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Intellectual property rights in Europe – where do we stand and where should we go?

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EXECUTIVE SUMMARY

Intellectual property rights (IPRs) have recently been subject to numerous, sometimes highly controversial debates in Europe. An arcane technical matter prior to the 1990s, the design of IPR systems now attracts attention, not only among the users of the respective IPR systems, but also more broadly among the citizens of Europe. It is generally accepted that IPRs can play an important role for fostering innovation, but the design choices for IPR systems remain contested. Some of the renewed interest is created by the perception that over the last decades, the IPR systems have strengthened the position of rights owners over those of the users of protected subject matter. This chapter argues that this perception is at least partly correct. In the field of copyright, technical and legal developments have contributed to a shift of control towards commercial content providers. In the area of patent rights, changes in the behavior of applicants have led to strong increases in the demand for patent protection, coupled with some signs of quality deterioration in the patent system. While Europe may have fared relatively well when compared to the US, problems are emerging in the EU as well. From an economic perspective, there is a need for harmonizing European administrative and legal practices in the area of IPRs while increasing the quality standards used in these system. Moreover, a new balance between the owners of rights and users of the protected subject matter needs to be found in many fields.

1 THE ASCENDENCY OF INTELLECTUAL PROPERTY

1.1 The Role of Intellectual Property in the Knowledge Economy

With its Lisbon Agenda, the European Union has developed a future vision of a region focusing on learning and innovation in order to maintain high levels of productivity and wealth. To achieve these objectives, EU policies will need to foster innovation and encourage investments in new and more efficient products, processes and organizational routines. Intellectual property plays an important role in this vision, and in several areas, the EU has embarked on a course meant to strengthen rights that support innovation. But in the public, this course of action has met controversial reactions. From an economics perspective, some aspects of the past development give reason to call for a more cautious and balanced policy approach. This essay outlines a few areas in which controversies have been particularly strong, and where prudent policies are needed most urgently.

As tangible assets are losing their capacity of generating above-normal returns and as low-cost labor production is becoming widely available across the globe, many corporations are turning to intangible assets as a source of reliable competitive advantages. These assets include the quality of the workforce, innovative products and processes as well as new ways of organizing business activities and processes. Intellectual property rights (IPRs) refer to those intangible assets that are legally secured through some right which entitles the owner to exclusive use of the protected matter. The frequent use of the term "intellectual property" is relatively recent, although particular IPRs such as copyright and patent protection date back several centuries.

Frame 1 Intellectual Property Rights

Intellectual property rights (IPRs) refers to rights which bestow upon their owners the right to exclude other parties from the use of a particular intangible asset. IP rights include patents, copyrights, trademarks, trade secrets, industrial designs, databases and other types of rights. Particular laws delineate the exclusive rights bestowed upon the IPR owner. For example, the owner of a copyright may prevent other parties from copying a creative work such as a book or a photograph. The owner of a patent right may exclude other parties from using an invention that is described in the patent.

While the analysis and design of IPR rights and systems used to be an arcane, technical topic reserved for the attention of a few experts in most of the 20th century, recent developments have led to intense public debates and controversies as to how these rights should be designed. Examples of such controversies in Europe include the debates on copyright and Digital Rights Management (DRM) systems, on the protection of computer software through

patents and/or copyright, and the extent of patent protection for biotechnological inventions.

Such strong public attention has not been accorded to IPR issues since the time period between 1850 and 1875 when public debates in Europe focused on the question whether to introduce or maintain patent systems at all. That time period saw a number of policy reforms and experiments: for example, the Dutch government abandoned its patent system completely in 1869, only to reintroduce patents several decades later. Irrespective of the particular IPR type, the current debates have a number of common themes. They all focus on the balance between IPR owner rights and the rights of other parties. Moreover, as the TRIPS² agreement has increased the extent of international harmonization of IPR systems, the question as to which elements of IPR systems should be adopted and how they should be designed is also pertinent in many developing countries.

As in earlier periods, new technologies have been a major challenge for IPR laws and institutions. The advent of digital technologies and of biotechnological engineering have been such challenges. Partly as a response to these changes, the reach and scope of IPRs has been uniformly expanding over the last decades. New subject matter now falls under the protection of IPR rights, and some subject matter that was not covered by them in the past is now subject to protection as well. In many jurisdictions, the rights of IPR owners have been strengthened in comparison to the rights of other parties. Completely new IPRs (such as for database protection) have been devised. These changes have brought about a number of policy issues.

1.2 Important Policy Issues

Contrary to many claims, IPRs are not identical to property rights on physical property such as a house or a car, neither in terms of the law nor in terms of economics. From an economic perspective, all IPRs are *granted* by governments upon their owners for a limited time period – 20 years for patents, and 70 years (after the death of the creator) for copyrights.³ Such restrictions are unheard of for any other kind of property. Intellectual achievements covered by IPRs differ from other economic goods for a very important reason – consumption of the protected good is typically non-rival, and intellectual achievements have public goods characteristics. The knowledge protected by a particular patent could potentially benefit many citizens. Yet, if instant imitation were certain, little incentive for the costly creation of intellectual achievements would persist. IPRs

² For a detailed comment on the TRIPS agreement, see Reichmann (2000).

³ While trademark rights can theoretically be maintained forever, a maintenance fee has to be paid and without active use of the trademark, the right is revoked.

seek to strike a balance between giving incentives for those who can produce creative works and the societal benefits from using these creations. The basic principle of all major IPRs is to grant the IPR owner an exclusion right for a limited period of time. But this simple principle betrays the complexity of the system: for example, the breadth and scope of a patent as well as its temporal extension are determined not only by the particular IPR laws, but also by the administrative practices of IPR administrators, and by the intervention of courts which ultimately decide over infringement and validity of IPRs.

The *perpetual* question in the design of IPR systems is how to balance the position of the creator or inventor against the welfare gained by giving the public full access (under competitive supply) to the information, idea or creation protected by the IPR. IPRs that are as strong as possible for the owner are by definition harmful to society. A complete weakening of IPRs is equally likely to be harmful as the incentive function of having a temporary position of exclusive rights is no longer in effect. But the optimal balance between the two positions depends on many factors: technology, market parameters, technological opportunities for new inventions and creations, the availability of other incentive mechanisms and many more. Changes in technology may require changes in the design of IPR systems and institutions. These developments pose tremendous challenges to the existing institutions and organisations, such as patent, copyright and trademark offices, but also to policy-makers and the public at large.

The question of balance has become particularly critical with the clear success of alternative incentive systems, in particular the open source mode of software development. In the area of open source software, licenses that deliberately ensure positive externalities and little personal appropriation are in wide usage. Despite the lack of comprehensive and well defined property rights in the classical sense innovation in open source software seems to flourish. Excessively strong property rights – either patents or copyrights – may very well limit the degree to which innovative users, user communities and OSS development groups can contribute to innovation. Given the increasing importance of this source of creativity, European policy-makers need to assess the ramifications of IPR design on these innovation processes that work very differently than the classical ones, but that contribute to productivity growth. This question has played a prominent role in the public discussion regarding the EU Commission's proposal for a Directive on Patent Protection for Computer-Implemented Inventions.

From an economics point of view, a system in which an IPR could be tailored to a specific context would have many advantages. The balance between the countervailing costs and benefits of IPRs could be tuned very precisely to the economic context. But the notion of many specific IPR types runs into one major

objection – the cost of complexity. These are often very hard to quantify, but they need to be considered before embarking on a plan to fine-tune IPRs for the respective purpose. Concrete proposals are available, e.g. for the introduction of a European utility model patent, a registration right similar to the German *Gebrauchsmuster*. In the course of the debate on software patents, some proposals foresee the introduction of a *sui generis* right for software which would avoid some of the disfunctionalities of either copyright or patents. And with its Database Directive, the EU introduced in 1996 a completely new form of protection for database compilations (even those that were not in any sense innovative or creative, but merely required effort). Such alternatives need to be explored – but with the aforementioned issue of complexity and its costs in mind, and with particular attention to convincing evidence that there is an overall economic effect in favor of innovation.

2 IPRS IN EUROPE – STATUS QUO AND RECENT DEVELOPMENTS

2.1 Patents

Patent systems are under pressure - not just in Europe, but in other countries as well. As in the US, both patent applications and patent grants at the EPO have increased much faster than R&D inputs in OECD countries.⁴ From 1990 to 2000, EPO patent applications grew from 70,955 to 145,241 (an average growth rate of 7.4 per cent per annum) while OECD R&D inputs (in 1995 real terms) increased from \$398 to \$555 billion which reflects an average annual growth of 3.4 per cent. The actual grant rate (the share of patent applications leading to a patent grant) remained almost constant at about 65 percent for patents with application years from 1978 to 1995.⁵

Some of the welfare consequences of these developments have been discussed in a report prepared by the US Federal Trade Commission (FTC 2003). The report comes to the devastating conclusion that patents have become obstacles to innovation in some sectors. Given the prospect of such effects, it is not surprising that patent system reform has appeared prominently on the public policy agenda in the US. Several other advisory panels have also recommended changes to the US patent system. A major academic study was produced by the National Academies (2003), recommending changes in examination and post-examination stages of the patenting process as well as in the patent litigation

⁴ OECD R&D expenditures are chosen as the comparison index since OECD country R&D composition roughly mimicks the applicant composition at the EPO).

⁵ See Harhoff and Wagner (2005). Some observers have interpreted this figure as an indicator of a rather selective examination process when compared to the USPTO (Quillen et. al. 2002).

system. The US Patent and Trademark Office (2003) has developed a *Strategic Plan* to deal with the challenges, and the American Intellectual Property Law Association (2004) has come up with its own set of recommendations. In their call for patent reform, these organizations have been joined by a number of large corporations and SMEs.

Given the current US debate and the similarity in application growth, some questions come to mind immediately. Has the quality of applications submitted decreased with the increase in the absolute number of applications? Has the European patent system become too permissive in the sense that the EPO has issued “too many” patent grants? These questions are notoriously difficult to answer, but some indicators have been seen as signals of diminishing quality and of strategic patenting behavior. One indicator is the number of claims which can be seen as a measure of patent complexity. The number of claims is also an important determinant of patent office workload. As examiners have to assess patent applications with particular attention to the claims, additional claims add to the examiner’s work effort and have been shown to increase pendencies. Complex claim structures can also be used to pursue strategic objectives.⁶

There is also growing concern that the incoming patent applications contain more claims that are of marginal quality. Indeed, as the search reports prepared by the EPO reveal, the share of questionable claims in patent applications has been increasing as well. Comprehensive explanations of these developments are still missing. But a first set of answers is emerging. Applicants, in the US as well as in Europe, do not seek to maximize the social returns to innovation – they are motivated by private concerns. Hall and Ziedonis (2001) have interpreted the rise in patent applications in the semiconductor industry as an arms race in which all parties seek to amass a large portfolio of patents which can be used in court if any of their rivals choose to attack. Filing one more low-quality patent application may be a rational response in an environment where everybody else is doing so, even if the additional patent is not meant to protect products or processes used by the enterprise. Heller and Eisenberg (1998) show that badly delineated, overlapping patent rights can cause problems because patent owners can block each other’s research. These and other effects are still being analyzed empirically. Leaving aside the deeper reasons for changing applicant behavior, it is clear that patent applicants in Europe also have changed their patenting behavior. In the course of these changes, EPO patent applications have become more complex, and claims have had lower quality than in the past. A potential explanation for such behavior could be that applicants had to use more complex claim structures in order to manoeuvre in the increasingly

⁶ Some recent WO publications contain more than 10,000 claims. Whatever the specific motivation of the applicants, “claim flooding” should be considered an abuse of the system. But currently (and in particular under the PCT), patent offices can do little to counter dysfunctional applicant behavior of this type.

crowded patent space. But by doing so, they may have inadvertently initiated a vicious circle of declining quality and increasing quantity.

Patent offices have shown different responses to the challenge of increasing workloads. The USPTO appears to have focused on fast processing of patents and on "patent-granting." The EPO has allowed longer pendencies to occur, but it is now under increasing pressure to reduce these, even in the face of increasing application numbers. As pressure has increased to cut down on the backlogs of applications, the criteria by which patents have been evaluated in Europe may have slipped, giving even greater incentives to applicants for filing additional applications. Applications are becoming even more complex and contain more claims which are inserted in order to maintain options in an increasingly complex environment. A vicious cycle of deteriorating quality appears to have been the consequence of this development. Patent examiners as well as practitioners in patent departments are complaining about their increasing workloads nowadays.

It is conceivable that this dynamic could have been stopped or decelerated by a reduction in grant rates, but at the EPO, the grant rate has remained constant even in the face of strongly increasing application numbers and falling application quality. If the quality of patent applications has been decreasing, why should patent grant rates have remained at the same, roughly constant level? While some national offices have reduced their grant rates, the current institutional framework at the European Patent Office is presumably more conducive to support a pro-quantity rather than a pro-quality policy. EPC member nations are represented in the Administrative Council of the EPO which is the institution's highest decision-making body. The Council has to approve major policy changes that affect, for example, the fee structure, search and examination policies, and the office's budget. Incentives favoring a *pro-quantity* policy may come into the play, since EPC member nations (respectively, their national offices) receive half of the renewal fees for EPO granted patents in the respective designated country.

2.2 Copyright

The term copyright describes exclusive rights which regulate the use of a particular expression of an idea or information. Historically, this right literally applied to book-printing. Copyright may nowadays cover "works" such as all forms of literary creation, paintings, drawings, sculptures, photographs, software, radio and TV broadcasts. Copyright is meant to protect the expression of ideas, not the ideas themselves. Nor is it supposed to cover concepts, facts, styles or techniques. All of these may however be expressed in copyrighted works. While the Paris Convention led to a first harmonization of patent law, a

similar development occurred with respect to copyrights with the 1886 Berne Convention. Under this convention, a registration of creative works is not necessary for the right to become valid. In the signatory states of the Berne Convention, foreign authors were accorded the same rights as domestic creators.⁷

In Europe, a major step towards greater harmonization was already reached in 1993 with the European Union copyright directive. This directive harmonized the duration for copyright protection to 70 years (after the death of the author or creator). This choice exceeded the duration in the Berne Convention. The directive also restored retroactively copyrights that had already lapsed into the public domain. In this regard, the directive strongly favored the rights of content producers relative to those of users.

The EU Directive 2001/29/EC of the European Parliament and of the Council of May 22nd 2001 on the harmonisation of certain aspects of copyright and related rights in the information society marked the next step in European harmonization. The Directive was the European implementation of the 1996 WIPO Copyright Treaty. Widely known as the EU Copyright Directive, this legislation was again subject to broad and controversial public discussion. The Directive provides for strong copyright protection and also requires EU member countries to implement legal protection for Digital Rights Management (DRM) techniques. The implementation of the Directive into national law is still an ongoing process in a number of member countries, such as Germany and France. In Finland, the 2005 amendment to the Finnish Copyright Act and Penal Code was accepted by the Finnish Parliament and became active on Jan. 1st, 2006. These debates have also focused on questions of "fair use". In many countries, copyright law is accompanied by doctrines exempting certain uses of the copyrighted work from protection. The justification for these exemptions lies in the fact that excessive copyright protection can in principle be used to stifle civil liberties such as the right to free speech. "Fair use" is for example applicable when a critic of some literary work cites passages in order to comment upon the work itself. The Directive leaves EU member countries considerable leeway in defining other types of "fair use".

The arrival of new digital recording and transmission technologies has been the main driver of changes in copyright law. The act of copying occurs on any computer or the internet many times. Copies can be made with no loss of quality, and at low cost. This development would suggest that the balance between rights owners and users of copyrighted works should have shifted to the latter group. But new technological developments allow for digital rights

⁷ Contrary to the Paris Convention, however, the Berne Convention was not signed by the US until 1989.

management that makes the use of existing copyright and contract law much more powerful. Simultaneously an increasing fraction of copyright protected content is provided via digital media which allows in principle for unlimited copies at almost no costs and without loss of quality. However, Digital Rights Management (DRM) – made possible by means of technology routines and enforcing law (such as the Digital Millennium Copyright Act (DMCA) and the EU Directive 2001/29 EG) – can nowadays effectively limit the production and distribution of copies. DRM systems may therefore strengthen the appropriation of returns to the creation of digital products and services, thus enhancing the incentives for innovation by commercially oriented parties.

Since the combination of DRM technology, copyright and contract law could effectively restrict or even stop public access to useful information, innovation from outside and particularly from non-commercial innovators could slow down or cease completely. Furthermore, digital products and services are often associated with positive network externalities that may lead to the creation of natural monopolies. Excessive application of Digital Rights Management threatens to lock out other potential innovators, such as small firms, developing users and complementary asset owners, thereby reducing potential competition for monopolists and reducing the incentives for innovation in the area of digital products and services. This may pose difficult questions for competition policy in the EU. Finding the right balance between the innovation incentives of the potential contributors is a difficult policy task, in particular since there are very few economic assessments of the social costs and benefits of copyright protection.

2.3 Other Types of IPRs

While this discussion focuses on copyright and patent protection, other realms of IP have seen controversial debates as well. One important case has been the protection of databases where the EU took the unusual step of introducing a completely new form of IPR with its DIRECTIVE 96/9/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 March 1996. This step had not been accompanied by thorough debate, and many observers continue to consider the hasty adoption of database protection unwanted. There is no empirical evidence to date that would suggest a positive impact of the Directive on database production activities.

Trademarks and industrial designs can be considered an area where European harmonization has been quite successful, even if a complex parallel world of national, European and international systems continues to exist. Trademarks rarely appear in public policy discussions as they do not constitute particular problems for competition and innovation policy. Starting with Council Regulation

No 40/94 of 20.12.1993, the European Union established the Community Trade Mark Right (CTMR) which gives its proprietor a uniform right applicable in all Member States of the European Union. It also established the Office of Harmonization for the Internal Market (OHIM) as the central registration office for the CTMR. For trademarks, rights owners have access to a harmonized court system with a court of First Instance and a final instance for appeals. OHIM is also the registration office for (since 2001) unregistered and (since 2003) registered design rights in the EU which have been harmonized as well.⁸

3 SPECIFIC PUBLIC POLICY ISSUES AND OPPORTUNITIES

3.1 Patenting Costs and Harmonization

Patenting costs in Europe have been a major policy concern for some time. While estimates vary somewhat, the cost of applying for and maintaining a patent in seven European countries is between 3 and 5 times higher than the comparable cost of patenting in Japan and the US. The lion's share of the cost differential is accounted for by translation, since the patent owner has to provide a translated patent document whenever the patent is validated in an EPC signatory state. While large corporations will be able to shoulder these costs, SMEs are possibly disadvantaged. It is important to note that the high costs put non-European SMEs seeking patent protection in Europe at the same disadvantage as European SMEs.

A number of policy proposals have addressed the cost issue, among them the Community Patent (see Frame 2) and the London Protocol (see Frame 3). In both cases, problems for the proposals have emerged again out of language issues. EU member states have been extremely reluctant to agree to a proposal according to which foreign nationals can file patents covering their country in a language other than the national one. For this and additional reasons, the Community Patent initiative has essentially failed. In a recent communication, the European Commission announced that it is now supporting the London Protocol and the European Patent Litigation Agreement (EPLA). Prospects for the full implementation of the London Agreement look promising at this point.

⁸ See <http://oami.europa.eu/en/default.htm> for more details on both types of intellectual property rights and on the institutional evolution of the OHIM.

Frame 2 The Community Patent

The **Community Patent** was proposed by the European Commission as early as 1974. Contrary to the bundle patent granted by the EPO which is only valid in the EPC country for which protection is requested, the Community Patent was to be a legal title in all EU member countries. Its validity would be subject to a harmonised European court system whereas validity and infringement of EPO-granted patents are subject to national laws and court systems. As the Community Patent was supposed to be translated into a limited number of languages only, a substantial cost reduction effect would emerge. In March of 2003, the Council reached an agreement on critical choices regarding the Community Patent, but translation issues – both for the publication of the patent document as well as for litigation proceedings – remained controversial among EU member countries. As the conflicting views could not be resolved, the Commission finally gave up its immediate efforts to establish the Community Patent in May of 2004. In September of 2006, after having initiated a new consultation on IPR issues, the Commission announced that it would support the London Protocol which had long been viewed as a competing proposal.

The London Protocol is the second major proposal. As the Community Patent initiative, it would lower the cost of patenting in Europe. By doing so, it will make patents more affordable for SMEs and independent inventors. This effect is welcome and beneficial. But it will also enhance the overall demand for patents, and it will lead to further increases in the overall number of applications filed with the EPO. Given the extent of the cost reduction, a notable increase in the number of patent filings at the EPO can be expected. Considering the concerns that exist already, it is all the more important to address quality issues quickly and to counteract abusive filing strategies.

Frame 3 The London Protocol⁹

The **London Protocol** is based on Article 65 of the European Patent Convention (EPC) which allows member states to waive certain translation requirements. It is an optional protocol that will become effective once eight signatory states – including Germany, the UK and France - have ratified it or accede to it. In July of 2006, ten states had approved the protocol – Denmark, Germany, Iceland, Latvia, Monaco, Slovenia, Switzerland, the Netherlands, Sweden and the UK. The French National Assembly and the French Senate have recommended the ratification of the London Protocol.

Countries which become signatory states to the London Agreement waive the requirement that European patents have to be filed in their national language. That means that patents can be validated in EPC countries which have agreed to the London Protocol even if there are not translated into the respective national language. In case of patent litigation, a translation into the national language has to be provided by the patent holder. In its recent communication COM(2006) 502 the Commission has embraced the London Agreement while maintaining the objective of a Community Patent in the long run.

⁹ See http://www.european-patent-office.org/epo/pubs/oj001/12_01/12_5491.pdf.

3.2 Courts and Litigation Systems

The future design of IPR litigation systems assumes an important role for the efficiency of IPR systems. Litigation cases are rare though their frequency has been increasing lately, in particular in the US. But these rare cases of legal controversy are important because the court rulings emanating from these instances guide patent offices, applicants and third parties w.r.t important decisions, for example on examination, infringement and patent filing strategies.

Frame 4 The European Patent Litigation Agreement (EPLA)¹⁰

The EPLA is a proposed optional agreement and foresees the establishment of a new international organisation, the European Patent Judiciary (EPJ). The EPJ would have as its organs the European Patent Court (with a Court of First Instance and a Court of Appeals) and the Administrative Committee. The Court of First Instance will be comprised of a Central Division at the seat of the EPJ and a number of Regional Divisions set up by the contracting states. Typically, there will be one Regional Division per country, in larger countries up to three Regional Divisions. The system will adopt the EPO's language regime, i.e. cases at Regional Divisions will typically be heard in the respective national language while cases at the Central Division will be heard in one of the three official languages of the EPO (English, French, German). Cases will be heard by panels of three or five judges, with at least one judge being technically qualified and at least two judges being legally qualified.

A badly designed litigation system may encourage extortionary practices, again counteracting the intended positive effects of IPRs. The best IPR court and litigation system should resolve cases fast and at low cost; it should create as few opportunities as possible for influencing rivals' costs of litigation (e.g. by use of mechanisms like discovery of evidence); it should seek to bring the required expertise (in many cases that means technical knowledge) into the judges chambers; and its cost allocation rules need to lower the risk that frivolous litigation is instigated by cash-rich parties against financially less well-off opponents. The EPLA takes a number of these concerns into account and has broad support among practitioners and users. But further design decisions need to be made. Currently, the variety and heterogeneity of European legal institutions is a burden. But it is also a rich pool of ideas. European policy-makers should study the existing national institutions well in order to determine best-practice and best-design cases. Such an approach should be preferred over a top-down rendering of a new court system. A careful and fact-based approach to these questions is all the more important since the creation of a harmonized patent litigation environment will also immediately revive the controversial debates surrounding patent protection for software (or: computer-implemented inventions) as well as for bioscientific inventions.

¹⁰ See <http://www.european-patent-office.org/epo/epla/pdf/ewl0510.pdf>.

3.3 Standardization and IPRs

Standardization has emerged as an important policy area over the last five years. In the area of ITC, the diffusion of new products and services is increasingly dependent on interoperability. Standard-setting is currently mostly undertaken as a cooperative process among the interested players in an industry. Standards often build on technical elements which are covered by patents. These are brought into initial consultations at standard-setting institutions such as ETSI (European Telecommunications Standards Institute). Participants in these discussions can reveal their IP and have it declared as essential. Prior to the adoption of some of the essential patents in the standard, the IPR owners typically declare that they will grant FRAND (free, reasonable and non-discriminatory) licenses once the standard is enacted. In a number of pending court cases, the exact nature of the FRAND commitment is subject to legal controversy. New approaches to the licensing process are being discussed in the ICT industry, such as patent pools, which might in the future be used to avoid legal controversies and – as alleged by some – the abuse of the process in a hold-up-like situation. The discussion also centers on the question how statutory (non-voluntary) licensing should be performed if courts or the Commission is asked to impose licensing conditions on these transactions in order to delineate the diverging interests of the corporations involved.

3.4 Emerging Markets for Technology and IPRs

Traditionally, technical knowledge and ideas have been hard to transfer in organized, liquid markets. The reasons for this finding have been much discussed and are generally recognized. Knowledge is idiosyncratic and hard to evaluate on an objective basis; its value may depend on a large number of complementary assets in the hand of different individuals; and most importantly, asymmetric information between those offering technical knowledge or IP and those seeking the information or asset is likely to make market transactions very difficult. The creation of high-quality IPRs can support the emergence of markets for technologies. Recently, several private equity backed funds have been initiated in Europe which purchase IPRs and combine them to valuable portfolios that can be sold or licensed to potential users. IPRs have been used in some cases as collateral for loans to SMEs. The emergence of new financial intermediaries and financing mechanisms is encouraging. The collateralization of patent portfolios is particularly interesting as it might support SME financing of innovation activities.

4 WHERE SHOULD WE GO? – THE NEED FOR A EUROPEAN IPR POLICY

There are three major challenges to the future design of European IPR policies. The first is **harmonization**. If the EU is to become a region in which innovation can be undertaken without being impeded by national barriers, there is a clear need for coming to truly European IPR policies and institutions. That includes harmonized interpretation of IPR laws, harmonized court proceedings and the introduction of legal institutions (final instance courts) which resolve cases that have been highly controversial. Progress will not be immediate in this field, as the necessary legal and institutional convergence is a time-consuming process. But with the EPLA (see Frame 4), a practical solution merging some of the best practices in Europe appears to be at hand.¹¹

A second important requirement is the focus on **balance**. The naive notion that more and stronger IPRs are always good for innovation has been refuted by scientists in empirical and theoretical work over the last decades. Balance in copyrights means that fair use rights of consumers have to be taken seriously. In an age of increasing importance of user-generated content, the public domain should be strengthened. Balance in the patent system may require to strengthen the position of follow-on inventors who build on earlier inventions. But it also means not to crowd out processes (such as open source software) which depend on a vibrant public domain which is not “burdened” by IPRs. Balance also means to avoid policy capture – IPRs can become the instrument of entrenchment in the hands of established players. Competition policy needs to analyze IPRs carefully in order to prevent their abuse quickly when it becomes apparent.

Third, IPRs that are awarded on the basis of an examination process should be of high **quality** in the sense that they create legal certainty, rather than uncertainty. European institutions, in particular the European Patent Office, should seek to grant high-quality patent rights which are based on tough standards for novelty and inventive step. Contrary to some reports, a transition to tougher standards is supported by many users of the system.¹² Cutting back on strategic patenting, abusive tactics and strategic manoeuvring by applicants would make the system more transparent and also support European SMEs. These are at a financial disadvantage when it comes to the buildup of strategic

¹¹ Harmonization beyond the EU is currently not a political desirability. In particular, as the US patent system continues to have major pathologies, Europe would lose, rather than gain from adopting the lower standards of the US institutions, for example, by recognizing US search reports and examination results.

¹² Cf. the results of the Commission’s Public Hearing of July 12, 2006. See http://ec.europa.eu/internal_market/indprop/docs/patent/hearing/preliminary_findings_en.pdf.

patent portfolios. The response should not be to cheapen the creation of strategic patent portfolio and patent thickets for all players, but to sanction and reduce those activities that are deemed harmful for innovation and competition. The demise of the US patent system should serve as a clear warning to European policy makers. A low-quality patent system with lax examination standards will create many more patents, but it is likely to become an impediment to innovation, as many US corporations are finding nowadays.¹³ A quality-oriented patent policy will be particularly important when the adoption of the London Protocol leads to a substantial lowering of the cost of patenting in Europe, as the demand for protection is likely to increase.

IPRs have a very important function, and without proper design of the European IPR system, innovation will suffer. Somewhat paradoxically, the greatest danger is not – at this point – that IPRs become too weak to support innovation. A far more serious concern at this point is that by strengthening IPRs in a naive fashion, the system becomes unbalanced. In that case, sequential innovation – in the field of creative works and inventions – may be deterred by overly strong and broad rights. In the area of copyright, a new balance between commercial and private, non-commercial interests needs to be sought. A free flow of ideas and information needs to be maintained in order for Europe to achieve its ambitious objectives in the field of innovation. In the area of patents, focus on quality and tough standards is required in order to thwart off increasing tendencies towards abuse of the system. Towards the improvement of both systems, it is helpful to recall that they are meant to serve the citizens of Europe at large, and not a particular group of stakeholders or users.

¹³ See the public statements of major US companies during a symposium at the University of California, Berkeley in 2004, in *Berkeley Law Technology Journal*, 19 (3). See Merges (1999) for an early analysis of problems in the US patent system.

REFERENCES

- American Intellectual Property Law Association (2004), "AIPLA Response to the October 2003 Federal Trade Commission Report: 'To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy.'" AIPLA: Washington, D.C.
- Federal Trade Commission (2003), *To Promote Innovation: The Proper Balance Of Competition And Patent Law And Policy*. Washington, DC: Government Printing Office.
- Hall, B. H. (2005), "Exploring the Patent Explosion," *Journal of Technology Transfer*, forthcoming.
- Hall, B. H. and D. Harhoff (2004), "Post Grant Review Systems at the U.S. Patent Office – Design Parameters and Expected Impact," *Berkeley Law Technology Journal*, 19 (3), 989-1016.
- Hall, B. H., and R. H. Ziedonis (2001), "The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979-1995." *Rand Journal of Economics* 32: 101-128.
- Harhoff, D. and S. Wagner (2005), "Modeling the Duration of Patent Examination at the European Patent Office," CEPR Discussio Paper No. 5283, Centre for Economic Policy Research, London.
- Heller, M. A. and R. S. Eisenberg (1998), "Can Patents Deter Innovation? The Anticommons in Biomedical Research." *Science* 698, May 1.
- Merges, R. P. (1999), "As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform." *Berkeley High Technology Law Journal* 14: 577-615.
- National Research Council, Board on Science, Technology, and Economic Policy (2004), *A Patent System for the 21st Century*. Washington, DC: National Academies Press.
- Quillen, C. D. , O. H. Webster, and R. Eichmann (2002). "Continuing Patent Applications and Performance of the U.S. Patent and Trademark Office – Extended." *The Federal Circuit Bar Journal* 12(1): 35-55
- Reichman, J. (2000), "The TRIPs Agreement Comes of Age: Conflict or Cooperation with the Developing Countries?," *Case Western Reserve Journal of International Law* 32:441-470.
- United States Patent and Trademark Office (2003), *21st Century Strategic Plan*. February 3, 2003. <http://www.uspto.gov/web/offices/com/strat21/index.htm>