

INTRODUCTION¹

Small and medium-sized enterprises (SMEs) account for over 98% of all firms in Switzerland, and export-oriented high tech SMEs are the main driver for Switzerland's economic growth. But how does a company optimize the protection and use of its intellectual property? The answer to this question is particularly difficult for small and medium-sized enterprises (SMEs), as long as they are not sufficiently familiar with the intellectual property protection system.

Therefore, the Swiss Federal Institute of Intellectual Property (IPI) deducted the important and challenging task to better understand how SMEs adopt and use intellectual property rights (IPRs), and what conditions and procedures may impact this usage. Moreover, a second task was to identify those SMEs that do not use IPRs at all to try to understand the reasons why they remain outside of the IPR system although they are performing well in terms of innovation, exportation and growth.

In order to remedy this situation, to foster knowledge, and to motivate SMEs to deal with intellectual property in a confident manner, the Swiss Federal Institute of Intellectual Property started the project SME-IP in March 2007 that was conducted in three parts (and were published in 2009²):

1) **Support Services in the Field of Intellectual Property Rights (IPR) for SMEs in Switzerland – A Review (SME-IP 1st IPI-Report)**

The first part of the study carried out within the framework of the IPI research project aimed to create as comprehensive a picture as possible of the support and services available for Swiss SMEs in the field of intellectual property. This research institute did a similar analysis that benchmarked IP related services in selected European and overseas countries for the European Commission between 2006 and 2007.

The study was conducted by the Austrian Institute for SME Research (KMU FORSCHUNG AUSTRIA) to carry out the study that has a separate presentation slot at the WIPO conference and therefore is not part of this summary (September 17th/18th, 2009).

2) **Economic Focus Study on SMEs and Intellectual Property in Switzerland (SME-IP 2nd IPI-Report)**

The second part of the study carried out within the framework of the IPI research project tried an ambitious attempt: It identified a number of ways in which micro-level and sectoral understanding of the strategies and attitudes of SMEs toward IPRs is important, alongside the more macro-level insights. These insights are crucial for informing governments (federal and cantonal), the economic sectors and professional associations about the main policy issues raised by the diagnosis of an "IPR deficit" among SMEs. The insights are also critical for those SMEs which seek to improve

¹ This document has specifically been prepared for the WIPO conference 'Meeting of Expert Group for Defining the Scope and the Methodology for National Surveys/Studies on Intellectual Property and SMEs', Geneva, September 17 and 18, 2009 and has been extracted from two publications of the Swiss Federal Institute of Intellectual Property (IPI):

a) Keupp, Marcus M.; Lhuillery, Stéphane; Garcia-Torres, M. Abraham; Raffo, Ju-lio (2009): "Economic Focus Study on SMEs and Intellectual Property in Switzerland." 2nd Report of the IPI SME-IP Project. Swiss Federal Institute of Intellectual Property (IPI), Berne.

b) Friesike, Sascha; Jamali, Nadia; Bader, Martin A.; Ziegler, Nicole (2009): "Case Studies on SMEs and Intellectual Property in Switzerland." 3rd Report of the IPI SME-IP Project. Swiss Federal Institute of Intellectual Property (IPI), Berne.

² Published by IPI at: <https://www.ige.ch/en/institute/institute/projects-and-cooperation/sme-ip-project.html>

their innovation performance as well as their ability to capture the benefits from their innovations.

3) **Case Studies on SMEs and Intellectual Property in Switzerland (SME-IP 3rd IPI-Report)**

The third part of the study carried out within the framework of the IPI research project dealt with the observation that only little is known about the concrete use of intellectual property by Swiss SMEs, which served as starting point for the analysis. Consequently, the study set itself the target of encountering this information deficit by a systematic analysis of concrete cases in which it was examined whether and how the companies concerned use formal and informal protection methods for their intellectual property.

The study additionally identified ways of further improving the Swiss intellectual property protection system to optimally respond to the needs of the SMEs. Recommendations were made on how to better sensitize companies to the various aspects of intellectual property and how they can increase the value added by the conscious use of their intellectual property. Finally, statements were made as to how far the range of services available to Swiss SMEs can be improved.

EXEC-SUMMARY (SME-IP 2ND IPI-REPORT)

This study was jointly commissioned by the Swiss Federal Institute of Intellectual Property (IPI) to the Institute of Technology Management at the University of St. Gallen (ITEM-HSG) and the Chair of Economics and Management of Innovation (CEMI) at the College of Management of Technology, Ecole Polytechnique Fédérale de Lausanne (EPFL).

The purpose of this study is to analyze how, why, and to which extent Swiss small and medium-sized enterprises (SMEs) use or do not use the intellectual property rights (IPRs) the Swiss IP system offers, and to elaborate policy recommendations on the basis of these analyses.

The study outline included:

- a comprehensive literature review,
- an econometric analysis of the Swiss Innovation Survey conducted by the Konjunkturforschungsstelle at ETH Zurich (henceforth denominated "KOF data"),
- an econometric analysis of a survey of SMEs conducted by IPI itself,
- an analysis of patent portfolios of the SMEs from the IPI survey,
- an integrative analysis that comments on the commonalities and differences of these analyses and explores them in greater detail by using additional qualitative analyses,
- policy recommendations on the basis of these analyses.

The main findings of this report can be summarized according to the following four major themes.

(1) **Firm heterogeneity.** Rather than there being one type of "small firm", there are a number of different types of SMEs, each of which has a different approach of how to use IPR protection measures (i.e., patents, trademarks, industrial designs, and copyrights) to appropriate the economic benefits from their innovations. An SME's propensity to use these measures is contingent on firm size and industry sector. In general IPR users are able of capturing a higher proportion of their innovative efforts, compared to SMEs that are non-IPR users.

(2) **Need for information.** The level of information about IPRs differs greatly from firm to firm. Firms that are well informed about a particular IPR protection measure are also more likely to use that measure. Further, with the exemption of micro-firms, the IP strategy of a firm that already uses any of the IPR protection measures (or a combination thereof) is highly likely to be shaped by the competitive situation of its environment and its product-market strategy, rather than by resource consideration. Thus, any policy attempt to inform SMEs about the IP system should be made contingent on an SME's prior exposure to the use of IPR protection mechanisms, asking whether a specific group of SMEs is likely to demand information at all and if so what type of information.

(3) **IPR behavior.** SMEs use a combination of IPRs to protect their innovation. We find a first group of SMEs which is intensively using a combination of trademarks and industrial designs. A second group of firms is focusing on patents. And a third group of firms is mainly applying for trademarks. In all cases the main reason for SMEs to apply for IPRs is protection from competition.

In the case of patents we are able to study their evolution over time. We observe that the total number of SMEs that patent has decreased, whereas the patenting intensity of those SMEs that do patent has increased. This seems to point to a specialization effect, in that the number of patent applications concentrates among fewer and fewer SMEs applying for a greater number of patents. Further, micro firms are very strong in patent networking.

(4) Internationalization. The IPR protection activities of Swiss SMEs are not confined to the national level alone. However, SMEs' knowledge of the national patent system is higher than the knowledge of the international system, so that information about how to patent internationally would be desirable. SMEs apply for patents on a national level for contract negotiations, whereas international applications are important to give publicity to the innovation. SMEs that do business on an international level from an early point in their history ("born globals") are very keen with respect to IP protection and are unlikely to demand special information, as they use external service providers (such as consultancy services or patent lawyers) to manage the protection of their IP professionally.

Based on these findings, four central policy implications were derived:

- 1) IPR policy-making has to be adapted to the heterogeneity of Swiss SMEs. Given the considerable size and industry sector differences, it is likely that policies that focus on overcoming barriers to use an IPR-based strategy in specific industries and certain types of firms will be more effective than those which promote more generalized encouragement to use IP.
To achieve this tailored response, cooperation with professional associations or economic institutions in charge of economic development at the local level may be necessary to customize information and training to the different types of SMEs. The IPI should also inquire what could be done to offer IP services or adapt the IP system to specific groups of firms. In the past, such measures have been implemented for biotech firms. We believe similar policy instruments could be extended to other specific categories of Swiss SMEs.
- 2) While the specific type of public promotion programs we analyzed had no effect on SMEs' use of either protection measure, and while the qualitative analysis suggested that SMEs do not make their IP decisions on the basis of monetary incentives, public promotions may still induce effects on firms' IP strategy we could not measure. This especially applies to effects from public promotion on a firm's R&D spending which may only be visible after a considerable time lag. Although SMEs often suffer from resource shortages, our findings suggest that IP decisions are not primarily made on the grounds of resource endowments, but on the grounds of each measure's efficacy to protect the respective innovation.
- 3) Training should be offered to SMEs that patent abroad extensively in order to augment completely their ability to use the international IPR system. As this offer discriminates on the locus of patent filing, it should be specifically targeted towards internationally active SMEs and not be combined with services for SMEs that file patents in Switzerland only.
Swiss SMEs should receive support when they use IPRs as a negotiation tool or collaborate with other firms. It would be particularly useful for them to receive training about how to negotiate on IPRs with other agents (firms, banks, governments) – e.g., regarding IP in R&D cooperative agreements, or IP licensing from and to third parties. The very active role of micro-firms' activities in patent networks should be supported by facilitating information, and maybe by considering a reduction of patent fees.

- 4) IPI's dissemination of information should be contingent on an SME's experience:
General information is only of interest to firms completely unaware about IP issues, whereas more experienced firms are more likely to want to foster IP awareness amongst their employees. Regarding the different measures, information about patenting should be exclusively directed towards the non-user group, whereas information about trademarks and industrial designs may be of use to both users and non-users.

EXEC-SUMMARY (SME-IP 3RD IPI-REPORT)

Today more than 90 percent of Swiss companies are small and medium-sized enterprises (SMEs). Their ability to innovate and to sell services or products is crucial to the Swiss economy. Little is, however, known about how these Swiss SMEs protect their intellectual property (IP).

The study report explored this question, providing analysis and insight into the management of intellectual property in Swiss SMEs. The report is the result of a study carried out in collaboration with both, the Institute of Technology Management at the University of St.Gallen (ITEM-HSG) and the Chair for Technology and Innovation Management of the Swiss Federal Institute of Technology Zurich (ETH). The study was commissioned by the Federal Institute of Intellectual Property (IPI).

In order to improve and motivate the knowledge and understanding of SMEs' behaviour and perceptions towards the protection of intellectual property, the research team began by conducting a literature review to compile what is known on the issue thus far.

Several European studies have revealed that the management of intellectual property is handled differently in SMEs when compared to large corporations. According to these studies SMEs seem to heavily rely upon factual protection methods such as lead time advantages or secrecy. Furthermore, multiple studies address financial issues, which ultimately have an impact on an SMEs' IP protection decisions.

To gain practical data and information, the study team carried out 24 individual case studies among a diverse collection of Swiss SMEs. Firms from all major Swiss industrial sectors and from all major industrial regions were interviewed, sampled, and analysed to assure the consideration of a wide variety of IP management practices.

One objective of the study was to conduct interviews among firms that actively use legal protection methods (such as patents, trademarks, and industrial designs) and those that do not. As a first result the research team derived five mutually exclusive clusters, into which all 24 firms fit. Three clusters covered the companies that actively use legal protection methods:

- Patentees: Companies with a primary focus on patents.
- Trademarks: Companies fostering only trademark protection.
- Multiple users: Companies utilising more than one legal protection method.

Two extended clusters represented the companies that do not actively use legal protection methods:

- Intuitive non-users: Companies whose choice to refrain from legal protection for their intellectual property is not based on a strategic decision.

- Purposeful non-users: Companies that intentionally decided to refrain from legal protection.

The 24 case studies provide a powerful insight into the IP-related behaviour of Swiss SMEs. Policy recommendations were extracted from a comparison of the gathered results with the two primarily conducted studies.

Two sets of policy recommendations were established. Initially, policy recommendations for the IPI were extracted. These policy recommendations are based on the Swiss innovation environment, to which the SMEs are exposed. In the subsequent stage, policy recommendations for the SMEs themselves were established.

Policy recommendations for the IPI include:

1. Establish a clear role of the IPI. At present, SMEs do not have a consistent view of the IPI.
2. Position the IPI within the Swiss innovation system and determine which Swiss institution has certain responsibilities.
3. Promote existing IPI services, as most SMEs would be interested in support services but have no knowledge of their existence.
4. Build a platform for SMEs to facilitate information exchange among similar likeminded companies on the topic of intellectual property.
5. Support SMEs in their search for adequate support services and establish a first contact point for SMEs dealing with intellectual property.
6. Improve the general education on intellectual property.

Policy recommendations for SMEs in Switzerland to improve their IP management include:

1. SMEs are urged to inform themselves about the issue of IP protection.
2. Not only should SMEs inform their management about intellectual property but also raise the general awareness among their employees.
3. SMEs should evaluate their existing IPRs on a regular basis and take action based on these evaluations.
4. SMEs should question old IP strategies in order to remain up to date with the changing market.
5. SMEs should assess when to consult a patent/trademark attorney.

Conclusions and Recommendations

The study provides conclusions and recommendations for the IPI as well as for Swiss SMEs. The derived recommendations are based on the results from previous studies and on the research conducted by the case study team. In addition, the Benchmarking Study (Radauer, Streicher, 2008) and the Econometric Focus Study (Keupp, Lhuillery et al., 2009) received closer attention, as this present study should be seen in context with the other two studies.

Policy recommendations for the IPI

The following policy recommendations were deducted with respect to the IPI. These recommendations have the common goal of supporting SMEs with their IP management, either by the IPI itself or by other institutions. The main objective of these recommendations is to make it easier for SMEs to access needed information on intellectual property and thus support these SMEs in their IP-related decision making processes.

A. Clear role of the IPI

As can be seen in the case studies, Swiss SMEs have different perceptions of the IPI's role. While some SMEs are aware of the IPI's service-providing nature, others see the IPI merely as a traditional institution. The latter do not consult the IPI on issues concerning their management of intellectual property even though the IPI offers such services. This finding is in line with the results presented in the Benchmarking Study (Radauer, Streicher, 2008).

In this context, the IPI is advised to define a clear task for the Institute. Firstly, the IPI should internally determine its role. Secondly, it should, as a whole, communicate its role to its stakeholders. For communication purposes, different channels have been named by the SMEs in the case studies: industry-specific journals, trade fairs or direct contacts were among the most prominent ones. A more elaborate communication study is advised in order to reach as many SMEs as possible and to inform them about the IPI's role regarding intellectual property.

B. IPI within the Swiss Innovation System

Also consistent with the Benchmarking Study (Radauer, Streicher, 2008) is the conclusion regarding the IPI's position within the Swiss Innovation System. Some of the interviewed firms consider the IPI a useful source regarding any kind of information on intellectual property (e.g. when not to patent or which formal protection would be advisable for a certain product or service). Other firms, however, see the IPI as a source of information on trademarks, industrial designs and patents, only. Moreover, a third group of SMEs does not consider the IPI as a source of information at all. These heterogeneous groups consult different institutions or sources when dealing with IP issues.

The case studies show that Swiss SMEs turn to a variety of institutions or sources of information whenever they have questions regarding the management of their intellectual property. Firstly, patent attorneys: a good deal of the interviewed SMEs consult patent attorneys on a regular basis, often not to solve complicated problems but to apply for a trademark, for instance, or to pay fees. Secondly, inter-trade organizations: these organizations are a popular source of information for many SMEs. Talking to people facing similar problems in the same industry is valuable and desirable for many SMEs as the case studies show. Thirdly, institutions focusing on broader topics such as innovation in general (e.g. the CTI/KTI) are a source of information for some SMEs. All three groups handle the topic of intellectual property in some respect although some SMEs complained that they were occasionally overwhelmed by the variety of offers regarding the topic of IP management.

In this respect, IPI should position itself among these players and select which services the IPI should offer itself and which requests it should relay to other institutions. Concurrently, the other institutions might do the same and recommend the IPI to help-seeking SMEs.

C. Visibility of support services

The interviewed SMEs showed a vested interest in support services in general. Comparing the needs these SMEs demonstrated with available services presented in the Benchmarking Study (Radauer, Streicher, 2008) revealed a basic phenomenon. The interviewed SMEs are looking for support services which are essentially already available. However, at the same time, these SMEs often fail to find a suitable offer among the many services available.

It is therefore recommended to install a central contact point for SMEs. This central contact point would act as a broker connecting SMEs with a certain IP-related problem (e.g. is it advisable to patent the company's new technology?) to a trustworthy and prudential service provider.

D. Exchange of information rather than educational training

To many firms, intellectual property is a confidential topic. At the same time, however, companies are keen to share their own IP-related experiences and to learn from other companies' experiences. Several SMEs the study group interviewed stated they would happily engage in such an informational exchange.

The IPI is advised to act as an intermediate regarding this issue. Its task would be to bring companies together that are interested in the same aspects of intellectual property. Furthermore, industry-specific gatherings could help SMEs to get to know companies facing similar problems. These regular meetings could address a specific topic and interested firms could participate.

E. Different SME – different problem

One of the key findings presented in the Economic Focus Study (Keupp, Lhuillery et al., 2009) is the fact that there is no service for SMEs that would help most SMEs per se. The SMEs represented in this report's case studies paint quite a similar picture. The questions they have regarding IP management range from a fundamental understanding to complex problems such as litigation costs in China. Therefore, a service such as a three-day "IP management for SMEs" course would leave most SMEs unsatisfied while overwhelming the other few. Besides this, a further conclusion can be drawn from the heterogeneity of SMEs. Having a lack of, or no knowledge on IP management services, SMEs currently turn to a patent/trademark attorney first.

F. General education on IP

Most IP responsible persons interviewed complained that the informational level among engineers in SMEs on IPRs is rudimentary. They furthermore explained that a lot of innovative firms would be helped if the topic was addressed in the education of engineers. Teaching intellectual property at bachelor level would guarantee a wide basic knowledge on this increasingly important subject. Sending engineers to continuing education regarding

intellectual property is also considered an option by many SMEs. Again, it is necessary to point out that continuing education courses do already exist. At the same time, however, it is essential to inform interested SMEs about such courses.

Recommendations for SMEs

The following recommendations were deducted with respect to SMEs in Switzerland. The study has shown that SMEs have strikingly diverse levels of information regarding intellectual property. As seen in the case studies, these diverse levels of information are not an industry effect as one might assume at first. They are merely the result of the commitment and the dedication the responsible staff members have towards this topic.

A. General information

The study team encourages SMEs, as a first step, to inform themselves about intellectual property. IPI's website (www.ige.ch), for instance, is a well-proven starting point for companies to get general information on intellectual property. Furthermore, the website offers step-by-step instructions on how to apply for a trademark, patent, etc. Furthermore, a search on one of the various online platforms (e.g. www.espacenet.ch or www.swissreg.ch) can give SMEs a first feeling for IPRs in their industry.

A lot of SMEs claim that patents, industrial designs or trademarks are not useful in their specific industry. This might, in some cases, be true but getting to this point and making this decision requires prior knowledge on the topic. The decision of whether or not to use IPRs should never be based on a gut feeling. In the case studies, several firms can be found that changed their attitude towards IPRs and the use of them after a deeper understanding of the topic. Therefore, it is advisable for any SME to inform itself about the IPR system and the possibilities and dangers that lie within it.

B. Raising awareness among the employees

As stated before in the recommendations aimed at the IPI, staff members educated on intellectual property are of considerable value to innovative firms. This helps the companies to develop (e.g. if engineers are able to conduct patent searches themselves) and later to protect their developments. It is therefore recommended to raise the general awareness of intellectual property among the staff working in R&D.

C. Evaluating existing property rights

Most Swiss SMEs do not use IPRs at all (Keupp, Lhuillery et al., 2009). On the other hand, companies can be found that seemingly overuse IPRs. These companies invest heavily in patents, trademarks and industrial designs which they hardly use, they could never litigate or they could sell/license to make a profit.

SMEs are advised to regularly ask themselves whether a certain IPR is worth the money it is costing the company. Furthermore, SMEs should ask themselves if other companies could use a given IPR in a more profitable way. The interviewed SMEs revealed a large potential the companies can unlock by using a proper and continuous IPR evaluation.

D. Questioning old IP strategies

Among the SMEs presented in the case studies, several can be found that follow an IP strategy which has been in the company for decades. In modern markets, it is not only reasonable to have an IP strategy but also to question this strategy on a regular basis. Some presented companies annually invest large amounts of money into their IPRs but are very hesitant to invest some time into questioning their IP strategy.

Markets, competitors and products change over time, so why should the IP strategy not? Licensing, for instance, is a strategy for intellectual property hardly seen among SMEs. In-licensing, some SMEs claimed, would be an option but out-licensing, most SMEs agreed on, is out of the question - mostly for reasons based on the company's history.

E. Do it yourself or consult a patent/trademark attorney

The case studies show that SMEs have the tendency to either cope with their entire IP management themselves or to completely outsource the issue to a patent/trademark attorney. There is no, and there should be no, rule of thumb regarding when to consult a patent/trademark attorney. However, the interviewed companies showed that many SMEs either do not seek the help of an attorney at all or outsource their entire IP management to one. Companies who are informed about the management of intellectual property and are aware of the savings potential, used patent attorneys more selectively. This is why the study team advises all SMEs to inform themselves about IP issues and question their under or over use of patent/trademark attorneys.