University Collaborations @ Siemens

Arbeitstagung des Verbandes der Hochschullehrer für Betriebswirtschaft e.V., March 16, 2012 in Frankfurt / M.

Dr. Natascha Eckert
Siemens AG
University and Research Cooperation
Siemens covers a broad variety of businesses and technologies

<table>
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<tr>
<th>Industry</th>
<th>Energy</th>
<th>Healthcare</th>
<th>Infrastructure &amp; Cities</th>
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<tr>
<td>Drive Technologies</td>
<td>Fossil Power Generation</td>
<td>Imaging &amp; Therapy Systems</td>
<td>Rail Systems</td>
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<td>Industry Automation</td>
<td>Renewable Energy</td>
<td>Clinical Products</td>
<td>Mobility and Logistics</td>
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<td>Customer Service</td>
<td>Oil &amp; Gas</td>
<td>Diagnostics</td>
<td>Low and Medium Voltage</td>
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<td>Energy Service</td>
<td>Customer solutions</td>
<td>Smart Grid</td>
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<td>Power Transmission</td>
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Siemens in total: € 73 bn. Sales / > 400.000 employees
Siemens conducts research & development at more than 150 locations worldwide

Some of the major R&D locations

R&D key facts:
- €3.9 billion R&D expenditures in FY2011 (5.3% of revenue)
- ~27,800 R&D employees worldwide, thereof 5,500 in Corporate Technology
- 8,600 inventions in FY2010
- More than 53,000 active patents (Nr. 1 at the European Patent Office)
Siemens ranks 21 under the world’s 50 most innovative companies

NO NUKES
In the wake of the Fukushima disaster, Germany’s decision to phase out nuclear energy opened the door for a host of Siemens technologies, such as a new “combined-cycle” gas power plant that achieves record efficiencies of more than 60%.

GROUND GAME
Recently, Siemens built its own electric car--but not to compete with, say, Tesla. "We want to become a leading producer of components," says research VP Reinhold Achatz. His team also wanted to understand how EVs may soon affect urban infrastructure.

AIR STRIKES
Engineers debuted the first hybrid electric plane last June, a two-seater that can reduce fuel and emissions by 25%. Scaling up to a larger aircraft is next.

CRITICAL DATA
A revolutionary scanner integrates several imaging technologies so doctors can view organ position, function, and metabolic activity simultaneously.
## The Vision

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<th>Research</th>
<th>Talent</th>
<th>Social Responsibility</th>
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<td>Siemens as global benchmark in technology transfer from academia</td>
<td>Siemens becoming the employer of choice with a strong employer branding</td>
<td>Siemens shaping social development and science &amp; education policies</td>
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The Siemens University approach: Three-tiered and focused

- **Research**: Siemens as global benchmark in technology transfer from academia
- **Recruiting**: Siemens becoming the employer of choice with a strong employer branding

1) Center of Knowledge Interchange
### CKI collaboration:
**A long-term strategic commitment and partnership**

<table>
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<th><strong>Scope</strong></th>
<th>- Long-term institutional partnership for <strong>strategic research and recruiting</strong></th>
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<td><strong>Criteria</strong></td>
<td>- <strong>Leadership</strong> in at least 2 <strong>research areas</strong> relevant for Siemens</td>
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<td>- Broad and <strong>excellent infrastructure and professors</strong></td>
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<td>- Top university for <strong>talent acquisition</strong></td>
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<td>- <strong>International research reputation</strong></td>
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<td>- High status in international rankings</td>
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<td>- Proximity to relevant markets for Siemens</td>
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<td>- Access to regional / national funding programs</td>
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<td>- Strong political and academic network</td>
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| **Governance** | - **Senior Siemens Executive** as Ambassador and liaison champion |
|                | - **Joint CKI Steering Committee** to oversee the collaboration, select projects, guide and monitor project progress |
|                | - Dedicated **CKI Manager** as Siemens account manager on campus |

| **Collaboration management** | - Partnership based on a **CKI framework contract** |
|                            | - **Steering Committee** meets regularly |
|                            | - **Workshops and conferences** with faculty and Siemens researchers |

| **Funding** | - **CKI office** funded by Siemens (CT O UNI) |
|             | - Projects funded on Siemens Division / Business Unit level |
|             | - Initial funding program for US and Chinese CKI schools |
Let’s collaborate !?

Benchmarking Study: Optimizing University Industry Collaboration (UIC)

Research Focus:
- Investigating the fundamental strategic and organizational challenges of university industry collaboration
- Identification of key success factors of collaborative research
- Show the main barriers in UIC, and how to overcome them
- Propose conclusions for the CKI model

Participants:
Shaping Relationships to Universities – General Directions

1. Goals?
2. Strategic Alignment?
3. Centralization?
4. Intensity and breadth?
5. Formalization?
6. Talent Orientation?
University Industry Collaborations are often exposed to various challenges and barriers that may limit collaboration success.

The major problem of University Industry Collaboration (UIC) is a fundamental goal divergence between universities and companies:

Other important barriers are:

**Poor collaboration quality:**
- Lack of regular communication, social connections and mutual trust, insufficient knowledge about project partner

**Poor management:**
- Inflexible management processes, bureaucracy, unstable and inadequate project financing, missing continuity and bad project management, missing incentive structures

**Ineffective technology transfer processes:**
- Nonexistence of dedicated, efficient and effective technology transfer processes, difficulty to transfer implicit/tacit knowledge, missing geographical proximity
- Complexity of transfer process due to multiple steps and various involved transfer partners
- Lack of adequate measurement approaches for project and transfer success
1. **Establish long-term relationships based on technology strategy:** universities do not sell innovation or a product but are a source of knowledge and competence that allows innovation to happen.

2. **Involve top management** to get support throughout the company.

3. **Choose the right mix of collaboration forms** to use their specific advantages.

4. **Organize some sort of standardization and centralized coordination** of the portfolio to establish transparency and make use of synergies.

5. **Address possible barriers** and foster a collaboration-friendly organization.

6. **Involve university in corporate strategy** to archive multiple holistic solutions to complex problems rather than having it solve isolated problems.
Evaluation of CKI approach

- **Strategic partnership** with top universities offers more opportunities for both sides

- **CKI manager** promotes **personal relationship**, which helps setting-up long-term relations

- **Initial funding** fosters collaboration activities

- **Involvement of senior management level** (ambassadors) drives strategic decisions and promote the appropriate UIC spirit

- **High level of standardization** (frame agreements, communication platforms, single-point-of entry, …) facilitates collaboration efforts

➢ CKI approach is nearly unique!
INNOVATION@SIEMENS meets RESEARCH@TU BERLIN 2011: “Solutions for Smart Cities”; 5.Juli 2011
Innovations in partnership:
Welcome to our Siemens Innovation Day 2011
Innovations in partnership:
The Smart Grid Contest (2011) "Join the grid – energize the world"

www.siemens.com/smartgridcontest

We want to get the best innovative ideas on …

- New business models that change the game
- Applications for new customer benefits
- Disruptive technologies which can change the business rules

Public Phase  Apr, 13th – May, 31st

Idea contest
Everybody may submit, comment, rate ideas and win attractive prizes.
Total prizes for winners: 15,000€ & invitation to Berlin

University Phase  Oct, 4th – Nov, 30th

Call for research proposals
University Program only – R&D-projects, industrial PhD, optional seed-funding for startups
Total funding of 1 Mio € for research projects

- 36 countries
- 200 universities
- 478 registered users

"I thought I knew the best universities but obviously didn’t"

"It was a pleasure to read the proposals getting fresh ideas and see what others do in my field.”
Siemens and RWTH Aachen University will be collaborating on raw materials research in the future. On Jan, 2012, Siemens will begin providing €6 million in funding for the 4-year-strategic collaboration.

The main objective is to develop methods and processes for ensuring environmentally friendly and efficient provision of rare earths for permanent magnets:

- Assessment of alternative deposits
- Development of sustainable processes for recovery and extraction
- Creation of efficient methods for recycling and life cycle analyses
Lessons learned

- Focused approach needs strong commitment
- Matchmaking: How to find the best experts (platforms, tools, WEB 2.0)?
- Open innovation will challenge UIC (IPR!)
- Personnel exchange will be key – and needs new models of cooperation!