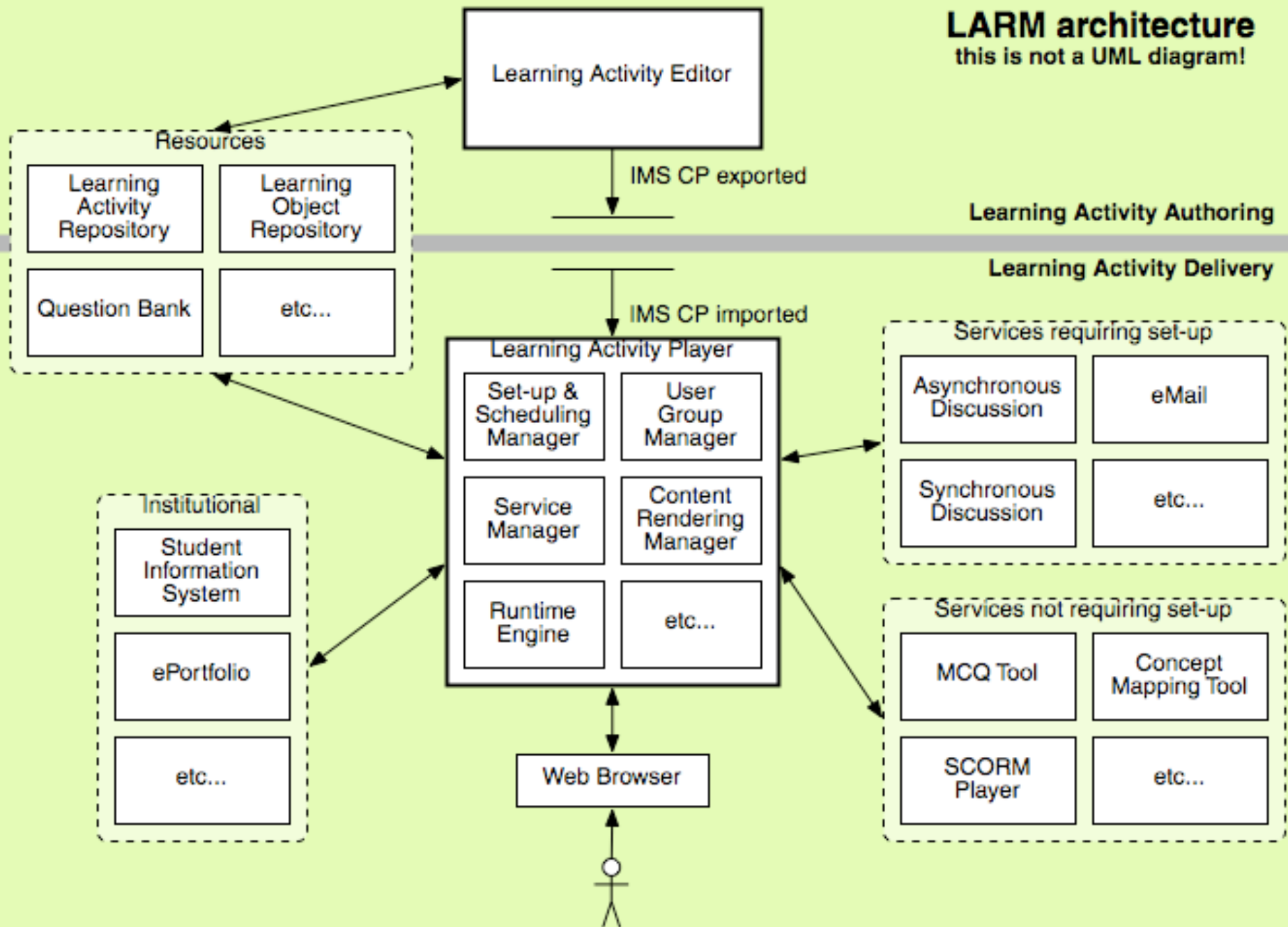
- Teacher uses concept mapping and a discussion forum, followed by a diagnostic test
- Forum
 - Message threads in discussion
 - Changes to forum structure, message expiry date, access permissions during course
 - Generation of text summary of selected forum messages
 - Summary saved on ePortfolio

Use case (cont)

- Teacher uses concept mapping and a discussion forum, followed by a diagnostic test
- Test
 - Automated and personalised feedback
 - Individual and collated class results for teacher
 - Voting (if presented synchronously)
 - Automated generation of quiz questions

LARM architecture

this is not a UML diagram!



LARM Pedagogy Guide

- Background
- Learning Activity Reference Model (LARM)
- What the LARM can do for you
 - Learning Activity Authoring
 - Learning Activity Delivery
- Creating a Learning Activity
 - Description of the characteristics of a Learning Activity
 - Glossary of Teaching Approaches
 - Glossary of Techniques
 - Template for designing a Learning Activity
 - Example of a completed Template

Example – description of an asynchronous discussion function

- you can moderate the conference, or appoint a student or tutor to moderate it, to facilitate the discussion and to ensure that ‘netiquette’ is adhered to. For example, the moderator can: promote discussion by asking stimulating questions; summarise the discussion so far and steer it in a future direction; ...

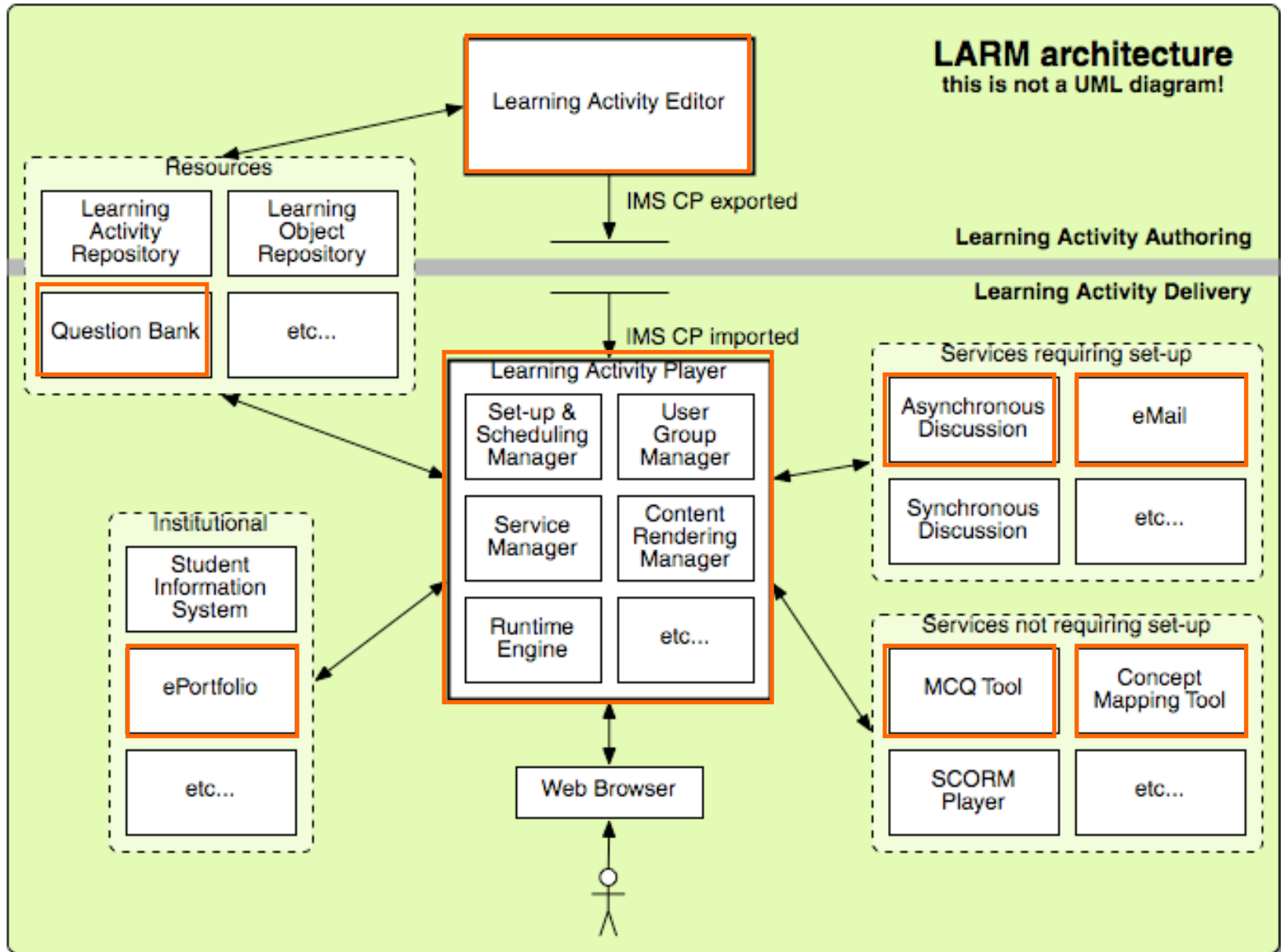
Learning Activity Creation

- Template – as a focus for discussion with learning technologists
- Classification of components of a learning activity
- Glossaries of teaching approaches and techniques

LARM Implementation Guide

- Background
- What is the Learning Activity Reference Model (LARM)
- LARM architecture
- Candidate Orchestration Technologies
 - IMS Learning Design
 - BPEL
 - Simple Sequencing
 - LAMS
 - VLE + Tools Interoperability
 - Hybrid of above (IMS LD and BPEL)
- Use Case 7 example

LADiE architecture for Use



LARM Services Guide

- Background
- What is the Learning Activity Reference Model (LARM)
 - Business Case - why develop this?
- Overview of LARM architecture
- Description of LARM Services
 - Detailed Functionality
 - Related specifications/standards
 - Function calls

Issues

- Difficulty of gathering use cases
- Difficulty of pinning down learning activities!
- Capturing current practice vs. future practice
- Function calls vs. document exchange
- How much is controlled by Learning Activity and how much by the player?
 - E.g. archiving results
- Functionality part of Learning Activity Player or separate service?
- Practitioners want flexibility
- Moving from modelling the known to the unknown

Next steps

- Top down team work with FREMA to:
 - Community curation and sustainability of the LADIE Reference Model
 - LADIE Reference Model Web site
 - Dissemination of the LADIE Reference Model
 - Help JISC map LADIE Reference Model services to the eFramework
 - Extend the Reference Model with workflow and services orchestration
 - Extend services descriptions within
- Full scale implementation of the LARM