

Knowledge and technology transfer between universities and the business sector in Switzerland

Survey of academic institutes

- All information provided will be handled in **strictest confidence**
- Unless otherwise specified, answers relate to locations in **Switzerland** only
- If anything is unclear, please consult the explanatory notes
- Please place a cross in the relevant field () or enter the appropriate figure
- The address for return is printed on the final page

Please return the Survey by

31 March 2005

at the latest. (Please return the Survey even if you are unable to answer all the questions, or can only supply estimates.)

1. Information about your institute

1.1 Average number of **staff** at your institute (incl. director) during the year 2004 (part-time employees to be expressed as full-time equivalents):

--	--	--	--	--	--

1.2 At the end of 2004 the estimated breakdown into **categories of employees**, expressed as a proportion of total employment at your institute was as follows (part-time employees to be expressed as full-time equivalents):

- Professors	<input type="text"/>	%		
- Academic staff with doctorate and 'habilitation'	<input type="text"/>	%		
- Academic staff without doctorate	<input type="text"/>	%		
- Technical staff with university degree	<input type="text"/>	%		
- Staff carrying out other supporting and administrative functions	<input type="text"/>	% 20		
Total staff	1	0	0	

1.3 **Total budget** (including third-party funds) for your institute in the year 2004:

Fr.

1.4 a) **Share of third-party funds in your institute's total budget** for 2004:

				%
--	--	--	--	---

b) What was the breakdown of third-party funds in 2004?

- Proportion of third-party funds from business sector	<input type="text"/>	% 33		
- Proportion of funds from foundations for the promotion of research and similar (e.g. KTI/CTI, SNF)	<input type="text"/>	% 36		
Total third-party funds	1	0	0	%

1.5 What are the **focal areas of research** for your institute? (brief indications)

.....

.....

.....

.....

.....

.....

.....

.....

2. Teaching and research

2.1 Number of **theses** (at Swiss 'Diplom' level) completed in the three years 2002-2004:

--	--	--

39

Percentage of these theses conducted in **collaboration with the business sector**:

--	--	--

42 %

2.2 Number of **postgraduate degrees** (after Swiss 'Diplom') completed in the three years 2002-2004:

--	--	--

45

2.3 Number of **doctoral dissertations** completed in the three years 2002-2004:

--	--	--

48

Percentage of these doctoral dissertations conducted in **collaboration with the business sector**:

--	--	--

51 %

2.4 Number of **research publications** in the three years 2002-2004:

- in academic journals

--	--	--

--	--	--

54

- in magazines, newspapers etc.

--	--	--

--	--	--

57

2.5 Has your institute (or individual staff members) achieved research results that led to a **patent application** in the three years 2002-2004?

yes no

60

If yes, how many? approx.

--	--	--	--

61

- Percentage of these patent applications achieved in **collaboration with the business sector**:

--	--	--

65 %

2.6 Did your institute give out **licences** in the three years 2002-2004?

yes no

68

If yes, how many? approx.:

--	--	--	--

69

2.7 Did your research results lead to **spin-offs/start-ups** in three years 2002-2004?

yes no

73

If yes, how many? approx.:

--	--	--	--

74

2.8 What percentage of the **working time** of academic staff in your institute is devoted to the following activities, on average (estimations if necessary):

- teaching

--	--	--

 %

- basic research

--	--	--

 %

- more applied research

--	--	--

 %

- other tasks

--	--	--

 %

89

Total working hours

1	0	0
---	---	---

 %

3. Forms of knowledge and technology transfer between institutes and the business sector, and channels used

3.1 Did your institute conduct activities designed to promote **knowledge** and **technology transfer** to Swiss companies

a) before 2002 yes no

90

b) in the three years 2002-2004 yes no

91

c) Were there any activities in 2002-2004 designed to promote knowledge and technology transfer to **foreign** companies outside Switzerland?

yes no

If yes:

EU USA

Japan Other countries:

Explanatory note:

Knowledge and **technology transfer** between academic institutes and the business sector should be understood as any activities aimed at transferring knowledge and technology that may help either the company or the academic institute - depending on the directing of transfer - to further its activities. Knowledge and technology transfer covers a wide range of different activities. These are listed in **question 3.2**.

→ If the answer to a) and b) is no, please proceed to question 6 (obstacles).

3.2 What **forms** does knowledge and technology transfer between your institute and the business sector take, and how important are these forms for your institute (more than one answers possible)?

Informal contacts, personal network of contacts

- informal contacts (e.g. by phone, email) with employees from business sector for information exchange

--	--	--	--	--

not important 1 2 3 4 5 extremely important 97

- attending business sector conferences, exhibitions, workshops etc.

--	--	--	--	--

- reading or quoting the academic publications of business sector research laboratories

--	--	--	--	--

	not important		extremely important		
	1	2	3	4	5
Technical facilities					
- joint laboratories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹⁰⁰
- use of technical facilities or research centres at business sector R&D departments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training, further education, staff mobility					
- contacts with graduates employed in the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹⁰²
- contacts with former staff employed in the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- student participation in corporate R&D projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹⁰⁴
- allocating thesis projects in collaboration with the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- allocating doctoral projects in collaboration with the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- engagement of business sector scientists in your institute's own R&D projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- joint teaching courses or programmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹⁰⁸
- teaching assignments for business sector staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- attendance of specialised courses or training programmes of the institute by business sector scientists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research					
- research projects in collaboration with the business sector (partially or fully funded by the business sector)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- longer-term research contracts with the business sector (contract research)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- research consortiums (with at least one company participating)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consulting					
- Expertises/reports for the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹¹⁴
- Consulting for the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.3 How important are the following institutions in **mediating** formal contacts with the business sector?

	not important		extremely important		
	1	2	3	4	5
- your university's technology transfer office	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹¹⁶
- the Swiss Innovation Promotion Agency (KTI/CTI)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- the Swiss National Science Foundation (SNF)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- European Union (EU) Framework Programmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- other EU research programmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- other institutions, i.e.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.4 How important are the following **media** for knowledge and technology transfer with the business sector?

	not important		extremely important		
	1	2	3	4	5
- academic publications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹²¹
- patents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- licenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- spin-offs/start-ups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Motivation and objectives for knowledge and technology transfer with the business sector

4.1 What is your **motivation** and what are your **objectives** in going into knowledge and technology transfer arrangements with private companies, and how important are they for the activities of your institute? (more than one answer possible)

	not important		extremely important		
	1	2	3	4	5
Financial motives					
- cost savings in research projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> ¹²⁵
- time savings in research projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- resources for expanding basic research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- resources for extending research facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- commercial success	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- resources from business can be used more flexibly than public funding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- collaboration with business as a reference when applying for more public funding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- certain applied research projects can only be carried out in collaboration with companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Access to human capital, person-related knowledge ('tacit knowledge')

	not important		extremely important		
	1	2	3	4	5
- access to specific capabilities to supplement expertise within the institute	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- new research impetus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- exchange of ideas and experiences with industrial researchers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- practical experience for institute staff and/or students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- gaining additional research insight in the institute's own area of research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Access to business sector research findings ('codified knowledge')

- patents, licenses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- gaining knowledge about practical problems for curriculum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Access to business sector R&D facilities

- access to business sector technological equipment or specialised technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- opportunity to test own research findings in practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Institutional or organisational motives

- securing good job prospects for students and/or institute staff in the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- securing the presence of business representatives in the university's academic consultant bodies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- extending the university's mission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- promoting the diffusion of a particular technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- diffusing key R&D findings amongst the public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- promoting regional development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- improving the image of science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- other motives, i.e.					

5. Impact of knowledge and technology transfer with the business sector

5.1 Has the **financial** position of your institute changed as a result of the knowledge and technology transfer?

- no change ¹⁴⁹
- additional resources for research
- additional resources for teaching
- additional resources for technical facilities

5.2 Has the **research orientation** of your institute changed as a result of the knowledge and technology transfer?

- no change ¹⁵³
- more geared to applied research
- more geared to basic research

5.3 Has the knowledge and technology transfer affected **teaching, further education or further training activities** at your institute?

- no impact ¹⁵⁶
- education provided is more geared towards practice
- less time available for teaching and student support

5.4 Has the **scientific reputation** of your institute changed as a result of the knowledge and technology transfer?

- no change ¹⁵⁹
- better reputation
- worse reputation

6. Obstacles to knowledge and technology transfer with the business sector

6.1 What **obstacles** prevent knowledge and technology transfer with business companies and/or what obstacles prevent your institute from intensifying the process of knowledge and technology transfer? (more than one answer possible)

Lack of information

	not important		extremely important		
	1	2	3	4	5
- difficult to get informed about research activities in the business sector (confidentiality)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- difficult to find an appropriate partner in the business sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- interface to the business sector poorly equipped (e.g. technology transfer offices lack capacity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Problems in the areas of teaching, basic research

- teaching requires too much time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- scientific independence impaired	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- hindrance to academic publication activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- neglecting basic research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Necessary conditions for transfer of know-how lacking amongst potential partners in the business sector

	not important		extremely important			
	1	2	3	4	5	
- lack of qualified staff on the part of companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	169
- lack of technical facilities on the part of companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- lack of interest in scientific projects on the part of companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- insufficient interesting research questions in the business sector for our institute	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Necessary conditions for transfer of know-how lacking in our institute

- lack of academic specialists for knowledge and technology transfer (capacity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	173
- approach of institute staff not entrepreneurial enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- our research focus is not interesting enough for the industry sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- no possibility of commercialising our research findings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Costs, risks, uncertainty

- uncertainty about R&D results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	177
- industry has different ideas on costs and/or productivity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- R&D budgets of potential business partners are too low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Organisational, institutional obstacles

	not important		extremely important			
	1	2	3	4	5	
- resource-intensive administrative and approval procedures, legal restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	180
- lack of project administration support on the part of the academic institution (e.g. through technology transfer offices)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- lack of support for the commercialisation of research findings on the part of the academic institution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- Property Rights problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- project management problems on the part of the academic institution (e.g. coordination or communications problems)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- different views on urgency with regard to the scheduling of projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- lack of confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
- risk of putting a reputation at stake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	187
- other obstacles, i.e.....						

*** Thank you for your valuable assistance ***

Contact person at institute: _____ Phone no: _____

Position: _____ E-mail: _____

→ Please provide your E-Mail in order to send you the report

Comments on the questionnaire

Contacts at KOF, ETH Zurich

Dr. S. Arvanitis
Ms U. Kubli
Dr. M. Wörter
Office

direct phone
01/632 51 68
01/632 47 65
01/632 51 51
01/632 42 39

E-mail
arvanitis@kof.gess.ethz.ch
kubli@kof.gess.ethz.ch
woerter@kof.gess.ethz.ch

Not Copy

Return address (for window envelope):

Konjunkturforschungsstelle
der ETH Zürich
Umfrage "Wissenstransfer"
ETH Zentrum WEH
8092 Zürich