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# Open Source - Basis for synergies in the ICT education and research

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NMU Conference 2006 - Grimstad

An earlier version was presented in Tunis, at PPP / WSIS 2005

**EIAO**

The EIAO project is co-funded by the European Commission,  
under the IST contract 2003-004526-STREP



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# Main research and teaching

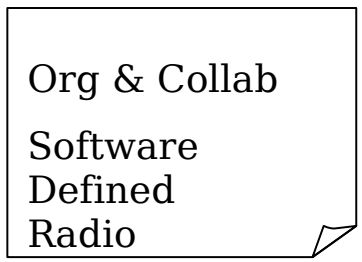
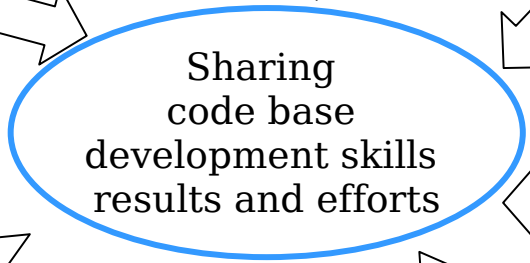
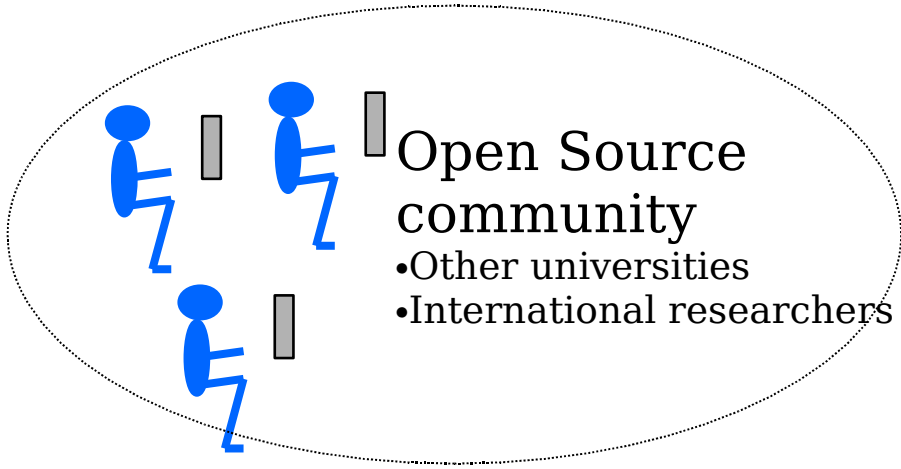
- Universal Design – Web assessments
    - Open Standards and Open Source
  - Reaseach - EIAO
    - European Internet Accessibility Observatory  
10 partners, 3, years, 2.6 MEuro
  - Teaching
    - Organisation and Collaboration
    - Webmining
    - Database theory
  - Software Policy for the future  
Board of technology, Ministry of Modernisation, GUADEC
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# Agenda

- Research-based-education - Concepts
  - European Internet Accessibility Observatory
    - Webmining Course
    - Peer review method
  - Practical challenges and actions for introducing FOSS in ICT education
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# Synergies – Open Source in research-based-education



# EIAO

**EIAO European Internet Accessibility Observatory**

Access for all to the Information Society is a key goal for the European Union. With increasing use of the World Wide Web – in particular for government information and services, it is essential that no-one is excluded. Still many people – especially those with a disability – meet barriers. Benchmarking is a key element in this work, to support political goals for a more accessible Internet.

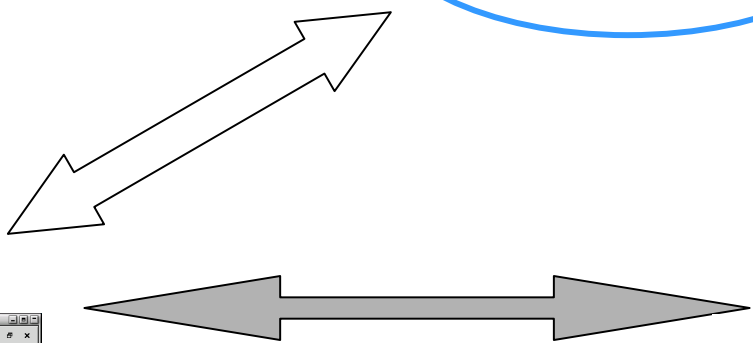
**The EIAO project will develop large scale accessibility benchmarking**

The EIAO project will establish the technical basis for a European Internet Accessibility Observatory. Frequently updated assessed data will be available online from a user interface of a data warehouse, providing a basis for benchmarking, policymaking, research and actions to improve accessibility on the Internet.

**Internet Robot** → **Web Accessibility Metrics** → **Data Warehouse**

**News**

- UWEM 0.5 Released**  
A Unified Web Evaluation Methodology to evaluate web accessibility - first draft released by 24 European organisations.  
2005-10-19
- Web-mining and data analysis**  
A website for the Web-mining and data analysis has been made available.  
2005-05-10



**Research organisation**  
Goals and methods  
Current challenges -->  
<-- surveys, experiments  
and test implementations  
Relevant training

## Webmining

**Web-mining and data analysis (IKT407)**

home | news | lectures | projects | previous projects | various

you are here: home

Web-mining and data analysis is a course given at Agder University College. The course is closely related to the EIAO project and each student group participating in this course has projects related to EIAO.

The course includes techniques for automatic retrieving and processing of information from the Internet. Accessibility of the content of Internet is mainly decided in the form of the content (html-code, colors, pictures, animations, etc.). In fact, the form of the content of Internet can determine to what extent people with disabilities can utilize the information. The form of the information also decides what kind of terminals can be used, like mobile phones or braille readers. Understanding and assessing accessibility of the Internet content is therefore important, and is the main purpose of the student projects given in this course.

**News**

Midterm evaluation	2005-10-05
Presentation Schedule 22.09.2005	2005-09-15
CVS lecture 2005-09-09	2005-09-06
Selected Projects	2005-09-04
Forum	2005-08-31

Read more news...

search

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# Open Source in Research based education

- Tools  
Trackers, Office tools, Version server
  - Methods  
peer review, testing, release management
  - Collaboration  
Distributed collaboration, community
  - Open Source projects  
HarvestMan, Skolelinux
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# EIAO

## European Internet Accessibility Observatory

- Build the technical machinery for a possible Internet Accessibility Observatory
- Participate in the development of a Unified Web Accessibility Methodology (WAB Cluster)
- Facilitate use of measurements for Policy making
- Develop new methods to assess web accessibility

The EIAO project is co-funded by the European Commission,  
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# Accessibility for whom?



Source: <http://www.hi.se/>

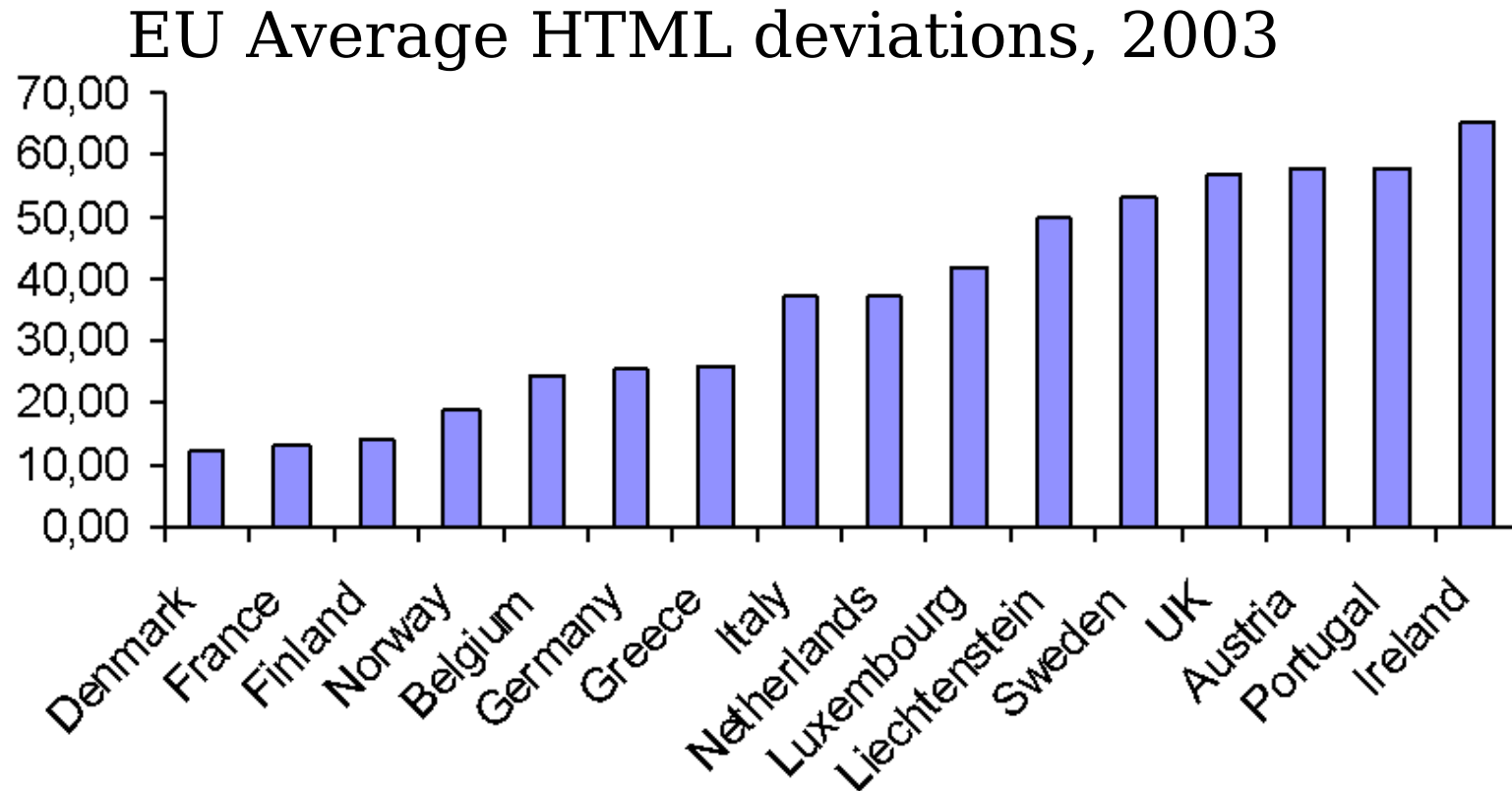


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Open Standards encourage independent applications

# Example data



All member states of the EU and Norway have agreed to use W3C/WAI for public content

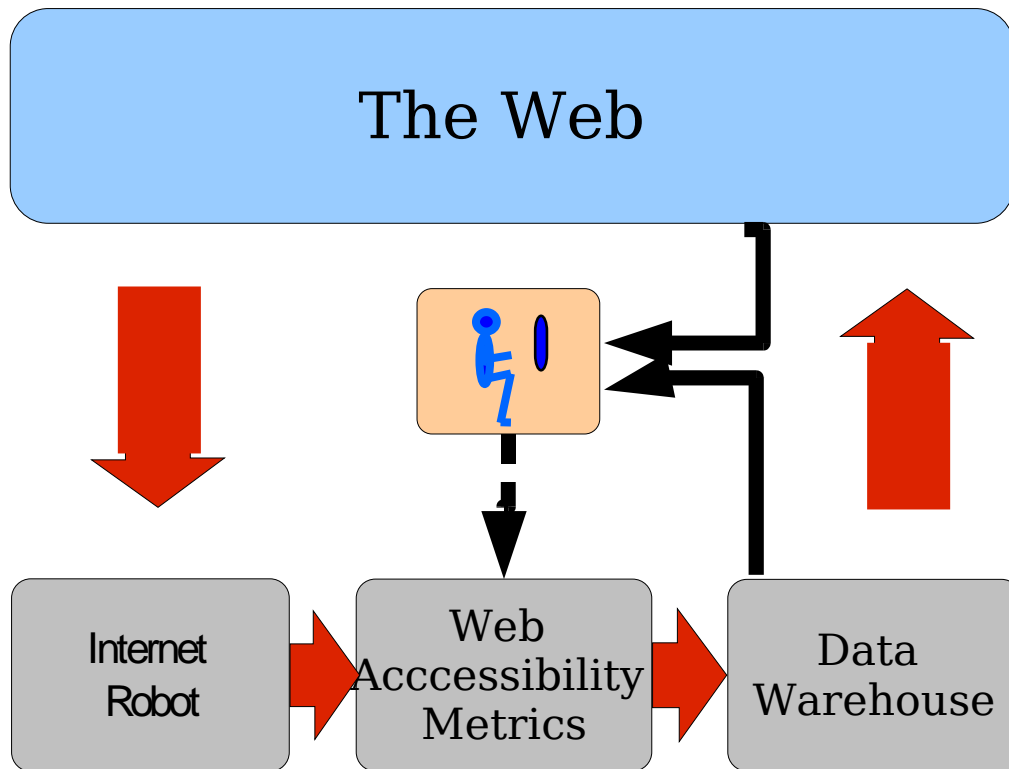


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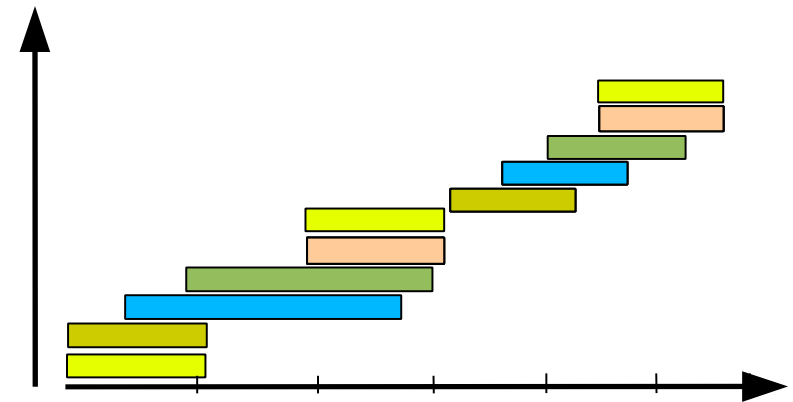
# EIAO Design

- Open Source
    - Transparent measurement methods
    - Inclusive development process
    - Simple distribution
  - Evaluation of 10.000 web sites
    - About 100 pages per site
    - Prototype for automatic monthly evaluation
  - Design for scalability in a distributed system
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# Peer review: for web assessment calibration



Software  
improvement  
cycle

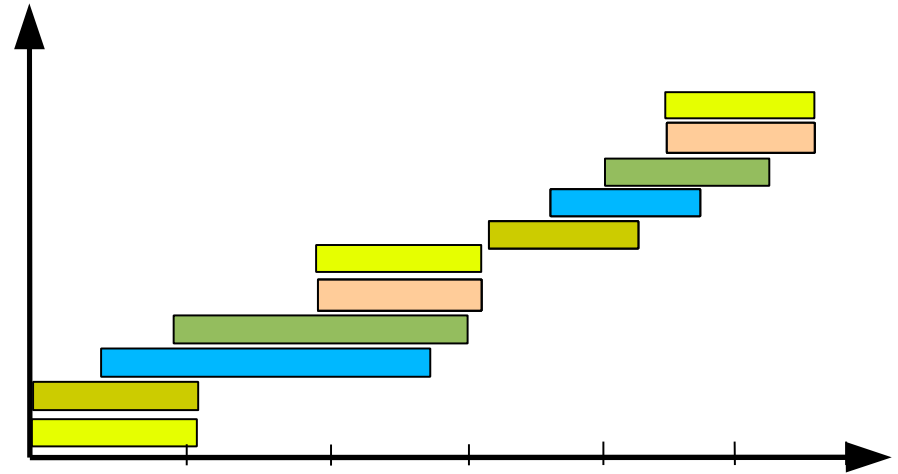
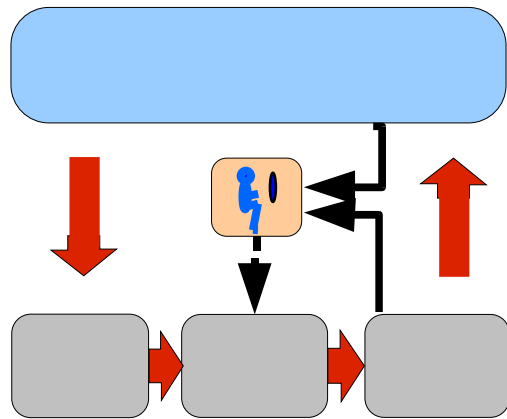


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# Webmining and Data Analysis

- Open Standards like HTML, XML, and HTTP
  - Algorithms for pattern classification, clustering, and statistical inference
  - Quality of Service (Accessibility)
  - Student projects
    - Regular meetings with mentor team
    - Implementing in Python
    - Extensions to HarvestMan
  - Collaboration with Open Source community  
<http://www.eiao.net/webmining>
-

# Peer review - method both for developing and teaching



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# A course cycle

- Peer reviewing, continuously and in half semester, by students of:
    - Report templates
    - Course content, lectures, workload etc
    - Students projects topics
  - Peer reviewing continuously and 3 times in semester by professors of:
    - Student presentations
    - Student feedback on course
    - Projects and course
-

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# Platform for sharing and developing teaching materials

- Some existing platforms
    - Lektion.se, 'Ressursverkstedet' in utdanning.no and laeremidler.dk.
    - Lectures and exercises to download
    - Currently little support for collaborative development
  - Master project at AUC summer 2006
    - Explore ways to support collaboration
    - Open content and accessibility in mind
    - Focus on how to deploy platform in practice
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# Practical challenges and actions for introducing FOSS in ICT education

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# Barriers for introducing Open Source for teaching ICT

- Skills and support on proprietary solutions
  - Open Source and Open Standards confusion
  - Available curricula on proprietary software
  - Funding model may count software patents
  - Wide use of proprietary document formats
  - Web portal for teaching is posing barriers
  - University purchase agreements result in proprietary software with new hardware
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# Benefits of Open Source for research-based-teaching ICT

- Students and researchers can
    - Explore how software really works
    - Extend functionality and share results
  - Co-operation with Open source projects
    - Improve project continuity and software reuse
    - Learn to integrate heterogeneous systems
    - Experience international co-operation
  - Code access allows others to verify experiments
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# Open Source as basis for co-operation

- Create a research group with
    - Policy for projects (techp.org)
    - Guidelines and templates for teaching
    - Project handbook
  - Organise FOSS workshops and conferences connect students and the FOSS community
  - Co-operate with Open Source leaders  
Bruce Perens, Anand B. Pillai
  - Co-operate with FOSS companies  
Nettkroken, Bitfrost, Plone solutions
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# Actions proposed to increase synergies

- Adjust courses to build on research projects
  - Establish an Open Source understanding
  - Define student projects as modules into existing Open Source code bases
  - Improve students documentation skills
  - Provide report template to
    - Structure student project work
    - Increase consistency of documentation and evaluation
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# Ways to migrate to Open Source

- Extend or migrate course materials
  - Raise external funding for FOSS research
  - Contribute to national Software policy
  - Build 'adventure factor' into projects
    - International forefront research
    - Projects with universities in developing
  - Create student projects for co-operation
    - Skolelinux in developing countries
    - Platform to develop and share
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# Activities related to OSS in research and education

- KS, IKT-Norge, HiBu m.fl.
    - <http://www.ikt-norge.no/templates/Page.aspx?id=745>
  - SIDA report on OSS and development aid
    - [http://www.sida.se/sida/jsp/sida.jsp?d=118&a=3055&language=en\\_US](http://www.sida.se/sida/jsp/sida.jsp?d=118&a=3055&language=en_US)
  - JISC Joint Information Systems Committee
    - <http://norgesuniversitetet.no/artikler/2006/jisc-open-source>
  - European Commission OSS Observatory
    - <http://europa.eu.int/idabc/en/chapter/452>
  - Soros Foundation - Open Society
    - [http://www.soros.org/initiatives/information/focus\\_areas/opensource](http://www.soros.org/initiatives/information/focus_areas/opensource)
  - UNESCO
    - [http://portal.unesco.org/ci/en/ev.php-URL\\_ID=12034&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/ci/en/ev.php-URL_ID=12034&URL_DO=DO_TOPIC&URL_SECTION=201.html)
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# Conclusions

- Continuous development cycle
    - Continuous development cycle for methods, tools and templates
    - Include external Open Source projects
  - Research-based-education approach
    - Students learn the methods
    - Synergy with Open Source projects teaching and scientific research
    - Fully transparent methods and results
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For more information

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Download this presentation  
from: [www.eiao.net](http://www.eiao.net)

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