A MEMORANDUM ON REMOVING BARRIERS FOR A BETTER USE OF IPR BY SMEs

A Report for the Directorate-General for Enterprise and Industry by an IPR Expert Group

June 2007

The innovation policy initiative PRO INNO Europe combines **analysis and benchmarking** of national and regional innovation policy performance with support for cooperation of national and regional innovation programmes and incentives for innovation agencies and other innovation stakeholders to implement joint actions. The initiative aspires to become the main European reference for innovation policy analysis and development throughout Europe and brings together over 200 **innovation policy makers and stakeholders** from 33 countries. Additional information on PRO INNO Europe is available on the Internet (www.proinno-europe.eu).

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Executive Summary

This report addresses current usage of Intellectual Property by Small and Medium Sized Enterprises (SMEs) in Europe. In so doing it refers both to Intellectual Property (IP) in the general sense of Intellectual Assets and formal legally enforceable Intellectual Property Rights (IPRs). The report is written on the premise that IP and IPRs are instruments for levering commercial value from creativity, innovation, and invention and that policy instruments can help SMEs make better use of these instruments.

Following a general introduction covering the origin of the report, the constitution of the Expert Group which created the report, the report looks at the context within which IP and IPRs are seen as important matters for the economic success of Europe in a competitive global economy where knowledge and its use is increasingly the single most important determinant of success.

The report recognises and identifies some ways in which SMEs can make use of IP and IPRs. These include partnerships with larger companies which are increasingly making use of collaborative innovation rather than relying solely on internal resources to drive their innovation.

Taking account of the distinction between IP and IPRs the report spends some time in looking at informal IP protection and management methods that are commonly used by the SMEs. Among such methods are trade secrets, various types of contracts and a range of other measures. More systematic use of these types of methods could be a way to overcome the barriers that prevent SMEs from using IPRs. For instance, they could be used as an initial way to familiarise SMEs with the importance of IP and the benefits from its use. In addition, they can provide a way to maximise the returns from innovation, if used as an auxiliary tool alongside the formal IPRs available. Indeed the report recognises that for any business no single form of IP or IPR is an exclusive tool and that a portfolio is likely to be of benefit.

The report gives a brief overview of the main forms of IPRs; patents, trade marks, designs and copyright. Given that there is a vast literature on the nature and use of patents the report says more about trade marks and designs as these may be of particular interest to SMEs.

In order to link the report with the expressed needs of the SME community the report looks at the results of feedback received during consultation with SMEs across a range of industries and businesses. From this it becomes clear that the needs and position of businesses are not homogenous and that “one size will not fit all”. Policy makers and executive bodies need to recognise this to target support in the most appropriate manner.

Within Europe there are already a number of support schemes and policies and the report includes a thorough review of these. This is important as the review indicates that not all activities result in the desired outcome, that instances of best practice are few and not sufficiently shared, and that there is a need for mechanisms to review and assess the effectiveness of support schemes on a regular basis.

Comparing the expressed needs and existing support schemes indicates where there are gaps in current provisions and also where Europe can learn from both the United States and Japan, the latter in particular having instituted an innovative and well resourced approach to helping SMEs to exploit innovation.

Taking these into account the report makes a number of recommendations in Chapter 7. These are grouped into:

Activities Supporting Innovation, Intellectual Assets, and Intellectual Property

In this group the report recommends that IP and IPRs are seen as integral to business planning and that the importance of intellectual assets to an SME are insufficiently understood as compared with our major competitors. Thus advisors and trainers also need to take this holistic approach. The report does not propose a single mechanism of support but recognises that which of the bodies (National Patent Offices, private firms, development agencies etc) are used depends on local circumstances and business/political culture. The important thing is that the body has expertise, is accessible, and its performance regularly reviewed.

Collaboration and Partnerships

The report recognises the new non-linear model of innovation and thus emphasises the need for encouraging and enabling innovation partnerships. These can be between SMEs themselves, SMEs and larger firms, or either of these with publicly funded research, including that at universities. Again, no single model is proposed given the environments for research funding and ownership across EU Member States. In the same spirit, the report recommends that support is better delivered locally – nationally or regionally according the circumstance, but that sharing of best practice be structured across the member States. In this context the report repeats its recommendation that IP and IPR support services are integrated with general business support. The report especially recommends that current partnerships involving member states National Patent Offices, EU institutions such as OHIM, and the European patent Office need to be rationalised and duplication and inefficiency removed.

IP Operations and the Legal Framework

The report supports and re-emphasises the importance of moves to simplify the patenting regime in Europe. Costs of translations and diversity of enforcement regimes act against the attraction for SMEs to make full use of the IP regimes. The report does not see that strengthening the European dimension damages the importance of national provision. Rather the opportunity exists to bring these into mutually supportive roles and contributions.

Cost Aspects of Rights and Rights Acquisition

The report recognises that lower entry costs are available in some countries but does not consider that evidence of the economic effectiveness of such regimes justifies recommending this as a universal policy instrument. The costs of litigation, even under a reformed European system, are still likely to be high for SMEs and the report

recommends that work on the effectiveness of insurance be completed and assessed and that other simplifying measures, e.g. pre-litigation advice and alternative dispute resolution, be encouraged.

Other Financial Aspects

Here the report looks at arguments for changes in tax regimes but makes no recommendations given the national competences of member stets in this highly significant political area.

Thus in general terms the report addresses areas where legal instruments can be altered to make European IPRs more accessible to SMEs, such as greater simplification for the requirements for patenting in Europe and reducing the costs of translations and litigation and harmonising the results of litigation. The other theme is simplifying the delivery of support for SMEs in recognition of the limited resources, including time, available to SMEs when dealing with government agencies. The recommendations also emphasise that IP and IPRs are not stand-alone or add-on topics but are core to business planning and this has implication for the education and training of today's and future innovators. Overall, it is important to make a clear linkage between the rapidly evolving business environment and IPR regime.

This report will not close the topic and cannot address all the issues which affect the performance of businesses in an intensely competitive innovative world economy. A few other issues are identified (e.g. technology transfer) but not further investigated. This is in part because such issues are being dealt with elsewhere and also because the report seeks to maintain its focus and not be diluted by seeking to cover too wide an agenda. And innovation is a very wide agenda.

Introduction

This report is the fourth block of work commissioned by the Directorate General for Enterprise and Industry of the European Commission (ENTR IPR), and brings together the first three blocks which were:

- an external statistical report on IPR usage by SMEs (UNU-MERIT, included as Annex 1);
- sector panels under the Europe INNOVA initiative which provided business views on barriers to usage[1] covered in Chapter 2;
- a benchmarking study on current IPR support services – covered in Chapter 4;
- a study on the SME use of informal IP protection and management methods – covered in Chapter 4.

Building on the work of these first blocks, the report aims to support policy development relating to activities which enable SMEs to manage and utilise Intellectual Property (intellectual assets) (IP) and Intellectual Property Rights (IPRs) more effectively. In so doing attention has to be paid to:

- which policy instruments are most effective;
- how support and advice is best delivered;
- best modes of collaboration, and division of labour between Member States, the European Union and Commission, and the European Patent Organisation;
- issues that have to be dealt with elsewhere, such as licensing facilitating technology transfer, litigation insurance, and changes to taxation regimes.

The key contribution of the Expert Group which prepared this report is to provide a state-of-the-art picture of existing services, the take-up by SMEs, and the needs for IP support. The Group comprised:

- Ron Marchant (chairman) - former Chief Executive, the UK Patent Office (now the UK Intellectual Property Office);
- Anthony Arundel, MERIT – University of Maastricht;
- Alfred Radauer - Senior Researcher, KMU FORSCHUNG AUSTRIA, (Austrian Institute for SME Research) ;
- Havva Coskun – Head of Consulting of technology-oriented Enterprises, AGIT mbH - Aachener Gesellschaft für Innovation und Technologietransfer (German patent service for SMEs);
- Jako Eleveld - Senior Director, Philips Intellectual Property & Standards;
- Dr Jari Kuusisto - Director of Technology, SC-Research;
- Etienne Sanz de Acedo - Deputy Director of General Affairs & External Relations, Office for Harmonization in the Internal Market (OHIM).

[1] http://www.europe-innova.org/index.jsp?type=page&lg=en&classificationId=4962&classificationName=Innovation%20Panels&cid=5089

The Report addresses:

- the context in which Intellectual Property is relevant to the success of European SMEs. How best to use IP in order to maximise benefits from innovative activities;
- various IP strategies open to SMEs including informal IP measures such as first to market and secrets; the options for collaboration with larger companies; the possibilities of the various formal IP rights such as patents, trade marks, copyright and designs;
- the results of consultations with SMEs across a variety of sectors which indicate how different options and different rights meet perceived needs;
- examples of various forms of current European support across EU Member States;
- gaps between needs and services/frameworks provided or where confusion may exist because of overlaps or inconsistencies.

The Group then makes recommendations as to the way forward to address these gaps and meet the needs of SMEs more effectively across the whole of the European Union, thus strengthening the economic returns from increased European innovation.

The Group recognised that there are two important issues which they could not cover fully. The first issue is collaboration between universities (or other publicly funded research organisations) and business, which can meet the R&D needs of SMEs and the commercialisation needs of researchers.[2] The second issue is the cost of enforcement both within Europe and preventing counterfeiting and piracy. Work has been undertaken to look at costs of litigation and ways of simplifying enforcement.[3] DG Internal Market and Services has announced that there will be a study into possible initiatives and it should be remembered that WIPO is active in this filed, see http://www.wip.int/amc/en/center/index.html. Also the UK Intellectual Property Office has recently introduced a mediation scheme.

[2] See Commission Communication COM(2007) 182 final of 4.4.2007 on *Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation*

[3] The European Commission recently published a Communication called "Enhancing the patent system in Europe", drawing operational conclusions from a stakeholder consultation and allowing the Council to launch deliberations on patent reforms, in particular on the Community patent and jurisdictional arrangements. It addresses various supporting measures for an improved patent system, such as patent quality, knowledge transfer and enforcement issues. The Communication is available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0165:EN:NOT

Chapter 1 - Context

In today's global economy the success of European business and industry depends not only on creativity and inventiveness but also on the effective and profitable transposition of new products and services to the market. The Intellectual Property Rights (IPRs) systems are an essential tool for enabling business success based on innovation. These IPRs include patents, trade marks, designs, and copyright. Much attention has been paid to the role of patents for technological advance, perhaps too much so and at the expense of other forms of IP and IP Rights. Patents undoubtedly are of great importance in today's world of high technology and rapid technological advance. However, patent-holding companies often also have a portfolio of the other rights, such as trade marks, designs and copyright, to protect themselves fully. Also, many companies are based on non-technological innovation, such as service industries and the creative industries (music, film, software). These are increasingly important to Europe and may need little or nothing in the way of patent protection.

The importance of collaboration between EU Member States in the creation of a strong and open internal market with its underpinning IPR systems is demonstrated by the operations of the Office for the Harmonisation in the Internal Market (OHIM) that delivers EU-wide Trade Marks and Designs and also the European Patent Organisation, a non-EU body the majority of whose members are also EU Member States, that provides a bundle of national patents based on a single application. Industry has made it clear that the patent system needs reform to reduce costs and to move towards a single EU system.

The above applies to all sizes of business and a great deal of attention is being paid to the rising challenges presented due to globalization – especially by countries such as China, Korea, India, Brazil. In addition, European companies continue to face competition from the established economies of the USA and Japan. However, SMEs face particular problems as they rarely have the resources to address the issues unaided. The costs and complexity of the IPR system may cause SMEs to turn away and focus on more immediate issues of day to day running a business. SMEs cover the whole spectrum of economic sectors and are significant in the creative, services, and biotechnology sectors. Thus it is especially important to address all aspects of IPRs when addressing the barriers for these sectors.

Nearly every EU Member State looks to successful SMEs (fast-growing "gazelles") as a major engine of economic growth. It is therefore essential to ensure that SMEs are able to build an IPR strategy as an integral part of their business strategies, and to do this the regime must be easier to understand, more accessible, and less costly. For this to happen EU Member States have to help SMEs improve their awareness and understanding of IP and IPRs, ensuring that SMEs can access the sources which can provide awareness and understanding. SMEs face many demands on their resources and simply do not have the time to acquire the know-how and retain it in the way that larger companies are able. They need to buy in IP legal expertise, but they need to understand how best to do that.

There is little disagreement that government has a significant role to ensure that the portfolio of business support and advice includes IPRs. The market is unlikely to be able to address this alone.

This is not virgin territory. Much is already happening:

- business is applying for and using IPRs at both national and European level;
- there are many national and European support schemes.

However, the position can be further improved, we believe, by identifying:

- which policy instruments are most effective;
- how support and advice is best delivered;
- best modes of collaboration, and division of labour between Member States, the European Union and Commission, and the European Patent Organisation;
- issues that have to be dealt with elsewhere such as litigation insurance, technology transfer and licensing, and changes to the tax regimes.

Chapter 2 - The Views of Business: Panel Consultation Results

The DG Enterprise initiative (block 1 of ENTR IPR) identified SME's views on barriers to the effective use of IPR in June 2006. In addition, the Sectoral Innovation Panels under the Europe INNOVA initiative further explored the differences between sectors, including in the field of IPR.

Panel interviews were done by European Information Centres in 16 countries among 646 SMEs representing the following industries: automotive, biotechnology, ICT, space, textiles, eco-innovation and energy. The selection of sectors implies that so-called creative industries and business were not included despite the fact that they contribute significantly to European economic activity. The results show that there was a big variety in IPR-usage across sectors and between firms of different size. Not surprisingly R&D intensive sectors and bigger firms were more likely to use IPR-systems. Interestingly, when companies did use patents they usually seek to protect the large majority of their products). A striking result was as well that hardly any SMEs licensed the patents they had, or had even thought about it. The ones that have used licensing have gained considerable revenues.

Usually direct commercial cost-benefit analysis was a main aspect taken into account in decision-making, although company directors had difficulties in assessing value of their patents. Reasons mentioned by the investigated companies for using IP-protection were:

- exclusivity and protection from copying;
- competitive advantage;
- securing returns on R&D investments;
- increasing company value;
- raising image of company;
- licensing revenues;
- sometimes (by larger companies) hindering competitors to bring a new product in the market although this is not widespread.

Whilst the reasons for not using IP-protection were:

- long, complex and costly procedures;
- risk of disclosure of sensitive knowledge;
- potential difficulties in enforcement of IPRs;
- short life-cycle of products;
- lack of knowledge.

Patents and IPRs were not always portrayed as related to innovation. Some respondents perceived them as outcome of innovation, but others as potential obstacles to innovation. A few firms shared the notion that patents are for big companies and strengthening IPR would distort competition. Nonetheless, the majority was convinced that registered IPR ensured financial stability and higher revenues, thus motivating firms to pursue more innovation. In addition, a couple of companies treat IPR as a tool to fight with competition.

As part of the research, enterprises were asked to assess the functioning of IPR support services and identify what other support measures might potentially be taken. The SME-Panel results indicated that many SMEs were not aware of existing support services, or conceived them as not being adapted to their needs. For instance 25% of respondents in France were completely unaware of any government support, while only 15% knew a number of schemes. This finding that many IPR support services are not visible to their intended recipients is also in line with the findings of the Benchmarking exercise (block 3) and seems to be to a large extent related to the institutional set-up: IPR service providers are usually not the organisations which are well known for providing support (e.g., for R&D projects), but more often rather patent offices which SMEs would not associate with service provision.

Most of the SMEs were in favour of additional government assistance especially in form of:

- support in applying for IPRs;
- reduction of costs or financial support in meeting them;
- simplification and shortening of procedures;
- provision of information and services;
- better access to patent databases.

Innovation panels were conducted in seven sectors i.e. aerospace, automotive, ICT, biotechnology, eco-innovation, energy and textile. The results concerning IPR highlighted the differences between those areas.

- Automotive

In that sector IPR (especially design rights and patents) were considered as important and reliable cornerstones of innovation system as well as indicators of innovation success and promising innovation investments. Cross-licensing was quite important for the business.

- Biotechnology

Patents were seen there as sector's livelihood and investors' decisions depended strongly on establishing IPRs. However, the research sector was missing knowledge about the purpose of IPR due to a lack of understanding of strategic management and commercial interest. Therefore, it was suggested to encourage better management of (dormant) IPR.

- ICT

In ICT many products were covered by several IPR and it was stated that IPR conferred competitive advantage and facilitated cooperation in the sector. There was a high volume of cross-licensing that became a characteristic of that sector. This sector would welcome simplification of patenting system and reduced translation requirements (and attendant costs).

- Space

Many companies from space industry did not patent in order to protect their know-how and avoid informing competitors. Moreover, small batch production often did not warrant a patent, but spin-offs such as airbag were often protected.

- Textiles

As a result of fragmentation of the textile industry and short product lifecycle it was often economically unattractive to invest in protection of IPR. More R&D intensive textiles such as specialized clothing were protected more often. There was a call for new and non-conventional protection approaches, both technological and organisational, as well as raising awareness about the dangers of not protecting IPR. In Germany an increasing cross-licensing in this branch has been observed because of applications of textiles in the area of bio-materials, automotive and medicine.

- Eco-innovation

Innovation was done mainly in services[4] which led to little use of patents. Nevertheless, introduction of more technological innovation led to increasing role of patenting. It was mentioned that this expected increase of IPR protection (especially patents) could slow developments and cooperation between companies.

- Energy

IPR in that sector was not considered to be an important factor shaping innovation activities with exception of new technologies like fuel cells that would be usually patented. It was noted, though, that suppliers were strongly reliable on patents, which created a need for framework management of IPR.

[4] In developed economies services typically count for 70 per cent, or more, of the GDP, Since IPR system has been mainly evolved to cater the needs of the industrial manufacturing, a significant portion of innovative activity has limited use of the current IPR system.

Chapter 3 - .Ways of Using IP and IPRs and Managing Innovation

1. IPR Management

Large companies usually have their own IP department to manage their IP portfolios and to create new IP, although part of these tasks may be outsourced to external companies, or private practice firms. The IP portfolio of a company and the way it is used depends on several factors. If a company focuses on marketing and sales, it will usually have more attention for trademarks and designs, and less or none for patents. A strong R&D base usually leads to a patent portfolio to protect and exploit the R&D results. The IP portfolio further depends on the IP business model and the competitive environment, both of which relate to the sector of industry the company is in. As an example, electronics companies usually use IP for licensing and consequently have an extensive patent portfolio, while pharmaceutical companies generally have a smaller portfolio, more suited for protecting their own products in order to support exclusive market positions. In a conglomerate different parts may have different portfolios with different policies.

As with large companies, it is important for SMEs to develop an IP strategy as an integral part of their business strategy. A thorough understanding of the SMEs business model in relation to IP is therefore necessary. The business strategy of the SME may be such that the best option is not to apply for IPR protection, but it is important that such determination is well made in order to avoid missed opportunities, e.g. in licensing or attracting capital from investors, and to estimate the business risks caused by lack of protection. SMEs usually cannot afford their own IP department and often must rely on private practice firms and government support because their own expertise in the IP field is limited.

The knowledge economy further develops into a situation where more bundling and sharing of R&D capabilities (see e.g. http://www.miplaza.com/), more public-private cooperation, more investment in start-up companies and more technology/IP licensing becomes necessary in order for companies to get the complex products timely to the market against acceptable costs. In the words of Chesbrough[5]: 'Open Innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.'

For IP(R) this means that a market place is rapidly expanding for trade in technology and IP(R) where more and more companies become active to buy, sell and/or license technology and IP(R). The contacts and joint developments between companies, large and small, will increase significantly. Besides that some technology/IP will remain proprietary, more and more will be shared with other companies, against monetary or other compensation. It is important for players in this IP environment, including SMEs, to determine how to play the game: to protect what is theirs and to look out for new technology/IP to acquire or license-in. It also needs to be noted here that the knowledge economy is increasingly being based on the trade of intangibles, including IPRs themselves. Yet, a large share of intangibles can make only limited or no use of the current IPR-system at all. This means that the IPRs represent only the tip of the iceberg in the future of the IP management.

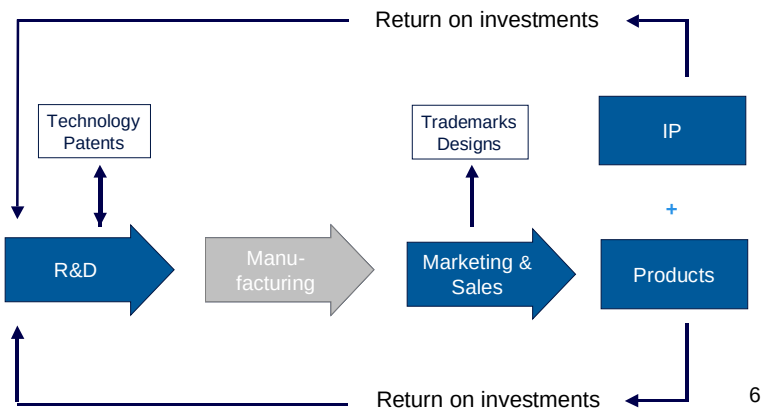
[5] Henry W. Chesbrough, "Open Innovation", Harvard School Business Press, 2003

At the same time as this growth in IP-based market behaviours some German SMEs are reported to have suggested that larger companies can seek to inhibit their entry into the market by opening infringement actions knowing that the SME does not have the resources to respond and hence may well simply withdraw or seek licensing agreements simply to avoid litigation rather than for business strategy reasons. The difficulties faced by SMEs seeking to enforce their IPRs are identified in "Enforcing Small Firms' Patent Rights" by W Kingston (2000)

2. Cooperation between Firms

Twenty or so years ago, most European companies made a return on their R&D investments by manufacturing and subsequent marketing and sales of their own products. However, since then, this changed profoundly. Mass production and miniaturization became a commodity in a lot of industries, creating more worldwide competition. All this led to lower margins and shorter product life cycles. To stay in business, production was then transferred to low wage countries. At the same time the costs of R&D increased due to increasing complexity of the products. So, it became much more difficult to earn those costs back by just manufacturing and selling products. It is in this changing environment where the business impact of IP(R) has increased significantly. Licensing and trading of technology and patents provide an additional and necessary return on the R&D investments, either directly by monetary income or indirectly by lower costs and/or higher margins. Trademarks and designs are generated by, and provide return on, investments in marketing & sales activities, usually by increasing product margins. Overall, industrial manufacturing and business in general have become much more complex phenomena. The core manufacturing process, or running of a retail outlet, represent only a fraction of the modern business concept which in itself can be seen as a complex techno-economic system. Ability to manage such complex systems effectively is among the key competitive advantages that the developed nations have. Besides core production functions it involves such key elements as: R&D, IP management, design, marketing and brand development, financing and ability to deliver complex solutions to the markets.

IP in business can be modelled as follows:



[6] Copyright Koninklijke Philips Electronics N.V.

Note that this model may be less applicable to some high-end industries where the manufacturing has not become a commodity.

Although IPRs are basically legal rights to exclude others from using the protected technology, trademark, design etc., pursuing an exclusive position over the competition is not the only way to make money out of IPR. Other common ways of getting value out of IPR are:

- licensing, whether for money or other types of compensation (e.g. a license back);
- use as consideration in a partnership or standardization;
- sale as part of a business or stand-alone;
- providing security for investors; or
- as defence against potentially blocking positions of competitors.

Chapter 4 - Some forms of IP and IPRs

1. Formal Intellectual Property Rights

What follows is an overview of the nature of formal and informal IP. There are many books aimed at the SME community which go into further detail and some of these are listed in Annex 2.

i. Design

Design is becoming increasingly important in the marketing of the product. It is partly the design aspect that makes it possible for a company to differentiate its products from those of the competition. Should the form and external configuration of the product play an important role in the identification or recognition of the brand, then it might be advantageous to protect.

A registered design is an exclusive right for the outward appearance of a product or part of it, resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation. The fact that the right is registered confers on the design great certainty should infringement occur. Europe also operates a system of unregistered design rights analogous in use to copyright. The United Kingdom also has a national system of unregistered design rights, and hence has a market which can be covered by four related rights.

The European Union founded the Office for the Harmonisation of the Internal Market (OHIM), initially to deal with Trade marks at the European level but from 2003 to deal with designs. Since April 2003, OHIM has received over a quarter of a million designs from countries across the world. 78% of these designs, a total of over 195,000, have come from European businesses, with Germany (24%), Italy (15%), France (8%), the UK (7%), and Spain (6%) making up the top five. USA-based businesses have filed around 9% of the total amount of designs received.

Despite these impressive figures of the Community Design (around 250 000 designs registered between April 2003 and December 2006) and of national registrations in some Member States like UK, France or Germany (around 180 000 designs registered during the same period in those three countries) many SMEs still do not protect their innovations through design registration either at National or Community level. There are many reasons for this insufficient protection, as evidenced by a company survey ordered in 2002 (prior to the launch of the Community Design) by OHIM with 2,500 firms, 75% of which were SMEs with less than 250 employees: Generally speaking, entrepreneurs explained that they do not protect all their designs by registration for several reasons, of roughly equal importance: “it will not benefit them in any way”, “the lifespan of designs is very short”, “the cost is high”, “designs are not innovative” and “it is not very profitable”.

59% of the companies surveyed protected their designs by registering them, with 22% registering all their designs and 37% only registering some of them. The main reason for protecting all designs was “to avoid being copied” (70%). In second place came “company policy” for the Spanish and German companies while “to get ahead of the competition” was the reason for the French, Italians and British businesses.

The criteria used by companies to choose which designs to be registered were “the design is innovative” (52%), “it is easy to copy” (21%) and “it is different from the competition’s design” (19%).

In any case, the factors that influence the decision to register are often a combination of external and internal factors.

Among the external factors we find, first of all, the costs of registration.[7] In some sectors, the protection offered through registration is limited. The designs are slightly changed, and can then be registered as if they were novel. Textile is one of the sectors where this often happens. It is suggested that registration, therefore, does not offer enough protection. Sometimes, the application process is too long and does not give the company the possibility to register the design before bringing it on the market.

The internal factors considered to be important often have to do with the design and the product to which it is applied. If the product has a very short product life cycle, then the protection is often not applied for, since the application process is too long, and will then not offer effective protection. Fashion is for instance one of those sectors that do not always apply for registration for that reason.

Furthermore, the novelty of the design also plays a role in this decision making process. If it is considered to be sufficiently new and original, one thinks of protecting it. In addition, if the product design is easily copied, also it is more likely to be protected through official/legal means. In particular in those countries where copying a design is not costly, it will be thought of to protect it through design registration. Moreover, if a large investment has been made in the design of a certain product, it is also more likely to be protected, in order to be able to make exclusive use of the design.

Besides product and design aspects, the company culture or attitude is important. Most large companies are well prepared for these matters. However, in smaller companies sometimes the awareness does not exist, nor the means to protect the designs.

Another reason for non protection and probably the easiest one has to do with communication. SMEs do not have a simple but clear knowledge about which tools are available to protect the appearance of a product. This is due to both

- the excess of non-properly coordinated dissemination channels, and
- the absence of an adapted message to SMEs.

EU Member States also provide national registration of Designs though usage levels tend to be low, with the exception of Germany. These systems have similar requirements to the OHIM system, though some will reject applications on so-called relative grounds (the mark exists already) whilst others follow the OHIM practice of not making this test. The UK has consulted and will be searching on the basis of relative grounds but not rejecting applications, moving this aspect to opposition proceedings.

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Fees for designs vary to type of application. There is a Fee Calculator available on the OHIM website at: http://oami.europa.eu/en/design/default.htm .

In terms of Community design registration, no substantive examination as to the acceptability of the design exists, and only formalities and public order issues are dealt with. This way of handling the files allows for a much quicker registration process, enabling right holders to obtain a registration certificate in less than two months. Being able to present this certificate before the Courts or Customs authorities is often the fastest and most effective way to stop parallel imports or counterfeit goods into the EU market place.

ii. Patents

Patents provide protection for up to 20 years for technological innovations, whether products or processes. EU Member States provide for national protection. EU Member States are members of the European Patent Organisation alongside non-Member States such as Switzerland, Iceland and Turkey. This organisation is a Treaty body under the European Patent Convention and not an EU body, though the EU attends meetings of its Administrative Council as an observer. The executive arm of the Organisation, the European Patent Office, grants a bundle of national patents which then have to be validated by translation in each of the Member States in which protection is desired. The Organisation is 30 years old and has been a great success attracting 200000 applications a year, about half from the USA and Japan. However, concerning costs, studies have shown that a European patent designating 13 countries is about 11 times more expensive than a US patent and 13 times more expensive then a Japanese patent if processing and translation costs are considered.[8]

Large firms seem more likely to apply for and use patents than SMEs. It is possible that this is because SMEs have less inventive innovations, though it seems even R&D intensive SMEs attach less importance to patents than large firms. It is difficult to assess use of EPO by SMEs though estimates range from 0.33 patents per year for SMEs to a maximum share of 24% of EPO totals. In countries identified as less developed innovative countries (Slovakia, Estonia, Portugal, Latvia, Czech Republic, Hungary, Lithuania, Greece, Romania, Bulgaria) SME share is about 80% of country totals. In more developed innovative countries (Germany, Belgium, Norway, Iceland, UK, and Spain) is about 47%. Research suggests that increasing SME patenting would result in an increase of SME share of 2% for innovative countries and by 6% for less innovative countries.

Member States still operate national systems though, with the exception of Germany, at a much reduced level as compared with usage before the opening of the EPO. These systems may include a substantial national searching and examining capacity or may commission the EPO to fulfil this function. However, the lower costs of national systems enable SMEs to obtain at least national protection – including perhaps national protection in a small number of countries deemed important to their business strategy, and may also provide easier access to a local Office using their own language. This issue may be mitigated by the use of patent attorneys who are familiar communicating in more than one language. It may be that such national coverage meets the needs of such business but this is not wholly consistent with the objectives of a single market open to all firms regardless of size. There is a good case for exploring the role of national offices in

[8] Please see Commission Communication COM(2007) 165 final on *Enhancing the Patent system in Europe,* Annex 1, for more details on cost of patenting.

Europe without sacrificing the real benefits gained by the creation of a single European patent granting authority. The objective would be synergy rather than competition.

iii. Utility Models

Many European countries provide a lower cost right which is usually restricted to products rather than processes. This right is analogous to a patent but has a shorter term and weaker coverage and is not examined for validity prior to grant. The lower costs involved in removing the examination requirement mean that disputes can only be resolved in the courts and incur costs at that stage. An initiative to harmonise such a right across Europe was not completed as industry did not see a need for a Europe-wide right.

iv. Trade Marks

Trade marks are available for goods and services basically to provide a mark enabling a company to assert the origin of its goods and services.

The Community trade mark is a single IP title offering trade mark protection on a unitary basis throughout the EU as a single territory. The right is obtained through a single registration procedure handled by OHIM and initially lasts for ten years from the date of filing. It can de renewed indefinitely for further periods of ten years upon payment of the appropriate renewal fee.

At present, almost 600,000 Community trade marks (CTMs) have been applied for since 1996, coming from businesses in over 200 countries worldwide. Applicants form the United States top the ranking of CTM filing countries, at around 21% of the total, though Germany is close behind on 16%. The European Union on the whole accounts for nearly 65% of all CTMs filed since 1996.

In terms of the profile of the typical CTM filer, over 80% of businesses using the system have filed under 5 marks in total, and 68% have filed only one. Though no specific data on the actual size of the firms filing CTMs is compiled by the OHIM, it is assumed that firms filing these relatively small numbers of applications are more than likely to be small to medium enterprises and not large industries.

Despite these figures, many SMEs choose not to apply for registered trademark protection, and a number of different reasons may contribute to this. Some SMEs mistakenly assume that other types of protection, such as patents, designs or utility models offer enough protection to make applying for a TM unnecessary, and others from countries taking a Common Law approach to trademark legislation may feel the continued use of the mark in trade will be enough to guarantee protection. There is also a possibility that many SMEs see their market as a national one rather than a European one and hence continue to concentrate on national systems. As with patents this thinking is not consistent with the policy to create a single market open and accessible to all, and usage of which is widely encouraged. Of course it must be recognised that many SMEs tend to operate on the local, rather than national, or international markets but it is also important that SMEs should be in a position to make an informed choice as to the extent of protection they seek.

In today's ever-expanding business community, the speed with which a trademark proceeds to registration is essential as it is the registration certificate itself on which any enforcement action will be based. Therefore another factor which may lead to a company deciding against registration of a trademark is the normally prolonged time it takes to get the final certificate issued. This can be a matter of years in many countries, though in some countries registration is advertised within a few months. At community level an unopposed CTM application can be expected to proceed to registration in around 13 months, compared to figures of over 24 months only a few years ago. The same is true of the time taken to complete the absolute grounds examination, and therefore the publication of the application, which now stands at only eight weeks for the majority of applications (62%).

A further important factor when considering to register a trade mark in the European Union is the financial cost involved and whether the protection obtained is cost-effective or not.[9] Community fees were reduced in 2005 to make the Community Trade Mark more financially accessible and to reflect more accurately the true costs involved for OHIM in managing the CTM registration system. In May 2007, the Council of the EU made a further attempt to reduce costs and called for urgent and immediate action to cut the application, registration and renewal fees in the near future. These proposals and their impact are the subject of discussion between Member States and the Commission. Despite this, some smaller companies, however, may still feel that trademark protection in general is too expensive for their budgets.

Finally the most daunting aspect of trademark proprietorship, especially for SMEs on limited budgets, is the prospect of having to defend the trademark rights in a court of law. This is a traditionally expensive and lengthy procedure, leading many firms to give up the fight at an early stage.

v. Copyright

Copyright is the right to prevent someone copying the expression of an idea. That idea may be expressed in the written word, a piece of music, or a work of art or film. The right, which in Europe does not have to be registered, does not protect the idea itself or use of individual aspects of the work such as characters from a book or film. Computer software is also protected by copyright in Europe. The right is owned by the creator or the employer but a contractor retains the right unless the contract expressly transfers the right of the person issuing the contract.

Infringement covers copying, translating, adapting, performance, distributing and broadcasting without the owner's agreement.

[9] The fees for a Community Trademark are:

- for filing a CTM application: €900 plus €150 for each class of goods and services which exceeds three
- for filing a CTM application by electronic means: €750 plus €150 for each class of goods and services which exceeds three
- for registering a CTM: €850 plus €150 for each class of goods and services exceeding three.

Copyright originated long before today's digital environment, though the Copyright Directive sought to bring this up to date. There are many who believe – as in the recent Gowers Report – that there is still a need to look at how effective the current regime is in the digital age and whether the current educational and other exemptions are still appropriate and sufficient. Equally, owners of copyright are concerned at the huge growth in activity relating to piracy, counterfeiting, and illicit copying and sharing. This report cannot fully address these wide and major issues in the time and resources available.

2. Informal Intellectual Property

A recent telephone survey of 300 UK and Finnish businesses reveals that informal IP management and protection methods are important also among those SMEs that are not making use of formal registrable IPRs (Kuusisto and Päällysaho, 2007). Naturally, the SME sector involves a very heterogeneous group of businesses that represent different sectors, business strategies, growth aspirations and varying degree of innovativeness. Common argument is that IP management and protection is not perceived as a very relevant issue by the SMEs. However, empirical research demonstrates that many SMEs have realised the value of their IP, and know how to manage their intangible assets. For these purposes, they employ a wide range of various methods that seek to protect their IP. For SMEs IPRs, however, represent only the 'tip of the iceberg' among the IP management and protection practices. Indeed, IPRs are often seen as unhelpful by many SMEs which typically rely more on informal practises. In fact, many small business owners seem to prefer informal protection practises to formal, legal methods. SMEs make use of a broad variety of informal IP protection activities, which often are simple, easy to control, cost effective and, to some extent, embedded in normal working practices within the business. Informal protection practises represent an extremely heterogeneous group of activities. Although the importance of informal IP protection practices has been clearly recognised, up to now there has been very limited knowledge on what these informal protection methods are, and how they are being utilised by the SMEs. Therefore the role and nature of informal IP protection methods represent an important field of research to be explored further.

The informal IP protection methods display a great variation in terms of their nature and purpose of use. Typically, these methods try to prevent the loss of key knowledge or restrict undesirable access to sensitive information either inside the firm or in external relations. Another key task of informal protection practices is to capture tacit knowledge, transform it to explicit knowledge and share this information and knowledge within the firm. This will decrease a firm's risks and dependence on individual employees. In addition, certain informal methods enable the protection of firm's tangible products, services or systems; these protection activities are often more technical by nature.

Summary of the most important informal protection methods

Informal protection practice	Rationale for IP protection
• Secrecy	• Key knowledge is kept secret either from some of the employees inside the firm and/or from external collaborators, such as business partners or customers.
• Restricted access to information	• The number of people who have the access to sensitive key information inside the business is restricted.
• Database and network protection	• Some of the employees are not allowed to access particular files or data bases.
• Confidentiality	• Many SMEs consider working with reliable partners to be more effective way of protecting IP than formalising partnership through detailed contracts. Confidential relationships also facilitate free discussion between parties. Employment contracts?
• Technical protection:	• Includes a number of instruments that can be used to protect IP. In software protection e.g. (1) coding or scrambling the information (encryption), (2) using security keys (dongles) or (3) converting a program (code obfuscation). Technical protection can also mean incorporation of specific identification codes e.g. in photographs or other documents.
• Division of duties or subcontracting	• Work tasks within the business are divided between employees so, that each employee controls only a fraction of the entity and none of them knows the overall concept of a new product or service.
• Circulation of staff between tasks	• Rotating staff from one task to another and naming deputies for employees can be used as a way to decrease the dependence on the key personnel. Problematic in small businesses where the key employee is often the sole expert in his/her own narrow field.
• Loyalty building among personnel	• Effective strategies to maintain staff loyalty are e.g. financial incentives, training opportunities or other occupational development related incentives. Different strategies can be used regardless of the sector and the size of the company.
• Client relationship management	• Effective client relationship management is particularly important in the service industry where innovations are often created in co-operation between customers and a service provider. Otherwise new insights may travel easily from one company to another when client relationship ends.
• Membership in professional organisation	• Membership in professional organisations can promote the protection of intellectual capital. Some organisations strive to supervise the IPRs of their members. This support may however be limited in nature.
• Publishing	• A new idea or working practice can be published and the initial developer of the idea will become known as the innovator. This may prevent copying the new ideas because imitation is seen unethical in the society. Publishing can also be used to prevent other businesses from claiming patents in the same area. In this area, of course, copyright applies. An example is the IBM technical disclosures

Informal IP protection methods can be seen as a way to protect the business against internal and external risks. Internal risks include, for instance, loss of key-employee(s) due to recruitment by a competitor, or because of an illness (methods like documentation, circulating tasks). Some methods can shelter the business against external risks, such as harmful exploitation of new ideas by competitors (methods like technical protection, fast innovation cycle and secrecy). In addition, some methods are

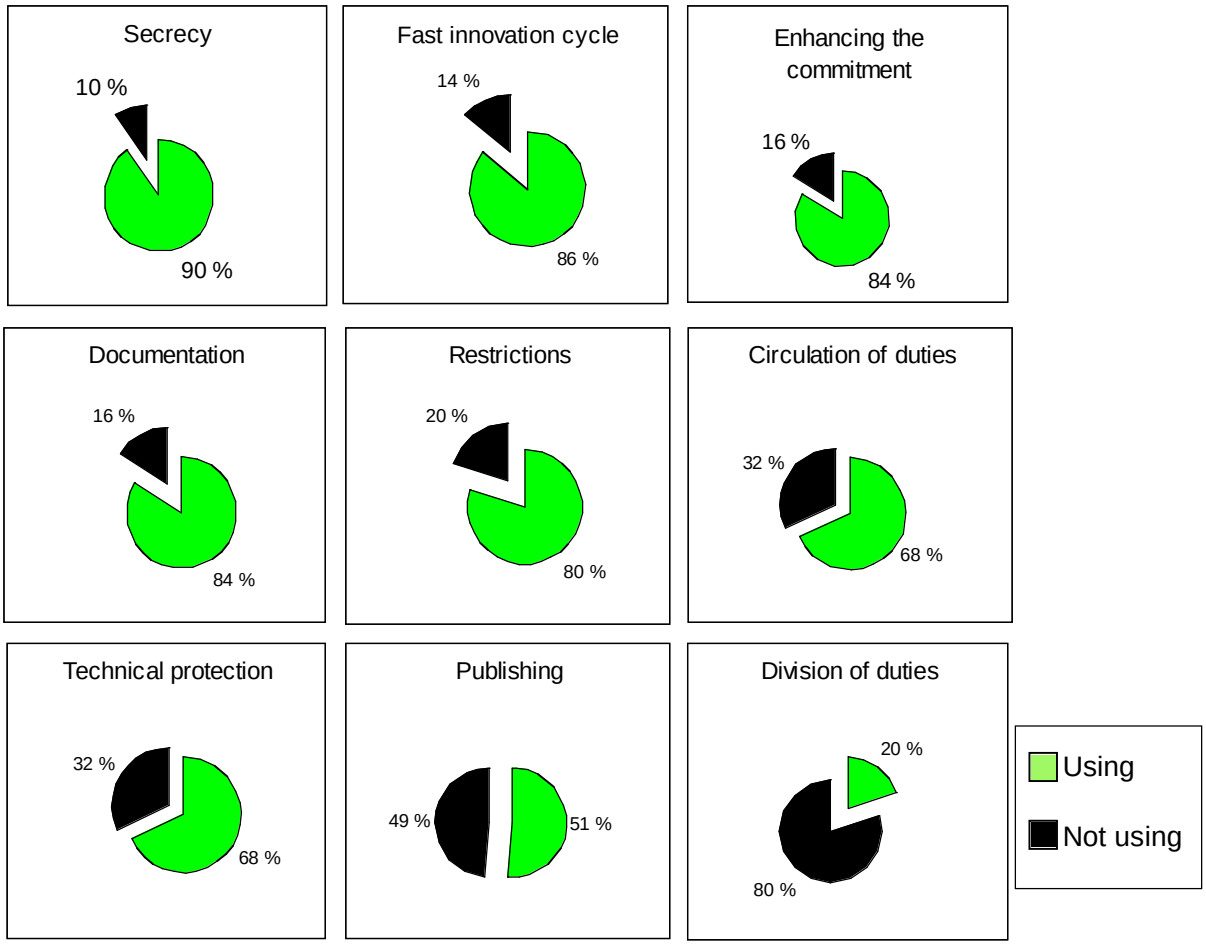
employed to govern the co-operative and collaborative relationships with employees or external partners (methods like developing confidential relationships and loyalty building). Several of the informal protection methods are multi-functional and the motives behind the use of a certain practice vary remarkably between the business sectors and even between businesses within an industry. Typical primary aims of informal IP protection methods are to:

- decrease the risk of loss of the core knowledge;
- prevent the leaking of confidential knowledge to outsiders;
- reduce the risk of incidences, which could cause knowledge leaks;
- reduce the risk of being copied or imitated by competitors;
- prevent the risk of losing key employees or to minimize the harm from the employee mobility;
- create a 'lead-time' advantage over competitors;
- assist the patenting process;
- facilitate the effectiveness and innovativeness of the business, e.g., by keeping the staff motivation on a high level.

Different informal protection methods are not entirely independent from each other and partially they seem to overlap. Some methods are closely linked to more formal methods such as contracts that have legal basis. On the other hand, many informal methods are embedded in normal working practices within the business and they are not valid in juridical sense. Motivations for the use of each method vary as well: sometimes the main objective of the method is merely to protect IP while sometimes it may simply support the business activity.

Knowledge Intensive Business Services, in particular, have adopted a variety of formal and informal ways to minimise the misuse or loss of their intellectual property. Typically, knowledge is the key asset that these service businesses have but IPRs offer very limited protection for their IP. Finally, it can be concluded that informal IP protection and IPRs are not competing methods. Instead they can be seen representing complementary ways to manage and protect IP. In most firms, systematic use of both formal and informal, methods can be prove to be the most effective way to protects and manage IP.

In the course of a study in the usage of informal IP protection a number of SMEs were questioned on usage patterns thus identifying the perceived importance of trade secrets in particular. The results are as follows:


Secrecy
10 %
90 %
Fast innovation cycle
14 %
86 %
Enhancing the commitment
16 %
84 %
Documentation
16 %
84 %
Restrictions
20 %
80 %
Circulation of duties
32 %
68 %
Technical protection
32 %
68 %
Publishing
49 %
51 %
Division of duties
20 %
80 %
Using
Not using

Chapter 5 - The Role and Performance of Government Support Services

A benchmarking exercise carried out for the European Commission in 2006 and 2007 resulted in a database of 279 support services in the field of IPR, together with key data such as contact details, type of IPR targeted etc. More than 70 of these services were subjected to a more stringent comparative performance assessment, out of which 15 services were taken as case studies to illustrate elements of good practice. For the latter 15 services, user surveys with 50 aimed for users using standardised questionnaires and telephone interviews were completed. In total, 630 interviews with users were conducted, as well as more than 100 interviews with IPR experts and providers of support services. Countries covered included all of the EU-27 plus a number of overseas countries (USA, Japan, Australia and Canada). The following table provides a breakdown of the number of identified services by country:

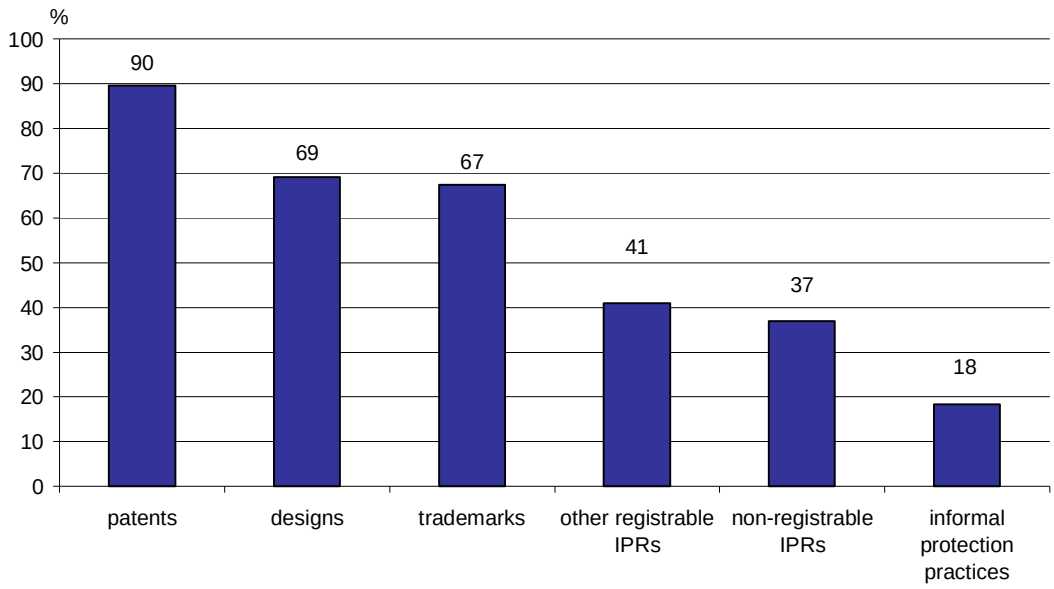
Country	Number of Services
Australia	31
Austria	14
Belgium	3
Bulgaria	4
Canada	11
Cyprus	1
Czech Republic	10
Denmark	5
Estonia	5
Finland	10
France	6
Germany	17
Greece	5
Hungary	20
Ireland	4
Italy	8
Japan	7
Latvia	1
Liechtenstein	2
Lithuania	10
Luxembourg	4
Malta	1
Norway	3
Poland	23
Portugal	2
Romania	14
Slovakia	11
Slovenia	3
Spain	12
Sweden	7
The Netherlands	4
Turkey	3
United Kingdom	12
USA	6
TOTAL	**279**

Source: Austrian Institute for SME Research

One important observation is that the number of services varies greatly with countries. However, this does not necessarily mean that countries with more services also have generally better performing schemes in place. The high variation is also due to the fact that many services are offered as packages, with – many times – one service consisting of several sub-services.

A lot of IPR support services are offered in Eastern Europe. Many of these services are either similar schemes offered simultaneously in different regions of a country or they are time-limited projects (e.g., projects under the 6th Framework Programme or Structural Funds). The scarce availability of resources seems to be an important issue in Eastern Europe, as does the fact that some services are relatively young and had to be designed from scratch. The latter can, however, be seen also as an advantage, as little historic burdens have to be taken into account when setting up new services. One noticeable point is the larger amount and significance of private associations (partly also funded by the state and/or the EU), who offer services related to combating copyright infringements. Such services are often more visible and considered more important in the country context as IPR support services than programmes fostering the use of registered IPR, such as patents.

The majority of the services identified are focussed on registered IPRs (see graph below, source: Austrian Institute for SME Research). 90% of the services offers support regarding patents, 69% regarding registered designs, 67% regarding registered trademarks and 41% others such as utility models. About 37% of services also aim at non-registered formal rights (copyrights) and/or at informal protection practices, but services which address less formal IP protection schemes and strategies alone are rather scarce. This figure indicates that services are very patent-centric and may thus not catch the true needs of SMEs, regarding the right mixture of use of different IP protection mechanisms and of IP management. This is one reason why this report in Section 4 has said more on informal IP than on formal IPRs.



The figure indicates that support services are most keen to promote those IP instruments that SMEs tend to see as least useful – to put it bluntly. Both SMEs and support agencies could adapt their behaviour! 35% of the services were services dedicated explicitly to SMEs. Most of the services (80%) were offered nationwide and about 20%

were offered on a regional level. If the phases of IPR usage are broken down into four consecutive time frames (research into IPR/prior art search; development and registration of IPR; acquisition of existing IPR; usage of IPR), the majority of the services (about 74%) identified address the phase of development and registration of an IP protection instrument. The preceding phase (research on innovative projects and related IPR (e.g., prior art searches)) is supported by around half of the services. 37% of the services deal with the acquisition of existing IPR, and around 60% with the latest phase, the actual usage of IPR.

The high focus on registration issues is highlighted by looking at the actual service descriptions: In many cases, service elements covering especially the later stages of IPR usage (many services target multiple phases of IPR usage at the same time) seem to be of less scope and significance in the overall service context than the parts dealing with registration and development.

A preliminary categorisation of the identified services was carried out. About half of the services (48%) were considered to be “pure information” services, 47% would fall into the category of “consulting”, 37% would offer “financial subsidies”, another 37% could be described as “awareness raising.” About 27% of the services offer “training” of some sort, 17% would be in the domain of “legal frameworks”, and, eventually, 7% would be “other” service types.

A clear-cut classification of support services was difficult to make, as many support services come in integrated packages, combining several services or service elements. Notwithstanding this, and taking into account thus a remainder of unavoidable double counting, services in the field of IPR were categorised as follows:

1. (Pro-active) awareness raising activities and public relations: This service type actively addresses and/or contacts SMEs and promotes the usage of the IPR system. Services of this type are usually road shows, open days, exhibitions, etc. Here information should not be biased towards IPR system, but more generally making most out of the IP to promote business success.

2. (Passive) information provision services: These services provide information on a stand-by basis for interested SMEs, such as patent information centres, web pages, search services in databases, etc.

3. Training: This category subsumes all educational activities in IPR matters where SMEs do benefit to a larger proportion.

4. Customized in-depth consulting and advisory points/services: Services in this category go much more into the details of IP protection and offer customized support to SMEs. This category often coincides with integrated services whose broader scope implies an approach individually tailored to the needs of particular SMEs.

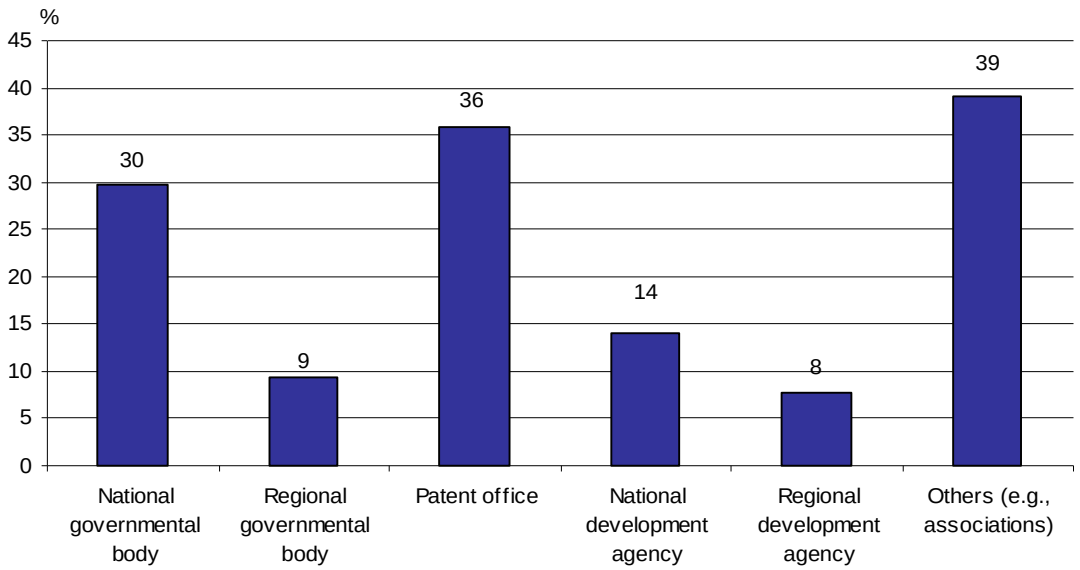
5. Financial assistance & legal framework: This category includes service offerings in the field of financial subsidies (mainly for the registration of patents) and/or in the domain tax provisions SMEs can benefit form and which are laid down in the national legal frameworks.

According to this classification system, 39% of the services are in the domain of finance and legal framework. 31% are customized in-depth consulting services, and around 28% are (passive) information provision services. Pro-active awareness raising activities make up 15% of the identified services. Surprisingly, training services account for only 9% of the measures.

Overall, services in the field of IPR which can be considered good practices as a whole were hard to spot. Having said that, there are plenty of opportunities to learn about elements of good practice. Two key areas seem to be of special importance: The qualification level of the staff and the level of integration, both of the service itself (i.e. the scope of the offerings) as well as with the overall innovation system.

The observation that the national patent offices (NPOs) play an important role in IPR services provision for SMEs was further substantiated in subsequent research phases. Of the 72 benchmarked services, 36% (and thus the 2nd largest share) were offered by patent offices (see graph 6). The information received indicated that many NPOs seem to look for new roles against the background of the rise of the European Patent Office (EPO) as a central authority for filing patents with, and they try to do so by emphasising and introducing service activities. With regard to SMEs, the national patent offices generally offer search services in patent databases – following the rationale to avoid double research costs with SMEs – and (pro-active) awareness raising activities.

Another important pillar is IPR services offered by national (and to a lesser extent regional) governmental bodies who often contract external organisations (e.g., associations, chambers of commerce etc.) for actually operating the service. These contracted organisations make up the majority of the “others” type of service providing organisation shown in the following graph.

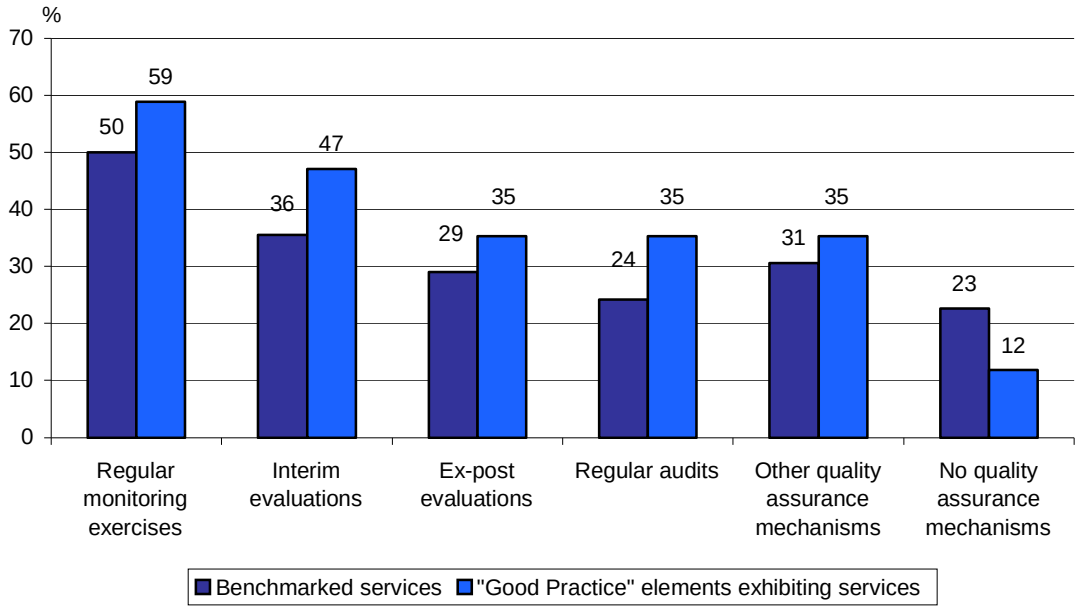


Source: Austrian Institute for SME Research

Very few activities in the field of IPR stem from development agencies at the national and regional (within a country) level: Only 14% of the benchmarked services are offered by

national and only 8% by regional development and/or technology agencies. Further to that, it seems that IPR services in these organisations are often marginalized, i.e. they play a rather minor role in the overall service portfolio. Given the fact that development and technology agencies are mostly at the heart of service provision in R&D and innovation support, this comes somewhat as a surprise.

An important element of the operation of a service is its governance and the utilised quality assurance mechanisms. The graph below provides an overview of the type of quality assurance mechanisms employed, differentiated by services in the benchmarking phase and by services which were actually selected as case studies for the good practice analysis of the benchmarking study.



Source: Austrian Institute for SME Research

As can be seen, a rather large share of services (23%) has no quality assurance mechanisms in place. The majority of the services (59%) conduct regular monitoring exercises, under which activities such as the collection of feedback forms or reporting activities to the funding organisation (e.g. yearly reports) are summarized. “Other” quality assurance mechanisms (such as working groups with customers) are implemented in 35% of the services in the benchmarking phase. But overall, only one out of five services have formal evaluations conducted (interim, ex-post or regular audits). In addition, evaluations seem to be conducted less frequently on services from the patent offices than on those from other types of organisations. Against the backdrop that the services selected for benchmarking already present the better performing ones, this result may thus indicate a lack of evaluation culture in the IPR-for-SMEs service world.

One can observe that services which are evaluated perform, on average, better than non-evaluated ones. The services selected as case studies for presenting good practice elements have, on average, tighter quality assurance mechanisms in place than the benchmarked ones.

Not using evaluations on the IPR services analysed seems to have implications especially in terms of accountability and customer orientation – the latter opposed to the

service provider's self-perception. In the first case, it stands to judgement whether the funding bodies of the services actually do have all information necessary to gauge performance. In some instances, for example, unrealistic, but yet published performance figures seem to remain unnoticed. It seems that the knowledge of the service providers about their customers could be an area for improvement. Even with some case study services, it was difficult to obtain large enough contact databases which contained all necessary contact information as well as information on the types of customers (SMEs, patent attorneys, large enterprises, etc.). Data protection issues play a role, but they seem to be only part of the story.

Combining the lack of evaluation culture together with the increasing and important role of national patent offices in IPR service provision for SMEs, it can be argued that IPR services are, in terms of investigated innovation policy instruments, to a large extent uncharted territory. The main cast of actors in IPR service provision seems to be often different to that of the more general innovation and R&D support world, the world of the technology and development agencies. This can be seen as an example of system fallacy, as the IPR services clearly operate with innovation-related goals.

An important core success factor, as it is perceived by the service providers and also corroborated by the results of the user survey on the case study services, is the competence of the service operating staff. Around 58% of the service providers underline the significance of employing well experienced personnel. The reason lies mainly in the fact that matters related to IPR are usually more complicated and require technical, legal and also business know-how.

As a consequence, the availability of sufficiently qualified staff can also become a bottleneck. And it seems to have some important implications for the service design too: First, the level of experience required tends to call for senior staff with relevant academic background and work experience rather than for younger staff which just graduated from university. Secondly, as respective candidates are likely to be rather scarce (and thus also more expensive) it becomes evident that not every local and regional service point will be able to employ IPR experts in sufficiently high quantities.

The situation is further aggravated by the fact that there seems to be a lack of educational offerings[10] in this respect, especially with regard to the business dimension of intellectual property management: Technical knowledge seems to be, by comparison, more frequently available (patent examiners in the patent offices are usually scientists or engineers), and legal knowledge is available from the private sector in the form of patent attorneys who also have a technical or scientific background.
Because of the complexity of the subject of IPR, the third implication refers to the scope of the service offerings: A good IPR service has to have a minimum size, and, in the absence of important service elements, be able to refer customers to other services.

Another important success factor is the level of integration of the services and, closely related to the referral activities, the level of networking with other services. 30% see the fact that the service is either offered in a package of IPR services or greatly networks with other institutions as a noticeable strength of the service. Integrated services also seem to perform better than services operating in a rather isolated manner. The reason

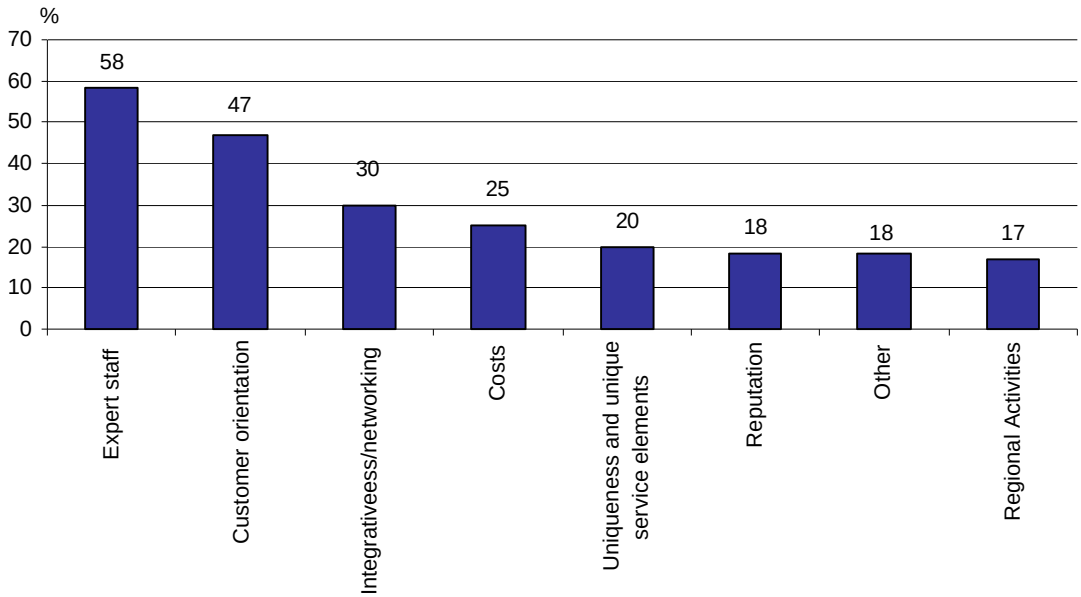
[10] See Moulin 2005

for this can be found, on one side, in synergy effects with respect to the competence built throughout the different service packages. In addition, such services seemingly achieve a minimum size of the IPR service easier. However, it has to be stressed again that the complexity of the subject of IPR makes it unlikely that any service will be able to cover the whole range of IPR issues. Again, referral activities are important.

Ease of identification and unique service features are quoted to contribute to the success of the services by about a fifth of the service providers. With users, this aspect seems to be even more important. Ease of identification is not so much of an issue for services that are as a whole unique in the innovation policy landscape. A case in point is, for example, the Intellectual Property Assistance Scheme (IPAS) in Ireland which is the only relevant publicly funded support scheme in the field of IPR for SMEs in that country.

By contrast, if the innovation support system for SMEs is much diversified (as is the case, for example, in Germany where many different organisations provide support to SMEs), marketing activities become an increasingly important task. And while most services claim to use a variety of distribution and marketing channels, the user survey conducted for the case studies show that in many instances users got to know about the service mainly through informal channels, such as personal recommendation, rather than through, for example, advertisements in journals or newspapers. IP services and support are frequently offered by bodies not recognised as “funding bodies” (e.g. IP offices). Support offered by such a spread of bodies reduces visibility within the “funding jungle”.

The issues perceived as important by business are shown in the graph below.



Source: Austrian Institute for SME Research

With regard to the scope of the service offerings, it was already noted that most services are focussed on registrable IPR – in many cases only patents – sometimes also with provisions for trademarks and/or designs. The remaining spectrum of less formal IP protection methods - especially that of trade secrets - is left out with these services. This can often be regarded as a serious shortcoming, as an effective means of IP protection

should require a careful evaluation of all respective tools available for this purpose, and patents might not be the right choice under all circumstances.[11]

SMEs thus not only have to consider how to use a particular IP protection method (i.e., how to file for a patent) but also the reason why they should do so. With services that only focus on patents, there is the danger that SMEs are advised to patent their innovations even if the companies would not benefit from this step. Even worse, the decision to patent might prove to be detrimental, if the SMEs do not have the resources to litigate. Such a wrong advice might be given, on one hand, due to lack of expertise with the service providing organisation (e.g., the staff is not enough trained to understand the strategic business dimension of decisions concerning IPR; see also above on the lack of educational offerings). On the other hand, it could be tempting for such services to use the number of filed patents with support from the service as a performance metric – a metric that can be, for the reasons outlined before, seriously misleading.

Lessons can be learned from the USA and Japan**.** In general, it seems that the European services employ similar tools and instruments as the US and Japanese services do. There are, however, a number of additional innovative services overseas: A case in point is U.S. SCORE service which can be regarded as a network of experts, who give advice on different issues (among which also IPR) to SMEs. These IPR experts offer their know-how on a *pro-bono* basis. As with the case of Japan, it is the magnitude of the efforts along different policy fields that catches the eye and creates a favourable environment for IPR usage with SMEs, a so-called IP Culture. In 2002, then Prime Minister Koizumi set the objective of making Japan an IP-based nation. An IP Task Force was commissioned in 2005 to help SMEs develop IP strategies. As a result IPR is integrated into the teaching syllabi of high schools, universities, and other institutions. IPR days are conducted, large enterprises cooperate more frequently with SMEs, etc. As a result, the activities have led to a situation where the general public is, overall, more aware of IPR, and, even more important, this seems to hold also true for multipliers in the private finance sector. Insurance companies and retail banks seem to possess broad know-how on IP valuation and accept, for example, (filed) patents as collaterals for loans on a larger scale. This practice seems to be not only common with specialised bank departments in the big cities, but also with small branch offices and their SME customers in rural areas. Public policy thus created a (desirable) snowball effect in the private sector.

Another important observation is that subtle differences in the way services are provided can have huge impacts on the outcome of the services. Again, the key factor seems to be the quality of human resources. For example, by employing IPR experts with business experience and sense and providing them with incentives, the Japanese Technology License Offices (TLOs) established in 1999 – similar to technology transfer and license offices in European universities – seem to have achieved greater success than we in Europe. The incentives were given in such a form that the TLOs had the chance and, after some time, eventually the obligation to work on a for-profit-basis. Revenue is created by taking a share from license income from the supported SMEs, and service managers are rewarded proportionally. Patent applications have increased from around 300 in 2004 to 1054 in 2005, with licensing revenue increasing twenty fold.

[11] See Moulin 2005; WIPO 2003; Blackburn 2003

In general there seem to be two lessons: First, that there seems to be a need for educational measures – not only for SMEs but also for training the trainers. Second, when setting up a service, care must be taken on who operates it; different institutional background and work experience may have more and tremendous impact on service performance than the actual service design itself.

Chapter 6 – Gaps and Overlaps

The problems described above give clear indication of potential for improvement.
Of course, the overall conditions are an important parameter in a national economy in order to influence innovation capacity for the better or the worse. These overall conditions include:

- the policy environment: innovation-friendly policies, especially the legal framework;
- human resources, education and training;
- entrepreneurship culture;
- the issue of financing the IPR related costs;
- cooperation & synergies between those offering IP advice and services.

Innovation-friendly policies require that all political measures and laws which are drawn up are oriented towards the needs of inventors, researchers, developers and innovative enterprises. The overall conditions for innovative developments also need to focus on specific needs. Greater transparency and improvement of the legal framework would be welcomed. This includes the formalities and red tape and applies to public funding and the application procedures. Many inventors and starters find themselves confronted by a funding jungle from which they are unable to select and apply for instruments which fulfil their purposes without external help and targeted support.

In relation to human resources, education and training, our education system would benefit from being of a higher standard and more efficient. As well as the general funding of training, research and development, it would be beneficial to increase the number and quality of consultants and consulting organisations for inventors and technology-oriented start-ups. The services of such organisations need to be made better known to the target group in order to support inventors and SMEs better and more efficiently.

Concerning entrepreneurship culture, entrepreneurship needs to be directly marketed and promoted. Above all, innovative (technology-oriented) company start-ups (“gazelles”) are meant here, which bring above-average growth potential and determine the economic power of a region to a large degree. In addition to the overall policy environment, education policy has a particular relevance here, as does the service orientation of towns, states and other public bodies. One of the largest deficits of start-ups and SMEs is in financing. There is a need for targeted measures, which cover the risk phase and directly support innovation. With regards to trademark lawsuits, an “insurance fund” or something similar might be very helpful, in order to enable smaller, financially weaker companies to survive contentious legal action.

As the Benchmarking study has shown, a number of schemes are available to ease the financial burdens of applying for patents. However, care must be taken with respect to the design of such a subsidy (what type of patenting costs are to be covered, and by what instruments), as this may have implications for the performance. Stand-alone subsidy services are often hardly used, because they seem to lack the support of accompanying measures, such as trainings courses on IPR or information and consulting on why the SME should go for a patent. Integrated services which offer a small subsidy,

but have these complementary services in place, have, by contrast, higher success rates in terms of user take up.

It is also clear that the number of overlapping innovation support schemes at both national and European level complicate the picture as presented to SMEs. Not only do Member States often have several funding schemes and a variety of competing sources of advice, the EU provides its own schemes and sources (Relay Centres, IPR Helpdesk) and several funding regimes.

Chapter 7 – Recommendations

Activities Supporting Innovation, Intellectual Assets, and Intellectual Property

1. The survey of the current range of support services and activities should be regularly updated, publicised and shared. This could be done as part of the Innovation Watch system which is monitoring the developments. See http://www.europe-innova.org/index. In this respect, our report has identified a need for support services to be regularly reviewed and assessed for effectiveness. Guidelines for such assessments could be part of best practice.

2. Intellectual asset management, including Intellectual Property matters need to be built into basic business planning and not taken as a stand-alone or add-on topic. It is important that providers of support recognise that the prime objective is to improve the successful exploitation of innovation within an overall business plan and that IP and IPRs are instruments to that end, not ends in their own right. In addition, further training around informal usage of IP since such trainers/advisors tend to be biased towards formal IPRs, even if SMEs are more interested in informal management strategy & practice. In this respect Europe needs to move towards a more demand driven regime of services and advice based on the needs of business as distinct from the supplier driven regime reflecting the existing capabilities and perceptions of those supplying support and advice.

3. In order to instil a mindset of innovation and intellectual assets/property upon which business planning can be built we must begin within the educational system. We should draw up ways on which these topics can be introduced at various stages within the educational system, in general as well as specialist courses for all ages. Certainly intellectual asset management and intellectual property need to be part of the training for those seeking to become business advisors or trainers.

As indicated previously in this report, our major competitors regard innovation and creativity, supported by intellectual property as a key to forming the minds and behaviours of future citizens. Thus at every stage of education there is some reference to IP. Introduced at a young age and then modified and tailored to the needs of students at later stages in business, science, technology, and arts courses. We recognise that the educational curriculum is perhaps already crowded but believe that the topic of intellectual assets and property can be woven into many lessons in imaginative ways which will attract both teachers and pupils. The experience of the UK in this area should be used as an aid in designing approaches which fit the local educational requirements. However, educational initiatives cannot simply be transferred from country to country.

4. Notwithstanding differing goals and approaches between individual services offered both within individual member states and also across the union we have to adopt one unifying concept. That concept has to become one of Intellectual asset management using IP and IPR rather than the all too common approach of “the more patents the better” mentality.

5. One question is whether IPR support services should be offered by national patent offices or by technology/development agencies. Again, the particular decision will depend on the design of the national innovation systems and the historic context. Still,

some general arguments can be put forward both for and against the two types of organisations. Patent offices are traditionally concerned with the issue of protection of IP, though they focus solely on registrable IPR. Patent offices possess considerable technical know-how (i.e., with respect to patenting procedures) and know-how in legal matters, and they are perceived by customers to be rather independent and objective (albeit also slow with the processing). On the other hand, they are relatively new in the world of support offering institutions for SMEs. Technology/development agencies, by contrast, have a significant track record with regard to innovation and R&D support offered to SMEs, have a wider knowledge of the business context and are also better known by SMEs. Their IPR know-how is often limited. There are exceptions. E.g. AGIT offers services to start-ups, growing enterprises, venture capitalists, and business angels, thus providing a broad portfolio and providing networking between the parties.

Two paths seem plausible: Either to scale down the patent offices on their core competence of patent filings (and possibly database searches) and to enrich the development agencies with IPR services; or to enrich the patent offices with additional business and intellectual asset management know-how, thus creating "institutes of intellectual property".[12] In both cases, a couple of aspects seem to be highly important: First, linkages between the patent offices and the development agencies should be strengthened, and high permeability for the exchange of staff between the two organisations should be aimed for. The same is the case with SME associations / links to other bodies which advise SMEs (chambers of commerce, industry groupings, tax authorities…) Because their services are better known by SMEs, and, more importantly, because they may likely have a more neutral stance towards the usage of different IP protection instruments (given the patent tradition of the POs), it would probably be advisable that technology agencies act as entry points for customers, not the POs.

6. A question which has to be posed in the context of the type of organisation providing IPR support services is, whether such services should be offered through the private or the public sector. This question cannot be answered within the scope of this study, as private service offerings are not scrutinized herein. Literature on this subject seems to be rather scarce, too. Statements received from IPR experts in the course of the benchmarking exercise indicate a preference that, against the background of the functional classification system, services of type 1 (pro-active awareness raising), type 2 (passive information provision), partly type 3 (training) and type 5 (subsidies and legal framework) should be the domain of public service providers, while a considerable amount of the offerings of type 3 (training) and especially type 4 (in-depth consulting) should be left to private enterprises (consultancy firms and/or patent attorneys). Some argue, however, for a wholly public sector offering in order to ensure coherence and lack of confusions. It is likely that different remedies will have strengths and weaknesses depending on national or local political circumstances.

In practice, however, conflicts between private providers and the emerging NPOs as public service providers could arise in type 2 services.[13] Interestingly, the approach of

[12] This approach is favoured by Gowers (see Gowers 2006)

[13] In the Netherlands, for example, the Innovation by Patents Service IOI (a service, where a technology agency and the national patent office cooperated with the initial goal of providing cheap patent database search services for SMEs) had to change the nature of the service after a complaint of a patent attorney who argued in terms of unfair competition. The change was performed in such a way that IOI would only conduct a very first patent scan for an SME, teach SMEs on the benefits of using patent information and refer them for subsequent searches to commercial providers (e.g. patent attorneys). By applying this approach, a win-win situation was created as the private service

many European NPOs to focus on patent database searches as a main part of their new service activities seems to contrast sharply with the strategy of the U.S. Patent Office which wants to leave such search services to a market of competing private providers.[14] The US patent office would like to see just a central quality assurance organisation in place in order to check that the private providers meet minimum standards.

Some patent offices often offer only low cost searches which focus on patents, whilst other Offices and the private sector can offer specific innovation / enforcement advice. The two are not mutually exclusive as long as both are conducted at market price. One thought might be that by introducing expanded search and advisory services through the patent offices for a limited period of time, a market for respective private offerings could be created or enlarged. The rationale would be that, through marketing activities SMEs would become interested in such services, and demand would get boosted, which would in turn make the market for private providers more appealing.

The above may paint too much of an either/or scenario. In fact, partnerships between public bodies and private advisors, including IP attorneys can provide a transparent and accountable efficient use of respective resources and expertise.

7. Timely delivery of services, be they by patent offices or other support agencies, are important for SMEs. Especially with database search services, the provision of information relatively fast is considered to be a big plus, particularly in the light of the fact that whoever is first with the filing of a patent will also actually also get it (of course, if all requirements for patentability are met). Once filed, timely search provides a comprehensive background of the context of the invention and hence assists the making of decisions on future investments and plans. Similarly, timely grant of rights is a factor defining the scope of protection and hence the risk of investment, especially when capital is being sought. Thus, timely delivery is more than just a hygiene factor with many services – it is a core element of the service design.[15]

Collaboration and Partnerships

8. Although there is cooperation between Member States, much of this is informal and there is room for greater and more structured cooperation and cross-border activities, and for clustering to be encouraged when supporting SMEs, with sharing best practices and coordinated programmes. This applies especially when dealing with open innovation systems involving partnerships between different types of organisations e.g. SMEs,

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providers benefited from referral and marketing activities, while IOI could follow its goal of fostering patent information usage without crowding out the private sector. Though IOI does not exist any more as a separate programme, IOI activities continue as part of the daily activities of the involved parties (the Dutch patent office and the development agency Syntens).

[14] See ACIP 2003

[15] Two examples are noteworthy: In Austria, the demand for quick database searches has led to the development of a product with the service serv.ip called „Expressrecherechen“ (express searches). By using this product, serv.ip undertakes to deliver the results of a patent database search with a certain scope within three working days. User reception for this product is quite high, as evidenced by a user quote: *“For us it is more important to obtain quick results which cover 80 % of the patents in a certain technology field, than have a coverage of 90 % in a longer amount of time. We´d rather use two different search services for this purposes and compare the results than allow for more time to pass.”* (SME user of serv.ip). The other example is the INSTI KMU Patentaktion (INSTI SME Patent Action, cf http://www.wipo.int/sme/en/best_practices/germany.htm), where the delivery of different subsidies/service packages is linked to milestones in the patent application process. For this purpose, a distinct time table is set up with the customers.

universities and other public research bodies, and large companies. Such systems are increasingly likely to be of a cross border nature.

Collaboration between SMEs and either larger companies or research centres can take place either nationally or cross border. The existing guidelines for assisting research institutions handle intellectual property should be further developed, and separate guidance for SMEs should also be considered. Universities and companies are increasingly seeking to work together for mutual benefit.[16] The conditions for, and nature of such collaborations, vary according to the educational regimes in Member States. Furthermore, the Commission should also further develop various toolkits to provide solutions to the problems identified, and even consider if a European model contract for research collaboration might not be developed, possibly based on the principles in the Lambert model contract. There is another EU Working Group on R&D in services and service innovation which will cover IP related issues. This Group is expected to report at the end of 2007.

9. Such cooperation would be enabled by the creation of a network on innovation support sharing best practice and coordination. This should not be a new network but rather a rationalising of existing networks so as to simplify access for SMEs and provide clearer signposts and greater overall visibility. SMEs find current arrangements too complex. There is a danger of increasing complexity by creating too many options, not only in terms of programmes but also in terms of delivery channels. Thus, for example, the EU's Innovation Relay Centres need a clear relationship to national and regional innovation support bodies, including clarity of mutual responsibilities and agreement on objectives so that the centres work clearly within the overall envelope of business support. Similarly, and importantly the relationship and roles of the EPO European Patent Network and the EU Network of National Patent Offices should be brought together to allow Europe to maximise the benefits from the contribution of the EPO's expertise and resources in the field of patents and merge these with the expertise of OHIM and national bodies in this and other parts of the IP portfolio, thus creating a single IP and innovation gateway. Until we have a clear and common purpose supported by a rational organisational structure involving all the IP regulators of Europe we will not reap the benefit of our one advantage with respect to our competitors; that is the strength of our national institutions with their proximity to business and government and the strength of structured European delivery of IP rights. The EPO is, of course, not an EU institution but the members are predominantly EU members and there are mechanisms for ensuring that the interests of non-EU members of the EPO are taken account of. Indeed, those non-EU members benefit greatly by cooperation with the EU and its Member States.

10. One key question in this area is whether IP/IPR services should be offered at the national or the regional level. High visibility of the service can be more easily achieved if the service is known throughout the country rather than only in a specific region. The horizons for SMEs are low and even national government can be seen as remote. Supra-national sources are often entirely over the horizon, except when knowledge of them is tied with funding regimes. If reach-out to local SMEs is important (at least for marketing reasons; the case study user survey has shown that, in general, spatial distance is not considered to be a critical success factor for IPR support services), regional outlets can be established with the task to promote the service and refer potential customers to the

[16] See Commission Communication COM(2007) 182 final of 4.4.2007 on *Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation*

central unit. This does not mean, however, that regional IPR services are of no use. If they complement the national offerings, if they have clearly defined and limited goals in the context of the region and are designed accordingly, and if they are networked enough with other services, they can truly provide added value. Furthermore, scarce expert know-how can be pooled at a central unit and does not need to be provided in every region

That said, much more can be done to share best practice and to cooperate across borders to make a reality of a single market for SMEs. In this context, the EU is in a strong position to build upon its network of National IP Offices to offer a coherent suite of complimentary services. Duplication of entry points should be avoided and single entry points introduced wherever feasible. Such entry points should be built on user needs as expressed locally.

Another important question is whether IP/IPR services should be offered as an integrated package or as stand-alone offerings. This Expert group believes that an integrated package is essential, as integrated services usually perform better than isolated ones. This would fit well with a national service design, where the one-stop shop idea can be realised more easily, again for the reason of pooling of expert know-how. Because of the complexity of the subject, one ought to be nonetheless aware of the fact that an IPR service covering all IP protection (or rather: IP management) issues is not a feasible option. Hence, referral and networking activities seem to be nonetheless important. IPR has to be built into the business planning process, not seen or presented as an add-on. There are two further implications issues. First, the needs of business start-up may differ from existing SMEs seeking growth and development. These differing requirements need to be catered for in the model. Second, better education in innovation and IPR as part of business planning is widely required. This is in business schools and other areas of science and technology, as well as creative education. A standard for business advisors would be welcome. Finally, IP issues ought to have more prominent role also on the research-, technology-, and development programmes operated by various governmental agencies.

IP Operations and the Legal Framework

11. There are a number of existing proposals to improve the legal framework of IP in Europe. These must be pursued if we are to give substance to our words about creating a Europe which is a leading economic innovator. For example, the reduction of the costs of translation which would be provided by early implementation of the London Agreement relating to the European Patent Convention would be significant. Similarly, proposals based on the European Patent Litigation Agreement would provide greater consistency and predictability within Europe and remove the need for companies to litigate in each individual country. Both of these proposals relate to the current European Patent Convention, but it should be remembered that the objective of a single EU patent is still seen as important by industry and would have a major impact on patenting for European SMEs. Such proposals would undoubtedly chance the relationship between national and European systems as options for business, especially SMEs.

However, this need not be simply a case of an exclusive “either Europe or national” approach but rather a coming together of both. The objective is to give Europe the

advantage of symbiosis between its National and European institutions. The ease of access and lower costs for SMEs to enter Europe through national offices coupled with greater use of the work done at national level should there be a later European application can be built into a better European model. This is already being investigated by the European Patent Organisation, as is the creation of a European quality regime. Such a regime would bring a major benefit to SMEs as it would reduce uncertainty of validity and hence influence to conduct of patent disputes. Certainly something like this as a refinement of current proposals is necessary to ensure that European SMEs are able to benefit significantly from patent reform. Otherwise all that will be achieved will be to ease access and reduce costs for our competitors from outside Europe.

There is no doubt that the current patenting situation in Europe does add a cost for business which is not present for our major competitors when dealing in their home markets. The arguments have been well rehearsed but the translation of political will into official action continues to disappoint many. It may be that larger business can cope with and adapt to these shortcomings, but it is certain that they prevent major obstacles to SMEs for whom a wider "home market" is being denied.

Cost Aspects of Rights Acquisition and Enforcement

12. Costs of implementing an IP protection strategy, and especially the costs of patenting, are considered to be the main obstacle for using the formal IPR system.[17] The respective findings in the literature are also backed up by the results of the user survey. The literature also suggests that the costs of patenting are higher in Europe than in the US or Japan.[18] One possibility to tackle this problem is to generally allow for lower filing costs for small companies (such as provided by the small entity act in the U.S., where an applicant only has to tick off a respective box on the application form in order to benefit from lower fees). The disadvantage of such a solution would be that steering possibilities are foregone, e.g., the SME would have patented even without the existence of the subsidy and no added value is achieved. Another option would be to offer subsidies, which would allow for better selection and possibly higher added value (i.e., to get more SMEs to patent or use other IP protection means (which would otherwise not do so)) than tax incentives. The negative side of this approach is the fact that it could a) distort competition and b) create a behavioural shift towards patenting more than necessary unless it is limited in some way. Questioned users for integrated services often underlined the significance of the existence of a subsidy for their IP protection goals (see also the INSTI SME Patent action survey). The question remains of how any such subsidy should be designed, as the design seems to have a strong influence on the take-up by SMEs. Evidently, it is not only the amount of subsidy that matters. One way is to offer subsidies especially for first-time patent applicants – such an approach is used in France (e.g., 1er brevet service of OSEO Innovation) or in Germany (INSTI SME Patent Action). Alternatively, subsidies can be made available for SMEs on a stand-by basis (i.e., an SME can apply several times, whenever necessary; a case in point would be the IPAS service in Ireland.

In addition to the costs arising from the lack of Europe wide patent regimes, enforcement regimes vary across the EU and it is common for SMEs to find them difficult to use. They

[17] WIPO 2003; Blackburn 2003.
[18] Roland Berger Market Research 2005.

are too expensive or too complex (or both) and SMEs do not have the time or resources to engage. In consequence they often choose not to seek formal IP protection as they see no point in possession without use. This is a large issue which has been addressed in a number of ways, including consideration of insurance. However no clear proposals have emerged. Further thought should be given to establishing what steps can be taken to simplify enforcement and create a level playing field.

In a similar vein proposals have been, and are still being, investigated to create some sort of insurance scheme which would allow SMEs greater freedom to decide when and whether to enter into litigation. Thus far, no proposals have met the expectations of both SMEs and the needs for a sustainable insurance scheme.

In this context, initiatives such as the UK-IPO's low cost opinions service are designed to reduce uncertainty at an early stage before the costs of litigation are incurred. Such schemed may augment any insurance scheme.

Other Financial Aspects

13. In addition to various direct subsidies there has been increasing interest in other fiscal measures. Such measures have to be seen within the context of an open and fair market and hence must be seen from an economic perspective.

In general, a wide distribution of research and innovation results is needed to create positive effects on growth and the economy as a whole. The greatest impact on growth is of course achieved when there is a real incentive, in the form of profit on licenses, to share the results with other companies. This is the economically sound approach for European enterprises to play a more active role on the world market, and contribute to broad economic development.

Such incentives could be created through fiscal incentives. There are three categories of fiscal incentives for technology transfer:

a) tax measures to reduce patenting costs;

b) tax measures to reduce taxes on revenues from licences;

c) tax measures to reduce costs for acquiring patents or rights to use licences.

As regards tax measures to *reduce patenting costs*, some EU Member States pursue a policy of decreasing renewal fees, in particular by abolishing the renewal fees for the first four patent years. They are encouraged to this by international competition, as for more than 15 years in the USA and since 2004 in Japan, costs for patent application and maintenance have been reduced by 50% for SMEs. The EPO is presently exploring the interest and possibility to apply a similar measure in Europe for application costs. Such measures may have a very significant impact to increase the number of patents. Such an increase is, of course, not necessarily a good thing in itself. A recent example is Italy[19] who in January 2006 abolished its renewal fees for patents but later reinstated them.

[19] **CA/73/06 e, "**Abolition of renewal fees for patents in Italy".
Legge 23 dicembre 2005, n° 266 - Disposizioni per la formazione del bilancio annuale e pluriennale dello Stato (legge finanziaria 2006).
Published in the "Gazzetta Ufficiale" No. 303 of 30-12-1995.

As concerns reduction of taxes on license revenues, this can be seen in two steps. The first is the introduction of general incentives decreasing the taxation of revenues from licences. This would encourage entrepreneurs to patent their results rather than to keep them secret. In Ireland, for instance, 100% of revenues from licenses are exempted from the income tax. There are similar exemptions of 50% in Hungary or Switzerland, or in Korea. A second step is the specific reduction of the taxation of revenues of non-exclusive licences. Once research results have been patented, the most logical approach for further transfer, from the individual business perspective, is to sell an "exclusive licence", which generally means more immediate profit for the seller. The best way to encourage a wide spread of research results, thereby economic efficiency, would be to promote the sale of "non-exclusive licences". Currently, the fiscal treatment does not generally differentiate between exclusive and non-exclusive licences. To increase the distribution of technology and increase the competitiveness, Europe would need to favour non-exclusive licences and thereby the wider use of new technology and research results. This would be of particular importance to SMEs, which have the capacity to rapidly implement new technology, but often cannot benefit from exclusive licences.

As concerns reduction of costs for acquiring patents or rights to use licences, this is usually taken to mean existing tax-incentives for R&D expenses being extended to the acquisition of patents or of rights necessary to perform the research.

We make no recommendations on these fiscal issues. These ideas are outlined at this stage. First, the relationship between patenting behaviour and costs is not so far fully understood. Second, it is not universally accepted that simply increasing patent applications would result in greater exploitation of innovations. Thirdly, taxation policy remains a national competence and it is doubtful that national governments would welcome regulation in this area, an area central to the perceptions of the electorate and hence the fate of governments. In this respect, it is important to remember that EU state-aid rules give member states considerable leeway, see sections 5.3, 5.4 and 5.6 of these rules.

Annex 1

Supporting statistics on IP use by SMEs: Background report to *A Memorandum on Removing Barriers for the Efficient Use of Different IPR Systems*

1. Introduction

This report provides basic data of relevance to specific issues covered in the project report. Unless specified otherwise, small firms are defined as having less than 49 employees, medium firms with 50 to 249 employees, and large firms with 250+ employees.

2. Prevalence of the use of IPR by SMEs

The most comprehensive data on the use of IPR by SMEs across manufacturing and industrial sectors is from the Community Innovation Survey (CIS). The most recent data, from CIS-4, refers to the period 2002 – 2004 and only asked, on a yes or no basis, if the firm applied for one or more patents, design registration or trademarks between 2002 and 2004 and if it used copyright. No questions were included on informal appropriation methods (secrecy, design complexity, lead time advantages).

Data on all types of appropriation methods are available from CIS-3, covering the period 1998-2000. Results by firm size for a selection of developed and transition EU countries are given for innovative firms in Table 1 and for all firms (including non-innovators) in Table 2.

SMEs consistently report less use of formal IP and of non-formal appropriation methods than large firms. The difference is greatest for patents, with a five-fold difference between large and small firms (all firms combined) and lowest for non formal IP. The differences between SMEs and large firms are less marked but are still substantial when the comparison is limited to innovative firms (Table 1).

There are several possible explanations of the lower use of IP by SMEs. All are likely to explain part of the difference:

1. SMEs are less innovative in terms of developing new products and processes in-house that meet the novelty requirements for a patent or the requirements for design registration.
2. SMEs are less likely than large firms to patent an equivalent innovation, or register an equivalent design, due to a lack of information about registering IP, high costs, or the belief that they will be unable to defend their IP from infringement.
3. The lower use of IP by SMEs is a statistical artefact due to the unit of measurement, which is the firm. The correct indicator is to determine the IP rate per 1,000 employees within specific size classes.

Table 1. Percent of innovative firms by country and number of employees that applied for a patent and which reported the use of specific protection methods (1998-2000) S = 10 – 49 employees, M = 50 – 249 employees, L = 250+ employees

	Patent application			Design registration			Trademarks			Copyright			Secrecy			Design complexity			Lead time		
	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
Belgium	11	22	31	11	20	18	18	30	32	6	11	11	23	46	48	13	19	27	28	45	53
Denmark	10	17	40	15	10	19	21	31	41	6	5	21	`14	20	33	10	14	19	23	33	38
Germany	15	21	-	13	19	93	16	20	87	6	8	33	30	35	-	20	18	71	40	44	-
Greece	7	5	9	5	6	13	20	30	35	6	7	16	11	12	40	9	8	15	1	4	3
Spain	10	16	21	10	16	21	14	18	26	2	4	8	15	25	31	14	24	31	16	26	33
France	18	29	49	14	17	26	28	35	48	6	5	11	13	20	30	16	19	23	25	30	34
Italy	10	26	42	7	19	33	14	27	40	2	4	8	23	39	55	13	21	21	31	45	52
Netherlands	10	17	29	8	8	10	12	21	22	7	7	7	12	17	23	20	24	32	39	44	50
Austria	11	20	54	11	19	42	14	27	48	8	12	20	33	45	67	25	30	41	39	58	77
Portugal	4	9	16	3	4	17	13	26	39	1	3	7	15	22	27	10	14	15	17	26	33
Finland	14	25	48	9	15	23	18	35	49	7	14	25	42	57	70	28	32	43	53	60	65
Sweden	23	35	56	16	19	33	38	43	65	18	29	40	26	25	49	17	19	29	39	39	57
UK	11	20	27	20	33	44	31	45	55	31	40	49	49	64	78	45	58	71	55	67	78
Iceland	5	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	14	23	37	9	12	12	26	30	34	15	12	17	32	34	43	20	20	21	41	43	50

Source: Eurostat 2004, country pages Tables 14b and 15a.

Table 2. Percent of <u>all</u> firms by country and number of employees that applied for a patent and which reported the use of specific protection methods (1998-2000) SME = 10 – 249 employees, L = 250+ employees

	Patent application		Design registration*		Trademarks		Copyright		Secrecy		Design complexity		Lead time	
	SME	L	SME	L	SME	L	SME	L	SME	L	SME	L	SME	L
Belgium	7.6	14.3	9.4	12.7	13.2	24.4	4.2	6.3	16.5	32.1	8.0	24.6	18.6	43.7
Bulgaria	0.9	7.2	1.1	3.1	2.5	12.4	0.5	0.5	3.4	11.3	1.2	2.1	2.0	4.6
Czech R.	2.5	12.6	3.1	14.1	11.3	33.9	4.6	8.7	4.4	16.5	2.8	11.0	6.7	15.7
Germany	9.1	37.0	11.1	41.3	11.2	30.4	3.9	11.0	18.9	46.1	11.7	24.8	24.6	52.9
Estonia	4.0	-	2.0	-	15.0	-	2.9	-	12.6	-	10.7	-	22.7	-
Spain	4.8	15.0	7.1	19.6	7.7	17.3	1.4	5.2	7.4	20.6	6.9	21.3	7.7	22.6
Greece	1.8	6.8	2.0	6.5	10.5	29.8	2.5	9.3	3.9	12.4	3.2	5.6	0.5	2.5
Hungary	2.0	6.8	3.6	7.5	2.5	18.0	2.5	17.0	2.7	7.3	7.3	27.6	1.3	5.8
Iceland	2.7	23.5	2.4	0	7.7	11.8	3.9	11.8	7.9	23.5	3.5	0	6.7	17.6
Lithuania	1.9	11.3	4.5	22.6	11.1	37.1	3.4	9.7	9.3	27.4	5.3	16.1	10.8	33.9
Latvia	3.3	37.5	3.5	43.8	11.3	59.4	3.3	12.5	8.3	31.3	6.5	15.6	11.0	34.4
Norway	5.4	-	3.6	-	11.2	-	5.4	-	12.4	-	8.7	-	17.0	-
Portugal	3.7	11.9	2.1	8.7	11.8	29.9	1.1	3.7	10.1	20.9	6.3	11.2	11.5	24.8
Romania	1.0	6.1	2.2	10.1	3.8	14.1	1.6	3.0	2.5	6.8	1.9	4.6	2.7	5.4
Slovakia	1.1	4.8	2.1	10.4	3.5	17.3	1.7	2.9	2.1	8.7	1.5	4.8	1.6	12.5
UK	3.3	13.8	12.9	37.6	12.6	34.9	11.9	30.4	18.5	48.0	15.5	40.8	19.6	47.6
Ratio L/SME	*5.0*		*4.0*		*3.1*		*2.7*		*2.5*		*2.3*		*2.6*	

Source: CIS 3 anonymised data. - = no data. * = Results from manufacturing firms only

Explanations 1 and 3 imply that policies to increase patenting by SMEs are unnecessary, since either (1) many of the innovations developed by SMEs simply don't meet the requirements for IP, or (3) the entire premise is false. Explanation 2 would justify the use of policy intervention.

Research from the UK in the 1970s that found that SMEs were actually overrepresented in patenting activity shows that explanation 3 might be very important. This assumes that the number of inventions (patentable) is directly related to the amount of effort expended on innovative activity, which in turn is a function of employment. For example, assume that the invention rate is 1 per 1,000 employees and there are two large firms with 1,000 employees each and 20 small firms with 100 employees each. Each large firm has one invention while only 2 of the small firms have 1 invention each. The invention rate per firm is 100% among the large firms but only 10% among the small firms, even when the invention rate per employee in the two groups is identical.

The equivalent patent per employee rate cannot be determined from the CIS, which in most countries only collects data on any patent application[20]. Relevant data are available for Germany, but the data are not publicly available.

An example of the problem can be obtained from the 2004 Eurobarometer survey, with results for 4,534 randomly sampled *innovative* European firms in 25 EU countries with between 20 and 499 employees. Eurobarometer only collects data on any patent application per firm, so the results are *not reliable* in terms of patent rates per 1,000 employees, since a large firm could have hundreds of patents. The results are only given here to illustrate how statistical artefacts can influence interpretation.

Table 3 gives the percent of all firms in 2004 by size that applied for 1 or more patents and registered 1 or more trademarks in the previous 2 years. The rates are lower than in Table 1, probably because the Eurobarometer survey refers to 2 rather than 3 years. However, it shows a clear trend for patent and registration activity to increase with firm size. Conversely, the rate for the number of applicant firms per 1000 employees *decreases* by firm size.

Table 3. Patent application and trademark registration rates by firm size (innovators only)

Firm size	Patents		Trademarks	
	% firms applying for 1 or more patents	Applicant firms per 1000 employees	% firms applying for 1 or more trademarks	Registration firms per 1000 employees
Small (10 – 49)	8.8%	2.8	12.8%	4.1
Medium (50 – 249)	13.8%	1.3	16.7%	1.6
Large (250 – 499)	24.2%	0.7	23.9%	0.7

Source: UNU-MERIT

[20] The result, even on an 'any patent' basis cannot be determined using the CIS-3 data available to UNU-MERIT because information on firm size is only available for broad categories, although the CIS does collect interval level employment data.

3. Difficulties faced by SMEs

Explanation 2 is partly supported by consistent data that show that the difference between large and small firms in the use of non-formal appropriation methods is less than that for formal protection methods (see Table 1). The issue is the cause of this difference.

Of note, even large firms do not patent most of their inventions, with the most favoured appropriation method usually being lead time advantages and secrecy. There are large sectoral differences in the use of patents that have been recognized for decades – a higher percentage of inventions in the pharmaceutical sector are patented than in the aerospace sector, for example (– Arundel, Cohen and Walsh, Levin et al, etc).[21] Therefore, we do not expect small firms to patent all of their inventions, even in R&D intensive sectors (– Arundel, 2001).[22]

3.1 Fear of infringement

In 2000, Bill Kingston surveyed SMEs (all patent holders) to find out if they were able to protect their patented inventions from infringement, and if the size of the infringer was a factor. Results were available for 423 firms. If SMEs have greater difficulty in protecting their patents from infringement by larger compared to smaller or equal-sized firms, we would expect the level of damage to be greater in the former case. Table 4 gives the respondents' qualitative estimates of the severity of damage by the relative size of the infringer. As expected, the level of damage is substantially greater when the infringer is larger than when the infringer is of equal size or smaller ($C^2 = 47.7$, $p < .000$). For example, 46.2% of respondents with a larger infringer report severe damage, compared to 15.6% of respondents with an equal or smaller infringer. The size of the firm's patent portfolio has no effect on the amount of reported damage from infringement.

In addition to greater damage from infringement by large firms, regression analysis finds that European SMEs, with the exception of firms based in Germany, are less likely to pursue litigation to defend their patents when the infringer is relatively larger than they are, possibly because a larger infringer can drive up legal costs. This result is very robust and holds true in a variety of regression models on the level of action taken in response to infringement. These results are also reflected in the perception by SMEs in this study that concerns over infringement reduce their ability to invest in innovation. These factors could both reduce patenting by SMEs and investments in innovation.

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[21] Cohen, W.M., Nelson, R.R., Walsh, J., 2000. Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not), National Bureau of Economic Research, Inc, NBER Working Papers: 7552.
Levin, Richard C.; Klevorick, Alvin K.; Nelson, Richard R.; Winter, Sidney G., 1988. Appropriating the Returns from Industrial R&D, pp. 79 pages, Cowles Foundation, Yale University, Cowles Foundation Discussion Papers: 862.

[22] Arundel, Anthony, 2001. The Relative Effectiveness of Patents and Secrecy for Appropriation; Research Policy, April 2001, v. 30, iss. 4, pp. 611-24.

Table 4. Severity of damage by the relative size of the infringer

		Level of damage			
Size of infringer	***N***	**little**	**bearable**	**severe**	
Equal or smaller firm only	211	25.6%	58.8%	15.6%	100.0%
Larger firm	212	12.7%	41.0%	46.2%	100.0%
Total	**423**	**19.1%**	**49.9%**	**31.0%**	**100.0%**

3.2 Lack of information and advice

A common belief is that SMEs do not patent or use other IPR because they lack good quality advice. The 2004 Eurobarometer survey has some relevant information on this issue, although it is not ideal. The survey asked firms "In the last two years, did you obtain advice services for your innovation activities e.g. with business plans, market research, patenting, finding innovation partners, or adopting new manufacturing technology?" The question asks about patents, but it is not the only purpose of seeking advice. However, we would expect that a firm who sought advice on any of these issues would be reasonably likely to know that advice services were also available for patenting. The percentage of firms that sought advice is 27.8% for firms with 20 to 49 employees, 34.8% for firms with 50 to 249 employees, and 38.7% for firms with 250 to 499 employees, suggesting that smaller firms are less likely to take advantage of advice services and could consequently be less well informed about patenting or other innovative activities. However, regression results that control for other factors such as the sector of activity and the innovative capabilities of the firm find no significant size effect in the use of advice services. All other factors being equal, small firms with 20 to 49 employees are just as likely to use advice services as firms with 250 to 499 employees[23]. As noted above, we do not know if these results specifically apply to patent advice services, but they are suggestive that there may not be a problem.

Patent costs

For details, please see Annex 1 of Commission Communication COM(2007) 165 final on *Enhancing the Patent system in Europe.*

4. Patent licensing

The draft *Potential Barriers* report raises licensing issues in two contexts: collaboration or knowledge spill-overs from the public science infrastructure (universities and public research institutes) and as a business strategy of SMEs.

[23] See Table A-1, Arundel A. The use of Innovation support programmes by European SMEs: An analysis of the Innobarometer 2004 survey, TrendChart, DG Enterprise, Brussels, December 15, 2004.

4.1 Public science

An issue is if inventions made by public science institutions need to be protected by IP in order to be licensed. The 2006 ASTP survey collected some relevant data from European public science institutions (ASTP, June 2006). Although patents provide strong intellectual property protection that should facilitate licensing, it is also possible to issue licenses for inventions such as software or living materials that are not protected by patents. For this reason, respondents were asked to estimate the percentage of their license revenue that was from patented inventions. The patent share of all license income for 2004 was 62% and the share for 2005 was 60.0%. These results show that patents are closely linked to licensing, but this still leaves approximately 40% of licence income due to non-patented inventions. We do not know if this share of licensing income was dependent on other forms of IP, such as copyright for software.

4.2 Licensing as a business strategy

Licensing, particularly of patents, is believed to be an increasingly important business strategy, but there is a lack of trend data for the role of licensing. One concern is that the popular belief in the growing importance of licensing is due to a few high profile cases, particularly in the US, where firms such as Texas Instruments and IBM earned over a billion USD each from licensing inventions in the late 1990s (REF – Thurow).

Empirical data on the issue show that licensing to earn income is a minor player in innovation strategies, although licensing is more important to small firms, probably due to the large number of small firms in high technology sectors such as biotechnology where licensing is comparatively common.

The CIS-2 survey, referring to 1994 to 1996, found that licensing patents only accounted for approximately 3% of total investments by firms on innovation (REF). The relevant question was revised in later versions of the CIS so that the share of licensing could no longer be determined.

The PATVAL survey of 2003-2004 obtained data on how 7,556 patents were used, including for licensing[24]. These are primary uses, since many patents could be used for more than one purpose. Results are given in Table 5 and show that small firms are considerably more likely to use patents to earn licensing revenue (15% of patents held by small firms) than medium (5.4%) and large firms (3.0%). Small firms also have a much lower percentage of patents that are not used, possibly because they take more care, due to patent costs, to only patent economically worthwhile inventions.

[24] The value of patents for today's economy and society. Final Report for Lot 1, DG MARKT, May 9 2005.

Table 5. Primary use of patents by firm size

	Small	Medium	Large
Internal use	55.8%	65.6%	49.9%
Licensing (income revenue)	15.0%	5.4%	3.0%
Cross-licensing	3.9%	1.2%	3.0%
Licensing and internal use	6.9%	3.6%	3.2%
Blocking competitors	9.6%	13.9%	21.7%
Not used	8.8%	10.3%	19.1%
	100%	100%	100%

5. Public versus private IPR support services

Eurobarometer has some relevant results on this argument, as shown in Table 6, although by the innovative capabilities of the firm. These increase from left (minimal) to right (research plus). Small firms are over-represented in the minimal category. Among all categories of innovative capabilities, all firms are more likely to source advice from private than from public services. Of note, these services include but are not limited to patenting.

Table 6. Use of private and public innovation advice services by innovative capability (results for all firms)

	Level of innovative capability			
	Non creative		Research based	
Advice service	**Minimal**	**Minimal plus**	**Research**	**Research plus**
None used	89.9%	80.7%	80.9%	61.7%
Public only	2.5%	3.8%	4.2%	7.9%
Private only	6.3%	13.0%	11.7%	22.7%
Both public and private	1.3%	2.5%	3.1%	7.7%
	100.0%	100.0%	100.0%	100.0%

Annex 2

Literature

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