

provided national laws are harmonised, a CBI would comply with speed, cost efficiency and legal certainty, as it would above all avoid *diverging decisions* on the same subject matter in a number of countries. It is observed that the *substantive* laws of Member States about infringement and the scope of protection have largely been harmonised in Europe. Formal problems of *ownership* remain, however. A European patent may have been granted or belong to different owners in different countries. As concerns infringement decisions which include an invalidity counter-claim issues, CBIs are of course available.

Conclusions

- ⇒ Effective mechanisms for challenging the validity of patents must comply with speed, quality, legal certainty and affordability.
- ⇒ Patents may be challenged in whole or in part from the point of time of grant, while the post-grant opposition proceedings is still pending or has not yet commenced, until after the patent has expired.
- ⇒ The challenging proceedings should be based on the (substantive) patentability requirements and on entitlement.
- ⇒ In any invalidity action the patent owner (exclusive licensee) must be heard and must have the right to amend the patent.
- ⇒ Post-grant opposition and appeal proceedings should be provided for by (national, regional, international) Patent Offices carrying out substantive examination.
- ⇒ The time limit for filing a post-grant opposition should not be too extensive, for example not less than three months and not longer than six months, as otherwise the speed requirement is not complied with.
- ⇒ National invalidity proceedings should be provided for by national authorities (patent offices, courts) for challenging national patents.
- ⇒ The time limit for initiating national proceedings should range from the date of grant or the date of termination of an EPO opposition proceedings, respectively, to after the expiry of the patent.
- ⇒ Invalidity proceedings should be provided for in any centralised international patent court procedures.
- ⇒ In patent courts hearing both infringement and validity, invalidity counter-claims must be provided for.
- ⇒ In Europe, work on the Community patent should continue and in the meantime the EPLA be implemented.
- ⇒ Post-grant invalidity grounds based on socio-economic considerations should not be adopted, rather the effects of a patent be open to challenge as to its industrial use, if necessary.
- ⇒ Fundamentally, the patent system is not a complicated system. It rests on a few prerequisites: a technical invention, novelty and inventive step; industrial applicability plays a very limited role and could be replaced by a more effective criterion. Let us keep the patent system simple.

Riding the Value-chain Upgrade – Patents as a Means of Boosting your Factual Protection Strategies

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I. Increasing Competitiveness

The major challenges that companies are facing today can be summarized by complexity, dynamics, and costs. Only 0.6 % of innovative ideas are eventually successful. In the pharmaceutical industry, the success rate falls to 1 in 10,000. Hence, the requirements for handling innovations have increased in numerous ways: globalization of competition, explosion of technological knowledge, technological fusion, decentralization of knowledge, escalation of research and development costs, reduction of innovation cycles, and acceleration of innovation diffusion.

As a consequence, future innovations, especially in the high tech area, are associated with simultaneously

increased input efforts and reduced output target costs. To secure revenues an essential component of coping with increased competition and high competition costs is to establish extra advantages for the customer, and find ways in which to make these advantages sustainable and renewable. Hence, as innovation is not limited to the product level, future-oriented organizations also increasingly invest in the development of new services and business practices.

II. Factual and Legal Protection Strategies

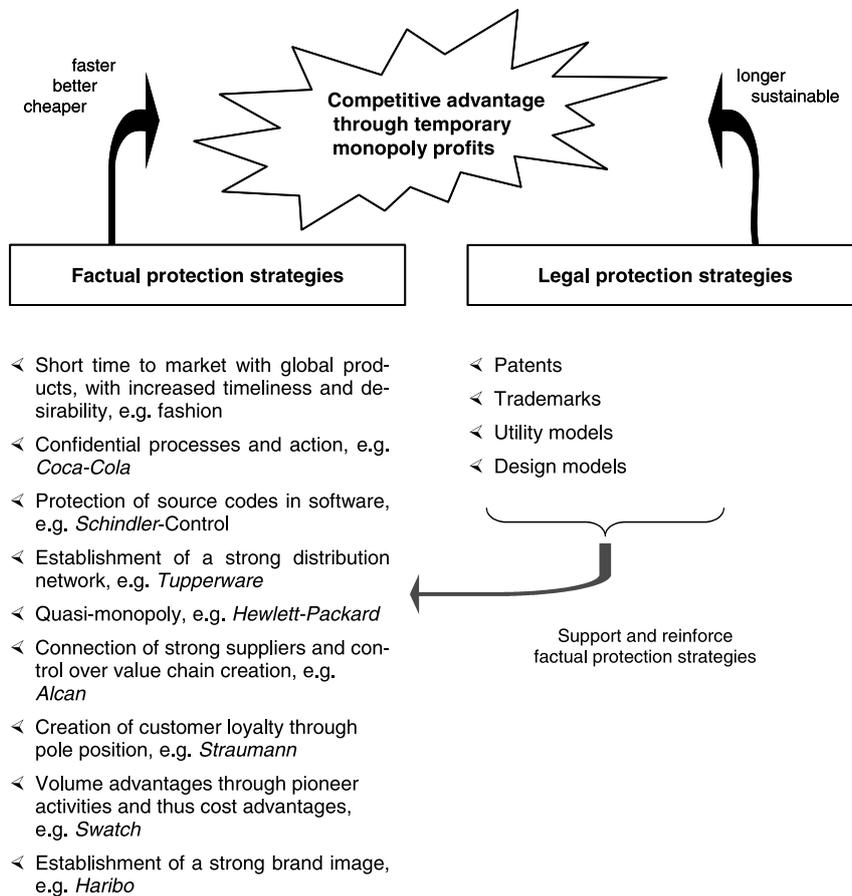
II.1 Protecting Temporary Monopoly Profits

Successful companies have to seek extra value creation for their customers to establish competitive advantages. Competitive advantages form a basis for justifying significant income returns for innovations – in other words differentiation with the customer creates monopoly

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profits. However, only by maintaining these monopoly profits at least on a temporary basis can companies then continue to invest in research and development on a long-term basis to secure future existence. Therefore, these companies search for suitable protection strategies for their innovations: As an integral part of innovation management *factual protection strategies* aim for the

reduction of imitation risks. Furthermore, these factual protection strategies are ever increasingly being supported by *legal protection strategies* to ensure freedom-of-action, to block competitors and to increase revenue returns (Fig. 1). Intellectual property rights have thereby become a suitable instrument for influencing sustainability and returns-on-investments.



Source: Gassmann and Bader (2006)

Fig. 1. Factual and legal protection strategies

As a consequence, it is not amazing that the demand for patent rights increased dramatically at the end of the last decade. Worldwide, the overall demand for patent rights rose between 1999 and 2003 from 7.5 million to an all-time high of almost 17.1 million (Trilateral Statistical Report 2005). The trend shows an annual average increase of about 23%. This is a lot more than the global estimated economic growth as per the International Monetary Fund (IMF 2005: 4.4%).

During the last few decades, the characteristics of patentees have also changed. Public patent holders like universities and research centres play an increasingly important role. For example, a law change in Germany allowed universities to create their own patent and licensing departments in order to gain returns on their research investments. Previously, patents were generally held by large organizations. Nowadays, the percentage of patentees with only a single patent has grown to 63%

in the *United States Patent and Trademark Office (USPTO)*, and 69% in the *European Patent Office (EPO)* (Trilateral Statistical Report 2005). The ratio of patent holders with more than 50 patents or patent applications is only 1% of those before the *USPTO* and *EPO*.

II.2 Generating Patents

The demand for patents is continually overshadowed by the high costs associated with procedures needed to grant a patent, including attorney and translation fees. Furthermore, maintenance fees have to be paid regularly after the issuance of a patent. Lately there has been strong criticism of the high transaction costs of patents when compared to their quality. It is commonly known that the costs of generating and maintaining a patent in Europe with a major country portfolio for a period of 10 years easily amount to about 25,000 euro (Fig. 2).

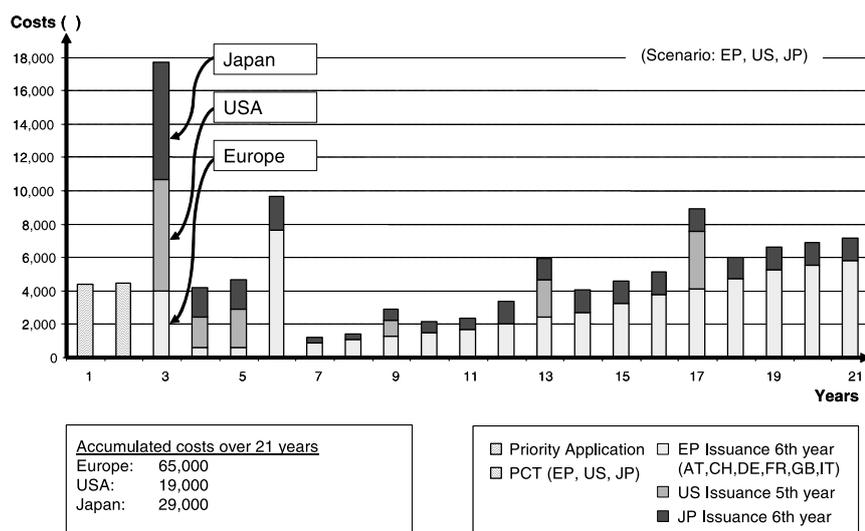


Fig. 2. Development of costs of an international patent application

Based on this background, the management of the cost and benefit ratio of patents has become a delicate issue. This specifically applies to inventions from the so-called high technology areas such as computer and automated business equipment, microorganisms, along with genetic engineering, aviation, communication technology, semi-conductors and lasers.

Taking cost and benefit ratios into account means to minimize the cost issues while optimizing the effectiveness of the patents, which can be done by shaping these with respect to internal and external market activities. Options for action include optimizing the portfolio of designated countries per invention with respect to own and third parties' products and the individual relevance of the invention. Relevant information that might include the characteristics of an invention, but does not have the potential for a valuable patent might not be further processed as a patent application. However, companies might choose to publish the related inventions in order to avoid the risk of patents of other parties. Furthermore, it is still common in Europe to apply opposition procedures. If a company does not want its competitor to know which patents are the truly significant ones, it might be more useful not to run an opposition, but to rather collect valuable state-of-the-art and request an internal or external opinion. If there is an infringement, this opinion can then be used to bilaterally negotiate an advantageous licensing agreement without clearing a patent that might still have some value with respect to further parties.

Therefore, the general pressure in organizations to optimize cost and utilization considerations, takes on a role of great importance in the area of legal protection means. It has become essential to organize and optimize the patent management process. Our studies together with the Institute of Technology Management at the University of St.Gallen in Switzerland revealed that three out of four organizations track legal protection strategies and have a documented patent strategy. This strategy is

balanced with business activities, implemented country-wide, and regularly checked and updated. The research and development departments are strongly integrated into the patent strategy process.

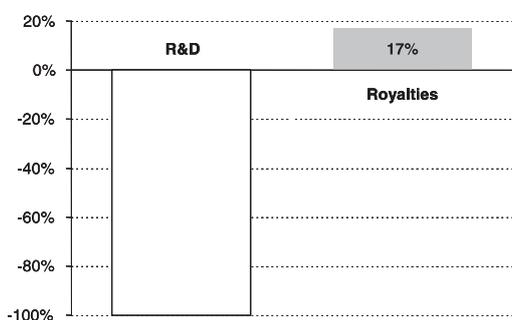
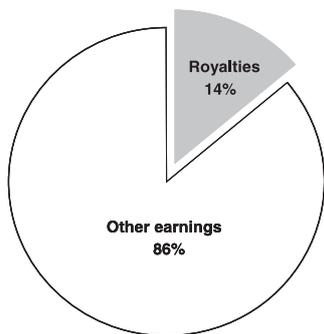
11.3 Enforcing Patents

Contemporary patent strategies are not only restricted to mere defence mechanisms and protection from product imitation. Increasingly, the management of patents is becoming an area of competence and is even generating licensing revenues. However, these types of activities need to be monitored carefully as areas such as overall core competencies and relative competitive advantage could be affected. A well-known leader in this area is *IBM*, whose overall licensing revenues account to almost 1.5 % of its total turnover. Now, every other company markets its intellectual property externally. Worldwide, the mere commercialization volume of patents is estimated to have reached 100 billion US dollars and is increasing (Athreye and Cantwell 2005).

Most notably in research and development intensive industries such as chemicals, pharmaceuticals, computers and electronics, medical and scientific instruments and software, it is becoming more commonplace to report information about royalty earnings in annual reports. A study on patent licensing revealed that between 1990 and 1998, on average, 14 % of the overall earnings were provided by royalties (Fig. 3a). Royalty incomes comprised almost 17 % of the R&D expenditures (Fig. 3b).

However, the environment of patent rights enforcement has become both heated and frosty at the same time. Whereas 20 years ago courts had often still been chosen on a geographical basis, today it is possible to make a selection based on subject matter and time frame expectations. Even though, financial pressure might be a reason why companies increasingly enforce their legal protection means, again, it's the overall cost and benefit ratio that counts. The average cost of a US litigation case

has grown from 400,000 US dollars in 1999 to 499,000 US dollars in 2001 per single case; a jump of 25 % (AIPLA 2001). Persons or enterprises that seek litigation, or get involved in a case need a big war chest. The urge towards

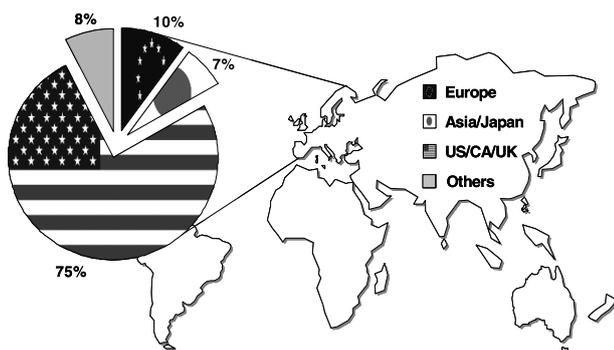


Source: Gu et al. (2000)

Fig. 3a/b. Ratio of patent licensing royalties to average earnings and R&D expenditures between 1990 and 1998

III. Outlook: Riding the Value-chain Upgrade

The ability to generate innovations has become a key factor for success. However, it is becoming increasingly evident that only in a few cases product innovations could now be handled by companies themselves. In this context, R.Z. Gussin, Corporate Vice President Science and Technology of *Johnson & Johnson*, New Brunswick, NJ reasoned that „technology has become so sophisticated, broad and expensive that even the largest companies cannot afford to do it all themselves.“ Companies are therefore increasingly accessing sources outside their



Source: Bader (2006)

quick and often unfair settlements is therefore growing, especially if there are insufficient available financial resources.

firms' boundaries and no longer rely on getting everything done internally. This innovation process, which large companies are already actively practicing, will also reach small and medium sized enterprises soon. The enhancement of this so-called open innovation trend has influenced the surrounding intellectual property environment: Organizations are more willing to share and propagate intellectual property.

As already mentioned in the introduction, especially in the western part of the world, sustainability of competitive advantages often can only be maintained anymore by the support of service innovations to establish clear market differentiation and to keep the position in the value-chain. Therefore, the idea of supporting service innovations as factual protection elements by legal ones has become more and more aspirable. The effectiveness of a company's ability to enlarge legal protection strategies also to the field of service innovations will gain strategic importance – not only for companies in the service industry sector. Increasingly legally protected service innovations will lead to imitation and second-mover advantages being reduced. Furthermore, legal protection instruments anticipate the potential for service-oriented enterprises to open up new markets. An example is the leading Swiss elevator and escalator manufacturer *Schindler*: 80 % of the company's earnings are based on services.

However, the protection of service innovations is a relatively new phenomenon, especially for the European service industry sector. Currently, this industry is confronted with prospects and risk scenarios relating to legal business protection instruments, specifically patents. Furthermore, own investigations have revealed that US companies are already much more aggressive in allocating patent protection than their European counterparts, not only on their home turf, but also in Europe (Fig. 4). Especially Anglo-American and Japanese entities serve as examples of predecessors that incorporated intellectual property rights into business activities. At the European Patent Office 75 % of patent applications and granted patents in the bank and (re-) insurance industries originate from companies in Anglo-Saxon countries like the United States, Canada, and Great Britain.

Fig. 4. Patent applications in the financial services industry sector in Europe

IV. Conclusions

As a conclusion, for enterprises that strive for sustainability it has become essential to support their factual protection strategies by legal ones, also taking into account the major current changes of where value creation is shifting to and takes place at, i.e. research and development activities on collaborative basis and support by service innovations.

A profound legal protection strategy defines clear responsibilities and is focused on the corporate strategy of the enterprise. Relevant questions that have to be addressed by it are:

- Where are the relevant and interesting future markets?
- What are the core competences of the company?
- How and by what means shall value creation be generated in the future?
- What are the key factual elements in the value chain with real impact on the company's earnings?
- How and by what legal protection means can these key factual elements get strengthened?
- How and by what means shall intellectual property rights get enforced?
- Who shall drive the internal legal protection strategy process and its implementation within the company?
- How can the sensitiveness for legal protection opportunities get increased within the company?

Companies that are looking to take initiatives and seize the opportunities presented by service innovations should first obtain some advice as, in general, technologies are characterized by too few patents and too many trade secrets, little understanding of technology-

related business models, and only a few success stories to demonstrate feasibility. In an emerging industry sector an exertion of legal protection means cannot be executed in an expedited manner, as sustainability and cultural factors inside the firm will play determining roles in the success of an intellectual property management program to boost factual protection.

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Reasons to be cheerful?

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Economics is sometimes called „the dismal science“ because for many years all it predicted was doom. Malthus showed that with exponential growth of populations and linear growth of food production, total misery should have been our lot today. Ricardo showed that with perfect competition it was impossible to make a profit because all income would be squandered on worker's wages. [These statements are exaggerations, and you will encounter more such statements in the rest of this paper].

However, Malthus, Ricardo, and their like assumed that productivity (of labour or resources) was constant. This was shown to be wrong as long ago as Adam Smith, who indicated that man's ingenuity and self interest would result in increased efficiency of allocation of

resources (e.g. „globalisation“) and increased efficiency in the means of production, with increased wealth for all. In 1820 ~80 % of the world's population lived on a wage of less than \$1 a day (at 1985 prices) – by 1992 this had reduced to ~20 % – perhaps Adam Smith was right.

For many years economists have treated technological change as an „exogenous“ variable. This means that they assumed that technological change occurred at a constant rate and that economies simply reflected that change, but had no feedback affecting that change. These economists also tended to assume that the rate of technological change was the same across all countries. With such unrealistic assumptions it is surprising that they managed to make any worthwhile predictions at all.