ENFORCING SMALL FIRMS'

PATENT RIGHTS

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Executive Summary

Objectives

This research reflects concern on the part of EU officials that patents are used less than they might be by small- and medium-sized enterprises (SMEs). Two causes of this were assumed to be difficulty in monitoring whether infringement was taking place, and fear of the cost of litigation to assert patent rights if it was. It was desired to measure both these aspects of SME patent use empirically. It was also thought that if cases could be discovered which showed that because of Court penalties, infringement did not pay, this could be publicised by the European Commission so as to deter infringers. Having established the scale of these problems, the research was then to try to establish the shape of a 'monitoring organisation' to deal with them.

Methodology

Over 4000 SMEs were identified from every country in the European Union by the criterion of having obtained either a European or a United States patent or both, during the years 1994-1997 inclusive. Nearly 600 completed mail questionnaires were obtained from these firms, and telephone and/or personal interviews were carried out with a high proportion of their owners or managers. This work was done by Doctoral, MBA or other graduate students in the respective countries.

Questionnaire results

The principal findings from the responding firms were

- Almost every firm had made and tested a prototype of at least one of its patented inventions; these were manufactured and put on the market by the firm itself in two-thirds of the cases, and by licencing in about one-fifth.
- Two-thirds of the firms had experienced attempts to copy their patented inventions, but only one-quarter had had difficulty in learning about this.
- More than a quarter of the copying was done by larger firms than those of the respondents, and in one-third of the cases, the infringer was much the same size as themselves. 11% reported that they had been copied by firms in both size categories.
- The financial damage from copying was considered to be 'unimportant' or 'bearable' by nearly half the firms, but for 21% it was 'very serious.'
- In using the Courts to defend their patents, only about one-fifth of responding SMEs actually went as far as a trial, and 11% went on to Appeal. Technical arbitration was an option for settling the dispute in only 9% of cases and was in fact scarcely used at all.
- 14% of the responding firms had taken out insurance against the cost of patent litigation, but only 2% had made a successful claim.
- Asked whether they thought if having insurance against patent litigation would deter a potential infringer, more than half the respondents were doubtful, and only 5% were sure that it would.
- Investment in invention by two-fifths of the responding firms was not affected at all by fear of the cost of litigation to defend their patents. This fear, however, was 'very big,' for 13% and 'significant' for 36%.

- Finally, firms were asked if they would join the proposed monitoring organisation in a developed form which had been described to them, if it existed now, and over half of those who replied claimed that they would.

Case studies

The large volume of qualitative information which was obtained from the telephone and personal interviews, confirms how poorly the patent system works for SMEs. The extent to which large firms use their resources for litigation to intimidate SMEs emerged strongly. This tendency is at its worst in the United States, where it is reinforced by the built-in bias against non-local (not just foreign) patentees which results from the jury system for patent cases in the District Courts. This amounts to a serious level of protectionism against foreign high-tech firms.

Some cases were found where firms did get some compensation from their infringers, but in far more cases the evidence from this research was that *patenting* does not pay SMEs. There is consequently little hope as things are at present that infringers might be deterred by a European Commission publicity campaign telling them that infringing could be costly for them, because in all but the rarest cases, this would not be true. However, as will be seen below (Section 9) publicity of this kind would be an important element in the cooperative arrangements for protection that are proposed on the basis of the present research.

Recommendations

The two principal recommendations resulting from this study are

1. The EU's 1999 ETAN expert report[1] on Strategic Dimensions of Intellectual Property Rights recommended that a particular form of compulsory arbitration by experts deserved investigation as a solution to the excessive costs of patent litigation. The empirical evidence from the present research reinforces this. More recently, a Working Group of the European Patent Organisation has recommended that EU Governments should follow U.S. precedent in legislating for the scope of arbitration in relation to patents.[2]
2. Recommendation No. 1 would require legislation. Pending this, an EU-wide voluntary grouping of SME patentees to defend their patents could be encouraged. This, possibly called the Patent Defence Union, would be a developed version of the monitoring organisation referred to in the original specification of the research. Members would agree to technical arbitration of any dispute with another member (from the empirical data, this would immediately deal with up to one-third of all cases).

What is proposed would not be an insurance scheme, in that it would give no individual patentee the right to have his litigation costs paid. On the other hand, the Union would fight as many cases as its resources would allow, to try to put an end to the intimidation which makes the patents of so many SMEs effectively worthless.

[1] EUR 18914 - Strategic dimensions of Intellectual Property Rights in the context of Science and Technology Policy: an ETAN Report (1999) p. 26. Luxembourg, Office for Official Publications of the European Communities.

[2] EPO Working Party on Litigation, recommendation of 16.06.2000, WPL/9/00 ADD. 1. Rev.2 e.

The empirical data from the present research indicate that the Patent Defence Union could be viable with a subscription level of the order of 1 million Euros a year, paid in respect of 10% of the 18,000 SME patents needing protection. There is a strong case for a once-off subsidy to get it started, and this could be most appropriately provided by diverting a tiny part of the subsidy of 170 million Euros a year which the National Patent Offices currently receive from renewal fees on European patents. Some of this is used to promote the use of patents by smaller firms, but there is no point in such firms obtaining patents if they are unable to enforce them. Diversion to the Patent Defence Union of no more than *a fraction of 1%* of the National Patent Offices' subsidy, would enable the PDU to operate at its break-even level from the start.

An alternative source of this funding would of course be the European Union itself. Such a payment has the advantage over a subsidy to a patent insurance scheme that it would not need to be continued indefinitely.

The Patent Defence Union could be governed by a Council composed of representatives of the many groupings which represent the interests of smaller businesses and inventors throughout the Member States. The strongest candidate for its location is Denmark, since the authorities in that country have been most active in pursuing the cause of the defence of SME patents over many years.

1. Objective

It has been a matter of concern to EU policy-makers for some time that the small-firm sector in Europe has not been nearly so productive of innovation as the corresponding sector in the United States. There, firms with no more than 500 employees receive less than 4% of Federal support for research, yet they produce more than half of the innovations and get close to two-fifths of all patents.[3]

Certain factors, such as the availability of seed and venture capital, have been identified as not being as favourable for small- and medium-sized enterprise (SME) innovation in Europe as they are in the United States. But before any steps to improve these can be successful, some way must be found to facilitate SMEs in protecting whatever investments they make in developing their ideas.

Empirical studies, such as Eposcript 3, produced for the European Patent Office in 1994, show that SMEs make little use of intellectual property. On the face of it, this is surprising, given that such use should give them market power to countervail that which larger firms possess from their investments in productive assets or in marketing. When the causes are investigated, however, it emerges that there are sound reasons for this lack of use in the present structure of intellectual property arrangements, especially those relating to patents.

[3] The State of Small Business: A Report of the President (1997): Washington, D.C., U.S. Government Printing Office.

Discussion on how access by SMEs to patent protection can be improved has given far too much attention to reducing the costs of obtaining and maintaining patent *grants.* Since the patent document is no more than 'a licence to litigate,' for the only inventions that matter the real issue is the cost of *enforcing* the rights it purports to grant. This is a particular problem for SMEs, because the cost of patent dispute resolution can be far too high for them in terms of time as well as money.[4]

The objective of the research funded by this Contract was therefore to obtain first-hand, empirical knowledge of the experiences of small- and medium-sized businesses in Europe in enforcing their patents, and to relate these experiences to policy initiatives which are under consideration to assist them in protecting their inventions. The specification of the research will be found in Appendix 1 (Working Documents).

2. Methodology

The broad approach adopted for achieving this objective was to identify SMEs in every country of the EU which have patented their inventions and to question their owners or managers directly on what they think about the effectiveness of the system. In addition, they were to be asked for their comments on certain Options which are being considered for helping them to enforce their patents.

[4] For actual cost levels, see Bouju, André (1988): Patent Infringement Litigation Costs. London: Longman for the Commission of the European Communities.

This is the first time that it has been possible to undertake an empirical EU-wide survey of the experiences of SMEs in enforcing and defending their patents, because the necessary data were not previously accessible. Indeed, it is almost certain that this is the first survey of any aspect of SME patenting throughout the whole of the EU, *which begins from patent-owning firms.* Eposcript 3 was produced by screening firms in production industries and asking them if they used the patent system. Consequently, its data come from such SMEs as were encountered *en passant* in this screening. In contrast, the present study is based upon first identifying patent-owners which are SMEs and then obtaining information from these by mail questionnaires and by telephone and personal interviews.

A pilot study in the U.K. in 1999 confirmed that the methodology proposed was feasible, and indicated ways in which it could be improved.

2.1 Identification of firms to be surveyed

2.1.1 EU-originating United States patents

A uniquely valuable and timely opportunity of which the present survey has been able to take advantage is the identification by country of European SMEs which obtained patents in the United States. This arises from a provision in the United States patent law which has been in effect for some years, to the effect that 'small entities' enjoy 50% remission of all fees. A small entity is defined as an individual inventor; a 'small firm,' i.e. one which does not employ more than 500 persons and is not controlled by a firm that does; or a

not-for-profit institution, such as a University. This provision applies to applications for patents from foreign countries as well as to U.S. applicants, but until May, 1999, foreign applicants for small entity status were not separately identified in the main database of the U.S. Patent and Trademark Office.

Consequently, as soon as these data became available, the first-ever special tabulations of U.S. patents granted to European small entities by country, were carried out for the present study. The first data obtained consisted of Patent Serial Number, Country of claimed priority, and Assignee Name. As the records which were then in the U.S. database commenced with patents issued in 1994, it was decided to focus the research on the years 1994 to 1997 inclusive. The end of the year 1997 was chosen as the 'cut-off' point because it was assumed that the period which has elapsed since then would give enough time for an indication to be available by now of the likelihood of the patents being commercialised, either through self-manufacture or through licencing, and so of being infringed and becoming involved in a dispute.

The number of EU-originating United States patents issued by country during the 1994-1997 period for which small entity status was claimed was as follows

Germany	3882
U.K.	1940
Italy	1516
France	1213
Sweden	586

Netherlands	390
Spain	305
Finland	299
Austria	265
Denmark	204
Belgium	107
Ireland	76
Greece	18
Luxembourg	12
Portugal	7
Total	10820

It should be noted that since some firms, even small ones, and many Universities and Research Institutes are assignees of multiple patents, the number of *owners* of patents is appreciably lower than this total of 10,820.

It was possible to eliminate all the individual inventors and not-for-profit bodies from the raw data, leaving only small firms in the database. The employee limit of 500 for a small entity firm is twice that of the new EU definition of an SME, but it is not considered that this has harmed the survey in any significant way. An important pointer to this is that although the United States uses the same employment criterion for eligibility for its Small Business Innovation Research Programmes, the average employment in the first 23,000 firms which won awards in these is in fact only 31.

Next, advantage was taken of the provision in the United States law whereby a patent may only be granted to an individual, not to the firm which employs him or her. It is consequently normal for employment contracts to specify that any patents obtained during the period of employment are to be 'assigned' to the employer for a nominal fee. The U.S. Patent and Trademark Office produces quarterly updates of a CD-ROM which contains the names and addresses of all assignees by patent serial number. Since this number is common to this CD-ROM listing and to each patent in the tabulation of European patentees for which small entity status was claimed, which had been specially produced for this study, it was possible to produce lists of addresses of small entity patenting firms in each EU country for mailing purposes.

This list was somewhat larger than the residual list of small firms from the special tabulations, because claiming Small Entity status to obtain 50% fees reduction is almost always done at the time of filing a patent application. Some patents which were entitled to 'small entity' treatment because they were applied for by individual inventors, later became assigned to a firm either during or after the examination process. Such a firm could be either one established by the inventor to exploit his invention, or one to which he had transferred his rights to exploit it. In the latter case, a firm which has more than 500 employees could be found in the final mailing list, but it is considered that undetected instances of this would be far too few to affect the results.

2.1.2 Assumptions about invention quality

It is reasonable to assume that the resulting list of U.S. patents for inventions originating in Europe probably contains the best European SME inventions. Because of the high cost of obtaining a patent in the United States (not to speak of the cost of enforcing it) European SMEs are likely to seek patent protection there only for the inventions which they consider to be the most commercially promising.

The corollary of this is that SME inventions protected by patents from the European Patent Office, but not also from the United States Patent and Trademark Office, are not likely to be the very best European inventions - because these would *also* have been patented in the United States. This assumption may not be fully correct, because a decision to seek a European patent without applying in the United States also, may not indicate any lack of quality (even subjectively assessed) in an invention, so much as a prudent evaluation of the cost of patenting it in the United States and of enforcing the patent there. As the research revealed, such prudence is well-founded.

Finally, it was assumed that the least important inventions were likely to be those which were only protected by national patents.

2.1.3 Techniques for identifying SME-owned European patents

The numbers of patents issued by the European Patent Office in the 1994-97 period to applicants in EU countries were as follows

Germany	34481

France	13946
U.K.	8173
Netherlands	5989
Italy	5233
Sweden	2606
Belgium	1363
Finland	1107
Denmark	1028
Austria	608
Spain	515
Ireland	180
Luxembourg	160
Greece	33
Portugal	13
TOTAL	75435

Unfortunately, the European Patent Office's data on the patents it issues give no indication of firm size, since there is as yet nothing comparable in Europe to the small entity status provision of the U.S. patent law. However, Reed International, publishers of the Kompass Directories in all the EU countries except Austria and Greece, made available a database which could be combined with the EU data to eliminate larger firms. The Kompass database has very fine categories of both firms' technical activity and employee numbers. For this research, lists of firms in their categories 39-47, which is substantially the whole of manufacturing industry, and according to whether

employee numbers in each firm are 250+, 500+ or 1,000+, were obtained. A drawback which was only discovered from later interviews with patentees was that the Kompass records do not fully reflect the extent to which a firm which is ostensibly an SME from its employment content, may actually be a subsidiary of a larger one, and indeed may have access to the parent firm's patent department. To this extent, such a firm will not reflect the use of patents by autonomous SMEs.

The first task in dealing with the European data was to eliminate all individually-owned patents. This was done by assuming that in all but a very small number of cases, an SME will have some form of incorporation. The EPO records were therefore searched for evidence of this in such suffixes as 'GmbH,' 'Limited' or 'Ltd.,' 'A/S,' 'NV,' 'S.A.,' 'S.a.r.L.' etc. In Germany, for example, patents whose owners are ''KG' (616 patents) are clearly not of interest for a study of SMEs. It would also have been helpful to eliminate firms that are 'AG' (3450 patents) but these had to be left in since it is known that some smaller firms find that there are advantages in being incorporated in this way. Using 'AG' and GmbH' (the latter owning 15,481 patents for the 4-year period) was effective in eliminating individually-owned patents at the lower end of the scale. Next, the patents owned by any firms on the Kompass listings were discarded, since such firms did not meet the new EU definition of an SME, through having 250 employees or more. The list of firms remaining was then matched against that of firms on the U.S. database and all duplicates eliminated. What was left was the basic list of SMEs which owned patents

issued by the EPO during the 1994-1997 period, but which did not own a U.S. patent issued during the same period.

2.1.4 National patents

As noted above (Section 2.1.2) the third working assumption was that the least valuable inventions are likely to be those which are patented only in the inventing firm's home country. It was hoped at first that the European Patent Office's experts in Vienna would be able to develop an effective means of extracting small-firm patents of this kind from their INPADOC database, but they were unable to do so. After limited testing of the assumption about national patents in the U.K. it was decided that by far the best use of resources would be to ignore these and to concentrate on patents in the U.S. and European Patent databases.

3. Survey work

3.1 Questionnaire design

It was considered desirable to keep the questionnaire short, so as to maximise the number of responses and also because it was intended to expand the information on them through telephone and/or personal interviews. The following three pages are the English version of the covering letter, questionnaire and description of the 'Options' under consideration as ways of helping SMEs defend their patents. All this material was of course translated into the appropriate language for each EU country (11 in all).

Originally the 'Options' under consideration were: patent insurance; compulsory arbitration; and a 'collection agency.' A fourth 'Option,' the

‘Voluntary Patent Pool,’ and the question ‘If the Voluntary Patent Pool was in existence now, would you join it?’ were added to these papers after the pilot testing in the U.K., for reasons which will be explained in the next Section. The question about number of employees was added when some questionnaires were returned from a few large firms, indicating that the techniques for excluding these from the database of European patents had not been completely successful.

3.2 Questionnaire mailing policy

The questionnaire was sent to 100% of the firms on the U.S. list in all countries, on the assumption discussed above that these firms are likely to have the most important inventions. These inventions are correspondingly more likely to be commercialised, which in turn increases the probability that they will become involved in disputes, possibly leading to infringement and litigation, so providing information relevant to the objective of this study. Sampling was used to some extent in the case of European patents, justified by the fact that each country's most important SME inventions will already have been found in the U.S. list. All the firms in the latter list will be there only because they have been able to cite the date of a European or National application as 'priority' for their U.S. patent application. In Germany, the number of European patents is so large that a questionnaire could only be sent to one in five firms. In all the smaller countries of the European Union, a questionnaire was sent to 100% of the firms identified, whether from the U.S. or the European Patent Office database. Questionnaires, covering letter and 'Options' paper were distributed by mail to addressees identified by the methods described in Section 2, with an international Freepost envelope for response.

4. Pilot study

The pilot study which was conducted in the U.K. in 1999 covered all aspects of the research - identification of patentees which had obtained patents in the U.S., and mailing of covering letter, 'Options' description and questionnaire to them, followed up by telephone and personal interviews. It became clear

from this that respondents were very much aware of the cost to them of resolving patent disputes. The research also encountered intimidation of SMEs by larger firms which threaten (implicitly and explicitly) to force crippling litigation costs on them if they (the SMEs) try to enforce their patents. This and other information from the pilot study led to the addition of the fourth 'Option,' that of the 'Voluntary Patent Pool.'

4.1 Background to the 'Voluntary Patent Pool' proposal

One of the assumptions which led to the Call for Proposals for the present research, as expressed in the Technical Annex to the Contract, was that 'apart from very large organisations with dedicated IPR departments it is very difficult to *monitor potential infringements* of a patent.' It was thought that similar organisations to the 'Collection Agencies' of the music industry might be the solution to this problem.

The pilot study confirmed that the problem of SMEs is not so much discovering the fact of infringement as that of enforcing their rights on the infringer and obtaining damages. It also became clear from the research that a 'Collection Agency,' in the form in which this is used in the music industry, it is not suitable for helping to defend SMEs' patents. In the music industry, the problem of copyright owners is not just that of monitoring the use of their material, but also of how to collect large numbers of very small payments. Even if they were able to know every instance of such use, the cost of collecting royalties would still far outweigh their value.

The Collection Agencies are a cooperative solution to both the monitoring and collection problems. They do this by imposing levies on places where music is played, roughly according to audience size, insisting that lists of what is played are provided to them, and sharing out the levies to copyright owners as far as they can according to the frequency of playing of their compositions. The situation as far as patents are concerned could not be more different, since for these, licences, if granted at all, are almost always *exclusive.* The most likely arrangement is one licence for each country.

At the same time, the element of cooperation in the Collection Agency approach led to consideration of how this might be able to deal with intimidation of smaller firms by larger ones with more resources to litigate in patent disputes. In turn, this pointed towards the possible relevance of the patent 'pools' which at one time were so important in the United States. Once technologies became complex there, from about the mid-nineteenth century, it was found that patents were actually *disadvantageous* for industries in these. This is because if competing firms hold patents on different components of a complex technology, and they fail to cross-license them (which can happen from many causes, not all of them rational) development in an entire industry can be slowed down or even rendered impossible.

Firms in the United States quickly devised arrangements to limit such harmful effects of patent monopolies. Beginning with the sewing machine industry (as early as 1856) and the shoe machinery industry, patent 'pools' were established. Member firms transferred all their patents to the pool, which in

turn allowed all members to use the information freely, sometimes subject to a royalty that was assessed by a committee. Three of the most important complex technologies which were characterized by cumulative systems -- automobile, aircraft and radio -- grew on the basis of pooled patents.[5] Although U.S. patent pools became suspect as aspects of anti-competitive behavior in their industries, and all but the least important of them were outlawed by Federal Anti-Trust policy, aspects of them now appeared to be relevant to defending the patents of SMEs.

Accordingly, after the pilot study, the fourth 'Option ' of the 'Voluntary Patent Pool,' was added to those on which the views of patentees were being sought, and a question was added to the questionnaire to find out what patentees thought of it.

5. Telephone and personal interviews

It was anticipated that in the most potentially interesting cases the responses to the questionnaire would provide only part of the useful information obtainable from those responding to it. For this reason, the final item on the questionnaire invites the respondent to provide a contact name and telephone number so that the answers can be expanded by an interview.

5.1 Recruitment of students as interviewers

[5] Merges, Robert P.: 'Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations.' California Law Review 84 (1996) pp. 1293-1393.

The operating plan was to find graduate students in the different countries who had to complete some sort of minor dissertation or project in order to obtain a degree or diploma. The work would consequently be of benefit to them and ensure their interest in performing the interviewing work well. A 'Memorandum of Understanding,' which clearly defines the contributions of the three parties involved to the research, is signed by the Principal Investigator, the Student Investigator and on behalf of the student's Academic Institution. This document headed off difficulties during the course of the work, and a copy of it will be found in Appendix 1 - Working Documents.

The interviews were done by MBA students from Henley Management College and Imperial College, London, in the U.K.; from the Ecole Nationale des Ponts et Chaussées in France; by graduate Law students in the University of Verona in Italy, the University of Stockholm in Sweden, Hanken University, Helsinki, in Finland, the University of Barcelona in Spain, the University of Vienna in Austria and the University of Lisbon in Portugal; by a Research Assistant in the University of Maastricht in the Netherlands, and in Greece by a final year economics student in the University of Thessalonki. The Belgian and Irish interviews were carried out by graduate students (in the Belgian case a student from France) in the University of Dublin. Because of the exceptionally large numbers of German patents in the survey, the work there was in the hands of a doctoral student in economics in the University of Cottbus, assisted by three final year undergraduate economics students for whom the work contributed to their required project.

5.2 Support provided to interviewers

A copy of each questionnaire in which the invitation to develop the information provided through an interview was accepted was sent to the interviewer in each country. Further, to ensure that he/she could begin the interview by showing some familiarity with the respondent's technology, this was accompanied by a copy of the first page of at least one of the firm's patents, obtained from the U.S. or European Patent Office databases. The number of patents issued to the firm was also noted on the questionnaire supplied, to indicate the level of interest of the firm in innovating its technology and in protecting its inventions through the patent system.

6. Questionnaire responses

6.1 Response rates

At nearly 15% overall, the proportion of questionnaires returned was exceptionally high for a mail survey, although there were wide variations between countries. Taking account of letters returned because the addressee had moved or for some other reason, the best response rates were from the two Scandinavian countries, Sweden and Finland, both over 20%. The two countries with the highest numbers of SME patentees, Germany and the U.K. returned about 17% of their questionnaires. The rate from Italy (where the use of U.S. patents is rather high) was disappointing at only 8%. Only a single return was received from the 13 U.S. patentees in Luxembourg, and none at all from the 8 U.S. patentees in Portugal, so that information on the relevant firms had to be obtained by telephone follow-up.

The total number of usable questionnaires received was 549, of which an average of 69% provided a contact name and telephone number for interview. There was a considerable variation between countries from this point of view. In Germany, no fewer than 86% of respondents consented to be interviewed, which was very fortunate, taking into account how important that country is for SME patenting. In Italy (where the response rate was low in any event) only 44% provided a contact name and telephone number. Finland was 52% (much the same as the U.K.) but Sweden was 60%.

6.2 Analysis of questionnaires

It is well known that the majority of patented inventions are never used in practice, either because they are overtaken by further advances, or they are seen by their owners to be uneconomic, or for some other reason. It is reasonable to assume, therefore, that most of the patentees who received a questionnaire but did not return it, had little or nothing to report. Another assumption which appears to receive some support from the responses to the questionnaire, is that the patentees who had most experience with the problems of innovation, that is, turning their inventions into concrete reality, were also the ones willing to grant a telephone or personal interview.

The tabulated responses to the various questions were as follows

6.2.1 Has a prototype of any of your inventions been made and tested?

No fewer than 95% of respondents answered ‘yes’ to this question. This is important, since this level of actual experience of the innovation process makes it possible to rely upon other results of the survey with a good deal of

confidence. Respondents to this survey are reporting about artifacts, not just documents.

6.2.2 Have they been commercialised -

- By self-manufacture and sale? - Or through licencing?

It seems that European SME patentees are much more involved in making and selling their own innovations than in simply licencing their inventions to others to exploit. As few as 6% of respondents reported that their inventions had been commercialised only through being licenced to another party. In contrast, 63% exploited their inventions themselves, whilst 22% used both methods for this purpose.

6.2.3 Have any attempts been made to copy them?

Where the patent system works effectively, as in the case of the pharmaceutical industry, there is little copying, because those who would like to do it are deterred by the existence of patents in the hands of others who are well able to enforce them. Clearly, this is not the case with SMEs, as 67% of those responding reported that others had tried to copy their inventions in spite of their being patented.

6.2.4 If yes, did you have any problem learning about it?

One of the assumptions of the original specification of this research, for which it was considered that a Collection Agency along the lines of those in the Music industries might be a solution, was that patentees had a lot of trouble in finding out if their patents were being infringed.

This assumption receives only qualified support from the empirical data, since it appears to have been a problem for only 24% of responding patentees.

6.2.5 Was it by - a large competitor? - Or an equal size/smaller one?

For 34% of respondents, the infringer was of the same size as themselves, and for 26% it was a larger firm. 11% reported that they had been copied by firms in both size categories.

Since so many of the comments in the interviews (which will be discussed in the next section) related to intimidation of small firms by larger ones, made possible by the cost of litigation, it is somewhat surprising that when the figures are broken down according to whether the respondent expressed willingness to be interviewed or not, the proportion reporting copying by a larger firm only increases to 30% for those willing to be interviewed.

6.2.6 In relation to the size of your firm, was the amount of damage suffered - - Very serious? - Bearable? - Unimportant?

Only 9% considered that the damage their firm suffered from copying their inventions was unimportant. For 37% it was bearable, and for 21% it was 'very serious.' It must be assumed that for some unknown proportion of patentees the damage was so serious as to drive them out of business, so that their questionnaire would have been returned by the Post Office as 'undeliverable.'

6.2.7 If you took legal action to defend your patents, how far did this action go?

- Abandoned? - Pre-Court settlement - Trial of Action? - Appeal?

The responses to this question suggest that only one responding patentee in five actually used the Courts to defend their patents, although the *threat* of legal action has also been used. 15 began legal proceedings but abandoned them, presumably without any concession from the infringer. 23% got a settlement of their case before it reached the Court. 21% went as far as trial and half of these (11% of respondents) to Appeal.

A point to note about these figures is that they are heavily weighted by the questionnaires from Germany, where patent litigation is understood to be much less expensive than in other countries. For all the first three categories listed above, German respondents account for three-fifths of the totals (61%, 60% and 60%), and no fewer than three-quarters of the Appeals (76%) were in the German Courts.

6.2.8 Was arbitration by technical experts an option at any stage?

Arbitration was reported to have been an option for settlement of a patent dispute in only 9% of cases.

6.2.9 Have you ever taken out insurance against litigation costs?

14% of respondents had taken out insurance, 15% of those willing to be interviewed, and 11% of those who did not provide a contact name and telephone number. At 8%, the German proportion was particularly low.

6.2.10 If yes, did you make a successful claim?

However, only 2% of all respondents reported making a successful claim. These were mainly in the U.K. and Sweden, and successful claims were also reported from Finland and Spain. None was from Germany.

6.2.11 Do you think having insurance deterred others from infringing your patent(s)?

- Certainly? - Possibly? - Not at all?

This question was not worded as well as it could have been, but this was not revealed by the pilot survey in the U.K. , because it was not anticipated that experience with patent insurance would be so limited in several countries. The number of responses do not correspond with the numbers with experience of insurance, so it appears that many respondents took this question as meaning 'Do you think that *if you had insurance* it would deter others from infringing your patent(s)?'

35% of them thought it would possibly do so, 20% did not think it would give any protection at all, and only 5% felt sure that it would be a deterrent.

6.2.12 How big a deterrent to your investment in invention is the fear of heavy costs to defend your patent(s) ?

- Very big - Significant - Unimportant

The answers to this question are quite surprising, and yet the numbers are big enough to justify confidence in them. Two-fifths (40%) of respondents

considered that their investment in innovation was not affected at all by the fear of the cost of litigation to defend their patents. For rather more than one-third, however, this fear had a significant effect, and it was considered to be 'very big' by 13%.

As might be expected, those who agreed to be interviewed were more affected by the fear of heavy costs to defend their patents than those who did not agree (53% against 39% for the combination of 'Very big' and 'Significant' deterrence). For 47% of those who did not agree to be interviewed, fear of litigation costs was not an important deterrent to their investment in innovation.

6.2.13 If the Voluntary Patent Pool referred to in the enclosed was in existence now, would you join it?

Although 52% of all respondents answered 'yes' to this question, a number obviously felt that they needed more information before being able to commit themselves to an answer, and so wrote a question or a qualification on their questionnaire. These have been classified as 'maybe' and were 9% of the total responses.

When the figures are broken down according to whether or not the respondents agreed to be interviewed, the figures were

	'Yes'	'Maybe'
Agreed to be interviewed:	58	10
Did not agree to be interviewed	40	7

These figures clearly reflect a strong level of interest in this possible way of protecting SMEs' patents, but of course they do not show how far this interest would be translated into practice, once payment had to be made.

7. Telephone and personal interviews

The replies to the questionnaires provide the bones of the research, but the interviews are its flesh. It was possible to make contact with a high proportion of the firms which were willing to grant an interview, and where the telephone interview revealed a particularly interesting case, then the firm was visited for a full investigation and discussion. Some of the most important findings from both kinds of interview will now be discussed, since publication of the actual texts of the interviews is precluded by the undertaking given to respondents that their information would be kept confidential. Because of the intense interest of many of these interviews, however, it is hoped that some way may be found in the future of publishing their detailed information without identifying those who provided it.

7.1 Court awards to patentees

A second assumption in the Call for Proposals for the present research was that 'courts are willing to grant patent holders substantial remedies in cases of patent infringement.' The hope was that because of this,

> Exposing the infringer's risks by publishing such figures within the Commission dissemination tools may contribute to a decline in patent

infringement in the European Union and greatly enhance the trust in the patent system as such amongst SMEs.

Although patent cases where David does beat Goliath are not altogether unknown, the present empirical research offers little support for this hope. In case after case, the interviews show firms having great difficulty in defending their patents. In the worst cases of all, which occurred in the United States (see next Section) respondents complained that when large Court awards were finally inescapable, the infringers simply went bankrupt to avoid paying them.

Consequently, the question of what remedies the Courts may be willing to grant for patent infringement scarcely arises at all for most SMEs, because the cost of litigation means that they cannot even get a hearing. Worse, this cost is regularly used by larger firms with more resources for litigation to intimidate SMEs, and so infringe their patents with impunity.

This is the situation as it exists at present. However, if the cooperative proposals of Section 9 below were put into effect, then infringers' risks would be greatly increased. Publishing awards against them through Commission dissemination tools as well as by all other possible means of publicity would then become an important weapon for dealing with one of the worst problems that SMEs face in defending their patents: intimidation by larger ones with greater resources for litigation.

7.2 Intimidation

Indeed, the most important evidence to emerge from the interviews of the present research may be what it reveals about the prevalence of intimidation. This is endemic to SME usage of the patent system, and it seriously distorts the pattern of small firms' research and development investments. Nearly half of all respondents to the questionnaire, it will be recalled, reported that fear of legal costs was either a 'large' or a 'significant' negative factor affecting their investment in innovation -- and these are probably the most innovative firms.

It is important to stress that intimidation need not involve explicit threats. Awareness of the financial discrepancy between itself and a party with which it is in dispute, will generally be enough to cause the weaker party to avoid litigation, leaving the victory to the stronger one, however unjustly. This does not at all mean that explicit threats are absent from the behaviour of large firms. The present empirical research produced several reports of cases where a large firm, knowing the weakness of a smaller one, effectively says 'All right: sue us,' in the virtually certain knowledge that the smaller firm cannot take the risk. This practice is compounded in jurisdictions where the stronger party, in calling attention to the lack of resources of the weaker one, can ask for enough funds to pay its costs to be deposited in Court before trial of an action.

7.2.1 The importance of quick decisions to SMEs

SMEs are also subject to heavy intimidation in terms of another factor in patent disputes which is rarely taken into account, and that is the enormous cost the *time* factor has for them (particular stress was laid on this aspect by

the French interviewees). When a large firm infringes a small firm's patent, it generally has the resources to manufacture and market its embodiment (component or product) immediately. Every day by which the large firm's lawyers can postpone a Court judgment in favour of the small firm, then means more money from the market for the large one. Even if the patent is eventually held to be valid and infringed by the highest court, such delays can mean that the large firm has earned more by that time than any damages awarded against it from the results of its infringement.

In one of the case studies, for example, the interviewee called attention to the importance of this time aspect in one of their attempts to defend their patents in the United States. When the infringer was defeated in the Appeal Court, he followed his lawyers' advice to appeal to the Supreme Court. This was nothing more than a delaying tactic, as it is well known that the Supreme Court almost never takes a patent case, and it did not do so in this one. But over all the months until its refusal was handed down, the infringer was free to continue selling the patented product, and the damages which had been awarded against him in the Appeal Court did not have to be paid.

Patent practitioners naturally think of the market power (the power to exclude competitors) of a patent as being largely independent of other kinds of market power, but it is not. In fact, in the most authoritative studies to date of how the top spenders on R&D in Europe as well as the U.S. regard the various means at their disposal for exploiting its results, patents come very far down the list.

By far the most highly valued is speed to the market.[6] This largely depends upon types of market power other than intellectual property, so that if the lawyers of an infringing large firm can postpone a final Court decision by the many stratagems which are so readily available to them, the weaker firm has effectively lost the market, irrespective of what damages it may eventually receive -- and these are highly problematic. Not only are the measurable costs of prosecuting or defending an action for patent infringement far beyond the resources of SMEs, therefore, the burden of the costs that cannot be measured (such as distraction from more immediate tasks) is least bearable by firms of this type.

7.2.2 The high cost of distraction from innovative work

From the point of view of the economy as a whole, this issue of the distraction of SME owners and managers from innovatory activity is of great importance. The U.S. data to which attention has already been called,[7] shows how valuable the contribution of SMEs to this activity can be. All time and energy which has to be devoted to enforcing an SME's patents is taken away from use of the inventive capacity and ingenuity which are the special characteristics of such firms. Their personnel are not trained for it and do not like it, and Patent Agents interviewed during the course of the present research observed how confusing -- indeed incomprehensible -- their SME clients found legal processes when they were forced to come in contact with them to defend their patents. Large firms with their own specialised legal departments do not

[6] Levin, Richard C., Alvin K. Klevorick, Richard R. Nelson, and Sidney G. Winter (1987): 'Yale Study of R&D Appropriability Methods.' Brookings Economic Papers.

suffer from this distraction of their efforts. Any steps which can be taken, therefore, to enable innovative SME to keep doing what they are good at, must contribute very usefully to the innovative capacity of any economy.

7.2.3 More on intimidation

There is a further indication from the present survey -- it does not amount to hard statistical evidence -- that large firms value their power to intimidate smaller ones through the threat of imposing unsustainable legal costs on them if they try to defend their patents. As noted above, after the pilot study a fourth 'Option' was added to the list on which patentees were being questioned. This was the 'Voluntary Patent Pool' and it was explained that patentees who joined this would agree to use arbitration in any dispute with another member. The questionnaire was also expanded to include a new question, 'If the Voluntary Patent Pool was in existence now, would you join it?'

In spite of all efforts to weed out large firms from the European patent database, inevitably a few slipped through. Respondents were asked to tick boxes on the questionnaire for 'yes' and to leave them blank for 'no.' A few large firms returned the questionnaire which had been sent to them in error, but actually *wrote* ' no' in response to the question about joining the voluntary patent pool, instead of just leaving it blank. This hint (and of course it is no more than a hint) that large firms as a group see arbitration as disadvantageous, fits in with the view that they do not wish to abandon their power over small ones in terms of their resources for litigation.

[7] See above, Note 1.

7.3 The special problem of infringement in the United States

The present empirical research has also revealed clearly just how much difficulty the most inventive European SMEs encounter in exploiting their patents in the United States. The case histories in fact suggest the likelihood that any SME patents with potential value will be infringed in that country. The research reflects a level of piracy and an intensity of litigation there that is much higher than in Europe.

The problem is not at the level of examination and grant of patents by the United States Patent and Trade Mark Office, nor at that of the Appeal Court. Unfortunately, however, all patent cases in the U.S. have to begin in a District Court (almost always in the district of the infringer and with a jury if the infringer chooses this, which of course it is in his interest to do). Interviewees claimed that even though the judge is a Federal appointee and consequently unbiassed, a local jury will <u>invariably</u> side with a local firm. This means that no European firm stands much chance of getting a foothold in the U.S. market for its invention unless it has enough resources to survive the District Court stage and go on to the Appeal Court. Even then, the case studies also show that the European patentee will not be free of the malign influence of the District Court, because this can be persuaded by an astute lawyer to use its power to re-open the case, sometimes even more than once, to cause further expense and delay to the foreign party. The possibilities for intimidation through the actual legal situation in the United States can therefore only be described as very effective protectionism -- even if inadvertent on the

authorities' part -- against SME high technology from abroad. For the reasons discussed in Sections 7.2.1 and 7.2.2, the *delays* in obtaining any degree of enforcement of rights are probably an even stronger barrier to entry to the United States market than the financial costs.

8. Recommendations

8.1 Arbitration must replace litigation

The use of litigation for patent dispute resolution is especially disadvantageous for European SMEs. The Union has a multiplicity of jurisdictions, and, as notoriously in the *Epilady* case, two of these can deliver diametrically opposite judgments about essentially the same dispute, and the judges in each of these can maintain that their own interpretation of Article 69 of the European Patent Convention and its protocol, which were designed specifically to prevent just such differences occurring, is correct.[8]

Fragmentation, however, is a particularly European aspect of the problem, and is at last on the way to being dealt with by the initiative to introduce a single patent for the whole of the EU.[9] However, this in itself can do nothing to solve the underlying cause of excessive patent enforcement cost, resulting from the need for litigation. This led the EU ETAN expert group to report that it was convinced 'that the main element in the excessive cost of resolving IP disputes

[8] Cohen, David L: 'Article 69 and European Patent Integration.' Northwestern Law Review 92 (1998) pp. 1083-1129.
[9] Proposal for a Council Regulation on the Community Patent of August 1, 2000. COM (2000) 412 final.

is the use of the *ordinary* Courts to deal with what are essentially technical matters.'[10]

In many other areas of economic life, similar inappropriateness of litigation has led to growth in use of alternative dispute resolution mechanisms (ADRs) of which the most widely used is expert arbitration.[11] In the U.K., for example, it is now deliberate policy on the part of the legal authorities to keep technical disputes away from the Courts as far as possible. Membership of Trade Associations often includes the requirement to accept expert arbitration, with right of appeal to the Courts only on ground of error on a point of law. Significantly, another common condition is that Parties may be not be represented in an arbitration by any agent who is a practicing lawyer. This in itself is a major factor in keeping costs down, since without it there may not be a great difference between arbitration and a trial of an action, since in the latter case the State is paying some of the costs.

The International Chamber of Commerce has perhaps more experience than any other body of supervising the arbitration of technical disputes arising from very large and frequently international contracts. Its figures show that arbitration provides a final settlement, that is, one from which no appeal to a Court arises, in 99% of cases. From the point of view of the economy as a whole, therefore, there is an overwhelming weight of evidence in favour of expert arbitration for settling technical disputes. Since patent disputes are intrinsically technical, this raises the question, why has arbitration been so

[10] See above, Note 1, p. 26.

little used in their settlement? The World Intellectual Property Organization (WIPO) set up facilities for just this in 1992, but the number of cases it has dealt with can only be described as trivial. In the present survey, patentees who became involved in disputes were asked if arbitration was a possibility at any stage. 9% of respondents reported that it had been raised, but *only a single case was found where it was actually used.*

Within the European Union, there is one very obvious answer to this question: When a firm is charged with infringing a patent, the usual defence is to claim that the patent is invalid, but only one member-State (Belgium) allows arbitration to settle validity issues. However, his does not explain why arbitration has been so little used in countries where it can deal with all the issues in a patent dispute. In the U.S., for example, the patent law explicitly permits it to deal with the question of validity. The first reason for non-use of arbitration in such countries, then, is that obtaining a patent does not carry with it any obligation to settle disputes concerning patents in this way, as being a member of a Trade Association may do. Significantly, in industries where patent 'pools' were established in the United States, such as automobile, aircraft and radio manufacture, access to the 'pool' depended upon membership of an industry association, whose arbitration arrangements took the place of litigation.[12]

The use of arbitration to settle patent disputes, therefore, is *voluntary,* and this points towards another -- at least equally important -- reason why expert

[11] Creel, Thomas L. (1987): Guide To Patent Arbitration. Washington, DC: Bureau of National Affairs.

arbitration is avoided.[13] This is that the use of litigation gives an advantage to firms which are financially strong over those that are weak. Since no firm will willingly give up an advantage, it is not surprising that in those few cases where arbitration of patent disputes is used to avoid the costs of litigation, it is generally found that the parties are of substantially the same level of financial strength. The firms in question are often in industries where cross-licensing is practiced, which in itself is an indicator of comparable resources.

Still further evidence that the use or non-use of arbitration is related to discrepancies in the resources available to the parties to a dispute is to be found in the stark contrast between the almost total failure of WIPO's arbitration arrangements in respect of patents and its remarkable success in domain name arbitration. The most likely reason is that there is a substantial identity of size between those in dispute over domain names, and that no domain name (unless it relates to an established trade mark, when it is the danger of damage to the trade mark that is the issue) is worth litigation, so that intimidation of a party through the threat of heavy legal costs is not an option. The ease and speed with which more than 400 Internet server operators have recently agreed to operate voluntary arbitration under the WIPO umbrella, confirms that this is a valid option in cases where the parties are unable to intimidate one another in terms of legal costs and delays.

8.2 Litigation is 'inefficient, ineffective and undesirable'

[12] Merges, op. cit. (see above, Note 4).
[13] Nixon, Anthony: 'Arbitration - a better way to resolve intellectual-property disputes.' Trends in Biotechnology 15 (1997) pp. 484-486.

The cost of resolving patent disputes is in fact too high for all kinds of firms, not just for SMEs. It has been calculated, for example, that litigation costs in the U.S. in a typical year are more than a quarter of total basic research expenditures by firms. The rate of filing of patent lawsuits there is growing faster than that of patent grants. Although less than 5% of patent lawsuits actually come to trial, this does not prevent the parties in the other 95% from having to incur large costs before they reach a settlement. Or, if they are intimidated by fear of incurring such costs, from having to acquiesce in infringement of their patents.

Not surprisingly, therefore, amongst the most important conclusions of the U.S. Department of Commerce 1992 Advisory Committee on Patent Law Reform was that

> litigation has become an increasingly inefficient, ineffective and undesirable means of resolving patent related disputes...unless the problems of cost and delay in patent litigation are addressed now, the central purpose of the patent system to provide an effective incentive for development and commercialization of new technology will be seriously eroded. Such an erosion could well prove a threat to the very existence of the patent system . . .[14]

8.3 The U.S. National Patent Board

[14] Advisory Committee on Patent Law Reform, a Report to the Secretary of Commerce (1992) p. 76. Washington, DC: U.S. Government Printing Office.

To try to deal with the excessive cost of litigation in patent matters, a group of large firms, on the initiative of Procter and Gamble, and including General Electric, Intel, DuPont and Mobil, have set up the National Patent Board to function as a private patent Court.[15] It is modelled on the National Advertising Division of the Better Business Bureau, which has proved itself over 25 years to be an effective alternative to litigation in relation to trademarks. Firms which join the Board agree that they will pursue any dispute through an alternative resolution mechanism before turning to litigation. It is also a condition that if a firm does decide to bring a dispute to Court, it will pay its opponent's costs for the preceding arbitration or other alternative.

It is important to stress that the members of the National Patent Board are all very large firms and so cannot be intimidated by the threat of legal costs by an opponent.

8.4 A European move towards arbitration

The value of avoiding litigation for the settlement of patent disputes has also begun to be recognised in Europe. A working party on litigation of the European Patent Organisation has recently recommended that all the member states should allow patent validity to be the subject of arbitration, provided that (a) arbitration is optional; (b) that the parties should be free to choose the arbitrator(s) themselves; and (c) that the decision should affect only the parties to an arbitration unless legislation specified otherwise.[16]

[15] Website: http://www.patentboard.org

8.5 Need for arbitration to be compulsory

Even if this recommendation were to be adopted, it would be of little or no value to smaller firms, for the reasons discussed above. All that it would achieve is to make it possible for large European firms to escape from litigation costs in the same way as large U.S. firms have done through establishing the National Patent Board. The evidence of intimidation (both implicit and explicit) of small firms by large ones in patent disputes makes it clear that the only way in which advantages of arbitration in patent disputes can be made available to SMEs, is by making it *compulsory* .

The author's proposal for achieving this was first advanced in a 1987 book[17] and further developed in a 1995 article.[18] In 1999, the EU ETAN expert group referred to earlier, recommended this proposal for investigation,[19] and in 2000, empirical data which strongly support its practicality has also been published.[20] This proposal and discussion related to it, are reprinted in Appendix 2. The empirical evidence in the present Report, especially in the confirmation of the reality of intimidation from the interviews on which it is partially based, gives further support to it.

8.6 How might compulsory arbitration be achieved?

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[16] See above, Note 2.
[17] Direct Protection of Innovation. 1988, Dordrecht, Kluwer Academic Publishers for the European Commission.
[18] 'Compulsory Licensing with Capital Payments as an Alternative to Monopoly Grants for Intellectual Property,' Research Policy 23, 5 (November, 1994), pp. 1275-89.
[19] See above, Note 1.
[20] 'The Case for Compulsory Arbitration - Empirical Evidence.' *European Intellectual Property Review* 22 (4) 2000, 154-158.

To begin with, as EU law stands at present (until the unitary patent becomes a reality) there is no reason why any national government within the EU could not adopt this proposal unilaterally. Judgments of the European Court make it clear that 'in present circumstances, intellectual property is a matter for the individual member states.'[21] In fact, it would be open to any country that is a member of the Paris Convention to introduce it, as long as it incorporates 'national treatment.' Further, as long as the Courts remained the ultimate arbiters of disputes (as they would be in the proposal for arbitration recommended for investigation by the ETAN report) the requirements of TRIPS in the World Trade Organization Agreement, are also met with. Any country which adopted this approach would bring considerable and immediate benefit to its SME innovators. Italy already has an arrangement that is close to it in practice, in that a judge can delegate a patent case to a technical expert, and simply endorse the expert's finding. Presumably, it could be made a guideline for judges to follow this procedure in every case.

8.7 Arbitration and the subsidiarity principle

The intensity of the focus of the EU authorities on achieving unitary trade marks and patents for the European Union has distracted attention away from the point that the subsidiarity principle has its own relevance to intellectual property matters. A Directive for compulsory arbitration to benefit SMEs is hardly conceivable, in spite of its enormous potential economic value in increasing the power of such firms to invent and innovate. But if a single member country brought in legislation and it was as effective as hoped for,

[21] e.g., Courts of Justice of the European Communities (1981): Case No. 144 *Keurkoop v. Nancy Kean*

then nothing is more certain than that this legislation would be copied elsewhere very quickly. This in fact is how the remarkably valuable social invention of Limited Liability spread to every country in Europe within as short a time as ten years.[22] Once introduced, compulsory arbitration might even be copied sufficiently widely and quickly to be able to be incorporated in the operation of the unitary patent.

8.8 Part of the Utility Model Directive?

At the EU-wide level, compulsory arbitration of any dispute involving an SME might be introduced as part of the reform of the European Patent Convention which is in train, although this must be regarded as unlikely. A more realistic possibility is that it might be included in whatever Directive on Utility Models eventually appears, but some explanation of the background to this Directive is necessary if its possible relevance is to be grasped.

The origin of modern patents was the belief that our ideas are extensions of our personalities: Consequently, if it is accepted that it is the duty of the State to protect our physical persons, so it should also protect the 'creations of our minds.' What was considered to deserve patent protection was correspondingly defined by whether or not 'a spark of genius' could be detected in it. Patents then gave inventors a temporary monopoly in making, using and selling its practical result.

Gifts.; (1987): Also Case No. 35, *Thetford Corporation v. Fiamma SpA.*

[22] cf. Ripert, G. (1946): Aspects Juridique du Capitalisme Moderne. Paris, pp. 59-62.

This criterion worked well enough as long as the information to be protected was substantially what individuals could not just 'invent' or 'think up,' but also reduce to practice on their own, or in a small firm. Once science entered seriously into industry, however, beginning with chemicals and electricity, inventions largely ceased to be the work of individuals and instead became the output of large-scale investment in R&D laboratories. Clearly, such investment could only be made if the results were to be protected; equally clearly, it became progressively more difficult to find an individual's 'spark of genius' in them.

A first crisis was reached in Germany in respect of dyestuffs manufacture, and was resolved by an 1899 Court decision which replaced the spark of genius criterion by one of 'new technical effect.' An even more serious one arose after World War 2 with the need to protect antibiotics research, which was the making of the modern pharmaceutical industry. This time, the U.S. produced the solution in the form of the new criterion of the 'inventive step' in its 1952 Patent Act, and this has since been copied throughout the world.[23]

However, this new criterion is much less suitable for individual inventors and small firms than it is for large ones. Consequently, in recent years there has been a growth of interest in developing 'second tier' patent protection for these from the 'petty patents' or 'utility models' which Germany in particular had introduced during the nineteenth century for artifacts such as hand tools.

[23] Kingston, W. (2000): 'Antibiotics, Invention and Innovation.' Research Policy 29 pp. 679-710.

More than 60 countries now have utility model protection, and the Draft Directive has been prepared to harmonise the legislation of EU member states.

The existing draft Utility Model Directive has been fairly criticised on the ground that it and other similar proposals 'simply do not address the most significant obstacle to SMEs' access to the patent system: the cost and complexity of enforcement of rights'.[24] These of course are exactly the issues which are the subject matter of the present research.

Following the observations of the European Parliament on the Draft Directive on Utility Models, those responsible have undertaken to propose improvements by the end of the period by which member States must incorporate the Directive's provisions into their legislation. Compulsory arbitration would certainly be such an improvement.

8.9 Dealing with the U.S. District Court issue

Compulsory arbitration is also the obvious answer to the bias in the United States legal system against foreign SME patentees. Since this affects European patentees so seriously, EU negotiators at the ongoing revision of the World Trade Organization Agreement, including TRIPS, need to be aware of this issue. As the prime mover of the WTO, the United States in particular is certain to be forced to agree to changes.

[24] Janis, Mark D. (1999): 'Second Tier Patent Protection.' Harvard International Law Review 40 pp. 151-219.

Indeed, it could be expected that in pressing for compulsory arbitration EU negotiators would find allies, not only in the rest of the world, but in the United States itself. The enormous number of high-tech small businesses in the U.S. need to be freed from intimidation and want to face a level playing field every bit as much as much as foreign inventors do. The Office of Advocacy in the U.S. Small Business Administration is constantly seeking ways of improving the performance of SMEs and therefore could well make common cause with EU authorities to bring about a change which could contribute so greatly to this objective.

Moreover, authoritative views such as those of the Committee on Patent Reform, quoted earlier, are not being ignored by the U.S. authorities, and they must become increasingly influential over time. The establishment there of the National Patent Board (Section 8.3 above) is a pointer towards what needs to be done, although of course it lacks the essential compulsory element.

Of course, lawyers do not like expert arbitration in any form, since it reduces demand for their services, and they are a powerful lobby in every country. So are the large firms which will not want to give up their power to intimidate smaller ones with the weapon of litigation cost. It is only realistic to anticipate that their combined opposition is likely to prevent the legislation which would be needed for *compulsory* arbitration. What they could not do, however, would be to prevent SMEs joining together to cooperate in defending their patents. This makes the high level of favourable response to the Voluntary Patent Pool question in the present survey of particular interest.

9. The Voluntary Patent Pool (Patent Defence Union)

9.1 Patentees' approval for the Voluntary Patent Pool concept

This research's empirical confirmation of the extent to which the cost of dispute resolution prevents SMEs from reaching their inventive and innovative potential, should place this item high on any agenda for assisting them. One immediately practical approach is to encourage the development of cooperative means for SMEs to defend their patents. The strength of approval of this idea by SME patentees is indicated by the number of firms which reported in their questionnaire and in their interview comments that if the Voluntary Patent Pool existed now, they would join it.

It should be noted that this level of approval also represents general support for the idea of arbitration in replacement of litigation as means for settling disputes, since the Voluntary Patent Pool as presented in the 'Options,' includes the condition that membership would involve acceptance of this means of settling any dispute with another member. It will be recalled from the questionnaire results that at least one-third of the cases of copying were by another SME (Section 6.2.5 above).

9.2 The Patent Defence Union (PDU)

'Voluntary Patent Pool' was used in the survey because it was considered to be helpful in explaining this particular 'Option.' However, it would not be the most suitable for whatever arrangements might be set up in practice.

Ideally, a name for what is proposed should have an acronym which would be the same for the three main EU languages, but this would probably be impossible to achieve. 'Patent Defence Union,' or simply 'Patent Union' might be used. If it was foreseen that something wider was needed, in case that eventually copyright, plant breeders' rights etc. were also to be included in these arrangements for protection, the name might be 'Intellectual Property Defence Union' or 'Intellectual Property Union.' For simplicity, throughout the remainder of this Report, whatever arrangements might be established will be referred to as 'The PDU.'

9.3 Possible practices of the PDU

9.3.1 Disputes between PDU members

The PDU would have little to do with disputes between members, since each of the parties would have agreed when joining that any such dispute would be settled by arbitration. If the Arbitration Service of the World Intellectual Property Organisation is successful in producing a new 'doubly cheap and quick' procedure (see Section 9.10 below) there would presumably be no need for PDU involvement at all. The parties would simply apply to the WIPO arbitration service for nomination of suitably qualified arbitrators, appoint one of these, and accept his decision as final.

On this point, it is irrelevant that the law of no EU country except Belgium permits technical arbitration to deal with questions of patent validity (see Section 8.1 above). All that this can mean is that any decision on validity by an arbitrator in these countries could be struck out as *ultra vires* by a Court if

it was appealed. But since the key commitment which a patentee would make when joining the PDU would be to refrain from appealing from an arbitration in a dispute with a fellow-member, this would not arise. The arbitration is self-standing and *de facto* non-appealable, and will have no effect outside the parties themselves. Consequently, these parties can make whatever mutual arrangements they like as to the scope of the arbitration, and the basic elements of this scope would be defined in the conditions of membership of the PDU.

Waiver of right to appeal from arbitration would be an essential component of these conditions because of the damage which the distraction of litigation does to innovative SME firms. It is in the interest of Society that all involved in these remain focussed on what they have shown themselves to be good at, instead of using their energies in an area for which they are not trained and which does not suit their particular gifts.

9.3.2 Disputes with non-members.

If a dispute is between a member and a non-member, and the non-member refuses to go to technical arbitration, then litigation would be in prospect. This raises the question whether the PDU's procedure should be to provide its members whose cases it considers worth backing, with the finance to enable them to pursue the litigation themselves, or should it handle the cases itself on their behalf?

Patent Agents interviewed as part of the present study expressed the view that the managements of SMEs, especially if they are owner-inventors, are likely to feel that they have more interest in a successful outcome for their own case than the PDU could possibly have, and will therefore think that they will give more attention to the task and are more likely to be successful.

If SMEs had this option and exercised it, however, they would be forfeiting a great advantage, which would be the PDU's expertise in SME patent litigation. This should cumulatively build up to an unmatchable level on the basis of the number of cases handled. If the PDU operated as far as possible through the patent agents of the firm whose case it is taking up, the firm's individual interest in the case would also be able to contribute. Furthermore, in terms of dealing with intimidation, there is much to be said for facing an infringer instantly with the clearest possible evidence that he is up against an organisation with expertise and resources to deal with any level of litigation, and not just with an inexperienced and relatively poor SME.

Assuming that the PDU was set up to operate in this way, once a member firm had established that its patent has been infringed, its obvious first step would be to call the infringer's attention to this itself, and to endeavour to get him to desist, or to negotiate a licence, or, failing either of these, to agree to technical arbitration. This Notice should include the information that the firm is a PDU member, and the objectives, practice and resources of the PDU should also be made very clear to the alleged infringer (the PDU would supply all members with material for this purpose).

If this does not produce a satisfactory result quickly, the member would report the case to the Direction of the PDU. Because speed in getting a settlement is so important in SME cases, the PDU would *instantly* make contact with the alleged infringer, advising him that the Union has been asked by a member to intervene in the case, stressing the facilities which are available for settlement of the dispute by arbitration, and inviting him again to agree to use these.

As the law stands at present in EU countries other than Belgium, there would be little point in any such agreement unless it included a waiver of right to appeal from the arbitrator's decision. Otherwise, the arbitrator could not deal with the question of a patent's validity, which is almost certain to be challenged in the dispute. This contact would of course also ensure that the infringer was left in no doubt of the Union's resources and its determination to take legal action in as many cases as possible where such arbitration has been refused.

9.4 More use of injunctive relief

The activities of the PDU would at all times place great importance on getting speedy resolution of disputes, in view of the extent to which delays work to the benefit of infringers and to the harm of patentees. Once it becomes clear, therefore, that an infringer does not intend to settle with a PDU member or to agree to arbitration on PDU conditions, the Direction of the PDU would move as quickly as possible to a decision on whether the particular case can be taken up for litigation. It would be the patentee's responsibility to provide the PDU

with all necessary information, including expert assessment of his patent's validity, to enable such a decision to be made.

Whilst the PDU would be unlikely to have the resources to fight more than a handful of high-profile cases all the way through the higher Courts, it should be able to seek injunctive relief in a useful number of cases. At this stage, the situation of SMEs would be greatly improved because the PDU, and not the small firm itself, would be dealing with the case. Faced with an unprotected small firm, a large one is likely to demand a substantial lodgment of funds in Court in case the SME loses the trial, in jurisdictions where this is allowed; it is unlikely that the SME will have enough resources for this, and in any event it would be imprudent for it to undertake the risk. The large firm will consequently have won, not through superior inventive or innovative capacity, but simply through its power to intimidate.

If effective injunctive relief is granted to the patentee, it will impose immediate costs on the large firm in terms of disruption of arrangements for production. Delay may also bring other firms into the general product area, intensifying competition and reducing the prospect of profit. There is a further disadvantage for the large firm in that the PDU would be arguing that such injunctive proceedings are only necessary because of the large firm's refusal to accept independent technical arbitration. This will carry its own message to a non-technical judge.

Even if the case does go to trial, the large firm is likely to conclude that this will have used up all the small firm's funds, and that it will surrender if threatened with an appeal. This will not work once the PDU has become involved. The large firm's management will not of course know how far the PDU will fight any particular case, but they will certainly have no illusions about the resources it has available, and which could be deployed against them.

9.5 Changes in large-firm decision-making

One of the most valuable results for the security of small firms' patents from the very existence of the PDU is that it would radically change the conditions under which decisions about infringing would be taken in larger ones. Most such decisions are made by middle managers who are primarily concerned with their career-paths within an organization. They are much less worried about how much any decision will profit their firm (since the firm's shareholders will gain most of this) than they are about how well they themselves are 'covered' against being blamed if it causes a loss.

In present circumstances, therefore, when faced with a decision whether or not to infringe the patent of a small firm, the balance of advantage for any large-firm middle manager is to recommend infringement and intimidation. The odds can be seen to be overwhelmingly against the small firm having the resources to defend itself through appropriate legal action, especially if this could go to appeal. Even if it had these resources, the rational course for it is *not* to use them in this way because of the risk attached. If the large-firm

manager were to recommend taking a licence from the small firm instead of ignoring its patent, he could be considered as throwing away a valuable asset which the firm possesses in its power to intimidate. Throwing away assets and committing the firm to the additional cost of royalties on a licenced patent will not be seen as the best road to promotion.

This balance of advantage is almost completely reversed once the PDU comes into existence. The large-firm decision-maker is no longer faced with a financially weak patentee, but with one who could have behind him all the resources of the PDU. Further, in the former situation, the SME's disadvantage does not only consist in lack of financial resources to litigate, but also in lack of knowledge and experience of patent disputes and litigation. This lack is very apparent in the interview reports of the present research, where patentees spoke of their confusion about the legal procedures related to enforcement of their patents. In contrast, this would be the special *advantage* of the Direction of the PDU, since this would do nothing else except enforcement. It is even likely that the reputation for possessing a wide range of experience and skill which this Direction would have developed after a few years would itself be intimidating to managers in large firms.

It will be evident, then, that the very existence of the PDU could swing the balance of the odds back strongly towards SMEs, by making intimidation a less effective weapon for large firms. It would change the environment for decision-making by managers in such a firm in terms of their career paths so as make them cautious about infringing. If they are very sure about the

strength of their firm's case, they are now likely to agree to arbitration; if they are less sure about it, they will negotiate a licence from the SME; but they will no longer infringe in the strong anticipation that they will get away with it. A decision to infringe now carries the danger of litigation by the PDU on behalf of the patentee, and if this is successful, and the large firm has to pay damages and possibly costs also, who else can be blamed in the infringing organization but whoever originally recommended infringement (and did so at a time when a licence could probably have been obtained from the small firm at a relatively low rate)? The arguments touching on the crucial issue of 'cover' for an employed decision-maker would therefore have been completely reversed by the existence of the PDU.

9.6 Top management attitudes

On this point, it is worth noting that the attitude of top management in large firms towards the intimidation of small ones could be much more generous than that of intermediate managers. This is because top managers have to take account of a broader range of factors impinging on the long-term success of the firm, such as its image with the public or government, or even with its shareholders. The Directors of a large oil company, for example, may prescribe environmental policies which its operational managers in the field would happily wish to ignore in the interest of getting their job done. Similarly, on grounds of the public interest in the contribution SMEs can make to the economy, it is by no means impossible that many large firms would adopt, or could be persuaded to adopt as a policy the acceptance of technical arbitration with waiver of appeal to the Courts, in any dispute with an SME.

This could be so, even though lower down in the management hierarchy, the Heads of Research and Intellectual Property, whose jobs are to maximize the returns from the firm's investments in R&D, in isolation from other considerations and in the short term, would be happier if they could intimidate small firms through the threat of litigation costs.

For this reason, an aspect of the work of the PDU would be to campaign to recruit as many large firms as possible on some sort of Associate Member basis. As such, they would agree to the standard membership condition of accepting arbitration of any dispute with another member (small or large). However, they would obviously not be able to look to the PDU for funding of any litigation in which they might get involved, since they have no lack of resources for this themselves.

9.7 What size of firm could be a member?

This leads on to questions of restriction on membership of the PDU, and there are arguments for having as few of these as possible, in terms of either geography or size.

To begin with, applying the European Union's definition of an SME as having no more than 250 employees is too low for patent purposes. Many firms with more employees than this are still open to intimidation by the threat of high litigation costs. If firms of any size were permitted to join, since a condition of membership would be acceptance of expert arbitration to settle all disputes between members, any large firm which joined would be denying itself the

power to use its financial strength to intimidate smaller ones. Also, since presumably the basis of financial contribution to the PDU would relate to number of patents owned, and larger firms would tend to have more patents, allowing such firms to be members would have a disproportionally positive effect on the PDU's revenues.

At the same time, it would defeat the entire object of the PDU if firms with plenty of resources could turn to it to shoulder the costs of litigation against non-members on their behalf. That is why it would be advantageous to have some kind of Associate Membership for such firms, as suggested in the previous sub-section. This type of membership would then be substantially the same as being a member of the National Patent Board is for a firm in the U.S. However, a basic difference between the PDU and National Patent Board arrangements would have to remain. In the Board, any member firm which is dissatisfied with an arbitration decision can appeal to the Courts, subject to the condition that it then pays its opponent's costs in the arbitration as well as its own. Associate membership of the PDU, in contrast, would mean giving up the possibility of appeal in any dispute with an SME member, because if this option existed a large member firm could then intimidate a small one with the threat of heavy legal costs

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9.8 Should foreign subsidiaries in the EU be permitted to join?

Another question requiring consideration is whether eligibility should be restricted to wholly- or majority-owned European firms? Here again, it could be advantageous not to restrict, but to allow all firms that have a productive

establishment in any EU country to join the PDU, even if their ultimate ownership is abroad. Clearly, for full membership a size criterion would apply, and there is everything to be said for making this the 500-employee limit which applies for 'small entity status' in the United States. An incidental advantage of this is that it would eliminate any need to check on the size of a foreign applicant for membership. No such applicant, no matter from what country, would be likely to be without a U.S. patent, and if it was entitled to it, would have claimed 'small entity' status in its application. Further, the declaration supporting this claim for 'small entity' status would have to be true, since in the U.S. patent system any form of 'fraud on the Office' results in patent invalidity.

9.9 An ally in the U.S. Small Business Administration?

If the PDU concept proved to be a success in the EU, its value to the most inventive European SMEs would still be limited if nothing comparable existed in the U.S. This is because getting a foothold in that market is especially necessary for their products. Consequently, any steps that can be taken to encourage the establishment and growth of an American version of the PDU could only be beneficial. The environment for this is favourable in that the built-in bias in the U.S. District Court system discussed above (Section 7.3) is an obstacle to justice being obtained in respect of their patents, not just by foreign SMEs, but also by 'out of State' or even 'out of town' small high-technology firms in the U.S. itself. As pointed out earlier, the cause of reducing the costs of dispute resolution for high-tech SMEs is therefore one which must commend itself just as much to the Small Business Administration

in the United States as it does to the EU authorities. Getting the SBA to take up this cause will be easier if U.S.-owned SMEs are able to experience the advantages of the proposed system in Europe and press for it to be replicated in their home country.

9.10 Use of WIPO's arbitration arrangements

As already referred to (Section 8.1) usage of the arbitration arrangements established by the World Intellectual Property Organisation (WIPO) to settle patent disputes has been meagre, to say the least. The state of the law about arbitration and validity is an important cause of this, but the empirical results of the present research suggest that the unwillingness of larger firms to give up their advantage over SMEs in terms of resources to litigate is also a factor.

In contrast, there has been a remarkably rapid take-up of WIPO's services for domain name arbitration . This would similarly be explained by the fact that -- except where there is a link to a trademark -- no new domain name is sufficiently valuable to justify litigation. The intimidation issue consequently does not arise.

As part of the present research, discussions were held with WIPO's arbitration experts on how the PDU might benefit from their underused facilities. It appears that they have learned a great deal from their domain name experience about arranging for quick and low-cost arbitration. This might even enable them to improve on their existing 'expedited' service for patents and trademarks. If they could, it would be of special interest to SMEs, since the

research has shown that loss of time in trying to resolve disputes is even more damaging to them than loss of money.

Using the WIPO arrangements as standard practice could add a valuable dimension to the PDU's procedures for settlement of disputes between members. It might be possible, for example, to have WIPO's list of arbitrators carry an indication of which ones were prepared to arbitrate according to any new 'doubly cheap and quick' procedure which WIPO might develop. It is also not out of the question that WIPO might be persuaded to quote a reduced fee for recommending an arbitrator from their panels in cases involving PDU members, and the increased numbers of arbitration cases which could be anticipated could well compensate them for such a fee reduction. The empirical results of this survey showed that at least one-third of the copying of SME inventions is by other SMEs, so that the agreement to settle disputes by arbitration which would be a condition of membership of the PDU, would dispose of a useful proportion of all disputes.

10. Financial aspects of the proposed Union

We know from our U.S. database that the average number of U.S. patents obtained by EU 'small entities' (firms with no more than 500 employees, individual inventors and not-for-profit bodies such as Universities) is about 2,700 a year. The owners of all of these are potential full members of the PDU. Our comparable data for European and National patents granted to similar groups is not so reliable, but since the claim for 'small entity' patent status in the U.S. by an EU applicant will almost always be based upon a prior

application in an EU country, it can safely be taken that for every U.S. patent to a 'small entity,' there will be a European or national patent also. As well as this, of course, there will be many owners of European patents (and even more owners of national patents) who will not apply for a U.S. patent. A figure of 6,000 *new* small entity patents a year in Europe is therefore a reliable starting point.

A conservative estimate, derived from patent renewal fee data, is that an invention covered by one of these new patents will be considered by its owner to need protection for at least 3 years from grant on average, giving 18,000 patents a year to be protected. A prudent target for membership of the PDU would be 10% of this. The subscription for membership could be graduated according to whether an invention was simply the subject of a patent, or had been developed to prototype stage, or had reached the stage of actually being a product on the market, since the risk of infringement progressively increases as these milestones are passed. The possible losses to the patentee also increase correspondingly. Assuming an average subscription at the low level of 500 Euros per patent, the 10% target for membership indicates annual revenue of 900,000 Euros. Assuming that half of this is absorbed by administration costs, warnings to infringers, and obtaining injunctive relief in some cases, then the other half would be available to pursue one or two fairly high profile cases each year. If properly publicised, these cases would have a twofold effect: they would demonstrate the value of the PDU to patentees who had not already joined it, and they would contribute to reducing intimidation

of small firms by large ones through threats (implicit or explicit) of litigation costs.

10.1 Pump-priming funds

On the basis of these figures, the PDU would begin to be viable at a level of subscription revenue of the order of 1m Euros/year. Although the assumptions on which these estimates are based are conservative, it might take a considerable time to build up to this level of revenue. This carries the danger that in the early years there might not be enough funding available to fight and win any significant cases at all. If that happened, patentees might conclude that the PDU's power to defend them would not justify the subscription, and their support might never reach the critical level.

There is consequently a case for subsidisation of the operation of the PDU in its early years, so that its Direction could pursue clear cases of intimidation in the Courts from the start. With a 15% response rate for the questionnaire and at least half of respondents saying that they would join the PDU if it existed now, it can be claimed that that not less than 7% of patentees are seriously interested in the idea. Assuming prudently that only one-third of these would back this interest up with money at the outset, translates into subscriptions in respect of no more than 2% of the 18,000 patents estimated to require protection.

Subscriptions covering about 360 patents, or, at 500 Euros per patent, 180,000 Euros could therefore be anticipated with some confidence for the first year. If

this doubled in the second year, increased again by 1.8 times in the third year, by 1.5 times in the fourth year and by 1.2 times in the fifth, the minimum level of viability would then be reached. If the PDU's activity was to be subsidised up to the viability level from the outset, the amounts required would add up to about 2 million Euros, spread in diminishing amounts over the first four years of its life.

10.1.1 Diverting a fraction of patent renewal fees?

There is a very obvious source for such a subsidy. At present, protection under a European patent is through a bundle of National patents, and each National Office collects the renewal fees on the European patents which designate its country. But since these Offices play no part in application, examination or grant of patents, they transmit half of these fees to the European Patent Office, where all this work is actually done. The half of the renewal fees which they retain, amounts to a subsidy to these Offices in the most precise possible sense. Its amount is now very large indeed – 159 million Euros in 1998 and 168 million in 1999.[25]

In some countries, where any surplus in the Patent Office is taken into central Government funds, this subsidy therefore contributes to an explicit tax on inventive activity. Such a tax runs directly counter to other Government policies, such as, for example, tax *relief* on research and development expenditures. In countries where the National Patent Office is allowed to keep

[25] European Patent Office Annual Report, 1999, p. 54 (the annual subsidy to the National Patent Offices is the same as the EPO's revenue from renewal fees).

any surplus revenue, the subsidy contributes to the Office's activity of promoting the use of the patent system, or, as notably in the U.K., to reducing the cost of obtaining a national patent.

However, there is no point in increasing the number of patentees if they are unable to protect their patents; and no matter how low the cost of obtaining a patent, it is still money wasted as long as the patent document remains no more than 'a licence to litigate' for an owner who cannot afford to use the Courts to enforce his rights.

For these reasons, the National Offices might well be willing to divert a proportion of the subsidy they receive from the renewal fees on European patents, to assisting the *enforcement* of SMEs' patents in the form of initial support of the PDU. A diversion of as little *as one-third of one percent* of the Offices' annual revenue from this source would enable the PDU to operate from the start at its project break-even level. This would be so even if the four countries which are signatories to the Munich Convention, under which the European Patent Office operates, but which are not members of the EU, did not contribute for any reason.

10.1.1.1 Effect of EU unitary patent

As a result of present negotiations, by which the European Community would become a 'territory' for purposes of grant of a European Patent, the EU National Offices will cease to benefit from the present arrangements once the unitary patent comes into effect. However, the timescale for such a

development leaves more than enough leeway for the PDU to be inaugurated and to develop to viability with the help of diversion of a small proportion of renewal fees in the way suggested.

10.1.2 Possible EU subsidy?

An alternative source of pump-priming funds for the PDU could be direct subsidy by the European Union. A relevant precedent is the support which was given to the European venture capital industry to accelerate and widen the scope of its activity. As calculated in Section 10.1, a once-off total subsidy of the order of 2m. Euros, spread over 4 years, would be enough to get the PDU started and built up to a point where it could continue on its own without any further support.

11. Other aspects of the Patent Defence Union

11.1 Steering Council

Getting the PDU started appears to require the establishing of a Council assembled from representatives of existing institutions which are concerned with smaller businesses. Once the PDU was established and running, it could elect its own Council, either on a basis of one vote per member or more likely on a weighted basis of one vote per patent protected. Such a Council could then appoint its own permanent Administrator.

Patentees form such a small constituency in the main bodies which exist to further the cause of small businesses, that such bodies cannot justify paying

them much attention. Nevertheless, organisations such as the following might form an interim Council to direct the PDU's initial activities

- European Union of SMEs (UEAPME -- Brussels)
- International Federation of Inventors' Associations (Geneva)
- Association for Teaching and Research in Intellectual Property (ATRIP) (Lausanne)
- The European Patent Institute (Patent Attorneys -- Munich)
- Action Plagarius (Elchingen)
- European Council for Small Business
- Federation of Small Businesses (U.K.)

Other possible participants might be suggested by the Small Business Observatory, but some way would have to be found of getting all the relevant organisations together in such a way that an effective directing Council for the PDU resulted. It is unlikely that this will emerge spontaneously for the reason given above, i.e. that in most cases patentees are not a very important part of the membership of such bodies.

11.2 Location of PDU's Headquarters

There is a clear candidate for this, which is Denmark.

Of all the national Patent Offices, that country's has shown itself to be the most concerned with the difficulties which SMEs have in protecting their patents. The Office and its related Ministry have campaigned strongly for patent insurance, but, as will be discussed in the next Section, the evidence is

that this Option could not be put into effect without a substantial *and permanent* subsidy.

In contrast, the Patent Defence Union (PDU) Option would be helped by a subsidy to get it started, but has every prospect of being self-financing in the medium term. The Danish Patent Office might therefore accept the PDU as the best available means of achieving its objectives, and consequently recommend to their government that it should offer support for any period of 'renewal fee' or EU subsidy there might be. A suitable type of such support could be the provision of office space in the Danish Patent Office and the seconding of a Senior member of the Office staff as the Executive Officer of the PDU, together with the Secretarial help he/she would need, for this period.

There can be little doubt that the PDU's chances of success would be greatly enhanced if it had the backing from the outset of a National Office whose officials have already shown themselves to be fully aware of, and concerned with the problem of patent defence for SMEs, and who have been ready to take action about it.

11.3 Legal structure of the PDU

No special arrangements would be needed for this. Until the new arrangements which have been initiated recently come into force, both European and National patents are national rights and have to be litigated in national Courts. In respect of whatever cases the PDU took up for litigation, it would

consequently act through national patent attorneys or agents, and use national lawyers.

A legal point which would have to be considered at the appropriate time is how far it would be possible for the PDU to share in any damages which might be awarded to a patentee in a successful case. This would be analogous to 'contingency' arrangements for lawyers' fees in the United States. In one of the case studies, the patentee claimed that he was not worried about the danger of litigation in the U.S., because he felt sure that he could find an attorney who would take his case on a contingency basis.

However, this way of funding legal representation is frowned on in Europe, although this may not be a matter so much of law or regulation as of professional custom. All that can be said at this stage is that some such sharing could be useful in keeping PDU membership fees low, which in turn should lead to more SMEs joining.

12. Comparisons between patent insurance and the PDU

As referred to in the previous Section, the idea of insurance for patents has been actively campaigned for by the Danish Patent Office for some years. It was a discussion topic at Patinnova 1999 and the European Commission arranged a Conference on it in Brussels on April 25, 2000.

In the present survey, patentees were questioned about their experience with patent insurance, which was limited, only 14% of respondents reporting any

experience of it. In the interviews, the Option of insurance cover for patents was quite widely favoured by respondents, in spite of this lack of experience (as mentioned in Section 6.2.11 above, the question was not put as precisely as it might have been) but there were a number of comments that it needed to be much less expensive than it is now. Some patentees had decided against using it because of the combination of cost and the limited cover obtainable. Several said that this type of insurance could not be obtained in their countries, as far as they knew.

On the other hand, one interviewee in the case studies claimed that having insurance had saved his entire business in a dispute with a U.S. firm. However, the settlement reached did not include any recompense to the insurance company for what it had spent on litigation before the parties reached agreement, which was of the order of $500,000, since in the U.S. each party bears its own costs. As this patent case was only one of six in which that insurer suffered heavy losses, not surprisingly it decided to cease writing this type of business.

12.1 'Moral hazard'

The fundamental problem about litigation insurance for intellectual property is a version of what economists call 'moral hazard,' that is, the patentees most likely to buy insurance if it is available, are those who have reason to think that they will get into disputes. Their inventions will be the better ones, and therefore the most likely to be copied. This has produced bad claims experiences for insurers in every country where patent insurance has been

offered. Moral hazard is probably reinforced by another factor in SME patents, which is that the owners of small firms are likely to share to a considerable extent a well-known characteristic of individual inventors. This is an obsessive belief in the uniqueness and quality of their inventions, which leads them to litigate beyond what prudence would dictate, as long as funds are available.

It was suggested earlier that it is a reasonable assumption that the firms which were willing to be interviewed in the present survey are more concerned about the protection of their inventions than the firms which did not offer to grant an interview. Readiness to be interviewed probably reflects a more positive response to the EU's list of possible initiatives to assist in protecting SME inventions, as expressed in the 'Options' Paper. It also seems reasonable to assume that this higher level of interest in protection on the part of the interviewed firms is because they consider their inventions to be in danger of being copied and therefore likely to be involved in litigation.

If these assumptions are indeed valid, then the reality of a type of 'moral hazard' in patent insurance receives some modest support from the present survey, because 15% of the firms willing to be interviewed had taken out this type of insurance in the past, whereas only 11% of those who did not offer to be interviewed had done so.

12.2 Views of official bodies

Both at the EU Conference referred to above and at Patinnova 1999, Mr. Andrew Serjeant presented the patentees' case in respect of patent insurance

policies, in the form of the official view of the Chartered Institute of Patent Agents of the U.K. He reported that

> a surprisingly large number of our Fellows have reported experiences with this kind of policy which have been wholly bad. In short, the policies include terms which enable insurers at any time to cease to support a claim if in their view the chances of success fall. With all the arguable points about infringement, validity and other things which invariably occur, insurers have little difficulty in finding reasons to stop support.

Mr. Serjeant had proposed to a number of insurance companies that insurers should not be permitted to withdraw support if 'a professional adviser experienced in intellectual property matters' reported that the insured's chances of success were 50% or better,' but he had to admit that

> Some insurers have ignored my proposals, and others have simply written back and said that my ideas are unacceptable, thus confirming that they are interested in maintaining a policy on which they can default at will.

The German delegate to the same Conference explained the insurers' point of view, referring to the entire problem of intellectual property insurance as 'trying to square the circle.' In 1988, he reported, a working group of German

legal expenses insurers investigated it, including commissioning independent market research, and concluded that

- Firms would not pay the economic cost of such insurance;
- Patent insurance would 'not have a defensive or preventive, but rather an offensive effect, because the existence of such a product rather serves to optimize operating expenses than to protect against litigation as a stroke of fate;'
- Most significantly, on the moral hazard aspect, the group discovered that 'where in spite of the high premium a general interest in the product is shown, it may be assumed that insurance will be resorted to.'

The present research confirms that the special characteristics of intellectual property are such that insurance which combines an acceptable level of both premium and cover for the insured, is not a commercial proposition for insurers. The circle cannot be squared by these insurers unless they are provided with substantial and continuing subsidy.

12.3 Operational differences

Since patent insurance and the PDU are alternative approaches to the problem of defending SME's patents, for the sake of clarity it is worth setting out the operational differences between them, as seen from the point of view of the three main participants.

12.3.1 The patentee:

From a patentee's point of view, having patent insurance and being a member of the PDU would provide quite different rights. Any SME patentee would of course like to be able to buy the same kind of insurance cover for his patent as, say, a medical practitioner can obtain for his public liability, i.e. insurance that would pay 100% of his legal costs up to the highest possible Court if necessary. Because of the quite different incidence of moral hazard, however, he cannot buy what he wants. In some countries, he will not be able to buy patent litigation at all; in others, he will be able to obtain it, but with three drawbacks: It will be costly, it will cover only part of his litigation expenses, and the final decision as to how far litigation is worth pursuing is not in his hands, but in that of the insurer.

However, if he can get insurance, he does have an enforceable contract against his insurers, as far as it goes, and if he wins his case, he does not have to share any damages and costs awarded to him with them. As a PDU member, he would have no automatic right to have his particular case taken up for litigation. The PDU's decisions as to which cases to fight would be made in the light of (a) their assessment of the chances of winning a particular case and (b) the extent to which publicity about the litigation, win or lose, will contribute to developing awareness amongst large firms that they can no longer intimidate small ones through the threat of crippling legal costs. The patentee's subscription to the PDU would be much smaller than any premium he would have to pay to insure his patent. On the other hand, since the PDU would pay 100% of the litigation cost of any case it takes up, a member might be committed to share the rewards of success with it.

Of course, the need for litigation is eliminated to the extent to which firms join the PDU, through the provision that all its members would agree to technical arbitration for settling disputes with other members.

12.3.2 The infringer:

The infringer will certainly know whether the patentee has litigation insurance or not, since if the patentee does have cover, he will make this clear to the infringer in an attempt to get a settlement without having to go to trial. The infringer (or his advisors) will also know of the limitations of the insurance cover, and consequently can calculate how far he can force both the patentee and his insurer to spend money on litigation, and still escape from having to respect the patent rights in the end.

If the patent protection is from the PDU, on the other hand, the infringer will know that the particular case may not be taken up for litigation, and so he may be ready to risk being one of those that *is* selected. The more outrageous the infringement, the more likely it is that the PDU will take it up in anticipation of winning in Court and generating the kind of publicity that will build up both its membership and its image with potential infringers. Correspondingly, this makes the risk the infringer faces all the higher, so that in many cases it will be considered wiser to come to agreement with the patentee. The very existence of the PDU will therefore in itself tend to curb the worst kinds of infringement. The emphasis in the PDU's operation on speedy settlements, and the fact that it would have resources for seeking injunctive relief in many

more cases than for fighting cases in the superior Courts, would strengthen its power of deterrence. The effect on judges of being able to stress to them that the patentee has been forced to trouble the Courts for this relief only because the infringer has refused to go to expert technical arbitration, should not be underestimated.

12.3.3 The protecting agencies

Trying to overcome the moral hazard aspect of patent insurance is like trying to get the force of gravity suspended. Nothing can overcome the conclusion of the 1988 working group of the German insurance firms that 'where in spite of the high premium a general interest in the product is shown, it may be assumed that insurance will be resorted to.'

The claims experience of firms which offered patent insurance in several countries, reported in the interviews of the present research, show that it simply cannot be commercially viable unless it is offered with a set of restrictions which seriously limit its value to patentees. There is no reason why this should change over time, so that any public subsidy to deal with this market failure would have to be an indefinite one. Subsidy by way of diverting a fraction of the patent renewal fee revenue of the EU National Offices is therefore ruled out, since this revenue will not continue once the unitary patent becomes available. Neither, of course, could any subsidy from European Union funds be without a strict time limit.

Moreover, in Europe, patent litigation insurance can never be more than a miniscule part of the total portfolio of a large insurance company. Consequently, there is no reason for it to build up special expertise in related litigation. In contrast, since litigation would be the primary task of the PDU, this expertise would be its main characteristic and would be added to with every case that it took up.

Moral hazard would also apply to the PDU, and may actually be reflected in the responses to the questionnaires, in that patentees who are assumed to have the better inventions, whose patents are more likely to be infringed, expressed themselves as more ready to join the PDU if it was in existence now.

However, the low membership fee, graduated according to the level of each patent's need for protection (Section 10 above) should maximise the number of firms using the PDU. All of these would be obtaining the benefit of automatic arbitration in any dispute with a growing number of other SMEs as membership increased. This would attenuate the moral hazard effect. The residual of this effect would be eliminated by the fact that no patentee could have his case litigated as of right, as would be the case with those who take out patent insurance. At no stage, therefore, could the PDU become involved in any commitments which were beyond its resources.

For these reasons, if a public subsidy were to be granted to accelerate the growth of the PDU in its early years, it would be for a limited period, and after its removal the Union should be self-supporting.

13. Summary of conclusions and recommendations

As means of resolving patent disputes, litigation is 'inefficient, ineffective and undesirable.' The EU ETAN expert group was convinced 'that the main element in the excessive cost of resolving IP disputes is the use of the *ordinary* Courts to deal with what are essentially technical matters.' Arbitration has replaced litigation in other technical areas, and experts have now recommended that EU Governments should follow U.S. precedent in legislating for it in relation to patents.

The empirical research now reported shows that this would not help small firms, as arbitration would remain voluntary, and would not be used by the large firms which use their greater resources for litigation to threaten them (implicitly or explicitly) with costs they are unable to bear. Small firms need *compulsory* arbitration in the form recommended for consideration by the ETAN report.

Pending this, the research revealed strong support from small-firm patentees for cooperative arrangements, in the form of a Patent Defence Union. This could be inaugurated with a Directing Council made of of representatives of the many existing bodies which represent the interests of small firms, and supported at the outset by diversion of a trivial part of the subsidy which National Patent Offices currently receive from renewal fees on European patents. Such support would be temporary, in contrast to patent insurance, which appears to be unviable commercially in any form which would fully

meet the needs of small firms, and would consequently require permanent subsidy.

Appendix 1

Working Documents

Appendix 2

(Extract from 'The Case for Compulsory Arbitration: Empirical Evidence' by Willliam Kingston. European Intellectual Property Review 2000 (3) pp. 154-158. Reprinted by permission of the publishers, Sweet and Maxwell Ltd., London).

Compulsory arbitration with legal aid

As noted above, in trade associations, membership frequently carries with it the requirement to accept compulsory arbitration, but obtaining a patent does not involve any such obligation. Furthermore, the TRIPS agreement requires that there should be access to Courts of Justice for settlement of intellectual property disputes. How can compulsory arbitration be reconciled with both these factors?

There is no reason why compulsory expert arbitration should not be introduced as a stage in dispute resolution which must be gone through before any involvement with the Courts. It might seem that the result of this would simply be to move intimidation back a stage, because appeals from an arbitration decision would then give large firms their opportunities 'to stall, delay and harass' weaker ones, in the words of the U.S. Patent Reform Advisory Committee. However, this could be dealt with very easily by the simple device of legal aid *for the party which had accepted the arbitrator's decision, irrespective of its size.* The EU expert Group to which I have already

referred, has recommended compulsory arbitration with this feature for official consideration.[26]

The primary justification of this in terms of the public interest is that it would greatly speed up innovation, and since we know that speed to the market with new products is the critical factor, it would make the patent system better able to compete in this respect with other kinds of market power, which it certainly cannot do at present. But it would have another enormously valuable incidental effect: it would level the playing field between large firms and others and eliminate the intimidation that is currently depriving us of so much potential small-firm innovation.

Arbitration would be generally accepted

It is most unlikely that such legal aid would actually cost the State very much. No small- or medium-size firm would ever appeal to the courts, both because it would lack the resources to litigate and because to do so would give a gratuitous advantage to its opponent by shifting the ground of the battle to where the latter is stronger.

Large firms would also see many convincing reasons for not appealing, once they were no longer able to bring their financial muscle to bear, including the following

[26] EUR 18914 - Strategic dimensions of Intellectual Property Rights in the context of Science and Technology Policy: an ETAN Report (1999) p. 26. Luxembourg, Office for Official Publications of the European Communities.

- the inexpert court would certainly give a lot of weight to the expert arbitration panel's decision, since the arbiters have been chosen specifically because their knowledge of a particular art. The odds for an appellant must therefore be against winning the legal battle, having lost the arbitration.

- In present circumstances, even the threat of litigation will almost certainly force a small firm to capitulate. It is quite a different matter if such a firm will be provided with the resources to defend itself in court (not because it is small, note, but because it has accepted the arbitration award). Large firms will be reluctant to fight an opponent who has now effectively been made 'their own size.'

- At present, intimidation is not evident to the public. With the arrangement proposed, there would be more transparency. At least some large firms would probably be reluctant to have it known that they were using their financial strength against a smaller one after independent arbitration has ruled in favour of the latter.

- Most litigation is entered into in the expectation that it will end in compromise. Since the firm that has accepted the expert arbitration would have its legal costs paid by the State, it would be under no pressure to settle the case out of court. This would greatly add to the 'downside' of the possible outcomes that a prospective appellant would have to take into account when deciding whether or not to appeal.

- Quick decisions, such as could be obtained by compulsory expert arbitration, may be even more valuable to large firms than to smaller ones because their range of innovative activities is likely to be correspondingly wider. Consequently, they

may see it as being in their interest to support the proposed system, specifically by adopting a formal policy of *no*t appealing arbitration decisions to the courts.

Large-scale working model

My most important piece of empirical support of compulsory arbitration is not new, only more comprehensive and compelling as the passage of time brings additional evidence. This is a by-product of research that I have been doing in the 'Interference' files of the United States Patent and Trademark Office for some years past.

'Interference' is a procedure necessitated by the explicit provision in the U.S. Constitution allowing patents and copyrights to be granted to *individual* inventors and authors, and this is why the United States grants patents not to the first to file but to the first to invent. Consequently, when it is noted that two (or more) applications that might possibly be for the same inventive entity have been filed, an interference is declared. All parties must then provide evidence as to their respective dates of 'conception of the invention' and of their efforts to reduce it to practice. There are about 200 such interferences each year and the probability of an applicant for a patent becoming involved in this procedure is about three per thousand.[27]

The Board of Patent Appeals and Interferences, which decides on the evidence submitted, is recruited from the most experienced members of the Patent Office's Examiner Corps. They deal with every possible element in a patent

dispute -- novelty, non-obviousness, unity of invention, nullity factors -- everything which in a dispute *after* patent grant, could be the subject of litigation. *Interference procedure, therefore, is precisely a system of compulsory arbitration by experts. It is an actual large-scale working model of what I have been proposing.*

Now, here is the crucial point: The Board of Patent Appeals and Interferences delivers between forty and fifty final decisions each year, and the median time taken for resolution of a case is only twelve months. Just over one-third of these final decisions are appealed to the courts, but over 12 years, *only 5 percent* of them are either wholly or even partially reversed.[28] Another valuable aspect of the interference model is the high proportion of cases that are settled voluntarily. Fully three-fifths of all interference proceedings are now terminated in this way, and an important reason is that the parties have come to agreement.

Such agreement very likely means that any new technology arising from these cases will reflect competitive development effort by at least two firms. There is an important public interest aspect to this, because of persuasive arguments that such a technology can be expected to advance more quickly than if a single firm is in charge of development.[29]

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[27] Commissioner of Patents and Trademarks. 1998 Report. Washington, DC: U.S. Government Printing Office.

[28] Calvert, I.A., and M. Sofocleous: 'Interference Statistics for Fiscal Years 1986 to 1988,' Journal of the Patent and Trademark Office Society 71 (1989) pp. 399-410; 'Interference Statistics for Fiscal Years 1989 to 1991.' Journal of the Patent and Trademark Office Society 74 (1992) pp. 822-826; "Interference Statistics for Fiscal Years 1992 to 1994." Journal of the Patent and Trademark Office Society 77 (1995) pp. 417-422.

[29] Nelson, Richard R., and Robert P. Merges (1990): 'On the Complex Economics of Patent Scope.' Columbia Law Review 90 p. 908.

All in all, therefore, in terms of how few of its decisions are successfully appealed to the courts and of how many of its cases reach voluntary settlement, the performance of compulsory expert arbitration in the United States interference procedure is a very good augury of how well a similar system could work for the settlement of disputes after patent grant. Any arrangement that works 95 percent of the time, after all, is giving at least as good a result as we are entitled to hope for in human affairs. In the face of evidence like this, who needs amateur judges, and expensive lawyers with equally expensive expert witnesses?

Whatever the cost to the State of legal aid for the party that accepts an arbitration might be, it should be regarded exactly as a counterpart to the necessary expense of conventional policing of other kinds of property. Every property rights system involves policing by the State; so if intellectual property rights are to be real rights of property, the State cannot escape having to spend money on their protection.