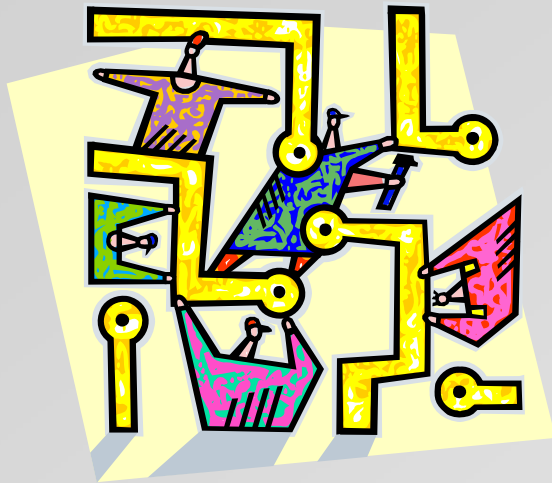# IMPLEMENTING A COLLABORATIVE TASK IN dotLRN WEB-BASED LEARNING ENVIRONMENT

Alberto Bayón

Olga C. Santos

Jesús G. Boticario

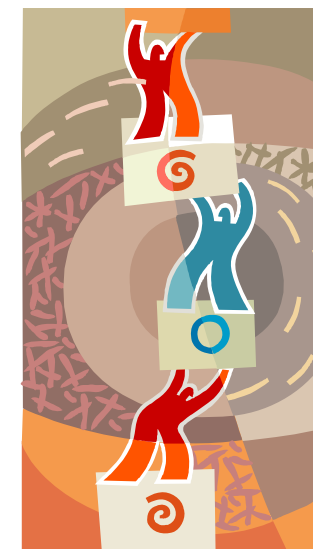aDeNu Research Group http://adenu.ia.uned.es

- **Objectives**

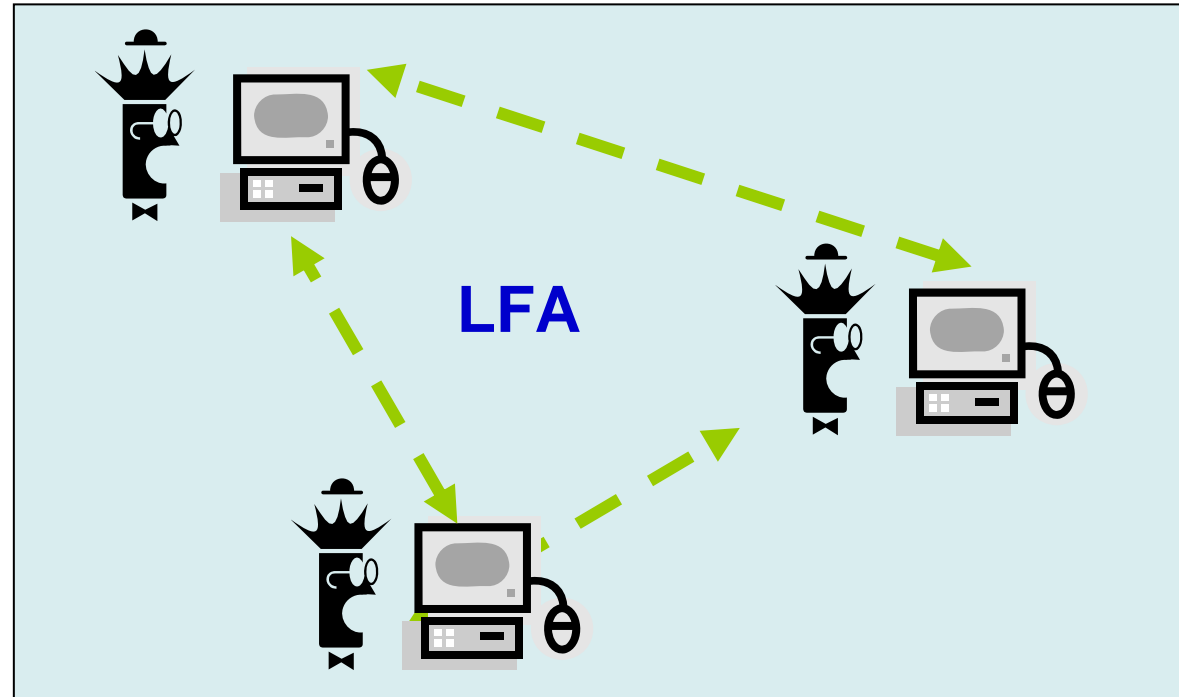- **LFA experience**

- **Methodology**

- **Architecture**

- **Implementing**

- Real collaboration Methodology
  - Involve students
- Intelligent systems (iLMS)
  - Improve effectiveness of the learning process
  - Adapting responses to students' needs
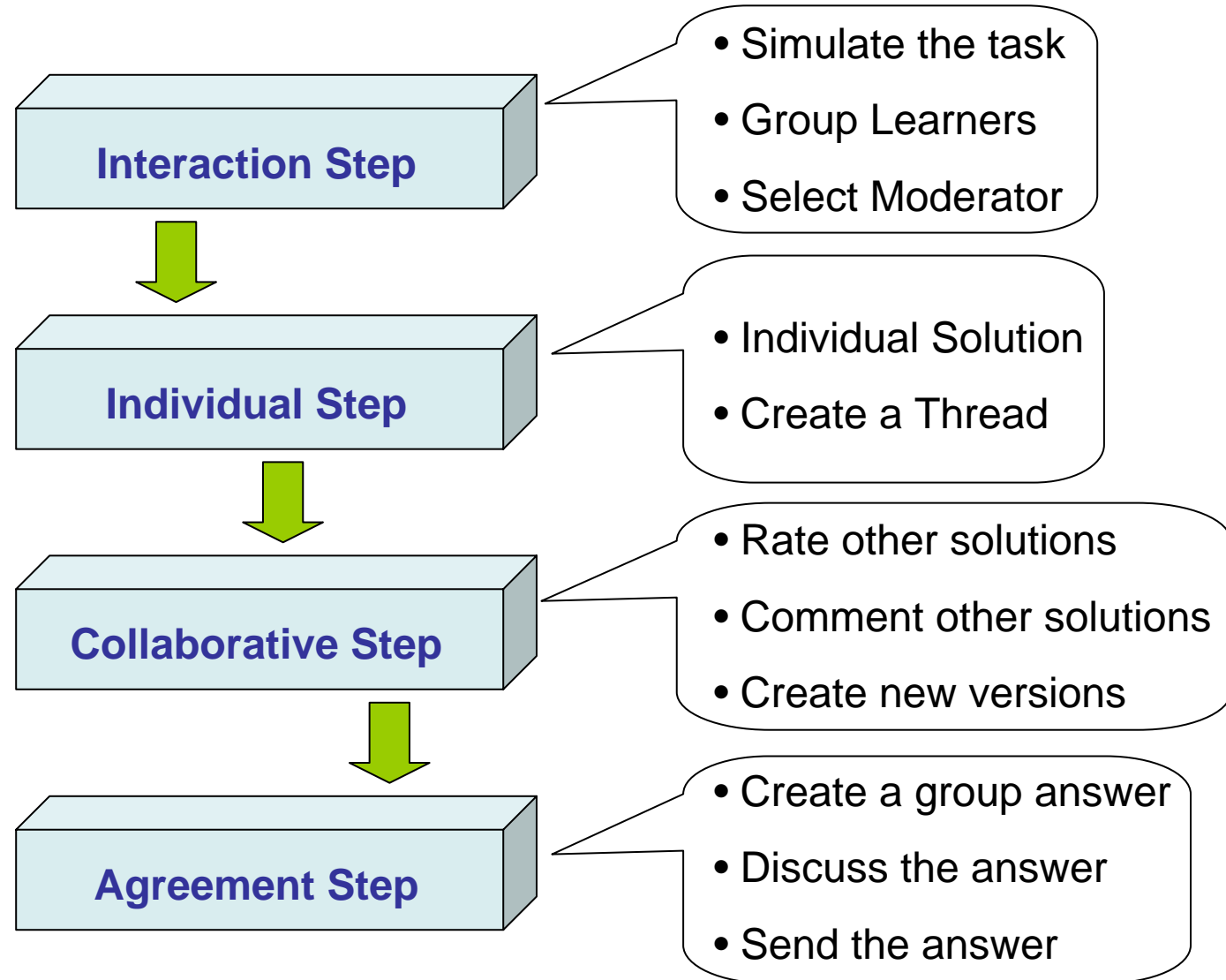- Context to implement the collaborative LFA extension

- Objectives

- **LFA experience**

- Methodology

- Architecture

- Implementing

LFA

• <u>Achievements</u>	**LFA PERFORMING**
• <u>Unresolved</u>	**REAL COLLABORATION**

- Objectives

- LFA experience

- **Methodology**

- Architecture

- Implementing

Interaction Step

- Simulate the task
- Group Learners
- Select Moderator

Individual Step

- Individual Solution
- Create a Thread

Collaborative Step

- Rate other solutions
- Comment other solutions
- Create new versions

Agreement Step

- Create a group answer
- Discuss the answer
- Send the answer

- Objectives

- LFA experience

- Methodology

- **Architecture**

- Implementing

- **Objectives**

- **LFA experience**
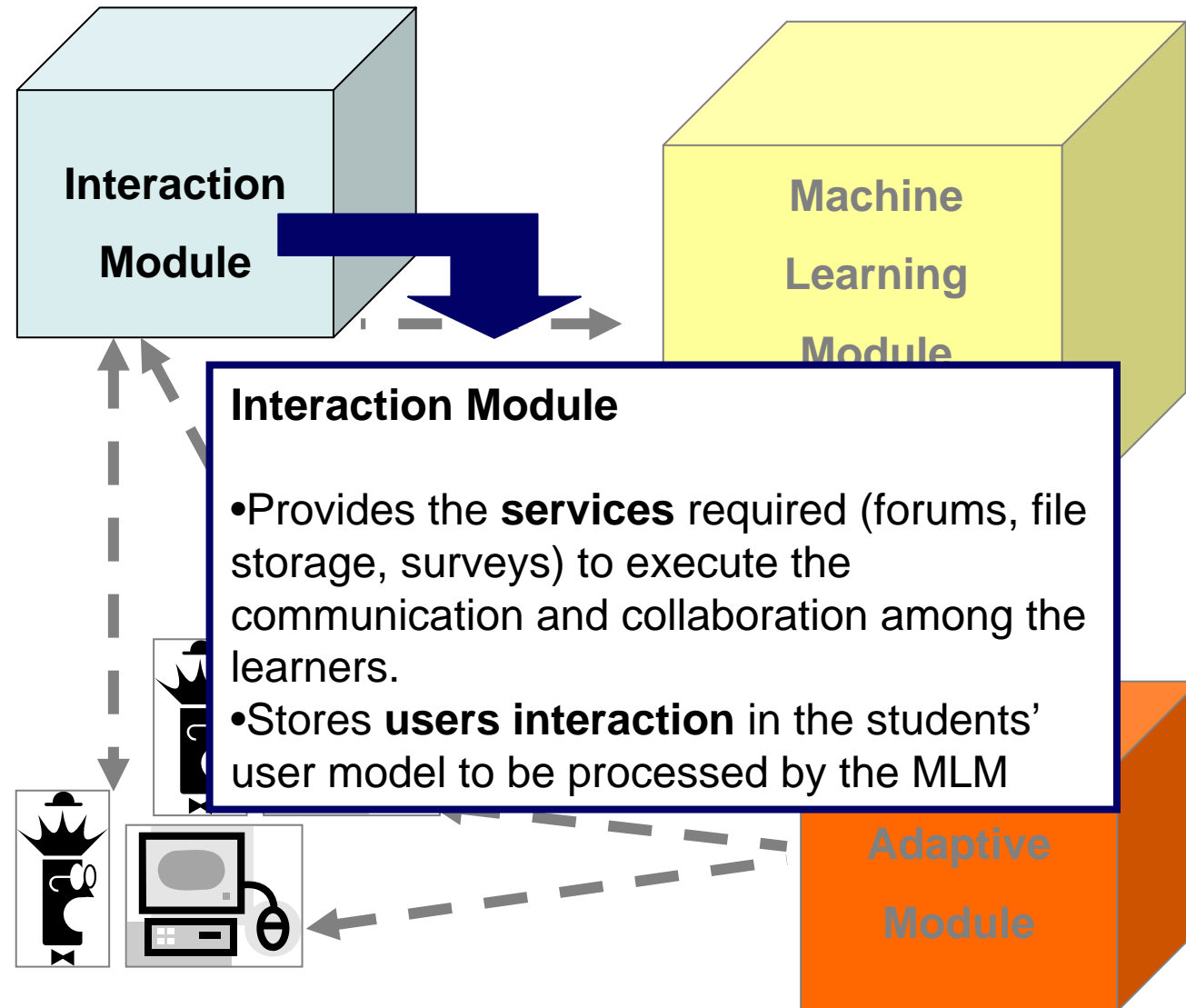
- **Methodology**

- **Architecture**

- **Implementing**

Interaction Module

Machine Learning Module

Adaptive Module

Interaction Module

- Provides the **services** required (forums, file storage, surveys) to execute the communication and collaboration among the learners.
- Stores **users interaction** in the students' user model to be processed by the MLM
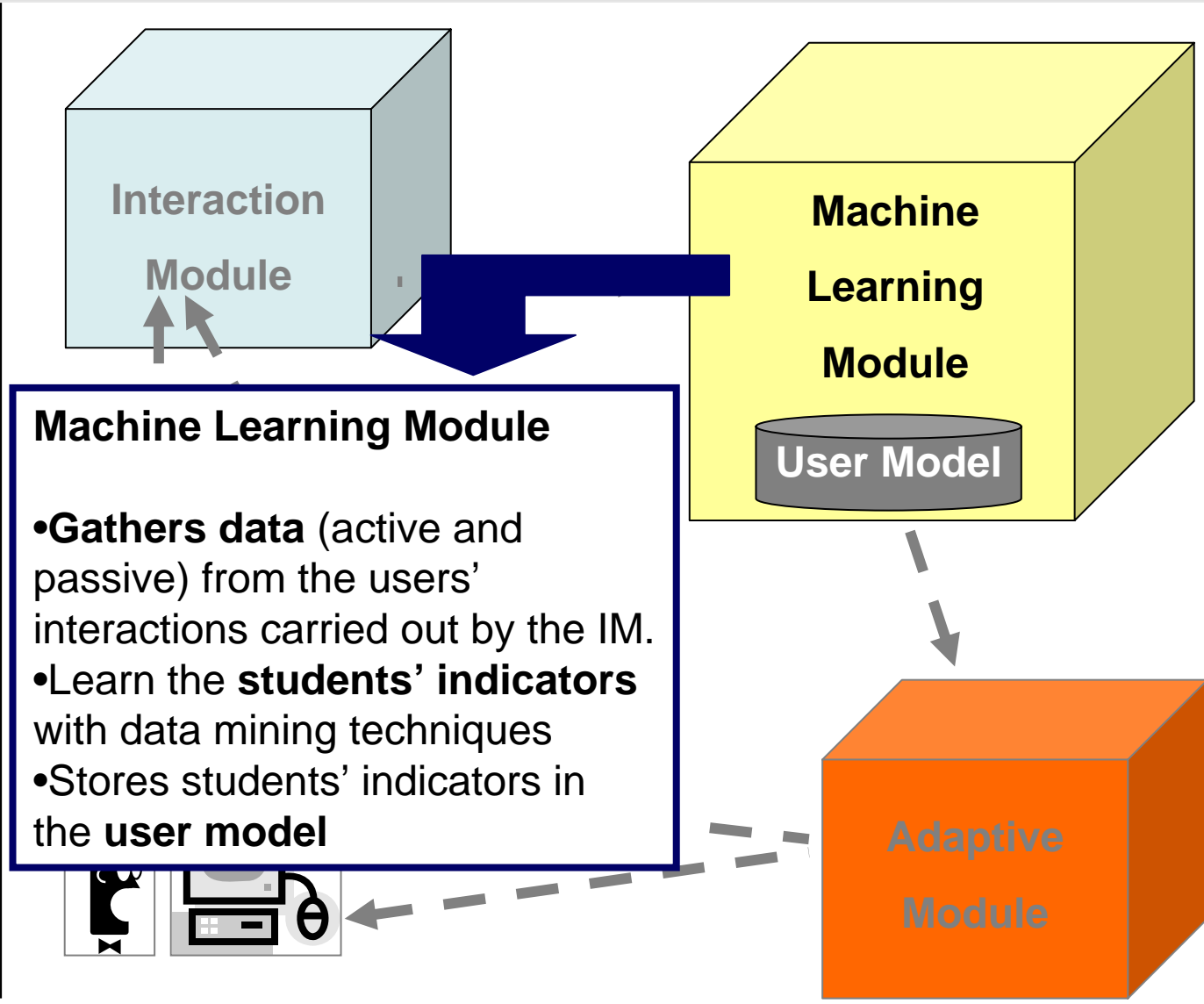
- **Objectives**

- **LFA experience**

- **Methodology**

- **Architecture**

- **Implementing**

- Provides the collaborative environment

- Offer communications tools
  - forums, chats, e-mail, common file storage areas, etc.

- Manages the collaborative task
  - Creation of surveys
  - Creation of groups
  - Assignment of permissions to learners
    - make visible the responses of the others students when defined
  - Rating others students' responses

- Objectives

- LFA experience

- Methodology

- **Architecture**

- Implementing

Interaction

Module

Machine

Learning

Module

User Model

Machine Learning Module

- **Gathers data** (active and passive) from the users' interactions carried out by the IM.
- Learn the **students' indicators** with data mining techniques
- Stores students' indicators in the **user model**

Adaptive

Module

- **Objectives**

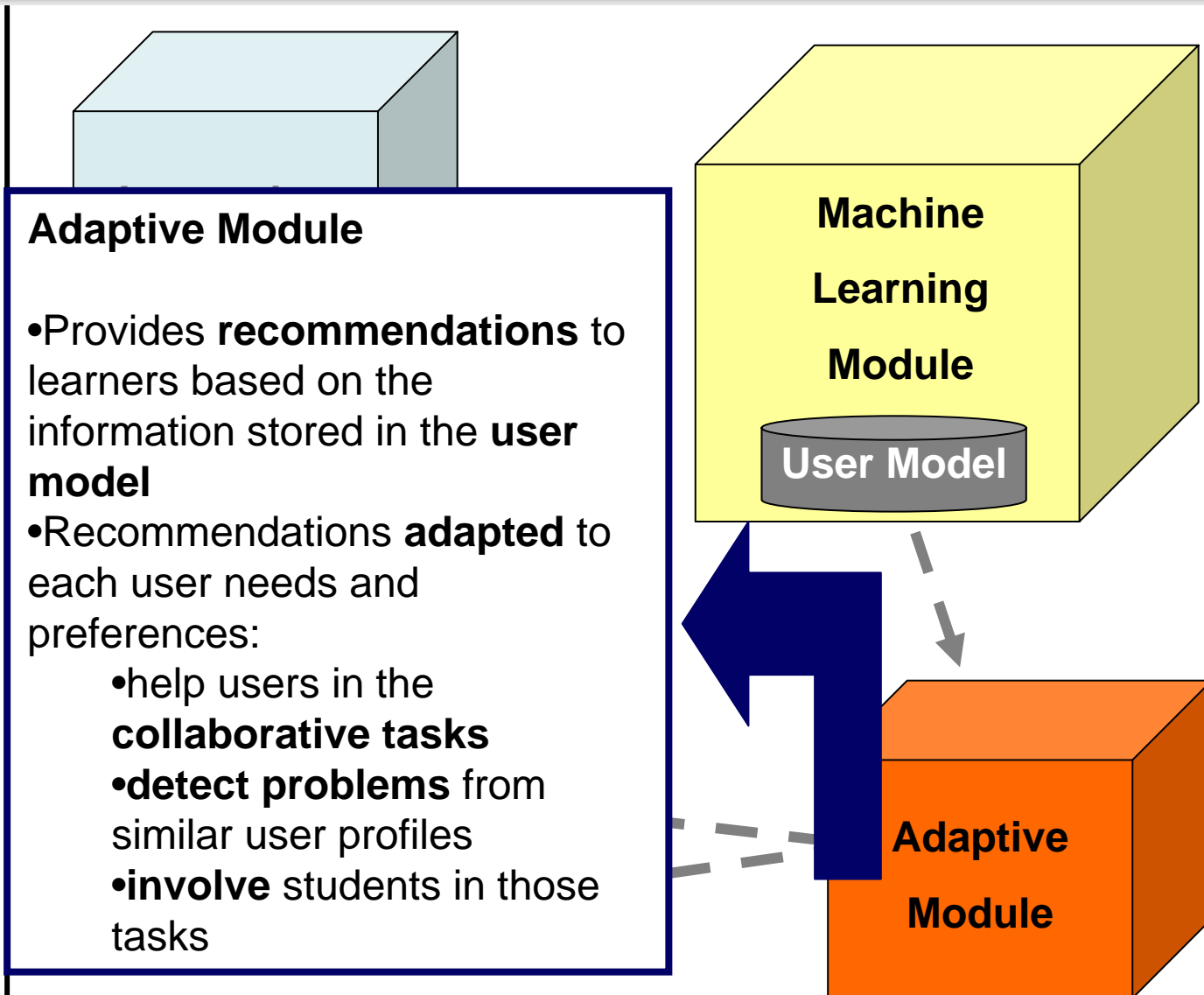- **LFA experience**

- **Methodology**

- **Architecture**

- **Implementing**

- Indicators:
  - measure the interactions of the collaboration
  - *User profile*
    - participative, insightful, useful, non-collaborative, student with initiative or communicative student.
  - *Data come form*
    - *Forums structure:*
      - *thread's* wideness and deepness, number of student who take part in each discussion, the threads in which a student takes part, if a new reply is sent always after a specific user contribution …
    - *Solution versions:*
      - number of rejected versions, number of version of each student, the length of the discussion when the student decide to create a new version …
    - *Ratings*:
      - Evolution of the survey in rating terms, if the discussion thread improves the rate or make rates worst, the most frequent value used by a user …
    - *Reading of messages*:
      - what does a student do after reading a message?, what is the order of a student for reading messages in the forum?, what does a student do while preparing the answer?, …

- **Objectives**

- **LFA experience**

- **Methodology**

- **Architecture**

- **Implementing**

Adaptive Module

- Provides **recommendations** to learners based on the information stored in the **user model**
- Recommendations **adapted** to each user needs and preferences:
    - help users in the **collaborative tasks**
    - **detect problems** from similar user profiles
    - **involve** students in those tasks

Machine Learning Module

User Model

Adaptive Module

- Objectives

- LFA experience

- Methodology

- Architecture

- **Implementing**

- Provides the collaborative environment

- Offer communications tools
  - forums, chats, e-mail, common file storage areas, etc.

- Manages the collaborative task
  - Creation of surveys
  - Creation of groups
  - Assignment of permissions to learners
    - make visible the responses of the others students when defined
  - Rating others students' responses

- Objectives

- LFA experience

- Methodology

- Architecture

- **Implementing**

- **Based in previous aDeNu Project for LFA**
- **Methodology for real collaboration**
  - **Phases managed by roles and permissions:**
- **dotLRN for Interaction Module**
  - **Subgroups**
  - **Forums**
  - **File storage**
  - **User Tracking**
  - **Cops for ratings**
- **Machine Learning & Data Mining:**
  - **Weka software**
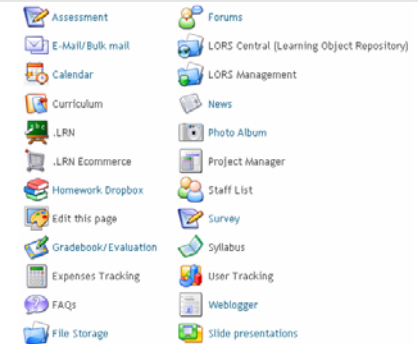
Thank you!

Any questions?

aDeNu Research Group http://adenu.ia.uned.es