CHAPTER VII

INFORMATION SUPPORT TO PATENTING

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1. **INTRODUCTION:**

Patents form an information source for R & D outputs. Patent document provides a legal status of intellectual property for an innovation. Patents of these days provide economic growth as well as credibility towards inventiveness for persons. A patent document is described as the state-of-the-art of the related field and the various development that are having growth in international systems. Its main part covers the innovation of the new knowledge package for which the credit of claim is made. A patent is issued after studying the need for issuing a new patent, classifying and analyzing of the novelty of the new product.

**STAGES OF PATENTING.** :

1. Patent is a detailed disclosure of the best mode of invention or claim of the invention. [1]

1.1 Patent application: When an invention disclosure form completed and meetings are held with attorney to begin preparation of patent application, the invention is in the disclosure stage. After the application is prepared, signed and filed in the patent office the invention is in the application stage.
1.2 Patent Prosecution: During the time the application is pending before the patent office, it may be amended to clearly avoid prior art and to more distinctly claim the invention. This activity is called patent prosecution and usually covers the period of 1-2 years.

1.3 Issue of patent: It is mainly for the purpose of placing the application in a condition where it can be allowed to issue of patent.

1.4 Claim of patent: Claims are those number of sentences at the conclusion of the application on patent, which define the boundaries of the invention such as legal description of a price of real property in a deed.

1.5 Patent awarding: Companies grant individual cash awards and other recognition to inventors for filing of a patent application. As issued patent is a printed publication which is widely disseminated, the inventor can gain public recognition.

1.6 Patent infringement: Unauthorised making, selling or using a patent invention is referred to as a patent infringement. Generally infringing act can only occur in the country in which a patent is issued.

1.7 Patent interference: It determines the priority of the invention. Interference can be declared by the patent office between two or more pending applications or between an application and a recently issued patent.
Interferences usually occur when two patent applications are filed in the patent office at approximately the same time by different applications. During an interference contest, written witnesses records evidencing the continuous delight efforts of an invention can become critical factors in the outcome of such contest. The result may be that the party who was last to file can prove he has actually the first to invent.

1.8 Patent Licensing: If the patent owner desires to retain title in the patent but permit another person to share the invention with him, the owner (licenser) can grant a licence to the other person (licensee).

A licensee may grant the licence the right to make, sell and use the invention on any one or a combination of those rights. Licences may be in exchange for consideration (something of value), such as money or property. If money, it is usually made payable in a lumpsum instalments or in royalties based on the licensee's exploitation of the invention. If in, property it can include an exchange of licences under respectively owned patents. Such as exchange is referred to as a cross licencee.

Licences may be granted exclusively or non exclusively. An exclusive licence exists where a licencer grants a licence to a single licensee only. A non exclusive licence exists where a licensor grants similar licences on smaller terms to more than one licensee.
Generally a patent licence is a purchased right to infringe in exchange for a promise not to use.

1.9 Patent assignment: When a patent owner assigns his patent to another person, the patent owner (assigner) transfers title in the patent to the other person (assignee). An assignment may be in exchange for consideration such as money or property. If money, it is usually made payable in lumpsum or instalments.

1.10 Patent searching: A search can be made or issued patents. Specific patents can be retrieved when a patent number, an inventor's name, or a name of an assignee is known.

Patent provides enough information to indicate that, it has enough information to describe the resultant product, but not enough information to make it known about the actual process and production details. These information should be held in Patent Office, which would be given after the royalty amount payable is determined between the patents and the user of innovation.

In U.S. law a valid patent is the one that meets the three basic standards of utility, novelty and obviousness confers on the inventor the right to exclude others from making, using or selling an invention for 17 years. [2]

2. PARTS OF A PATENT.

Specification is the text of a patent and may include any accompanying illustrations. Because its purpose is to teach those fluent in this area of technology all they need to understand,
duplicate, and use the invention, it may be quite long. The specification typically includes:

1. An introductory paragraph explaining why the invention will be useful.

- Description of all prior art that you are aware of and that could be considered similar to the invention. The specification usually lists other patents, by number, with a brief description of each, but you can cite and describe unpatented technology as well.

- A summary of the invention that describes the essence of the new technology and emphasizes its difference from prior art, while including all its requisite features, whether novel or not.

- A detailed description of the invention, including anything that could be remotely relevant, reference to all reasonable variations, and number bounds. Take as much space as you like. Use as many numbers as reasonable, including close or tight limits based on experience, as well as loose ones based on what might be possible. This section should be detailed enough to really teach a skilled practitioner.

Examples and/or experimental results, in full detail.

- The specification is inherently broad because its intent is to teach and also, as a practical matter, to allow some flexibility in the claims that are based on it.
2. Claims are a series of short paragraphs, each of which identifies a particular feature or combination of features that is protected by the patent. The entire claims section, at the end of the patent, is typically about one page long or less.

-Claims define and limit the patented invention. The invention can be broad (a process requiring an "inorganic, non-metal solid", would cover a lot of possibilities, for example) but sharply limited not to cover anything in prior art (other existing processes that use organics or metals).[3]

3. INFORMATION SUPPORT TO PATENTING.

Patent is a document, which consolidates lot of information, which are old and new. Patent incorporates information drawn from a review of technical literature and technical documents that act as support to its novelty. Patent is claimed personal thing that has a new knowledge about a product, which is derived as a new.

In order to create or file for Patenting one has to collect information from several sources. This requires information not only on previous patents but also the knowledge of the entire field, in particular knowledge published in literature. This is a type of informational analysis and consolidation activity.
Next in describing a patent itself, a patentee has to put his own logical input of information needed to describe an invention or product for the purpose of establishing novelty. This again is a primary information resulting from self mediation of the patentee. The patentee has also to exhibit a kind of appeal to users on what is called a market type of information. In doing so, the patent requires variety of information services such as current awareness information which provides wavefront knowledge, retrospective information which provides background knowledge, nascent information which provides the novelty of the patent information itself.

Thus patenting is a kind of information processing achieving wherein the result is communication of new knowledge with the analysis of the old knowledge.

4. PATENT TREND ANALYSIS.

Patent indicate a kind of R & D profession in any company. Patents vary in scope, aim and ultimate value. Most patents are never developed sufficiently to prove the commercial value. Furthermore the patent when eventually commercialised may not provide substantial returns to the owners. However many patents are technically important because, they lead directly or indirectly a new development. The level of activity in an area, provide a good indirect evidence regarding the degree of firms, inventors and from getting proposals from managements. High accuracy usually suggest by investment and assisting suggestive developments in technical area. A number of firms with a recently
taken patents in a particular area of technical field gives the indication of mixed competition and a particular government role in the position to play in that field. The method discussed in this chapter describes the use of this type of indicators, Patent indicators have been found by firms to provide useful information for advanced planning.[4]

It has been found that, a return on a patent to earlier patents provide evidence of concern between the technical contents of the patent and can suggest potential suggestions in holding the patent rights. It is more specifically because new patents are retrieved by law, by refering to prior potential to build. We can also get an information from the patents which are useful, it receives from later phase. This approach is based on the generally a highly cited patent is more related in advancing a current state-of-art that it is suggested. The merit of this received has been established by other researchers. These studies point to the fact that, the citations to the previous patent find important file evidence. The current state of development has been derived from the earlier invention. Moreover patent reference have legal and have potentially economic implications which usually compells more security on the part of examiner and patent attorneys. As a result citations can provide technical information on useful of an early invention and as inventor and to the related developments.

An invention that leads to a large number of follow-on patents may also have a high degree of significance. Because for competition after theme around a key patent, key development
owned by another form the main and compare the market position. This is a common practice in many technical area. It will often require a reference to the any patent by any new patents. Thus patent reference and citations are useful to engineers, researchers to technology implementation in existing products and marketing.

Patent citations are not completely reliable indication of a relationship between firms and inventions. In addition to the fact the highly cited patents are not important. It is true that some eventually significant patents never receive a large number of citations; therefore patent citations are only an indirect "indication" of the importance of a development approach. Moreover, several factors influence the total number of citations to a Patent - for instance, the thoroughness of patent searches, the nature of the claims in each patent, and the age of the patent. As a result, informed judgement and experience regarding these factors must be applied in order to use citation indicators wisely. These shortcomings of patent citations have led some professionals to disavow our use of them for the purposes mentioned. Nevertheless, our experience with several interested companies suggests that citations based indicators are one of the few currently available objective measures at the technical utility of patents and the relationships between their owners; they do reflect the attention paid to published technical results by other professionals, and we believe they can provide valuable information for planners.[5],[6]
5. BUSINESS APPRECIATIONS OF PATENTS.

Patent activity and reference/citations as published have proven useful for some important business planning problems. The accompanying table gives an indication of valuable information of patents as technology trends and competitor's positions.[7],[8]

5.1 Patent Trend Analysis Applications

<table>
<thead>
<tr>
<th>Business Planning Application</th>
<th>User Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Competition Analysis</td>
<td></td>
</tr>
<tr>
<td>Compare company positions and strategy.</td>
<td>Improved product management strategies and decisions.</td>
</tr>
<tr>
<td>Characterise high and low-growth technologies for competitors</td>
<td>More focus on best long-term market gains</td>
</tr>
<tr>
<td>New Venture Evaluation</td>
<td></td>
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<tr>
<td>Evaluate potential technology acquisitions</td>
<td>Better technology acquisitions</td>
</tr>
<tr>
<td>Analyse joint venture opportunities</td>
<td>Reduced investments risk</td>
</tr>
<tr>
<td></td>
<td>Reduced planning uncertainty</td>
</tr>
<tr>
<td>Patent Portfolio Management</td>
<td></td>
</tr>
<tr>
<td>Identify valuable patents, product areas, or spinoffs</td>
<td>Improved returns from patents (license, sell, develop)</td>
</tr>
<tr>
<td>Identify potential technical customers</td>
<td>Early identification of potential new spinoff businesses</td>
</tr>
<tr>
<td>R&amp;D Management</td>
<td></td>
</tr>
<tr>
<td>Evaluate process/product plans</td>
<td>Improved R&amp;D allocation (pick winners, avoid losers)</td>
</tr>
<tr>
<td>Define pacing technologies</td>
<td>Better inventive idea awareness</td>
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<tr>
<td>----------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Product Area Surveillance</td>
<td>Early warning of potential breakthroughs, development shifts and new market entrants</td>
</tr>
<tr>
<td>Review new patent content and ownership</td>
<td></td>
</tr>
<tr>
<td>Check for infringements</td>
<td>Better protection of intellectual property</td>
</tr>
</tbody>
</table>

Patents indicate important technology positions of the major firms in an particular industry as well as emerging technology for major products in their related business sector. Patent analysis thus can provide a business with a unique picture of the nature and strength of its competitors. Such an analysis could be approached in two fundamental ways. The first is to conduct the patent search, to study all the patents held by particular firms regardless of the technologies involved. The second is a patent search focussing on technology. Which means studying all patents in a given technology area without specifying any firms.

Using a company focus we can compare the patent position of several particular firms in the technical area of interest and begin to understand their corporate technology and business strategies. An exchange of such an analysis would be the patent position held by business participating in the Chlorine-Caustic industry are fact that would clearly analyses that of the Tata Company has not only the basic patent, but an extensive patent portfolio in the Chlorine producing Dimensionally Stable Anode (DSA). In its patent position is so strong in this area that
Tatas virtually has a monopoly of the product business. And this proved to be a fact in this case because 90% of India’s Chlorine is produced by Tata Company.

In contrast, an analysis of the electrochemical membrane cell design for Chlorine Caustic production would reveal a wide distribution of cell design patents among several companies. This result would clearly indicate that there is an intense competition among various companies regarding membrane cell design and no one company is a dominant faction in the business.

In technology focussed business studies of the competitive markets, one can characterise the group of technologies and/or products which have a high potential success. Often something technical product strategies on developments can be compared. For example, a patent search of technologies for controlling bio-fouling in heat exchangers clearly indicates that, mecahnical devices such as "American Balls" receive a lot more emphasis than chemical additives which achieve the same purpose.

The patent literature however will not provide clues on why are technology is favoured over on the other. The resulting information only helps a product planner identify attractive product strategies on spinoff oppotunities. This can help firms define the best strategies for managing their new products. Also using patent trend information, a company can emphasise market areas where superior long-term gains in productivity and profits are most likley.
6. PATENTS IN NEW VENTURE EVALUATION.

Several firms have undertaken new ventures on acquisitions of new technology to improve their growth and/or financial health. Either approach involves a complex process, often heavily focussed on financial, production and sales information. Patent trend information can add valuable insight into the areas of diversification contemplated by any business as well as into the technological health of firms and their intellectual properties. These insights could lead to better technology acquisition decisions.

One example of the utility of patent trend information would be a hypothetical firm interested in undertaking a new venture as in acquiring an optical fiber company. This firm would find that since the invention of low-loss fibers in the early 1970s, there has been an explosion in patent activity in this area. For example, Tada-shi ishii (1984) analyzed the trend in patent activity in Japan for optical fibers. This shows that in 1973 only 170 patent applications were made public. By 1982 this total had risen to 1360. The substance of inventions over the years also revealed a clear shift from applied research to development. Ishii's work points out that up until 1975, patents emphasized production methods for the raw materials and the structure of the optical fibers. However, recent inventions concentrate on connectors for fibers. The hypothetical company with this data will clearly recognise that optical fibers either have been commercialised recently or are close to commercialisation.[9]
The patent data would also indicate at least two types of business can exist in this technical area: one, the production of the fibers and the other, subsequent assembly of products which involves connecting fibers. Using a company focused trend analysis, the hypothetical firm could also identify the potential technology leaders in these business areas. This information base will clearly facilitate the identification of technologically attractive venture partners on acquisition of candidates.

7. PATENT PORTFOLIO MANAGEMENT.

Many firms have extensive holdings of intellectual property that could be used to better near term advantage if they were managed using an improved understanding of opportunities for generating economic returns. Generally speaking, a firm may license, sell, develop or discard its technologies, patent trend analysis can provide a valuable tool for exploiting a firm's portfolio of patent holdings by providing information to assist to decision makers in commercialisation of choices. For example a firm could apply patent indicators using references on citations to identify the most attractive patents on business opportunities among its own patent holdings. It could also explore opportunities for spinoff products.

Given attractive holdings, patent indicators could identify potential technology consumers. Those firms working in similar
areas using compatible approaches. This information could help establish relevant linkages between firms for technology divestment to joint development ventures.

The benefit from this type of analysis is improved short- and long-term financial returns from patent holdings. Also, with patent maintenance fees increasing, routine costs to hold patents can be reduced by eliminating unproductive patents or recovering costs through some form of commercialisation.

8. PATENT INPUT IN R&D MANAGEMENT.

One potential use of patent trend data is evaluating the technological importance of product on process improvements. For example, a firm conducting research on making composite materials using a structural matrix may realise from patent trend data that making similar composites using low temperatures adhesives is the approach its competitors are emphasising. Consequently, in managing a structural matrix R&D program, the manager and his staff should seriously consider how their approach compares to others in terms of uniqueness, cost effectiveness and market acceptance. Systematic examination of the competitor's patents and their prior art can help in making this comparison.

Patent data can also be used to make carefully define the 'pacing' technical problems on subsystems in a complex development program. Pacing problems are those areas where needed improvements control the rate of development for the whole technology. In fact, analyses of the technical subcategories of an area using patents may stimulate new technical solutions from
within a research staff. Patents are unique source or inventive ideas.[1]

These activities can lead to a better awareness of creative ideas and improved effectiveness of R&D resource allocation. Picking the technological winners and avoiding the losers as early in the R&D process as possible provides an overall competitive advantage to firms.

9. PRODUCT AREA ON MARKET SURVEILLANCE.

The final major application area for patent analysis differs generically from the previous four areas, which emphasized one-time studies of specific technical area on group of firms. Although using some of the same quantitative patent indicators, surveillance studies entail periodic examinations of new patent issues on a continuing basis. This application represents use of the patent indicators for technology monitoring usually in several technical areas of long-term interest to a firm. This monitoring of new patents as they are issued provides early warning of future changes. It can identify significant new thrusts in technical direction spot new assignees, on track changed in the positions of active assignees.

These five general application areas for patent analysis are designed to address fundamental business, planning requirements assessing potential market needs and anticipating emerging technological developments. Traditionally, good business practice requires that new product development usually begin with a market study. We believe that, in addition, a firm should systematically
and objectively measure its own internal technological strengths and weaknesses to compete successfully. Patent trend analysis can provide an effective method to better understand these critical aspects of evolving business plans.

10. LIMITATIONS OF PATENT INFORMATION.

Although patent data are a unique and beneficial source of information regarding certain technology characteristics of firms, their usefulness for forecasts is also limited in two important ways. Patents do not provide as complete a picture of innovation in a field as would be desirable. First regarding the timeliness of patent information, analysis of patents is restricted because U.S patent documents do not normally issue for as long as two years after the application is filed. This means that, by the time many patents are available to the public, product on process changes may have already been implemented, thus making near-term business forecasts unwise.

Second for the purpose of studying business competitors, patents are also limited as a data source because many technological improvements in products as processes are not patented. A large number of firms protect their technology through trade secrets and thus these firms would never show up in a patent trend study. This means that analysis of the competitors in a market would be incomplete if only patents are used.

These limitations imply that patent information by itself is
not sufficient for effective business forecasts. It is very beneficial to include other data sources — such as sales, figures, economic trends on R&D investment estimates — for successful competitors on market analysis studies. The information helps to make patent data more meaningful in the general business context of the study.

11. CONCLUSION.

The analysis framework presented here suggests that studying patent trends for business planning can be a valuable activity for some firms. Although not yet used widely we believe that the analysis of foreign patents will undergo expanded use in the future. In both as more firms apply existing methods and as firms who now use it consider analysis improvements. Since ready access to computerised patent data bases is now possible, patent analysis seems to have the potential for being applied more routinely by a larger population of users perhaps including International firms.

It is also to anticipate that the business community will apply patent trend information to a wide variety of business functions and decisions. In addition to current applications mentioned, there are several important types of planning activities where patent trend data are likely to be helpful where combined with other types of business planning information. Examples include International market studies, technology forecasting, mergers and acquisitions, new product planning, R&D investment evaluation and R&D productivity assessment.
These areas of planning will begin to be affected by patent analysis as new method developments occur and as analysis costs decline. Thus we expect these emerging techniques to play a valuable role in future corporate technology decision making.

In short we have analysed the information that centres round a patent.
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