

University Technology Transfer Practices in Switzerland

by Françoise Chardonnens¹

The academic landscape in Switzerland consists of two federal institutes of technology (ETH Zurich and EPFL in Lausanne), ten cantonal universities and seven inter-cantonal universities of applied science.

Historically, university technology transfer first developed within the two federal institutes of technology, which both have had a long tradition of relationships with industry. Licensing activities were pioneered at the EPFL in the late eighties. Later the cantonal universities also engaged in such activities and set up technology transfer offices. This was also the time when the legal framework both at the federal and at the cantonal levels was adapted to facilitate and promote technology transfer from academia to industry. In 2005, a programme sponsored by the federal government was launched to promote technology transfer to SME's. This programme involves all the Swiss academic institutions and is organized in four consortia each run by one technology transfer office.

Ownership of intellectual property rights

In principle, the Swiss academic institutions own the of intellectual property rights (IPR) to the inventions and to software generated by their employees, including the professors. There can be some deviations from this principle due to the different pieces of law governing this matter at the federal and cantonal levels.

On the contrary, the IPR generated by undergraduate students (who do not have an employment agreement with the institution) are owned by the students, unless otherwise agreed in a contract on a case-by-case basis. It is to be noted that the great majority of PhD students are employees of the academic institution.

Employees and professors generally own the copyrights on the works of authorship they create (except for copyrights on software). This applies in particular to teaching material and books as well as to papers in scientific journals, talks and posters at conferences. At some institutions, employees and professors must share with their employer the income they may generate in exploiting such copyrights.

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Disclosure of inventions

The inventions are mainly disclosed spontaneously by the researchers to technology transfer offices (TTO's) by means of disclosure forms.

However, a pro active attitude of the TTO's such as seminars on IPR given to the researchers and informal contacts at cafeterias or at conferences or other events on the campus is essential in providing opportunities for inventions to be disclosed or identified. Moreover, most of the Swiss TTO's also take care of the negotiation of research agreements, material transfer agreements and other contracts for the labs : this activity creates a lot of interactions with the researchers and increases their awareness about patents and commercialisation of research results thus encouraging them to discuss their results with the TTO people.

Evaluation of inventions

The evaluation of inventions covers the following aspects :

- i) commercial potential : what is the development stage of the technology ? is there a demonstrator that can be shown to potential industrial partners ? does the technology has an application ? is there a market for such products or services ? how big is this market ?
- ii) legal aspects : regarding (i) patentability (how does the prior art look like ? have the inventors already published or disclosed the invention ?), (ii) ownership (are all the inventors employees of the institution ?) and (iii) previous contractual commitments (is the institution free to license or otherwise dispose of the invention ?).
- iii) the inventors' motivation : are the inventors willing to take an active participation in the drafting of the patent application, in the marketing of the technology as well as, if needed, in the further development of the technology ?

Filing patent applications

As for many other decisions in Switzerland, the filing a patent application mostly relies on consensus: the inventors, the head of the lab and the TTO evaluate the invention and decide to file or not to file a patent application. Should a disagreement arise, then the TTO makes the final decision. The costs of the filing and of the prosecution of patents is borne by the TTO. However, in certain institutions a laboratory may file a patent application at its own costs (and in the institution's name) when the TTO cannot or does not want to do it. The drafting and filing of the patent with the competent office is outsourced to external patent attorneys.

If the institution renounces to protect an invention, the latter may be assigned to the inventor(s); at the two federal institutes of technology this is even imposed by law. This

assignment is against terms and conditions to be negotiated on a case-by-case basis. In practice, such assignments are quite rare.

The TTO's generally use provisional filings when the inventors want to publish the invention within a very short time after disclosure to the TTO. Most institutions do follow the "thirty months policy": they drop a patent application or limit the protection to a few countries if no license agreement has been executed within thirty months from the priority date.

Inventors' remuneration

Swiss universities and institutes of technology generally use the "3 thirds" scheme for sharing the income generated by technology licensing : after deduction of the external patent costs (and in a few cases of a 10 or 15 % fee for the TTO), the income is split in equal parts between the institution, the laboratory and the inventors. So, the inventors are remunerated with 1/3 of the net income. The shares among the inventors are generally proportional to their relative contribution to the invention; where it is not possible to determine the relative contributions, the inventors receive equal shares. A few institutions do cap the inventors' share when the income is extraordinarily high.

Licensing

It is common to distinguish between various licensing strategies : non exclusive licensing programme, sole exclusive license to a start-up company or an existing company, or several exclusive licenses in different fields of use. The choice of an appropriate strategy relies on a number of factors such as :

- the scope of the technology (platform technology; narrow scope; substitutional; incremental; etc.)
- the market addressed by the technology (industrial sector; mass products; niche application; etc.)
- the time to market
- the business model of the potential licensee(s)
- the impact of the licensing strategy on the lab's activities
- the inventors' motivation.

Marketing inventions is a very challenging task. One should not forget that TTO's are dealing with technologies which are mostly early stage technologies. In the performance of that mission, the TTO's definitively need to involve the inventors. Besides the contacts of the researchers themselves, participating to industrial fairs, using the licensing officers' contacts and organizing special events gathering companies in a certain industrial sector are additional means to identify potential partners.

Where the inventor(s) are willing to create a start-up to further develop and commercialize a technology, the TTO will generally license to the start-up firstly. Licensing to start-up companies has its particularities : exclusivity is generally a must and up-front payments are uncommon due to the poor cash situation of this type of companies. Unlike technology transfer deals with existing companies where the transfer of the ownership of the patent application or patent may be envisioned, the academic institutions generally grant their start-

ups a license while remaining the owners of the IPR; this policy is due to the higher risk of bankruptcy. The consideration of licenses to start-ups generally consists of royalties and/or milestone payments. A number of institutions takes equity in start-ups in addition to royalties; for academic institutions, the management of equity positions in private companies is rather complex (shareholders and financing agreements, tax issues, risk involved etc.).

Not surprisingly, the most important clauses in license agreements between Swiss academic institutions and companies (start-ups or existing ones) relate to the following points : scope of the license (territory and field of use), price (up-front payments, lump sums, royalties, reimbursement of patent costs, maintenance fees, equity etc.), obligation to exploit (milestones), limitation of the academic institution's liability towards the licensee and third parties.

The TTO's are also in charge of enforcing the license agreements in particular with respect to the payment of the royalties and other remuneration due by the licensee. Having detailed and clear clauses is essential when it comes to cash the money in. The recourse to standard contracts is not sufficient because sound definitions of elements such as the licensed products and/or processes, the royalty rate and the calculation basis (typically "net sales") shall have to match each case. This is why, in the negotiation phase, the TTO needs to discuss thoroughly with the licensee, in particular about the business model that will be used for the licensed technology.

To make sure the licensee pays the right amount of royalties it owes, the license agreements include clauses about bookkeeping and reporting obligations of the licensee as well as on the academic institutions' right to have the licensees' books audited. When the licensee does not fulfil its financial obligations, the threat to terminate the license is certainly a powerful tool in the hand of the academic institution.

Support to start-ups

The formation of start-ups in Switzerland is supported by the academic institutions themselves and by other organisations such as federal agencies, not-for-profit organisations and local authorities through many initiatives including :

- coaching programmes : for drafting business plans; for the formation of the management team; for networking with venture capitalists and other potential partners;
- free loans granted by the academic institutions or by other organisations;
- access to free or advantageous consulting services
- science parks and incubators
- entrepreneurship courses and workshops.

Some institutions allow their start-ups to be located in their premises while most of the institutions agree to grant their start-ups access to scientific equipment to the extent of its availability and according to terms and conditions to be agreed upon. Another support from academic institutions is the possibility for the researchers founding a start-up to obtain a leave of absence or a reduction of their employment rate. These supporting measures are limited in

time. One should note that the Swiss academic institutions have a rather "hands off" attitude with their start-ups since they do not act as founders of the company, they are not represented at the board of directors and they hold only minority equity positions, if any.

+ *following table to be inserted about in the middle of the article :*

Swiss TTO statistics*

- Research agreements : 910
- License and option agreements : 152
- Invention disclosures : 243
- Priority patent applications : 126
- New start-ups : 24

* from the seven main Swiss TTO , calendar year 2003