RWTH Aachen University –
A Short Introduction
Prof. Malte Brettel (Vice-Rector for Industry and Business Relations)
Agenda

- **Overview on RWTH Aachen**
- Connecting science and business at RWTH Aachen
- Potential exchange program
The Integrated Interdisciplinary University

42,298 Students

7,582 international Students

514 Professors

Budget 2014

Total 839.5 million Euro

…of which

439 million Euro Grants

354 million Euro Third-party Funding

Research & Development

101 million Euro Third-party Funding

Teaching

4 million Euro Fundraising

3,400 Non-academic staff and trainees

5,000 Academic staff (without professors)
# Faculties and Departments

<table>
<thead>
<tr>
<th>Faculty 1: Mathematics, Computer Science &amp; Natural Sciences</th>
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<tbody>
<tr>
<td>Faculty 2: Architecture</td>
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<tr>
<td>Faculty 3: Civil Engineering</td>
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<td>Faculty 4: Mechanical Engineering</td>
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<td>Faculty 5: Georesources &amp; Materials Engineering</td>
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<tr>
<td>Dept. Mining and Waste Management</td>
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<tr>
<td>Dept. Metallurgy</td>
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<tr>
<td>Dept. Geosciences</td>
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<tr>
<td>Faculty 6: Electrical Engineering &amp; Information Technology</td>
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<tr>
<td>Faculty 7: Arts &amp; Humanities</td>
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<tr>
<td>Faculty 8: Business Administration &amp; Economics</td>
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<td>Faculty 10: Medicine</td>
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</tbody>
</table>
24,109 Students in Engineering

23%
57%
7%
13%

Natural Sciences
Engineering
Medicine
Humanities, Social Sciences and Economics

42,298 Students
G8: We are prepared!

7,400 additional study places

400 new employees, 18 new professorships

Optimized planning of teaching

Ca. 7,700qm additional space
Continuous Improvement of Teaching

Winners in the „Competition excellent teaching“
(2010-2012)
Global Challenges

- Climate change
- Energy
- Knowledge Society
- Health
- Demography
- Mobility
Core Goals of RWTH Aachen University

1. Meeting Global Challenges: Working on the greatest research issues of our time
2. Being attractive for the best minds in the world
3. Promoting and funding on all levels
4. Increasing quality of teaching
5. Considerably improving in the area of scientific performance indicators
6. Leading in interdisciplinary top research projects
7. Leading in acquisition of external funding

Institutional Strategy

RWTH 2020: Meeting Global Challenges
funding: € 60 Mio.

Graduate School

Aachen Institute of Advanced Study in Computational Engineering Science (AICES)
funding: € 7,4 Mio.

Cluster of Excellence

Integrative Production Technology for High-Wage Countries
funding: € 28 Mio.

Tailor-Made Fuels from Biomass (TMFB)
funding: € 28 Mio.

Total funding: € 124 Mio.
Clusters of Excellence
Strategic approach to innovative future solutions

- **Tailor-Made Fuels from Biomass (TMFB)**
  - **Interdisciplinary** approach to research on new synthetic fuels obtained from biomass
  - **Partners**: More than 20 RWTH professors from the fields of chemistry, biotechnology, process engineering and mechanical engineering as well as Fraunhofer-IME, Max-Planck-Institut für Kohleforschung, Ökoinstitut e.V.
  - Scientific and industrial advisory board guarantees **high quality research** and **industrial applicability**

- **Integrative Production Technology for High-Wage Countries**
  - Aims to develop the fundamentals of a **sustainable production strategy** for high-wage countries
  - **Interdisciplinary** research by more than 25 RWTH professors from the fields of mechanical engineering, material sciences, mathematics, economics and psychology as well as Affiliated and Fraunhofer-institutes and **over 40 industrial partners**
Profile Areas

University of Technology

Interdisciplinary University of Technology

Integrated Interdisciplinary University of Technology

Fundamental Sciences
Established Profile Area
New Profile Area
Profile Area in Preparation

CompSE Computational Science & Engineering
ECPE Energy, Chemical & Process Engineering
Fund. Sci. Fundamental Sciences
ICT Information & Communication Technology
MatSE Material Science & Engineering
MedST Medical Science & Technology
MSE Molecular Science & Engineering
MTE Mobility & Transport Engineering
ProdE Production Engineering
Agenda

- Overview on RWTH Aachen
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- Potential exchange program
Connection between science and business

1. RWTH Campus
2. Industry projects & transfer
3. Science
4. Business/science
5. Executive education
6. Fostering entrepreneurship
RWTH Aachen Campus
19 research clusters

Bio-Medical Engineering
Photonics
Heavy-Duty Drives
Sustainable Energy
Production Engineering
Plastics Technology
Logistics
Process Engineering
Information & Communication Technology

Innovation Factory

Molecular Technology & Catalysis
Aircraft Engineering
Railed Vehicles
Geo-Resources/Advanced Metals and Processes
n.n.

Campus Melaten
Campus West
University hospital

Existing Campus
Expansion

initial cluster
scheduled cluster
11 clusters with office, hall and laboratory areas
- University Buildings
- Research Buildings
- Rental areas of private real estate investors
- Buildings of RWTH research partners

Central Service Facilities
- Advanced vocational training center
- Hotels
- Sports & Leisure Facilities
- Childcare Facilities
- Restaurants, shopping, services
RWTH Aachen Campus
Expansion and consolidation of industry and RWTH cooperation
Scientific and industrial integration

- Fraunhofer institutes: 4
- Affiliated institutes: 16
- Cooperation with research centres
- Cooperation contracts with industry
- Other institutions
- Scientific advisory boards for institutes/ departments
- Small and medium-sized business
- Cooperation with other universities
RWTH Aachen Technology Transfer – Approach

Factor of success: Proximity to industry

Factor of success: Proximity to research

Industry cooperation

Innovation projects

RWTH Innovation Scouting

Assessment

IP Protection

RWTH Market Validation

Prototype projects

Licensing
R&D Contracts
Spin-offs

Thilo Vogel
Peters & Bey
RWTH Aachen University – Innovation figures

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
</tr>
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<tbody>
<tr>
<td>Valorisation Agreements</td>
<td>51</td>
<td>78</td>
</tr>
<tr>
<td>R&amp;D Agreements</td>
<td>649</td>
<td>491</td>
</tr>
<tr>
<td>RWTH Patents</td>
<td>55</td>
<td>64</td>
</tr>
<tr>
<td>RWTH Spin-offs</td>
<td>40</td>
<td>41</td>
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Invention disclosures


Values: 139, 119, 181, 169, 161, 159, 199
CAT Catalytic Center

Intensified cooperation between academia and industry

- CAT is a highly effective **joint approach of academia and industry** for **long term** fundamental research with the mission of translating science into industrial production
- Conjoint laboratory run by RWTH, Bayer MaterialScience and Bayer Technology Services

* supported by the state of NRW
Ford University Alliance
New Type of Strategic Cooperation

- RWTH Aachen only Ford-Alliance-Partner outside of the US (University of Michigan, MIT, Stanford, RWTH)
- Stable central budget enables planning security for complex research topics with long term relevance
- Strengthening of the collaboration
Executive education – lifelong learning on the success path

- International full-time master programs
- Extra-occupational master programs
- University lectures and RWTH certificates
- Educational transfer Public projects
- Summer schools
- Master's college
- Conference office

Sales in EUR mn.

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (EUR mn.)</th>
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<tbody>
<tr>
<td>2009</td>
<td>1,409</td>
</tr>
<tr>
<td>2010</td>
<td>2,118</td>
</tr>
<tr>
<td>2011</td>
<td>2,801</td>
</tr>
<tr>
<td>2012</td>
<td>3,064</td>
</tr>
<tr>
<td>2013</td>
<td>3,411</td>
</tr>
<tr>
<td>2014 exp.</td>
<td>4,025</td>
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Broad offer for future entrepreneurs

- Business studies
- Entrepreneurship
- Research
- InnovationScouting
- IP-Management
- IP-Valorisation

- Training
- Coaching
- Events
- Venture Capitalists
- Business Angels
- Banks and Funds
- Research institutions
- Law firms

1 regional partners
Overview on RWTH Aachen
Connecting science and business at RWTH Aachen
Potential exchange program
Tokyo Institute of Technology and RWTH Aachen could both benefit from an exchange program.

Benefits exist on three levels:

**University**
- University benefits through e.g., …
  - Role model for additional course exchanges
  - Broad scope: students from several faculties can join the program (engineering, business, etc.)

**Faculty**
- Faculty benefits through…
  - Study exchange as a fundament for additional research exchange
  - Additional intercultural course supports accreditation and faculty profile

**Institute**
- Institutes benefits through…
  - Basis for long-term relationship resulting in exchanges regarding research, lectures and students
  - Exchange of theoretical and practical entrepreneurship know-how
Proven concept exist through exchange with Thai Chulalongkorn University

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<th>Long-standing successful partnership</th>
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<tr>
<td>• Exchange relationship since 2004</td>
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<tr>
<td>• Buddy program ensures rich cultural experience on all levels</td>
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<table>
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<tr>
<th>Three exchange programs</th>
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<tr>
<td>• <strong>Entrepreneurship lecture exchange</strong></td>
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<tr>
<td>o Four lecturers from WIN in Bangkok</td>
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<tr>
<td>o Each January</td>
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<tr>
<td>• <strong>Student exchange weeks</strong></td>
</tr>
<tr>
<td>o Topics: International Management in Thailand” and “Entrepreneurial Marketing &amp; Finance”</td>
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<tr>
<td>o Students in Aachen and Bangkok</td>
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<tr>
<td>o Each April/June</td>
</tr>
<tr>
<td>• <strong>Intercultural research exchange</strong></td>
</tr>
<tr>
<td>o Joint research programs (e.g., Thai-German samples, discussions)</td>
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<tr>
<td>o On individual basis</td>
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Close collaboration could be initiated along 5 steps

- **Kick-off**: E.g., first meeting with person at Tokyo Tech responsible for exchange
- **Joint development of course aims and target group**: E.g., meeting with person at Tokyo Tech responsible for exchange
- **Online course videos for preparation**: E.g., foundations of entrepreneurship videos and multiple choice questions
- **Exchange week in Aachen**: Courses, joint company visits, group work, buddy program
- **Exchange week in Tokyo**: Courses, joint company visits, group work, buddy program
Course objectives could be aimed at creation of intercultural entrepreneurs

Creating an own business idea and developing and evaluating it

Application of theoretical concepts to business ideas

Gaining experience in working in an intercultural team

Prepare students to better understand & possibly pursue a career in the field of entrepreneurship as founders, investors, consultants, scholars, …
To reach that goal we could provide a unique learning experience.
Thank you for your attention!