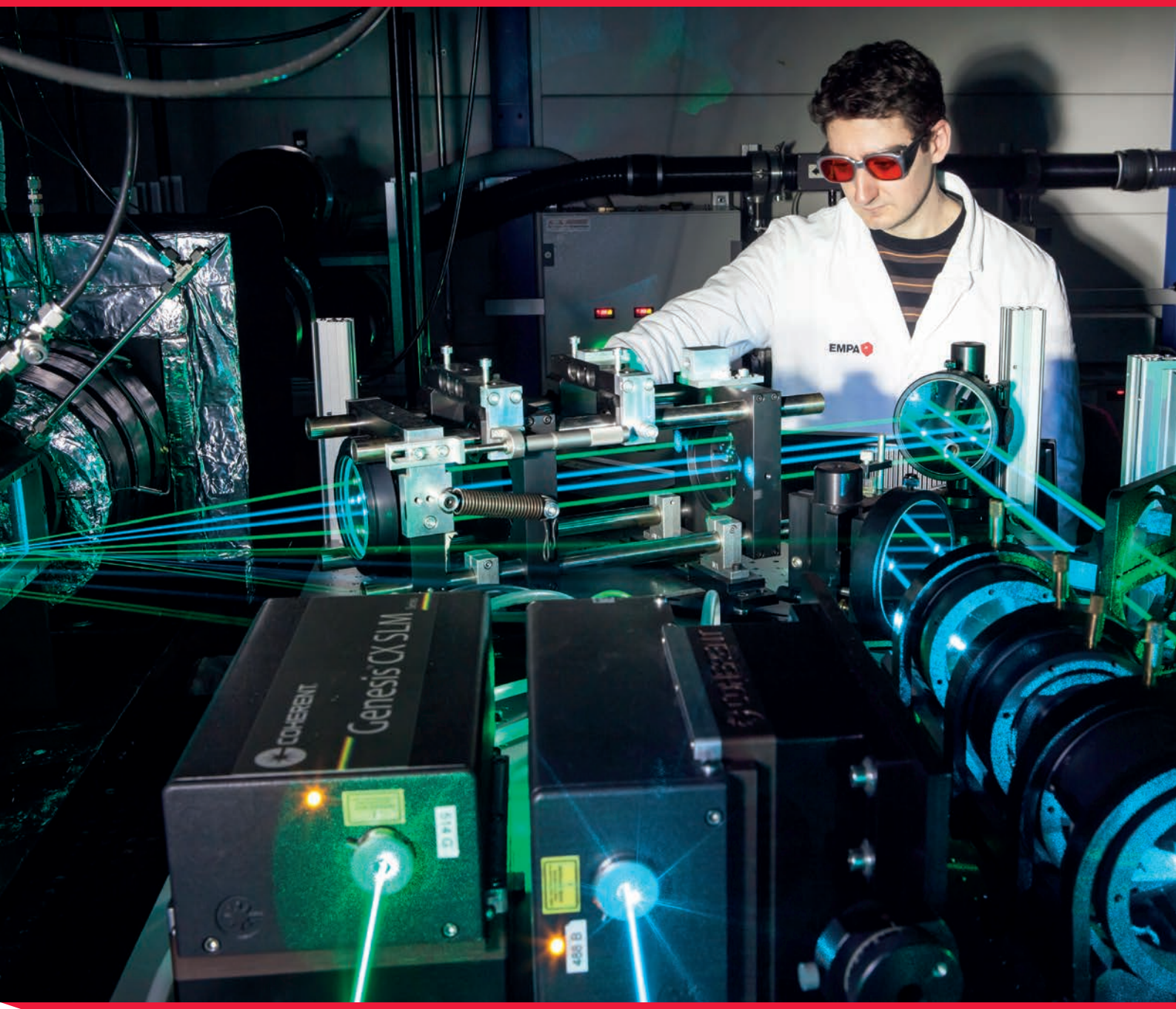
swiTTreport2016

SWISS TECHNOLOGY TRANSFER REPORT



swiTT

swiss technology transfer association

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SUMMARY

The annual survey „swiTTreport" is the most comprehensive analysis of the technology transfer activities of Swiss public research organisations ("PROs"). The report covers two main areas, a) research collaborations of the participating institutions with private or public partners, and b) the activities for the economic exploitation 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 eight cantonal universities and the two Federal institutes of technology (collectively Universities), from six universities of applied sciences (UAS), and three research institutions of the ETH domain (RI) were available for this year's report.

Although the evolution of the data over the years is reported here, caution should be taken when comparing these. Missing or incomplete data from some institutions introduces a bias into the year on year evolution and leads to a clear underestimation of the real situation. The respondents reported their results to swiTT voluntarily in response of the questionnaire mentioned in Appendix 4, and the data presented in this report are based on the responses provided as is.

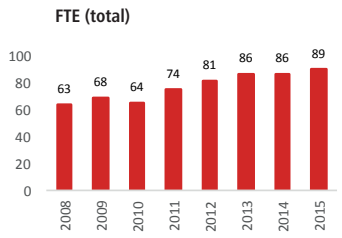
For reasons of confidentiality, the report mainly contains aggregated numbers. However, some of the key parameters are presented on an individual basis for those institutions that agreed to do so.
On account of the difference in mission, organization and objectives of the three types of institution (Universities,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

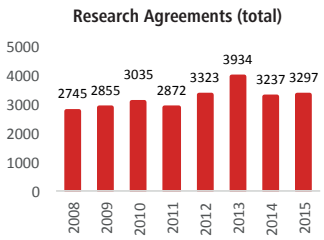
Overall, the respondents reported the following key figures on technology transfer activities in 2015:

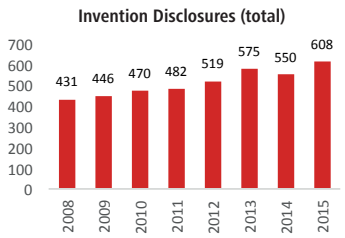
3297	New Research Projects
608	Invention Disclosures
298	Priority Patent Applications
220	License & Option Agreements
73	Start-Ups founded

Larger companies (> 250 employees) and public institutions are the most common cooperation partners of Universities while RIs and UAS partner mostly with public organizations. Universities account for most of the commercialization activities with over 90% of all patent applications filed and of all licenses concluded.

The collaborative culture between academia and industry in Switzerland and the technology transfer performance of Swiss universities and other public research institutions are important location factors for industry. Easy access to academic researchers and well defined technology transfer processes are important criteria for companies to relocate their business to Switzerland. Maintaining a system which is based on fair partnership between academia and industry together with the continuous optimization of processes will be important aspects to further strengthen Switzerland's leading position in the international context.

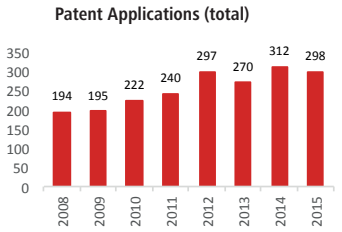


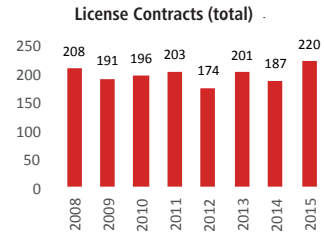


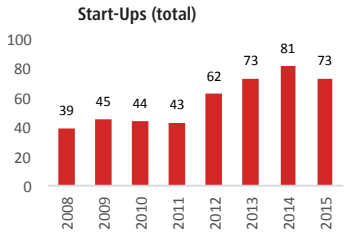


Data of the last eight years showed a solid outcome of the TT activities in Switzerland.

FTE = Full Time Equivalents







RÉSUMÉ

L'enquête annuelle "swiTT report" est l'analyse la plus complète des activités de transfert de technologies réalisées par les institutions publiques de recherche suisses. Le rapport couvre deux domaines majeurs: les collaborations de recherche de ces institutions avec des partenaires privés ou publics et les activités liées à la valorisation des résultats de recherche obtenus par ces institutions. Les institutions suisses coopèrent très activement avec des partenaires économiques. Le rapport désigne collectivement ces coopérations sous les termes d'activités de transfert de technologies (TT). Ce rapport reflète les activités de TT dans tous les domaines technologiques et scientifiques. Ces activités sont particulièrement importantes dans le domaine des sciences de la vie et de l'ingénierie.

Le rapport de cette année s'est appuyé sur les données relatives aux activités de transfert de technologies rapportées en réponse au questionnaire indiqué à l'Appendix 4. Ces données proviennent de huit universités cantonales et deux écoles polytechniques fédérales (Universités), de six universités de sciences appliquées (UAS) et de trois institutions de recherche dans le domaine des Ecoles Polytechniques Fédérales EPF (RI). Il est à noter que certaines données transmises sont incomplètes ou partielles et que les chiffres présentés dans ce rapport sous-estiment probablement la situation réelle. Par ailleurs, les données de plusieurs institutions n'étaient pas disponibles ou étaient trop fragmentaires pour être incluses. Une comparaison entre les chiffres de l'année 2015 et les années précédentes est fournie pour la plupart des critères examinés, bien qu'une telle comparaison doit être considérée prudemment pour les raisons mentionnées ci-dessus.

Les personnes interrogées ont communiqué volontairement à swiTT leurs données et les statistiques présentées dans ce rapport sont basées sur ces données. Pour des raisons de confidentialité, le rapport contient principalement des chiffres agrégés. Certains des paramètres clés peuvent toutefois être présentés individuellement si les institutions ont donné leur accord (Appendix 3). Compte tenu des différences de mission, d'organisation et d'objectifs des trois types d'institutions (universités, UAS, RI), leurs données sont présentées séparément.

Dans l'ensemble, les personnes interrogées ont communiqué les chiffres suivants sur les activités de transfert de technologies en 2015:

3297	Nouvelles collaborations de recherche
608	Déclarations d'invention
298	Demandes de brevets prioritaires
220	Contrats de licence et accords d'option
73	Création de start-ups

Les partenariats entre les grandes sociétés (>250 employés) et les institutions de recherche publiques sont les plus communs pour les Universités. Dans le cas des RI et les UAS, la majorité des partenaires sont des institutions publiques.

Les Universités sont à l'origine de la plupart des activités de commercialisation rapportées (>90% des demandes de brevet et des contrats de licence).

Plusieurs études internationales confirment une culture de collaboration bien implémentée entre les milieux universitaires et économiques en Suisse et l'excellente performance des institutions de recherche publiques suisses dans le domaine du transfert de technologies. Des politiques bien définies en matière de transfert de technologies et des règles bien établies pour interagir avec les groupes de recherche constituent des critères importants pour les entreprises envisageant de collaborer avec les institutions ou de s'installer en Suisse. A cet égard, le maintien d'un système fondé sur un partenariat équilibré entre les milieux universitaires et économiques, ainsi que l'optimisation continue des pratiques sont des aspects essentiels pour renforcer davantage la position de la Suisse à l'échelle internationale.

Voir figures 'données des 8 dernières années' en page 3.

ZUSAMMENFASSUNG

Der jährlich publizierte "swiTTreport" ist die umfassendste Analyse der Technologietransferaktivitäten öffentlicher Forschungsinstitutionen (PRO) in der Schweiz. Dieser Bericht umfasst zwei Hauptbereiche, Forschungskooperationen mit der Wirtschaft und wirtschaftliche Verwertung von Forschungsergebnissen. 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 acht kantonalen Universitäten und der beiden ETHs (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 auch 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 2015:

3297	Neue Forschungsprojekte
608	Erfindungsmeldungen
298	Patentanmeldungen
220	Lizenz- & Optionsverträge
73	Start-ups gegründet

Grosse Firmen (>250 Angestellte) und öffentliche Institutionen sind die häufigsten Kooperationspartner der Universitäten, während es an den RI und UAS vor allem öffentliche Institutionen sind.
Die Universitäten sind für die meisten Aktivitäten im Bereich der wirtschaftlichen Umsetzung von Forschungsergebnissen verantwortlich (über 90% der Patentanmeldungen und der Lizenzen).
Die kooperative Kultur zwischen Industrie und Hochschulen in der Schweiz und die ausgezeichneten Transferleistungen der öffentlichen Forschungsinstitutionen sind auch ein wichtiges Kriterium für den Standortentscheid von Firmen. Die weitere Stärkung des partnerschaftlichen Verhältnisses zwischen Hochschulen und Industrie und der entsprechenden Prozesse sind wichtig, um die führende Rolle des Innovationsstandorts Schweiz auch künftig beibehalten zu können.

Eine graphische Zusammenfassung der TTO-Aktivitäten der letzten 8 Jahren befindet sich auf Seite 3.

1. INSTITUTIONS PARTICIPATING AND DATA COLLECTION

Eight cantonal universities and two Swiss Federal Institutes of Technology (collectively 'Universities'), eight Universities of Applied Sciences (UAS), and three research institutes (RI) in the ETH domain were contacted in spring of 2016 and asked to provide data on their technology transfer (TT) activities for the year 2015. 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 ten Universities, individual departments of six UAS, and by three RI of the ETH domain. The data show that the handling of research collaborations with economic partners and other technology transfer activities varies substantially among different institutions. Of note: not all of them were able to provide comprehensive overview. *Thus, the data provided in this report are not complete and only summarize the figures reported, while the actual activities at the interface of academia and economy are presumably higher.* Appendix 1 on page 20 shows the institutions that participated in the survey and comments on the comprehensiveness of the data provided. The 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 in Appendix 3 on page 21.

Comments on data received by the different types of institutions:

Universities

At several Universities, only contracts for collaborative research projects with economic partners above a certainthreshold need to be signed by university management. Therefore, not all collaborative projects can be reported by such institutions. At some Universities, technology transfer offices (TTO) only handle a part of the collaborative research projects with economic partners. 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. For example, data from several hospitals do not include clinical research activities.

UAS

The management of technology transfer activities at the UAS varies widely among institutions and individual departments. Some departments or schools have professionals working in a centralized TTO (e.g. BFH and ZHAW) 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.

2. INSTITUTIONAL RESOURCES FOR TECHNOLOGY TRANSFER

2.1 Services Provided

All University TTO are handling contracts for research collaborations. However, at several Institutions the finalization of research agreements by the higher management is not mandatory. All University TTO deal with the handling and commercialization of intellectual property (IP), which includes the evaluation of the commercialization potential of products or services based on research results, the protection and management of IP, and the licensing or sale of IP to industrial partners. Eight of nine TTO at Universities also provided support for the coaching of start-up projects.
All UAS TTO and RI TTO offer support for research collaborations. Six out of eight UAS TTO and all TTO of RI deal with the management and commercialization of IP. Coaching of start-up projects is offered by six 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 professionals such as Licensing, Intellectual Property, Technology or Research Contract Managers and administrational staff, whose main occupation is in the area of technology transfer. Their activities cover the drafting and negotiating of research and cooperation agreements until there conclusion, intellectual property management, patent portfolio management, patent, technology licensing and other technology transfer activities. Part of the staff may also be involved in the coaching of start-up projects. To be reported here, the TT activities must account for at least 20 % in this person's job description. The total number of FTE in technology transfer at the participating institutions was 89 as in the previous year. The largest TTO had 16 FTE. The average size of the offices that responded is 5.2 FTE.

TTO typically collaborate with external patent firms for the drafting, filing and prosecution of patent applications and may address specific legal issues to external attorneys. Several TTO also outsource legal issues to external attorneys. At some institutions, start-up projects are handled by dedicated organizations such as business incubators. Study agreements for sponsored clinical trials at university hospitals are dealt with by the legal departments in several institutions. Thus, the actual number of people supporting the transfer activities is larger than the number of FTE reported for the TTO.

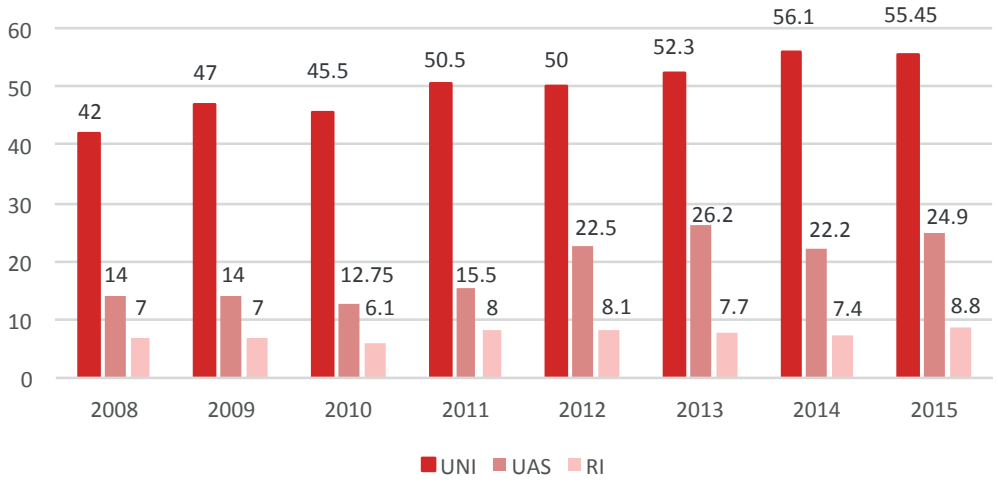


Fig.1:
Development of Staffing Level
Full Time Equivalents FTE

3. RESEARCH COLLABORATIONS WITH PARTNERS FROM THE ECONOMY

3.1 Research Agreements Handled by the TTO

In 2015, the TTO handled contracts for a total number of 3297 research projects with economic partners, a plus of 2% over the previous year. However, in view of the incomplete data provided by the institutions the year on year comparison should be taken as an approximation.

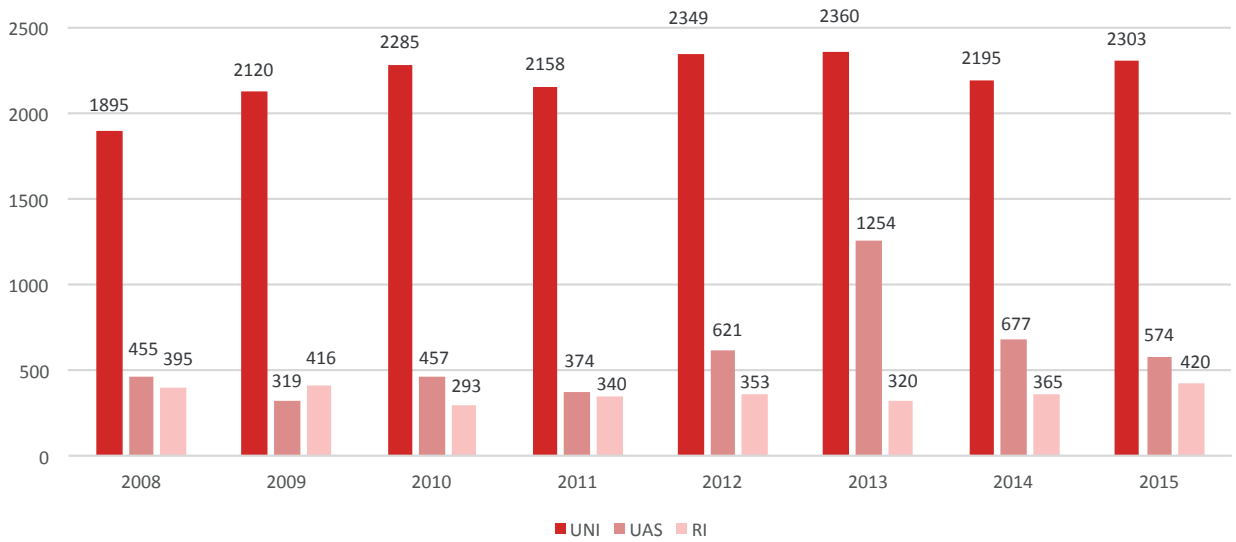
For the Universities the number of new co-operative research projects rose slightly to 2303 (5%). The RI reported 420 (+15%) projects and the participating UAS 574 (–15%). Unfortunately only a minor percentage of data on TT activities in UAS is available for this report. Therefore, the figure cannot be compared easily with previous years. The lack of data results in a significant underestimation of the real situation. Research collaborations between academia and industry are a key aspect of TT, they do indeed represent various possible benefits to academia and the economy. They not only allow industry to access the know-how and infrastructure of academia, companies also gain access to academic talents through such collaborations.

Same wise, academic labs can also benefit from the know-how and infrastructure of the industrial partners. In addition, the funding of joint projects by industry and partners from the economy may account for a significant contribution to the research budgets of certain public research institutions. Such collaborations are also a great opportunity to feed and enrich each other in cutting edge innovation areas. In these perspectives, research collaborations are seen as a most important for TT.

For the collaborative research projects handled by the TTO, survey respondents reported total cash contributions from collaboration partners in 2015 of over 330 million CHF. The average cash contribution of the business partner per project is 106'761k CHF in 2015 and shows a decline in average project volumes by 7% compared to the previous year. Projects at UAS are typically rather small with average cash payments of 61'470k CHF per project. The average contribution per project at Universities was 104'500k CHF, and at RI's 221'374 CHF. Please note that not all institutions provided numbers for the amount of cash payments they received.
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 2014, the institutions reported altogether 2654 such other types of TT agreements.

In general TTOs experience an increase of complexity of the collaborations. Encouraged by funding agencies and translational initiatives, collaborations tend to include more partners. Together with growing expectations in terms of governance this reinforced the role of the TTO, but also puts more strain on them since resources do not increase proportionally (FTEs stable).

Fig. 2: Number of Research Agreements and EU Contracts handled by TT Offices



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 16% of total projects reported. Higher numbers of projects were performed with large companies (27%), and with public institutions (37%). The latter including other public national or international research organizations.

If one considers only collaborative projects with the private sector SME account for 37% of all industrial projects.

Both UAS and RI have multiple partners per project or did not specify the type of partner for a high percentage of the projects indicating that they perform more multilateral projects.

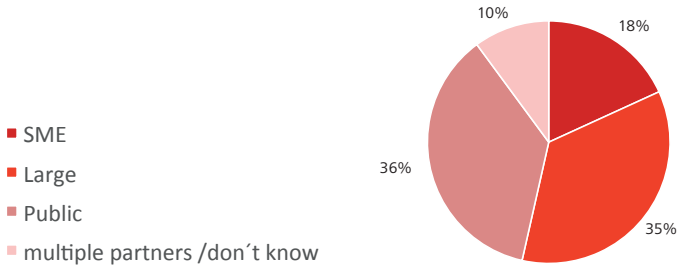


Fig. 3a:
Partners in Research Projects of Universities in 2015

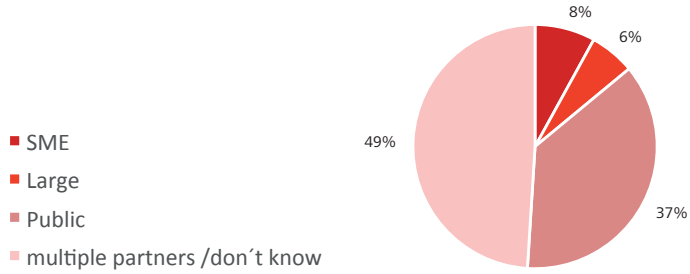


Fig. 3b:
Partners in Research Projects of UAS in 2015

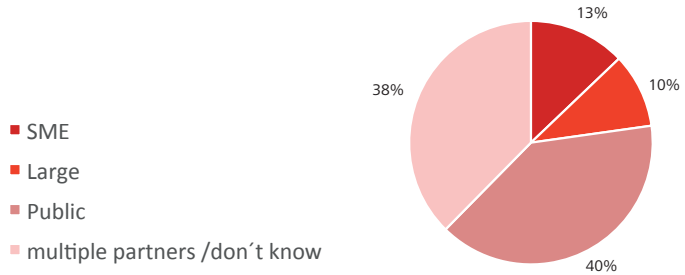


Fig. 3c:
Partners in Research Projects of RI in 2015

CASE STUDY

WOOD CUTTING MADE EASIER

Problem – Challenge

Empa scientists joined forces with OERTLI Werkzeuge AG and developed ceramic materials for super-sharp wood cutting blades. Conventional machines work with blades made of tungsten carbide. The project goal was to develop an innovative product at a marketable price because the cutter that was developed initially was up to five times more efficient than conventional blades, but simply too expensive for mass production. The now developed ceramic blades cut just as well as those made of carbide metal, but are a lot lighter and thus faster. Instead of 75 to 95 meters per second, the ceramic blades are able to cut through wood at a speed of 120 to 150 meters per second. Moreover, they also more than match up to carbide metal cutters in price.

Solution

The difficulty was that there was a major drawback for wood processing: ceramic materials are not very good at dissipating heat. Without cooling, the blade would overheat, which would, in turn, leave unattractive burn marks on the wood. This is hardly surprising as temperatures of up to 800 degrees Celsius build up during the cutting process. Nevertheless, the Empa team found a solution: an ultrathin coating that reduces friction and at the same time dissipates heat more effectively. OERTLI Werkzeuge AG launched the first practical cutting tests and examined the durability of various blades. As the price of tungsten used in previous blades have ballooned in recent years, the timing for the new ceramic blade could not be better.

CASE STUDY

RECOS, a customized cognitive remediation training programme to improve cognitive performance in patients with mental illness

Problem – Challenge

Individuals suffering from mental illness including schizophrenia, bipolar disorder or depressive disorder often experience cognitive deficits. These deficits may lead to severe disability in everyday life and have a negative impact on patient's adaptive and social competences. Moreover poor cognitive functioning in people with severe mental illness appears to contribute to lower levels of work.
Conventional treatments have limited effects on cognitive deficits. Therefore, improving cognitive abilities is essential for social and vocational recovery. A recent review of the relationship between cognitive deficits and functional outcomes has emphasized the importance of developing new treatment for these deficits.

Solution

Based on the principles of cognitive psychology, neuropsychology, psychopedagogy and cognitive behavioural therapy, RECOS – COgnitive REmediation for Schizophrenia – was developped by the Departement of Psychiatry of the Centre Hospitalier Universitaire Vaudois in Lausanne. RECOS is an individualized cognitive rehabilitation treatment to take into account the cognitive heterogeneity characterizing this disorder. Before beginning cognitive training, functional consequences of cognitive troubles are evaluated with each patient using qualitative criteria. Interventions are aimed at concrete goals defined according to the patients' difficulties and discussed regularly throughout the therapy. RECOS exercises were designed to be engaging and similar to real life situations in order to facilitate generalization to everyday life skills and to enhance motivation. It includes both computer based and paper and pencil exercises. Recent studies show that RECOS therapy is effective in improving cognitive functioning and functional outcomes.

4. COMMERCIALIZATION ACTIVITIES

Research results of Universities, UAS and RI do have potential to form the basis for innovative products which are developed and later commercialized by companies. The public institutions strive to make research results with a potential for socio-economic impact available to the private sector. Usually this is done through licensing of technologies to companies. To raise the attractiveness in TT and licensing, research results need to be identified, screened and where applicable and suitable protected by patent applications or other relevant measures. Without an appropriate protection of the intellectual property, industrial or financial investors in many industrial sectors will not consider investing for the research and development of products.

With regard to patentable inventions, this process involves the following main steps: identification and evaluation of research results through invention disclosures, filing of patent applications, negotiating and concluding license agreements with existing companies or newly created start-up companies. At many institutions, the creation of such start-up 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.

4.1 Invention Disclosures

A total record number of 608 (+11%) invention disclosures were reported for 2015 which is substantially more than in the previous year. The vast majority of invention disclosures were reported by Universities (92.9%). The three RI accounted for 5.6% of the invention disclosures, the UAS for 1.5%.

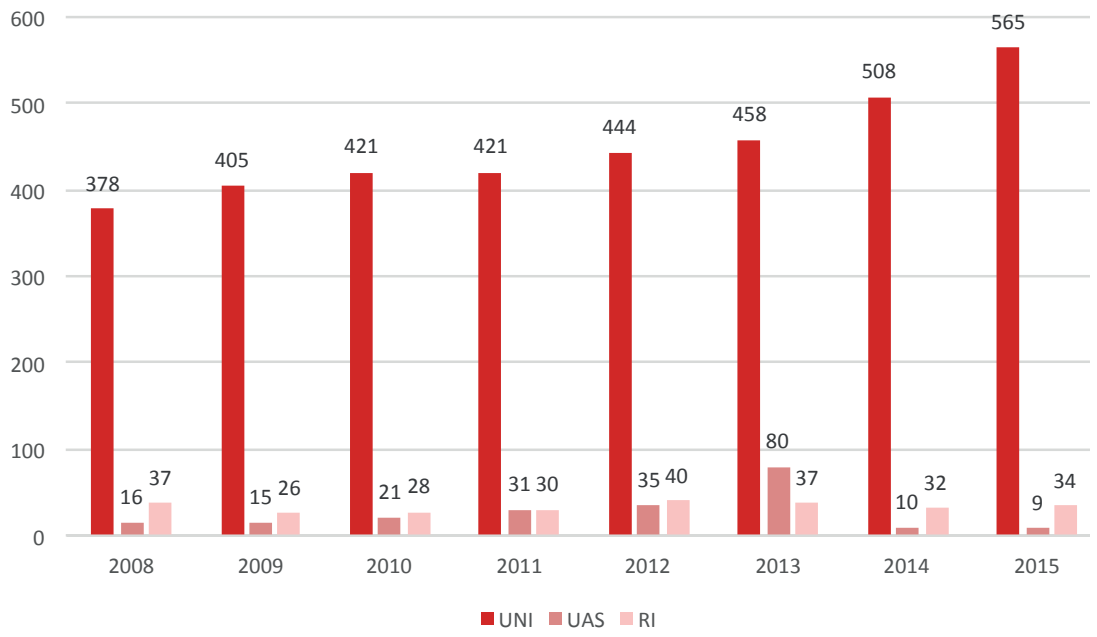


Fig. 4:
Number of Invention Disclosures

4.2 Patenting Activities

4.2.1 Priority Patent Applications

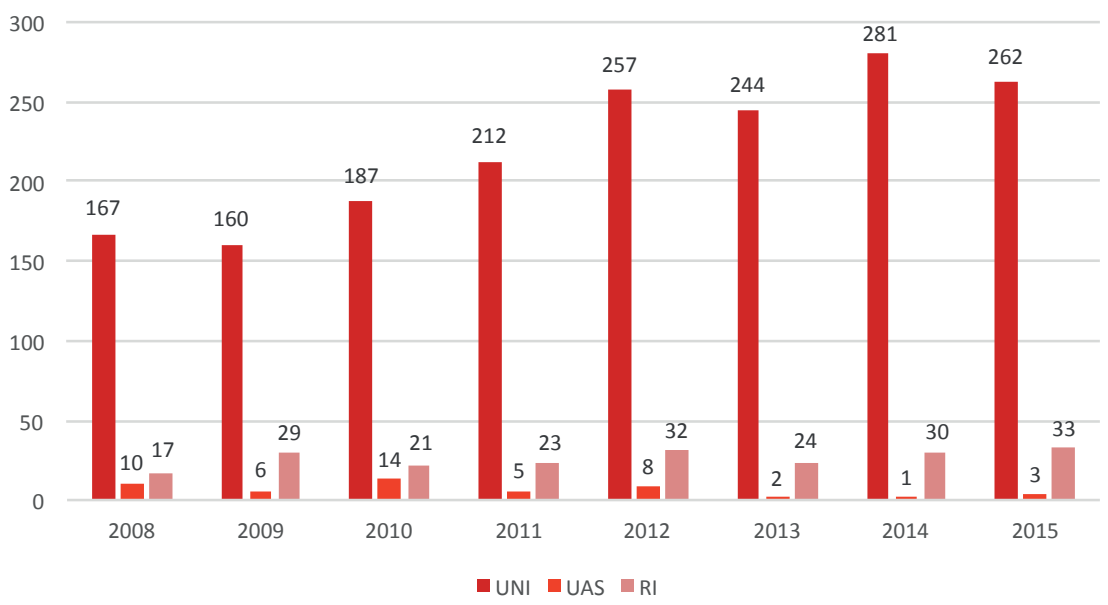
In 2015 the institutions reported 298 (-4%) new priority patent applications. As for the previous year, the majority of these applications were filed by Universities (87.9%), followed by the RI (11.1%) and UAS (1%). In total 81.2% of all patent applications were filed by the three TTO's; ETH Transfer, the TTO of EPFL and Unitectra (the TTO for the Universities of Basel, Bern and Zurich).

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 lifecycles, e.g. biotechnology and pharmaceuticals. The TTO at 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 rendered public 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 2015

At the end of 2015, the institutions participating in the survey reported 2191 (+11.3%) 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 searchable 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.

Fig. 5: Number of Priority Patent Applications filed



CASE STUDY

leadXpro – CASE STUDY

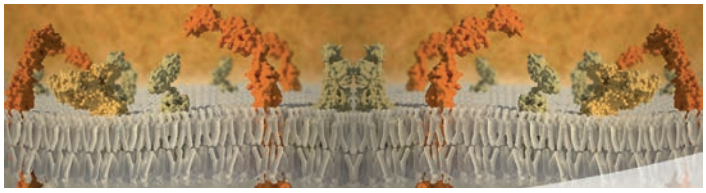
We are committed to create new treatment options for life threatening diseases.

Problem – Challenge

The discovery and development of new drug molecules for treatment of diseases such as cancer or antibiotics that can be used for resistant bacteria is very challenging.Integral membrane proteins are responsible for key signaling and metabolic mechanisms in humans and are excellent drug targets. Drug discovery for new medicines on many membrane protein targets (e.g. GPCR's, ion-channels and transporters) has been limited due to the lack of structural information as well as application of biophysical methods to investigate drug target protein and ligand interaction.

Solution

leadXpro will unlock promising, but challenging membrane protein drug targets and enable the discovery of novel medicines. We are committed to the application of biophysical and structure based methods for the discovery and optimization of next generation lead compounds. We capitalize on expert knowledge of the leadXpro team and the co-localization with the Paul Scherrer Institute (PSI) regarding the experience on membrane protein structural biology, the professional use of facilities like synchrotron (Swiss Light Source) and, in future, the free-electron laser (SwissFEL). Founded in December 2015 and located at the PARK innovAARE, Villigen, Aargau, leadXpro has started lab operations to create a pipeline of own projects and projects in collaborations with pharmaceutical companies.



CASE STUDY

INDUSTRY 4.0 FOR THE BATHROOM AND KITCHEN

Problem – Challenge

Taps have been manufactured in Unterkulm for over a century. Today, Franke Water Systems KWC exports products to over fifty countries and regularly takes home design awards for its high-quality products. However, the company is also faced with the challenge that customer demands are constantly increasing, with customers now wanting more than just a simple tap. "Today's kitchens are not only a place to cook but also a living space, which means the tap has become an accessory that has its own special role to play," comments Andreas Adam from KWC. With this in mind, the company wants to bring new taps onto the market faster. To do this, more flexibility is required in production. With funding by the Commission for Technology and Innovation (KTI), KWC and FHNW started a research project.

Solution

By fully automating the production process, it should be possible to reduce the size of the series run to a single tap. "With a smaller series run, we can react faster and the goods are back in circulation quicker," says engineer Andreas Adam, who is responsible for launching new products at KWC. As part of a research project, the grinding and polishing process was modelled, simulated and validated. The grinding and polishing of the taps is a key step in the manufacturing process. Originally carried out by hand by experienced specialists, this step is now completed by industrial robots. The crux of the problem is that the robots have to be reprogrammed for each tap, during which time the system is at a standstill and cannot produce any more items. Based on the research work carried out at the FHNW, it was possible for this set-up time to be reduced by around 30 per cent. "This is an enormous improvement," stresses Andreas Adam.

4.3 Licensing

4.3.1 Licenses and Sales of Intellectual Property

Intellectual Property = IP

The number of reported IP agreements, usually licenses, rose by 18% compared to the previous year. Overall 220 deals were reported, 87.2% of them by Universities, 11.4% by RI and 1.4% by UAS. In a few cases the agreements involved a sale of the IP rather than a license. In total 75% of all agreements were handled by three TTO; EPFL, ETHZ and Unitectra.

4.3.2 Type of Licensing Partners

As in previous years the majority of the licenses granted in 2015 went to SME (63.2%). 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 start-up companies. Thus, start-up companies play an important role in developing university technologies. Depending on the industry segment and on the particular product these companies will either market the final products themselves or will sublicense the technologies to larger companies that have the necessary know-how and resources to bring the product successfully on to the market.

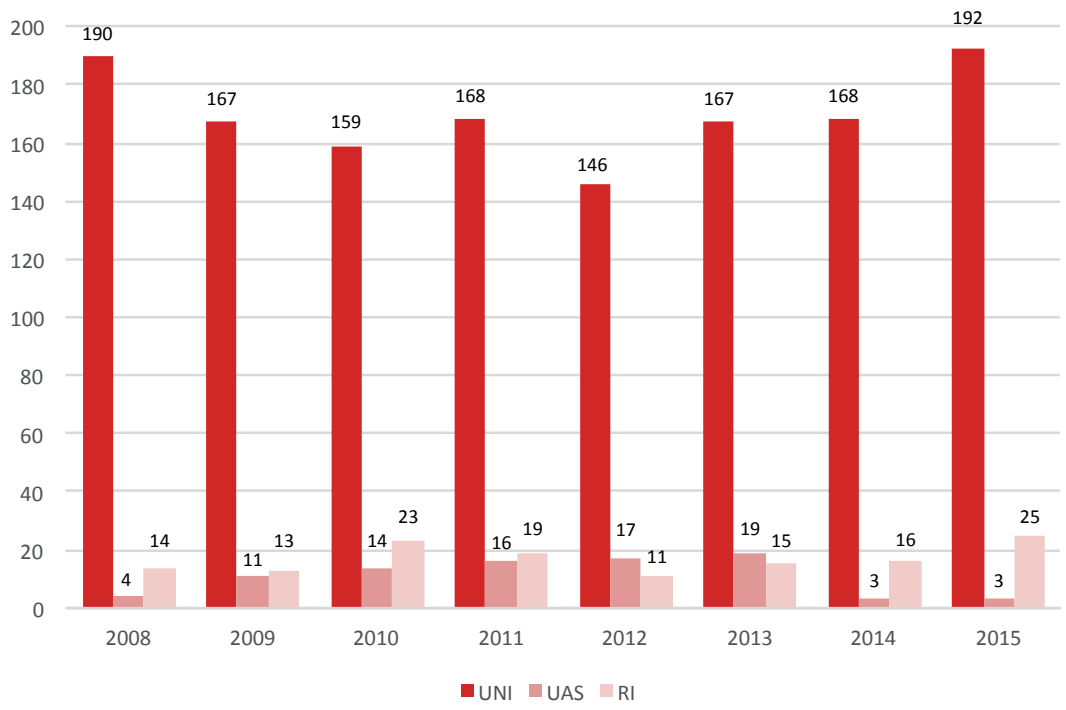
4.3.3 License Portfolio and License Income

The number of active licenses under management at the end of 2015 was reported as 1474 cases, about the same number as in the previous year. Thereof, 91.7% of active licenses were handled by the Universities, 8.1% by the RI and 0.2% by the UAS.

Of these active licenses 28.3%, namely 406 cases, resulted in license income to the institutions and the researchers involved. In more than half those cases (224) such license income came from royalties on product sales. This figure has increased continuously in the past years in line with the growing number of products sold on the market that are based on research results of public research institutions. In the other cases income resulted from other type of license fees, e.g. license issue fees or milestone payments for products still in the development process.

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, the development risk is often high for these early stage technologies, 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 some of the Swiss TTO have only been in operation for a couple of years.

Fig. 6: Number of new Licenses, Option or Sales Agreements for Intellectual Property Rights (IPR)



Data on license income are incomplete and were reported only by about half of the institutions participating in this survey. The total license income of these institutions amounts 10.3 million CHF.

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 at the early stage of development. 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 2015, the institutions reported equity transactions for 19 of the 47 new start-up companies created that involved a license (see Section 4.4). In the past years more institutions started to accept equity as part of their license deals.

4.4 Start-up Companies

The number of newly created start-up companies from public research institutions remains at a high level although a little lower than the previous year. In 2015 the institutions reported a total of 73 new start-up companies (-10%), whereby 47 of these companies (64%) relied on a license or a contractual transfer of intellectual property from a public research institution. The remaining companies were created on the basis of know-how developed at the research institutions, but without a formal license.
Academic institutions hold equity in 19% of all new start-ups created in 2015, and in 40% of those start-ups that are based on a license agreement.

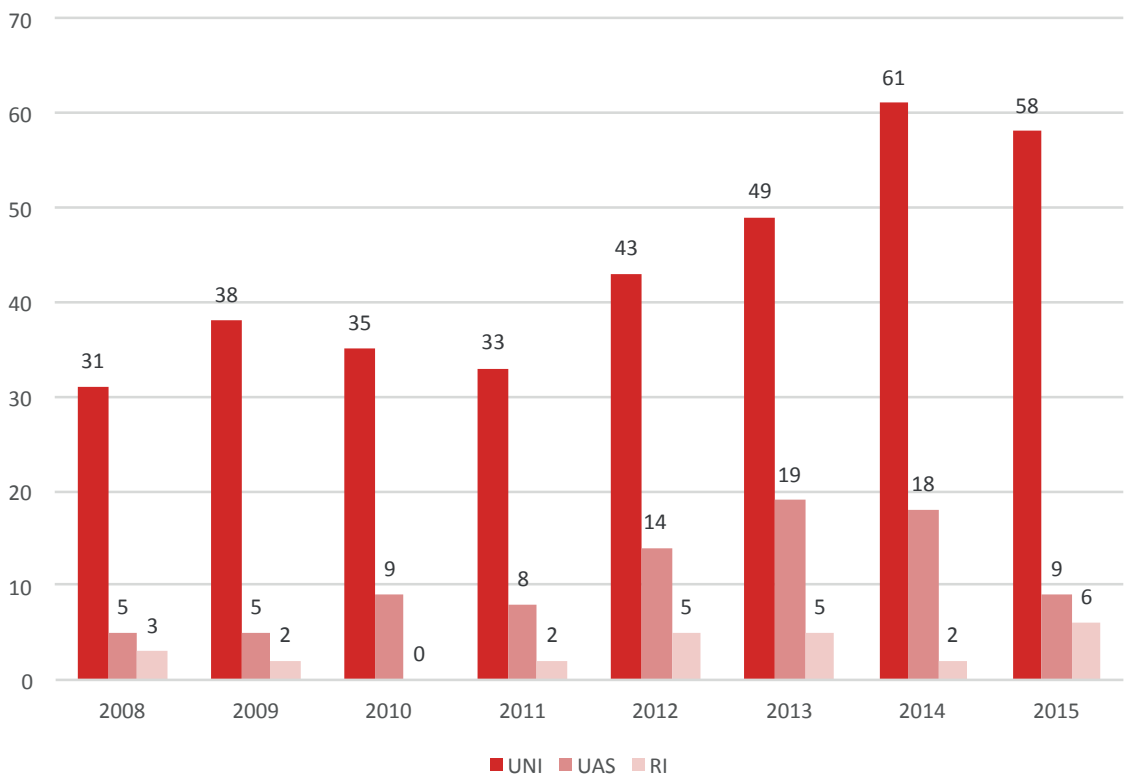


Fig. 7:
Number of Start-up Companies Founded which were Based on Licensing or Contractual Transfer of an Institution's Technology

CASE STUDY

THE DEVELOPMENT OF AN EVIDENCE-BASED ASSESSMENT TOOL FOR CHILD PROTECTION

Berner Fachhochschule

Lucerne University of Applied Sciences and Arts
HOCHSCHULE LUZERN
Soziale Arbeit

Problem

Children and adults suffer more than any other age group from different forms of violence. To guarantee the well-being of children, it is by civil law the duty of the state to assess the level of potential risk to children. Based on this assessment, state agencies assign measures of support to children and families. However, until now, there has been a great variety of assessment practices and no consensus regarding the criteria and methods to be applied. This has led to a growing concern for basing such assessment practices on scientific research and for the development of tools for assessing risks and resources.

Solution

The Bern University of Applied Sciences and the Lucerne University of Applied Sciences and Arts have developed an assessment tool based on the most recent research and professional discourse in both the national and the international realm. It is designed as a web application, which was developed in cooperation with a private sector partner to increase applicability. Thus the tool can be used on all conventional electronic systems without any further resources. It provides a novel way for dealing with the task of assessing risk and recommending state measures in child protection cases. The tool is being marketed and sold by both schools of higher education, which also offer training sessions for using the tool.

CASE STUDY

DEEP LEARNING FOR INFINITE APPLICATIONS IN TEXT ANALYTICS

Spinoff ETH zürich

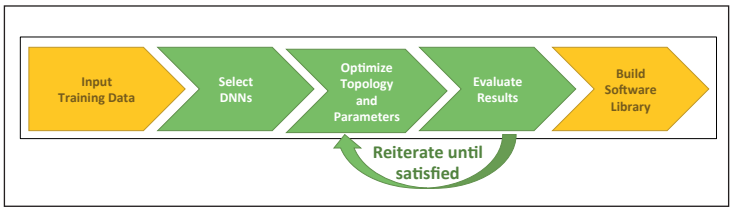
SPINNINGBYTES

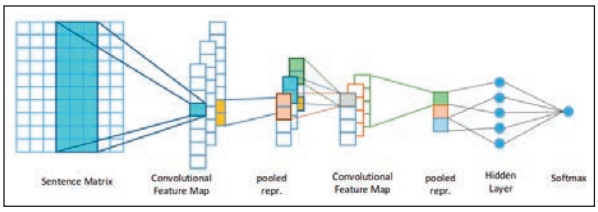
Problem – Challenge

Automatic text analytics can be helpful in many companies and industrial sectors, for instance for process optimization, in decision support, or to develop new products and services. A classical application in marketing and customer support use social media monitoring to detect positive/negative messages about the company and its products, or to identify trending topics. Machine learning is a technology from Artificial Intelligence which achieves excellent results in text analytics. In fact, machine learning algorithms (and in particular Deep Neural Networks) reach almost human performance in many cases. However, to achieve this, they are usually highly-optimized for one specific task, and a huge amount of human effort is needed to adapt them for a new task.

Solution

Researchers at ZHAW and ETH Zurich have successfully developed algorithms for various text analytics tasks, including sentiment analysis, topic extraction or age detection. They founded the startup "SpinningBytes AG" in 2015, which brings these technologies to market. First projects are already running. Now they go one step further and automatically generate solutions for customer-specific text analytics tasks. The software works for arbitrary text types (news, tweets, legal texts etc.) and various languages. To achieve this, the customer provides a set of training documents, and the pipeline automatically designs, trains, and optimizes a proper deep neural network. The goal is that the system can generate a suitable software library within three days.





APPENDIX 1 – INSTITUTIONS CONTACTED FOR THE SURVEY AND COMMENTS ON THEIR DATA PROVIDED

Universities	TT-Office(Total 10)	Comments on data provided
ETH Zürich	ETH transfer	Complete data, research agreements <50kCHF only partly
EPF Lausanne	TTO	Complete data, research agreements <50kCHF only partly
Universität Basel / Universitätsspital Basel	Unitectra	Complete data only for the Medical, Natural Sciences and Psychology Faculties, partial data for hospital
Universität Bern / Inselspital	Unitectra	Complete data only for the Medical, Vetsuisse and Nat. Science, Faculties, no data for research agreements of other faculties
University of Fribourg inclucing Adolphe Merkle Institute	Tech Transfer Fribourg	Partial data, not all contracts pass through TTO, especially SNF and EU-grants are treated seperately
Université de Genève / Hôpitaux	Unitec	Complete data for commercialization activities, research contracts
Université de Genève	Universitaires de Genève	Universitaires de Genève only partly handled by TTO
Université de Lausanne / Centre Hospitalier Universitaire Vaudois Lausanne	PACTT	Complete data for commercialization activities, research contracts
Université de Neuchâtel	TTO	Complete data
University of St.Gallen	TTO	No data available
Università della Swizzera Italiana (USI)	AGIRE	No data available
Universität Zürich / Universitätsspital	Unitectra	Only aggregated data, data only for the Medical, Vetsuisse and Naural Sciences Faculties, no data for research agreements of other faculties

Universities of Applied Sciences	TT-Office (Total 10)	Comments on data provided
Berner Fachhochschule	TTO	Complete Data (AHB,TI,WGS,HKB,HAFL)
Fachhochschule Nordwestschweiz (FHNW)	TTO	Data available from 2 departments (HLS & HABG)
Fachhochschule St. Gallen	IZSG-AAL	No data available
Fachhochschule Ostschweiz	TTO	Partial data from NTB
Zürcher Fachhochschule ZHAW	ZHAW TTO	Data only available from ‹Zürcher Hochschule für Angewandte Wissenschaften› (ZHAW)
Hochschule Luzern – Lucerne University of Applied Sciences and Arts	Ressort F&E	Partial data available
Haute Ecole Spécialisée de Suisse occidentale (HES-SO)	Tech Transfer Fribourg	No data available
Scuola Universitaria Professonale della Svizzera Italiana (SUPSI)	Research & Innovation	Partial data available

Research Institutes	TT-Office(Total 3)	Comments on data provided
Paul Scherrer Institut	PSI TT-Office	Partial data available
Empa, Swiss Federal Institute for Materials Science and Technology	Empa-Eawag TT-Office	Complete data
Eawag, Swiss Federal Institute of Aquatic Science and Technology	Empa-Eawag TT-Office	Complete data

CASE STUDY

VUNA – FROM PEE TO PETUNIAS

Problem – Challenge

What if you live in an arid, low-income country that does not offer great prospective to flourish? And what if an expert in water research is thinking about these problems? And what if a well off couple is willing to share their wealth with the poorest on this planet? If all these things would come together, great things could happen. And – good news – it did! A group around Kai M. Udert at Eawag received a generous grant from the Bill and Melinda Gates Foundation to develop an innovative decentralized sanitation method that not only purifies used water reducing consequently water pollution and recovers nutrients but also produces a fertilizer which can be – and actually is – sold giving an economically attractive business opportunity. This was the point where the project VUNA began in 2010.

Solution

The basic idea was borne out of the emerging urine-diversion toilets aka NoMix toilets where urine and solid faeces are collected separately, which, if used without flushing, saves water and costs for a sewer system. The solids can be directly composted or dehydrated. But what to do with the urine? Urine contains as "waste" a lot of phosphorous and nitrogen – as fertilizers do. But instead of extracting nitrogen from air und phosphorous from rocks in an expensive, high energy consuming process, it can just be recovered from urine. After five years of research and development in Switzerland and Durban, South Africa, VUNA (meaning "harvest" in Zulu language) presented AURIN Naturelle, a high quality recycled Nitrogen fertiliser solution for ornamental plants, lawn, or flowers. Buy it at http://www.kompotoi.ch/verkauf and see your flowers flourish! (Text: wii; Fotos: © Eawag)

CASE STUDY

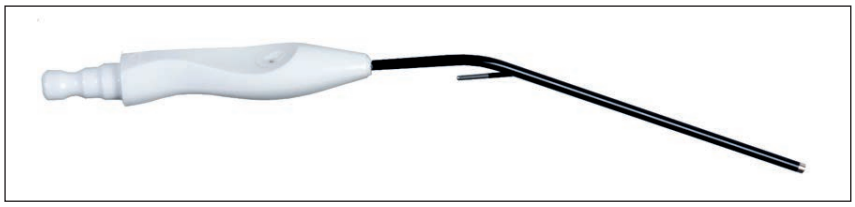
SUCTION / STIMULATION SYSTEM FOR BRAIN SURGERY

Problem – Challenge

Microsurgical brain tumor resection requires maximal precision from the very beginning to the end. An electrical stimulation probe is thereby commonly used to track the origin of peripheral nerves and avoid impairment. Such stimulation is traditionally applied by an additional member of the operating room team or in-between the resection steps by the surgeon. As a result, such approach requires additional personnel and/or time and more importantly the second instrument interferes with the surgeons view and may increase coordination problems.

Solution

An all-in-one disposable surgical suction tube and stimulation probe has been developed and successfully tested by inomed Medizintechnik AG (Emmendingen DE) in collaboration with the team of Prof. A. Raabe of the University Hospital Bern. As a result, the subcortical mapping is fully synchronized with suction/resection. No change of instruments is required during the procedure. The combination of a surgical suction tube and a stimulation probe allows suction during tumor resection and also enables the simultaneous continuous dynamic mapping of the corticospinal tract, leading to higher precision and time saving. In 2016 this "Mapping Suction Probe by Raabe" has been awarded as winner of the German Industry Award „Industriepreis 2016" in the Medical Technology category.



CASE STUDY

INSIGHTS INSIDE THE BRAIN: MULTI-PARAMETER NEUROMONITORING IN A SINGLE SYSTEM

unitectra
Technology Transfer of the Universities of Basel, Bern and Zurich

University of Zurich[UZH]

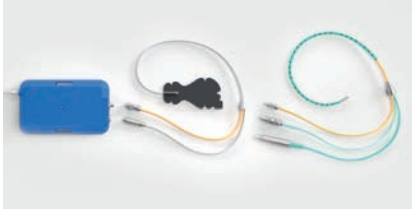
ETH zürich

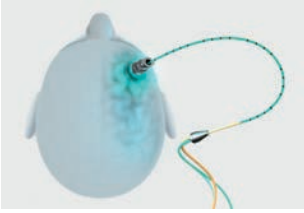
Problem – Challenge

Stroke and brain injury are leading factors for disabilities and death worldwide. The major goal in emergency and intensive care is to avoid secondary brain damage after stroke, head trauma, cardiac arrest, and during surgery. However, as of today a practical method for an adequate monitoring at the bedside is still missing.

Solution

NeMoDevices, a spin-off company from the University of Zurich and ETH, provides a revolutionary neuro-monitoring system with two products: a minimally invasive, disposable probe (NeMoProbe), and a non-invasive, semi-disposable patch (NeMoPatch). Both are based on near infrared spectroscopy and work with the same control unit. Light at different wavelengths in the near infrared spectrum is coupled from a tiny laser into the brain tissue and collected after absorption and scattering by light detectors. This provides continuous and reliable information on the most crucial parameters regarding survival and outcome, which allows for higher safety, better treatment, and reduced patient stay at the hospital. NeMo Probe has been granted CE Mark in 2015. CE Mark approval for NeMo Patch is anticipated in 2017.





CASE STUDY

SHOCK WAVES – METHOD FOR THE TREATMENT OF MUSKULOSKELETAL AND DERMATOLOGICAL PATHOLOGIES

EPFL
ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

EMS
ELECTRO MEDICAL SYSTEMS

Problem – Challenge

Tendinopathies are chronic tendon injuries with degeneration at the cellular level and no inflammation. They are caused by an overuse in frequency or intensity of tendons. Tendinopathies are difficult to get rid of and physiotherapists struggle to treat them. Radial Extracorporeal Shock Wave Therapy (rESWT) was invented by EMS in 1997. It has been extensively studied for its effect on tendinopathies. The 26 Randomized controlled trials conducted with the Swiss DolorClast have shown 80% success rate to heal tendinopathies. Indeed, rESWT not only alleviate pain but also provide long term effect to patients (follow-up in studies up to 2 years). To date, rESWT is used for the treatment of tendinopathies, muscle pain, knee ostheoartritis, spasticity, delayed union, wound healing, lymphedema and cellulite. Although all mechanisms of actions are still unclear, we know that rESWT increase blood flow and angiogenesis, decrease substance P in the C nerve fibers, activate stem cells and have an active role on growth factors.

Swiss DolorClast®

A fruitful collaboration between E.M.S. Electro Medical Systems SA (Nyon, VD) and the Ecole Polytechnique Fédérale de Lausanne (EPFL) was supported by a CTI grant. During this collaboration, the shock wave generation in the impact device and the wave propagation in tissues were studied using the Swiss DolorClast® device. This collaboration led to a specific mechanical design to generate high energy pressure waves and was protected by a patent. The improvement is focusing on the design of the pressure chamber, allowing to double the energy density as compared to the previous generation.More than 10'000 Swiss DolorClast® have been sold worldwide. To date, it is the only rESWT device approved by the FDA.

APPENDIX 2 – DETAILED DATA 2008 – 2015

All respondents	2008	2009	2010	2011	2012	2013	2014	2015
Full-time equivalents (FTE)	63	68	64	74	81	86	85.7	89.2
Research contracts (incl. EU contracts)	2745	2855	3035	2872	2349	3924	3237	3297
Invention disclosures	431	446	470	482	519	575	550	608
Priority patent applications	194	195	224	240	297	270	312	298
Active patent cases end of the year	924	1512	1573	1606	1818	1951	1969	2191
License agreements	208	191	196	203	174	201	187	220
Active license agreements end of the year	1079	1143	1237	1249	1307	1351	1437	1474
kCHF of net licensing revenues	9479	8197	8533	7665	13303	14776	18729	10316
License agreements with revenues in respective	271	289	288	299	308	386	376	406
New start-ups on basis of formal license	39	45	44	43	62(29)	73(45)	81(49)	73(47)

Universities	2008	2009	2010	2011	2012	2013	2014	2015
Full-time equivalents (FTE)	42	47	45	50.5	50	52.3	56.1	55.5
Research contracts (incl. EU contracts)	1885	2120	2285	2158	2348	2360	2195	2303
Invention disclosures	378	405	421	421	444	458	508	565
Priority patent applications	167	160	187	212	257	244	281	262
Active patent cases end of the year	779	1355	1358	1450	1664	1779	1839	2008
License agreements	190	167	159	168	146	167	168	192
Active license agreements end of the year	1013	1058	1135	1459	1167	1213	1320	1352
kCHF of net licensing revenues	8338	7686	7829	7029	10519	9713	14170	6933
License agreements with revenues in respective	252	268	258	257	270	337	339	203
New start-ups on basis of formal license	31	38	34	33	43(23)	49(35)	61(38)	58(41)

RI	2008	2009	2010	2011	2012	2013	2014	2015
Full-time equivalents (FTE)	7	7	6	8	8	7.7	7.4	8.8
Research contracts (incl. EU contracts)	395	416	293	340	353	320	365	420
Invention disclosures	37	26	28	30	40	37	32	34
Priority patent applications	17	29	21	23	32	24	30	33
Active patent cases end of the year	97	110	141	112	112	133	121	174
License agreements	14	13	23	19	11	15	16	25
Active license agreements end of the year	61	81	90	103	123	119	115	120
kCHF of net licensing revenues	961	337	190	170	2217	4463	4532	3353
License agreements with revenues in respective	16	20	17	19	21	31	34	43
New start-ups on basis of formal license	3	2	0	2	5(1)	5(2)	2(1)	6(0)

UAS	2008	2009	2010	2011	2012	2013	2014	2015
Full-time equivalents (FTE)	14	14	13	15.5	23	26.1	22.2	24.9
Research contracts (incl. EU contracts)	455	319	457	374	621	1254	677	574
Invention disclosures	16	15	21	31	35	80	10	9
Priority patent applications	10	6	16	5	8	2	1	3
Active patent cases end of the year	48	47	56	35	42	39	9	9
License agreements	4	11	14	16	17	19	3	3
Active license agreements end of the year	5	4	12	15	17	19	2	2
kCHF of net licensing revenues	180	174	514	466	567	600	27	30
License agreements with revenues in respective	3	1	13	23	17	18	3	3
New start-ups on basis of formal license	5	5	9	8	14(5)	19(8)	18(10)	9 (6)

Note (i): For new start-ups the numbers in parentheses refer to equity deals
Note (ii): The number of institutions that participated in the survey varies between years.

APPENDIX 3 – KEY PARAMETERS FOR INDIVIDUAL INSTITUTIONS

Institution	Name TTO	Start TTO	TTO FTE	Total # research contracts	# of invention disclosures	# of priority applications	# of IP agreements	# of startups
Universities								
EPFL	EPFL-TTO	1993	11.2	238	142	88	46	18
ETH	Transfer	1995	16.2	586	195	98	50	25
Uni Geneva	Unitec	1998	6.85	58	51	12	16	1
Uni Lausanne	PACTT	2000	6.8	61	31	5	5	0
RI								
Eawag TT	TT Office	2001	1	105	1	0	0	1
Empa	TT Office	2005	3.8	157	18	18	20	1
PSI	TT Office	1999	3.8	158	15	15	5	4
UAS								
BFH	TT Office	1999	14.7	219	3	2	3	2
HSLU	Ressort F&E	1998	2	308	3	n/a	0	0
FH OST–NTB	TT Office	2000	1	n/a	n/a	n/a	n/a	n/a
SUPSI	TT Office	n/a	1.4	11	n/a	1	0	3
ZHAW	TT Office	2007	2	n/a	n/a	n/a	0	3

Note: The table lists individual data of those institutions that agreed to publish it.

GLOSSARY

CTI	Commission für Technolog & Innovation
EU	European Union
FTE	Full Time Equivalent (for the number of employees)
IP	Intellectual Property
MTA	Material Transfer Agreement
NDA	Non-Disclosure Agreement
PRO	Public Research Organisation
RI	Swiss Federal Research Institutions in the ETH domain
SME	Small- and Medium-sized Enterprises (<250 employees)
SNF	Swiss National Science Foundation
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
swiTT	Swiss Technology Transfer Association
TT	Technology Transfer
TTO	Technology Transfer Office(s)
UAS	Universities of Applied Sciences
Universities	Cantonal Universities and Swiss Federal Institutes of Technology

APPENDIX 4 – THE QUESTIONNAIRE

swiTT Technology Transfer Survey 2015 (online survey)

Preliminary Notes:

- All questions refer to the calendar year 2015. 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 name? All other data will only be published in The aggregated format by type of institution? *All other data will only be published in the aggregated format by the type of institution*	☐ Yes ☐ No
2. Background Information	
2.1 Name of the academic institution/s	
2.2 Is your institution associated with an university hospital? *(If yes, please note that all figures given below should include the numbers of the hospital, too)*	☐ Yes ☐ No
2.3 Does your institution gave a dedicated office / responsible person for TT activities (TTO)?	
If yes which year did the TT program start)	*[pub]*
2.4 Name of the responsible for survey program	
Name of responsible for survey data	
2.5 TTO address and contact information	

Office Name :		Telephone	
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 ☐ No
(B) Evaluation, protection and management of IP	☐ Yes ☐ No
(C) Commercialisation of IP (licensing, marketing)	☐ Yes ☐ No
(D) Coaching of start-up projects	☐ Yes ☐ No
(F) Financial administration of research projects	☐ Yes ☐ No
3.2 How many full time equivalents FTE were employed in your TTO on Dec. 31st 2015 *(Do NOT include researches working as project managers in transfer project in this number)*	FTE *[pub]*
3.3 Of these FTE, how many were employed to work on	
(A) Technology transfer activities *(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	
Comment 3.1 – 3.3 *(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 (*Collaboration agreements, service agreements, clinical trial agreements, CTI complementary and EU agreements, NO MTA, NO NDA, or other TT contacts (see 4.3) and NO SNSF contracts)*	[pub]
Of these research contracts, how many were executed with small and medium enterprise (SME), how many with large companies and how many with public partners? *(Definition: SME are companies with 250 or less employees)*	(A) SME: (B) Large Company: (C) Public Institutions: *(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 (*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 fill amount in the year the contract is signed)*	CHF
4.3 Number of other technology transfer contracts handled by your TTO *(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 *(e.g. restrictions/regulations of your institution. Knowledge of ALL contracts or only contracts above a certain amount)*	

Thank you for your input!

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)*	
(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 2015 managed by your TTO? *(Active patents cases are pending or granted patents on a technically unique invention (patent family). Application in various countries on ONE technically unique invention count as ONE patent case*	
6. Patenting Costs and Legal Fees	
6.1 Amounts 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? *(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 contracts)*	[pub]
Of these licenses/options/sales, how many were licensed to SME, how many to large companies or public institutions? *(Definition: SME are companies with 250 or fewer employees)*	A) SME: (B) Large Company: (C) Public Institutions: *(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? *(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, 2015	
Comments to 7.1 – 7.3 *(e.g. large variations to previous years, special situation, i.e. with free software licenses openBSD, etc)*	
8. License Income	
8.1 What was the total number of licenses/options/sales revenue?	
8.2 How many licenses/options/sales yielded running royalties? *(Running royalties are based on product sales and are only due after launch of a product In the market)*	
8.3 What was the total amount of licenses/options/sales revenue received at your institution? *(WITHOUT patent costs 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 transfer of your Institution 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?	
9.2 In how many of these 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 2015?	☐ Yes ☐ No
If yes, how many?	
10.2 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 additional comments or suggestions to the attention of the team of the swiTTreport, please post them here)	

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 more than 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.
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Among other services, swiTT operates swiTTlist, a unique portal with current technology opportunities from Swiss public research institutions available for licensing and development by industry.
To search this opportunity database please visit **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;

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

Provides SERVICES of common interest to its members, their institutions and other stakeholders involved;

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

IMPRESSUM

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

swiTTreport Committee
switt Board
Michel Dreano, swiTT Office