

---

# **Personalized Learning Environments** **– Today and in the Future –** (Responsive Personalized Learning Environments)

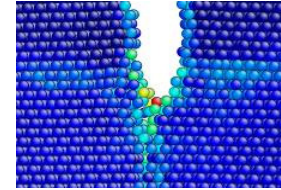
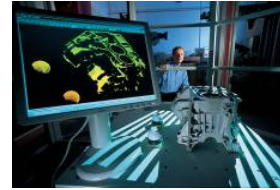
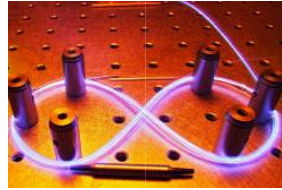
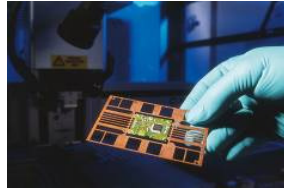
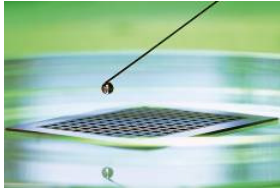
---



Dr. Martin Wolpers  
FIT.ICON

# Fraunhofer-Gesellschaft

---



- 57 Institutes
  - 15 000 employees
  - Non-profit organization for applied research
  - 57 research institutes
  - 15.000 employees
  - Annual budget ca. 1,400 Mio. €
- 7 Groups:
- Information and Communication Technology
  - Life Sciences
  - Microelectronics
  - Light & Surfaces
  - Production
  - Materials and Components - MATERIALS
  - Defense and Security

# Fraunhofer Institute FIT

## Applied Information Technology

Prof. Dr. Matthias Jarke

- User-centered information and cooperation systems
- Goal: Optimizing usability and usefulness of IT in the Interplay with organizational work practice, structures, and processes.

### Business Areas:

- Cooperation systems / collaborative computing
- Mobile knowledge
- User-centered software engineering
- Decision and process support
- Life science informatics
- Collaborative virtual and augmented reality



ca. 115 scientists: computer science, social science, business and economics, psychologists, engineers

## Context and Attention in Personalized Learning Environments

### Research Areas:

#### Information and knowledge processing

- Knowledge inference, knowledge management, Knowledge Representation
- Semantic knowledge and information modeling
- Information and Metadata

#### Personalization and adaptation

- Attention metadata
- User profiling
- Information retrieval
- Recommender Systems

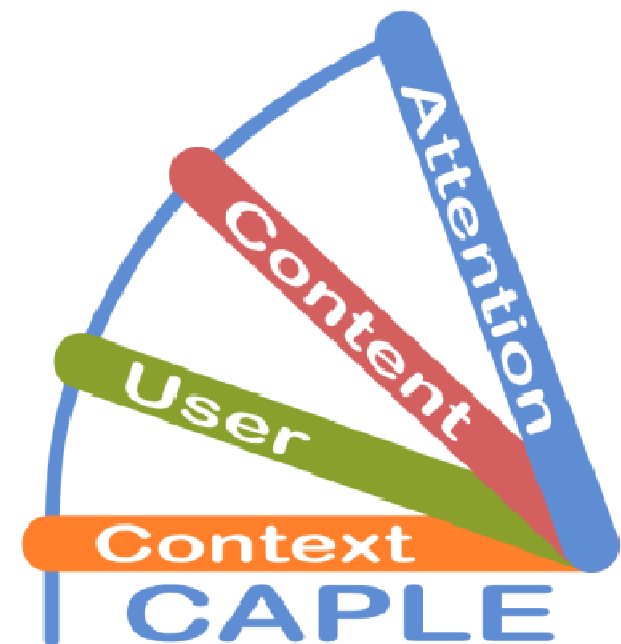
#### Technology enhanced learning

#### Communication Analysis

#### Artificial intelligence and Machine Learning

#### Social Network Analysis

#### Software engineering



# Technology Enhanced Learning

---

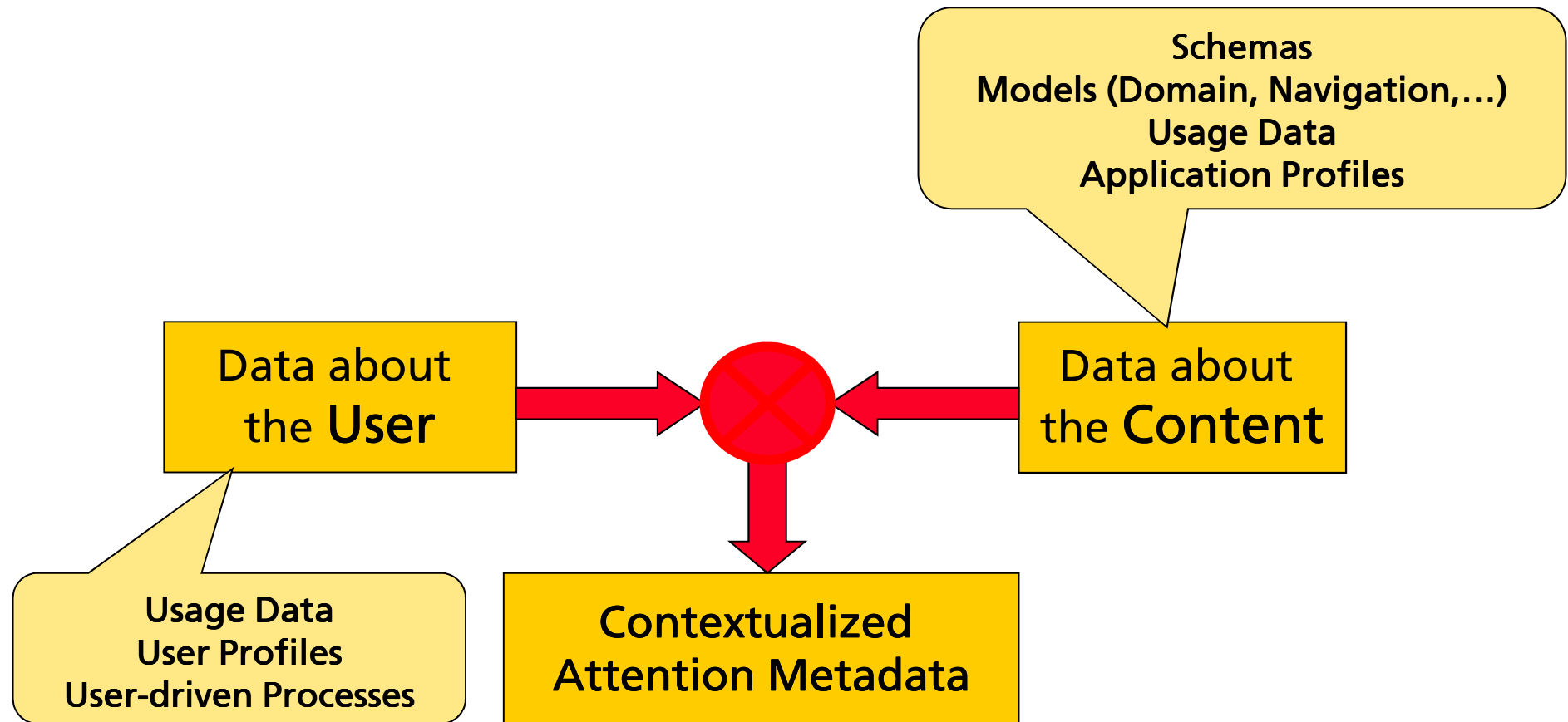
*“Technology enhanced learning (TEL) has the goal to provide socio-technical innovations (also improving efficiency and cost effectiveness) for learning practices, regarding individuals and organizations, independent of time, place and pace. The field of TEL therefore describes the support of any learning activity through technology.”*

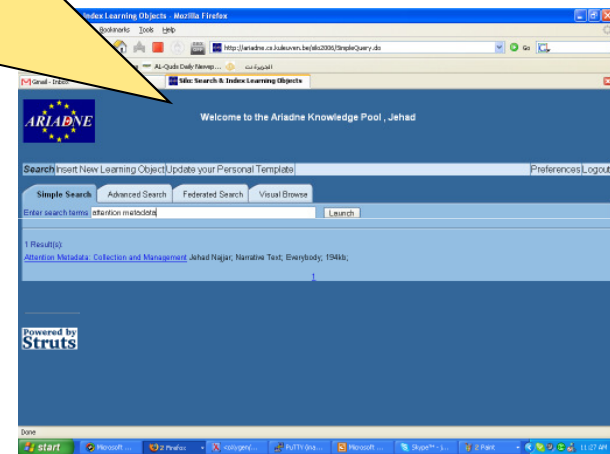
## TEL in Wikipedia

- Personalized Learning Environments
- Responsive Learning Environments
- Open Learning Environments
  
- Self-Regulated Learning
- Life-Long Learning
- Constructivist Learning

# Monitoring Usage and Attention: CAM

---





Reused?

Search terms?

Topics?

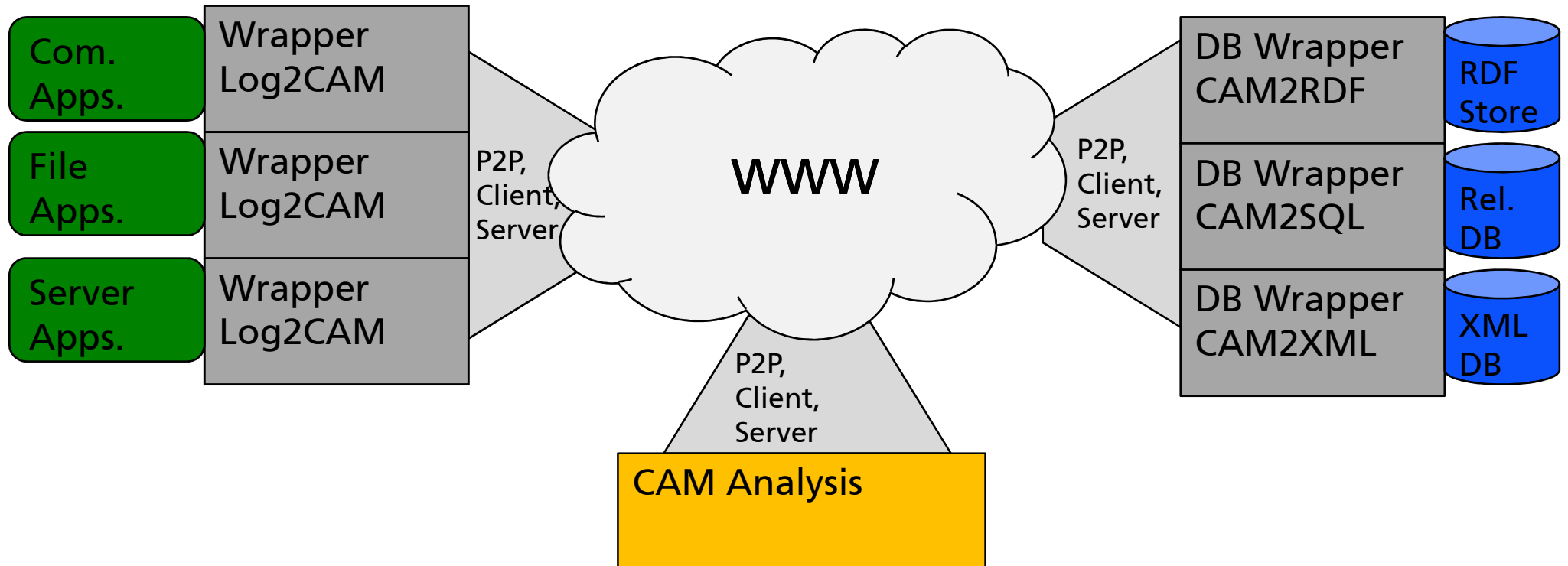
Searched and  
looked?  
When? Where?  
How?

# When, with whom, about what?

# Capture, exchange, associate, combine and analyze

# CAM Infrastructure

---

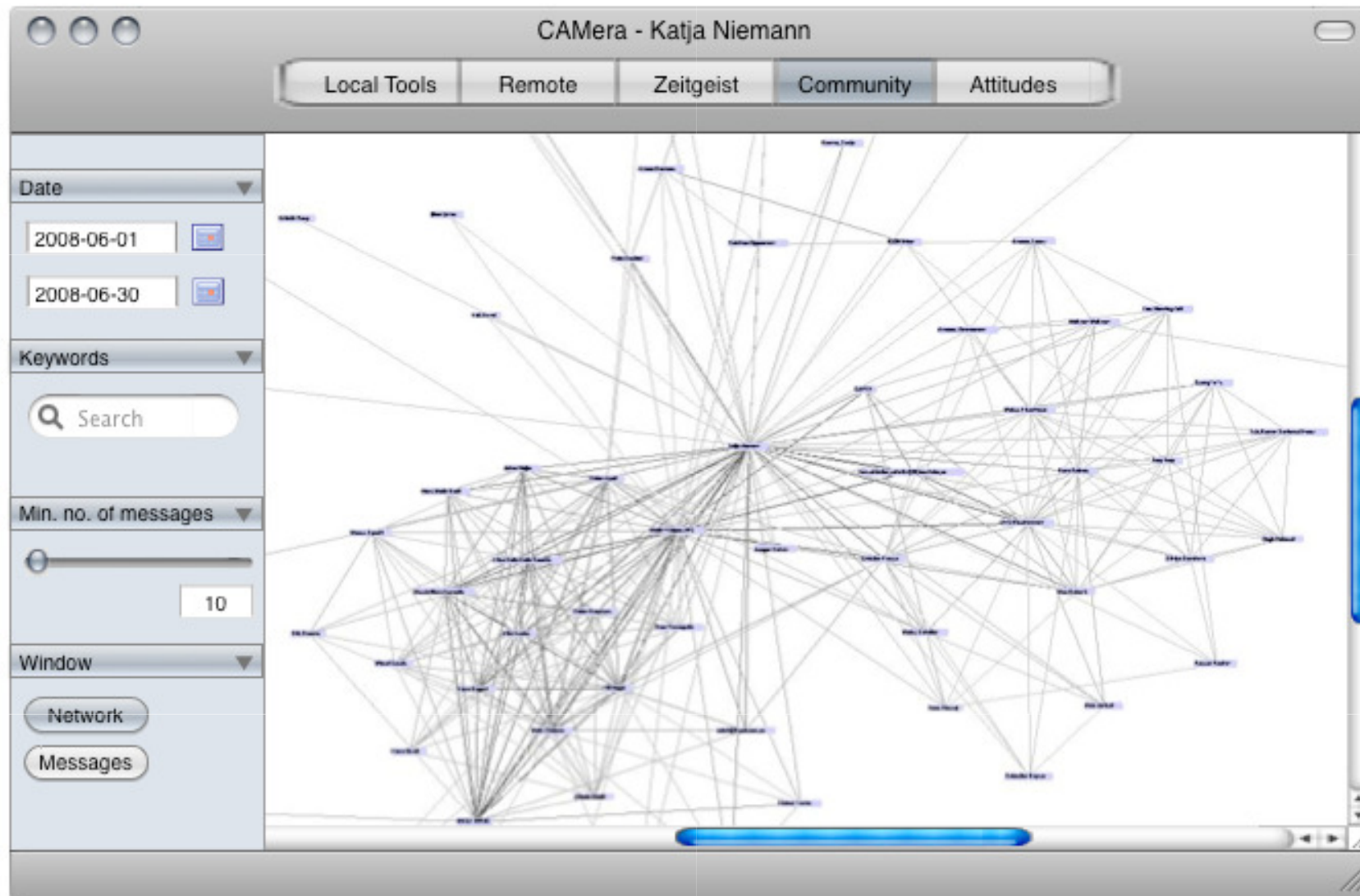


The screenshot shows the CAMera application window titled "CAMera - Hans-Christian Schmitz". The window has a menu bar with "Local Tools", "Remote", "Zeitgeist", "Community", and "Attitudes". Below the menu bar is a table with columns: "Tool", "Action", "Object", and "Date". The table lists several events from Mozilla Thunderbird and Mozilla Firefox. The "Date" column shows the date and time of each event. The "Tool" column lists the applications used. The "Action" column lists the specific actions performed. The "Object" column lists the objects involved in the actions. The "Date" column shows the date and time of each event.

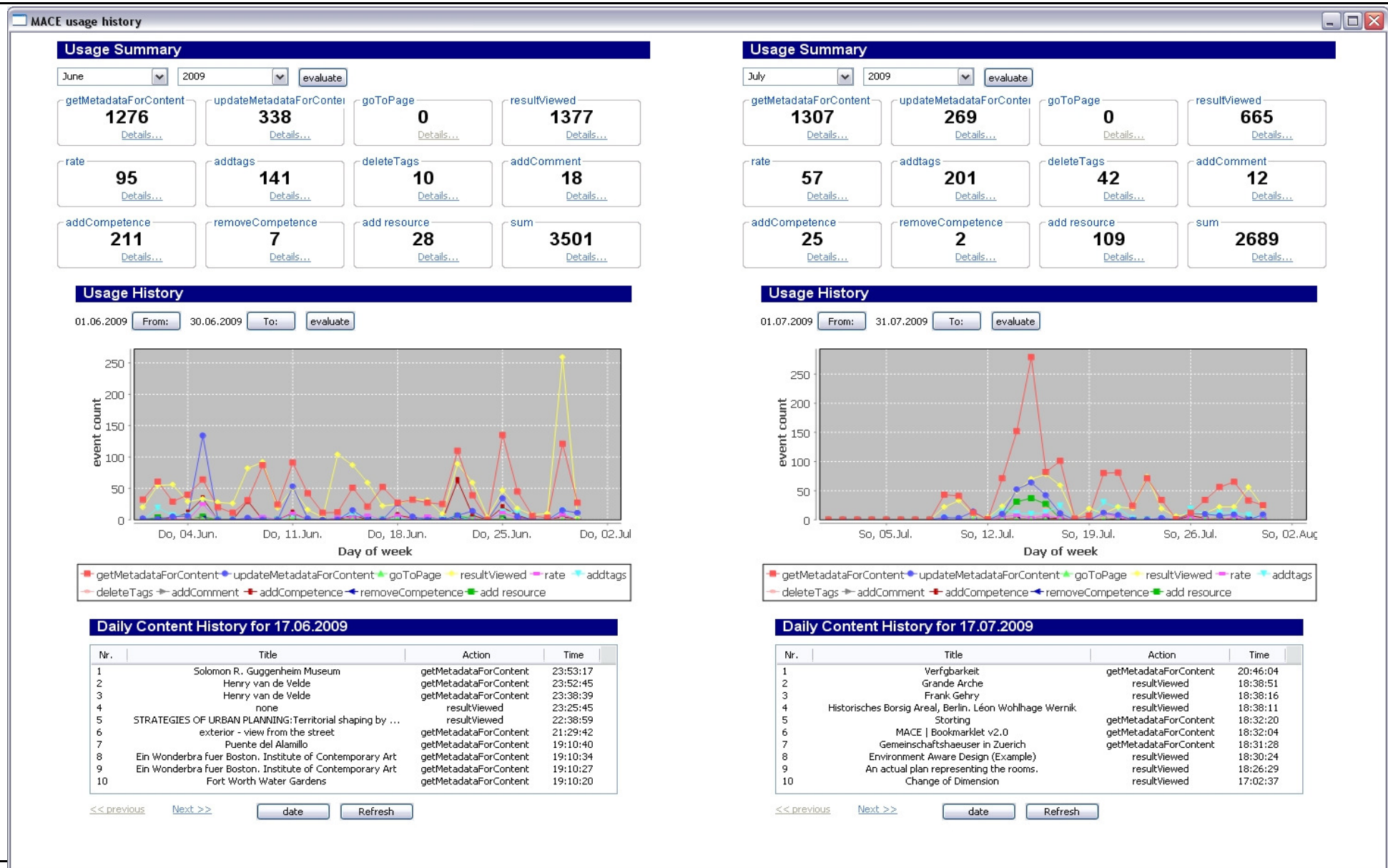
Tool	Action	Object	Date
Mozilla Thunderbird	eventNewMail	MID: 453676	Jun 22, 2008 09:48 AM
Mozilla Thunderbird	eventSendMail	MID: 453676	Jun 22, 2008 09:52 AM
Mozilla Firefox	eventBrowserNavigateClic	http://www.google.com/se	Jun 22, 2008 09:54 AM
Mozilla Firefox	eventEndDocumentLoad	http://www.google.com/se	Jun 22, 2008 09:54 AM
Mozilla Firefox	eventBrowserNavigateClic	http://www.google.com/se	Jun 22, 2008 10:00 AM
Mozilla Firefox	eventBrowserNavigateClic	http://www.google.com/se	Jun 22, 2008 10:01 AM
Mozilla Firefox	eventBrowserNavigateClic	http://www.google.com/se	Jun 22, 2008 10:01 AM
Mozilla Firefox	eventBrowserNavigateClic	http://www.google.com/se	Jun 22, 2008 10:01 AM
Mozilla Firefox	eventEndDocumentLoad	http://www.fit.fraunhofer.de	Jun 22, 2008 10:02 AM
Mozilla Firefox	eventBrowserNavigateClic	http://portal.mace-project.e	Jun 22, 2008 10:04 AM
Mozilla Firefox	eventEndDocumentLoad	http://portal.mace-project.e	Jun 22, 2008 10:04 AM

Below the table, there is a "View" section with three radio buttons: "CAM" (selected), "LOM", and "Keywords". To the right of the "View" section, there is a detailed XML-like representation of the selected event:

```
<group>
  <title>Hans-Christian Schmitz</title>
  <feed>
    <title>firefox</title>
    <typ>internet browser</typ>
    <item>
      <guid>http://www.fit.fraunhofer.de/projects/mobiles-wissen.html</guid>
      <event>
        <action>
          <type>.eventEndDocumentLoad</type>
          <relateddata>
            <value name="currentPageTitle">Fraunhofer FIT - Projekte - Mozilla Firefox</value>
          </relateddata>
        </action>
      </event>
    </item>
  </feed>
</group>
```

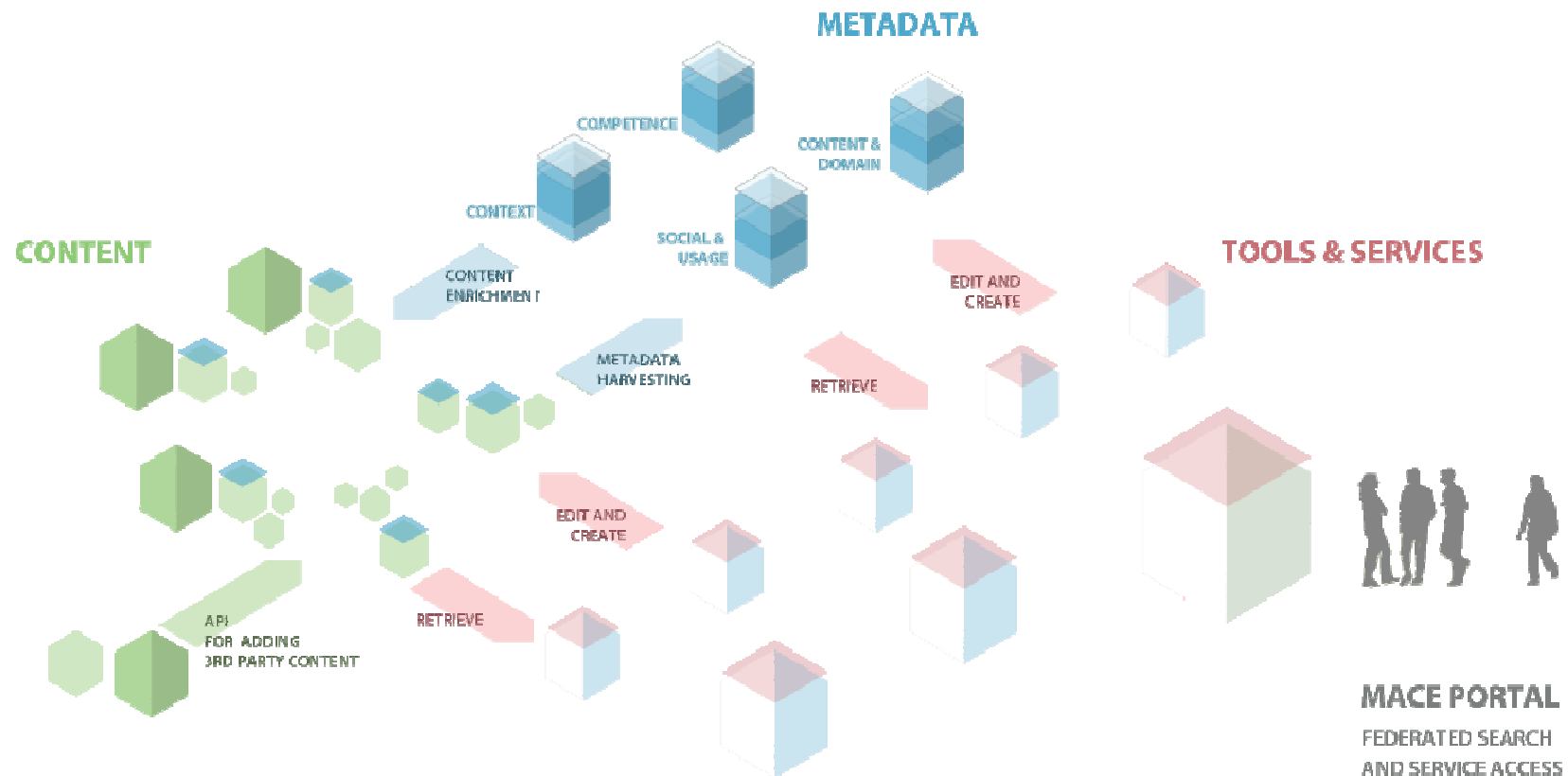


# CAMera/ MACE: Remote Services, Zeitgeist



## Metadata for Architectural Contents in Europe

Making architectural learning contents available to learners using new access methods and bridging repositories



# MACE: Faceted Search

MACE

Metadata for  
Architectural Contents  
in Europe

Home

Search & Browse

Community

Experiments

REGISTER

LOGIN

Filtered Search

Browse by Classification

Social Search

Keyword search

church

Find

Clear filters

Context filters

REPOSITORY

Cumincad : Works28

ICONDA7

DYNAMO6

WINDS3

LANGUAGE

English49

MEDIATYPE

text41

narrative41

figure13

index1

CLASSIFICATION

functional typology6

church6

religious buildings6

conceptual design6

deep sense5

project cues5

theological concepts4

COMPETENCY

Underst. people/bui6

Ability to Create Arcl6

Underst. project prep5

Underst. of architectur4

Knowledge of Urban D3

Knowledge of History3

Ability to elaborate, lead an1

Ability to apply knowledge ii1

Results

49 results for: "church" + English

1

2

3

4

5

◀

▶

D DYNAMO

view metadata

interior - backbone of the complex: ...  
interior - backbone of the complex: new passage  
along the church

D DYNAMO

view metadata

interior - passage between former ...  
interior - passage between former commanders  
house & church

D DYNAMO

view metadata

exterior - church of the convent  
exterior - church of the convent

D DYNAMO

view metadata

sketch - Madeleine church

D DYNAMO

view metadata

exterior - church and library


D DYNAMO

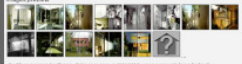
view metadata


exterior entrance building + church

# MACE: Search Results

## Villa dall'Ava » visit

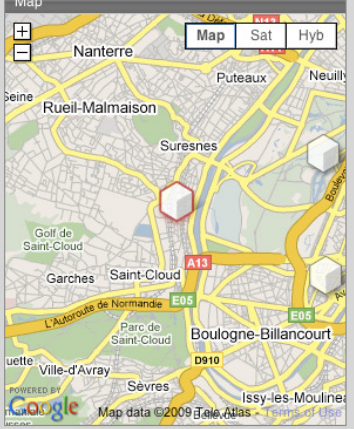


**Villa dall'Ava**  
Location: Paris, France  
Architect: Office for Metropolitan Architecture (OMA), Koophaas, Ben  
Keywords: 1991, roof-top swimming pool, single-story dwelling, terracotta, slope, new, reduction  
24 new metadata for this project  
(photo(10), drawing(1), reference(1), drawing(2))  
Images (photos):  
  
Former projects in Paris data require a DYNAMO user account (see below)

LANGUAGE	RESOURCE TYPE	REPOSITORY
English	figure, narrative text	 DYNAMO
DESCRIPTION	RIGHTS	
Villa dall'Ava: France, Paris	<p><b>Metadata license:</b> The original metadata for this content (provided by DYNAMO) and the enriched metadata are available under a Creative Commons BY-NC license.</p> <p><b>Content license:</b> The use of this object is restricted to registered users. Registering is free and limited to educational practice. (<a href="http://dynamo.asro.kuleuven.be">http://dynamo.asro.kuleuven.be</a>)</p>	

### Content metadata

#### Map



Map data © 2009 Google, Map data © 2009 Google, Map data © 2009 Google

#### Classification

**Assigned values**

Functional Typology	single family dwelling
Form Typology	detached house
Material	coloured glass clear glass heat-resistant material clay steel steel alloys active glass
Geographic Context	escarpments
Urban Context	urban fringe

#### Competencies

Architecture Competency Classification

Please select a competence!

Underst. project preparation methods	1	2	3	4	5	6	7	8
Underst. of structural and technological design	1	2	3	4	5	6	7	8
Underst. of architectural profession	1	2	3	4	5	6	7	8
Ability to Create Architectural Design	1	2	3	4	5	6	7	8
Knowledge of Urban Design	1	2	3	4	5	6	7	8
Knowledge of constructive and mana...	1	2	3	4	5	6	7	8
Underst. people/building relat...	1	2	3	4	5	6	7	8

EQF Range

#### Tags

**Community Tags**

always\_villadallava france koolhaas new paris  
pool rem roof swimming swimming-pool  
test testdummy

**My Tags**

[click to add your tags](#)

**Ratings**

**Community rating**


★★★★★  
average: 4.5 (4 votes)

**My Rating**

[click to rate](#)

**Comments**

Comments (4)

 **tinax**  
2009-01-16 10:09  
reference project

# MACE: Mobile Services, Augmented Reality

---





## ROLE Vision

- Empower the learner to build their own responsive learning environment

## Responsiveness

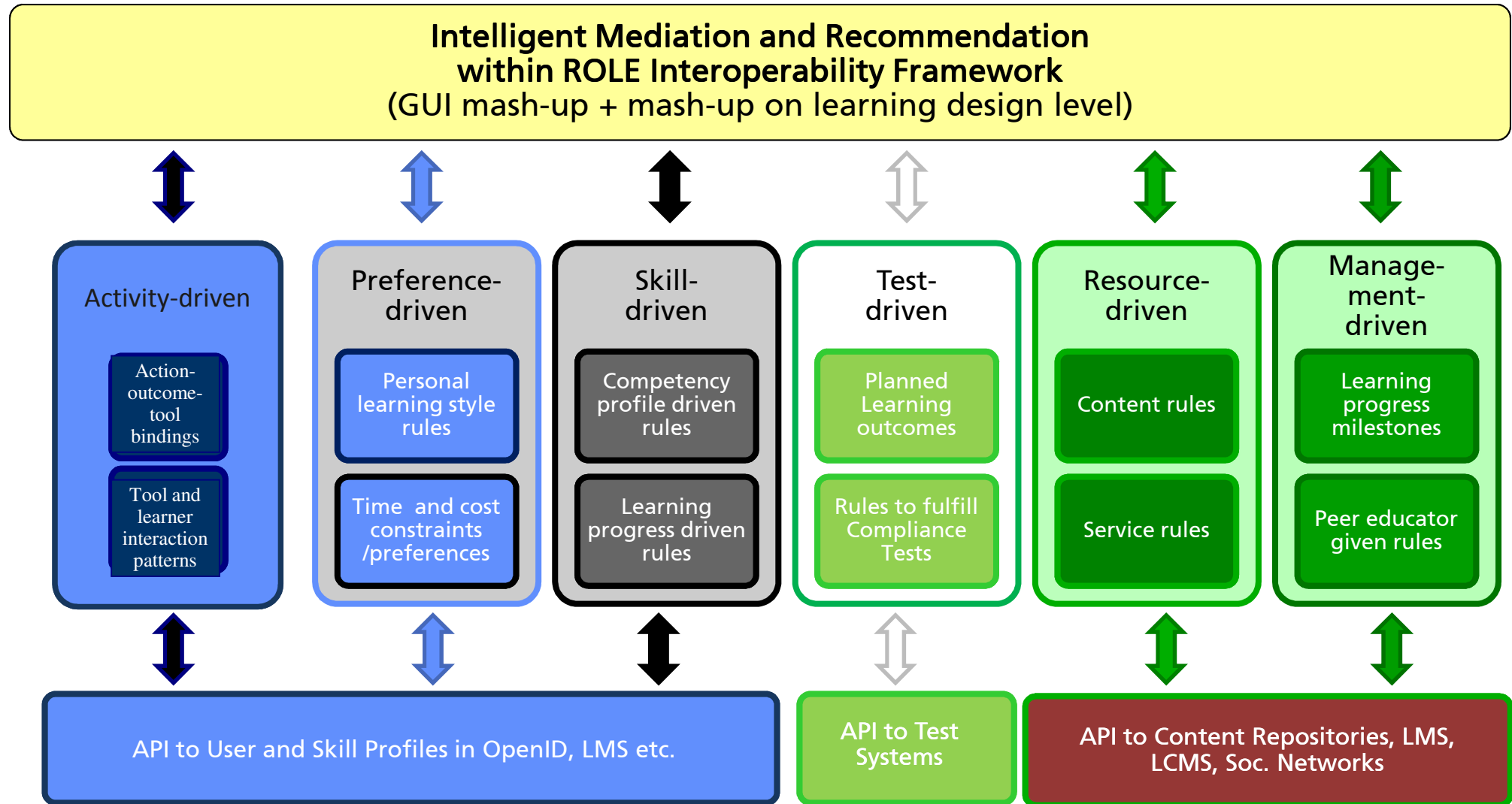
- Awareness and reflection of own learning process

## User-Centered

- Individually adapted composition of personal learning environment

<http://www.role-project.eu>

# ROLE: Mash-up services, rules and principles



## Mobile training for truck drivers

- ❖ Learning in breaks, at stops, during driving.
- ❖ Using mobile low-profile technology
- ❖ Distributed learner communities

- Motivation for self-regulated learning
- Context-sensitive adaption of learning contents and presentation modes
- Security aspects



# Thank you.

---

Dr. Martin Wolpers

[martin.wolpers@fit.fraunhofer.de](mailto:martin.wolpers@fit.fraunhofer.de)

<http://www.fit.fraunhofer.de/~wolpers>

+49 2241 14 -2128

[http://www.fit.fraunhofer.de/services/mobile/caple\\_en.html](http://www.fit.fraunhofer.de/services/mobile/caple_en.html)