This paper gives in detail the ways and means of exploiting patented inventions/knowhow. The salient aspects that should be taken into account while negotiating and drafting a patent license or knowhow agreement are described. A brief mention has been made of the provisions that relate to patent licensing and transfer of technology in the Indian Patent Act. More importantly, the current concerns of harmonizing the intellectual property laws have been pointed out in the context of the international patent system. Some of the essential pre-requisites for the management of intellectual property rights and the importance of patent information in commercialization of R&D and transfer of technology are described.

The drive to successfully innovate and commercialize new products includes basic research, applied research and development. In the new global environment, the emphasis on competition and innovation has brought R&D institutions into the mainstream of the business environment wherein they are required to play an increasing role in international trade and commercialization of knowledge based products and technologies.

The process of commercialization of R&D and transfer of technology is one of the key processes in the innovation chain. It varies with the nature of entities between which the transfer occurs, the kind of technology being transferred and the social climate under which the transfer occurs. Men, machinery, materials, markets and management, named as five M's by the Japanese, are the key factors in the commercialization of R&D and the transfers of technology. If one of these factors is ignored, the technology transfer would not be successful. Many transfers fail because of inadequate mechanisms of commercialization, diffusion and intellectual property protection. The limited
trained manpower to manage intellectual property may also hamper technology transfer.

The importance of intellectual property aspects in commercialization of R&D and transfer of technology has grown in the context of emergence of high-technology knowledge based industries, for example, pharmaceuticals, semiconductors, electronics, computers, telecommunications and aerospace. The growth and success of such high tech industries are critically dependent on innovation, both in developing new products and in adapting new technologies.

For an individual company, management of intellectual property rights in technology transfer may be a part of its overall strategy to seek a position of competitive strength. In contrast, to an R&D institution, it may be a strategy to generate resources for conducting research and development and a means to earn necessary remunerations for itself and its employees.

The present article attempts to focus on some of the salient features relating to management of intellectual property during the process of commercialization of R&D and transfer of technology. Broadly, these include drafting of the patent license / knowhow agreement; provisions relating to patent licensing and transfer of technology in the Indian Patent Act; technology transfer and international patent system; importance of patent information in technology transfer; and some of the essential pre-requisites for the management of intellectual property rights in the process of transfer of technology.

Patents/Knowhow in Technology Transfer

Historically, the patent protection was introduced as an economic policy instrument through which foreign skills and expertise could be attracted to a domestic economy by the grant of exclusive rights to work a particular skill or trade which was not present, or was, underdeveloped, in the domestic economy. In contrast, the modern patent system is conceived as contributing to the commercialization, trade, marketing and transfer of technology in a variety of ways.

The way the legal systems operate - their guiding principles, the protection they afford, how they penalize and facilitate - are of obvious significance for the effectiveness of the commercialization of research results and the transfer of technology within the national boundaries or from one country to another.

Trade and transfer in technology depends on the assembly of ideas, inventions, patent licenses, knowhow, and the skills in production, engineering, marketing and many other fields. The protection and management of intellectual property play an important role in establishing confidence amongst the actors involved in negotiations during the process of commercialization of R&D and transfer of technology.

The concept of technology applies not only to patents and trademarks, but as well to unpatented technology such as knowhow, trade secrets, technical data, and computer software. Knowhow could be in the form of an aggregation of known processes / procedures, an accumulation of data, a secret formulation or a combination of any of these. The patented knowhow does not tell which is the best method of making a product. Technology transfer requires one to identify
the most cost effective method and includes the transfer of knowhow. Knowhow is transferred under secrecy. Almost all technology transfers include either a secret component or a proprietary component.

**Exploitation of Patented Inventions and Knowhow**

For successful marketing of R&D and technology, it is essential that the research results are matched with real market needs. The returns in terms of profit upon its commercialization are the ultimate proof of the success of any invention or new product or process. Various ways to exploit the patented invention and know how include the following:

1. **a. the outright sale of patent rights or knowhow for a fixed amount of money.**
2. **b. the licensing of the patent or knowhow on a royalty arrangement under an exclusive or non-exclusive license.**
3. **c. the manufacturing and marketing of the invention by the inventor or developer.**

Outright purchase of the technology offers the buyer full security to invest in the technology without fear of the license being revoked or of possible competitors. For the inventors/R&D institutions, there is always a risk that they might sell off some technology too cheaply. Sometimes, patents are sold together with other assets of a company or as part of a business operation.

In cases of sponsorship of research by industry, full ownership of R&D results are now seldom signed away to the industry sponsor by the R&D institutions. More often, any R&D result is equally shared by the two partners with the industry partner having the first right of refusal to licensing the technology.

For commercializing R&D, a researcher could also start one’s own manufacturing on the R&D results and market the product.

In most cases, for an R&D organization or an individual scientist, it is difficult to put the invention into production solely on his own. In such a case, some or all of the ownership rights of a patent application or a patent may be assigned to other individuals or companies.

**Patent Licensing/Knowhow Agreement**

An “industrial property license” has as its subject the permission to do certain acts covered by the exclusive rights conferred by the law as regards a patent of invention, an industrial design, a utility model, a plant variety, a trademark or a service mark.

The patent rights may be transferred to another party by licensing. When the owner of the patent rights licenses his patent, he remains the owner of the patent rights but allows another party to make, use, and or sell his patented invention for the term of the license. The patent rights can be licensed before developing the technology to the production stage.

In an ‘exclusive license’, the same patent rights are licensed to only one party. No one apart from the licensee can exercise the licensed rights in the territory covered by the license. Once the patent owner grants an exclusive license not even the owner himself can practice the patent rights covered by the agreement.

The ‘non-exclusive license’ is probably the most common form of patent licensing. It allows the patent owner to license some of his patent rights and not license other rights. The owner of the patent application or patent may enter into as many nonexclusive licen-
The supply of knowhow may be the subject of an agreement to communicate technical information and skills concerning the use and application of industrial techniques (sometimes referred to as "technical knowhow" or "technical information").

A clear understanding of the scope, contents and legal effect of these arrangements, is indispensable for negotiating the terms and conditions of the transfer and subsequently in drawing up the legal instrument or instruments.

No industrial property license or technology transfer agreement will be practical and workable unless it records accurately the true agreement in substance reached between the parties.

**Salient Features of a Patent License**

A patent license may include various provisions indicating the agreed upon terms and conditions between the owner of a patent and the patent licensee. The salient features of a patent license may include a provision of:

- an introductory nature together with a preamble forming the first part of the document;
- a common understanding of the key words and expressions used in the agreement. As far as possible, the terminology used should be clear and precise.
- the scope of the license or agreement should include the identification of the technology necessary for the manufacture of the product or the application of the process or for some other given purpose. It should indicate the rights conferred under the law of industrial property and laws applicable to the use, disclosure and communication of knowhow.
- designating the areas in which the right to exploit the invention or the industrial design may be exercised, or in which the knowhow may be used. They may also wish to delineate the areas in which the product resulting from that exploitation and use may be sold and in which the trademark, if any, relating to that product, may be employed.
- retaining the power to license industrial property rights and to transfer the knowhow to more than one licensee or technology recipient or also to exercise those rights and use that knowhow himself within a given territory.
- **Special aspects concerning patents:** e.g. the licensor is the owner of the patent or has the right to grant licenses; or to warrant that the invention has not been published in the patent documents as of a certain point in time (this may be risky, unless a very careful search has been made); or that the invention has not been publicly used by the licensor or technology supplier or by anyone under its control.
- **Maintenance in force of the patent:** the legislation requires the payment of annual fees for maintaining a patent in force. A provision in the license or agreement should provide that the patentee-licensor shall pay the necessary renewal fees for the patents in question but in the event that he believes that a given patent does not justify the expense of maintenance, the licensee will be so informed and will
be given the opportunity to take an assignment of the patent, normally for a nominal consideration.

- **Working of the patented Invention**: the exploitation of an invention or an industrial design, the use of knowhow and the use of a trademark are the raison d'être of the industrial property license or technology transfer agreement. It is expected that the licensee or technology recipient will fully exploit the rights granted and the technology supplied.

The exploitation of the patented invention may even be a condition of the continued recognition of these industrial property rights of the owner; these may be subject to the grant of a compulsory license.

- **Technological advances**: Improvements and developments within the scope of the license or the agreement: once the basic technology is identified and described, attention may be focused on whether technological advances subsequently made or acquired by one or both of the parties should come within the scope of the industrial property license or the technology transfer agreement and, if so, under what terms and conditions.

- **Research and development**: Whether the transfer of technology involves or takes the form of cooperation in research and development, between technology supplier and recipient. The agreement should permit one or the other of the parties to take out the patent and oblige that party to grant a license free of charge or against payment depending on the respective contributions to the inventive activity which each has made. Another possibility is to provide that a joint patent shall be taken out by both the parties.

- **Knowhow / technical information**: The terms and conditions should cover the following aspects:
  - disclosure of information and expertise as a requirement of patentability or of industrial design protection or as part of the terms of the industrial property license or technology transfer agreement;
  - means for preventing the communication, disclosure or use of valuable information and expertise;
  - recognition and safeguard measures concerning disclosure of knowhow; including the disclosure during preliminary negotiations and those in the license and technology transfer agreement;
  - guarantee of knowhow;

- **The Production phase**: The terms and conditions should cover the following aspects:
  - Manufacture or assembly of the product or of its components by a subcontractor or by the licensor or technology supplier;
  - measures to safeguard against the disclosure of technical information in the event of subcontracting;

- **Cost of patent license**: one of the most critical and complex issues to be negotiated between the prospective transferor and the potential transferee is the "price" or the "cost" of the industrial property rights to be acquired. The "price" or the "cost" depends on a number of factors, including the nature of the industrial property rights and the technology and the relative bargaining power of the two parties. The licensor is obliged to assist the licensee - without receiving any eco-
nomic compensation - in connection with such extensions of the intellectual property rights and in case of legal actions due to infringement.

- **Payment for the exploitation right:** The principles and the basis of the calculation benefits from the exploitation of patent rights are to be simple. These may include lump sum payments or payments for extensive knowhow transfer or transfer of prototype. Royalties are normally calculated as a percentage of the turnover or in relation to the number of products sold. Provision should be made for the reduction of royalty in case of discontinuation of the intellectual property rights.

- **Breach:** Non-fulfilment of the agreement to be defined and procedures set up for its correction. In the case of suspension of payments on the part of the licensee the exploitation right should return to the licensor.

- **Disputes:** Civil action or arbitration - the agreement should determine applicable law (nationality), court and language.

### Agreement for the Transfer of Knowhow

Knowhow agreements do not infringe upon the patent system, and, even though in a restricted manner, they ensure the disclosure of inventions to third parties through legal channels.

Agreements for the communication of knowhow should:

- clearly state that the disclosure of secret knowhow is the deemed basis for the recipient's obligations;
- include a statement by the supplier on the secret nature of knowhow to be transferred;
- stipulate the effect of disclosure of the knowhow on the validity of the agreement, including termination where the knowhow has lost its secret character through no act of the recipient;
- specify the items of information to be deemed confidential;
- determine the duration of confidentiality obligations, which should not extend, in principle, beyond the lifetime of the agreement or a reasonable period thereafter;
- explicitly state the right of the recipient to continue in the use of transferred knowhow, after the expiration of the agreement;
- authorize the use of knowhow by the recipient in any possible field of application, without prejudice to corresponding payment obligations emerging from uses not specifically agreed upon; and
- include provisions on applicable law, taking into account the effects that the application of different national laws may have on the qualification of knowhow and on the conditions for its use.

### Provisions relating to patent licensing and transfer of technology in the Indian Patent Act

The Indian Patents Act has certain unique provisions regarding patent licensing and transfer of technology. The salient implications of these provisions are:

- A patent granted under the Indian Act confers upon the patentee the exclusive right by himself, his agents or licensees to make, use, exercise, sell or distribute the patented article in India. In the case of a patents for a method or process of manufacturing an article or substance,
this right, for obvious reasons, is confined to the use or exercise of the method or process. A *patentee can transfer any one or more of these rights either wholly or partly to any other person.*

- The patentee may effect a transfer of his rights partly by assignment and partly by license. There are three kinds of assignments:

  (i) *Legal assignment* is an assignment or an agreement to assign an existing patent by deed. A patent which is created by deed can only be assigned by deed. A legal assignee entitled to have his name entered in the register of patents as the proprietor of the patent and can thereafter exercise all the rights of the proprietor of a patent.

  (ii) *Equitable assignment* is any document or any agreement to transfer a patent or a share of a patent. Any document (including a letter) in which the patentee agrees with another person to give him a certain defined share of the patent with immediate effect, is an equitable assignment of the patent.

An equitable assignee cannot have his name entered in the register as proprietor of the patent. But he may have notice of his interest in the patent entered in the register.

Assignment before grant is an *agreement* to assign an invention by an applicant for a patent during the pendency of his application. An assignment of the right to apply for patent does not amount to assignment of any patent which he might obtain by virtue of his invention. An assignment of the patent rights before the grant of the patent is an equitable assignment, which gives the assignee the right to call upon the patentee when the patent is granted to assign that patent to the assignee.

(iii) A *mortgage* is a document transferring the patent rights, wholly or partly, to the mortgagee with a view to securing the payment of the money. On repayment of the money the mortgagor becomes entitled to have the patent retransferred to him.

- Where there is an agreement to pay royalties at a rate mentioned for all articles made under a patent such agreement may in effect constitute a licence.

- A licence to use the patent may be granted by filing the provisional specification. Such a licence is enforceable after the patent has been granted.

- A licence may be express, implied or statutory. It may be exclusive, non-exclusive or limited. In a limited licence, the limitation may arise as to persons, time, place, manufacture, use or sale.

- An express licence is one in which the permission to use the patent is given in express terms. It is not valid unless it is in writing in a document embodying the terms and conditions, and the document is registered in the Patent Office.

- In an implied licence the permission is not given in express terms but is implied from the circumstances. Implied licences usually arise in connection with the purchase of patented articles sold with or without restrictions.

- Statutory licences include compulsory licences and licences under patent endorsements with the words "Licences of right."

- *Expired patents* - A licensee can plead that the patents covered by the licence have expired and therefore he is not bound to pay any royalty on the use of the expired patents.
• Assignment of share of profits - when an assignment is made of a share of profits (arising e.g., from the working of a patent by licences), the assignee is entitled to an account from the licensee, but the account must be taken once for all in the presence of all the parties interested. The licensee is not bound to account to the assignor and to each assignee of a share separately.

• Confidential information: In many cases where confidential information for knowhow is given so as to enable a business to be established, it is given for all time when the agreement comes to an end. There is no right to acquire further information but the recipient can go on using that which he has already received. He is not bound to close down the business which he has built up by using it.

• The object of Section 140 of the Indian Patent Act is to ensure that the patent rights are not made an instrument of a monopoly wider in scope or longer in duration than that afforded under the patent by the statute. The Section 140(1) makes it unlawful to insert restrictive conditions in any contract relating to the sale or lease of a patented article or a licence to use the patent. Such conditions will be void.

• Compulsory licenses / Licenses of rights: Articles 82-98 of the Indian Patent Act relate to working of patents, compulsory licences, licences of right and revocation. These describe the general principles applicable to working of patented inventions, compulsory licences, matters to be taken into account in granting compulsory licences, endorsement of patent with the words license of right, certain patents deemed to be endorsed with the wording 'Licences of right', effect of endorsement of patent with the words 'Licenses of right', revocation of patents by the controller for non-working, when reasonable requirement of public deemed not satisfied, power of controller to adjourn applications for compulsory licences in certain cases, procedures for dealing with applications under sections 84, 86 and 89, powers of controller in granting compulsory licences, general purposes for granting compulsory licences, terms and conditions of compulsory licences, licenses of related patents, special provision for compulsory licenses on notification by Central Government, and order for license to operate as a deed between parties concerned.

• Since the introduction of the policies of economic reforms in 1991, the entrepreneurs have been given greater freedom in determining the terms and conditions of the technology transfer agreements. Inventors have been allowed to have equity participation on the basis of intellectual property generated by in the companies.

Technology Transfer and International Patent System

The role of the international patent system in technology transfer has been examined and debated in the UN system, particularly, World Intellectual Property Organisation (WIPO) for past few decades. The central theme of the debate has been the international harmonisation of national intellectual property laws.

The perceptions on international harmonisation have varied over a period of time. In 1970s, many developing countries including India took steps for a lesser protection of intellectual property in order to improve the bargaining position of the national industry vis-a-vis foreign enterprises. By the end of the 1980s, many developing countries began
to relax governmental controls on technology imports and debated the viability of a patent regime in harmonisation with the international standards. The new perceptions on economic reforms and the liberalization have provided the backdrop of the intellectual property laws and the issues relating to commercialization and transfer of technology. The central theme of the new perceptions has been that

the existence of a system of protection of intellectual property in harmonisation with the international standards facilitates innovation, the direct flow of foreign investments and transfer of technology.

Although the Trade-Related Intellectual Property Rights (TRIPS) Agreement was concluded in the Uruguay Round of GATT trade negotiations, yet it is considered far from the reality of international harmonisation in IPR laws. The Articles 15, 16 and 17 of the Convention on Biological Diversity set out the basic framework for the access to the genetic resources and sharing of the benefits resulting from the access and subsequent transfer of technology. The challenges being raised by the technological developments in computers - the digital agenda or biotechnology are, however, yet to be resolved.

Importance of Patent Information in Technology Transfer

Increasing attention is being given to the role of the patent system as an analytical instrument for industrial planning and decision-making. The availability of computerization of patent data bases have made patent documents as well as their bibliographic apparatus easily accessible for this role of patent information. The ways in which patent information can be used in the technology development and transfer include

- Locating business partners for collaboration;
- Locating suppliers of equipment and materials;
- Identifying products for marketing;
- Avoiding possible infringement problems;
- Locating areas of investment;
- Assessing technology related proposals for financial support;
- Monitoring viability and progress of projects.

From a technical point of view patent information can help:

- Avoid duplication of research;
- Assess state-of-the-art
- Find ready solution to technical problems;
- Identify and evaluate technology for transfer;

From the legal point of view patent information can be used to:

- Assess patentability of inventions;
- Oppose grant of patents;
- Move for revocation of patents.

This is only an indication of the broad range of opportunities provided by patent information.

Management of IPR in Technology Transfer - Some Essential Prerequisites

- The role of the Government in funding R&D is gradually diminishing. Major resources are to be generated from user orientation of R&D. This would call for bold steps by the working scientists for commercialization of R&D and transfer of
technology. Both the developer of technologies and recipients should work together and cooperate towards common goals for successful transfer of technology.

- Only a very small percentage of all patents (say 5-7%) granted reach the commercialization phase of the innovation process. The reasons for failure may range from the quality of the invention to factors, such as, the high investment cost for a relatively small effect or improvement. One should note that in spite of such constraints, the inventive activity has continued to grow. Scientists should be optimistic and confident that their inventions will sell and will generate an important income for them.

- Experts in issues of intellectual property and technology brokers play an important role in the process of negotiations and drafting of terms and conditions of the technology transfer agreement. Services of these experts should be utilized by the working scientists.

- Professional marketing and business development support mechanisms may be required to help market research and technology by the R&D institutions.

- The separate licenses may be used for each type of intellectual property viz. patent or trademark or the supply of the knowhow and technical information.

- Precaution while patent application in process: It is essential that a secrecy agreement is signed before any information is divulged during the process of negotiations or for the assessment of the technology preceding its transfer and for which a patent application has been filed.

Technological advances/improvements: During and after the technology transfer agreement, the parties should agree on the terms and conditions to exploit any technological advances or improvements upon basic technology which are made, by one or both the parties.

References

2. WIPO, "Model Agreements on Transfer of Technology for Developing Countries", Geneva.