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INTELLECTUAL PROPERTY (IP) RIGHTS AND INNOVATION IN SMALL AND MEDIUM-SIZED ENTERPRISES¹

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INTRODUCTION

1. The phrase “knowledge-based economy” describes the new economic environment in which the generation and management of knowledge play a predominant part in wealth creation, as compared with the traditional factors of production, namely land, labor and capital. Aptly, the 21st century is often labeled as the “century of knowledge”, as the ability to create, access and use knowledge has become, even more than before, a fundamental determinant of global competitiveness of enterprises and economies. In the OECD countries, the rise of the knowledge economy is evidenced by the growth in the knowledge-based industrial and service sectors, which are growing faster than GDP, and thus increasing their share in the overall economy. Despite the economic slowdown in recent years, the knowledge intensity of OECD economies continues to increase and private sector investments in R&D continues to rise (OECD, 2003).

2. Innovation may be defined as the process that leads to the introduction of new products or services to the marketplace, or the adoption of new ways of making products or services. The concept may refer to technical advances in how products are made or shifts in attitudes about how products and services are developed, sold and marketed. Knowledge and innovation management by a company or an institution relates to the way in which it exploits its innovative potential. A crucial factor determining a company’s decision to invest in innovation is the extent to which it will be able to recoup its investments and make profits once its R&D effort results in an innovative product or process. The generation of new knowledge generally entails high costs – in the case of technology, the costs relate to R&D investments – while the costs for copying or imitation are typically low. In addition, the “public good” characteristics of knowledge and innovation make it difficult for businesses to “appropriate” the results of their R&D investments. If R&D expenditure is unlikely to result in higher profits for the firm there will be a strong disincentive to invest in innovation in the first place.

3. The system of intellectual property (IP) rights creates a mechanism to resolve the “appropriability” problem of knowledge, by creating property rights over knowledge. IP rights may be defined as exclusive rights granted by the State giving the owner the right to exclude all others from the commercial exploitation of a given invention, new/original design, trademark, literary and artistic work and/or new variety of plant. By providing a fair degree of exclusivity over the exploitation of innovation(s), the system of IP rights creates an incentive to invest in scientific, technological, and organizational R&D activities so as to reduce the risk of free-riding by others while commercially exploiting product and process innovations.

4. The creation of property rights enables the exercise of ownership over the intellectual output of R&D activities. This is done by creating, using, and leveraging IP rights that enable the owner of IP rights to enter into negotiations with others in order to take a new product to market through various kinds of partnerships. Often, these partnerships are based on special contractual arrangements known as licensing contracts that permit third party use of one or more types of IP rights in exchange for a valid consideration in cash or kind. A secure access to IP rights, through ownership or licensing of IP rights, may also be important for obtaining funds from financial institutions and investors, particularly business angels and venture capitalists.

5. In addition to providing an incentive to innovate IP rights, particularly patents and utility models, play a key role in the diffusion of new technological information as patent applications are generally published 18 months after the filing of the relevant patent application. The public disclosure function of the patent system facilitates the diffusion of new technical knowledge and potentially reduces the amount of “wasteful” duplicative R&D. It has been estimated that patent documents contain 70% of the world’s accumulated technical knowledge and that most of the information contained in patent documents is either never published elsewhere or is first disclosed through the publication of the patent application.² Since the 1990s, most national IP offices of OECD countries, as well as the European Patent Office (EPO), have made available their patent databases on-line for the general public to consult free-of-charge. This makes patent databases an invaluable source of easily accessible technical information for researchers and firms, which, as explained below, remains largely unexplored and under-utilized by enterprises, particularly small and medium-sized enterprises (SMEs).

6. The focus on innovation will naturally draw the bulk of the analysis in this paper to the patent system (including utility models). However, it is important to bear in mind that innovation in its broadest sense may be protected through a variety of different intellectual property rights, depending on the nature of the innovation, the sector a company is operating in, the legal instruments available in a given country and a company’s business strategy. The main types of IP rights are: (1) patents and utility models (for inventions), (2) trademarks, (3) industrial designs, (4) valuable undisclosed information or trade secrets, (5) lay-out designs of integrated circuits (6) copyright and related rights, (7) new varieties of plants, (8) geographical indications, and (9) non-original database rights. In many countries, the law on unfair competition often expands the scope of protection of new or original knowledge that may not be adequately protected by the relatively stronger but narrower rights associated with ownership of one or more of the above-mentioned types of IP rights.

INTELLECTUAL PROPERTY RIGHTS IN THE KNOWLEDGE ECONOMY

7. The centrality of knowledge as a source of productivity gain and competitiveness has recently placed the intellectual property system at the center stage of the knowledge economy. Statistics on patent applications and patent grants show a significant increase in patenting over the past two decades leading to what has generally been termed a “pro-patent era” (Kortnum and Lerner, 1997). In the United States, for example, the total number of patents granted by the USPTO has been rising by 6% a year since the mid-1980s. The surge in patent applications has been particularly significant in knowledge-based industries such as biotechnology, information and communication technologies (ICT), nanotechnology or advanced chemicals. Since 1993, for example, the growth of biotechnology-related patent applications in the European Patent Office (EPO) has been 14.3% a year, compared to 8.3% for all patent applications.

8. Part of the reason behind the surge in patenting is an increasing trend to patent in more foreign markets, which is a direct result of the “global” approach taken by many firms, including SMEs in a number of high-technology sectors. In addition, the increase in patent applications also reflects the increased importance companies attach to patents, which may be due to a variety of reasons.

² European Patent Office, The EPO Guide to Patent Information on the Internet

- a) The shift towards knowledge-based industries has placed increasing importance on intangible assets as the source of competitive advantage for firms, thus increasing the need to have such assets protected. In the knowledge economy, many research-based companies rely on licensing revenues derived directly from their IP rights (e.g. royalties) as their main (or even as the sole) source of income, becoming producers of knowledge, which is shared via licensing agreements with a number of other companies for its commercial exploitation.
- b) The outsourcing of manufacturing activities to subcontractors, both domestically as well as in low-cost foreign locations, has also intensified the need for outsourcing companies to retain ownership over the innovative and creative aspects of their products, which are the basis of their competitive advantage in a number of sectors, including some low-tech sectors.
- c) Legislative changes at the national, regional and international levels have led to increased protection for IPRs in many countries, increased international harmonization of the IP system, and easier access to, and more effective enforcement of, IP rights in foreign countries.³ Changes at the institutional level providing a more conducive environment for the enforcement of IP rights, such as the establishment of the Court of Appeals for the Federal Circuit in the US in 1982, are also thought to have been partly responsible for the surge in patenting (Merges, 1992).
- d) The expansion of patentable subject matter has also played a significant part. The landmark case of *Diamond v. Chakrabarty* (1982) produced a flood of patent applications for biotech-related products and sparked the impressive growth of the biotechnology sector in the US and subsequently in the other OECD countries. Business method patents and software patents are also examples of areas where patenting activity has increased remarkably in countries where such patents may be obtained.
- e) The Bayh-Dole Act, enacted in the US in 1980, marked a breakthrough in the history of university-industry relations leading to a surge in patenting among universities and public-sector R&D institutions. By creating a uniform patent policy for all federal agencies that fund research and enabling universities to retain title to government-funded inventions, the Act provided a national policy framework to encourage universities and other non-profit organizations to collaborate with commercial enterprises in the commercialization of inventions and new technologies.⁴ Since the enactment of the Bayh-Dole Act, many other countries have followed suit passing legislation and establishing an institutional framework to encourage university-industry collaboration and facilitate the commercialization of university research results via its transfer to the private sector (see, for example, the Law for Promoting University-Industry Technology Licensing of Japan of 1998).

9. The above issues all point in the direction of a more active utilization of the IP system, particularly in the OECD countries, reflecting a higher perceived value of ownership of IP rights. Structural changes to the economy, increasing importance of intangible assets as a source of competitive advantage for firms, legal and institutional policies encouraging the use of IP as a means for the transfer of technology from research institutes and universities to

³ TRIPS Agreement, Articles 41 to 61.

⁴ For more on the Bayh – Dole Act, see website of the Association of University Technology Managers at: <http://www.autm.net>.

industry as well as changes to the IP system in favor of the rightholders have made the IP system increasingly attractive and in many cases indispensable for all economic agents.

SMALL AND MEDIUM-SIZED ENTERPRISES AND INTELLECTUAL PROPERTY RIGHTS

10. In the OECD countries, SMEs account for 95% of companies and 60 to 70 % of employment. Given the significant role of SMEs in the national economy in terms of their sizeable contribution to GDP, employment generation, export performance, and achieving sustainable national economic development, all national governments in the OECD consciously seek to facilitate the creation and development of the national SMEs sector. Over the past two decades, government policies have consistently sought to encourage innovation among SMEs, on the understanding that the development of a vibrant and dynamic SMEs sector, requires constant creativity and innovation to adapt to fast-changing market conditions, short product cycles and intense market competition.

11. SMEs, however, are an extremely heterogeneous group. Their innovative capacity and ability to develop new and innovative products, processes and services varies significantly, depending on their sector, size, focus, resources and the business environment in which they operate. In certain high-technology sectors, such as semiconductors and biotechnology, innovative SMEs have been a key to the growth and dynamism of these sectors. In such sectors, patenting activity is comparatively much higher than in other sectors and small firms rely heavily on patents to signal expertise, either to attract research partners or investment (Mazzoleni and Nelson (1998). Patenting is generally considered particularly important in “discrete product industries” (e.g. pharmaceutical or chemical industry) as compared to other manufacturing industries where it may be more difficult to appropriate R&D results through patenting.⁵

12. For new technology-based firms (or NTBFs), reliance on IP rights for a competitive edge is increasingly important. NTBFs are new firms established for the purpose of commercializing new technology or providing an innovative service on the basis of new technology. Such enterprises generally have limited capital and tangible assets and largely depend on intangible assets to succeed in the marketplace. The innovative idea is usually the main asset of the company during its start-up phase and the basis on which it will seek investors to take the product or service to market. For technology-based entrepreneurs and start-ups it is critical to find ways of appropriating their innovative ideas, products and processes in order to survive in the marketplace, obtain a competitive edge and have a credible business plan to present to investors.

13. In a number of other sectors, however, innovation by SMEs mainly consists in minor adaptations to existing products, innovation in designs, mode of service delivery or management and marketing practices. In many such sectors, SME innovations are mainly of an informal nature, without formal R&D investments, R&D laboratories or R&D personnel. In such cases, other intellectual property rights, such as utility models, industrial designs and trademarks may play a bigger role than patents in providing a competitive edge to SMEs. IP

⁵ Levin et. al. (1987) and Cohen et al. (2000) provide evidence of the greater value attached to patents by companies operating in so-called “discrete product” industries. Arundel and Kabla (1998) estimate that industry average patent rates range from 15% in base metals and steel to 74% in pharmaceuticals.

rights such as trademarks and industrial designs may provide companies with the ability to differentiate their products, segment markets, create a brand image, find niche markets, target specific customer groups and obtain exclusivity over the commercial use of a mark or design that may be the main selling point of a new or improved product or service.

14. The rise of the information and telecommunications industries and the increasing importance of the services sector in the economy of OECD countries have also enhanced the importance of the copyright system as a tool for protecting the creative efforts of companies in, for example, the software and multi-media sectors, as well as in many other sectors which rely on creative work protectable by copyright. The traditional focus of the copyright system on artists, musicians and writers, has increasingly expanded in the current economic context to include computer programmers and other new categories of creators in the entertainment, software or teaching industries, to name a few. The entry into force of the WIPO “Internet Treaties”, the Digital Millennium Copyright Act in the US and similar legislation in other OECD countries are increasingly providing a legal framework for the exchange of copyright-protected products and information on the Internet. For the vast number of SMEs operating in such industries, royalty revenues from the licensing of their copyrighted works is generally the main or only source of income. The existence of a well-functioning copyright and related rights system is often crucial for their survival.

15. Aside from providing the exclusive right to prevent others from commercially using an invention, design, trademark or literary or artistic work, IP rights are often used by companies to meet a wide range of additional business objectives. Depending on the IP strategy of each company, IP rights may be used to: obtain access to new markets (e.g. by licensing another company to manufacture a new or improved product based on a patented invention and/or protected trade secrets); enhance the reputation of a company as a technology leader through access to, or ownership of, key patented technologies; creating a corporate identity through a trademark and branding strategy; segmenting markets through different designs targeted to different customer groups; increase the bargaining power of the enterprise vis-à-vis business partners or investors; avoiding wasteful investments in R&D by consulting patent databases and learning about recent technological developments; establishing strategic alliances, joint ventures or other types of partnerships with other companies with complementary assets; setting up a franchising system on the basis of the company’s trademark and other IP rights; increase the market value of the company in the case of a merger or acquisition; obtain additional revenues through licensing or sale of IP rights; provide access to new financing opportunities (such as through securitization of IP assets) or support a request for funds from a financial institution, bank, business angel or venture capitalist.

16. The list is by no means exhaustive. The strategic use of IP rights by enterprises, including SMEs, will depend on the company’s overall business strategy. Effective management of IP rights may provide new business opportunities for companies with the appropriate skills, innovative capacity and resources to benefit from the range of options offered by the IP system.

17. SMEs are often constrained in many more ways than larger enterprises in making an effective and efficient use of the IP system. The heterogeneity of SMEs in terms of their ability to innovate and to use existing technology is also reflected in the ways that such enterprises use the IP system; it varies widely from company to company, sector to sector, country to country, and over time. The crucial point to note is that SMEs of varying sizes and levels of technological sophistication may benefit from different aspects of the intellectual property system according to their specific needs and technological capacity. In the knowledge-based economy, it is their ability to use the IP system efficiently and effectively

which will largely influence their capacity to make the most of their creative and innovative capacity and recoup their investments in innovation. The important question is, therefore, the extent to which SMEs are currently aware of, have access to and are making an effective and efficient use of the IP system and, if not, what are the barriers that are preventing them from doing so.

BARRIERS FACED BY SMEs IN USING THE IP SYSTEM

18. Studies from various OECD countries reveal that SMEs face a number of difficulties in using the IP system. This is often the result of their limited knowledge of the ins and outs of the IP system, lack of clarity about its relevance to their business strategy and competitiveness, and of their finding the system too complex and expensive to use. Available studies/research on the use of the IP system by SMEs are largely limited to the use of patents. This empirical evidence paints a picture in which the propensity to apply for patents is highly related to the size of the company. This is the case even when focusing exclusively on innovative companies. The evidence is somewhat similar, though to a lesser degree, for trademarks (WIPO, 2003).

19. In a survey done by the Roland Berger Forschungs Institut for the European Patent Office (EPO) on the use of the patent system by the production industries (excluding micro-enterprises and enterprises in the handicraft sector), it was reported that one out of every three companies engage in R&D activities and may be considered potential patent applicants, but only one in six actually do apply for patents (EPO, 1994). According to the survey, SMEs that do not apply for patents stated that the main reasons for not doing so are the costs and time needed for filing applications, while some SMEs also mentioned the ineffectiveness of the patent system. The survey also concluded that there is a major information deficit among SMEs on the patent system, which leads to a low level of filing of patent applications by potential applicants, and a lack of active government support to assist SMEs in the patenting process given the large number of barriers faced.

20. The costs of patenting are generally perceived as one of the greatest barriers for SMEs⁶. In budgeting the costs relating to the acquisition of IP rights, companies need to take into consideration not only the official fees (including application fees, publication fees and maintenance fees) but also the costs relating to application preparation and prosecution, legal advice and translation costs whenever the applicant intends to apply for protection abroad. Overall, the costs of protection may be perceived by many SMEs as exceeding the potential benefits to be obtained from protection, particularly considering that a significant part of the costs may be incurred before the product has reached the market and that lenders, investors or government programs rarely provide financial support for the protection of IP rights.

21. Nevertheless, evidence gathered by some national IP offices (e.g. the Danish Patent and Trademark Office) suggests that a reduction of fees for SMEs would not necessarily lead to an increase in the number of patent applications from that sector. It may be that the other costs related to patent protection, other than the official filing and processing fees may be more of an obstacle, or that the perception of high costs, complexity or ineffectiveness of the patent system, especially in terms of enforcement of patent rights, may be more of a limiting factor than the actual costs involved. However, it may also be that the reasons for low use of the patent system by SMEs may be totally unrelated to costs of filing but relate, for example, to

⁶ See, for example, Derwent (2001), Cordes (1999), European Patent Office (1994).

business strategy, to a limited knowledge of the IP system or to limited access to expert advice on the subject matter. More research on these issues is required.

22. Aside from the costs, there are a number of additional elements of the application process that may act as a disincentive for SMEs to seek IP protection, including the time required to be granted a patent or to obtain a trademark registration. The increasing number of applications at some of the large IP offices have often led to an increase in the backlog and therefore an increase in the time required from filing to grant of a patent or registration of a trademark. For SMEs, a long delay for obtaining a patent leaves a great degree of uncertainty and delays the possibility of finding potential licensees or partners for exploiting an invention.

23. In a recently published WIPO study on the use of the IP system by SMEs in Norway, attention is drawn to the fact that small companies not only apply for patents less often than large enterprises but also that when they do apply their success rate (in terms of being granted the patent) is significantly lower. This suggests that SMEs that invest in protecting their inventions are often not effective in obtaining patents. Reasons for this may be many, ranging from insufficient information on the prior art, poorly drafted patent applications, limited access to adequate legal advice and lack of resources (human and financial) to follow the application through to the grant stage (WIPO, 2003). It is to be expected that failure to obtain a patent or, after grant of patent rights, failure to successfully exploit the granted patent, may also discourage SMEs in applying for patent protection in the future.

24. In terms of IP protection in foreign markets, a recent report by the General Accounting Office (GAO) of the US identified high costs, limited resources, and limited knowledge among small businesses about foreign patent laws and systems as some of the greatest obstacles faced by American small businesses in applying for patents abroad (GAO, 2003). The GAO report expressed a concern that small businesses, particularly high technology firms, were losing potential sales in foreign markets by not applying for patent protection abroad. Empirical data suggests that small firms file for less patents abroad than do large firms (e.g. Moge 2000). In this respect, the importance of the global protection systems administered by WIPO (i.e. the Patent Cooperation Treaty for inventions, the Madrid system for trademarks and the Hague system for industrial designs) and of the regional protection systems must be highlighted as they significantly facilitate procedures and reduce costs for applying for IP protection in several countries.

25. Given some of the barriers faced in using the patent system, SMEs often use alternative means of appropriating their innovations. Some of the alternatives to patenting include secrecy, exploitation of lead-time advantages, moving rapidly down the learning curve, use of complementary sales and service capabilities, technical complexity, on-going innovation, relationships based on trust and use of trademarks to differentiate their products from those of imitators.⁷ It is often noted that secrecy and lead-time advantages may be the most common way of appropriating innovations among firms, particularly (though not exclusively) among SMEs. One of the main reasons for this is that a large variety of innovations may lack the inventive step to be protectable under the patent system (in such cases utility models, where such protection is available, or industrial designs may be suitable alternatives) or because process innovations or innovations in certain low-technology sectors are less likely to be patented. In addition, the costs related to patent protection will act as a disincentive to

⁷ A number of studies have focused on studying the ways in which firms appropriate innovation, including, Levin et al (1987), Cohen et al (2000), Kitching et al. (1999).

patenting whenever firms do not expect to obtain sufficient benefits to cover the expenditure related to patent protection (e.g. when the commercial potential is limited).

26. With respect to the use of secrecy as a means to appropriate innovation, companies may rely on legislation on trade secrets and/or unfair competition for the protection of their confidential business information. Trade secrets are intellectual property rights recognized as such by international agreements such as the WTO/ TRIPS Agreement. However, very little is known on how SMEs protect their trade secrets and to what extent they are aware of the protection offered by specific national laws on trade secrets and/or laws on unfair competition that also deal with protection of trade secrets. There is a general perception that SMEs often use trade secret protection by default, i.e. as a way of avoiding the expenditure and administrative procedures involved in patent protection, without taking adequate measures that need to be in place in order to ensure that confidential information is considered a legally protectable trade secret. According to most national IP laws, for a trade secret to be protected, there is a need to prove that (1) the information is secret (i.e., it is not generally known among, or readily accessible to, circles that normally deal with the kind of information in question), (2) it has commercial value because it is secret, and (3) the rightful holder of the information has taken all possible reasonable steps under the circumstances to keep it secret or confidential (e.g., through confidentiality agreements, non-disclosure agreements, etc.).

27. An additional element that must be taken into account when analyzing barriers to use of the IP system by SMEs is the issue of enforcement of IP rights. The difficulties that companies may face in monitoring the use of their IP rights in the marketplace and in enforcing them may act as additional disincentives to applying for protection in the first place (see Cordes 1999 and Koen 1992). In a recent survey of patenting companies in the European Union, it was argued that in 49% of sampled firms, fear of the costs of patent-defense litigation had an impact on investments in generating inventions (European Commission, 2000 a). In the US, the enforcement of IP rights is more of a problem for small enterprises than for large firms; while patents owned by small firms are infringed more often than those owned by large firms, the small firms are much less likely to litigate (Koen, 1992).

28. An area that has not been fully explored, is the extent to which SMEs use titles of protection other than patents. Raw statistics on applications for utility models and industrial designs have shown that, with some exceptions, SMEs have generally made limited use of these two forms of protection, despite them being considered titles of protection that would appear to be most suited to SMEs. For example, it appears that SMEs, in most countries where designs may be protected by copyright and as registered design rights, rely more often on copyright as a means of protection, as it does not require registration as a condition for protection. Again, it would be appropriate to inquire whether reliance on copyright is the result of conscious business strategy (in which case, appropriate measures to keep necessary evidence to prove ownership would be required) or whether reliance on copyright is by default as a result of limited knowledge of the existence of industrial design protection or as a way to avoid the costs involved in industrial design registration.

29. Not only is the propensity to apply for the protection of IP rights among SMEs low, but so is the use of the information contained in patent databases. Various studies have shown that the use of patent information as a source of technological information rises with firm size (Arundel and Steinmuller, 1998). The Community Innovation Survey shows that 34% of large R&D performing firms find patent information important, while only 18% of R&D performing SMEs and 5.9% of non-R&D performing SMEs do so. For most enterprises, trade fairs, information from suppliers and specialized magazines remain preferred sources of information. This is so because of their lack of awareness of the wealth of information

available in patent documents, limited skills to conduct patent searches, lack of familiarity with patent jargon and inability to interpret the “claims” in patent documents. Basic training in this area would enable entrepreneurs, researchers and engineers in SMEs to benefit from the public disclosure function of patents.

30. For NTBFs, as for most SMEs, funds remain the most scarce and valued resource. NTBFs reliance on intangible assets complicates the process of obtaining loans from financial institutions including commercial banks and venture capitalists. Protection of intangible assets as IP rights slightly improves the situation, particularly when dealing with venture capitalists and business angels, though less so with commercial banks. According to a study commissioned by the European Commission the difficulty involved in valuation of intellectual property assets is an important reason as to why such assets cannot be used effectively as collateral (European Commission, 2001). The survey pointed out that none of the surveyed European commercial banks accepts intangible assets such as intellectual property, as security for a loan. “This is not to say that intellectual property is not recognized – concluded the study –; as part of the overall assessment the banks insist that it be properly protected.” In some countries, where venture capital markets are well developed, patents are crucial and often indispensable to have access to any funding for NTBFs. Developing reliable mechanisms to put a value on intellectual property rights and the further development of markets for IP assets would help in creating a more NTBF-friendly environment with easier access to funding on the basis of the IP rights.

31. The barriers to a wider and more effective use of the IP system by SMEs are, therefore, many. In the first place, low awareness of the system limits the exposure SMEs have to the IP system and their ability to use all the elements offered by the IP system effectively, including not just patents but also utility models, trademarks, industrial designs, trade secrets, patent databases, copyright and other IP rights. Poor IP management skills within SMEs reduce their ability to fully benefit from the system and, therefore, discourage its future use. Secondly, limited access to the necessary human resources and/or accessible legal advice make use of the IP system complicated and decreases the chances of success in the application process for registration/grant of IP rights. Efficient IP management requires an array of skills ranging from the legal to the scientific/technical and the commercial that not all SMEs have in-house. In fact, such expertise is generally lacking in many if not most SME support institutions; this is equally true of SME consultants and business advisors in the private sector. Thirdly, high costs, not just for acquiring and maintaining but also for monitoring and enforcing IP rights are an additional barrier, particularly for firms that are operating in a number of geographically dispersed markets.

GOVERNMENT MEASURES FOR ENCOURAGING A MORE EFFECTIVE USE OF THE IP SYSTEM BY SMES

32. In most countries, including those in the OECD, the national Intellectual Property Offices (IPOs) have been historically perceived as being responsible for the IP system at the national level. The IP system was traditionally detached from innovation policy, SME policy, entrepreneurship policy, or science and technology policy. It was generally seen as a separate legal sphere of little direct relevance to the broader innovation promotion or competitiveness strategy of a country. As such, IP offices dealt almost exclusively with the registration and

grant of IP rights and were generally not involved in debates on how to stimulate innovation, notably among entrepreneurs and SMEs.

33. In recent years, the increasing importance of IP rights in a knowledge-based economy has begun to change the way national, regional and local governments view intellectual property rights and the IP system as a whole. In many countries, there has been a shift in the focus of national IPOs. While the traditional functions of IPOs in the area of examination, registration and grant of IP rights (mostly limited to patents, trademarks and industrial designs) still remains the central element of their day-to-day work, IPOs are increasingly devoting resources to a range of additional services aimed at facilitating the access to, and reaping the benefit from, the IP system by various users of the IP system, including researchers, entrepreneurs and SMEs.

34. The information gathered by the SMEs Division of WIPO on the basis of a survey of IP offices and SME support institutions shows that activities for facilitating a wider and more effective use of the IP system by SMEs generally fall into five main categories:⁸

- (a) Awareness-raising and training on IP
- (b) Technological information services
- (c) Financial assistance
- (d) Customized advisory services on IP
- (e) Assistance for IP exploitation and technology transfer

35. The bulk of activities specifically targeted at the SME sector have focused on awareness-raising and advice on procedural matters concerning the application for IP rights. These activities take into account that low awareness and limited knowledge of the IP system by SMEs is perceived in many countries to be one of the main challenges that needs to be addressed.

36. The range of awareness-raising and training activities in which IP offices have been active include the following:

- organization of seminars, conferences and campaigns on IP for entrepreneurs and SMEs;
- IP guides and other information material on various aspects of IP for entrepreneurs and SMEs;
- web sites with practical information on IP issues for entrepreneurs and SMEs;
- collection and dissemination of case studies illustrating the success stories of SMEs in leveraging IP assets;
- building IP content into customized training manuals for entrepreneurs and enterprises operating in specific sectors (e.g. biotechnology, software, agriculture, multimedia, etc.);
- general advice to applicants on administrative issues relating to the application process (e.g. helpdesks within IP offices);
- multimedia products with information and advice on management of IP assets;
- IPO participation in business fairs;
- contribution of articles on IP issues to business magazines targeting entrepreneurs, researchers and SMEs;
- regular radio and/or television programs on issues relating to intellectual property and innovation;

⁸ See “Best practices” section of WIPO’s website at: www.wipo.int/sme/en/best_practices

- integrating IP issues into the national/institutional teaching and training curricula and course material for entrepreneurs, engineering and management students;
- proactive visits to SMEs.

37. It is increasingly clear that government institutions, in order to be successful in their activities for promoting a wider and more effective use of the IP system by SMEs must seek to target not just the entrepreneurs themselves but also their business advisers, whether they be private sector consultants, or employees of chambers of commerce and industry or investors and employees of financial institutions who are more likely to be listened to by the entrepreneur and managers/owners of SMEs. In addition, promotion activities on IP have generally proved to be more effective when included in other activities seeking to meet some of the most immediate needs of SMEs, such as marketing, new product development, exporting, financing, etc. In other words, for IP to be included in the business strategy of enterprises it must also be integrated into the overall framework of business support services of those seeking to promote it.

IP AUSTRALIA-BECOMING MARKET-ORIENTED

IP Australia has taken an active role in raising awareness and educating SMEs about the importance of the intellectual property (IP) system. In 1998 it established a marketing department in order to conduct training and promotion activities which are aimed at the general public, including the SMEs. Its main activities in this area include:

- A customer-oriented website with practical information targeted to specific customer groups (including inventors, start-ups, companies in the agricultural industry, creators, researchers, government institutions, designers, exporters, etc.)
- Strong focus on training and providing support to business advisers.
- Reader-friendly publications and easy-to-use multimedia products with a range of case studies. Over 35,000 information kits on IP are distributed every year.
- The IP Toolbox, developed in conjunction with industry, has become a reference book for a wide range of organizations even outside Australia.
- Regular seminars on various aspects of IP for SMEs.

38. Some OECD IP offices have sought to go beyond the awareness-raising and training phase by providing a wide range of technological information services to their clients. The technological information provided in patent documents provides a point of departure for understanding the technological trends in specific fields or in monitoring the activities of competitors. However, the raw information contained in patent databases may be of limited use. This is why a number of IP offices provide value-added technological information services, turning the raw information provided by patent databases into more workable knowledge that can be of practical use to firms in developing new and improved products and services for improving the chances of success of their business strategy.

IP Search-Technological Information Services

The new status of the Swiss Federal Institute for Intellectual Property as an autonomous self-financing institution has led to a radical reorganization and enhancement of the services it provides in the field of patent information. The objective is to help customers to incorporate intellectual property and patent information into their corporate strategic decision processes. This is facilitated by generating a series of search modules, a selection of which can be linked

together optimally to meet a customer's needs. Typical modules include technology trend analysis, portfolio assessment and competitor analysis, and embrace patentability and infringement patent searches. The objective is further facilitated by the formation of partnerships with organizations that have complementary skills. More information is available at: <http://www.ip-search.ch>.⁹

39. Initiatives aiming at supporting enterprises in using the technological information contained in patent documents also include:

- regular workshops for entrepreneurs and managers/owners of SMEs on how to use patent information;
- free on-line access to patent databases;
- provision of a range of technological information services for SMEs at a reduced price;
- establishment of patent libraries with specialized staff within universities, technology parks, business incubators, research centers and chambers of commerce and industry;
- regular provision of information on recent patents in a given technical field or “technology alerts”;
- development of multilingual IP databases (e.g. SurfIP of Singapore).

THE PATLIB NETWORK

In cooperation with the national IPOs of the member states, the European Patent Office supports a network of patent information centers ("PATLIB Centres") throughout Europe. These have evolved from a grouping of national PATent LIBraries widely distributed in the member States. PATLIB Centres are located in national patent offices, chambers of commerce and industry, science parks and universities. The PATLIB Centres provide patent information by searching available national and international patent databases. Many PATLIB Centres additionally provide information on trademarks and industrial designs. A number of Centres have developed patent awareness modules, workshops or training programs for their users. Some Centres cooperate with patent attorneys or business advisers who regularly visit the Centre to provide clients with advice. A number of Centres have acquired their own specific profile by providing special services and products. Examples of specialties are pro-actively contacting potential clients such as SMEs who are generally not able to afford an in-house information bureau and offering assistance, organizing so-called "patent clinics" where clients can make appointments to obtain basic advice from patent attorneys or business advisors free-of-charge and providing interactive training packages. The PATLIB Network is being expanded continually. In 1995, there were 116 Centres. By October 2003, the number had increased to 283.¹⁰

40. To partly overcome the barrier of limited access to relevant legal information on IP rights, some IP offices have ventured into providing customized legal and technical support in the field of IP to their clients. In a number of cases this has been done through the establishment of decentralized sub-offices of the IP office in order to reach out to entrepreneurs and enterprises located far from the national capital, which is usually the headquarters of the national IP office. This has generally had a strong impact in terms of

⁹ Ledergerber et al., "The Swiss Federal Institute of Intellectual Property's new search services to assist corporate strategic decision – making" in World Patent Information, Vol. 25, , pp.57 – 62, 2003.

¹⁰ See http://www.wipo.int/sme/en/best_practices/patlib.htm

bringing such IP offices closer to their users. In other cases, IP offices have contributed to the establishment of patent libraries or other new types of institutional structures, often in partnership with universities, chambers of commerce and industry, science parks or other new types of institutional structures for improving access of entrepreneurs and SMEs to basic legal and procedural advice on how to go about applying for IP protection.

41. For IP offices and/or their partners, before becoming involved in the direct provision of legal advice or value-added technological information services on IP, it is important to ensure that there are no conflicts of interest (given that IPOs are also in charge of processing and examining the IP applications) or that the IP office is not perceived to be taking over activities that should ultimately be provided by the private sector on a full-fee recovery basis. The objective of any such activities should be to address a “market failure”, and to awaken a latent demand for such services. This should be done in such a manner that facilitates the development of a market sector that is capable of providing such services to entrepreneurs and SMEs at an affordable price.

Mexico-Decentralization of the IP Office

In Mexico, the decentralization of the national IP office in the year 2000, via the creation of regional offices throughout the country, has led to a significant rise in patent and trademark applications by nationals residing outside the capital. As an illustration, the number of resident patent applications filed from the Western region of the country increased from 35 in 1999 to 329 in 2001 largely as a result of the work of the Western regional office. The work of the regional offices includes, promotion, support in drafting applications, legal advice and receipt of applications. The rise in the number of applications has led to a subsequent concern: ensuring that patents and trademarks are adequately used and exploited by their owners. Regional offices are therefore increasingly concerned with issues of commercialization, licensing and technology transfer in order to assist their clients to manage their IP assets.¹¹

42. With few exceptions, very little effort has been directed to enabling SMEs to effectively use and commercialize their IP assets. In fact, IP offices are not ideally placed to play this role, which has to be played by the SMEs’ support institutions and/or by the private sector business consultants and advisers who are the prime source of support for entrepreneurs and SMEs in most countries. A few national IP offices have sought to provide mechanisms to bring together patent holders lacking funds to commercialize their products with potential licensees in order to increase the proportion of patents that reach the market as innovative products (e.g. Japan and the Republic of Korea) through the establishment of technology markets. The Danish Patent and Trademark Office, acknowledging the importance of proper valuation of IP assets of firms, has sought to develop a practical tool for the valuation of IP assets, known as IP Score®, for commercial purposes thus encouraging the development of a market for IP rights.

43. From the point of view of the application process at the IP offices, a number of recent trends have contributed to making the system more accessible to inventors, researchers, entrepreneurs and SMEs. In the first place, the introduction of electronic filing by many IP offices has made an important contribution in reducing the transaction costs faced by enterprises in filing their applications. Secondly, the availability of procedures for pre-and post-grant opposition at the IP offices as well as for a quasi-judicial review of the granted

¹¹ See http://www.wipo.int/sme/en/best_practices/impi_occidente.htm

patent, makes it easier to contest titles of protection without having to enter into potentially expensive litigation in courts. Thirdly, a number of countries (e.g., Japan and Spain) have introduced procedures for the accelerated grant of patents upon request by the applicant in certain specific circumstances, thus reducing the time required for patents to be granted. This may be particularly important, for example, for companies that have already identified a potential licensee for their innovative technology.

44. The difficulties encountered by SMEs in applying for IP protection in several countries may be significantly reduced through the use of regional protection systems or the global protection systems administered by the WIPO. By filing one international application under the Patent Cooperation Treaty (PCT), businesses can simultaneously seek patent protection for an invention in all countries that are Contracting Parties to the PCT (123 States, as of January 2004). An important advantage of the PCT is that it generally provides 18 additional months (8 months in some cases) for applicants to make up their mind in how many countries they wish to obtain protection. During this additional time, applicants may explore the commercial possibilities of their product in various countries and decide where it would be important/convenient to obtain protection. The payment of national application fees and costs of translation into the relevant national languages is thus delayed, giving applicants a breathing space of up to 30 months. Only residents and nationals of Contracting States of the PCT may apply for patent protection using the PCT. A country's membership of the PCT therefore provides national businesses with an instrument that may significantly improve their access to patent protection abroad.¹²

45. For trademarks and industrial designs, the Madrid System for the International Registration of Marks and the Hague System for the International Deposit of Industrial Designs provide applicants with the possibility to have their mark or industrial design protected in several countries by simply filing one application with a single Office, in one language, with one set of fees in one currency (Swiss francs). The Madrid system and the Hague system simplify greatly also the subsequent management of the mark or industrial design respectively, since it is possible to record subsequent changes or to renew the registration/deposit through a simple single procedural step with the International Bureau of WIPO.¹³ Currently, 74 countries are members of the Madrid system and 36 are members of the Hague system.

46. At the legislative level, the introduction of utility model protection (known in some countries as "petty patents" or innovation patents) in a number of countries, where such protection was previously not available, is also perceived as an important development for inventors, entrepreneurs and SMEs. Utility models are considered an instrument of protection that is particularly suited to small enterprises with limited R&D capacity but capable of making incremental changes or adaptations to existing products. Utility models are generally cheaper than patents and faster to obtain and often have lower requirements than patents in terms of the threshold of inventiveness. The recent introduction of the unregistered community design in the countries of the European Union may also have an important impact in providing an easily accessible means of protection for SMEs operating in the fashion industry or in products with designs that are linked to short-term or passing trends. It would

¹² Details on the Patent Cooperation Treaty are available on the PCT web site at:
<http://www.wipo.int/pct/en/index.html>

¹³ For more information on the Madrid system, see: <http://www.wipo.int/madrid/en/index.html>. For more information on the Hague system, see: <http://www.wipo.int/hague/en/index.html>

also provide SMEs with the possibility to test market their products before going through the effort and expense of registering all designs.

The “Innovation Patent”

The “Innovation patent”, launched in Australia in 2002, was introduced as a result of extensive research into the needs of SMEs, with the aim of providing a “low-cost entry point into the intellectual property system.” Applications under the new innovation patent are less expensive, are of shorter duration (8 years), may not undergo a substantive examination (unless requested by the applicant or a third party) and have a lower inventiveness requirement than is the case for standard patents.¹⁴

47. Despite all the above initiatives, mainly at the level of the IP offices, it is crucial that initiatives seeking to make a real impact in increasing awareness and encouraging a more effective use of the IP system by entrepreneurs and SMEs manages to incorporate IP within the broader development framework of support for new and existing SMEs. Increasing cooperation between institutions providing support to entrepreneurs and SMEs and institutions involved in the National Innovation System, such as universities, R&D centers, IP offices, incubators, chambers of commerce and industry, SME associations, inventors associations and venture capitalists is crucial to address the issue of IP promotion for SMEs in a holistic manner with greater coordination and collaboration amongst institutions.

48. The ambitious goal of assisting new and existing SMEs to become and remain competitive, through a more effective use of the IP system, can only be really attained if all the relevant actors in the public, private and civil society sectors in the OECD countries make sustained efforts to bridge the gap in awareness of, access to, and use of the IP system by inventors, researchers, entrepreneurs and SMEs. This has begun to happen in some countries, but efforts are generally still scattered. For example, in the Republic of Korea, close cooperation between the Korean Intellectual Property Office (KIPO), the chambers of commerce, the government SME support agency, the Korean Patent Attorneys Association and other public and private partners, including financial institutions, business training centers and multinationals have established a network of support for SMEs in IP matters.

Republic of Korea-Working in Partnership

The partnership between a number of Korean public and private sector organizations is based on five main strategic objectives: (1) IP Acquisition Campaign for SMEs; (2) Assisting in the Creation of IP; (3) Reducing the Cost of Acquiring IPRs; (4) Activating the Marketing of IPRs; and (5) Supportive Measures for Commercialization.

By way of illustration, in partnership with the Korean chambers of commerce, KIPO has established patent information centers in a number of chambers of commerce throughout the country. In addition, in order to address the cost barrier faced by SMEs in patenting their inventions, the Korean Intellectual Property Office (KIPO) and the Korean Patent Attorneys Association (KPAA) signed a business cooperation agreement to initiate a partnership that provides SMEs with free patent management services from pre-filing to registration for their

¹⁴ See Government response to the Recommendations of the Advisory Council on Industrial Property (ACIP) Report “Review of the Petty Patent System”:

http://www.ipaustralia.gov.au/patents/what_innovation_review.shtml

¹⁵ See: http://www.wipo.int/sme/en/best_practices/kipo.htm

first patent application. The purpose of the agreement was to pave the way for small and medium-sized enterprises' first procurement of patent rights in a convenient and economical manner. For patent attorneys, the free service was seen as a way of gaining a new client base.¹⁵

49. Research at WIPO on IP support services to SMEs has led to the conclusion that in many countries, government and non-government institutions responsible for supporting the growth of entrepreneurship and development of SMEs have begun to include intellectual property related services within their programs of support for SMEs. This has particularly been the case in the following areas:

- (a) Innovation promotion programs;
- (b) programs aimed at promoting the development of specific priority sectors (e.g. biotechnology, software, nanotechnology, and advanced or new materials);
- (d) export-promotion programs;
- (e) teaching of IP from a business perspective to science, engineering/technology and management students;
- (f) training programs for inventors, researchers, entrepreneurs and owners/managers of SMEs;
- (g) R&D funds to promote the commercialization of R&D results and the acquisition of new technology by SMEs; and
- (h) cluster development and regional economic development initiatives.

50. It must be noted that in most OECD countries the range, scope and performance of these services continues to be very limited; as a result these services have made limited difference to the performance, productivity, competitiveness and success of entrepreneurs and SMEs.

51. However, the provision of technological information services within innovation programs, the inclusion of IP modules within training programs for entrepreneurs and other similar activities have contributed to bringing intellectual property within the broader framework of innovation, entrepreneurship and SME support programs.

Enterprise Ireland-Integrating IP into Business Development Services

Enterprise Ireland is the government organization charged with assisting the development of Irish enterprises. Each enterprise that approaches Enterprise Ireland (E.I.) for support is initially assigned a "Development Adviser" who guides it through the services offered by E.I. Services offered relate primarily to six key business functions, namely: Business Planning & Information, Research, Development & Design, Production & Operations, Marketing & Business Development, Human Resource Development and Finance for Growth.

Within the Research, Development and Design function, E.I has established the "Intellectual Property Assistance Scheme" which offers advice on the protection of inventions, funding for patent applications and advice on the development and commercialisation of inventions. Funds for patent applications are loans which may cover 100% of the costs for the initial application phases in exchange for a share of royalties or sales derived from the patented invention.¹⁶

¹⁶ See: http://www.wipo.int/sme/en/best_practices/ireland.htm

52. The problems faced by SMEs, particularly NTBFs, in raising funds for the development of new technologies, have led some countries to begin to explore ways in which IP rights may be of use for obtaining funds. A few public sector institutions providing venture funding to SMEs have begun to consider IP as collateral/security for loans. In the aftermath of the “dot.com crisis”, questions have been raised as to the extent to which such an approach may be viable in the long run, and whether it could ever become a widespread practice. For public funds to be invested in supporting the R&D activities of inventors, researchers and SMEs it is important, however, to ensure that R&D results obtained with the support of public funds are properly protected in order to enhance their commercial exploitation. It is also important that prior to investing in specific innovation projects, a proper patent search is conducted to ensure that funds are not being devoted to duplicative research. More IP-conscious policies on public sector venture loans or grants would generally be desirable.

53. Another means by which many OECD countries have sought to encourage innovation among SMEs is tax incentives. Within such tax incentives there are, in some cases, provisions providing tax exemptions for royalty income deriving from patents (e.g., Ireland), income tax relief for R&D activities which include the protection of R&D results, or tax breaks on the acquisition of proprietary technology. The approach to taxation varies significantly from country to country.

54. In addition, many countries have established mechanisms for supporting the protection of patents, trademarks and designs in foreign markets as an essential part of their export promotion programs. This also includes assistance in gaining access to international application filing systems for patents, trademarks, and industrial designs (i.e. the PCT system for inventions, the Madrid system for trademarks and the Hague system for industrial designs). A number of programs focus specifically on innovation support and include IP advice and financial assistance to protect IP rights as an integral part of the innovation process, such as the Austrian Innovation Agency, the INSTI Project (Germany), the Stenbeis Foundation (Germany), or TEKES, the Finnish National Technology Agency. On occasions, programs are sector-specific and cover a range of issues that are of importance for innovative firms in a given sector. An important aspect of such programs is that they treat IP as a component of a broader service package aimed at helping SMEs with a number of aspects of the innovation process.

SPAIN - FINANCIAL SUPPORT FOR IP PROTECTION ABROAD

In order to alleviate the financial burden relating to patent applications and to promote the protection of intellectual property assets by Spanish enterprises abroad, different government institutions in Spain provide grants and subsidies to SMEs. Most of these grants form part of broader programs for the promotion of a particular economic sector or grants for helping companies to access foreign markets. Such programs include:

- “Soft” loans by the Center for Industrial Technology Development (CDTI): the CDTI Technology Promotion Projects are specially designed for Spanish enterprises that engage in patent activities abroad and provide soft or interest-free loans, on a number of different activities including technology transfer and patent applications.
- Subsidies under the Foreign Trade Initiation Plan: designed for Spanish SMEs which have their own product or service and non-consolidated exports not exceeding 30 per cent of total turnover. The program aims to help companies in surmounting some of the barriers they face in expanding into international markets. The program provides subsidies

to companies for the registration of patents and trademarks abroad, covering not just the application fees but also the legal fees.

In addition, a number of provinces provide grants linked to export-assistance programs or programs designed to increase the competitiveness of regional enterprises, for example, by making improvements to the design of their products. Grants generally cover the costs relating to applications for patents, marks and industrial designs and, in some cases, also the costs of acquiring patented technologies and know-how.¹⁷

55. New technology-based firms (or technology start-ups) are perhaps best placed as potential customers for programs seeking to assist the development of a dynamic and innovative SMEs sector which is capable of making effective use of the IP system. The fast development of business and technology incubators throughout the OECD countries over the last decade provides evidence of conscious government and non-government efforts to reduce some of the barriers faced by entrepreneurs during the start-up phase. Given the reasons for lack of use of the IP system and its importance as a tool for innovation management, it seems that there is a strong case for providing IP services within or through business incubators, particularly technology incubators. Facilitating access to legal, technical and financial support for access to and use of the IP system by tenants of incubators may be important for assisting start-up firms to adequately manage their innovations, by identifying, protecting, exploiting and enforcing their IP rights. In addition, access to expertise on how to search patent databases may also provide entrepreneurs with a wealth of business, technological and legal information that could be important for the development of new or improved products and services.

56. A recent pilot survey done by WIPO on the intellectual property services provided by European high-tech incubators illustrated the extent to which incubators are including IP within the support services to SMEs. The results of the pilot survey indicate that most IP rights are considered either very important or quite important by the majority of the responding incubators. In addition, IP ownership, or having a license to use the IP rights of others, is considered (by 57% of responding incubators) an important or very important factor in selecting tenants for incubators. Incubator managers acknowledge that a company that has not protected its innovative technology, has not conducted a patent search to verify whether its alleged new inventions are part of the “prior art” or are already owned by others, or has not requested a license to use a particular proprietary technology may face serious problems in taking a new product or service to market. Sixty percent of responding incubators have personnel responsible for IP advice while a few that do not, have links with external partners who offer support on IP matters. It is important to point out that very few of the responding incubators provide any support in areas such as IP enforcement and the valuation of IP assets; that is, in areas which are considered to be important for NTBFs but in which most incubators lack expertise (WIPO 2003b).

INPI FRANCE REACHING OUT TO UNIVERSITIES AND INCUBATORS

In order to train and enhance the professionalization of IP exploitation departments in universities as well as business incubators and to raise the level of awareness of researchers as well as creators of new businesses, the French National Institute for Industrial Property (INPI) developed a plan of activities. In this context, INPI provides training courses for managers of

¹⁷ See: <http://www.oepm.es/internet/ayudas/primera.htm>

technology transfer departments, customized strategic IP diagnoses, help in drawing up IP modules for teaching and training, privileged access to INPI IP databases and strategic and competitive information search services for universities and incubators.¹⁸

57. Promoting interaction between universities, public R&D centers and SMEs in the field of innovation and technology transfer has also been the target of many government and university programs. It is generally felt that a closer interaction between universities and industry would enable enterprises (and society as a whole) to benefit from the innovative capacity of universities. In that context, transparent and clear rules on ownership of intellectual property and equitable sharing of income generated by commercialization of IP rights has often been perceived as a key mechanism for creating the appropriate incentives to enhance such interaction. Different countries and institutions have adopted different policies in terms of defining the ownership of IP rights, royalty-sharing mechanisms, how to resolve conflicts of interest and other similar issues that arise when public sector institutions and universities become involved in patenting their R&D results. While analysis of the most appropriate mechanisms for fostering public-private partnerships for technology transfer is beyond the scope of this paper, it is worth noting the enormous impact of the Bayh-Dole Act and similar legislation in other countries has had in favoring the commercialization of university research results, often by means of licensing to, or establishment of, technology-based SMEs.¹⁹

Business-University Collaboration - The Lambert Review

In 2002, the UK Government asked Richard Lambert to examine how the long-term links between business and British universities can be strengthened to the benefit of the UK's economy. The Lambert Review, was developed on the basis of consultations with over 500 universities, businesses and industry organizations, and concluded that "uncertainty about IP ownership is one the main barriers to effective technology transfer and research collaboration." The UK government has been active in seeking to promote university-industry technology transfer and the UK Patent Office published guidelines in IP management in universities in 2002.²⁰

58. In the field of enforcement, the debate on possible solutions to the problems faced by SMEs has been on the European Union agenda for some years and a number of proposals²¹ have been made to address the issue, ranging from the enhancement of arbitration and mediation as a means for settling IP disputes²², the establishment of compulsory IP insurance or the creation of a Patent Defense Union (European Commission, 2000a). A 1999 report by

[Footnote continued from previous page]

¹⁸ See presentation of Pascal Duyck at:

http://www.wipo.int/sme/en/activities/meetings/oecd_03/index.htm

¹⁹ For more information on patenting at universities and public sector R&D institutions, see: OECD, Turning Science into Business: Patenting and Licensing at Public Research Organisations (2003).

²⁰ On the Lambert Review, see <http://www.lambertreview.org> and the university guidelines are available at: <http://www.patent.gov.uk/about/notices/manip>. The UK University Commercialisation Survey for Financial Year 2002 is available at: http://www.auril.org.uk/webpages/UKTT_NUBS_FY2002_FR.pdf

²¹ An illustration of a possible approach in a national context is provided at: <http://www.patent.gov.uk/about/ippd/issues/adr.htm>

²² On this issue, see activities of WIPO's Arbitration and Mediation Center, including arbitration and mediation case examples, at <http://arbiter.wipo.int> and http://www.wipo.int/sme/en/ip_business/ip_dispute/dispute_resolution.htm.

the EU recommended the introduction of compulsory expert arbitration as a solution to the excessive costs of patent litigation (ETAN, 1999). A working group of the European Patent Organization recommended the introduction of legislation that makes it easier for the arbitration of patent disputes. At this stage it seems far from clear as to the direction in which things will move; while many questions have been raised, solutions are as yet hard to find. However, it is clear that expedited procedures for settling IP disputes out of court such as expedited arbitration and the introduction of post-grant opposition and/or review procedures at IP offices are mechanisms for settling disputes that seem particularly appealing to inventors, researchers, entrepreneurs and SMEs with limited financial resources. In addition, fast and efficient procedures for disputes in courts are also necessary to ensure that SMEs may rely on the courts whenever necessary.

CONCLUSIONS AND RECOMMENDATIONS

59. The “knowledge economy” has brought about structural changes to the economies of OECD countries making it indispensable for companies and policy-makers to address new challenges. One of the most crucial challenges faced by firms is how to manage their existing and new knowledge effectively in order to benefit fully from the innovative and creative capacity of the firm. Intellectual property rights have emerged as useful tools for managing innovation and resolving some of the “market failures” affecting innovating firms. It is, therefore, increasingly important for entrepreneurs, inventors, researchers, SMEs and business consultants to have a good understanding of the IP system in order to manage effectively a firm’s intellectual assets.

60. In the current context, new technology-based firms are not only more numerous than in the past (especially in high-tech areas such as nanotechnology, biotechnology, software, and new materials) but also play an increasingly important role as innovation agents. Evidence from a number of OECD countries shows that SMEs, including NTBFs, are not always able to use the IP system effectively and often face a number of obstacles including limited knowledge of the system, high costs and lack of adequate legal, business and technical support for developing a successful IP strategy as part of their business strategy.

61. Efforts to redress the situation have sought to address some of the specific challenges currently faced by entrepreneurs and SMEs. A number of experiences have brought about interesting results and should be studied in greater detail to understand the extent to which they may be replicated elsewhere. However, it is argued here that a more concerted effort is required from all institutions operating in the national innovation system to ensure that IP is adequately incorporated into the broader framework of support for entrepreneurs and SMEs. In doing so, institutions should take into consideration the main obstacles faced by entrepreneurs and SMEs not just in seeking grant/registration of IP rights but throughout the IP management cycle, including the commercial exploitation of IP rights, the use of patent databases, the valuation of IP assets and the enforcement of IP rights.

62. Taking into consideration the above analysis, it is recommended that the following actions be undertaken:

- strengthen interaction between IP offices, SME support institutions, business associations, national, regional and local governments and other relevant institutions with a view to better identifying the IP needs of entrepreneurs and SMEs and the barriers to a more

effective use of the IP system by entrepreneurs and SMEs, and implement activities to assist entrepreneurs and SMEs to overcome such barriers;

- support efforts for further integration of IP issues in programs and policy initiatives aiming at fostering the development of entrepreneurship and SMEs, including policies directed to promoting the technological and innovative capacities of SMEs as well as policies on export promotion, entrepreneurship, science and technology, cultural development, e-commerce, technology transfer, sector-specific development and other relevant areas of policy-making;
- promote a more effective use of the IP system by entrepreneurs and SMEs by enhancing awareness and knowledge of all elements of the IP system, including not just patents but also trademarks, geographical indications, industrial designs, utility models, trade secrets, copyright and related rights, new varieties of plants, non-original databases and relevant aspects of unfair competition law, among entrepreneurs and business advisers within public and private SME support institutions;
- support initiatives that seek to facilitate the application process and reduce transaction costs for inventors, researchers, entrepreneurs and SMEs for using the IP system and study the impact of the introduction of procedures for accelerated grant of IP rights and of lower or discounted application fees for inventors, researchers, entrepreneurs and SMEs;
- evaluate the current use - and potential impact of a wider use - of utility models and consider their more active promotion or their introduction, as the case may be;
- study the impact of the introduction of IP rights for unregistered design rights;
- enhance focus on IP in the teaching and training institutions for entrepreneurs, engineers, scientists, designers and business managers, including issues such as the use of patent information as a source of technological, commercial and legal information;
- examine current attitudes/practices of financial institutions, including commercial banks, venture capitalists and business angels towards intellectual property and the extent to which IP rights may be used as security for loans;
- support initiatives to develop practical tools for the valuation of IP assets in order to facilitate the development of a market for IP rights and enable SMEs to better leverage their intangible assets;
- study the impact of different taxation policies on innovation including tax incentives for the protection or commercialization of IP assets;
- promote the development of cost-effective mechanisms for the resolution of IP disputes including opposition and review procedures, and greater use of arbitration and mediation;
- study the development of the market for IP insurance as a tool for reducing the costs of litigation for SMEs, identify existing barriers to its further development and consider whether there is scope for government intervention in this regard;

- promote technology transfer from research institutes and universities to the private sector by enhancing the development of competent IP-trained technology managers within such institutions and establishing clear rules of the game on IP ownership, royalty-sharing and commercialization of university-owned IP rights;
- encourage the development of a market for business development services on intellectual property for entrepreneurs and SMEs;
- promote the study of knowledge and innovation management in clusters, with reference to technology spillovers and management of IP assets at the enterprise and cluster levels;
- systematically evaluate timeliness, efficiency and cost-effectiveness of any initiatives targeted to enhancing a wider and more effective use of the IP system, develop benchmarks and conduct regular workshops to compare activities developed by different countries in order to identify best practices.²³

²³ See, in this respect, WIPO Forum on Intellectual Property and Small and Medium – sized Enterprises for Intellectual Property Offices of OECD Countries:
http://www.wipo.int/sme/en/activities/meetings/oecd_03/index.htm

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