Patents provide important research information

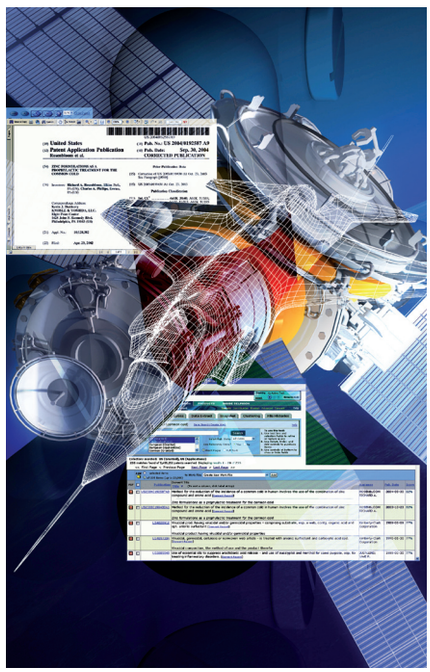
Information about intellectual property can be a vital resource for researchers as well as for lawyers, writes **Bob Stembridge** of Thomson Scientific

Intellectual property rights (IPR) have been developed over hundreds of years to provide a means for recognising and rewarding human creativity. The instruments of these rights include copyright, design, trademark and patent protection. Of these, patents are unique in being designed to stimulate as well as protect creativity.

Patents offer both protection for inventors and their inventions and a mechanism to realise returns on the often substantial investment made in developing those inventions. But there is a trade-off. In return for the right to prevent others from using an invention without permission or payment, the patent system requires the inventor to disclose the invention in sufficient detail so that one 'skilled in the art' can repeat the invention from the description contained in the published patent document.

This principle is enshrined in the patent system and is designed to stimulate further innovation by others through a thorough understanding of existing developments disclosed in the patent literature. It is this requirement that makes patents such valuable sources of technical information and a potentially rich information resource for researchers.

The legal requirement that any invention for which patent protection is sought must be new means, by definition, that the invention must not have been publicly disclosed anywhere else before. This means that inventions described in the patent literature are generally described there first, and in many cases, nowhere else. Omitting this source means completely missing a large proportion of technical descriptions of novel research and innovation. Furthermore, patents are now widely and readily available through various sites on the internet and this can only encourage their use as research information[1].



Barriers to overcome

However, there are barriers to the use of this information. The first of these is volume. Last year alone, more than 1.4 million patent documents were published worldwide. The task of filtering these to identify research of relevance is simply impossible without some form of expert knowledge and the help of electronic search aids.

Secondly, there is the issue of language. The majority of patent documents are now published in non-English languages, particularly non-Roman character sets. Japan, Korea and China accounted for a staggering 54 per cent of all patent documents published last year[2]. Of these, China has the fastest growing volumes with 30 per cent more patent documents published in 2005 than in 2004.

A further barrier is 'legalese' and obfuscation. Although it is a legal requirement to fully disclose the invention, descriptions are generally written in a way that only reveals the details that are completely necessary to fulfil this obligation. For example, titles such as 'thermoplastic resin composition'[3] or 'surface-modified implants'[4] do little to reveal the true nature of the invention. Also, since patents are legal documents, they tend to be written in complex legal language.

Using patent information

Despite these barriers, a survey conducted by the European Patent Office (EPO) in 2003[5] revealed that 'more than 80 per cent of all companies consider the information in patents as important or very important. Patent information is apparently most useful in the early stages of product development; during predevelopment and in the invention stage.'

An analysis of customers using Thomson Scientific value-add patent information (Derwent World Patents Index) online shows a wide range of market sectors in differing research areas (see Figure 1).

It is noticeable that the academic sector is absent from this chart. This may be because, by their nature, patents are about applied research and therefore of little use in fundamental research such as, say, theoretical physics. However, even in this field there may be useful information within patents. Particle accelerators are used to generate massively energetic particles for experimental observation of theoretical predictions. These accelerators require super-conducting magnets to accelerate, contain and direct high-energy, electrically-charged particles. There are many patents describing such magnets for use in other applications such as transportation or nuclear fusion reactors[6] that could provide useful information to enhance particle-physics applications.

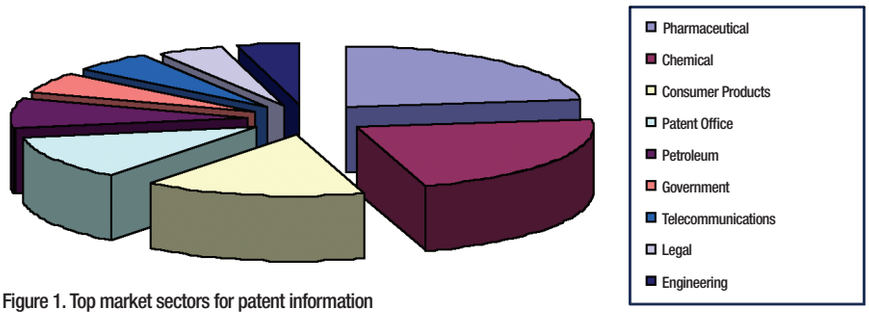


Figure 1. Top market sectors for patent information

Information professionals dominate

To discover further how patent information is being used today and, in particular, to identify to what extent and for what purposes it is being used by researchers as research information, a survey was conducted amongst two major patent information user groups, the Patent Information User Group (PIUG) based in the USA and the Patent and Trade Mark Group (PATMG) based in the UK. Although geographically separate, these groups share common goals to promote best practice sharing in the use of patents information. They also share a common listserv (piug_discussion_list@v2.listbox.com) which was the vehicle used for this survey.

Responses were received from 53 individuals representing 47 organisations. This represents a response rate of 4.7 per cent. Respondents were almost exclusively from manufacturing and technology-based industry.

The majority of respondents were information professionals. This reflects the difficulties encountered by researchers in using patent information directly and the preference to involve professionals to help in identifying, retrieving and interpreting patents.

This observation was reinforced by the response to the question about who the patent information is for. Typical responses included: 'I search patent information for engineers of the company' and 'I search patent information for the research staff to help them decide if they should do research on this topic,' although some respondents said that they searched patent information for their own research. The majority of respondents use patent information for both legal and technical purposes (Figure 2).

Importance depends on subject

For those that do use patent information, there was a strong recognition of the value of this resource. Nearly half of respondents consider patents information to be extremely important or more important than other information sources (Figure 3). 'Patent information is critical. It is frequently the only place to find the information,' said one respondent. Another noted that the information is particularly important in a start-up environment. 'We need to know what the current state of the art is before we invest in a lot of money and time into product development and R&D,' they explained.

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However, there was a general theme in the comments that the relative importance of patent information depends on circumstances. One respondent noted that for chemical structures patent information is as important as other sources but that patents were less useful for answering biological or medical questions. Another person noted that patents were far more relevant for areas such as pharmacy than for astronomy.

Part of the research process

So how are patents used as research information? According to the survey, the main uses include providing a solution to a technical problem, as technical background, the use of a known process, competitive awareness and monitoring, review of technology landscape and idea generation or development. Other uses noted included looking for technology transfer and partnership opportunities, avoiding protected processes and for educational purposes. According to one respondent, 'the most important use is to define the directions our researchers should NOT go.'

Patents are a valuable research information resource. The legal requirement for novelty plus full disclosure ensures that much information appears here first and often nowhere else. However, the survey reported here highlights some of the difficulties in using this information. One respondent commented, 'It is an important source, but the language/style/content of patent documents can act as a barrier to the use of this information.' Another pointed out, 'Patents are often the only source for many research topics, but are less clear and direct than peer-reviewed journal articles or trade magazine articles or newsletters.'

In addition, the survey highlights a general lack of awareness of the value of patents as research information amongst researchers. 'Patents are of vital importance – if only all the scientists knew this,' commented one participant. 'Many are unaware of the importance of patent information and one of my goals this year has been to set up training sessions and presentations for a number of research and other senior staff,' said another. 'The academic sector doesn't use patent information very much yet. Most important for them are science publications, but in several projects they need also patent information,' commented somebody else.

This situation may, however, be improving, as one respondent explained. 'In some cases it's background understanding (state of the art), but increasingly the researchers are searching themselves.'

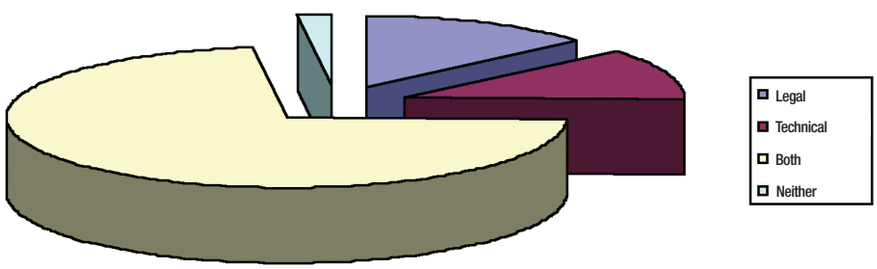

Figure 2. Is the patent information used for legal purposes or as technical information?

The increased accessibility of patents information through both commercial and public services can only serve to increase awareness of patents as a valuable technical information source. However, it is difficult to see how this information can be fully tapped without at least the help and guidance of the information professional. Judging from this survey, it seems likely that this situation will persist.

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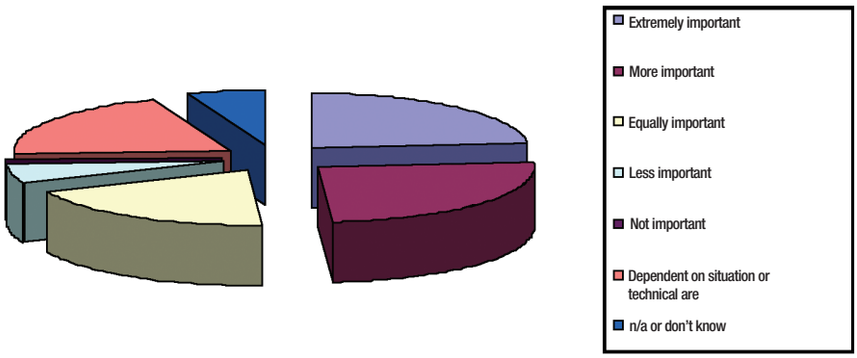

Figure 3. How important is patent information compared to other sources?

Further Information

[1] At the time of writing, Google made available the Beta version of Google patent search providing access to over seven million US patent documents from 1790 – mid 2006

[2] Data from Thomson Derwent World Patents Index (DWPI SM)

[3] US patent application number 20020028882, published 7 March 2002. A more descriptive title is supplied by Thomson in the DWPI record number 2002-306263 'Thermoplastic resin composition for toys and automobile interior parts, comprises saponified ethylene-vinyl acetate copolymer having a specific ethylene content and degree of saponification'

[4] US patent application number 20030176927, published 18 September 2003. A more descriptive title is supplied by Thomson in the DWPI record number 2002-268955 'Titanium osteogenic implant, for use in bone implants, has its hydroxylated surface coated with two or more primary or secondary amino, carboxyl, amide, phosphono or OH groups'

[5] 'Usage Profiles Of Patent Information Among Current And Potential Users, Report On The Main Results Of The Survey Commissioned by the European Patent Office', Amsterdam, September 2003, Project number: G018, drs. Rob Doornbos, drs. Renske Gras, drs. Jozsi Toth

[6] For example, WO2006079658 (Derwent record number 2006-559698) 'Magnetic levitation device for superconducting transport'; JP2005310887 (Derwent record number 2005-782448) 'Superconductive toroidal magnetic field coil for nuclear fusion reactor'