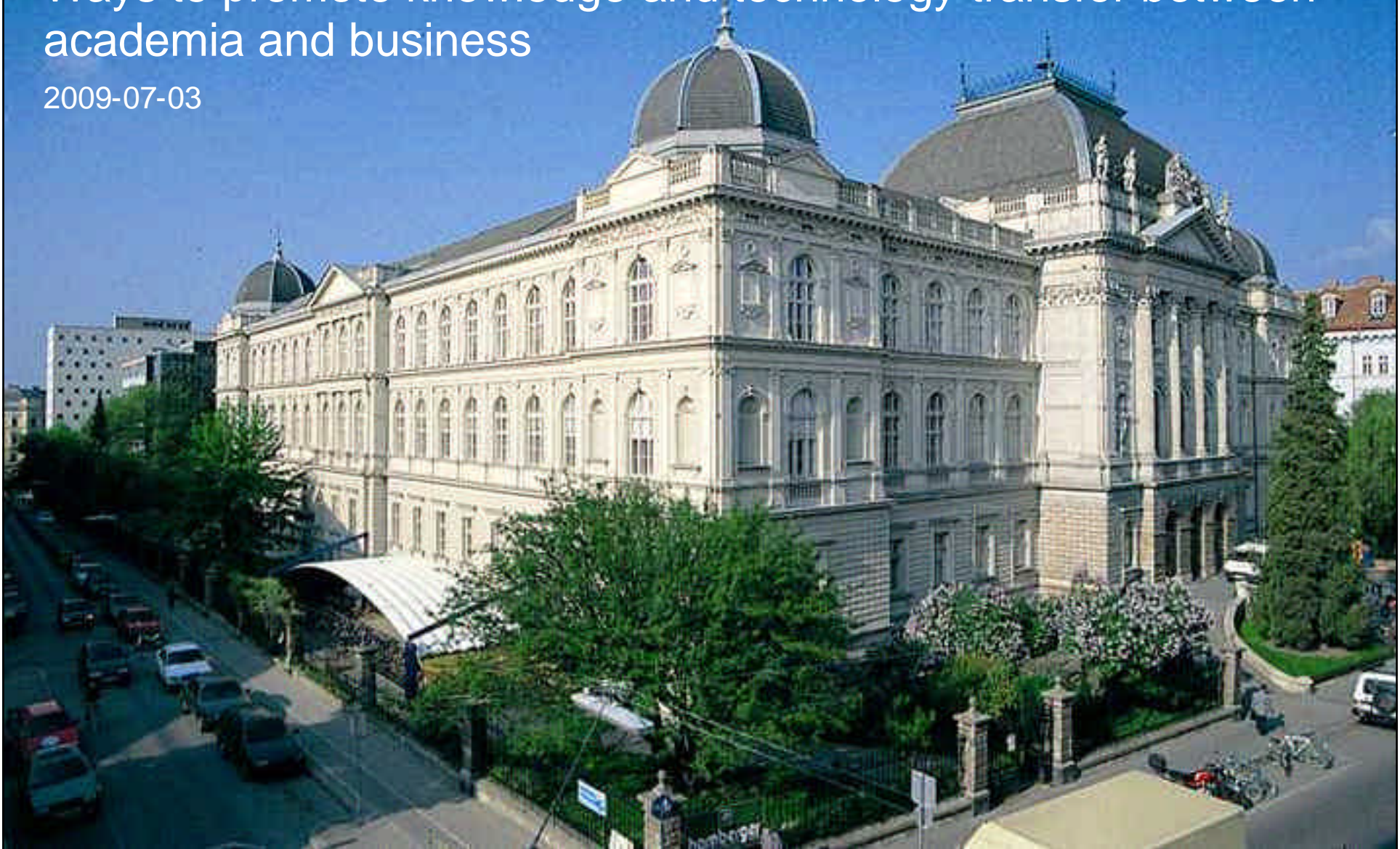


Ways to promote knowledge and technology transfer between academia and business

2009-07-03



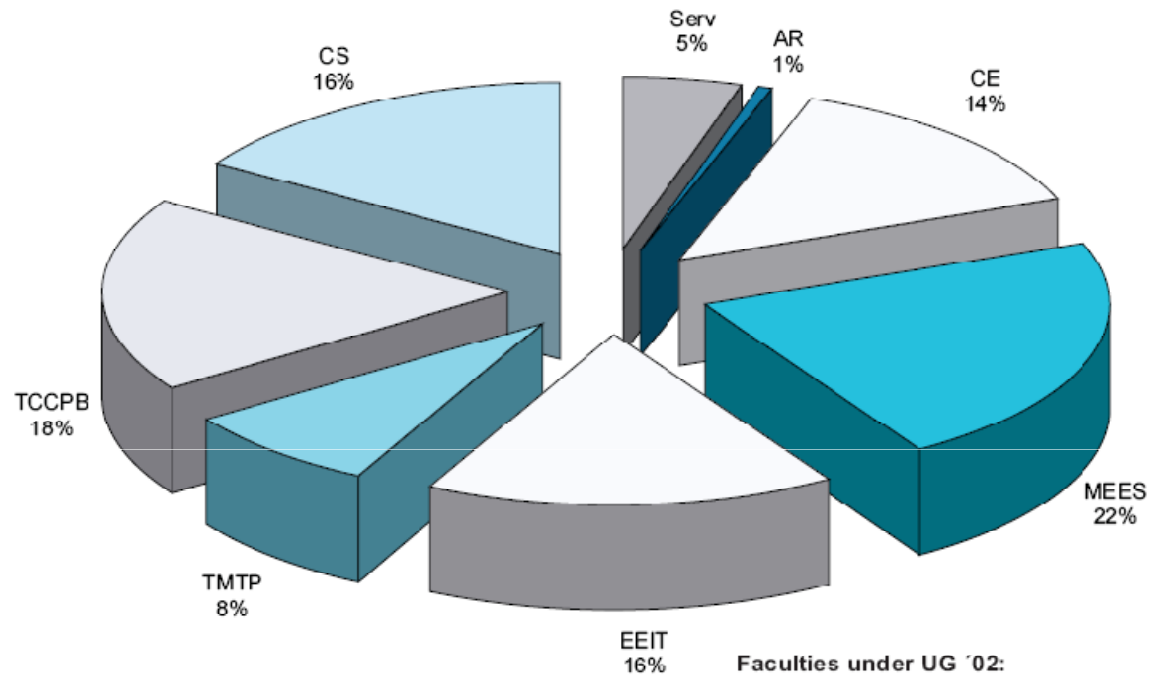
Christoph Adametz (TU Graz Technology Transfer Office)

TU Graz: Education / Staff / Budget

Beginners in autumn 2008/09	1.779
Students (2008/09)	10.245
Graduates (2007/08):	993
- Bachelor/Dipl.-Ing./Master	823
- Doctorates	170
Floor space	195.607 m ²
Federal Budget 2007	97,8 Mill.€
Income from Contractual Work 2007	42,5 Mill.€
Staff (Dec. 2008)	2.118
- Permanent Staff	1.305
- Staff für Contractual Work	813

Income from Contractual Work 2007 by Faculties and Services

Data Source: Controlling, as of 7. 4. 2008



Total = 42.5m €

Faculties under UG '02:

- AR = Architecture
- CE = Civil Engineering
- MEE = Mechanical Engineering and Economic Sciences
- EEIT = Electrical Engineering and Information Technology
- TMTP = Technical Mathematics and Technical Physics
- TCCPB = Chemistry, Chemical- and Process Engineering, Biotechnology
- CS = Computer Science
- Serv = Services

Cooperation: Triple Helix model

Triple Helix is about innovation systems based on university-industry-government relations. It analyzes the interaction between University, Government and Industry, and its influence on the economic development of specific regions.



Basically there are promoting factors for good and sustainable cooperation between academia and business with all 3 “strands” of the Helix: **Government, University and Business/Industry**

Factors promoting cooperation between academia and business **on government side**

Legislation/Policy – eg in Austria:

- University Act (UOG 1975, amended 1987): „Teilrechtsfähigkeit“: institutes are entitled to operate so-called „third-party-projects“ with industry/businesses
- University Act 2002: „Vollrechtsfähigkeit“: centralized administration of third party funds, new IPR standards (ownership, exploitation ...)

Good **public funding opportunities**:

subsidies for the whole scope of cooperation formats, ie from small bilateral projects to large integrated projects; portfolio should include „bottom-up“ R&D subsidies

Public entities and not-for-profit organisations as contract research partners,
innovative public procurement

Factors promoting cooperation between academia and business **on universities' side**

Scientists with leading-edge knowledge in a subject „about to boom“ eg
(authentic TU Graz examples)
data encryption, .html, sustainable process engineering, diesel direct
ignition, density meters ...
in general Universities of *Technology* are favoured industry partners

Professors with a former career in the private sector

Attractiveness for junior researchers

Sufficient permanent staff to acquire and manage third-party projects
(*which is actually a government issue ...*)

Good infrastructure: sometimes cooperation starts with simple measuring
tasks (*again – to some extent a government issue ...*)

Support services: proactive contact point, advice on legal and financial
matters (*see later*)

Acceptance at executive level that knowlegde and technology transfer
(**KTT**) is
... more than cooperative R&D projects
... not entirely for profit

Factors promoting cooperation between academia and business **on businesses' side**

High **density of innovative businesses in the region and beyond**, with challenging R&D needs and good growth perspectives

Spatial proximity as mobility of researchers / students may be surprisingly low

High **rate of graduates in the businesses' workforce** (informal contacts)

Willingness to commission external R&D

Understanding for universities' multiple tasks including teaching, basic research, and the resulting project timelines:
„scientists are neither lazy nor unwilling to collaborate with businesses, but they already have a 100% job to do“;
researchers like a long-term collaboration perspective, they dislike too many “ad-hoc” requests

Acceptance of academics' need to draw scientific papers from projects

Acceptance of cost: „it is NOT all taxpayers' money“: additional contract R&D requires additional funding;
universities must not violate Competition Law

ways of knowledge and technology transfer (KTT) academia \leftrightarrow businesses

1 - transfer of information:

- Scientific publications; conferences; awareness measures
- R&D registers, expertise registers
- Technology offers / invention disclosures / licensing

2 - transfer "via heads":

Researchers mobility schemes, student/graduate placement services, career services (recruiting)

3 - transfer via education and training:

Master theses; dissertations; continuing education

4 - R&D projects:

- Research collaboration, contract research
- Research and technology services and consulting

5 - spin-offs; joint ventures

Modified overview, based on Koschatzky, K.: Nutzen von Forschungsk Kooperationen, 2003

examples: ways of KTT at TU Graz

1 - transfer of information:

- TUGonline R&D projects, expertise register, publications
- TU Graz technology offers (online)
- Proactive awareness measures (eg “TECHNOFIT”, “SCIENCE FIT”)

2 - transfer "via heads“:

- International Relations Dept., Career Info-Service, Recruiting Fairs,

3 - education and training:

- master theses: > 40% of TU Graz master theses with businesses
→ 25% of students take permanent job in the enterprise
- PIP product innovation project (with group of 10+ students)
- TU Graz LifeLongLearning office

4 - R&D projects: Research & Technology House (*see later*) and Legal Department assist researchers in legal and IPR issues, in finding partners and in addressing the appropriate public funding instrument

5 - spin-offs; joint ventures:

- TU Graz holds 50,5% share with Science Park Graz academic incubator
- TU Graz holds shares in many Competence Centres (joint ventures), with a duration of 3-10 years, appr. 50% public funding

TU Graz support unit: Research & Technology House

www.fth.tugraz.at

RT Research & Technology Office

TT Technology Transfer Office

TE Technology Exploitation Office

- Head: Vice Rector for Research & Technology (Prof. F. Stelzer)
- Result of re-organisation in 2005, based on prior service units
- 18 employees

Research & Technology House Services

for enterprises and TU Graz (*italics: services for TU Graz members*)

- RT: *Database for research documentation*
- RT: *researchers' mobility financing*
- RT: *Advice on international scientific cooperations / funding (eg EU FP7)*
- RT & TT: *Advice on national research funding opportunities*
- TT: *Handling of businesses' innovation inquiries; support in initial phases of cooperative projects (science-businesses)*
- TT: *Proactive investigation of businesses' innovation needs*
- TT: *Enterprise directory*
- TT: *Recruiting service for enterprises*
- TT & TE: *R&D related and patent database inquiries*
- TE: *Advice on commercial exploitation of intellectual property*
- TE: *Qualification of technologies with potential for exploitation, evaluation of notification of inventions*
- TE: *protection of IPR's; negotiation of exploitation contracts*
- TE: *Technology offers for enterprises*

„Science Park Graz“ academic incubator

SCIENCE FIT: hands-on R&D collaboration support scheme for regional SMEs

- ARGE SCIENCE FIT network
 - Initiated in 2008 by TU Graz TT based on partnership schemes since 2002 and TU Graz TT „stand-alone“ schemes since 1994
 - regional government and EU ERDF funding
 - partnership with University of Mining & Metallurgy Leoben, Joanneum Research Ltd. and Graz University
- SCIENCE FIT content:
 - proactive approach to get in touch with regional SMEs less inexperienced with academic collaboration
 - Honest broker approach (4 partners - best competence)
 - initial contact with min. 60 Styrian SMEs p.a.
 - innovation workshops with interdisciplinary experts
 - appr. 20 follow-up additional projects
 - annual recruiting event
- **Award – RegioStars Nominee 2008:**

In February 2008 the predecessor scheme TECHNOFIT PRO was shortlisted among 12 projects in the category “technology transfer from research institutes to SMEs” in the EU RegioStars initiative which highlights best practice regional projects match-funded by ERDF.

formats for cooperative projects – from small to XL

cost, duration

- Student exercises, student team projects (students / senior supervisor)
- Technological and scientific services and counselling (scientists)
- Projects with diploma theses (advanced students / senior supervisor)
- Contract research / R&D collaboration (scientists + graduate students)
- In-licensing of TU Graz inventions / patents
- COMET Competence centres, Christian-Doppler-Laboratories (academia-business joint ventures), spin-offs
- Strategic partnership, endowed chairs

Summary

Some hints what universities can do to achieve more and better matched collaboration:

- Appoint professors with industry background
- Encourage student projects and entrepreneurship
- Present a clear and plausible R&D portfolio
- „Pick the winners“ on business side for R&D cooperation
- Open up proactively to regional intermediaries and to SMEs

Thank you for your attention !

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