

Ontology Outreach to Industry -The HR domain

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The Ontology outreach Advisory

The OOA workshop on Semantic challenges and opportunities in the Human Resources Domain.

Oxford –October 11, 2006

As part of the [ePortfolio](#) conference

http://www.jarrar.info/OOA/OOA-HR_workshop.htm





Overview

What is Knowledge Web

What is the OOA





Knowledge Web Project

- A network of excellence project(**FP6-507482**).
- Title: Realizing the Semantic Web
- Supporting the transition process of Ontology technology from Academia to Industry.
- Duration: 1/1/2004 – 31/12/2007





knowledge
realizing the semantic web

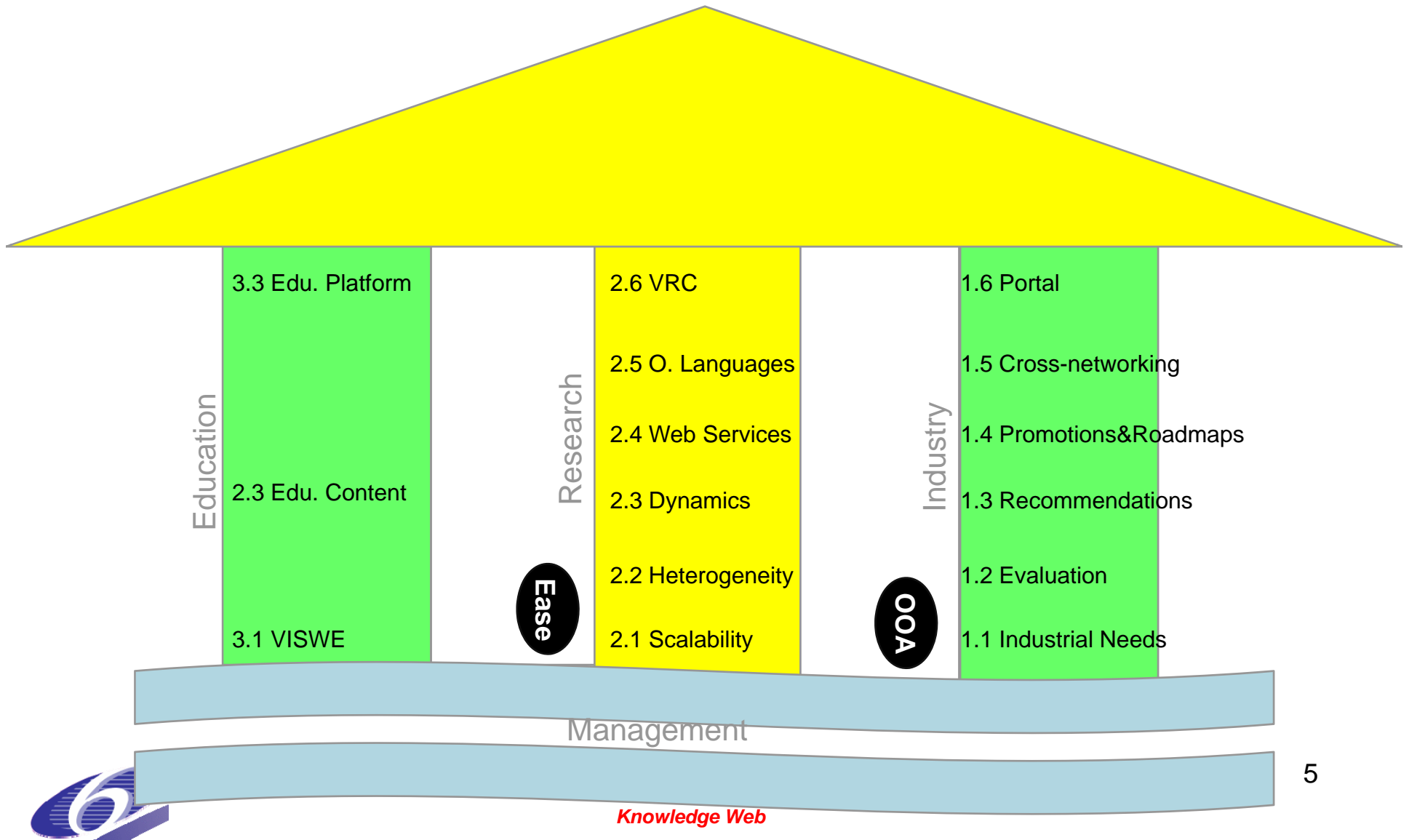
Partners

| No | short name | Participant name | Country |
|----|------------|--|------------------------------|
| 1 | UIBK | University of Innsbruck | Austria |
| 2 | EPFL | École Polytechnique Fédérale de Lausanne | Switzerland |
| 3 | FT | France Telecom | France |
| 4 | FU Berlin | Freie Universität Berlin | Germany |
| 5 | FUB | Free University of Bozen-Bolzano | Italy |
| 6 | INRIA | Institut National de Recherche en Informatique et en Automatique | France |
| 7 | CERTH | Informatics and Telematics Research Center | Greece |
| 8 | L3S(UHAN) | Learning Lab Loveland | Germany |
| 9 | NUIG | National University of Ireland Galway | Ireland |
| 10 | OU | The Open University | UK |
| 11 | UPM | Universidad Politécnica de Madrid | Spain |
| 12 | UKARL | University of Karlsruhe | Germany |
| 13 | LivUni | University of Liverpool | UK |
| 14 | VUM | University of Manchester | UK |
| 15 | USFD | University of Sheffield | UK |
| 16 | UniTn | University of Trento | Italy |
| 17 | VU | Vrije Universiteit Amsterdam | The Netherlands ⁴ |
| 18 | VUB | Vrije Universiteit Brussel | Belgium |

+ Tens of industrial partners



The logo says...



Objectives

Outreach to industry (STARLab Leadership)

Promoting *greater awareness* and *faster take-up* of Semantic Web technology within Europe in.

Outreach to education

we provide the means for educating the next generation of Semantic Web application developers and researchers

Coordination of research

ensure that the research as performed by the leading groups in this area will be sufficiently coordinated to avoid both duplication and fragmentation



The OOA Mission

The OOA is devoted to **develop strategies for ontology recommendation**, thereby **promoting and providing outreach for verifiable quality ontological content**.

In the present state of the Semantic Web and of its adoption by industry, ontological content is difficult to standardize by the methods used by typical standardization bodies. Content is typically subjective and application-dependent, and general evaluation criteria are lacking. Therefore a form of “standardization lite” by recommending ontologies will be adopted. The OOA is intended to play the role of an ontology recommendation body. The focus and operation of the OOA therefore will be **(mainly) content-oriented rather than (only) technology-oriented**. Good quality ontologies will be recommended and promoted to industry. The OOA will consist of the most active (industrial + governmental + academic) members with respect to ontology development, use, or education.



OOA General Activities

1. Quality assurance of ontology content.

- Develop and maintain quality (and methodological) guidelines.
- Develop evaluation and recommendation framework and procedures.
- Evaluate and recommend ontologies (recommendation body).

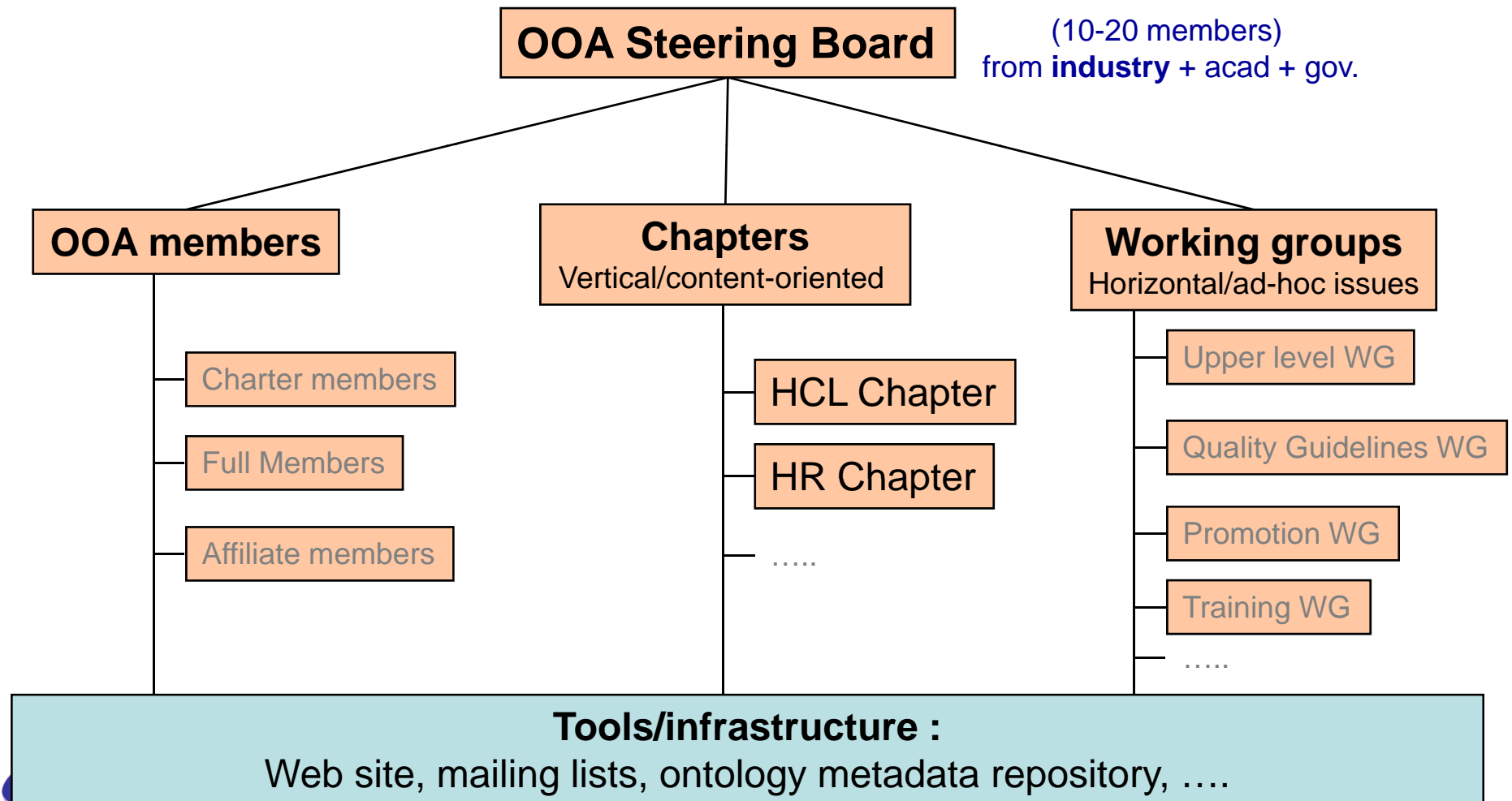
2. Promotion of recommended ontologies and guidelines.

- Organize ontology content-oriented conferences, meetings, newsletters etc.
- Organize demonstration events to present recommended ontologies, quality guidelines, etc.



OOA Organization

Organize the market into domain sectors, set up a chapter for each sector.



OOA Added Value

- **For ontology builders/owners:**

Ontologies become *validated*, and *promoted* by market experts. New ontology users learn quality guidelines, etc.

- **For the participating members:**

Play a prominent role in their domain of interest, their recommendations influence the domain, locate new business/opportunities/customers, be the first-to-know and have full access to the OOA developments ...

- **For the market:**

Organization of efforts in each market sector. Recommended ontologies and guidelines (by market experts) become de facto standards. Community innovation and productivity increase at large.



Ontology Evaluation Challenge

Existing approaches to ontology evaluation focus on:

- Ontological evaluation (ontology vs. its conceptualization)
- Logical evaluation (TBox satisfiability, soundness, completeness)
- Suitability evaluation (ontology vs. a given application, e.g. WP1.2)
- Compliance to a standard (well-formed, ontology syntax)
-

→ Difficult to generalize and use one of these approaches whole for ontology recommendation:

- They reflect diversity of focus and understanding rather than agreement.
- None alone has proven satisfactory applicability in practice yet.
- Each requires extensive evaluation efforts.
- Each specific domain or even each application scenario may have its own evaluation priorities and best practices.

→ Any recommendation framework should be application independent (but can be customized along the above dimensions).



Ontology Recommendation

- **Start** with the following *recommendation* principle:

Evaluate whether an ontology is in concordance with the claims of its developers.

Claims should be well stated in the ontology documentation

→ Structured documentation of: goals, requirements, scope, reusability, usability, ...

→ Natural complement of internal review process at developer

- This principle will be developed into a framework, customized and extended according to the specifics of each domain sector.



Next step: Set up initial Chapter Committees and Working Groups

- The OOA will be registered as a not-for-profit organization before 2007
- As starting, set up **2 OOA Chapters**, and **2 Working Groups**

CC-01 Human Resources and Employment

Chair: Luk Vervenne,
Members: HR-XML, IEEE, SKillesNet, CWI, etc.

CC-02 Healthcare and Life Sciences

Chair: Werner Ceusters
Members: ECOR/ENCOR, AGFA, BioVista, BioWisdom, etc

WG-01 WG on quality guidelines issues

(To be established)

WG-02 WG on upper level HLS-HRE issues

(To be established)





In Collaboration with



Linguistic Infrastructure for Interoperable Resources and Systems



The Dutch employment agency



The Walloon employment agency



Past Activities

Invitation letters were sent to active companies in HR and HLS.

OOA meeting with industry, Crete (2 June 2005).

- The OOA goals and requirements.
- Challenges and opportunities in HR and HLS
- Appointment of the OOA HR and HLS chairs.
- 4 presentations by industry to the K'Web partners

OOA workshop, Trento (15 Jan 2006).

- The OOA operational plans and formal setup.
- The OOA agenda for 2006 (3 workshops in 2006)
- Companies encourage (very much) the setup of the OOA in 2006
- 2 presentations by industry to the K'Web plenary.

Etc.



The OOA-HR chapter (Human Resources and Employment)

Chair: **Luk Vervenne, Synergetics,**
luk@synergetics.be





HR: invitations issued



Learning Technology Standards Committee



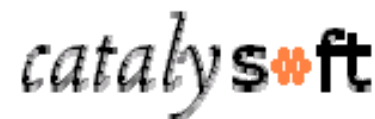
Educational Concepts



The Walloon employment agency



The Dutch employment agency



Human Resources and Employment



**Competency-centric HR is the new wave of change
in the labour market as a whole.**

Domain challenges:

Modelling and representing Competencies through Reusable Competency Definitions and Maps

Urgent need to add semantics to the HR-XML syntax. (a HR-XML Consortium Europe task)

“[...] meaningful way to exchange competency data between industry, education & employment services.” (Luk Vervenne, HR-XML/ synergetics)

“[...] Currently we have started an effort to establish common skills and competency framework (standards) and having an ontological standard framework is essential” (Michael Brown, SkillsNet.org)

→ Presentation by the IEEE-LTSC chair at the K'Web plenary Meeting.



Feedback



- **Very encouraging replies.**
- **Several companies committed to play active role:**

“Clearly, the combination of KM and Human Resources has enormous implications for the growth and dispersion of such new technologies to industry as a whole.” *(Claude Ostyn, IEEE chair, LTSC/WG20, US)*

“...The semantics themselves should probably lay outside of the HR-XML, but at least HR-XML should help provide (implementation) guidance, best practices etc... on how to add semantics in an coherent way.” *(Chuck Allen, chairman HR-XML Consortium, US)*

“... A European two-year CEN/ISSS Workshop will start on a “Lifelong Competency Framework” to allow information about competences to be interoperable in a meaningful way i.e. process neutral, domain independent concepts, spanning education, industry and employment services.” *(P.J.Bruynickx, Randstad, NL)*

On the OOA-HR Agenda



Invite and collaborate with:

ePortfolio.org, a student-centred platform.

Key-PAL, Key Skills Portfolio Assisted Learning, EU project.

Co-Drive, methodology for developing and maintaining competency ontologies, EU project.

ElfEL, European Institute for E-Learning, not-for-profit European professional association.

TELCERT, to assure interoperability in eLearning content and technology, EU Project.

GEARS, EU project, to improve competitiveness of SMEs,.

Prolix, EU project, enable organizations to faster improve the competencies of their employees.

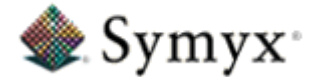
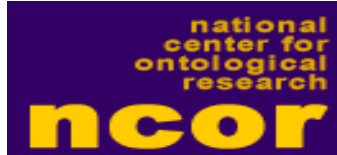
The OOA-HLS chapter (Healthcare and Life Sciences)

Chair: Prof. Werner Ceusters, SUNY at Buffalo
ceusters@buffalo.edu





HLS: Invitation issued



France



AUREUS PHARMA



HealthCare and Life sciences



Includes: bio-informatics, medical informatics, biochemicals etc.

- Mature sector wrt to its goals and objectives.
“...But not that many success stories (because the approaches were limited mainly to technology providers)...”. (Werner Ceusters)
- Semantic interoperability in eHealth is one of the main themes in the EU agenda, (e.g. the RIDE project).
- No OOA alternatives in Europe:
 - ECOR and IFOMIS (Europe) are doing fundamental research, but no infrastructure for ontology Quality Assurance.
 - NCOR and CBIO (USA) are rapidly moving forward in this field (the OOA-HLS chair is involved in both).

→ Approach:

- Establish active collaboration with the key people and initiatives.
- Organising joint activities.
- etc.



Feedback from ECOR, NCOR



- Many committed to join and play active roles
- The idea of ontology recommendation was very welcomed

*“The issue of ontology certification was discussed last Friday at the NCOR planning meeting. High level stuff, with people from Boeing, Lockheed, NSA, NIST, ..., representing users, developers, distributors, etc. **Conclusion: developers hate to see certification, users love it.** Main problem was the gold standard against which ontologies should be compared.”* (NCOR meeting minutes, Oct.2005)

- Many advised to setup the OOA as separate legal entity. A response on whether the OOA is bringing something to the HLS sector:

*“... ontology certification is going to happen anyway. **If the KW-OOA does not take it, somebody else will.**”* (Ibid.)

- Eurorec will through the recently accepted Q-REC project start *European wide quality criteria* development for electronic health records.
- ECOR asked to write quality criteria w.r.t. ontological issues. Innomed Technological Platform will do same for drug discovery tools. Competition for ontology alignment in K-Cap.



HealthCare and Life sciences



On the agenda, invite and collaborate with:

SNOMED-CT, The biggest and most consistently organised terminology in health. Recently proposed as the reference ontology for health in Europe.

Open Biomedical Ontologies (OBO), A frame work for developing “open source” ontologies in medicine. Maintain a growing set of design guidelines for open ontology development.

EUROREC, Institute, is a non-profit, independent organisation, promoting the use of high-quality Electronic Health Records in Europe.

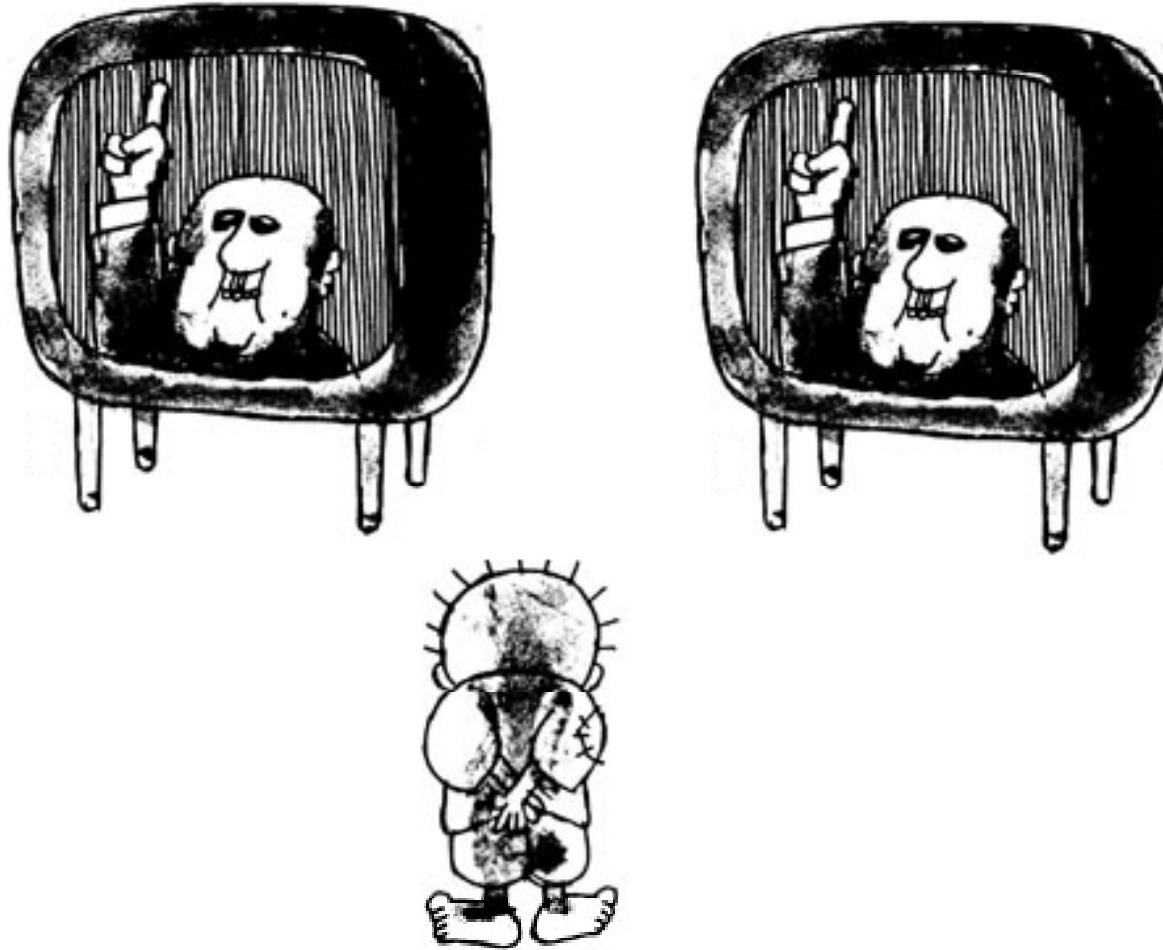
Q-REC, “European Quality Labelling and Certification of Electronic Health Record systems”, a project that will be launched January 2006.

RIDE, An EU project, “Roadmap for Interoperability of eHealth systems”, investigating 30 use cases/applications to derive the technical requirements.

Semantic Mining NoE, (Ontology WG) Semantic Interoperability and Data Mining in Biomedicine.



Questions



Thanks for your attention

If you have any question please contact
[Mustafa Jarrar](#) STARLab, Vrije Universiteit Brussel

Werner Ceusters: SUNY at Buffalo (OOA-HLS chair)

Luk Vervenne: Synergetics (OOA-HRE chair)

