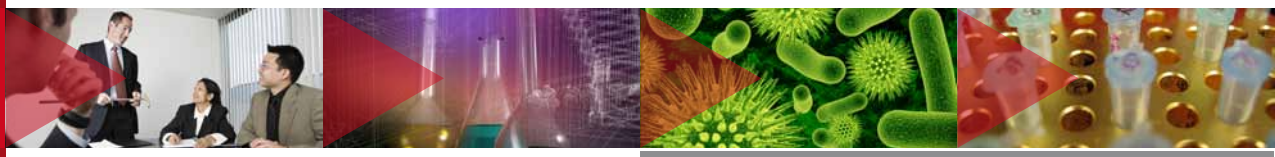
# swiTTreport 2008

swiTT
swiss technology transfer association



SWISS TECHNOLOGY TRANSFER REPORT

## IMPRESSUM

**Editor**

swiTT – Swiss Technology Transfer Association
3000 Bern
switt@switt.ch
www.switt.ch

**swiTTreport Committee**

Michèle Miéville, Domenico Alexakis, swiTT Office
Franz Baumberger, Bern University of Applied Sciences, Biel
Herbert Reutimann, Unitectra, University of Bern and University of Zurich
Robert Rudolph, Paul Scherrer Institut (PSI), Villigen

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## SWITT

swiTT, the Swiss Technology Transfer Association, is the association of the professionals in Switzerland dealing with the interaction between public research and industry. swiTT currently has about 100 members from all parts of Switzerland. Most of them work in technology transfer at public research institutions, others are employed in the private sector. For further information about swiTT, please refer to www.swiTT.ch.

Among other services, swiTT operates swiTTlist, a unique portal which lists technology opportunities from public research institutions available for licensing and development by industry. For further information please refer to www.swiTTlist.ch.

## SWITT MISSION

COOPERATION – DEVELOPMENT – SERVICES - DIALOGUE

Facilitates and strengthens cooperation and technology transfer between Swiss public research institutions and the private sector; (COOPERATION)

Offers professional development to its members and other practitioners involved in technology transfer within public institutions and the private sector; (DEVELOPMENT)

Provides services of common interest to its members, their institutions and other stakeholders involved. (SERVICES)

Maintains an active dialogue with research institutions, the private sector and the authorities to foster optimal processes and regulatory framework / regulations. (DIALOGUE)

## SUMMARY

The annual survey „swiTTreport" is the most comprehensive analysis of the technology transfer activities of Swiss public research institutions. The report covers two main areas, a) research collaborations of the participating institutions with private or public partners, and b) the commercialization of research results from these institutions. The Swiss public research institutions interact very actively with partners in the economy. These activities are collectively designated in the report as "technology transfer" (TT) activities. With regard to scientific disciplines, the report mainly focuses on the areas of life sciences, natural sciences and engineering sciences.

Data on technology transfer activities from six cantonal universities and the two Federal institutes of technology (collectively Universities), from six universities of applied sciences (UAS), and three research institutions in the ETH domain (RI) were available for this report. However, some of the data were incomplete or fragmentary, and the figures presented in this report clearly underestimate the real situation. Data from several institutions were not available or were too fragmentary to be included in the report. In most figures, the data for 2008 are compared with the data from previous years although the institutional basis is not always the same.

The respondents reported their results to swiTT voluntarily, and the data presented in the report are on an "as-reported" basis. For reasons of confidentiality, the report mainly contains aggregated numbers. However, some of the key parameters are presented on an individual basis but only for those institutions that agreed to do so. On account of the difference in mission, organization and objectives of the three types of institution (Universities, UAS, RI), their data are reported separately.

Overall, the respondents reported the following key figures on technology transfer activities in 2008:

2745 new research projects with economic partners were initiated

431 invention disclosures were registered

194 priority patent applications were filed

208 license and option agreements were executed

70 start-up companies were created, of which 39 were based on a license or transfer of IP and 31 on know-how from the institutions

The analysis shows that research cooperation partners in the private sector were recruited at a similar level from small- and medium-sized enterprises (SME, < 250 employees, 47%) and larger companies (53%). However, differences can be observed between the different types of institution.

Universities account for most of the commercialization activities reported, i.e. about 90% of the overall key figures. Commercialization occurs most frequently with SME, including spin-offs (56%). In about 30% of the cases the partner was a large company, in 14% it was a public organization.

Overall, the data confirm the excellent standard of TT activities at Swiss public research institutions. This is also acknowledged in the recently published WEF Global Competitiveness Report 2009-2010. The summary about the top ranking of Switzerland states: "Switzerland's scientific research institutions are among the world's best, and the strong collaboration between the academic and business sectors ensures that much of this research is translated into marketable products and processes, reinforced by strong intellectual property protection."

## RÉSUMÉ

L'enquête annuelle «swiTTreport» constitue l'analyse la plus complète sur le transfert de technologies résultant des activités d'institutions publiques de recherche. Le rapport couvre deux domaines principaux: a) la collaboration, en matière de recherche, des institutions participantes avec des partenaires publics et privés, et b) la valorisation des résultats provenant de ces institutions. Les institutions publiques de recherche collaborent très activement avec des partenaires venus du champ économique. Ces activités sont désignées dans ce rapport comme des activités de «transfert de technologies» (TT). En ce qui concerne les disciplines scientifiques, le rapport traite principalement les domaines des sciences de la vie, des sciences naturelles et des sciences techniques.

Le rapport rassemble des données relatives aux activités de transfert de technologies fournies par six universités cantonales et les deux écoles polytechniques fédérales (collectivement appelées «universités»), par six hautes écoles spécialisées (HES) ainsi que par trois instituts de recherche du domaine des EPF (IR). Certaines de ces données étaient toutefois incomplètes ou fragmentaires, et les chiffres présentés dans ce rapport sous-estiment nettement la situation réelle. Dans la plupart des cas, les données de 2008 sont comparées à celles des années précédentes.

Les répondants ont communiqué les résultats de leur plein gré à swiTT, et les données de ce rapport sont présentées telles qu'elles ont été fournies. Pour des raisons de confidentialité, ce rapport ne contient que des chiffres cumulés. Néanmoins, certains des paramètres clés n'ont pas été détaillés par institution, mais seulement pour celles ayant donné leur accord sur ce point. Afin de représenter les différences dans la mission, l'organisation et les objectifs des trois types d'institutions (universités, HES, IR), leurs données sont indiquées séparément.

Globalement, les répondants ont communiqué les chiffres clés suivants en ce qui concerne les activités de transfert de technologies en 2008:

2745 nouveaux projets de recherche avec partenaires économiques lancés

431 annonces d'inventions enregistrées

194 demandes de brevets prioritaires déposées

208 contrats de licence et d'option signés

70 start-ups créées, dont 39 sur la base d'une licence ou d'un transfert de propriété intellectuelle et 31 sur la base du savoir-faire des institutions

L'analyse fait apparaître que les partenaires de coopération dans le secteur privé ont en général été recrutés à parts égales dans des petites et moyennes entreprises (PME, < 250 employés, 47%) et dans de grandes entreprises (53%). Des différences peuvent toutefois être observées entre les différents types d'institution.

Les universités représentent la plupart des activités de valorisation signalées, avec environ 90% des chiffres totaux. La valorisation passe le plus souvent par des PME (56%). Dans environ 30% des cas, le partenaire est une grande entreprise, dans 14% des cas, une organisation publique.

De manière générale, les données confirment l'excellent niveau du transfert de technologies dans les institutions publiques de recherche en Suisse. Cette conclusion est encore corroborée par le «WEF Global Competitiveness Report 2009-2010» récemment publié. Le résumé du classement, en tête duquel arrive la Suisse, rappelle ainsi en substance: «Les institutions de recherche scientifique suisses sont parmi les meilleures au monde, et la solide collaboration entre les milieux scientifiques et les entreprises permet à une grande partie de cette recherche d'être concrétisée en produits et procédés commercialisables, qui plus est, avec le soutien d'une bonne protection de la propriété intellectuelle.»

## ZUSAMMENFASSUNG

Der jährlich publizierte "swiTTreport" ist die umfassendste Analyse der Aktivitäten der öffentlichen Forschungsinstitutionen (PRO) in der Schweiz in den Bereichen Zusammenarbeit mit der Wirtschaft und wirtschaftliche Umsetzung von Forschungsresultaten. Diese Aktivitäten werden häufig auch unter dem Begriff „Technologietransfer" zusammengefasst. Der Bericht zeigt, dass die schweizerischen PRO sehr aktiv und erfolgreich mit der Wirtschaft interagieren. Die in der Analyse erhobenen Daten beziehen sich vorwiegend auf die Fachbereiche Life Sciences, Naturwissenschaften und Ingenieurwissenschaften.

Der Bericht umfasst die Aktivitäten von sechs kantonalen Universitäten und der beiden ETH's (zusammengefasst unter "Universitäten"), von sechs Fachhochschulen („UAS") und von drei Forschungsinstitutionen des ETH-Bereichs („RI"). Allerdings waren von einigen Institutionen nur Teildaten aus einzelnen Bereichen bzw. generell sehr fragmentarische Angaben verfügbar, so dass die effektiven Aktivitäten substanziell höher sind, als in diesem Bericht zusammengefasst. Daten einiger Institutionen waren so unvollständig, dass sie gar nicht berücksichtigt werden konnten. Dies führt dazu, dass die Daten mit jenen von früheren Jahren teilweise nur beschränkt vergleichbar sind.

Die teilnehmenden Institutionen rapportierten die Resultate an swiTT auf freiwilliger Basis und die Daten wurden wie berichtet verwendet. Aus Vertraulichkeitsgründen enthält der Bericht vorwiegend aggregierte Zahlen. Einige Kennzahlen werden jedoch zum ersten Mal auf individueller Basis publiziert, allerdings nur für jene Institutionen, die einer solchen Publikation zugestimmt haben. Die Daten der unterschiedlichen Arten von Institutionen (Universitäten, UAS, RI) werden im Bericht separat zusammengefasst.

Insgesamt rapportierten die teilnehmenden Institutionen die folgenden Kennzahlen über ihre Technologietransferaktivitäten im Jahr 2008:

2745 neue Forschungsprojekte mit Wirtschaftspartnern gestartet

431 Erfindungsmeldungen registriert

194 Prioritäts-Patentanmeldungen eingereicht

208 Lizenz- und Optionsverträge bzw. IP-Verkäufe abgeschlossen

70 Start-up Firmen wurden gegründet, 39 davon auf Basis einer Nutzungsvereinbarung für geistiges Eigentum mit der entsprechenden Institution und 31 basierend auf Know-how der Institution

Der Bericht zeigt, dass es sich bei den Wirtschaftspartnern aus dem privaten Bereich praktisch gleich häufig um KMU (47%, < 250 Mitarbeitende) bzw. um grössere Firmen (53%) handelt. Allerdings finden sich hier Unterschiede je nach Art der Institution.

Die Universitäten sind für rund 90% der Aktivitäten im Bereich der wirtschaftlichen Umsetzung von Forschungsergebnissen verantwortlich. Bei den Kommerzialisierungspartnern handelt es sich mehrheitlich um KMU, inkl. Start-ups (56%). In 30% der Fälle waren es grössere Firmen und in 14% Institutionen aus dem öffentlichen Bereich.

Der Bericht bestätigt die herausragenden Leistungen der schweizerischen PRO auch im internationalen Vergleich. So erwähnt der "WEF Global Competitiveness Report 2009-2010" als einen der wichtigen Gründe für die Top-Position der Schweiz: "Switzerland's scientific research institutions are among the world's best, and the strong collaboration between the academic and business sectors ensures that much of this research is translated into marketable products and processes, reinforced by strong intellectual property protection."

## 1. INSTITUTIONS PARTICIPATING AND DATA COLLECTION

Eight universities and the two Swiss Federal Institutes of Technology (collectively Universities), seven Universities of Applied Sciences (UAS), and three research institutes (RI) in the ETH domain were contacted in spring of 2008 and asked to provide data on their technology transfer (TT) activities for the year 2008. The expression "technology transfer" used in this report covers the activities of these institutions with regard to research collaborations with partners from the economy and the commercialization of research results for the benefit of the economy and society overall.

The questionnaire was returned by eight Universities, individual departments of six UAS, and by three RI. However, the handling of research collaborations with economic partners and other technology transfer activities varies among different institutions, and not all of them were able to provide comprehensive data in this field. **Thus, the data provided in this report only summarize the figures reported, while the actual activities at the interface of academia and economy are even higher.** Table 1 on the next page shows the institutions that participated in the survey and comments on the comprehensiveness of the data provided.

Comments on data received by the different types of institutions:

Universities: At several Universities, contracts for collaborative research projects with economic partners need only to be signed by university management above a certain amount. Therefore, not all small projects were reported by such institutions. At some Universities, technology transfer offices (TTO) only handle a small part of the collaborative research projects with economic partners; and at some Universities, centralized TTO are only now being created or still do not exist. Activities in research and technology transfer at university hospitals are usually closely linked to the respective University, hence the services of these transfer offices are also available to researchers at the hospitals. Data from the hospitals are included in the report, but not all are complete. With several hospitals, especially clinical research activities are not included.

UAS: The management of technology transfer activities at the UAS varies widely. Some departments or schools have professionals working in centralized TTO (e.g. BFH) and are able to provide comprehensive data. At other departments or schools, no centralized support functions exist and data are fragmentary or are completely lacking.

RI: The research institutions that participated in the survey have centralized support functions providing technology transfer services for the researchers although the scope of services provided differ.

swiTTreport represents the most comprehensive study in Switzerland on technology transfer activities of academic and other public research institutions. The report mostly provides aggregate data for the three types of institutions covered in this survey. For those institutions that agreed to disclose individual data some key figures are listed on page 26.

**Table 1: Institutions participating in the survey and comments on their data provided.**

| Institution | Comments on data provided |
|---|---|
| **Universities** | |
| EPF Lausanne | Complete data, research agreements <50kCHF only partly |
| ETH Zurich | Complete data, research agreements <50kCHF only partly |
| Universität Basel / Universitätsspital Basel | Complete data for university, incomplete data for hospital |
| Universität Bern / Inselspital | Complete data only for the Medical, Vetsuisse and Nat.Sciences Faculties, no data for research agreements of other faculties |
| Universität Fribourg | No data for 2008 available |
| Université de Genève / Hôpitaux Universitaires de Genève | Complete data for commercialization activities, research contracts only partly handled by TTO |
| Université de Lausanne / Centre Hospitalier Universitaire Vaudois | Complete data for commercialization activities, research contracts only partly handled by TTO |
| Université de Neuchâtel | Fragmentary data, research contracts only partly handled by TTO |
| Università della Svizzera Italiana | No data for 2008 available |
| Universität Zürich / Universitätsspital Zürich | Complete data only for the Medical, Vetsuisse and Nat.Sciences Faculties, no data for research agreements of other faculties |
| **UAS** | |
| Berner Fachhochschule (BFH) | Data only cover the departments „Technik und Informatik" and „Architektur, Holz und Bau" |
| Fachhochschule Nordwestschweiz (FHNW) | Data available from the department "Life Sciences", no data available for the department „Technik" |
| Fachhochschule Ostschweiz (FHO) | No data available |
| Haute Ecole Spécialisée de Suisse occidentale (HES-SO) | Only data from HES-ARC |
| Hochschule Luzern | Data available from the department "Technik und Architektur" |
| Scuola Universitaria Professionale della Svizzera Italiana (SUPSI) | Complete data |
| Zürcher Fachhochschule (ZFH) | Data available from "Zürcher Hochschule für Angewandte Wissenschaften" (ZHAW) |
| **RI** | |
| EAWAG | Complete data on research projects, partial data on IP |
| EMPA | Complete data |
| PSI | Complete data |

# 2. INSTITUTIONAL RESOURCES FOR TECHNOLOGY TRANSFER

## 2.1 Services Provided

All TTO at the Universities are handling contracts for research collaborations. However, at several Universities, the finalization of research agreements by the central office is only voluntary. All TTO deal with the management and commercialization of intellectual property (IP), which includes the evaluation of the economic value of research results, the protection and management of IP, and the licensing or sale of IP to industrial partners. Four of eight TTO at Universities also provided support for the coaching of spin-off projects at a further University such support is available through an incubator associated with the institution. At a few Universities TT programs still are very small and focus on few services.

The participating UAS and RI all offer support in research collaborations. Five UAS are dealing with IP management and commercialization. However, this does not apply to all individual departments or schools of the UAS. Two RI support the management and commercialization of IP. Coaching of start-up projects is offered by four UAS and two RI.

## 2.2 Staffing

Staffing refers to the number of full-time equivalents (FTE) employed for TT activities at an institution. These are people such as Licensing Officers, Intellectual Property Managers, Technology Managers or Research Contract Officers, whose main occupation is in the area of technology transfer. Their activities cover the drafting and negotiating of research and cooperation agreements, intellectual property management, licensing and other commercialization activities, and the coaching of spin-off projects. TT activities must account for at least 20% in this person's job description.

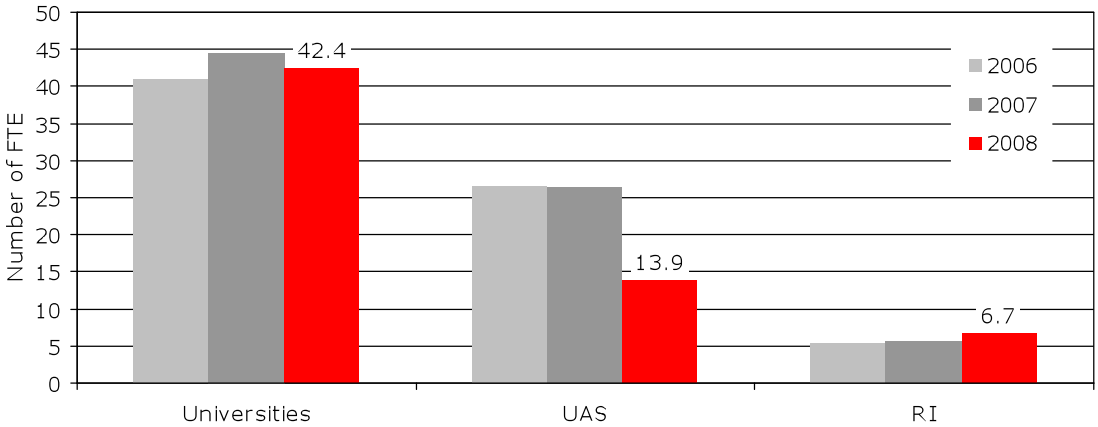



**Fig. 1: Development of staffing levels.**

*Respondents 2006: 10/10 Universities, 7/7 UAS, 3/3 RI*
*Respondents 2007: 10/10 Universities, 7/7 UAS, 2/2 RI*
*Respondents 2008: 8/8 Universities, 6/6 UAS, 3/3 RI*

The total number of FTE can not be compared to previous years because of the different number of institutions that participated in the survey. The total number of FTE at the Universities which participated already in last year's survey remained stable. The smallest University TTO had 1.1 FTE at the end of 2008 whereas the largest one had 12.2 FTE. Swiss TTO thus remain small in comparison to TTO in other countries if the size is normalized to the number of researchers. On the other hand, the Swiss TT professionals are on average better educated and possess more working experience in industry.

TTO usually collaborate with external patent attorneys in the drafting and filing of patent applications. Several TTO also outsource legal issues to external attorneys. At some institutions, spin-off projects are handled by dedicated organizations such as a business incubator. Thus, the actual number of people supporting the transfer activities is larger than the number of FTE reported for the TTO.

# 3. RESEARCH COLLABORATIONS WITH PARTNERS FROM THE ECONOMY

## 3.1 Research Agreements Handled by the TTO

In 2008, the TTO handled contracts for a total number of 2745 research projects with economic partners. This number is slightly smaller than the number reported for the previous year. However, the decrease is only due to the smaller number of participating institutions.

For the Universities the number of new co-operative research projects increased to 1895 (+18%) for those institutions which reported data for 2007 and 2008. The trend for more projects observed already in previous years thus continued. This is true for all institutions that reported data for 2007 and 2008. The RI reported 395 projects the participating UAS 455. However, a high percentage of UAS institutions have no central data available about their TT activities or at least are not willing to share the data. The lack of UAS data results in a significant underestimation of the real situation. The true number of collaborative research projects is a lot higher than reported here.

Research collaborations between academia and industry are a key aspect of TT, offering a multitude of potential benefits to both parties. They not only allow industry to access the know-how and infrastructure of academia, companies also gain access to young academic talents through such collaborations. At the same time, the academic partner can often take advantage of the know-how of the industrial partners. In addition, the funding of joint projects by industry and partners from the economy accounts for a significant part of research expenses of public research institutions.

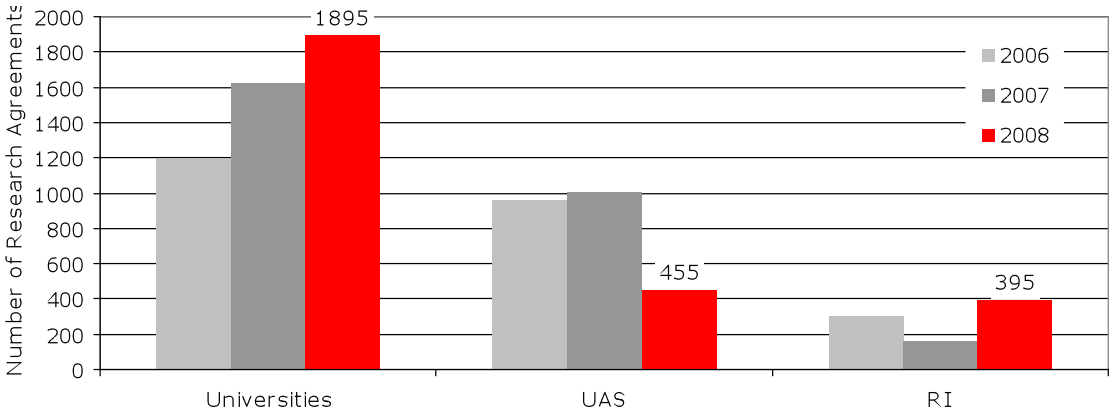



**Fig. 2: Development of number of research agreements and EU contracts handled by the people responsible for TT.**

*Respondents 2006: 10/10 Universities, 7/7 UAS, 3/3 RI*
*Respondents 2007: 10/10 Universities, 7/7 UAS, 2/2 RI*
*Respondents 2008: 8/8 Universities, 6/6 UAS, 3/3 RI*

For the collaborative research projects handled by the TTO, survey respondents reported total cash contributions from collaboration partners in 2008 of 409.4 mio CHF corresponding to an increase of 20% over the previous year. The average cash payment per project is 149,000 CHF. The contribution per project at Universities was significantly higher compared to projects at the UAS or the RI. This probably reflects the longer duration and size of sponsored projects at Universities.

**Table 2: Overview of cash payments to institutions in 2008, which resulted from research agreements handled by TT personnel.**

| | All (17/20 respondents) | Universities (8/8 respondents) | UAS (6/7 respondents) | RI (3/3 respondents) |
|---|---|---|---|---|
| Total (mio CHF) | 409.4 | 351.9 | 26.5 | 31.0 |
| Number of contracts | 2,745 | 1,895 | 455 | 395 |
| Average per project (CHF) | 149,200 | 185,700 | 58,200 | 78,500 |

*The Case Histories in this report feature products which were launched on the market by companies in 2008 under a license of a public research organisation which participated in this survey.*

CASE HISTORIES

Universität Zürich

## TREASURE HUNT

"Treasure Hunt" is the first computer game based on principles of cognitive behavior therapy. It was developed by Dr. Veronika Brezinka at the Center for Child and Adolescent Psychiatry of the University of Zurich to support psychotherapists in the cognitive-behavioral treatment of children between the ages of nine and 13.

The full benefit of this psychotherapeutic game can be realized only if it is used with the guidance of a therapist. In order to spread this innovative form of support for child psychotherapy, the University of Zurich decided to give therapists free access to Treasure Hunt. In the meantime the game has been used by more than 1000 therapists in about 20 different countries. Treasure Hunt was developed with financial support from the Department of Child and Adolescent Psychiatry and the Technology Transfer Fund of Zurich University. Further development of the game is financed by donations of the users.

UNIVERSITÉ DE GENÈVE

## ETI'S VIRTUAL INSTITUTE

http://virtualinstitute.eti.unige.ch

The Virtual Institute (VI) is a community learning portal for interpreting students, interpreter trainers and doctoral researchers. The VI integrates theory and scientific knowledge, continuing development according to emerging needs, and on-going evaluation and is based on design theory for socio-constructivist blended courses. In response to curricular needs for skill acquisition the VI features several tools: the Student Tracking Tool for formative and summative evaluation; EVITA for supervised interpreter training; and Pscenario for syllabus design. The portal has recently been the subject of a thorough scientific evaluation (see Class Abboud, B., 2009) which will inform the fine- tuning of existing tools and provide guidance for the development of new functionalities.

The Virtual Institute is socio-constructivist, the guiding key concepts are: activity-based learning, knowledge building and skill development, intrinsic motivation, collaboration, reflection and sustainable evaluation

In addition to research collaborations, TTO handle other types of agreements which foster the cooperation between academia and economic partners, such as consulting agreements, material transfer agreements (MTA), and non-disclosure agreements (NDA). In 2008, the institutions reported altogether 1216 such other types of TT agreements.

## 3.2 Type of Collaboration Partners

With regard to the type of collaboration partner, the small- and medium-sized enterprises (SME), i.e. companies with fewer than 250 employees, account for 28% of total projects reported. A slightly higher number (32%) of projects were performed with large companies, and 39% with public institutions. If one considers only collaborative projects with the private sector SME account for almost half of all projects (47%).

These ratios vary considerably among the different types of institutions surveyed as shown by Fig.3. At UAS by far the most important collaboration partner (75%) are SME whereas collaborations with Large Companies are relatively rare (8%). At the Universities Large Companies are the most frequent partner (43%) and the RI most frequently collaborate with other public institutions.

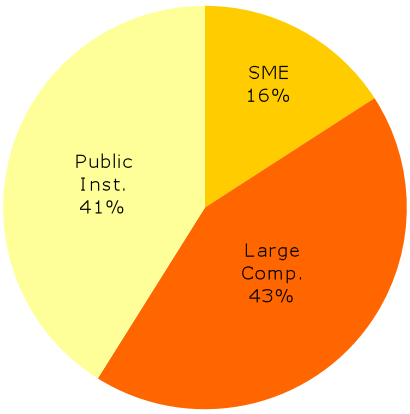



Fig. 3a: Partners in Research Projects at Universities (10/10 respondents).

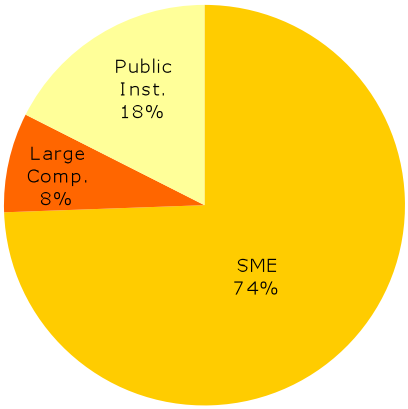



Fig. 3b: Partners in Research Projects at UAS (6/6 respondents).

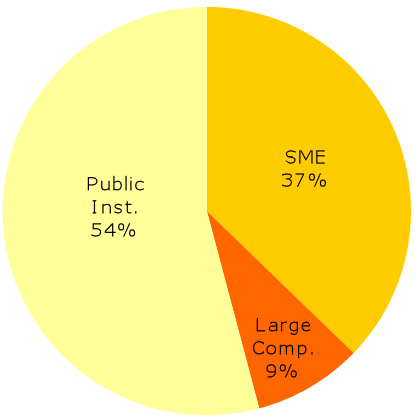


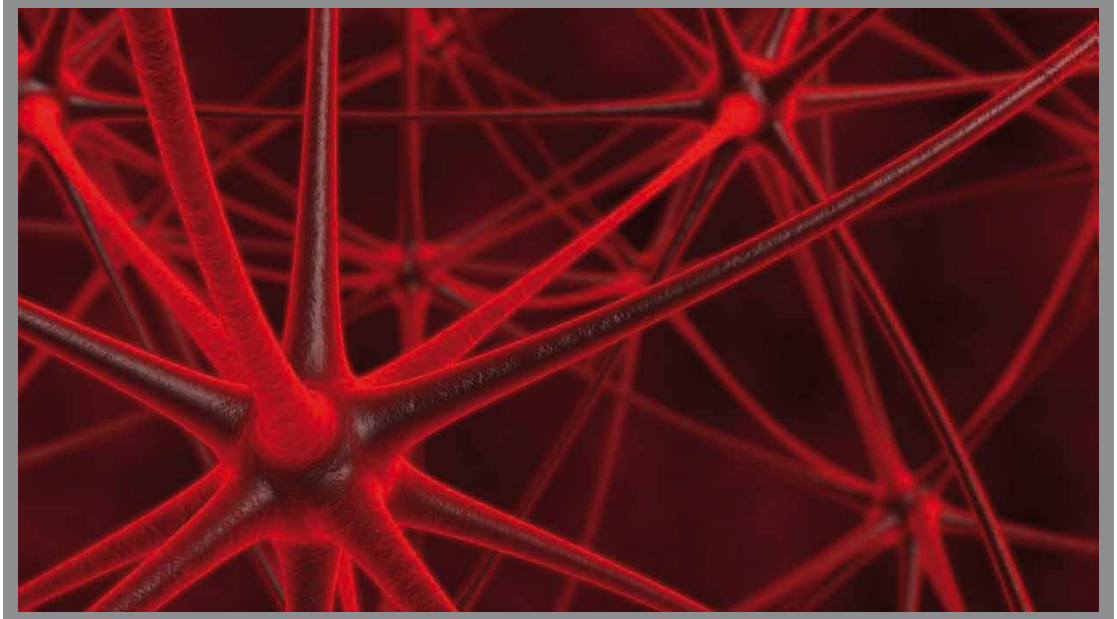

Fig. 3c: Partners in Research Projects at RI (3/3 respondents).

Berner Fachhochschule
Haute école spécialisée bernoise

CASE HISTORIES

## BIO FACTORY®

The novel Bio Factory® sold by the company Delta robotics GmbH in Biel addresses the unmet needs of bioengineering research and development by providing a technology platform to create biological micro environments based on composite bioactive materials like biomimetic hydrogels, cells, proteins and mineral loaded pastes by generating well defined outer forms and open inner architectures.



It offers a broad range of potential applications in the fields of:

- Modular tissue assembly
- Drug discovery
- Drug toxicity analysis
- Solid scaffold based tissue engineering
- Complex in vitro models of human diseases
- Automated tissue-based in vitro assays for clinical diagnostics

The proprietary technology is currently exploited by the company to overcome the inherent shortcomings of today's medical treatments in bone regeneration by offering a synthetic treated substrate. These implants result in faster osteogenic response (bone growth) due to rapid vascularisation.

## LUCIDOT® ZEOLITES

Lucidot® Zeolites were developed by Prof. Gion Calzaferri at the Department of Chemistry and Biochemistry of the University of Bern and are produced and sold by Clariant AG. The physical and chemical properties of Lucidot open up a wide range of application engineering opportunities. Studies carried out by Clariant and various universities have established the extraordinary potential of this nanoscale material, e.g.:

- Biochemical applications (e.g. sensor system, docking of biological molecules)
- Use as molecular sieves
- Ion exchangers, 3.6 alkali metal ions per formula unit are rapidly exchangeable
- Selective adsorption (e.g. separation of linear and branched paraffins)
- Catalytic applications
- Use of the nanoporous zeolite as a carrier material - in combination with fluorescent dyes, they can be used to develop more powerful thin film solar panels and more powerful fluorescence concentrators, energetically optimized light-emitting diodes (LEDs) or even novel laser systems

UNIVERSITÄT BERN

## 4. LICENSING ACTIVITIES AND COMMERCIALIZATION

Research results of Universities, UAS and RI often form the basis for innovative products which are developed and later commercialised by the private sector based on the work performed at public research institutions. The public institutions strive to make available research results with an economic potential to the private sector. Most frequently this is done through licensing of technologies to companies. Relevant research results need to be identified, screened and where applicable protected by patents or other suitable measures. Without a good protection of the intellectual property industrial or financial investors in many industrial sectors will not consider investing.

This whole process involves the following main steps: identification and evaluation of research results through invention disclosures, filing of patent applications, negotiating license agreements with existing companies or newly created spin-off companies. At many institutions, the creation of such spin-off companies is supported by various additional services. In Sections 4.1 - 4.4., the main activities of the institutions participating in this report are described.

A partial analysis of the commercializing activities at several universities indicated that a significant percentage (about 10%) of newly patented inventions, executed license agreements and spin-off companies founded were based on projects significantly funded by the Swiss National Science Foundation (SNF). This shows that SNF-supported basic research projects often evolve towards application and lead to results which are of practical and commercial value.

### 4.1 Invention Disclosures

A total number of 431 invention disclosures were reported for 2008 which is similar to the previous year. The vast majority of invention disclosures was reported by Universities (88%). The three RI accounted for 9% of the invention disclosures. Many UAS do not have a formal process for the commercialisation of the research results. In addition, UAS often transfer the rights to research results created in the scope of collaborations to the industrial partner.

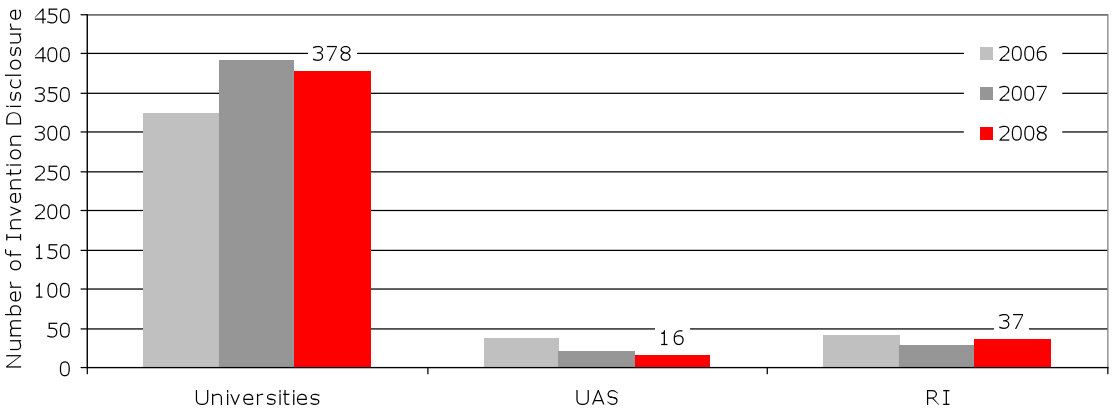



**Fig. 4: Number of invention disclosures.**

*Respondents 2006: 10/10 Universities, 6/7 UAS, 3/3 RI*
*Respondents 2007: 10/10 Universities, 6/7 UAS, 2/2 RI*
*Respondents 2008: 8/8 Universities, 6/6 UAS, 3/3 RI*

Universität Zürich

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

CASE HISTORIES

## SMART EYE

Smart eye encompasses a family of novel sensors which are used e.g. for traffic data acquisition, people counting and industrial automation. The technology underlying the smart eye sensors was developed by Dr. Tobi Delbrück und Dr. Patrick Lichtsteiner at the Institute for Neuroinformatics of the University of Zurich and of ETH Zurich. It was further developed and commercialized in collaboration with the Austrian Institute of Technology.

Smart eye is based on newly developed, bio-inspired CMOS vision chips: signal pre-processing is implemented on each pixel, which significantly reduces data rates and accelerates the entire analysis process. The independently acting pixels enable very high time resolutions, operation across a wide range of brightness and extremely high processing speeds at low costs. Traffic flow acquisition and control at the European football championships in 2008 was one of the first applications of the system.


EMPA
Materials Science & Technology

## UNCERTAINTYMANAGER / VALITRACE GMBH

UncertaintyManager is a software developed in the frame of two consecutive projects financed by the Swiss Commision for Technology and Innovation (CTI) and excecuted by a consortium of different science (ETHZ, Montanuniversität Leoben, BAM, ZAHW, HSR) and industry partners. Knowing the real value of measure-ments is crucial to open trade and application of effective legislation in many sectors. UncertaintyManager is a powerful and versatile software-based system and a supporting database to pro-vide a fast, reliable and simple-to-use method of evaluating measurement consistency in analytical chemistry. The kernel was pro-grammed C++ and allows calculation by analytic derivation as well as by the Monte Carlo method. The user interface is based on Visual Basic. It has been developed according to the usability engineering lifecycle, i.e. along use cases that bench chemists often are confronted with. In spring 2008 the spin-off company Valitrace GmbH was founded to inforce the sell and further development of the UncertaintyManager. The exploitation of the UncertaintyManager is based on a software license agreement between Valitrace GmbH and Empa.

## 4.2 Patenting Activities

### 4.2.1 Priority Patent Applications

In 2008 the institutions reported 194 new priority patent applications. The majority of these applications were filed by Universities (86%), followed by the RI (9%) and the UAS (5%). ETH Zürich and EPFL were most active among the Universities due to their broad scope of technical disciplines.

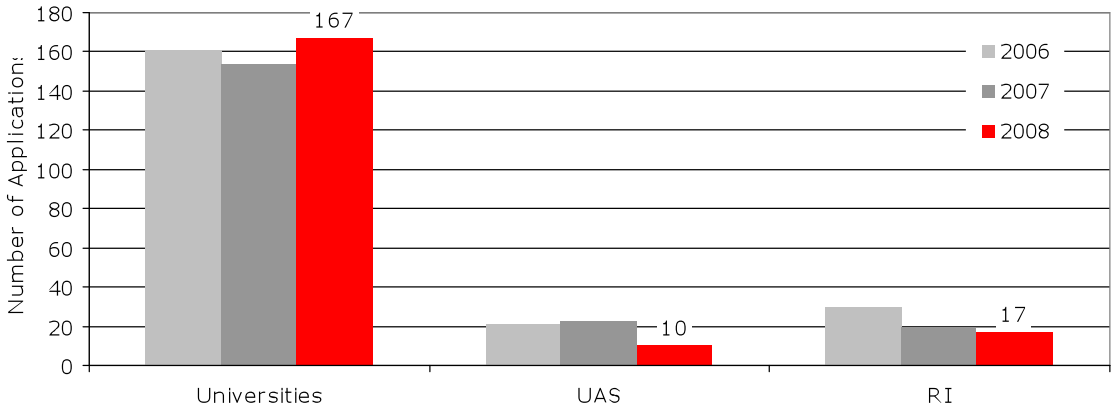



**Fig. 5: Number of priority patent applications filed.**

*Respondents 2006: 10/10 Universities, 7/7 UAS, 3/3 RI*
*Respondents 2007: 10/10 Universities, 6/7 UAS, 2/2 RI*
*Respondents 2008: 8/8 Universities, 6/6 UAS, 3/3 RI*

The protection of intellectual property in the form of patents is of great importance in many industrial sectors. This is particularly true for industries with high product development costs and long product life-cycles, e.g. biotech and pharma. Public research institutions must decide at an early stage about filing patent applications because patenting of an invention is no longer possible after the results have been published in scientific journals or through other channels.

Moreover, many companies will not consider evaluating a new technology if it is not protected by a patent. Thus, patenting activities of public research institutions can be a prerequisite for entering into a partnership with an industrial partner.

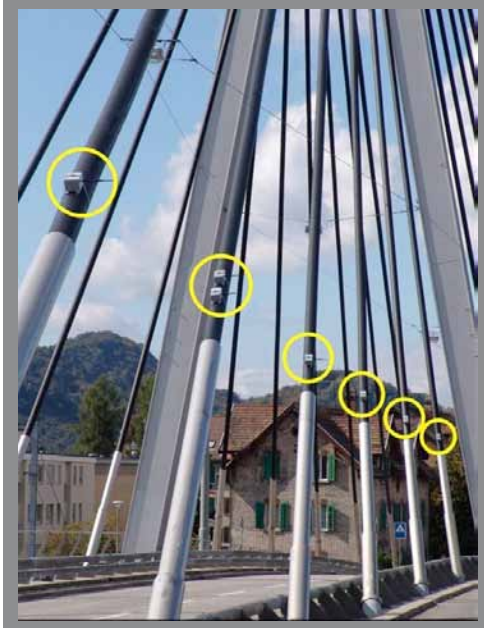
### 4.2.2 Patent Portfolio - Active Patent Cases End of 2008

At the end of 2008, the institutions participating in the survey reported 924 active patent cases which were either licensed to a company or for which they were searching for a licensee. Marketing of such technology opportunities is done by the research institutions through various channels. The existing contacts of researchers are often used to approach companies. To support the research institutions in this promotion and to provide a quick and easy overview of current technology opportunities for industry, the association swiTT established the national portal swiTTlist (www.swittlist.ch). Through their TTO, the Swiss public research institutions list technologies on this portal which have an economic potential and which are available for licensing and development by industry. With the help of an automatic alert system, company representatives are informed immediately each time a new technology is available in their field of interest.

CASE HISTORIES

EMPA
Materials Science & Technology

## MONITORING OF CIVIL STRUCTURES WITH WIRELESS SENSOR NETWORKS



Structural monitoring is increasingly applied on civil structures to provide reliable and quantitative data about their actual performance. This data is used in the assessment, maintenance and rehabilitation efforts of bridges that are approaching the end of their design lifespan. Conventional wired monitoring systems turned out to be inflexible, labor-intensive and expensive.

Monitoring with wireless sensor networks, networks of tiny computers equipped with sensors and a wireless communication interface, has the potential to overcome these drawbacks. The advantages of wireless sen-sor networks over conventional wired monitoring technology are fast deployment, great flexibility, easy scalability and self-organisation. These advantages, however, are achieved by introducing a major handicap concerning power management, because wireless sensor networks have to operate from batteries. Minimi-zation of power consumption is therefore a key issue for achieving competitive lifetimes. This innovative concept, which was implemented within the EU-project "Sustainable Bridges", was demonstrated with a long term test on the Storchen Bridge in Winterthur where the tensile forces of stay cables are monitored by com-puting the natural frequencies from ambient vibration measurements. For the commercialization of this innovative technology the Empa spin-off company Decentlab GmbH has been founded by two Empa employees and commercialization has started in spring 2009.

EMPA
Materials Science & Technology

## DEVELOPMENT OF A PROOF TEST PROCEDURE FORT HE REJECTION OF DEFECTIVE CERAMIC FEMORAL HEADS

Due to specific needs of an industry partner Empa developed in 2006/07. a new proof test procedure for the rejection of defective ceramic femoral heads in the production line of its partner. The procedure consists in applying to each sample a load which is somewhat higher than the maximum physiological load. This load should not cause any damage in cases where the highly stressed areas are free of flaws. With an iterative approach based on finite element analysis, the proof test design was optimized in order to obtain a stress distribution in the ball head similar to that resulting in in vivo conditions. The calculated results were validated by strain gauge measurements performed on an assembled proof test apparatus. The requirement to perform 1000 reruns without significant reduction of stress in the ball head was fulfilled. Although other proof test procedures for ceramic femoral heads already exist, the procedure shows advantages concerning main-tenance and operating costs. A patent was filed to protect the technology and was at the end of the collabor-ation successfully transferred to the industry partner who integrated the new test procedure in 2008 in his production line.

## 4.3 Licensing

### 4.3.1 Licenses and Sales of Intellectual Property (IP)

The number of reported IP agreements, i.e. licenses or sales agreements was lower than in the previous year. Overall 208 deals were reported, 91% of them by Universities and 7% by RI. The UAS concluded in 2008 only 4 new licensing deals.

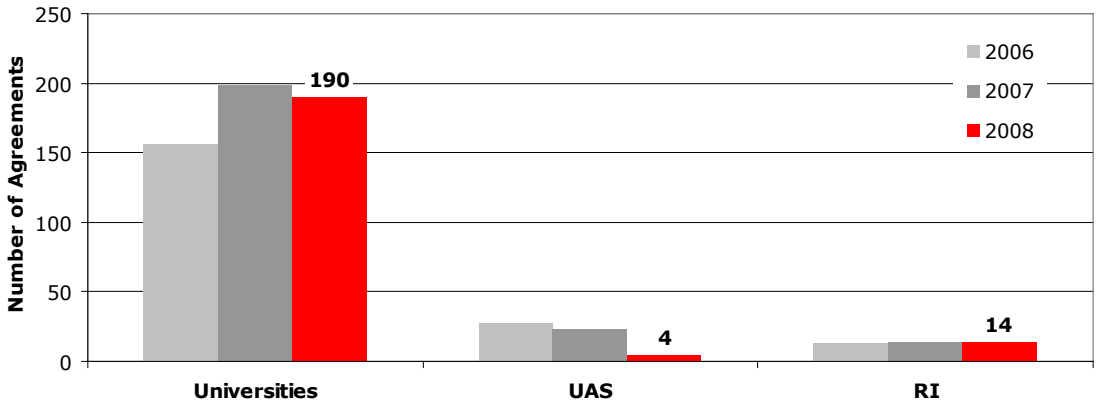



**Fig. 7: Number of new license, option or sales agreements executed for intellectual property rights (IPR).**

*Respondents 2006: 10/10 Universities, 6/7 UAS, 2/3 RI*
*Repsondents 2007: 10/10 Universities, 5/7 UAS, 2/2 RI*
*Respondents 2008: 8/8 Universities, 6/6 UAS, 3/3 RI*

### 4.3.2 Type of Licensing Partners

As in previous years the majority of the licenses granted in 2008 went to SME (56%). This is mainly due to two reasons. On one hand, SME are often more interested in and more flexible to in-licensing and developing technologies from academia. Large companies have their own R&D programs and will only in-license technologies which will complement their existing portfolio. On the other hand, public research institutions regularly license technologies to their spin-off companies.

### 4.3.3 License Portfolio and License Income

The number of active licenses under management at the end of 2008 was reported as 1079 cases, slightly higher than the previous year. Thereof, 94% of active licenses were handled by the Universities, 5.5% by the RI and less than 1% by the UAS.

As indicated in Figure 9, one-fourth of total licenses under management resulted in license income for the institutions. In 11% of the licenses, the institutions collected license revenues in the form of royalties from product sales, in another 14% of cases income resulted in the form of other license fees, e.g. license issue fees or milestone payments.

These figures reflect the typical situation of licenses granted to industry by public research institutions. Many of the licensed technologies are at an early stage and require extensive development by the licensee. It often takes several years until a product reaches the market. Moreover, due to the early stage, the development risk is often high, and a significant number of projects are stopped before a marketable product is ready. Further, the figures are also typical for a still rather young license portfolio because many of the TTO have only been in operation for a relatively short period of time.

UniversitätsSpital Zürich

CASE HISTORIES

## INTEGO™ PET INFUSION SYSTEM


The IntegoTM PET Infusion System of Medrad Inc. was selected as one of Imaging Economics Top 8 innovations in 2008. The revolutionary new approach to FDG (fluor-deoxyglucose) infusion reduces radiation exposure, simplifies workflow complexity, and gives clinicians new flexibility to respond to patient schedule changes. Intego builds on work performed by Prof. Alfred Buck from the Department of Medical Radiology at the University Hospital Zurich.

FDG is the most commonly used tracer in PET scans (Positron Emission Tomography). In 2008 more than 2.5 million procedures were performed. Radiation exposure of personnel working in nuclear medicine is a major health issue.

Intego:

- Automatically measures and delivers patient-specific FDG doses on demand
- Introduces safety features that reduce radiation exposure from dose preparation
- Consistently and accurately administers FDG.

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

## IMPROVED CHEESE PRODUCTION BY THE USE OF CAMEL CHYMOSIN

In 2008 the product CHY-MAX M has been introduced to the market by the Danish company Ch. Hansen A/S. The product is a chymosin produced by fermentation based on the chymosin (rennet) from camels. The benefit of the new chymosin is a higher yield of the cheese curd, lower dosage of the enzyme and less proteolytic activity during the fermentation process which leads to a better taste of the cheese.

The research started at the Institute for Food Science at ETH Zurich end of the 90s. In the group of Dr. Zakariah Farah, Dr.Stefan Kappeler was focusing on the production of cheese from camel milk. The traditional way to produce cheese by bacteria led to a bitter taste, but cheese produced by camel chymosin could be made without sensorial defects. With the support of the company Ch. Hansen S/A Mr. Kappeler developed a method to produce the enzyme biotechnologically. The collaboration led to a patent in the year 2000 which was licensed by the company exclusively.

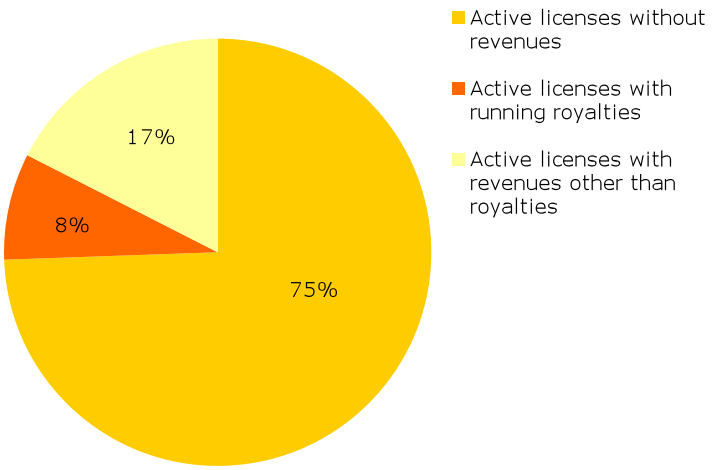



**Fig. 9: Ratio between active licenses with and without revenues in 2008.**
*Respondents: 8/8 Universities, 6/6 UAS and 3/3 RI*

Data on license income are incomplete and were reported only by six Universities, three UAS and two RI. The total license income of these institutions amounted to 9.5 mio CHF similar to the previous year.

Mainly when licensing to start-up companies, some institutions may accept equity in such companies as a partial compensation for the licensing of technology. Such equity transactions usually replace down-payments or early milestone payments in order to avoid any cash drain from the start-up through license fee payments at the early stage of development. For the institutions, this results in a deferral of license revenues from such licenses until the shares in such start-up companies are sold by the institutions. In 2008, the institutions reported equity transactions for 12 of the 39 new start-up companies created that involved a license (see Section 4.4).

## 4.4 Start-up Companies

The number of newly created start-up companies from public research institutions remains at a high level. In 2008 the institutions reported 39 start-up companies which rely on a license or a contractual transfer of intellectual property from a public research institution. An additional 31 new companies were reported by the institutions that were created on the basis of know-how developed at the research institutions, but without a formal license.

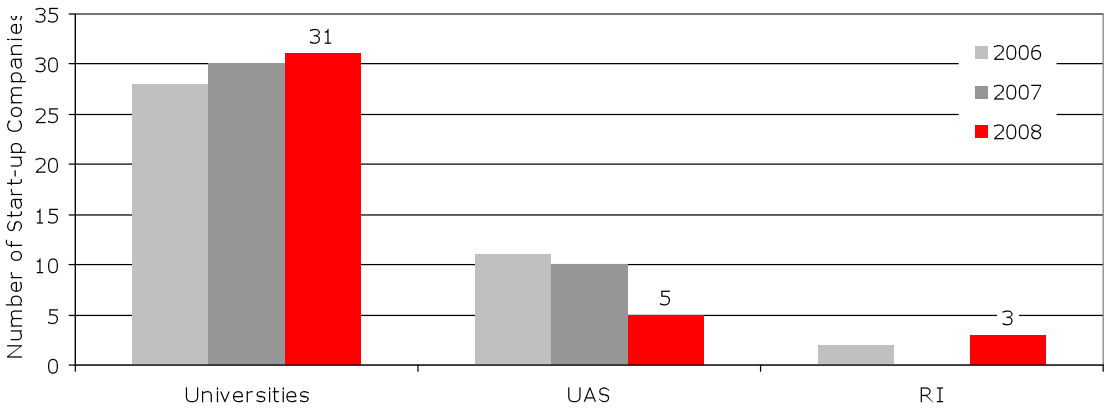



**Fig. 10: Number of start-up companies founded which were based on licensing or contractual transfer of an institution's technology.**
*Respondents 2006: 10/10 Universities, 7/7 UAS, 2/3 RI*
*Respondents 2007: 10/10 Universities, 7/7 UAS, 2/2 RI*
*Respondents 2008: 8/8 Universities, 6/6 UAS, 3/3 RI*

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

CASE HISTORIES

## EPFL PSYCHO ACOUSTIC ECHO CANCELER (PAEC)

EPFL Psycho Acoustic Echo Canceler (PAEC) is running in millions of Logitech webcams and communication products. PAEC is an audio processing software developed at the Laboratory of Audio-Visual Communications.

Acoustic echo suppression and noise suppression is an important part of any "hands-free" telecommunication system such as telephony or audio or video conferencing systems to eliminate undesired echo signals that result from acoustic coupling between a loudspeaker and a microphone.

The PAEC algorithm was developed by Dr. Christof Faller using similar techniques used in audio compression formats like the well known MP3.

The main originality and benefit of this particular Echo Canceler is its low complexity in terms of computing requirements, which is one of the key factor that has triggered the interest for Logitech to effectively embed this technology into the drivers of all its webcams. Indeed, Logitech has the obligation to be able to support a wide range of computer systems and CPUs, including old generations with modest computing capabilities.

This License has been a success for both Logitech, EPFL, the lab and the Inventors for several reasons including the fact it has generated a substantial amount of royalties upon each webcam sold.

## 5. GLOSSARY

| | |
|---|---|
| swiTT | Swiss Technology Transfer Association |
| Universities | Cantonal Universities and Swiss Federal Institutes of Technology |
| UAS | Universities of Applied Sciences |
| RI | Swiss Federal Research Institutions in the ETH domain |
| TT | Technology Transfer |
| TTO | Technology Transfer Office(s) |
| FTE | Full Time Equivalent (for the number of employees) |
| IP | Intellectual Property |
| SME | Small- and Medium-sized Enterprises (<250 employees) |
| Start-up | Newly established company founded or co-founded by researchers from the respective institution and which either relies on a formal license of IP or on know-how developed at the institution |

## APPENDIX 1 – DETAILED DATA 2006-2008

| All respondents | 2006 | Resp.2006 | 2007 | Resp. 2007 | 2008 | Resp. 2008 | 2008 vs. 2007 |
|---|---|---|---|---|---|---|---|
| Full-time equivalents (FTE) | 72.84 | 20/20 | 77 | 19/19 | 63 | 17/17 | -18% |
| Research contracts handled (incl. EU contracts) | 2462 | 20/20 | 2789 | 19/19 | 2745 | 17/17 | -2% |
| Invention disclosures registered | 404 | 19/20 | 442 | 18/19 | 431 | 17/17 | -2% |
| Priority patent applications filed | 212 | 20/20 | 197 | 18/19 | 194 | 17/17 | -2% |
| Active patent cases managed end of the year | 1245 | 20/20 | 1248 | 18/19 | 924 | 17/17 | -26% |
| License agreements concluded | 196 | 18/20 | 236 | 17/19 | 271 | 17/17 | 15% |
| Active license agreements managed end of the year | 824 | 13/20 | 1059 | 16/19 | 1079 | 17/17 | 2% |
| kCHF of net licensing revenues reported | 7939 | 13/20 | 9781 | 9/19 | 9479 | 15/17 | -3% |
| License agreements with revenues in respective year | 235 | 13/20 | 268 | 16/19 | 271 | 17/17 | 1% |
| New start-ups formed on basis of formal license | 41 | 19/20 | 40 | 19/19 | 39 | 16/17 | -3% |

| Universities | 2006 | Resp. 2006 | 2007 | Resp. 2007 | 2008 | Resp. 2008 | 2008vs. 2007 |
|---|---|---|---|---|---|---|---|
| Full-time equivalents (FTE) | 40.9 | 10/10 | 44.6 | 10/10 | 42.4 | 8/8 | -5% |
| Research contracts handled (incl. EU contracts) | 1303 | 10/10 | 1623 | 7/10 | 1895 | 8/8 | 17% |
| Invention disclosures registered | 325 | 10/10 | 393 | 10/10 | 378 | 8/8 | -4% |
| Priority patent applications filed | 161 | 10/10 | 154 | 10/10 | 167 | 8/8 | 8% |
| Active patent cases managed end of the year | 1058 | 10/10 | 1084 | 10/10 | 779 | 8/8 | -28% |
| License agreements concluded | 156 | 10/10 | 199 | 10/10 | 190 | 8/8 | -5% |
| Active license agreements managed end of the year | 786 | 8/10 | 996 | 9/10 | 1013 | 8/8 | 2% |
| kCHF of net licensing revenues reported | 7061 | 9/10 | 8676 | 5/10 | 8338 | 6/8 | -4% |
| License agreements with revenues in respective year | 194 | 9/10 | 220 | 9/10 | 252 | 8/8 | 15% |
| New start-ups formed on basis of formal license | 28 | 10/10 | 30 | 10/10 | 31 | 8/8 | 3% |

| UAS | 2006 | Resp. 2006 | 2007 | Resp. 2007 | 2008 | Resp. 2008 | 2008 vs. 2007 |
|---|---|---|---|---|---|---|---|
| Full-time equivalents (FTE) | 26.59 | 7/7 | 26.4 | 7/7 | 13.9 | 6/6 | -47% |
| Research contracts handled (incl. EU contracts) | 986 | 7/7 | 1038 | 7/7 | 455 | 6/6 | -56% |
| Invention disclosures registered | 38 | 6/7 | 20 | 6/7 | 16 | 6/6 | -20% |
| Priority patent applications filed | 21 | 7/7 | 23 | 6/7 | 10 | 6/6 | -57% |
| Active patent cases managed end of the year | 83 | 7/7 | 67 | 6/7 | 48 | 6/6 | -28% |
| License agreements concluded | 27 | 6/7 | 23 | 5/7 | 4 | 6/6 | -83% |
| Active license agreements managed end of the year | 20 | 3/7 | 24 | 5/7 | 5 | 6/6 | -79% |
| kCHF of net licensing revenues reported | 325 | 3/7 | 240 | 3/7 | 180 | 6/6 | -25% |
| License agreements with revenues in respective year | 19 | 2/7 | 21 | 5/7 | 3 | 6/6 | -86% |
| New start-ups formed on basis of formal license | 11 | 7/7 | 10 | 7/7 | 5 | 5/6 | -50% |

| RI | 2006 | Resp. 2006 | 2007 | Resp. 2007 | 2008 | Resp. 2008 | 2008 vs. 2007 |
|---|---|---|---|---|---|---|---|
| Full-time equivalents (FTE) | 5.35 | 2/2 | 5.7 | 2/2 | 6.7 | 3/3 | 18% |
| Research contracts handled (incl. EU contracts) | 365 | 2/2 | 180 | 2/2 | 395 | 3/3 | 119% |
| Invention disclosures registered | 41 | 1/2 | 29 | 2/2 | 37 | 3/3 | 28% |
| Priority patent applications filed | 30 | 2/2 | 20 | 2/2 | 17 | 3/3 | -15% |
| Active patent cases managed end of the year | 104 | 1/2 | 97 | 2/2 | 97 | 3/3 | 0% |
| License agreements concluded | 13 | 2/2 | 14 | 2/2 | 14 | 3/3 | 0% |
| Active license agreements managed end of the year | 18 | 2/2 | 39 | 2/2 | 61 | 3/3 | 56% |
| kCHF of net licensing revenues reported | 553 | 1/2 | 975 | 2/2 | 961 | 3/3 | -1% |
| License agreements with revenues in respective year | 22 | 1/2 | 27 | 2/2 | 16 | 3/3 | -41% |
| New start-ups formed on basis of formal license | 2 | 2/2 | 0 | 2/2 | 3 | 3/3 | - |

## APPENDIX 2 – KEY PARAMETERS FOR INDIVIDUAL INSTITUTIONS

A number of institutions agreed to publish individual data for some key parameters. The following table lists these data.

| Institution | Name TTO | Start TTO | 3.2 TTO FTE 1.12.2008 | 4.1 Total # of new research contracts | 5.1 # of invention disclosures | 5.2 # of priority applications | 7.1 # of IP agreements |
|---|---|---|---|---|---|---|---|
| **Universities** | | | | | | | |
| **EPFL** | SRI | 1993 | 7.5 | 391 | 70 | 40 | 32 |
| **Uni Basel** | | 1998 | 3.8 | 63 | 17 | 8 | 30 |
| **Uni Geneva Unitec** | | 1999 | 6 | 43 | 30 | 13 | 12 |
| **Uni Lausanne** | PACTT | 2000 | 3.5 | 59 | 26 | 15 | 13 |
| **Uni Bern Unitectra** | | 1999 | 8.3* | 395 | 32 | 8 | 14 |
| **Uni Zurich Unitectra** | | 1996 | | 503 | 67 | 24 | 35 |
| **UAS** | | | | | | | |
| **BFH** | | 2005 | 6.3 | 280 | 5 | 3 | 1 |
| **HE-ARC** | | 1998 | 1 | 65 | 3 | 2 | 1 |
| **Hochschule Luzern** | ITZ | | 3.3 | 5 | 1 | 2 | 0 |
| **RI** | | | | | | | |
| **Empa** | | 2005 | 2 | 95 | 27 | 11 | 9 |
| **PSI** | | 1999 | 4.2 | 209 | 7 | 6 | 5 |

* Unitectra is the joint TTO of the Universities of Bern and Zurich

## APPENDIX 3 – THE QUESTIONNAIRE

swiTT Technology Transfer Survey 2008

### Preliminary Notes:

- All questions refer to the calendar year 2008. Please make your statements accordingly.
- If no answer is available for certain questions, please indicate with n.a. Questions for which your office or your institution does not collect data should be left open (n.a.) and should not be answered by giving an estimate.

| **1. Confidentiality** | |
|---|---|
| Do you agree to the publication of the individual data collected in the questions marked [pub] under your institution's name?<br>*All other data will only be published in the aggregated format by type of institution.* | ❑ Yes<br>❑ No |

| **2. Background Information** | | | |
|---|---|---|---|
| 2.1 Name of the academic institution/s | | | |
| 2.2 Is your institution associated with an university hospital?<br>*(If yes, please note that all figures given below should include the numbers of the hospital, too.)* | | | ❑ Yes<br>❑ No |
| 2.3 Does your institution have a dedicated office / responsible person for TT activities (TTO)? | | | ❑ Yes<br>❑ No |
| If yes, which year did the TT program start? | | *[pub]* | |
| 2.4 Name of responsible for TT program | | | |
| Name of responsible for survey data | | | |
| 2.5 TTO address and contact information | | | |
| Office Name | | Telephone | |
| **Street** | | e-mail | |
| City | | Postal code | |

| **3. Activities and FTEs** | |
|---|---|
| 3.1 What are the activities of your TTO? | |
| (A) Research contracts (drafting, negotiating, controlling) | ❑ Yes<br>❑ No |
| (B) Evaluation, protection and management of IP | ❑ Yes<br>❑ No |
| (C) Commercialisation of IP (licensing, marketing) | ❑ Yes<br>❑ No |
| (D) Coaching of start-up projects | ❑ Yes<br>❑ No |
| (F) Financial administration of research projects | ❑ Yes<br>❑ No |
| 3.2 How many full time equivalents FTE were employed in your TTO on December 31st 2008?<br>*(Do NOT include researchers working as project managers in transfer projects in this number)* | FTE *[pub]* |
| 3.3 Of these FTE, how many were employed to work on | |

| | | |
|---|---|---|
| (A) | Technology transfer activities<br>*(Staff with main occupations (> 20%) in the area of technology transfer, such as 'Licensing Officers', 'Intellectual Property Managers', 'Technology Managers' or 'Research Contract Officers'. Do NOT include project managers carrying out transfer projects)* | FTE |
| (B) | Administration and general management | |
| | Comments to 3.1 - 3.3<br>*(e.g. if additional people outside your TTO but inside your institution are also working in technology transfer activities according to 3.1, special organisation with specific faculties, centralized/ decentralized organisations)* | FTE |
| **4.** | **Research and Development** | |
| 4.1 | Total number of new research contracts handled by your TTO<br>*(Collaboration agreements, service agreements, clinical trial agreements, CTI complementary and EU agreements, NO MTA, NO NDA or other TT contracts (see 4.3) and NO SNSF contracts)* | [pub] |
| | Of these research contracts, how many were executed with small and medium enterprises (SME), how many with large companies and how many with public partners?<br>*(Definition: SME are companies with 250 or less employees.)* | A) SME:<br>(B) Large Company<br>(C) Public Institutions:<br>*(Sum shall equal 4.1!)* |
| 4.2 | Amount of cash payments due to your institution from research contracts that were handled by your TTO according to 4.1<br>*(Please give the amount of cash due to your institution, NO material asset e.g. for machinery and NOT the total amount of Research Project, e.g. if an EU project adds up to 3 Mio. EUR but your institution gets only 200'000 thereof, the latter shall be given. Do not split the amount, if the contract is covering several years but report the full amount in the year the contract is signed.)* | CHF |
| 4.3 | Number of other technology transfer contracts handled by your TTO<br>*(Non Disclosure Agreements (NDA), Material Transfer Agreements (MTA), consulting contracts, inter-institutional contracts, sponsoring, donations, but NO licenses, options, sales)* | |
| | Comments to 4.1 – 4.3<br>*(e.g. restrictions/regulations at your institution, knowledge of ALL contracts or only contracts above a certain amount)* | |

| **5. Patent-Related Activity** | |
|---|---|
| 5.1 How many invention disclosures were received by your TTO? | *[pub]* |
| 5.2 How many priority applications were filed by your TTO? *(Priority application being the very first application for a new technology in any patent office of the world.)* | *[pub]* |
| (A) Of these, how many are based on research significantly funded by SNSF. | |
| 5.3 What was the overall number of active patent cases at the end of 2008 managed by your TTO? *(Active patents cases are pending or granted patents on a technically unique invention (patent family). Applications in various countries on ONE technically unique invention count as ONE patent case.)* | |
| **6. Patenting Costs and Legal Fees** | |
| 6.1 Amount spent by your TTO/institution on patenting costs and external legal fees? *(Including all external costs for patent filing, prosecution, maintenance, litigation expenses or costs for drafting or support in negotiation of contracts.)* | CHF |
| 6.2 Amount of patenting costs and legal fees invoiced to commercialization partners? *(Does NOT include patenting costs or legal fees paid DIRECTLY to the patent attorney or other service providers by licensees or external partners.)* | CHF |

| 7. | License, Option and Sales Agreements | |
|---|---|---|
| 7.1 | How many licenses/options/sales of protected or unprotected IP did your TTO execute?<br>*(Count only the agreements for different technologies, i.e. 30 licenses for the same software library count as ONE. If a license agreement is combined with a research agreement (e.g. advanced sale of the results of a research project), this contract shall count only as research contract and NOT be included in this question unless the invention/ software that is licensed/sold, exists already at the execution date of the research contract.)* | [pub] |
| | Of these licenses/options/sales, how many were licensed to SME, how many to large companies or public institutions?<br>*(Definition: SME are companies with 250 or fewer employees)* | (A) SME:<br>(B) Large Company:<br>(C) Public Institutions:<br>*(Sum shall equal 7.1!)* |
| | (D) Of these licenses/options/sales how many are based on research significantly funded by SNSF? | |
| 7.2 | How many licenses/options/sales included equity?<br>*(Equity meaning the ownership of interest in a company such as shares, options, warrants, etc. in consideration for granting a license or sale of IP.)* | |
| 7.3 | How many licenses/options were active as of December 31, 2008? | |
| | Comments to 7.1 – 7.3<br>*(e.g. large variations to previous years, special situations, i.e. with free software licenses OpenBSD, etc)* | |
| **8.** | **License Income** | |
| 8.1 | What was the total number of licenses/ options/sales yielding revenue? | |
| 8.2 | How many licenses/options/sales yielded running royalties?<br>*(Running royalties are based on product sales and areonly due after the launch of a product in the market)* | |
| 8.3 | What was the total amount of license/ option/sales revenue received at your institution?<br>*(WITHOUT patent cost and fees invoiced in 6.2.)* | CHF |

| **9. Start-up Companies** | |
|---|---|
| 9.1 Total number of start-up companies formed at your institution | |
| (A) Of these start-up companies, how many are dependent on licensing or transfer of your institutions technology? | |
| (B) Of these start-up companies, how many are dependent on unprotected know-how or technology of your institution (without license agreement)? | |
| (C) Of these start-up companies, how many are based on research significantly funded by SNSF? | |
| 9.3 In how many of the new start-up companies does your institution hold equity? | |
| **10. Post-Licensing Activities** | |
| 10.1 Did one or more of your institution's licensed technologies become available for consumer or commercial use in 2008? | ❑ Yes<br>❑ No |
| If yes, how many? | |
| 10.3 Information about the launched products *(Please give a short title of each product success story and the e-mail of the contact person for additional information.)* | *[Title, Contact Person]* |
| **Comments** | |
| *(If you want to bring any additional comments or suggestions to the attention of the team of the swiTTreport, please post them here)* | |

Thank your for your input!

## CONTACT

swiTT – Swiss Technology Transfer Association
3000 Bern
switt@switt.ch
www.switt.ch