Virtual Campus Hub
Toward a concept for international collaboration in education

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Context: Cross-border collaboration in education, research and innovation

Examples in the energy field:
- **KIC InnoEnergy**, Virtual organization of universities, research institutes and SMEs
- **SEEIT**: Strategic partnership for sustainable energy
- **Explore Energy**: Gateway for life-long learning
Context: Cross-border joint programs

Example is **KIC InnoEnergy Select MSc**:  
- Network with many partners, incl. industry  
- Students change location in Y2  
- Integrated project: Student groups with members from all locations  
- Optional courses at other locations through distance learning

Other example: Post educational course on wind energy (WAsP) by DTU.
**Problem: ICT barriers for collaboration across institutional borders**

<table>
<thead>
<tr>
<th>Application</th>
<th>Local education portal</th>
<th>National</th>
<th>International</th>
<th>Industry</th>
<th>Schools</th>
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<tr>
<td>Online meetings, online coaching of students</td>
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<td>Remote lectures (in realtime)</td>
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<td>Retrieval of course and timetable information</td>
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<td>Online study agenda</td>
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<td>Online registration for courses and exams</td>
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<td>Online retrieval of results</td>
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<td>News and information on your study programme</td>
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Objectives Virtual Campus Hub

1. Inventory of the most important ICT barriers for international collaboration in education.

2. Demo platform to prove that some of these barriers can be removed:
   - Easy access to partners’ applications
   - More efficient and more flexible setup of online activities or online participation in regular activities.
   - Easier collaboration with industry

3. Vision on how to apply these insights and experiences in concrete collaboration initiatives (e.g. international joint programs)
Demo portal (proof of concept)

Functionality:
- Access with your own account to partners’ applications
- Create international groups (virtual organizations)
- Single sign-on access through simple website ([https://vch.tue.nl](https://vch.tue.nl))
Access to learning materials: Post educational course on wind energy (DTU)

Course materials and interaction through LMS (itslearning from external service provider)
The **remote laboratory** is operated and monitored on-distance for real-time experiments and collection of measurement data. More info at http://www.energy.kth.se/proj/projects/Remote_labs/RL/RL_website/RCL/RCL.html.

**Experimental Setup**

**Network Camera**

**Exp. Control Web Server**

**WWW**

**Control and monitoring of the experiment**

**Remote labs: web application developed by KTH**
Collaboration environment (TU/e)

- Sharing and collaborate on documents (Sharepoint)
- Efficient and reliable setup of online activities (unified communications, together with Surfnet)
  (fully online or with online participation of some)
  - Remote lectures
  - Joint meetings and events
  - Supervision of student projects and consultation of experts
Virtual incubator (PoliTo)

• Enable close contacts between universities and industry
• Stimulate entrepreneurship and “matching”
Virtual Campus Hub Technology

Virtual Campus Hub

Virtual Campus Hub is a collaborative project between four technical universities in Europe. The project runs from October 1, 2011 to September 30, 2013. The project is partially funded by the European Commission under the 7th Framework Programme. More information can be found on the official project website.

Partners

- SURFnet
- WAYF
- IDEN - Italy

TU/e

Technische Universiteit Eindhoven
University of Technology
Technological components

**Federated authentication**
- Use your own institution’s account for applications elsewhere

**Group management**
- Using cross-institutional and cross border group definitions (virtual organizations) for authorization at different locations and in different applications
- In this project: Surfteams (part of Surfconext). Also available as open source (Openconext, [http://www.openconext.org](http://www.openconext.org)).
- No general standard across NRENs available yet. However, work started on this within Géant.
Enabling international collaboration: National (NRENs) and European (Géant)
Experiences

- Promising technology and fairly well standardized across NRENs (except for group management)
- Enables institutions to join forces in education
- Knowledge and motivation at local institutions still very limited
- Crossing borders is also new to NRENs
- Difficult to sell infrastructure improvements to users
- Not allowing industry on Géant infrastructure as identity provider hampers collaboration with industry