

Swiss Technology Transfer - Report 2006



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swiTT Survey of Technology Transfer Activities in Switzerland for the Year 2006

Summary

For the second time, swiTT carried out a survey on the interaction between Swiss public research institutions and economic partners. Seven cantonal universities and the two Federal Institutes of Technology ('Universities'), all seven universities of applied sciences ('UAS'), and three research institutes in the ETH domain ('RI') provided data on their activities in technology transfer. As was the case in 2005, not all the data were available on all the questions at some institutions, but, compared with 2005, two further institutions reported their activities, and several respondents delivered more complete data. Hence, the numbers reported give a good overview of the technology transfer activities which exist minimally at the participants' institutions. However, the real extent of activities is undoubtedly greater.

The respondents reported their results to swiTT voluntarily, and the data presented in this report are on an 'as-reported' basis. For reasons of confidentiality, only aggregated numbers are presented throughout this report. On account of the difference in mission, organization and objectives of the three types of institution, their data are reported separately.

In most figures, the data for 2006 are compared with the data for 2005; however, due to the lack of reliable historical data, these changes should be interpreted carefully.

Overall, the respondents reported the following key figures on technology transfer activities in 2006:

- 2654 new research projects with economic partners were started
- 404 invention disclosures were registered
- 212 priority patent applications were filed
- 196 license and option agreements were executed
- 1245 patent cases were active at the end of 2006
- 824 license agreements were active at the end of 2006
- 235 active licenses generated a total income of 8.9 mio CHF
- 51 new start-up companies based on technologies from Swiss public institutions were founded, 41 of which were spin-off companies¹
- 330 start-up companies based on technologies from Swiss public institutions have been founded since 2000

In general, more full-time equivalents were employed for technology transfer activities at the institutions in 2006 than in 2005. In the area of research collaborations, the UAS mainly collaborated with small- and medium-sized enterprises (SME²), whereas Universities collaborated more often with large companies.

The institutions participating reported a similar number of commercialization projects as the previous year. The number of invention disclosures and priority patent applications were stable, whereas the number of new licenses decreased. At the end of 2006, more

¹ Spin-off companies are defined as start-up companies founded on the basis of a formal license on technologies from Swiss public institutions.

² SME are defined as companies with fewer than 250 employees.

active patent cases had been managed than at the end of 2005. This indicates that the patent portfolios of the respondents have generally grown. The license portfolios consisting of the active license agreements managed up to the end of the year were stable. The main licensees of both the Universities and the UAS were SME, including start-ups of the institutions.

A distinct rise in the start-up activities of the institutions was reported: 2006 saw the founding of almost twice as many spin-offs as 2005.

As mentioned above, a set of data for only two years does not permit a detailed analysis of the evolution of the situation with regard to technology transfer in Switzerland. However, the data reported do show a continuing large interaction between public research institutions and the business sector. The data also back up the results of the international reports of IMD and WEF in 2007 on the competitiveness of countries, which both place Switzerland at the top position with regard to cooperation between industry and academia.

swiTT-Umfrage zu Technologietransferaktivitäten in der Schweiz im Jahr 2006

Zusammenfassung

swiTT führte für das Jahr 2006 zum zweiten Mal eine Umfrage zur Zusammenarbeit von schweizerischen öffentlichen Forschungsinstitutionen mit Wirtschaftspartnern durch. Sieben kantonale Universitäten, die beiden Eidgenössischen Technischen Hochschulen, alle sieben Fachhochschulen und drei Forschungsinstitute der ETH lieferten Daten zu ihren Aktivitäten im Technologietransfer. Wie bei der ersten Umfrage konnten einige Institutionen nicht zu allen Fragen Daten liefern, doch beteiligten sich zwei zusätzliche Institutionen und einige Teilnehmer stellten detailliertere Daten zur Verfügung. Die vorliegenden Ergebnisse geben somit einen guten Überblick über die minimal existierenden Aktivitäten im Bereich Technologietransfer. Die tatsächlichen Aktivitäten sind zweifellos grösser.

Alle Institutionen nahmen freiwillig an der Umfrage teil und die Daten dieses Berichts beruhen auf einer „Wie-gemeldet“-Basis. Aus Gründen der Vertraulichkeit werden im Bericht lediglich Gesamtzahlen aufgeführt. Da Auftrag, Organisation und Zielstellung der teilnehmenden Institutionen sehr unterschiedlich sind, werden die Daten für die drei verschiedenen Institutionsarten gesondert ausgewiesen.

In der Regel werden die Zahlen im Vergleich zum Vorjahr (2005) dargestellt, allerdings ist mangels zuverlässiger historischer Daten bei der Interpretation Vorsicht geboten.

Insgesamt ergab die Umfrage die folgenden Kennzahlen zu Technologietransfer-Aktivitäten in 2006:

- 2654 neue Forschungsprojekte mit Wirtschaftspartnern wurden gestartet.
- 404 Erfindungsmeldungen wurden registriert.
- 212 Prioritätspatentanmeldungen wurden eingereicht.
- 196 Lizenz- und Optionsverträge wurden abgeschlossen.
- 1245 Patentfälle waren Ende 2006 aktiv.
- 824 Lizenzen waren Ende 2006 aktiv.
- 235 aktive Lizenzen führten zu Gesamteinnahmen in Höhe von 8,9 Mio. CHF.
- 51 neue Start-ups wurden auf der Basis von Technologien von öffentlichen Institutionen in der Schweiz gegründet, davon waren 41 Spin-offs³.
- 330 Start-ups auf Basis von Technologien von öffentlichen Institutionen in der Schweiz wurden seit 2000 gegründet.

Die Institutionen beschäftigten in 2006 mehr Vollzeitäquivalente im Bereich Technologietransfer als in 2005. Im Bereich der Forschungsk Kooperationen arbeiteten die Fachhochschulen hauptsächlich mit kleinen und mittelständischen Unternehmen (KMU)⁴, die Universitäten häufiger mit Grossunternehmen zusammen.

Für die Kommerzialisierung von Forschungsergebnissen wurden gegenüber dem Vorjahr etwa gleichbleibende Zahlen gemeldet. Die Anzahl der Erfindungsmeldungen und Prioritätspatentanmeldungen blieb stabil, während die Anzahl neuer Lizenzverträge sank. Ende 2006 waren mehr Patentfälle aktiv als Ende 2005, was auf wachsende

³ Spin-offs sind definiert als Start-ups, die auf Basis einer offiziellen Lizenz für eine Technologie einer schweizerischen öffentlichen Institution gegründet werden.

⁴ KMU sind definiert als Unternehmen mit weniger als 250 Angestellten.

Patentportfolios der Umfrageteilnehmer hindeutet. Die Anzahl der aktiven Lizenzvereinbarungen und damit die Lizenzportfolios der Institutionen blieben stabil. Lizenznehmer waren sowohl bei Universitäten als auch bei Fachhochschulen hauptsächlich KMUs, einschliesslich der Spin-offs der jeweiligen Institutionen.

Ein deutlicher Anstieg wurde bei den Spin-off-Aktivitäten der Institutionen verzeichnet: 2006 wurden fast doppelt so viele Spin-offs gegründet wie 2005.

Wie oben erwähnt liegen lediglich Daten der letzten beiden Jahre vor, was keine detaillierte Analyse der Entwicklung des Technologietransfers in der Schweiz erlaubt. Die Daten spiegeln jedoch das anhaltend starke Zusammenspiel zwischen den öffentlichen Forschungsinstitutionen und dem Wirtschaftssektor wider. Sie bestätigen auch die Ergebnisse der internationalen Berichte von IMD und WEF des Jahres 2007 über die Wettbewerbsfähigkeit der Länder. In beiden Berichten nimmt die Schweiz bei der Zusammenarbeit zwischen Industrie und Hochschulen den Spitzenplatz ein.

Enquête swiTT sur les activités de transfert de technologies en Suisse pour l'année 2006

Résumé

Pour la deuxième fois, swiTT a mené une enquête sur l'interaction entre les institutions publiques de recherche suisses avec des partenaires économiques. Sept universités cantonales et les deux Ecoles Polytechniques Fédérales («Universités»), l'ensemble des sept Hautes Ecoles Spécialisées («HES») et trois instituts de recherche du domaine des EPF («IR») ont fourni des données concernant leurs activités de transfert de technologies. Comme en 2005, il manque pour certaines institutions des données concernant certains points, mais par rapport à 2005, deux institutions supplémentaires ont communiqué leurs activités et plusieurs répondants ont fourni des données plus complètes. Par conséquent, les chiffres indiqués fournissent une bonne vue d'ensemble du minimum d'activités de transfert de technologies existantes dans les institutions participantes. Il ne fait cependant aucun doute que l'étendue réelle des activités est plus importante.

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, seuls des chiffres cumulés figurent dans ce rapport. Afin de représenter les différences dans la mission, l'organisation et les objectifs des trois différents types d'institutions, leurs données sont indiquées séparément.

La plupart des données de 2006 sont comparées aux données de 2005; cependant, en raison du manque de données historiques fiables, il faut interpréter l'évolution avec beaucoup de prudence.

Globalement, les répondants ont communiqué les chiffres-clés suivants concernant les activités de transfert de technologies en 2006:

- 2 654 nouveaux projets de recherche avec des partenaires économiques ont démarré
- 404 annonces d'inventions ont été enregistrées
- 212 demandes de brevets prioritaires ont été déposées
- 196 contrats de licence et d'option ont été signés
- 1 245 brevets étaient en vigueur à fin 2006
- 824 contrats de licence étaient en vigueur à fin 2006
- 235 licences en vigueur ont généré un résultat de 8,9 millions de CHF
- 51 nouvelles start-ups basées sur des technologies issues des institutions publiques suisses ont été créées, dont 41 sont des sociétés «spin-off»⁵
- 330 start-ups basées sur des technologies issues des institutions publiques suisses ont été créées depuis l'an 2000

En général, les institutions ont employé plus d'équivalents plein-temps pour les activités de transfert de technologies en 2006 qu'en 2005. Dans le secteur des partenariats de recherche, les HES ont principalement collaboré avec des petites et moyennes entreprises (PME), alors que les universités ont le plus souvent travaillé avec des grandes entreprises.

⁵ Les sociétés «spin-off» sont des start-ups qui ont été créées sur la base d'une licence d'exploitation de technologies issues d'institutions publiques suisses.

Le nombre de projets de valorisation communiqué par les institutions participantes est identique à l'an dernier. Le nombre d'annonces d'inventions et de demandes de brevets prioritaires est resté stable alors que le nombre de nouvelles licences a diminué. Il y a eu plus de brevets en vigueur gérés à fin 2006 qu'à fin 2005, ce qui signifie que les portefeuilles de brevets des répondants ont globalement augmenté. Les portefeuilles de licences sont restés stables. Les principaux licenciés des universités et des HES sont des PME dont font partie les start-up des institutions.

Le démarrage d'entreprises basées sur des technologies issues des institutions publiques suisses a connu une hausse importante : 2006 a vu se créer près de deux fois plus de sociétés «spin-off» qu'en 2005.

Un ensemble de données sur seulement deux ans ne permet pas d'effectuer une analyse détaillée de l'évolution de la situation du transfert de technologies en Suisse. Cependant, les données communiquées montrent la persistance d'interactions étroites entre les institutions publiques de recherche et le secteur privé. Les données confirment également les rapports internationaux 2007 de l'IMD et du WEF sur la compétitivité des pays, qui placent tous deux la Suisse en tête en matière de coopération entre l'industrie et le milieu universitaire.

1. Institutions Participating and Data Collection

Nine 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 the summer of 2007 and asked to provide data on their technology transfer activities for the year 2006. The questionnaire was returned by 17 of the 19 institutions; this was a statistical response rate of 90%.

As was the case in the previous swiTT technology transfer survey for the year 2005, the data in this report do not give a complete picture of transfer activities at the institutions participating. They show minimum values at those institutions in a position to provide data; the real values are undoubtedly higher.

The following institutions are included in this report:

'Universities' are the following institutions:

- Ecole Polytechnique Fédérale de Lausanne (EPFL)
- ETH Zürich
- Universität Basel / Universitätsspital Basel
- Universität Bern / Inselspital Bern
- Université de Genève / Hôpitaux universitaires de Genève
- Université de Lausanne / Centre Hospitalier Universitaire Vaudois
- Università della Svizzera Italiana
- Universität Zürich / Universitätsspital Zürich
- Université de Neuchâtel (newly included in this survey)

Activities in research and technology transfer at university hospitals are usually linked closely to the respective University, and the services of the transfer offices are also available to researchers at the hospitals. Data from the hospitals are included, but, in several places, are not complete.

'UAS' are the following technically oriented institutions of Universities of Applied Sciences:

- Berner Fachhochschule (BFH) – (data available from the departments 'Technik und Informatik' and 'Architektur, Holz und Bau')
- Fachhochschule Nordwestschweiz (FHNW) – (data available from the departments 'Life Sciences' and 'Technik')
- Fachhochschule Ostschweiz (FHO) – (data available from the member schools NTB in Buchs and HTW in Chur)
- Hochschule Luzern – (data available from the part school 'Technik und Architektur')
- Haute Ecole Spécialisée de Suisse occidentale (HES-SO) (overall data)
- Scuola Universitaria Professionale della Svizzera Italiana (SUPSI) (overall data)
- Zürcher Fachhochschule (ZFH) – (data available from the part school 'Technik' in Zürich and the two part schools in Wädenswil and Winterthur, which, since 1.8.07, have been combined in the Zürcher Hochschule für Angewandte Wissenschaften (ZHAW))

At the UAS, data are not usually recorded centrally, hence single part schools or departments which deal with technology transfer issues were surveyed. Throughout this report, each UAS is counted as one respondent regardless of the number of part schools or departments responding. This leads to rather high response rates from the UAS in spite of the data from single respondents which are sometimes missing.

'Research Institutes (RI)' are the following research institutions in the ETH domain:

- Eawag: the Swiss Federal Institute of Aquatic Science and Technology
- Empa – Materials Science and Technology (newly included in this survey)
- PSI - Paul Scherrer Institut

2. Institutional Resources for Technology Transfer

2.1 Services Provided

All technology transfer offices (TTOs) at the Universities manage research collaborations as well as the commercialization of intellectual property (IP), which includes the evaluation, protection and management of IP. Six of nine TTOs also coach spin-off projects, and seven of nine TTOs have their own financial administration for TT activities.

All UAS and RI offer support in research collaborations and IP management; however, not all single departments or part schools of the UAS handle IP issues. Six of seven UAS and two of three RI support the commercialization of IP, and the coaching of start-up projects is offered by all UAS and one of three RI; however again with different levels of support at single departments or part schools of the UAS.

2.2 Staffing Levels

Staffing levels refer to the number of full-time equivalents (FTE) employed for TT activities at an institution. These are people, having their main occupation in the area of technology transfer, such as 'Licensing Officers', 'Intellectual Property Managers', 'Technology Managers' or 'Research Contract Officers'. 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% of the person's job description.

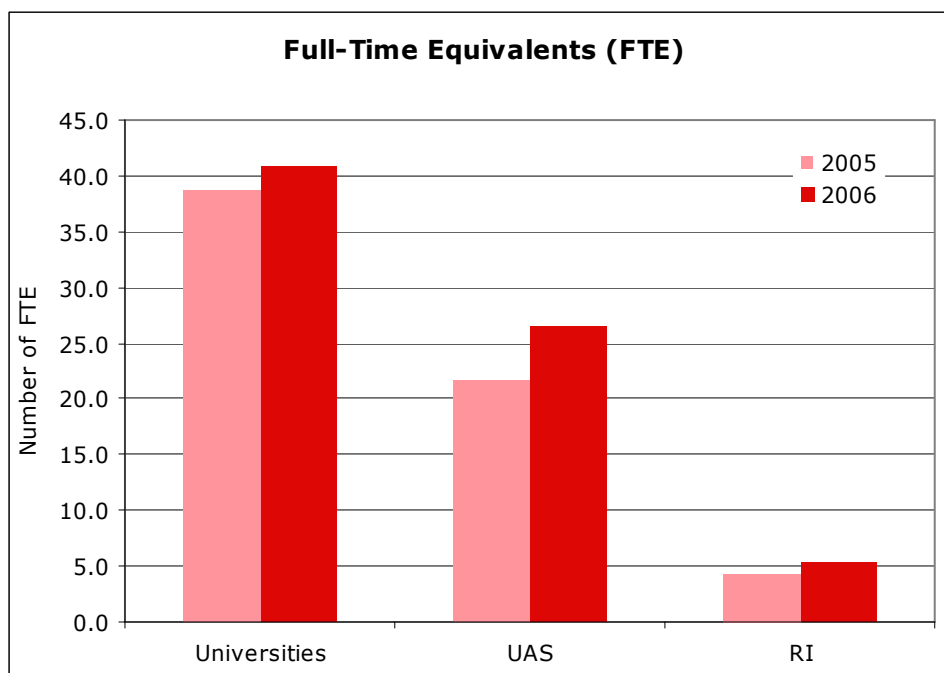


Fig. 1: Development of staffing levels (respondents 2005: 8/8 Universities, 7/7 UAS, 2/2 RI; 2006: 9/9 Universities, 7/7 UAS, 3/3 RI).

The total of approximately 73 full-time equivalents in 2006 shows an increase of eight FTE or 12.7% in comparison with 2005. Even if the two new respondents are excluded, a total actual increase of 10% is seen. The highest actual increase in staffing levels was observed at the UAS with five FTE or 22.5%. This shows clearly the intention of the UAS to further develop their TT activities. At Universities, the actual staffing level increased only moderately by 4.8% corresponding to two FTE.

3. Research Collaborations with Third Parties

3.1 Research Agreements Handled by the TTOs

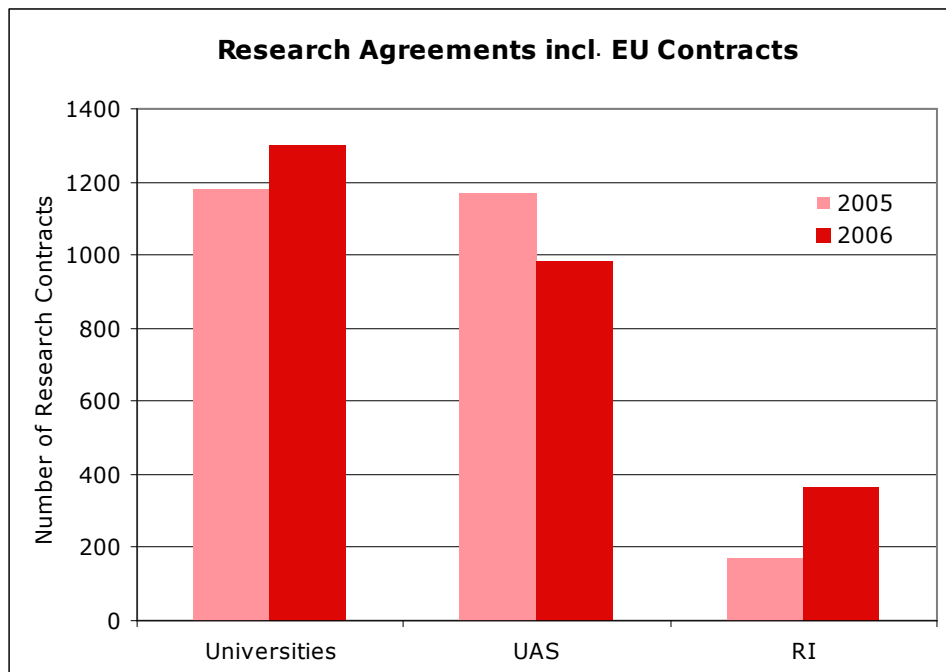


Fig. 2: Development of number of research agreements and EU contracts handled by the people responsible for TT (respondents 2005: 8/8 Universities, 7/7 UAS, 2/2 RI; 2006: 9/9 Universities, 7/7 UAS, 3/3 RI).

Contracts for a total number of 2654 research projects with economic partners were handled by TTOs in 2006, which represents an increase of 5.2% in comparison with 2005. Without the two new respondents, there is a slight increase of 2.1% despite the fact that there is a large decrease of 15.7% at the UAS. The University TTOs handled 10.3% more research projects than in 2005 (9.1% without new respondent); the TTOs of the RI more than doubled their number of research agreements, which is only in part due to an additional institution being included. The large decrease in research agreements at the UAS can be explained by a change in reporting: while in 2005, two of the UAS reported small projects such as diploma theses, in 2006 they reported substantial collaborations (see below).

The increase in numbers at Universities and RI demonstrate the growing importance of collaboration activities with third parties. The increase also reflects the ongoing trend in industry towards an increasing outsourcing of R&D to academia and other companies, in particular in the life sciences sector. Although all institutions have reported these numbers, there are still several departments or part schools of UAS which do not register the number of their research collaborations; hence, the actual number of collaboration projects is undoubtedly higher.

The aims of these collaborations are manifold: joint projects permit the direct exchange of needs, knowledge and innovative results between industry and public research institutions, students and graduates gain an insight into the industrial environment, and last but not least, research projects at public research institutions are supported financially by external partners and organizations on a competitive basis.

In the context of this survey, a flow of 322.2 mio CHF in cash contributions for research at public institutions was reported by the respondents for a number of 2314 projects, which results in an average of 139,200 CHF per agreement (see Table 1). Although this average amount per contract was quite stable both for 2005 and 2006 at the Universities, it more than doubled at the UAS. This shows that the UAS reported small projects such as diploma theses or service contracts having very small or no cash contributions in 2005, while, in 2006, they reported substantial projects. While, in 2005, two UAS reported more than 400 contracts each with an average cash income of 5 to 7 kCHF, in 2006, the smallest average cash contribution at an UAS was 57 kCHF. This also explains the decrease in the number of research agreements reported by the UAS.

Table 1: Overview of cash payments to research institutions, which resulted from research agreements handled by TT personnel.

	All (16/19 respondents)	Universities (8/9 respondents)	UAS (7/7 respondents)	RI (1/3 respondents)
Total (kCHF)	322,194	234,880	80,814	6,500
Number of contracts (with cash income given)	2,314	1,278	971	65
Average per contract 2006 (kCHF)	139	183	83	100
Average per contract 2005 (kCHF)	138	186	32	n.a.

3.2 Partners in Research Projects

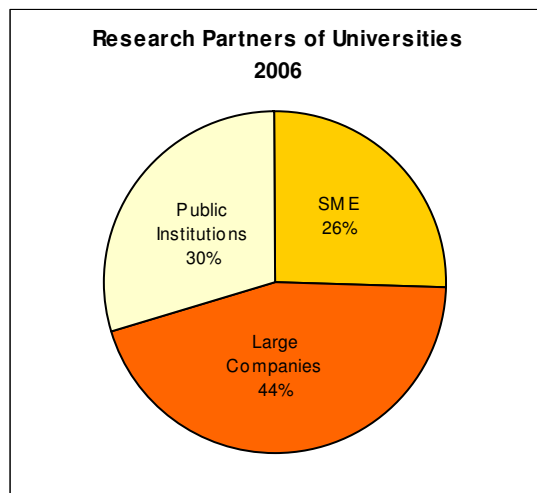


Fig. 3a: Partners in Research Projects at Universities (9/9 respondents)

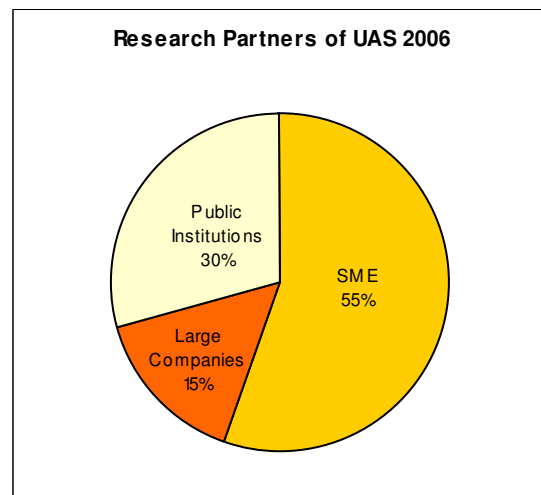


Fig. 3b: Partners in Research Projects at UAS (7/7 respondents).

Only one of the three RI responded, therefore these data are not shown.

As was the case in 2005, the UAS cooperated mainly with SME. However, the percentage of large companies grew from 10% in 2005 to 15% in 2006, whereas the share of research projects with public institutions decreased. At Universities, the percentage of large companies in collaborative projects grew from 31% in 2005 to 44% in 2006, while the percentage of SME decreased from 31% in 2005 to 26% in 2006, and collaborations with public institutions decreased from a dominating 38% in 2005 to 30% in 2006.

4. Licensing Activities and Commercialization

In the context of this survey, an overview of activities at public research institutions in commercializing their research results is provided. Data were collected about the various steps in the process: invention disclosures, patent applications filed, licenses granted, and start-up companies formed on the basis of new ideas and technologies from the institutions.

4.1 Invention Disclosures

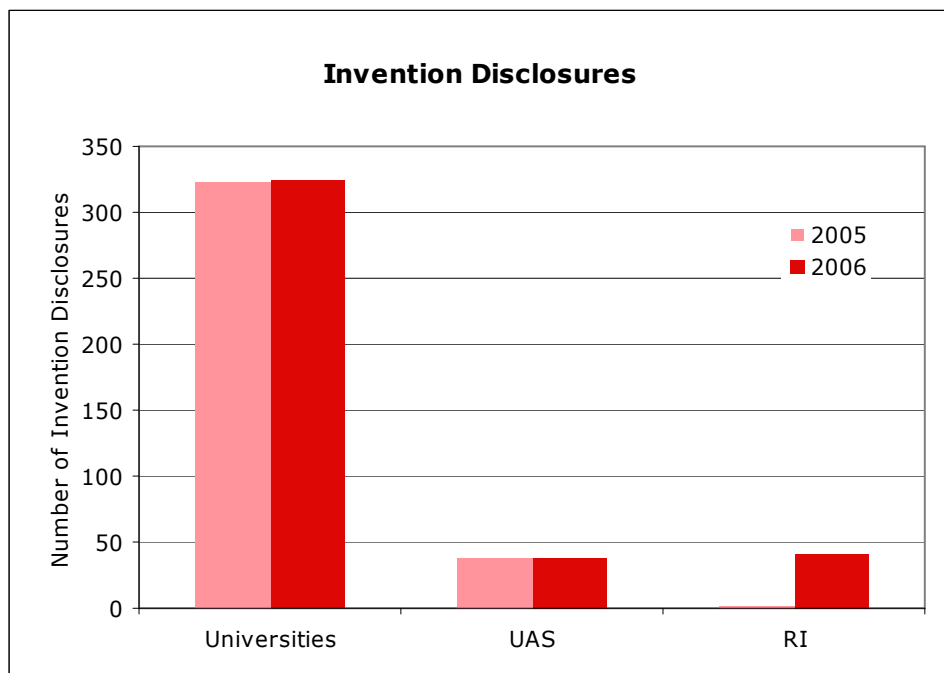


Fig. 4: Number of invention disclosures (respondents 2005: 8/8 Universities, 6/7 UAS, 1/2 RI; 2006: 9/9 Universities, 6/7 UAS, 3/3 RI).

A total number of 404 invention disclosures were reported, which corresponds to an increase in 12.7% (5.5% without the new respondents). At Universities and UAS, the numbers were stable. The number of invention disclosures caught by the 2006 survey increased considerably at the RI due to the fact that all three of the RI reported their numbers, while, in 2005, only one RI reported its number.

The Universities reported the majority of invention disclosures (80%) (2005: 89%).

As was the case in 2005, there are institutions that commercialize their inventions but do not register any invention disclosures. Hence, the actual number of invention disclosures is undoubtedly higher than suggested by the numbers reported.

4.2 Patenting Activities

4.2.1 Priority Patent Applications

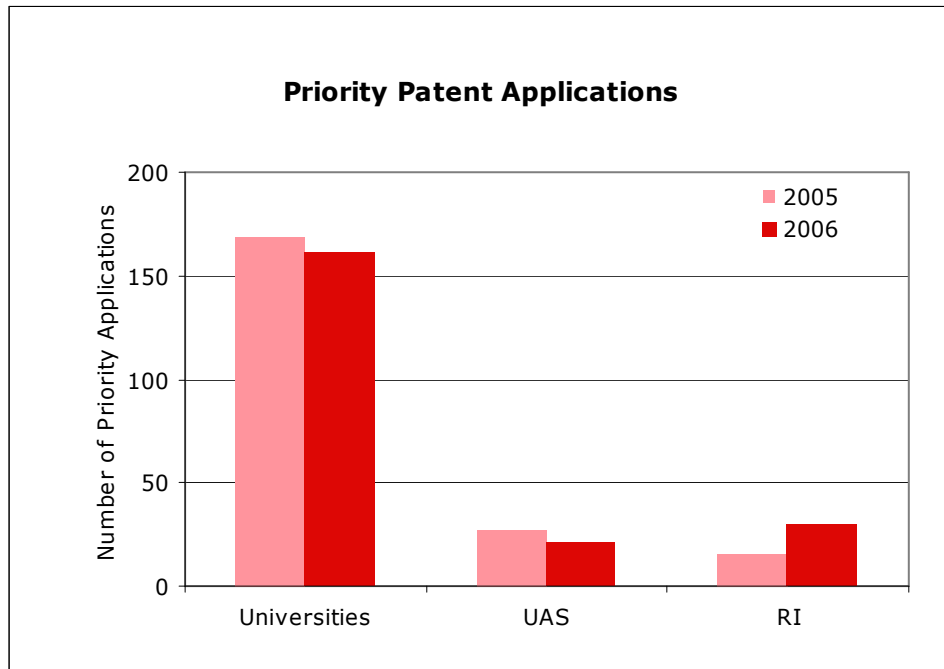


Fig. 5: Number of priority patent applications filed (respondents 2005: 8/8 Universities, 6/7 UAS, 2/2 RI; 2006: 9/9 Universities, 7/7 UAS, 3/3 RI).

The number of priority patent applications was stable, with 212 applications in 2006 and 211 applications in 2005. When consideration is given to the different types of institution, there is a decrease of 4.7% at Universities, and 22.2% at UAS, while the RI reported twice as many priority filings in 2006 than in 2005 (13.3% increase without the third RI).

As in 2005, the Universities reported most (76%) priority patent applications (2005:80%). Three Universities reported 56% of all patent applications.

4.2.2 Patent Portfolio - Active Patent Cases End of 2006

The number of patent cases active at the end of the year reported increased by 20.6% (15.8% without new respondents) to a total number of 1,245. All of the three types of institution reported an increase: Universities managed 15.5% more patent cases, UAS 62.7% and RI 60% (decrease of 16.9% without new respondent).

Since active patent applications and granted patents are an important asset to the institutions in order to interest industrial partners into entering license agreements and scientific cooperations, the rising number of patent cases shows promise for the future development of new products and services that have their seeds in public research results.

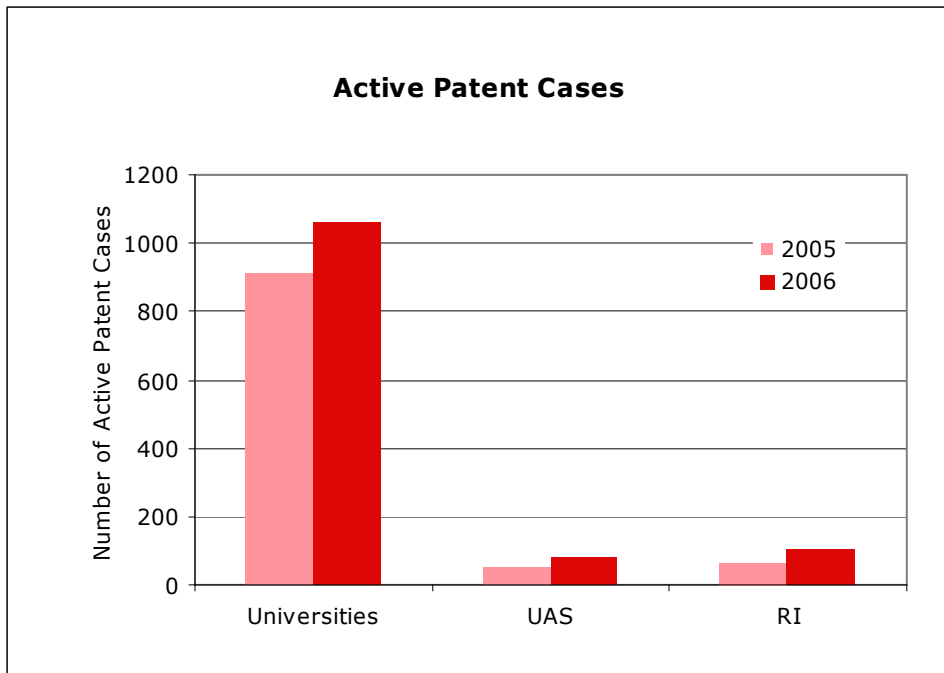


Fig. 6: Number of active patent cases at the end of the year reported (respondents 2005: 8/8 Universities, 7/7 UAS, 1/2 RI; 2006: 9/9 Universities, 7/7 UAS, 3/3 RI).

4.3 Licensing

4.3.1 Licenses and Sales of Intellectual Property

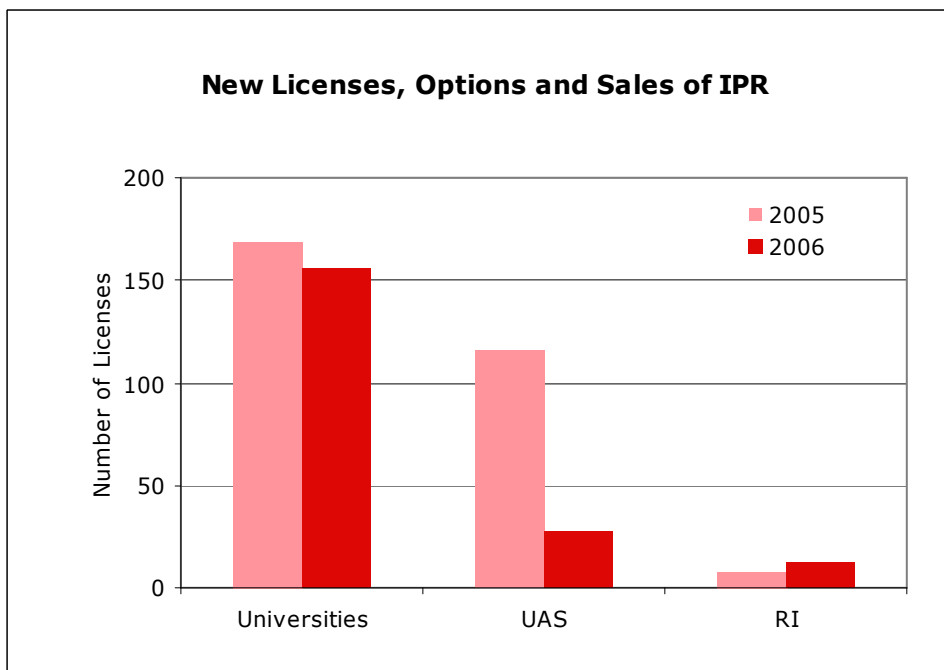


Fig. 7: Number of new license, option or sales agreements executed (respondents 2005: 8/8 Universities, 6/7 UAS, 2/2 RI; 2006: 9/9 Universities, 6/7 UAS, 2/3 RI).

In total, 196 new license, option or sales⁶ agreements were reported, which represents a decrease of 33.1% compared with 2005 (37.9% decrease without the two new institutions). This decrease is largely due to the numbers reported by the UAS, which showed a staggering drop of 76%. However, this variation probably does not represent a general trend, but rather a bias in the reporting methodology. In fact, in 2005, one UAS reported more than 100 licenses with only 12 technologies, which implies that one or a few technologies were licensed-out many times on a non-exclusive basis. This led to a considerably smaller number of new license agreements at this UAS in 2006. Therefore, too many conclusions should not be drawn from this substantial drop in numbers. The rise at the RI can be fully accounted for by the reporting of the new RI respondent in 2006, because the number of licenses would also decrease at the RI (16.9%) if the numbers of the new respondent were not included.

4.3.2 Type of Licensing Partners

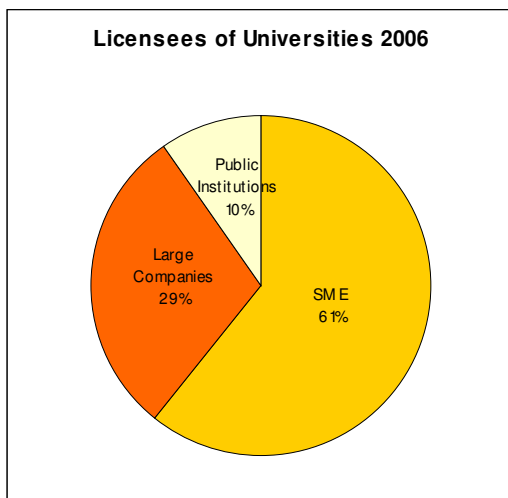


Fig. 8a: Different Types of Licensees at Universities (9/9 respondents).

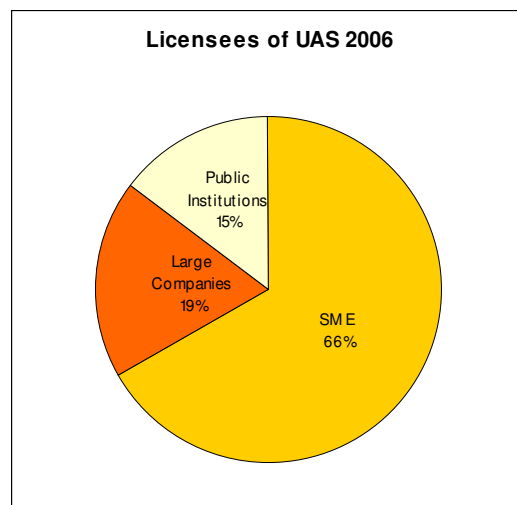


Fig. 8b: Different Types of Licensees at UAS (4/7 respondents).

Only one RI responded; therefore, these data are not shown.

As was the case in 2005, the main segment of licensees at both Universities and UAS are SME, which account for a percentage of more than 60%. At the Universities, the percentage remained almost stable, while at the UAS, the percentage of SME decreased and the percentage of public institutions increased.

In general, the large segment of SME shows that small companies, in particular start-ups and spin-offs, are more willing to develop early-stage technologies typically licensed by public research institutions.

⁶ 'Sales' meaning the transfer of the ownership of intellectual property rights, such as patent applications or patents, to a third party.

4.3.3 License Portfolio

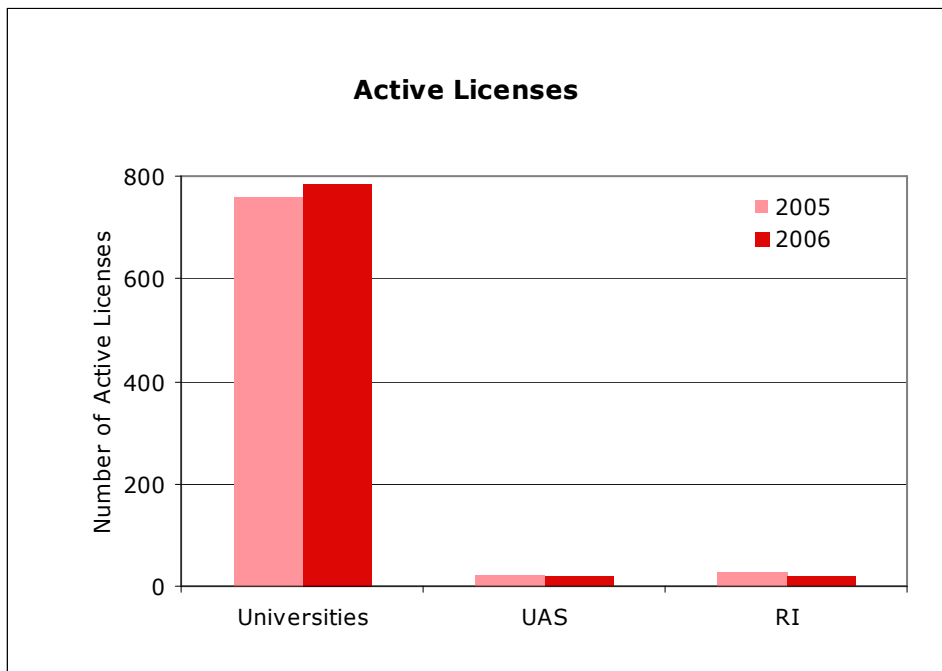


Fig. 9: Number of active license cases managed at the end of the year reported (respondents 2005: 8/8 Universities, 6/7 UAS, 1/2 RI; 2006: 7/9 Universities, 3/7 UAS, 1/3 RI).

The number of active license cases managed at the end of the year reported was more or less stable in comparison to 2005. This reflects the mixture of long-term and one-time agreements executed in order to license IP rights to a licensee: while some licenses have a long duration and remain in the portfolio for many years, others are based on a one-time payment and do not stay in the portfolio of active cases. Furthermore, some licenses expire or are terminated within a year, while others are newly executed.

4.3.4 License Income

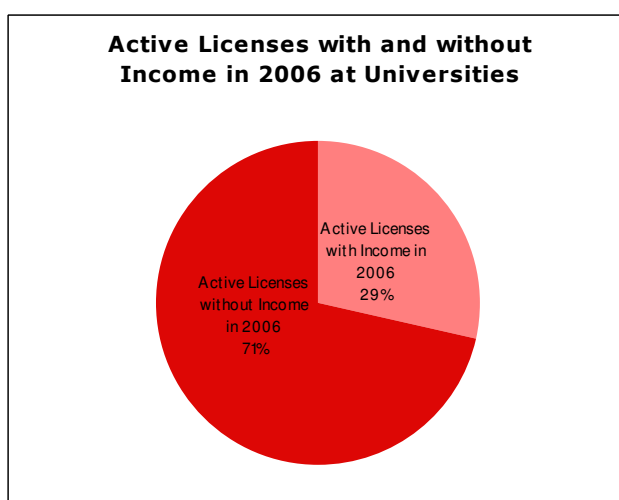


Fig. 10: Ratio between active licenses with and without income at Universities in 2006 (7/9 respondents to both questions).

Only 2/7 UAS and 1/3 RI responded to both questions; therefore, data are not shown.

Figure 10 shows the ratio between active licenses with financial returns in 2006 and those which did not result in any income. The fraction of almost three-quarters without returns demonstrates the many possibilities in license agreements and license payments. In the year reported, active licenses without payment may be, for example, licenses on the basis of running royalties on sales of an invention at a very early stage and which requires long-term development before actually leading to any sales or revenues. They may also be licenses based on equity or fixed milestone payments, which do not apply to the year of the report.

A total license income of 8.9 mio CHF was reported by eight Universities, three UAS and two RI. However, the actual amount is undoubtedly higher because one University and three UAS reported the existence of licenses with income in 2006 without providing numbers on the amount of income. A comparison with 2005, on the basis of the same institutions responding to the question, shows that, in 2005, the licensing income, with 12 mio CHF, was much higher. However, this reflects the normal fluctuation rate in licensing income, as some licenses lead to a high income in one year, but a low income in other years. It also fits the picture as one UAS reported, in 2005, many licenses with a high total income, which were no longer active in 2006.

4.4 Spin-off Companies

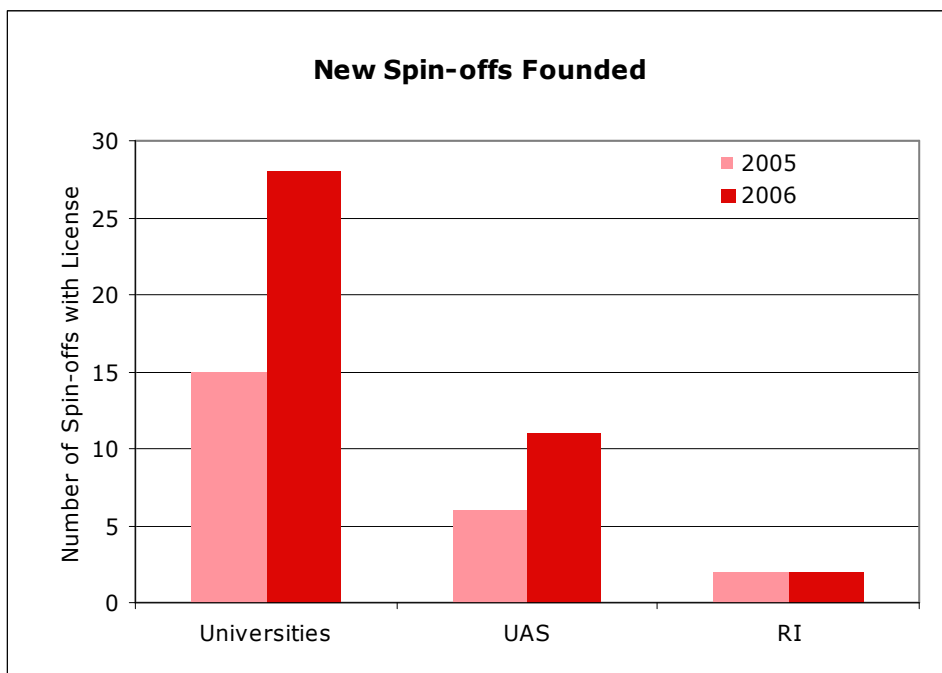


Fig. 11: Number of spin-offs founded in the year reported, which were based on licensing or contractual transfer of an institution's technology (respondents 2005: 8/8 Universities, 6/7 UAS, 2/2 RI; 2006: 9/9 Universities, 7/7 UAS, 2/3 RI).

There was a large increase in the number of new spin-offs reported. In 2006, 78.3% more spin-off companies were founded compared with the previous year. While at the RI, the number was stable, at the Universities and UAS, the increase was particularly large. Due to the lack of reliable historical data, it is difficult to interpret this change. If this trend continues into 2007, these numbers may be taken as an indication that the measures taken by the confederation and the various cantons and institutions are starting to bear fruit.

5. Glossary

swiTT	= Swiss Association of Technology Transfer Professionals
Universities	= Cantonal Universities and Swiss Federal Institutes of Technology
UAS	= Universities of Applied Sciences
RI	= Swiss Federal Research Institutes in the ETH domain
TT	= Technology Transfer
TTO	= Technology Transfer Office
IP	= Intellectual Property
SME	= Small- and Medium-sized Enterprises (<250 employees)
MTA	= Material Transfer Agreement
NDA	= Non-Disclosure Agreement
Institution	= Universities, UAS or RI taking part in this survey (<i>not</i> the TTO)

Appendix 1 – Overview on Data

All respondents	2005	Respondents 2005	2006	Respondents 2006	Change in total number	Percentage change
Full-time equivalents (FTE)	64.65	17/17	72.84	19/19	8	12.7%
Research contracts handled (incl. EU contracts)	2522	17/17	2654	19/19	132	5.2%
Invention disclosures registered	361	15/17	404	18/19	43	11.9%
Priority patent applications filed	211	16/17	212	19/19	1	0.5%
Active patent cases managed end of the year	1032	16/17	1245	19/19	213	20.6%
License agreements conducted	293	16/17	196	17/19	-97	-33.1%
Active license agreements managed end of the year	811	16/17	824	12/19	13	1.6%
kCHF of netto licensing revenues reported	12012	10/17	8939	12/19	-4073	-33.9%
License agreements with income in the report year	184	13/17	235	12/19	51	27.7%
New start-ups formed on basis of formal license	23	16/17	41	18/19	18	78.3%

Universities and ETH	2005	Respondents 2005	2006	Respondents 2006	Change in total number	Percentage change
Full-time equivalents (FTE)	38.65	8/8	40.9	9/9	2	5.8%
Research contracts handled (incl. EU contracts)	1181	8/8	1303	9/9	122	10.3%
Invention disclosures registered	322	8/8	325	9/9	3	0.9%
Priority patent applications filed	169	8/8	161	9/9	-8	-4.7%
Active patent cases managed end of the year	916	8/8	1058	9/9	142	15.5%
License agreements conducted	169	8/8	156	9/9	-13	-7.7%
Active license agreements managed end of the year	762	8/8	786	7/9	24	3.1%
kCHF of licensing revenues gained	6692	6/8	8061	8/9	369	5.5%
License agreements with income in the report year	174	8/8	194	8/9	20	11.5%
New start-ups formed on basis of formal license	15	8/8	28	9/9	13	86.7%

UAS	2005	Respondents 2005	2006	Respondents 2006	Change in total number	Percentage change
Full-time equivalents (FTE)	21.7	7/7	26.59	7/7	5	22.5%
Research contracts handled (incl. EU contracts)	1169	7/7	986	7/7	-183	-15.7%
Invention disclosures registered	38	6/7	38	6/7	0	0.0%
Priority patent applications filed	27	6/7	21	7/7	-6	-22.2%
Active patent cases managed end of the year	51	7/7	83	7/7	32	62.7%
License agreements conducted	116	6/7	27	6/7	-89	-76.7%
Active license agreements managed end of the year	22	6/7	20	3/7	-2	-9.1%
kCHF of licensing revenues gained	5030	3/7	325	3/7	-4705	-93.5%
License agreements with income in the report year	5	4/7	19	2/7	14	280.0%
New start-ups formed on basis of formal license	6	6/7	11	7/7	5	83.3%

RI	2005	Respondents 2005	2006	Respondents 2006	Change in total number	Percentage change
Full-time equivalents (FTE)	4.3	2/2	5.35	3/3	1	24.4%
Research contracts handled (incl. EU contracts)	172	2/2	365	3/3	193	112.2%
Invention disclosures registered	1	1/2	41	3/3	40	4000.0%
Priority patent applications filed	15	2/2	30	3/3	15	100.0%
Active patent cases managed end of the year	65	1/2	104	3/3	39	60.0%
License agreements conducted	8	2/2	13	2/3	5	62.5%
Active license agreements managed end of the year	27	1/2	18	1/3	-9	-33.3%
kCHF of licensing revenues gained	290	1/2	553	2/3	263	90.7%
License agreements with income in the report year	5	1/2	22	2/3	17	340.0%
New start-ups formed on basis of formal license	2	2/2	2	2/3	0	0.0%

Appendix 2 - The Questionnaire

swiTT Technology Transfer Survey 2006

1. Confidentiality	
Do you agree to publish individual data under your institution's name?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Background Information	
2.1 Institution/s (name)	
2.2 Is your institution associated with a university hospital? (If yes, please note that all figures given below should include the numbers of the hospital, too.)	<input type="checkbox"/> No <input type="checkbox"/> Yes
2.3 Your name	
2.4 Office address and contact information	
Office Name	
Street	
City	
Telephone	
Fax	
e-mail	
3. Activities and FTEs	
3.1 What are the activities of your technology transfer office?	
Research contracts (Drafting, controlling, negotiating)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Evaluation, protection and management of IP	<input type="checkbox"/> Yes <input type="checkbox"/> No
Commercialization of IP (Licensing, Marketing)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Coaching of start-up companies	<input type="checkbox"/> Yes <input type="checkbox"/> No
Financial administration of TT activities	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.2 How many full-time equivalents (FTEs) were employed in your technology transfer office on December 31, 2006?	
3.3 How many FTEs were employed to work on:	

<p style="text-align: center;">Technology transfer activities</p> <p>(According to the regulations of swiTT, these are people whose main occupation is in the area of technology transfer, such as 'Licensing Officers', 'Intellectual Property Managers', 'Technology Managers' or 'Research Contract Officers', having activities such as drafting and negotiating research and development contracts, intellectual property management, licensing and commercialization activities, and spin-off coaching. TT activities must take up at least 20% of the person's job description.)</p>	
<p style="text-align: center;">Administration and general management</p>	
3.4 Comments	
4. Research and Development	
<p>4.1 Number of new research contracts executed in 2006 handled by your office</p> <p>(Collaboration agreements, service agreements, clinical trials, CTI complimentary agreements, but NO EU agreements (see 4.3), NO MTAs (see 4.5), NO NDAs or other TT contracts (see 4.6) and NO SNSF contracts)</p>	
<p>4.2 Of these research contracts, how many were executed with small and medium enterprises (SMEs), how many with large companies, and how many with public partners?</p> <p>(Definition: SMEs are companies with 250 or fewer employees.)</p>	<p>SME:</p> <p>Large Company:</p> <p>Public Institutions:</p>
<p>4.3 Number of EU consortium agreements and EU contracts handled by your office</p>	
<p>4.4 Amount of cash payments due to your institution from research contracts handled by your office according to 4.1 and 4.3 [CHF]</p> <p>(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 Euro but your institution gets only 200,000 Euro, the latter is given. Do not split the amount if the contract covers several years.))</p>	
<p>4.5 Number of Material Transfer Agreements (MTAs) handled by your office</p> <p>(Please note that MTAs do not include any payments beside reimbursement of costs for production and shipment of the material. Otherwise, it is a license agreement or sale (see 7.1))</p>	
<p>4.6 Number of other technology transfer contracts handled by your office</p> <p>(Non-Disclosure Agreements (NDAs), consulting contracts, inter-institutional contracts, sponsoring, donations, but NO licenses, options, sales)</p>	
<p>4.7 Comments</p> <p>(e.g. restrictions/regulations at your institution, knowledge of ALL contracts or only contracts above a certain number)</p>	

5. Patent-Related Activity	
5.1 How many invention disclosures were received?	
5.2 How many priority applications were filed by your office? (Priority application being the very first application for a new technology in any patent office in the world.)	
5.3 How many PCT applications were filed by your office?	
5.4 What was the total number of active patent cases managed by your office at the end of 2006? (Active patent cases are pending or granted patents on a technically unique invention. 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 office/institution on patenting costs and external legal fees [CHF] (Including all external costs for patent filing, prosecution, maintenance, litigation expenses, or costs for drafting or support in negotiation of contracts.)	
6.2 Amount of patenting costs and legal fees reimbursed by licensees in 2006 [CHF] (Does NOT include patenting costs or legal fees paid DIRECTLY to the service provider by licensees or external partners.)	
7. License, Option and Sales Agreements	
7.1 How many licenses/options/sales of protected or unprotected IP did your office execute in 2006? (If a license agreement is combined with a research agreement (e.g. advanced sale of the results of a research project), this contract counts only as a research contract is and NOT included in this question unless the invention/software licensed/sold exists already at the execution date of the research contract.)	
7.2 Of these licenses/options/sales executed in 2006, how many were licensed to SMEs, how many to large companies or public institutions? (Definition: SMEs are companies with 250 or fewer employees)	SME: Large Company: Public Institutions:
7.3 Of these licenses/options/sales executed in 2006, how many were exclusive? (A license with exclusivity in a defined field of use and/or for a specific territory is also counted as exclusive. However, licenses with more than one licensee in the same field or territory for the same technology are NOT counted as exclusive licenses.)	

7.4 How many licenses/options/sales executed in 2006 included equity? (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.)	
7.5 How many licenses/options were active as of December 31, 2006?	
8. License Income	
8.1 What was the total number of licenses/options/sales yielding income in 2006?	
8.2 How many licenses/options/sales yielded running royalties in 2006? (In contrast to single payments, running royalties are based on product sales and indicate the success of a product.)	
8.3 What was the total amount of license/option/sales income obtained by your institution in 2006 [CHF]? (License/option/sales income includes the reimbursement of patenting costs or legal fees.)	
9. Start-up Companies	
9.1 How many start-up companies were formed in 2006 which depended upon licensing or contractual transfer of your institution's technology for their initiation?	
9.2 How many other start-up companies were formed in 2006 which depended on unprotected know-how or technology of your institution (without license agreement)?	
9.3 In how many of the new start-up companies formed in 2006 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 2006?	<input type="checkbox"/> Yes <input type="checkbox"/> No
10.2 If yes above, how many?	
10.3 Product Information (Please give a short title for each product success story and the e-mail of the person who swiTT should contact to obtain additional information.)	Title, Contact Person

Impressum

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swiTT

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