Valuation of Patent Portfolios

by Stanley H. Kremen, CDP

Patents as a Capital Asset

A company may own millions of dollars worth of buildings and factories. It may own much equipment, and computer hardware may be listed among such equipment. These are known as tangible assets, *i.e.,* assets that you can touch, feel, see, *etc*. However, its most important asset may be its intellectual property which is an intangible asset. Intellectual property may consist of, among other things, patents, copyrights, trademarks, unpublished works, databases and trade secrets. Of course, one may also touch, feel, and see a patent, trademark or copyright as these things are typically printed on paper. However, the asset is not so much the piece of paper, but rather what it represents, namely a property right for some kind of unique technical or creative development. A patent is an extremely important asset that contributes significantly to the overall value of a company. At times, due to lending, investment or taxation requirements, patent assets will require valuation. This article addresses the situations in which patents may need to be valued, different methods of valuation and factors to be considered in determining the value of such assets.

Patent Protection

"The Congress shall have Power …
…To promote the Progress of Science and the useful Arts by securing for limited
…Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries …
…To make all Laws which shall be necessary and proper for carrying into Execution the Foregoing Powers …"

THE CONSTITUTION OF THE UNITED STATES

With these words, in 1789, our founders laid the groundwork for the granting of copyrights and patents.

A United States patent is a government granted right accorded to inventors for inventions that are new, useful and non-obvious over the "prior art."[1] A patent allows the patent owner or licensee legally to exclude others from making, using or selling the invention within the country. A purpose of the patent system is to encourage the development of technology by rewarding the inventor with these exclusive rights and to advance scientific knowledge since patents are public documents. The patentee may sell the patent outright, license the rights to others either exclusively or non-exclusively or, should he desire, not use it at all.

A patent's term can last up to 20 years from filing of the patent application, but commences on the date of the patent's issuance. After its term, a patent expires, and the development enters the "public domain," and anyone else has the right to make, use or sell the invention.

A patent owner may sue anyone he believes has infringed the patent without authorization.[2] A valid defense to an infringement charge is that the patent is invalid -- *i.e.,* it was erroneously granted since it does not possess the required amount of novelty, utility and non-obviousness.[3] Alternatively, a patent may be found unenforceable because of ***inequitable conduct*** by the patentee before or after the patent is granted or if the patentee is not sufficiently diligent in pursuing his rights. An example of inequitable conduct would be where the patentee hid a prior art reference that may have affected an examiner's determination in granting the patent.

Situations Which Require The Valuation Of Patents

The Purchase or Sale of a Patent

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[1] 35 U.S.C. §§ 102-103
[2] 35 U.S.C.A. § 281
[3] 35 U.S.C.A. § 282

When a prospective buyer wishes to purchase all rights, title and interest to a patent from an original owner, it is essential that the value of the patent be known. This does not only determine the price paid to purchase the asset. It also helps the prospective buyer decide whether or not it would be better to purchase the patent from the owner or to build a new patent with similar functionality himself.

Acquisition of a Company Owning Patents

Suppose ***Company A*** would like to acquire ***Company B***. What should it pay? What is the value of ***Company B***? When companies were comprised mainly of real estate and machinery, valuation was easy. In many large-scale mergers and acquisitions today, the value of a company's intangible assets, particularly patents, could eclipse the value of all other assets. New emphasis has therefore been placed on these assets and their values.

Financing of a Business Owning Patents

It is often possible today to raise significant capital through private placements or initial public offerings by companies that do not presently have incoming revenue from a product or service. Capital may be based upon the strength of a company's patents, or other intellectual property.

Joint Ventures and Licensing

Companies sometimes pool expertise or bring certain assets into a venture they share or pay to use assets that are owned by another. In most cases, the assets involved are intangible, such as patents. The financial terms of the joint venture are frequently dictated by the value of the patents.

Various Tax Situations

When parents die and estate taxes must be assessed, any intellectual property owned by the parents, either as patents, copyrights, trademarks, *etc.,* may need to be valued. The same applies to the assessment of income and property taxes. In addition, certain states provide tax credits for the purchase of capital items such as patents as well as research and development credits for development of inventions. In some cases federal tax guidelines provide tax advantages for patent acquisition. Furthermore, because a purchased patent is a capital asset, it must be depreciated, and its value must be known.

Insurance

For insurance purposes, the value of all capital assets (including patents) must be ascertained. It is an asset that may be substantially more valuable than the tangible assets.

Litigation

Prior to pursuing litigation (or defending litigation), the value of intellectual property may need to be assessed. Pre-litigation strategy, however, usually involves determining what might be the potential damages awarded and the probability of various outcomes -- rather than attempting to determine the monetary value of the intellectual property. The two inquiries, though related, are quite different.

Marital Dissolutions

Splitting the property in failed marriages now goes beyond bank accounts, homes and pension plans. Businesses that are part of marital property often possess intangible assets, including patents, copyrights, trademarks, *etc*.

Effect of Protection Type On Valuation of Patents

A patent that has no protection has minimal value. If it is in the public domain, or it can easily enter the public domain, its main value is to an individual user for day to day use. However, certain inventions that are in the public domain are sold widely by their original developers. For some reason, competitors are unwilling to enter into the particular niche market. Nevertheless, it is safe to say that the broader the protection enjoyed by a product, the greater the value of that product.

Patent protection provides the owner with a virtual monopoly for the idea or concept embodied by the invention. Obtaining a patent insures against someone else producing another

product that uses the same methodology as described in the patent. Patent protection extends even to independent development where the infringer had no access to the original work.

In appraising the value of a patent, one must take into account the level of protection. The protection lifetime for software patents or copyrights is probably greater than the useful life of the software product itself. Therefore, patents afford greater protection than copyrights which afford greater protection than trade secrets. The value of such protection can be quantified in determining the depth of market penetration. Clearly, a protection mechanism that enables more of the competition to be eliminated makes the product more valuable.

Factors Affecting the Valuation

Industry and Competition

Some of the most important factors that should be considered when seeking intellectual property comparability are the target industry itself, profits derivable from the target industry, barriers to market entry, market share, whether new technologies are available, and future growth prospects of the company. The value of a business is greatly influenced by an industry in which the property is used. Industry cycles and economics can limit the value of a business and the intellectual property that it possesses.

Certain industries are more volatile than others. These industries may experience technological breakthroughs frequently and regularly. If the target industry of the invention shifts and evolves regularly and frequently, this decreases the value of the patent by decreasing the duration of its profitability.

Further, you must consider whether the target industry is in its infancy or is established and how this affects the amount and duration of profitability. Competitors can affect the amount and duration of profitability of a patent by introducing competitive alternative products and by developing a superior new product. There may exist known competitors with known alternative or superior products. You may not know of any competition. Competition can limit the duration of the value of the product. If a competitor has a known alternative product, this affects the amount of profits you can expect from the patent. A technological breakthrough of a superior product may abruptly terminate the profitability of a patent, therefore decreasing its value. Further, if the competitors are well known in the industry and you are new to the industry, the reputation of your competition may pose barriers to entry and thus increase the costs associated with the product.

Economy and Market Conditions

In order to accurately assess the value of a patented invention, the market conditions are extremely important. For example, if inflation is high, the revenue generated by the product may increase, but the costs associated with the product may also increase. Further, if inflation is high, consumer spending habits may be affected and may influence the commercial success of the product. If, for example, it relates to a leisure or luxury industry or the price is very high, consumers will be less likely to respond favorably during inflationary periods.

In addition to general economic conditions, economic conditions for the target industry are important to consider. For example, the cellular phone industry is currently experiencing extreme growth. In contrast, the commercial airplane industry is experiencing a slowdown. Applicability of the product to a strong target industry increases the value of the product.

Risks of Emerging Technologies

Emerging technology presents a unique valuation challenge, because it has yet to prove its viability, either scientifically or commercially. With the absence of a historic track record, the value of emerging technology must be based upon the prospects for economic benefits of the short-term and the long-term. The potential competition that emerging technology represents can affect the economic remaining life of intellectual property. When looking at intellectual property transactions as market indications of value, care must be taken to assure that the effect of emerging technology is comparable with the asset being valued. The existence of research that is expected to make the subject property obsolete must be reflected in the value decision.

Company's Goodwill

Sometimes a company engenders instant name recognition with consumers. The company name may be a household name, such as IBM or Toyota, or the company may hold a recognizable trademark, such as XEROX or Windows. A well-known company or trademark could increase the profitability of a product by heightening consumer confidence in a product or decreasing the market and entry costs. For example, if the product relates to personal computers and the company is IBM, the value of the product may increase as consumers will have high confidence in the product and IBM would not need to devote substantial funds to establishing a name and reputation in the computer industry.

Cost of Development and Commercialization

In valuing the patent, the necessary steps to make the product commercially viable must be evaluated. For example, time and effort necessary to ready the product for the commercial marketplace, such as production costs, advertising expenses, and market entry costs must be considered. There may be regulatory costs which must be considered to obtain government approval. These costs multiply as the product's marketplace is expanded from one country to multiple countries.

Other Factors Affecting Value

In addition to the above factors, government regulation could pose a significant barrier to commercialization. If the target industry is one that is heavily regulated, the costs of entering the industry will increase and the risk that the product will not be profitable will increase.

You must also consider the risks associated with an investment into this product. For example, a company must forego certain investments in order to invest in the value of a product. A company may sacrifice certain securities investments, research and development opportunities, or other more certain forms of investment in order to devote funds to developing the intellectual property. In considering the value of the patent, you must factor in the risk associated with the product by appropriately discounting its value to reflect the amount of risk posed by the product. An example of high risk product would be a software package designed to determine the exact amount of radiation dosage that would be given to cancer patients.

Barriers to entry can enhance the value of intellectual property. Barriers include distribution networks, substantial capital investments, and well-entrenched competitors. As such, intellectual property within a market that also presents high entry barriers is possibly more valuable than similar property that operates in a more open industry.

Different Methods of Valuation

Valuation (also appraisal) means providing an opinion as to an amount of money payable at a particular time in exchange (*i.e.,* through an assignment or sale) for property. Value may be continually changing as future benefits from the property increase or decrease with the passage of time, place, potential owners, and potential uses. For valuing intangible assets and intellectual property, four different approaches can be used: the capitalization, income, cost and market approaches.

The Capitalization Approach

The capitalization relationship for any asset is expressed as:

$$\frac{Income}{Value} = Rate$$

This relationship assumes that the capital value of the asset is unchanging. The income is the net potential income after expenses. The rate is the return necessary to satisfy an investor's requirements plus a rate of return of the invested capital. Equity and mortgage interest rates must be taken into account if financing is involved. Therefore:

$$Asset\_Value = \frac{Net\_Annual\_Income}{Rate}$$

Example: Assume that the potential revenues of a software

program is $15,000,000 and the anticipated lifetime is five years. The gross annual income is $3,000,000. It is anticipated that the expenses will be 25%. Therefore the net annual income will be $2,250,000.

Now, assume that the investor anticipates 90% financing at an annual interest rate of 6.25% and requires at least a 15% return on his 10% equity. The rate of return on investment is computed as follows:

$$\begin{aligned} .90 \times .0625 &= .05625 \\ .10 \times .15 &= .01500 \\ & .07125 \end{aligned}$$

Now, the investment is returned over a five year period or 20% per year. Therefore, the overall rate is:

$$.07125 + .20000 = .27125$$

The asset valuation is then seen as:

$$Asset\_Value = \frac{\$2,250,000}{.27125} = \$8,294,931$$

The Income Approach

Using the income approach, the value of any asset can be expressed as the present value of the future stream of economic benefits that can be derived from its ownership. This approach can provide very credible valuation conclusions for many types of intellectual property.

Factors important to successfully using an income approach include determining:

- What amount of economic benefit can be expected?
- How long can it be expected to continue?
- Will the amount of benefits be increasing or decreasing?
- What risk is involved with achieving the anticipated benefits?

Of course, the amount of economic benefits is best measured by the amount of net cash flow to be derived from use of the property.

The present value factor can be calculated using the formula:

$$Factor = (1+i)^{-n}$$

Using our example above, with a life of five years and assuming no salvage value:

Potential Average Annual Income	Year	Present Value Factor @ 15%	Annual Present Value
$ 2,250,000	1	.869565	$ 1,956,521
2,250,000	2	.756144	1,701,324
2,250,000	3	.657516	1,479,411
2,250,000	4	.571753	1,286,444
2,250,000	5	.497177	1,118,648
			$ 7,542,348

The Cost Approach

The cost approach provides indications of value by studying the amounts required to recreate the software for which a value conclusion is desired. Cost approach valuation usually begins with a determination of the current (as of the appraisal date) cost to obtain an unused replica of the software. This is called "cost of reproduction new." The cost of obtaining a property of equivalent utility is called the "cost of replacement." When there is a difference between these two amounts, it is usually because the cost of replacement represents a less costly substitute, which is one element of functional obsolescence. The next step is to take into account physical depreciation of the software over time.

The cost approach does not directly incorporate information about the amount of economic benefits that are associated with the software. Information about the trend of the economic benefits is also missing from consideration, as well as the duration over which the economic

benefits will be enjoyed. The risk associated with receiving the expected economic benefits is not directly factored into the cost approach. If the cost approach is chosen, the adjustments necessary to reflect the effect of obsolescence must be separately calculated and are often difficult to quantify.

The Market Approach

The market approach provides indications of value by studying transactions involving sales of patents similar to the software for which a value conclusion is desired. This method is used widely in determining the value of a home. For instance, appraisers try, if possible, to find "comps" -- *i.e.,* purchase prices of comparable homes in the area. Requirements for successful use of the market approach include an active market, transactions involving comparable property and arm's length transactions between independent parties.

The most difficult aspect of the market approach as it applies to intellectual property is comparability. Even if pricing information for software were available, the price at which the software is exchanged may have little to no bearing on the value of other patents.

Choice of Valuation Methodology

Whether to choose the capitalization approach, the income approach, the cost approach, or the market approach depends upon the reason for which an appraisal was requested. If ***Company A*** intends to develop an exclusive market for a software product and finds that ***Company B*** has a competing product, ***Company A*** needs to make a decision whether to buy the software from ***Company B*** or to create a new software product from scratch. This buy or build decision will also depend upon the depth of penetration of ***Company B's*** software in the selected marketplace. However, in this case the ***cost approach*** would probably be best. Another reason for using the cost approach would be for tax purposes. If building the software is not an option (*e.g.,* ***Company A*** desires to enter the market quickly) and there are several companies that have produced and sold similar software products, then the ***market approach*** could be used. Another reason for using the market approach might be for insurance purposes. Finally, if ***Company A*** desires to acquire ***Company B*** where the principle asset of ***Company B*** is the patent, either the ***capitalization approach*** or the ***income approach*** can be used. They both yield comparable results.

Summary

A company's software may be its most important asset. Thus, it is crucial that you devote time and effort to value a company's software products, carefully consider the various approaches available to value the products, and thoroughly assess the various factors described above. This article merely provides an overview of certain considerations. There may be other factors important to the particular product at issue that you should consider in valuing the product. Further, the advice of an attorney and an expert will likely be necessary.