PATENT STATISTICS AT THE COMMISSION OF THE EUROPEAN COMMUNITIES

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Summary

The Commission's interest in patent statistics dates back to 1973, when a working group on patent documentation was set up — composed of experts of the Member States of the EEC — in order to help improve the use of patent information.

The proper work of the Commission with respect to patent statistics is mainly concerned with providing harmonized statistical data on the patent filing activities in the EEC allowing different types of exploitation. A survey of the principle publications in this field is given.

As to the tasks which lie ahead in patent statistics, the following recommendations are made:

- user-oriented production and improvement of patent statistics should become part of the patent offices' official functions
- patent statistics and patent classification must be aligned with other major statistical and classification systems
- the further development of patent statistics for user-oriented purposes should be carefully planned and coordinated in common.

1. Interest of the Commission in statistics on patents

1.1 The Commission's interest in patent statistics dates back to 1973. At that time the Commission, or more precisely Directorate-General XIII "Information Market and Innovation", where I am employed as head of the Technological Information and Patents Department, set up a Consultative Committee for Scientific and Technical Information and Documentation. The Committee, which is still active and is known by the abbreviation CIDST, is made up of representatives of EEC Member States and set up a working group on patent documentation. The Group's work and my own reflections led to the conviction that the Commission should concern itself with patent statistics.

The main thrust of thinking at the time was that the exploitation and improvement of statistics could make a valuable contribution towards putting patent literature, that is information from patent documents, to more effective use. The promotion of the use of patent information within the EEC was in fact the main objective of the Patent Documentation Working Group.

Round about the same time, in 1973, the US Office of Technology Assessment and Forecast (OTAF) published the first report on trends in the filing activities

of patent applicants in the USA on the basis of data supplied by the United States Office of Patents and Trademarks. The information reported was – and still is today – not patent statistics in the conventional sense, that is data classified in the way the patent offices or the World Intellectual Property Organization in Geneva produce them. The accent is on providing statistical data in a more user-oriented way with specific entries, displays and explanatory notes.

At that time we at the Commission, while unaware of the OTAF's activities, had conceived a very similar type of publication relative to patent filing activities in the EEC.

It turned out, however, that there were insufficient data and data suppliers for the preparation of material of the type supplied by the OTAF either at national level, i.e. among the patent offices of the EEC Member States, or at international level (WIPO and INPADOC).

Our first task was therefore to encourage patent offices to extend their services on patent statistics and for us to get access to computer-readable data material.

Our second was to explore in more detail the problems and possibilities of patent statistics, for instance with regard to indexing, classification and patent literature analyses. I shall refer to the practical aspects of this work in the last part of my paper.

In recent years there has been at the Commission and elsewhere a growing interest in patent statistics in connection with the "measurement" of R & D output in science and technology programmes and projects. It is clear that this interest has given much impetus to the consideration of patent counts as indicators of innovation and therefore has helped promote patent statistics, as can be seen from the important activities and study work developed at the OECD.

2. Problems associated with patent statistics

There are in my view two basic problems to consider with regard to the use of patent statistics both as user-oriented patent information and as R & D or innovation indicators.

Firstly, official patent statistics are still designed to report primarily on the throughput of work of the patent office. To put it another way: they mainly express how the patent offices are organized, what they do and how the patent counts are distributed over the patent classification system. Secondly, the information value of patent statistics varies a great deal from country to country. As a result, conventional patent statistics rather tend to reflect the general utilization and operation of the various individual patent systems within a given classification system of technology (the patent classification). So far it has been up to the users to reshape, complete or reorganise the figures to their needs or even to undertake their own field investigations, in order to obtain meaningful data or counts.

Formally, the basic meaning of any patent count is "a document", that is to say a patent specification. From the legal point of view, each patent count means "an invention", or more precisely, an inventive technical concept. Any such concept covers a specified or unspecified number of possible embodiments of the invention (potential innovation), so that the total of pure patent counts gives the minimum volume of the potential of innovation. A good proportion of this potential is to a certain extent pre-existent by virtue of the practical examples and of the indications

in the claims given in the patent specification. For this reason, the very nature of a patent count is, in my opinion, the manifesto of an expectation.

The expectation or belief of the applicant is that, there is a technological and/or profit, obtained either by active or by passive action. So, with a hundred patent counts, one counts a hundred expectations (entrepreneurial expectations) which are based on a hundred inventive technical concepts.

Each inventive concept consists of a statement of the technical problem to be solved and of the solution proposed. Although technical in nature, inventive concepts serve in the last instance economical purposes. In this sense, patent statistics provide indeed economical information.

In my view, this shows that the following tasks lie ahead:

- a) User-oriented production and improvement of patent statistics should or could become part of the patent offices' official functions. This means that more data and bibliographical information should be taken from patent documents as well as requested from applicants, and should be made available. This would also include the establishment of indices, which are useful in the context of studies aiming at elucidating the impact of the patent system upon sector policies, and vice-versa. In this context, even data of a legal nature would be useful if statistically broken down in an intelligent way.
- b) Patent statistics and patent classification must be aligned with other major statistical and classification systems if there is to be fruitful exchange. This calls for further investigations and agreement among countries on standard systems. So far, regrouping of patent data to cope with other classification systems has been done more or less arbitrarily.
- c) The further development of patent statistics for user-oriented purposes should be carefully planned and coordinated in common, if possible through the OECD. This also calls for more efforts to encourage and facilitate, and thereby extend, the use of the patent system by those who have hitherto been hesitant or uninformed, otherwise patent statistics will never give more than a haphazard and incomplete picture of the technological and industrial activities in, or attractiveness of, a given country.

On the first question, namely what, in the extreme, user-oriented production and improvement of patent statistics could mean, I would like to make a historical parenthesis:

Last year, I hit upon a document entitled "Patent Office Centenary" published in 1953 by the UK Stationery Office. The document contains the following reference to Bennet Woodcroft, the so-called "father of the (British) patent office":

"One of the most remarkable volumes published by Mr Woodcroft was an analysis of the location of inventors containing large folded sheets showing the names of every town and village throughout the world that has produced a guarantee of a British patent, and, in vertical columns, the numbers of patents taken out in any given year between 1617 and 1852".

There were 13678 patents for London, 1616 for Paris and just one for over 1300 towns and villages.

I think this is an example *'in extremis'* how faceted patent statistics could be.

With regard to the use of indexing terms in patent statistics, I think of information (and consequently data) to be derived from contents indexing by descriptors. In this respect, the existing catch word directories to the patent classification

system(s) constitute the main source. If catch words were codified, their correspondence with the patent classification units would allow for regrouping of the statistical data according to the specific field of study. The catch words of the actual directories designate mainly scientific and technical matter. So, additional catch words or descriptors for economical, discipline oriented and social concepts would be of great value.

Such concepts could refer for instance to:

- the relationship between the invention and the production goal (reduce cost, manpower and risks; improve output properties, enlarge scope of application, facilitate work)
- the relationship (genesis and use) between the invention and the specific phases of the production or innovation process (R & D, testing, manufacture, repairs, maintenance, transformation etc.)
- the relationship between the invention and production factors (labour, capital (fixed and mobile), space, energy, materials, large components, etc.)
- the relationship between the invention and output categories (main product, by-product or intermediate product (or process), waste product, testing product (or process) etc.)
- the field of entrepreneurial use of the invention (proper exploitation, marketing, licensing etc.)
- the relationship between the invention and socio-economic goals (protection of the environment and health protection, energy and raw material problems, etc.)
- the relationship between the invention and scientific disciplines or public research and development programmes.

It would also be of great interest to have data on the relationship between the inventions and the products actually manufactured or the processes actually used by the applicant.

3. The work of the Commission

For various reasons we have so far only been able to work sporadically on matters relating to patent statistics. Our most important work to date may be summarized as follows:

- a) A survey of patent filing activity in the EEC and the USA on the basis of the International Patent Classification (IPC) system. The survey includes breakdowns by country of origin and patent classes, both for the EEC as a whole and for the Member States separately. Admittedly, we had at our disposal only data on Belgium, the Netherlands, Luxembourg, Germany, France and the United Kingdom. The survey relates to the period from 1969 to 1974 (years of application) and is based on computer readable data supplied by the European Patent Office (EPO), without whose generous assistance the survey would not have been possible. Data are also broken down by sector of industry on the basis of the General Industrial Classification of Economic Activities within the European Communities (NACE). The work was published in 1980 in the form of two reports bearing reference numbers EUR 6575 and the title "Patent filing activities in the EEC" and "Patent filing activities in the USA". (A pilot report on this subject was published in 1977 under ref. EUR 5530; see also Section (e) below).

We are currently repeating the entire investigation on the basis of new EPO data storage tapes covering the ten-year period from 1972 to 1982.

The purpose of these activities is to create a homogeneous and harmonized basis for surveys to determine general trends.

- b) A survey of patent documents by number from 24 countries broken down by IPC units in the INPADOC data store covering the period from 1973 to 1980 with documents arranged by years from 1977. The documentation is available from INPADOC in the form of microfiches (see also Section (e) below).
- c) A survey of trends in patent filing activities in Germany for all patent classes from 1877 to 1980 coupled with an attempt at a descriptive correlation of these trends with economic activity. This publication is currently in preparation.
- d) A survey of trends in "private" filing activities in Germany and France since 1910 and in the United Kingdom since 1930. "Private" applicants are those who, according to the patent office application documents, cannot be defined as firms or public enterprises. The survey is based on a random sample and because of the numerous organizational difficulties connected with the data it is useful only as a guide. It is published in *World Patent Information*, 1982, Vol. 4, No. 3, pp. 110/120, cf. following section.
- e) Publication of the journal "World Patent Information" together with WIPO. Since it first appeared in 1979 it has proved a suitable sounding board for reporting on work connected with patent statistics, its possible applications and its relation to documentation problems. Thus, with the kind permission of Dr Fabian of the OECD, a number of interesting papers dealing with science and innovation indicators presented by OECD working groups have been published. The third issue (1980) contained the results of studies relating to EUR 6574/75, while the fourth (1981) contained information relating to the investigations discussed in Section (b) above.

Finally, one or two of the tasks I have mentioned have been adapted and used as a contribution to the OECD's committee work on indicators. In document STIC/80-82 of the OECD, you will find more detailed explanations of all these results.

We have had a number of other studies carried out, dealing with the suitability of patent statistics for use as indicators or with their improvement by the extension of indexing, but for a variety of reasons these are not to be discussed here.

To end up I should like to say that the improvement of patent statistics will be very cumbersome work and, since its raw material, the patents and patent applications, are of a very peculiar nature and not really made for "counting", it will be very difficult to obtain the necessary development funds. It so happens that those who could provide the funds are rarely familiar with patents and with all that they mean, so that our desire to improve patent statistics must be well supported by convincing arguments, preferably political ones.