The Intellectual Property Process: Some Historical and Practical Considerations

With the creation of something new comes a journey into unfamiliar, yet rewarding, territory - Intellectual Property protection (“IP”). Intellectual Property protection is the name for the protection of ‘creations of the mind’ that lead to commercially valuable offerings. Creations of the mind are called inventions or, sometimes, intangible assets.

An invention is a solution to a specific problem and may concern activities as diverse as literature, music, artistic works, agriculture, software or specific technical developments. More specifically, the list of technical elements that can be protected is extensive and includes things such as mechanical devices, gadgets, processes for doing something and chemical formulations, to name but a few.

Commonly, commercial organizations rely heavily on patents. A granted patent establishes a monopoly over an invention through the awarding of an exclusive set of rights, in a sovereign state, for a limited period of time, in exchange for the public disclosure of the invention. These rights can legally prevent the use of an invention by a third party, but do not automatically allow creators to actually practice the invention themselves. In this sense, a patent is a negative right. More is said on this matter later in this article.

Patents are not the only ‘tool in the IP box’ and their value is invariably enhanced if they are used in combination with other protective devices such as registered trademarks, copyright or other business activities.

There are many complexities in the patent process and this article summarizes the benefits of patenting, the process itself, and some pitfalls.

The Benefits of Patenting

- A granted patent allows the owner to prevent a third party from practicing the invention without permission by claiming monopoly over all or part of the process. Commonly, patents prevent the use of a complex multi-stage process by assigning monopoly over one or more stages of the process that are deemed to be critical and novel (inventive steps), i.e., if a third party can use all parts of a process except the prohibited parts, the process is of no value to the third party. This puts the patent owner in a strong position to eliminate competition or to negotiate licence fees and royalties for the use of the monopoly.

- Patents are important in the generation of investments or partnerships that may be necessary to secure funds to facilitate the growth of an early stage venture, and therefore bring the technology to market. This arises from the fact that a patent, either granted or pending, is evidence that an independent risk assessment has been, or is being, performed. For some investors, patents are a mandatory part of their due diligence; others, with different business models, may take a different view.

- Patents can prevent a third party from copying or reverse engineering an idea, thus protecting valuable R&D investments, permitting higher profit margins, expanding market share and facilitating future legal settlements.

- Patents can be thought of as assets that can be traded independently or included as part of the sale of a business. Patents are therefore a form of intellectual capital. Indeed, there are companies (so called knowledge companies) that generate revenue from the management of intellectual capital.

- Even if never granted, patents are published and readily accessible for public scrutiny. This establishes them as prior art that prevents third parties from obtaining patents on a similar matter in the future. Publications can therefore ‘future-proof’ an invention.

- A patent pending, and not yet granted, can act as a deterrent to competitors. This is because the exact details of the monopoly are never known until the claims are granted at the end of the entire patent application process. This uncertainty can encourage a potential competitor to direct resources elsewhere in order to avoid future complexities.
Some General Considerations When Patenting

The following factors should be taken into account when constructing individual patents or a patent portfolio.

- Patent protection is enshrined in the laws of virtually every country in the world and, despite the fact that patent laws vary slightly from country to country, protection is defined by the principles established during an international convention held over a century ago (Paris Convention for the Protection of Industrial Property, 1883). In this sense, the protection protocols have been tested exhaustively and amended appropriately over this long period.

- There is no such thing as an 'international patent'. Patents are granted on a country-by-country basis by an authorized Patent Examiner and enforced, within a nation’s boundaries, by relevant legal authorities.

- International agreements on aspects of IP rights specify that the duration of protection should be a minimum of 20 years. In Canada, patents are exclusive for 20 years from the date of initial filing in the Canadian Patent Office. After exclusivity has expired, third parties can freely use the invention with impunity.

- The patent application process requires the full publication of the invention and requested claims, making it accessible for public scrutiny. Accordingly, in order to maximize the benefit of the patent system it is sometimes advisable to always have an application pending, but not granted, in order to keep the competition guessing as to what may also be pending.

- In addition to patents, trademarks may also be used to differentiate the products or services of a particular source from those of others. Trademarks may be logos, words or symbols for the creations, patterns, configurations or ornamentation attributed to the creations. Similarly, copyright may be used to claim ownership over things such as: rights to use a composition or a piece of software, Plant Breeders’ rights to protect specified fauna, or the use of design criteria to use a composition or a piece of software, Plant Breeders’ rights.

- The value of legal protection (patents, trademarks and copyright) is enhanced if they are combined with other factors that do not solely rely on the legal framework (Paris Convention, rules for trademarks and copyright, etc.). Such factors deal with pitfalls related to the value proposition of the service or product, its delivery and the competitive risks. An elementary schematic, which illustrates some of the relevant factors and benefits, is given below (Figure 1).

![FIGURE 1: Elements of General IP.](image)

The Components of a Patent Application

Typically, a patent application contains a minimum of three parts. The first part contains a description of the background to the invention that includes a definition of the problem and a review of existing methodologies. The second part contains a comprehensive description of the invention that provides a minimum of three things, as follows:

- **The Inventive Step.** This is the feature that is critical to the successful deployment of the commercial process and defines the monopoly being sought. Patent protocols require that a single patent must have only one inventive step, i.e., one invention per patent. The inventive step is highly subject-specific, but must be described in ways that differentiate it from the existing methodologies and previously disclosed ideas in related areas, i.e., it must be novel and not obvious from published literature. Defining and interpreting the inventive step is one of the most contentious areas of patent law and is subject to a great deal of country-by-country variation.

- **Aspects and Embodiments.** These explain particular ways in which the inventive step or its variants may be considered in relation to the commercial advantage being sought.

- **Relevant Examples of Performance.** These describe ways in which the inventive step, or its aspects and embodiments, can be demonstrated. They define processes and procedures that, if followed successfully by someone with relevant experience, demonstrate the validity of the invention. Examples can range from single simple laboratory tests to complex processes. There may be many examples in a patent, which, in combination, validate the invention.

The first two parts are often termed the text of the draft.

Thirdly, the application contains claims that are logical consequences of the features described in the text. Claims define the monopoly being sought and are strangely worded descriptions of the creation, in its most general sense, without the specific details that were inherent in the text of the draft. The object of the claims is to generalize the specific, so that the language embraces all possible embodiments of the invention/creation.

An important feature is that, to infringe any claim, a competitor must execute each and every part of the claim. For example, if a claim specifies five elements and a competitor only executes four of them in the competitive process, it is likely that the claim will not have been infringed. Consequently, sets of claims in an application take the form of a hierarchy of dependent and independent claims. An independent claim is usually simple, but dependent claims are increasingly more complex. The objective is to maximize the probability that an enforceable monopoly can be found somewhere in the network of claims.

The Patent Cooperation Treaty

General Issues

An applicant (creator/inventor) may apply for a patent independently to any patent office in a country that is a signatory to the Paris Convention. This convention has currently 148 member states. Applying for patents to individual countries can lead to costs being charged from the very beginning of the process.
These costs, which are substantial, include administration fees, translation fees and periodic renewal fees. The multiple/parallel application approach is also inefficient since certain aspects of the process may be repeated needlessly at increased cost. The combination of costs and inefficiencies often encourages inventors to minimize the number of patent filings from the onset. This may be a viable approach for any applicant that intends on limiting the commercial application of the invention to specific world regions or countries. It may be a less viable approach for a creator/inventor that sees worldwide revenue generating opportunities.

Given the above complexities, a complimentary approach was provided in 1970. At this time, the Patent Cooperation Treaty (PCT) was established in order to streamline the process of patenting internationally, and to defer and minimize cost as much as possible. The PCT provides a unified procedure for filing patent applications in each of its contracting states (currently 148 out of the 198 signatories to the Paris convention).

Once provided with an application, the PCT conducts a single, in-depth, patentability search and provides a written opinion on the likelihood of claims being granted. This written opinion is not enforceable in law, but provides advice for the later stages of the process where individual national authorities establish the precise wording of the claims and their legal status. Many national patent authorities rely heavily on the PCT written opinion, which ‘lightens the load’ on their own internal procedures to such an extent that the cost to applicants can be minimized. A second benefit of the PCT written opinion is that it helps the applicant decide whether or not it is worthwhile seeking costly national protection and, if so, in how many countries.

The full complexity of the PCT process is described elsewhere (e.g. Canadian Intellectual Property Office), but Figure 2 shows a simplified schematic of the process.

The International Phase and the Written Opinion

The first step in the international phase involves the applicant filing a single patent application with a receiving office, which is the patent office of any contracting state of the PCT that is preferred by the applicant. Once the application is filed in the receiving office it is referred to as being ‘pending.’ The date of filing is usually the priority date, which is the date at which the patent becomes retrospectively enforceable if it is granted. Once filed, the applicant has a 12-month period in which to make minor modifications to the draft, finalize the list of claims and specify the preferred national or regional patent office. Modifications must be made using the original words in the draft and no new ideas may be added. If substantive changes are made to the original application document, there will be two priority dates. The first priority date will be the date of the ‘unedited’ version and the second priority date will be the date that the edited priority application is filed. All subject matter that is common to the edited priority document and the unedited version will have the earlier priority date.

At 18 months from filing, the application is published in an international database. At 30 months from filing, the PCT will issue the written opinion on the patentability of the claims, giving consideration to the inventive step, aspects, embodiments and examples.

Activities in the 18 to 30 month period involve the completion of a patentability search using a certified International Search Authority (ISA). Armed with the ISA report, the PCT will base its written opinion on the two following requirements:

- First, any invention must have never been described before, i.e. be novel. A second factor is that the invention must also not be predictable from combinations of published literature, i.e. be non-obvious. These two related factors are complicated by the vast amount of literature available. They are accommodated by asking the question, *would a person having ordinary skill in the art be able to anticipate the claimed invention from published literature?* This fictional person is considered to have skills and knowledge in the relevant field, without being a gifted expert. If the answer to the question is “yes,” the claims are deemed obvious and the invention non-patentable.

- A third factor concerns the requirement that the invention must be reproducible and therefore applicable in a commercial context. As with the first and second factors, resolving this factor is complex and relates to the question, *would a reasonably skilled practitioner of the art be able to replicate the results using information contained in the patent?* If the answer to the question is “no,” the claims are deemed inapplicable and the invention non-patentable.

If the written opinion from the PCT contains negative findings, the applicant would be wise to place a response on file along with reasonable arguments and/or an amended claim set in order to overcome the objections raised by the Examining Division. The amendment, when filed in a timely manner, will be entertained at the international stage and may place the case in a favourable position upon nationalization. Proceeding with amendments made at the international stage affords cost savings and can provide insight on the way prosecution may unfold in the elected countries of interest.

The National or Regional Phase

The Prosecution Stage

If the applicant elects to progress to the national phase, PCT documents comprising the published draft, the ISA report and the written opinion are forwarded to the selected offices.

Some patent offices are restricted to single countries. Others are grouped together into geographic regions that provide recommendations on the patentability of an application to member states; for example, the European patent office, based in Germany, acts on behalf of 38 states in Europe.

For the purpose of illustration, the Canadian Patent Office will be used as an example of what happens after the documentation has been received by the national patent office. A Canadian Examiner, who has expertise in the area to which the technology relates, reviews the documents and issues a communiqué to the applicant in the form of a critique referenced as an Examination Report or Official Action. The applicant must respond to
the Examiner’s objections in the Official Action within a specified time frame and provide rebuttals. The contents of the Official Action will accommodate the PCT advice concerning the factors novelty, non-obviousness and reproducibility, but may also take into consideration additional factors that emerge from the Examiner’s own search of the prior art, or during a consideration of Canadian regulations. Rebuttals usually lead to the initial claims being modified or combined in ways that are acceptable to the Examiner. Modified Official Actions may be issued and rebutted multiple times during the course of the prosecution stage. This process continues until such time as the Examiner is satisfied that the application can be advanced to a full patent.

It is worth noting that Examiners from different country offices can take markedly different views on the relevant evidence, its interpretation, and the way it is combined to reach a conclusion. This raises complexities when the inventor has to respond to objections from different Examiners, since rebuttals that satisfy one Examiner may not satisfy another, and legal advice has to be sought on a country-by-country basis. If an application is under prosecution in multiple counties simultaneously, this Official Action/rebuttal process can be extensive.

Issuance

Once the prosecution is completed as above, the Patent Office will issue a notice of allowance indicating a prescribed period within which fees must be paid in order to grant the patent. The Patent Office will grant the patent in approximately three months after the fees are paid. Once the patent has issued, it is then fully enforceable against others who manufacture, use and/or sell anything that comes within the scope of the granted claims of the case.

Some Critical Issues to be Considered When Obtaining IP

Conducting a Preliminary Patentability Search

If the necessary criteria in the prosecution stage are not met, an Examiner may request substantial modifications to the claims, which may not be in the best commercial interest of the applicant, or possibly reject the entire application. To pre-empt and avoid this, it is advisable to perform a preliminary search of the literature in order to determine whether the creation can be protected or not. This is regardless of the decision to use the PCT or apply directly to an individual national patent authority.

A preliminary search is therefore an important first step to ascertain whether it is even worthwhile moving ahead with the drafting of a patent application. Not performing the preliminary search can result in expenses to create something that has already been done or cannot be implemented, which is a waste of valuable time and money.

The preliminary search should include existing patents or other publications in the same area/technology and should consider combinations of ‘bits and pieces’ taken from the literature because, during the prosecution stage, an Examiner will do just that; i.e. combine references from any source, from any country, to show that the claimed invention is not novel, is obvious and cannot be implemented. Unfortunately, these criteria must be observed from a worldwide perspective.

Preparing a Patent Application

Preparing the patent normally requires a draftsperson to conduct an extensive interview with the creator/inventor to define the invention clearly. This part of the process is of paramount importance, since all of the essential details of the invention requisite for understanding and proper functioning must be delineated in the text of the draft. This process, when conducted properly, will result in a platform from which the draftsperson can formulate the claims of the case in such a way that they provide the maximum protection, have the maximum chance of being granted and are enforceable. There are variations on what is patentable subject matter from country to country, which complicates the activity, and there is some degree of ‘crystal ball gazing’ in patent drafting. Given these complexities, patent drafting is considered by many to be the most important part of the entire patent process.

Other Considerations

Despite the fact that the patent process is well established, and when followed properly can yield favourable results, there are still a number of pitfalls that need to be noted and avoided. Some of the common pitfalls concern:

- **Failure to have a written agreement between inventing parties as to who owns what.** This becomes very challenging when there is disharmony between inventors or one inventor cannot be located, etc. It can be exceedingly important if third party collaborators are involved at later stages of development and novel extensions to the technology are made.

- **Not recognizing the fact that, just because the patent has issued, there is no automatic right for the creator to practice the invention.** Examiners in Patent Offices provide no comments whatsoever regarding the possibility of the commercial process, as related to the technology for which an applicant is seeking protection or infringing an active third party patent, i.e. come within the scope of someone else’s patent claims. In order to ensure that infringement does not occur, it is important that the applicant seeking the patent conducts a freedom-to-operate search, sometimes called an infringement search, in addition to the preliminary patentability search discussed previously. A freedom-to-operate search involves a detailed study of the claims in active third party patents that are deemed relevant, with a view to determining whether the technology for which a patent is being sought comes within the working of such claims. This can be a complex and time consuming activity, but not completing it can leave the holder of a patent believing they can use the technology, when in fact they cannot.

- **Encumbrances occurring when the assignment documents in place are not proper.** This is primarily directed to applications where named inventors assign their full rights in the technology to another entity, such as their employer company. The assignment documents should be prepared concurrently with the other documents inherent to the patent applications and submitted at the time of filing the case. This avoids unnecessary expenses at a later date.

- **Publishing the technology in an open forum without having a patent application on file in advance of the publication.** This is a major pitfall that can result in the complete creation being eliminated from protection and is a major consideration outside Canada and the United States.
These two countries have a grace period, during which the patent applicant is allowed to publicly disclose an invention and still have the right to file within a year of this disclosure. Most remaining countries of the world do not have this grace period and disclosures before filing preclude the applicant from validly filing for the technology. As a general rule, it is important to maintain the technology or creation in secrecy until such time as it can be determined that it is either un-patentable or an application has been filed.

- **Failing to register trademarks.** This is not a patent issue *per se*, but it is related and relevant. The owner of a product or service is entitled to indicate differentiation by simply using the superscript ‘TM’ on a mark. By this method the owner becomes identified with the product or service at zero cost and minimum effort. However, if the trademark is registered, the owner is provided with extra legal protection and is permitted to use the superscript ‘R.’ Registration allows the owner to subsequently enforce rights against any third party that may be using the same type of mark. The third party can be prevented from using the mark, providing the third party’s mark is not itself registered. The non-registered ‘TM’ cannot be used to enforce rights, so the omission of registration is a serious error that can result in significant financial loss to the unregistered party.

**NOTE:** This article is for information purposes only and does not constitute legal advice.

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