Agile MCDA Modelling

XMCDA meets D4

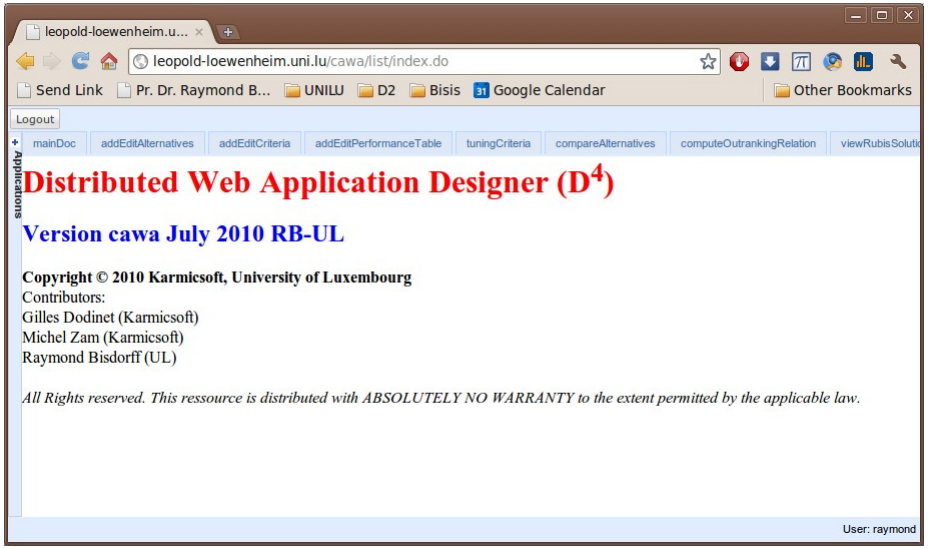
R. Bisdorff & M. Zam

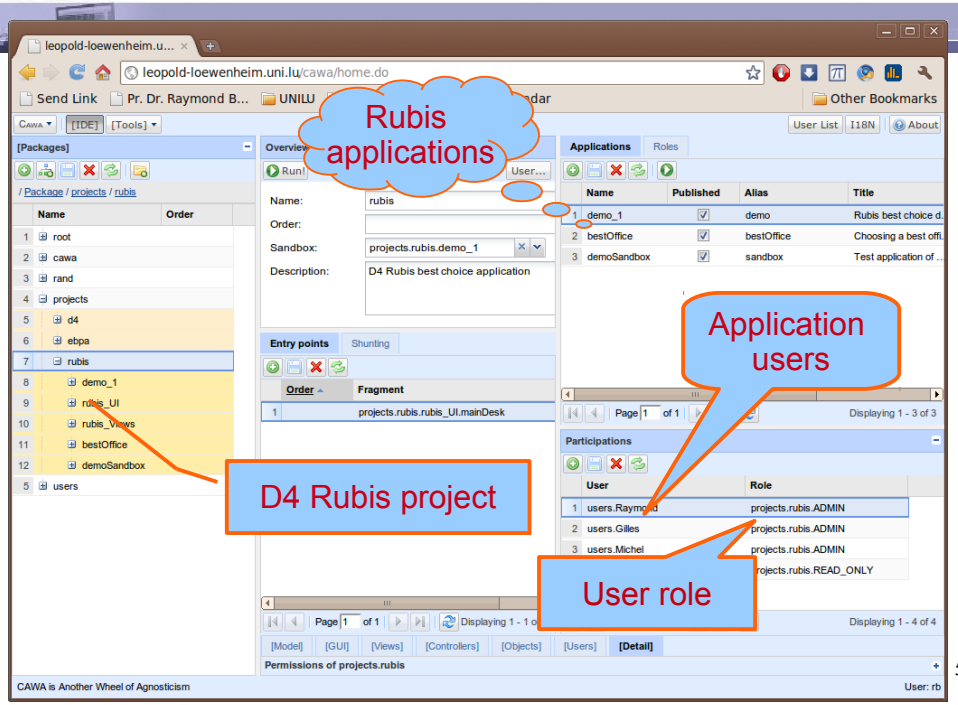
7th Decision Deck Workshop
Dauphine, 6 October 2010

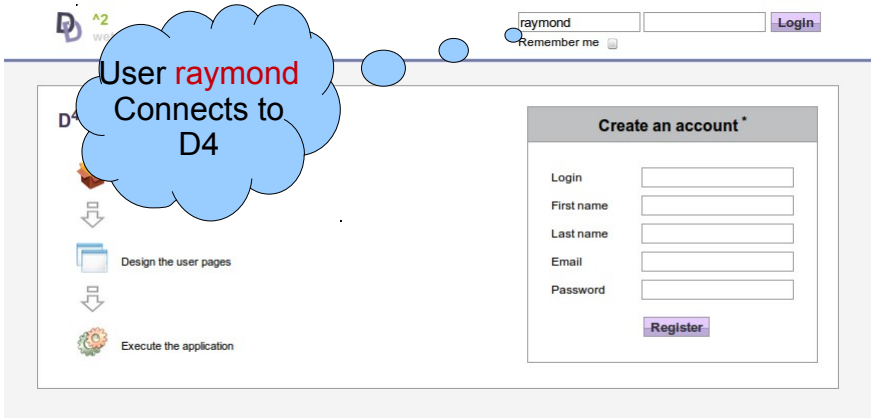
Content

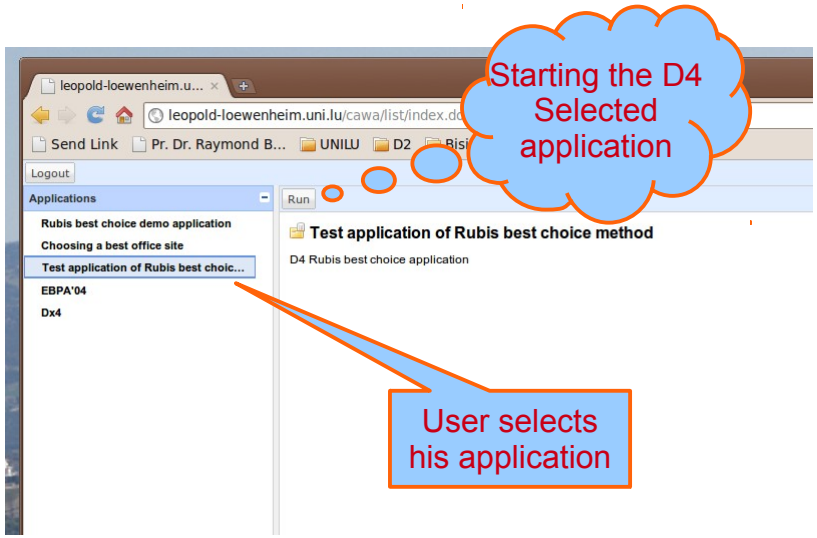
1. The D4 Rubis project
2. Use cases of XMCDA in D4
3. Granularity of the MCDA models
4. UMCDA-ML customization
5. New horizons for XMCDA development

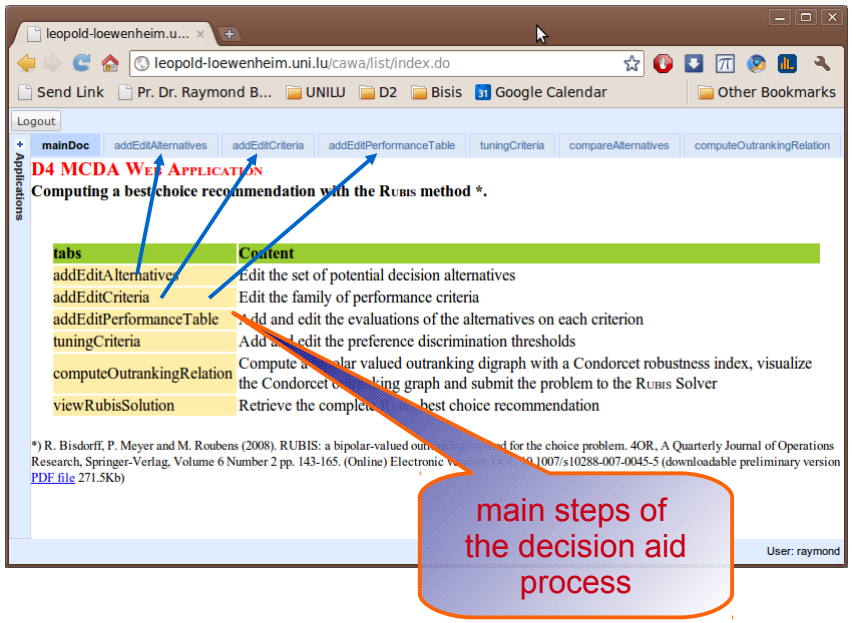
1. The D4 Rubis project



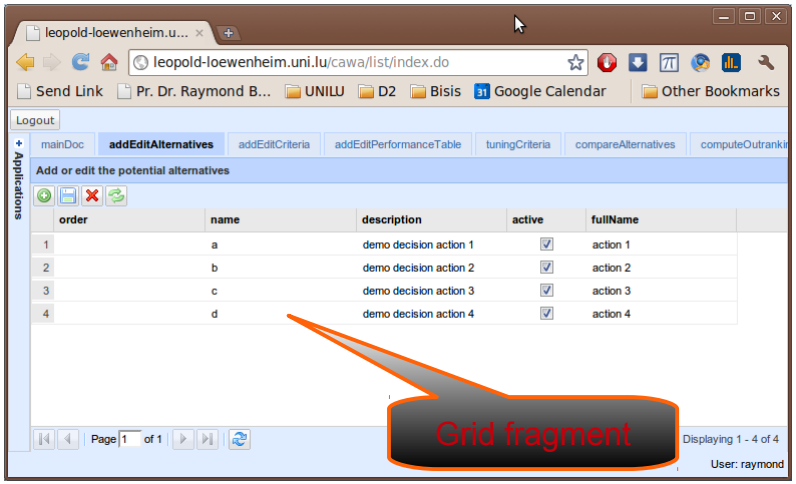

Rubis applications
Application users
D4 Rubis project
User role


User raymond Connects to D4
Login
Remember me
Create an account
Login
First name
Last name
Email
Password
Register
Design the user pages
Execute the application


Starting the D4 Selected application
Rubis best choice demo application
Choosing a best office site
Test application of Rubis best choic...
EBPA'04
Dx4
Test application of Rubis best choice method
D4 Rubis best choice application
User selects his application


D4 MCDA Web Application
Computing a best choice recommendation with the Rubis method *.
tabs
Content
addEditAlternatives
Edit the set of potential decision alternatives
addEditCriteria
Edit the family of performance criteria
addEditPerformanceTable
tuningCriteria
computeOutrankingRelation
viewRubisSolution
main steps of the decision aid process

a. Edit the set of potential alternatives



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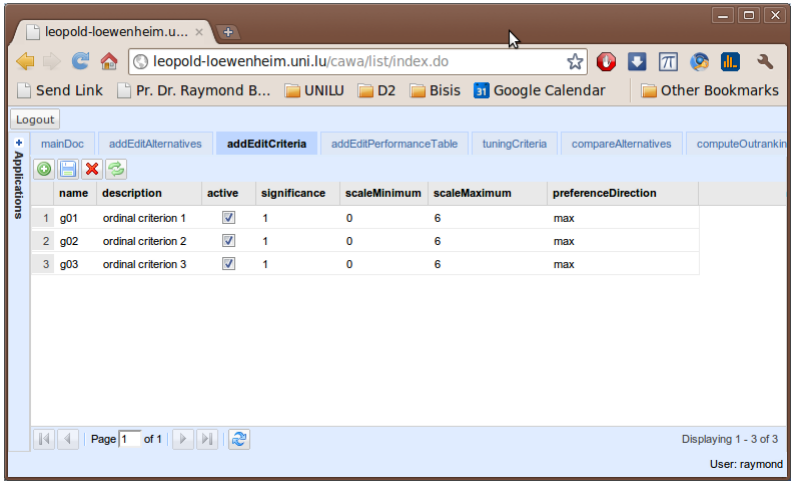
b. Edit the family of criteria



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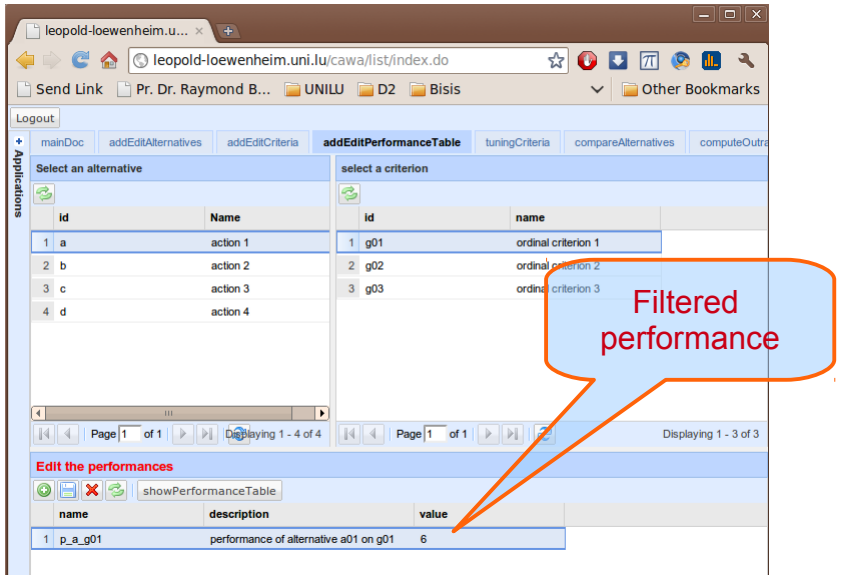
c. Edit the performances of the actions on the criteria



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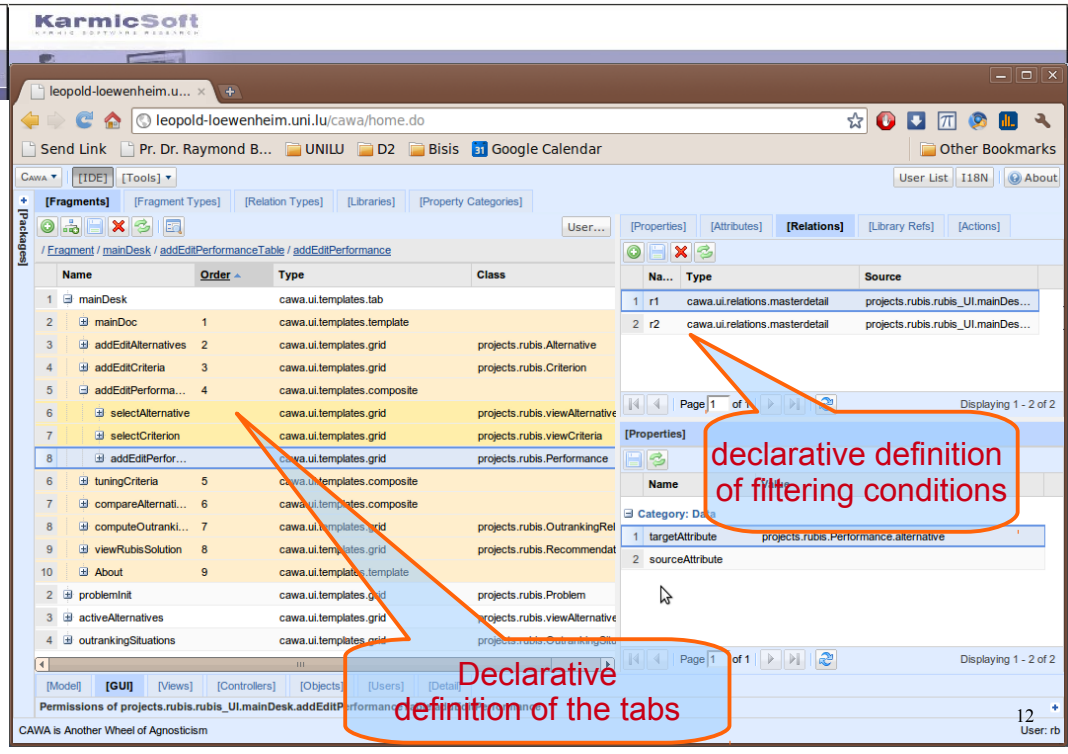

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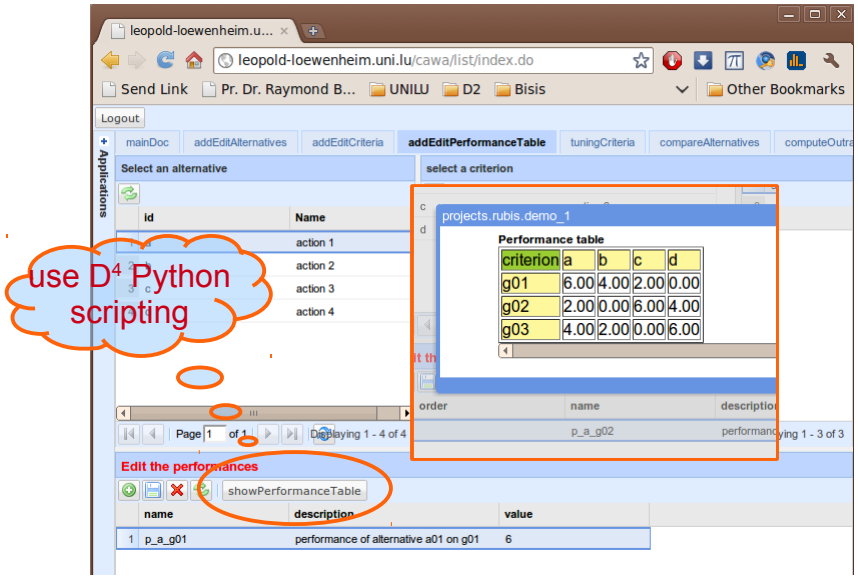
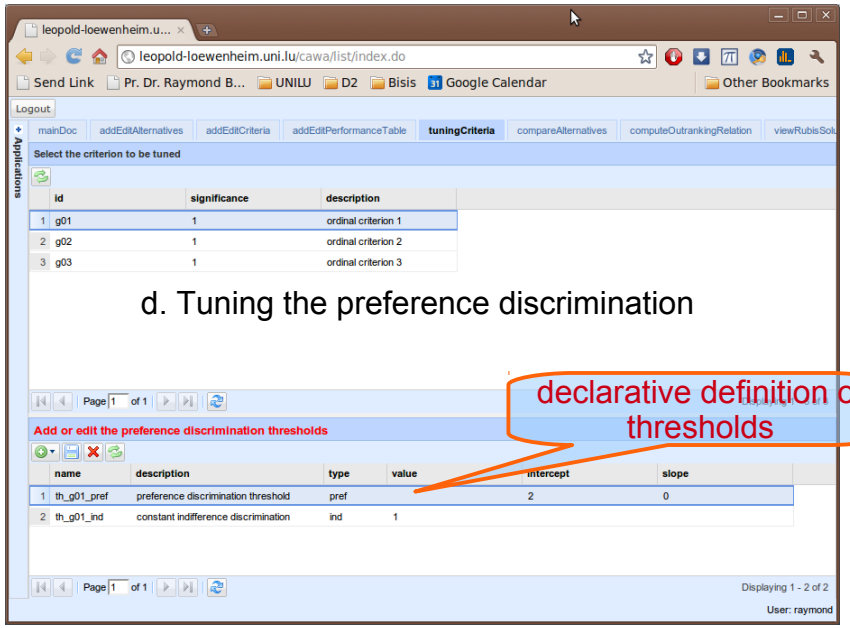
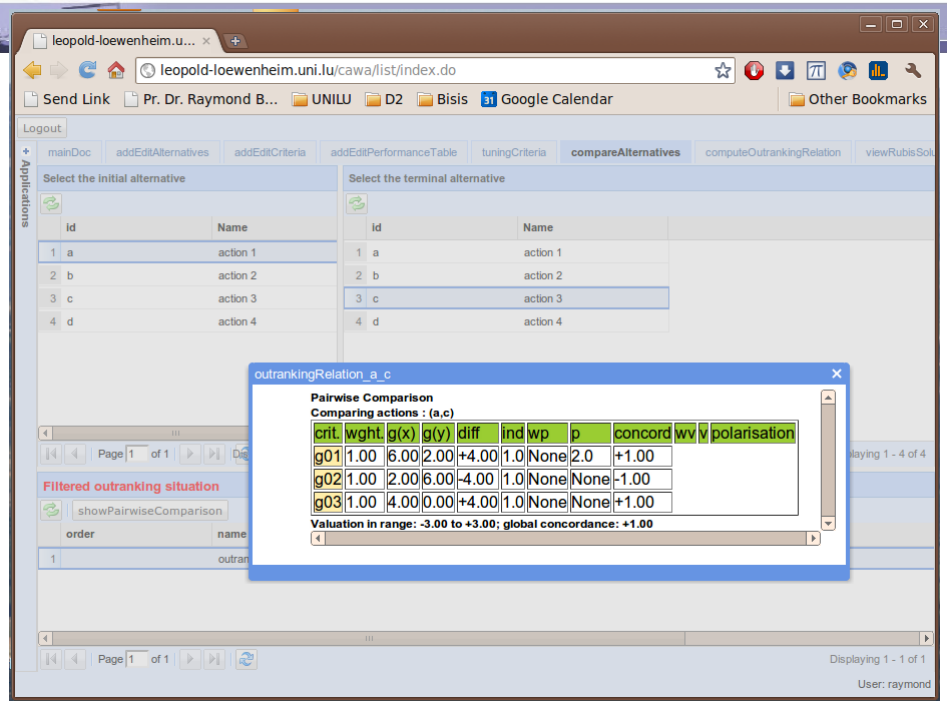
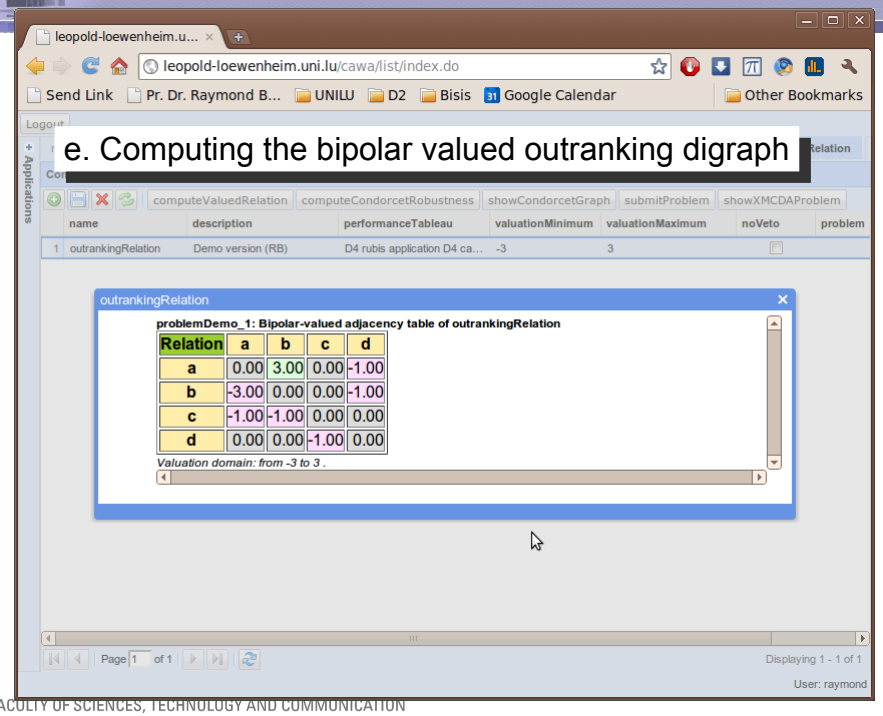
View the entire performance table



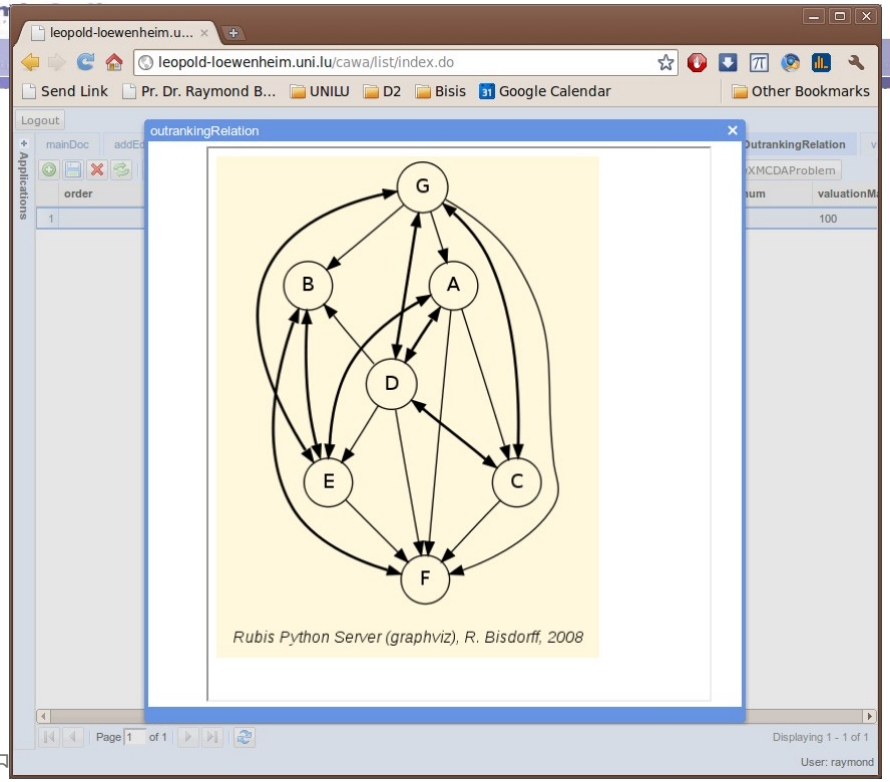


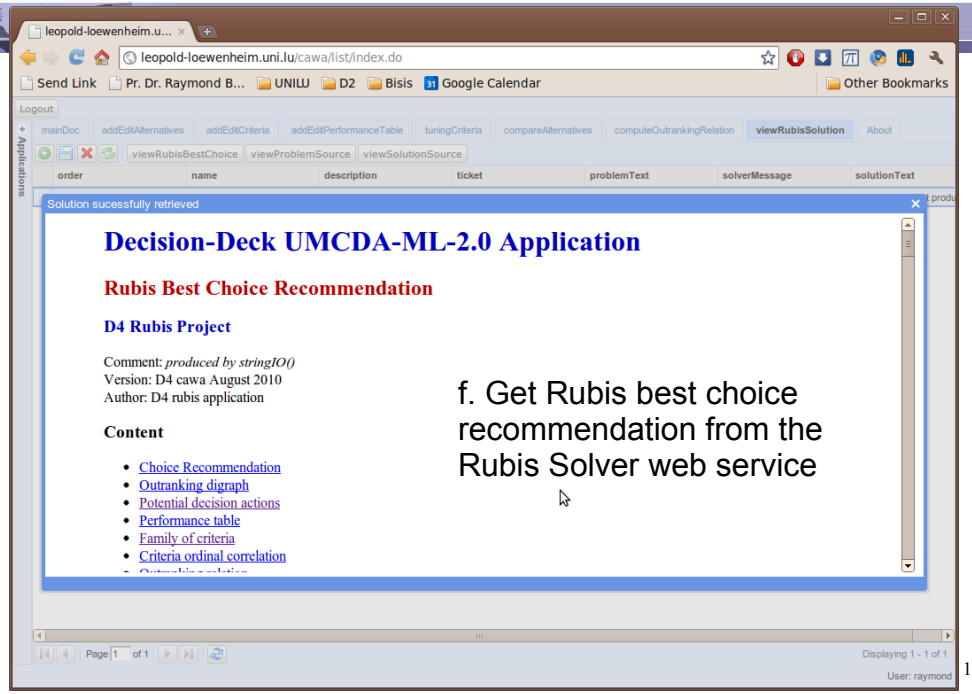
d. Tuning the preference discrimination





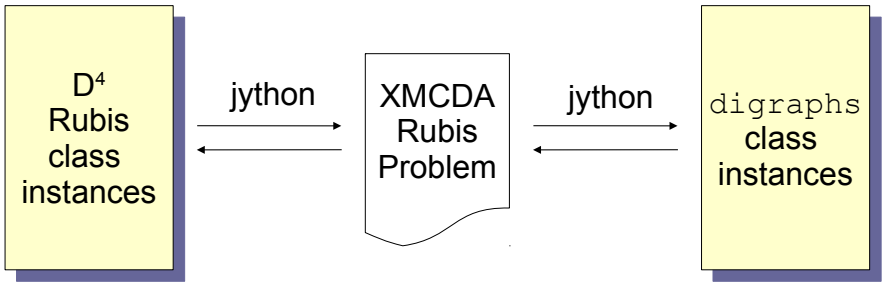
e. Computing the bipolar valued outranking digraph



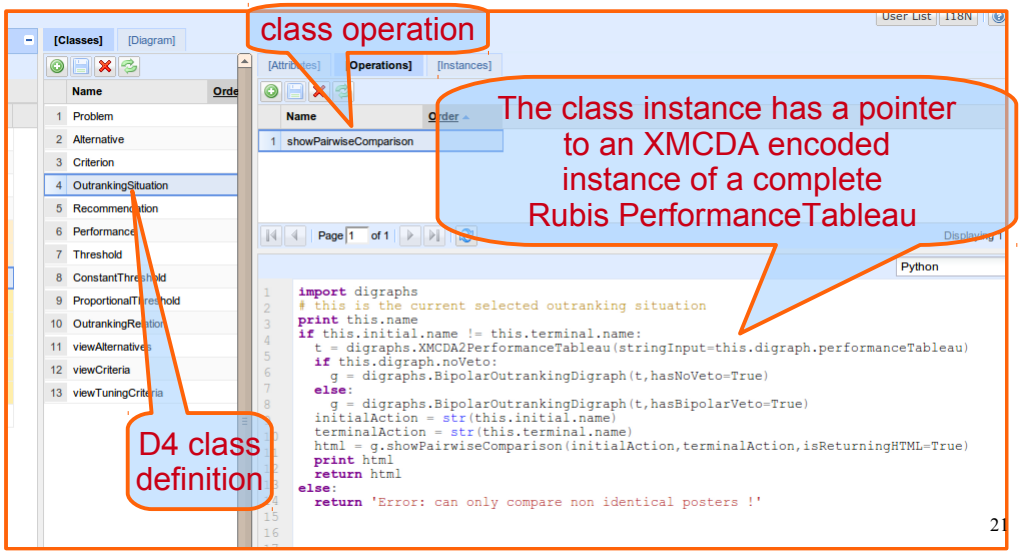


2. Use cases of XMCDA in D⁴

a. Interfacing D⁴ and `digraphs` class instances



Example: showing the pairwise comparison table



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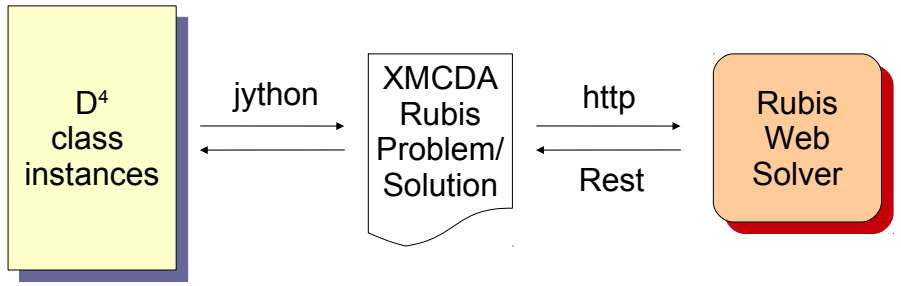
b. Interfacing D^4 and the Rubis XMCDA Solver



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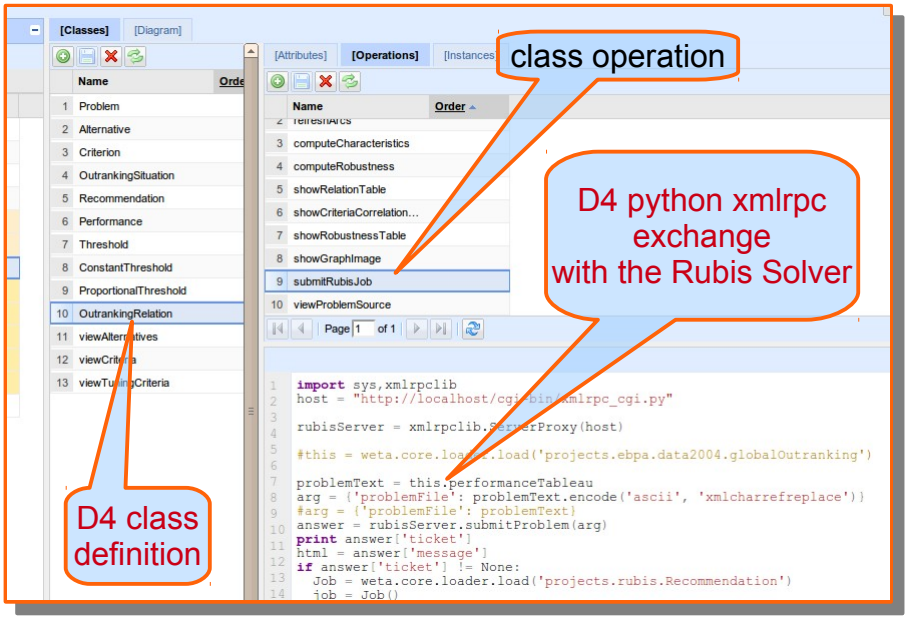

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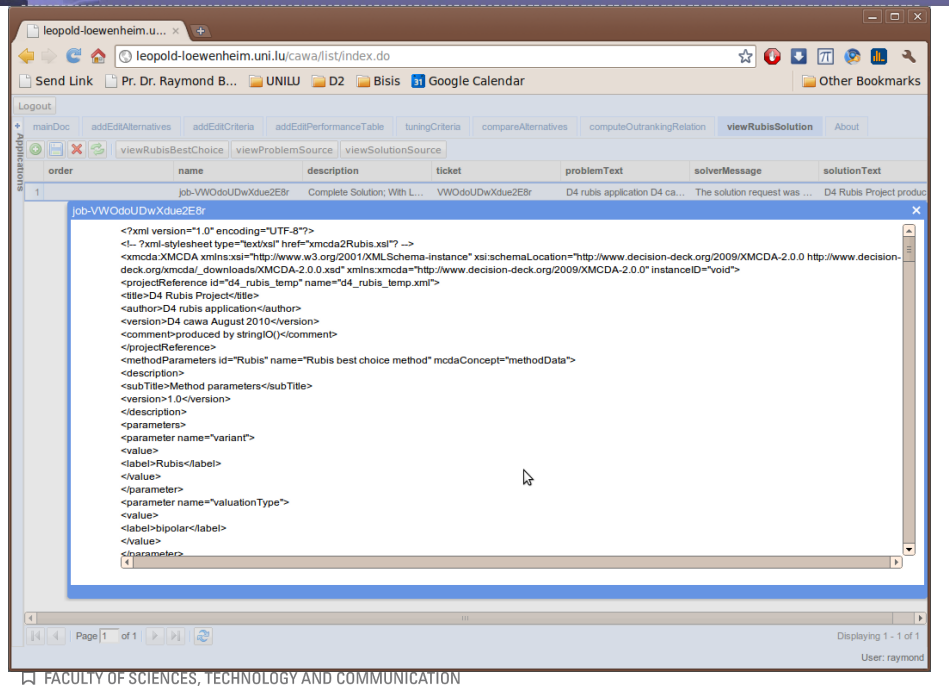

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UMCDAML perspectives

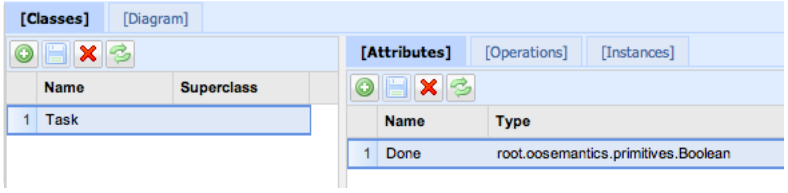
Learning from the D4 experience

Motivation

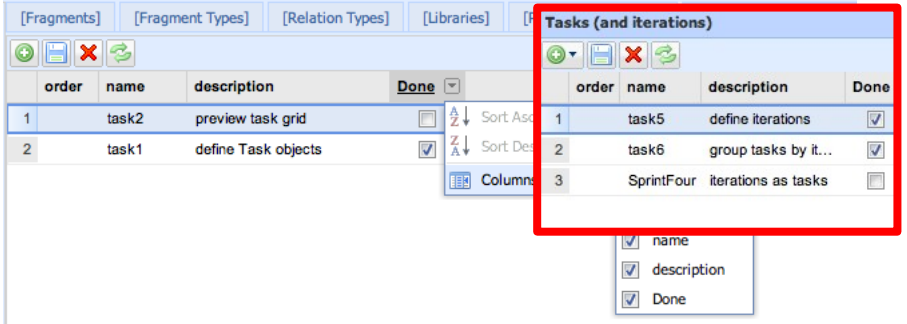
- D4 ?
  - Power-User design tool for MCDA problems
  - No deployment cycle : app online from the begining
  - Fast : new class in minutes
  - Flexible : refactoring with instant impact to data
- Example

I. SprintOne : build task grid

1. Define task objects



1. Preview task grid



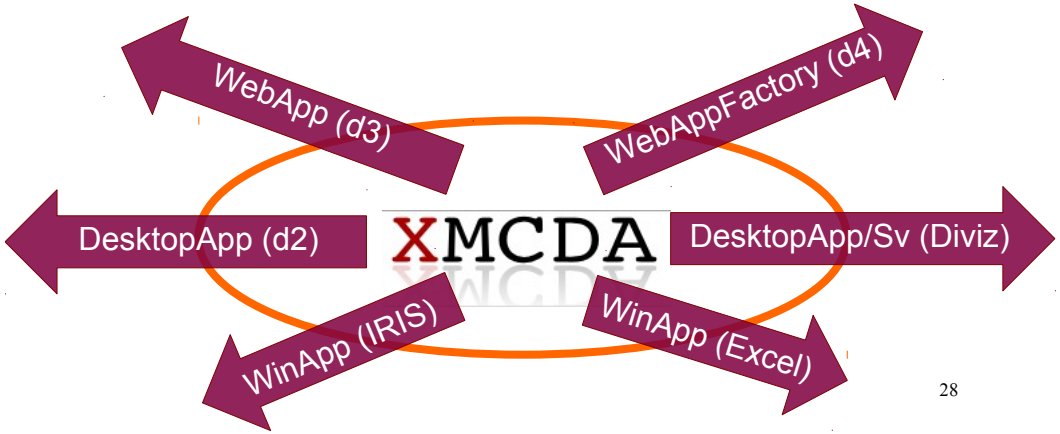
Motivation

High stakes : raise abstraction

Technology vs methodology

U MCDA ML

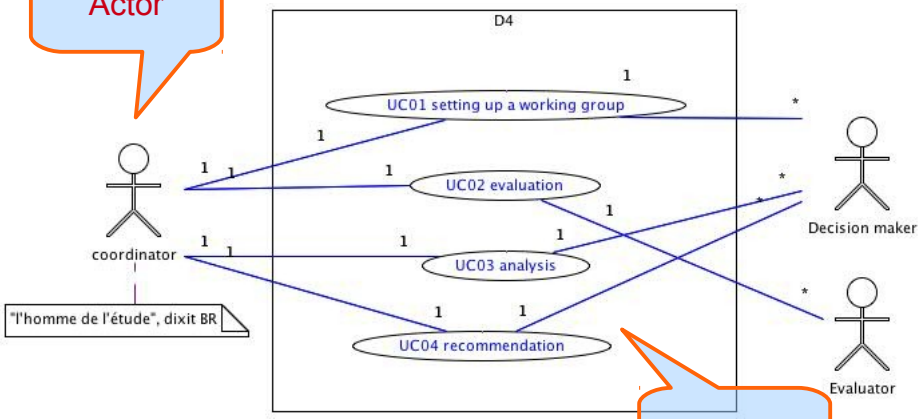
...



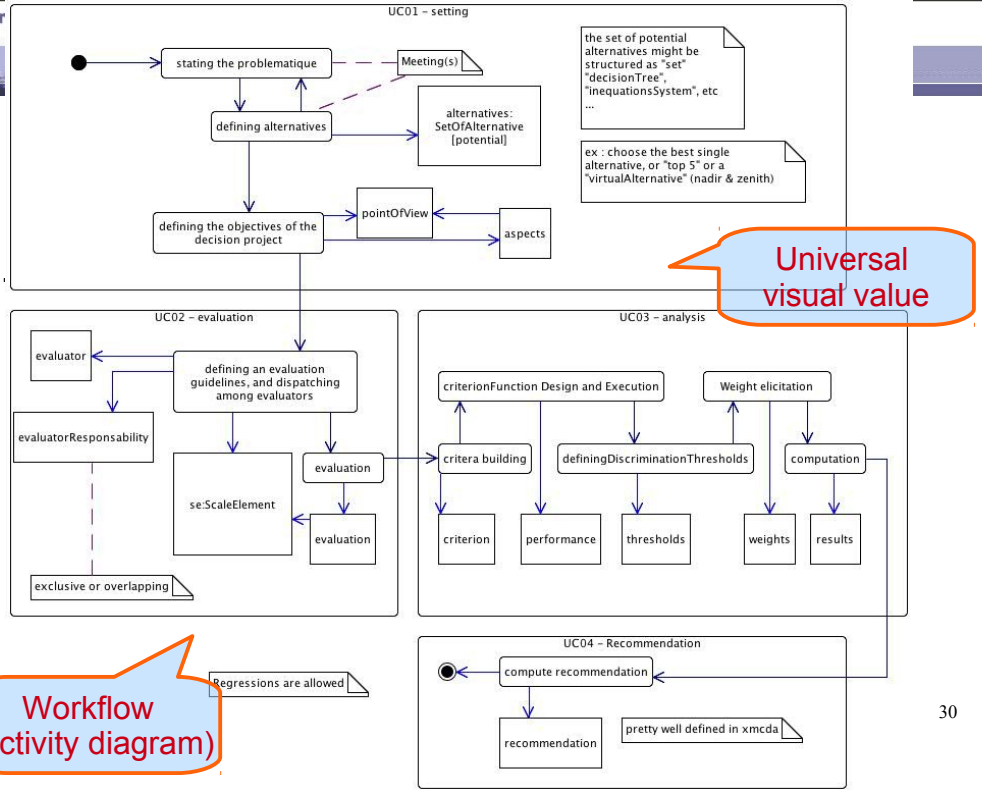
Multi platform, multi language …

Modeling MCDA problems with UML

Actor

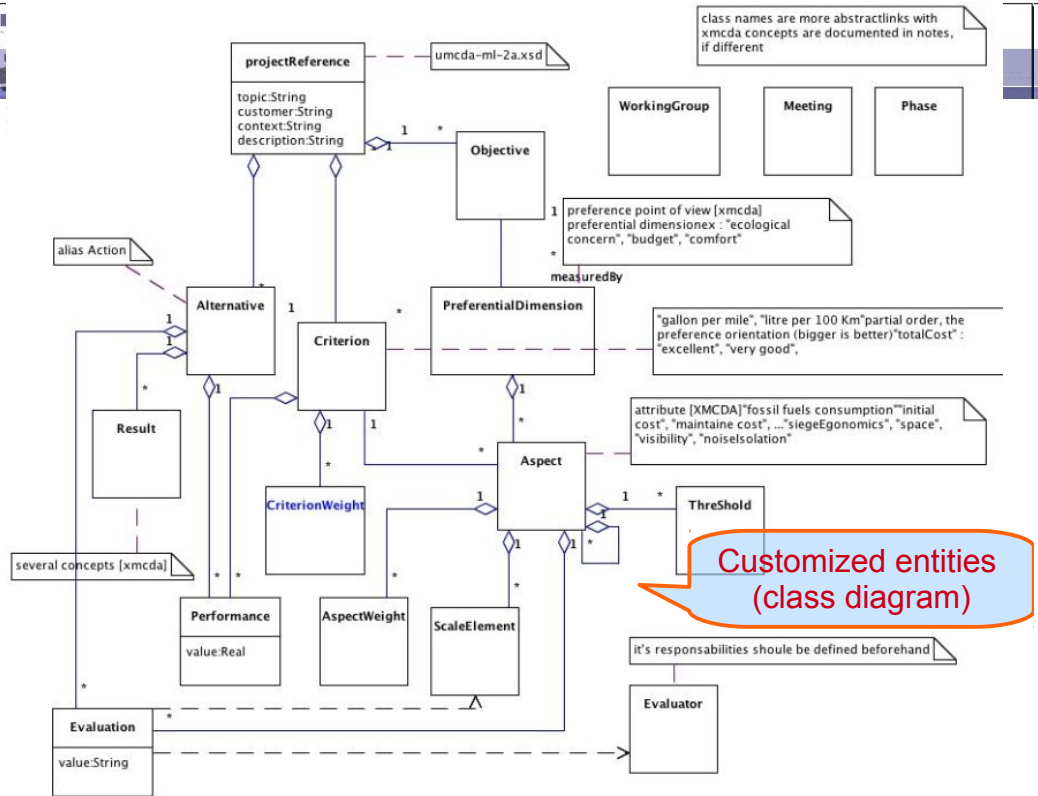


Use Cases



Universal visual value

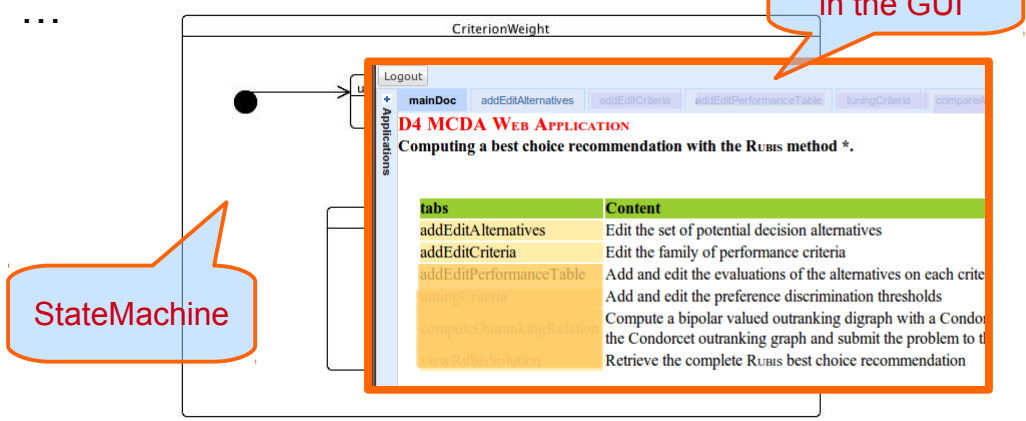
Workflow (activity diagram)



Customized entities (class diagram)

Object's lifecycle : workflow regulator

Can be reflected in the GUI

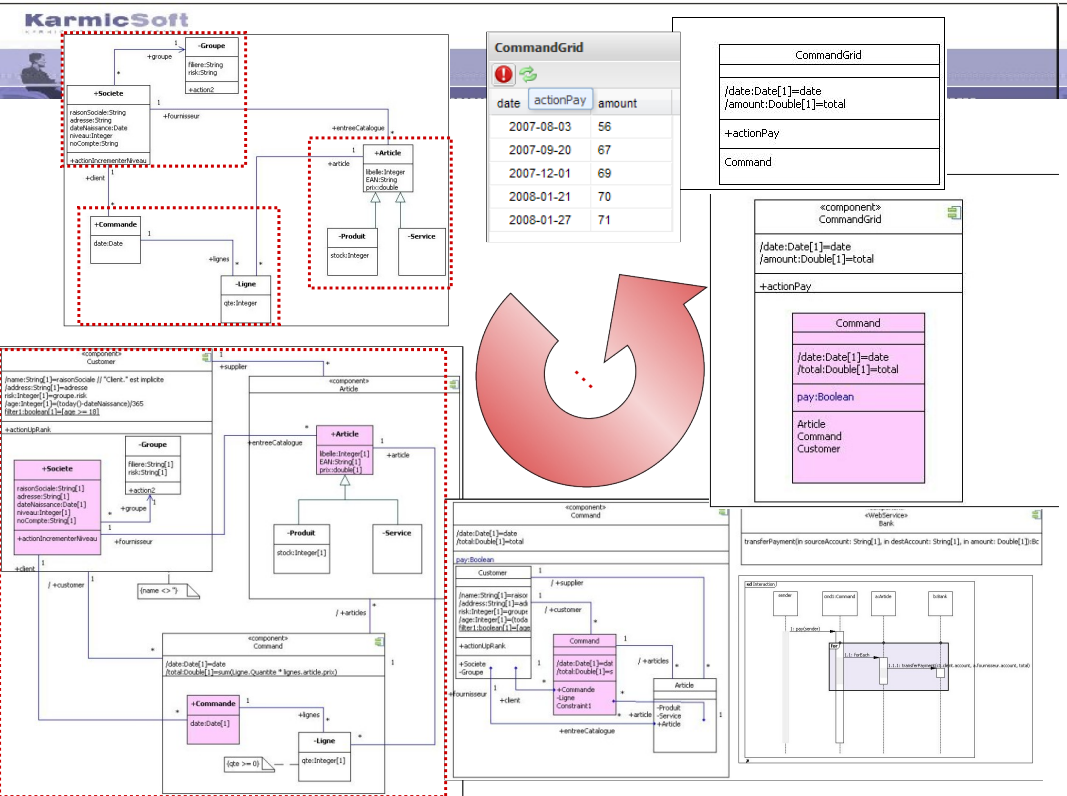


StateMachine

3. Granularity of the MCDA models

UML granularity concepts

- Model
  - Static : package*, class*, component*
  - Dynamic : usecase, activity*, state*, operation*
- Metamodel solution
  - (*) : Composite design pattern
  - XMI : XML Model Interachange



3. UMCDA-ML customization (profiles and stereotypes)

UML Profile

CriteriaBuilding
<< McdaProcess >>

Buildin StateMachine

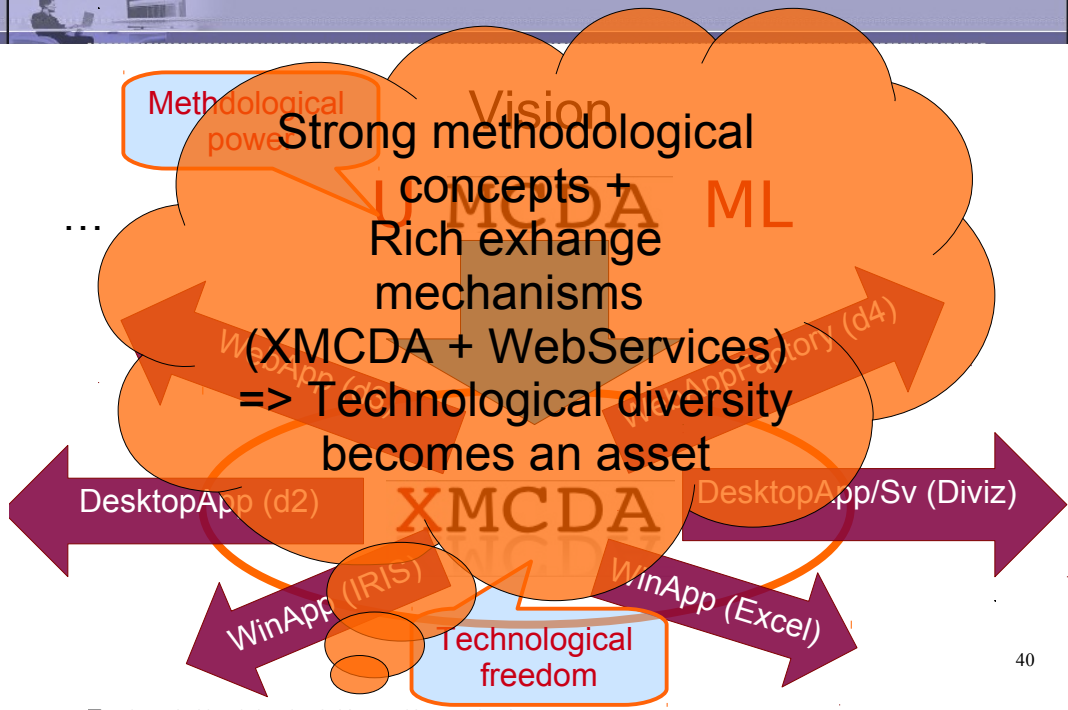
- Profile
  - provides a generic extension mechanism for customizing UML models for specific domains and platforms.
  - define new concepts (meta) called << stereotypes >>

    more than types, less than metatypes
  - model remain compliant with the standard
  - finally, the standard can evolve and integrate the stereotype as an official new concept

3. New horizons for XMCDA ?

XMCDA

- UML-like profiles and stereotypes
  - Requires tools for diagrams and generation
  - <<problem>>, <<package>>,
  - <<phase>>, <<workflow>>
- Types aggregates : java-like generics
  - Using Spring parsing features
  - Set<Alternative>, List<Evaluator> …
  - Matrix<Alternative, Evaluator>, Vector<Critera> …



Q&A