Valuation of Taxpayer Intellectual Property Assets for Ad Valorem Taxation

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Industrial and commercial taxpayers that are subject to state and local property taxation should consider the value of the corporation's intangible assets. This is because such intangible assets are either (1) subject to property tax in the subject jurisdiction or (2) exempt from property tax in the subject jurisdiction. Particularly if the taxpayer is subject to the unit principle (or business enterprise level) of property assessment, taxpayer management should identify and value any exempt intangible assets. In jurisdictions that exempt such assets, intangible asset values should be excluded from the overall taxpayer unit value in order to conclude the residual value of the taxpayer real estate and tangible personal property subject to taxation. Intellectual property (patents, copyrights, trademarks, and trade secrets) are a legally defined subset of commercial intangible assets. This discussion focuses on the valuation of intellectual property for ad valorem tax purposes.

Introduction

Valuation analysts are often asked to assist clients with intellectual property issues. These intellectual property issues relate to: structuring sale or license transactions, arranging financing transactions, taxation planning and compliance, strategic planning and commercialization ventures, and infringement or commercial litigation forensic analysis. Each of these intellectual property issues raises valuation questions.

In particular, valuation analysts are often asked to identify and value taxpayer intellectual property for state and local ad valorem taxation purposes.

These purposes include the following:

1. Assisting the taxpayer with its preparation of property tax returns or renditions
2. Participating in the taxpayer property assessment negotiation or administrative appeal with taxing authority representatives
3. Assisting the taxpayer legal counsel with consulting expert and testifying expert services during a judicial assessment appeal

Intellectual property valuation is particularly important to taxpayer corporations that are assessed using the so-called unit valuation principle. Such taxpayers are typically centrally assessed by county or other taxation authorities.

The unit principle values the taxpayer's entire business enterprise. This unit value is assumed to equal the value of all of the taxpayer corporation operating assets (both tangible and intangible) functioning collectively on a going-concern or value in continued use basis.

The intellectual property valuation issue arises in taxing jurisdictions that tax real estate and tangible personal property only. In other words, the valuation of taxpayer intellectual property becomes an issue in jurisdictions where intangible personal property is exempt from property taxation.

In such taxing jurisdictions, the value of the taxpayer intellectual property (and any other intangible personal property) should be removed from the taxpayer total unit value in order to conclude the value of the taxpayer property subject to ad valorem taxation.

Accordingly, valuation analysts who practice in the state and local property tax discipline should be familiar with the following:

1. Intellectual property identification and due diligence procedures
2. Generally accepted valuation approaches and methods
3. Valuation synthesis and conclusion procedures
4. Valuation report writing practices
5. Related valuation professional standards

First, this discussion considers many of the different reasons why intellectual property owner/operators—and/or their legal counsel—work with valuation analysts to conclude the value of the taxpayer intellectual property.

Second, this discussion summarizes the generally accepted approaches, methods, and procedures related to intellectual property valuation. This discussion outlines the valuation attributes that are particular to each of the four types of intellectual property. And, this discussion describes the role of the due diligence process in the intellectual property valuation.

Finally, this discussion presents several illustrative examples of the application of the three generally accepted intellectual property valuation approaches.

Identification of Taxpayer Intellectual Property

An intellectual property is an intangible asset that enjoys special legal recognition and protection. The special legal status of an intellectual property is usually the result of specific statutory authority, either federal or state. General commercial intangible assets are typically created in the normal course of the taxpayer (or owner/operator) business operations.

Common examples of general intangible assets include customer contracts and relationships, supplier contracts and relationships, employee relations (as represented by a trained and assembled workforce), licenses and permits, operating systems and procedures, company books and records, and so on.

Such general commercial intangible assets are typically created over time in almost every successful going-concern taxpayer corporation. Taxpayer executives typically do not have to make a special effort to create such general commercial intangible assets. Such general commercial intangible assets naturally develop as the taxpayer executives manage the day-to-day operations of the going concern taxpayer corporation.

On the other hand, an intellectual property is typically created by the specific and conscious intellectual activity of the developer. The creativity involved in developing an intellectual property can typically be identified and attributed to a specific individual. When created, an intellectual property is a new and unique invention that can be either (1) artistic, like a book or photographic image, or (2) technological, like a chemical process or computer software code.

This discussion applies to the valuation of all four types of intellectual property: (1) patents, (2) trademarks, (3) copyrights, and (4) trade secrets. A summary discussion of the four intellectual property types is presented below.

Intellectual property is a subset of intangible assets. Therefore, all intellectual property assets are intangible assets. Of course, all intangible assets are not intellectual property assets. And, for purposes of this discussion, the terms "intangible asset" and "intangible personal property" are considered synonymous.

Patents

A patent grants an inventor the right to exclude others from making, using, or selling the patented invention for a statutorily determined period of time. A patent represents a property interest for the patent holder. There are three kinds of patents: utility, design, and plant patents.

A utility patent may be issued with regard to an invention that has some type of usefulness or utility. An example would be a new pharmaceutical product to control high blood pressure.

A design patent may be issued for "any new, original, and ornamental design for an article of manufacture"[1] and does not need to meet the usefulness standard in order to qualify as a design patent. In order to qualify for a design patent (instead of for a utility patent), the design must be purely ornamental and nonfunctional. However, two patents may be issued for the same device:

1. A design patent for the product design
2. A utility patent for the product useful characteristics

A plant patent may be issued for an asexually reproduced "distinct and new variety of plant."[2] A plant also does not need to meet a usefulness standard in order to qualify as a plant patent.

In order to qualify, an invention must meet specific requirements. For example, an invention must have "utility" and "novelty."

Utility refers to usefulness, and this criterion is only required for utility patents. Novelty, required for all three patents, means the invention, design, or plant must be unique from all prior inventions, designs, or plants. An idea, however, cannot be patented.

Trademarks

A trademark is used to identify a brand or a company and lets a consumer know that a good is produced by a specific producer. A service mark is a closely related intangible asset to the trademark intellectual property. A service mark lets the consumer know that a service is coming from a specific service provider.

A taxpayer company that has developed a branded product and invested in its production wants consumers to identify the product trademark with quality. The trademark associated with the subject product allows the taxpayer company to achieve that objective.

A trade name is different from a trademark. A trade name is a business entity's name. A trademark identifies products and a service mark identifies services that are produced by that entity. Trade dress refers to the way a product or service is displayed and promoted. For a product, the trade dress could be represented by the product packaging. For a service, the trade dress may be the décor that the service is provided in.

Copyrights

Copyright law protects "original works of authorship."[3] To qualify for copyright protection, an original work must display at least some creativity and be fixed in a tangible medium of expression.

Several types of original works of authorship may qualify for copyright protection: (1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompany music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works.[4]

An author is the person who created the work, a taxpayer company that pays someone to create the work in an employment context, or a business that commissions the work under contract. The author is the owner of the copyright except in two cases: (1) the author assigns away the rights before completing the work or (2) the author is an employee who made the work as part of his or her employment.

Trade Secrets

A trade secret is any information that has economic value and is not generally known by the public.[5] The trade secret owner (i.e., taxpayer) can ensure that the information is generally unknown to the public by taking reasonable measures to maintain the confidentiality of the information.

An example of such reasonable measures would be to have a nondisclosure agreement signed by all taxpayer company employees, consultants, and visitors with access to the secret business information.

The term "trade secret" covers a wide spectrum of information. The type of business information that is typically considered to be a trade secret includes the following:

1. Information about customers, such as customer order and credit characteristics, customer lists, and mailing lists

2. Information about personnel, suppliers, or distributors, such as supply sources
3. Information on the costs and pricing of goods, as well as books and records of the business
4. Information concerning new business opportunities and current business methods
5. Some databases and know-how

The Intellectual Property Commercialization Process

A taxpayer intellectual property often enjoys commercialization opportunities that general commercial intangible assets typically do not. Goodwill, a trained and assembled workforce, or favorable supplier contracts typically cannot be commercialized outside of the taxpayer company that owns/operates these intangible assets.

In contrast, intellectual property has transferable legal rights that can be more easily sold or licensed. In addition, intellectual property legal rights can be easily divided, while intangible asset legal rights cannot be easily divided.

For general commercial intangible assets, either the taxpayer owner uses the intangible asset or a third-party operator uses the intangible asset. However, both the taxpayer owner and a third-party operator cannot use the same general intangible asset—for example, the same assembled workforce.

Therefore, either the intangible asset is used to produce (1) operating income (from the owner's use of the intangible asset) or (2) owner income (from the operator's payment of a license fee to the intangible asset owner). However, a general intangible asset typically cannot produce both operating income and owner (i.e., license) income at the same time.

In contrast, for an intellectual property, the taxpayer can use the intellectual property, and a third-party operator can also use the intellectual property. This occurs through the process of an intellectual property license. In addition, a second (and a third, and a fourth . . .) operator can use the taxpayer intellectual property through the process of an intellectual property sublicense.

Accordingly, an intellectual property (such as a patent) can be used to produce operating income to the taxpayer/owner's business enterprise. And, it can also be used to produce owner (i.e., a license fee from a third-party operator) income to the intellectual property taxpayer/owner.

Patents, trademarks, copyrights and trade secrets can be either sold outright or they can be licensed. A license allows the intellectual property owner to permit others to use the intellectual property—without the taxpayer giving up all of the ownership rights to the intellectual property.

In general, this license procedure is similar to how a franchise works. By way of analogy, the franchisor is the owner of the patent, trademark, copyright, or trade secret, and the franchisee is able to use the franchisor's intellectual property subject to certain restrictions.

An intellectual property owner does not have to license its intellectual property. That is, the taxpayer company may operate its own intellectual property by directly entering the relevant marketplace. The taxpayer company can feel confident in distributing its work. This is because the intellectual property rights are protected either by statute or by common law.

Common Terms of Intellectual Property License Agreements

One of the benefits of owning an intellectual property is the ability to license (or effectively lease) it to a third-party operator. In order to operate the intellectual property, a licensee may agree contractually to pay such form of royalty fee to the licensor. The license of intellectual property can be a very profitable business line for the taxpayer company.

Typically, the terms of the intellectual property license agreement will set out the royalty rate (or other royalty payment arrangement) that the operator/licensee will pay to the owner/licensor. This royalty rate is sometimes expressed as a percentage of the income that is generated by the operation of the licensed intellectual property.

When the intellectual property royalty rate is expressed as such a profit split formula, 25 percent of the licensee/operator income is a common "profit split" royalty rate for the licensee/operator to pay to the licensor/owner. For purposes of such a profit split formula, the licensee income is often defined as earnings before interest and taxes (or EBIT).

An intellectual property license agreement will typically set out the terms by which the licensee/operator can use the intellectual property. Obviously, the taxpayer company has a continued interest in the value of the intellectual property.

The taxpayer company does not want the subject intellectual property to be devalued in any way because of misuse by the intellectual property licensee. Therefore, the intellectual property license agreement will typically set out standards or practices that the licensee/operator must follow in order to maintain the quality of the intellectual property.

Common Terms of Other Intellectual Property Contracts

The owner of the intellectual property rights is free to grant to another party the full ownership of the intellectual property by selling it. In an intellectual property sale contract, the ownership of the intellectual property is fully transferred with the ownership rights. After the intellectual property sale, no royalties will be paid to the original intellectual property owner.

Typical Parties to the Intellectual Property Commercialization Process

There are usually three parties to the intellectual property commercialization process:

1. The intellectual property developer
2. The intellectual property owner
3. The intellectual property operator

One party may operate in all three roles. That would be the case if the taxpayer company created the intellectual property, continues to own it, and uses it to generate or protect some measure of income.

Frequently, the intellectual property developer may also be the intellectual property owner. Typically, a person receives the legal rights to an intellectual property the moment it is created. Those rights are then transferred to the taxpayer company. However, who the intellectual property owner is, and what those ownership rights are, is not always self-evident.

For example, if the work was a work of authorship created for hire on commission, then the intellectual property developer would not be the intellectual property owner, but rather the taxpayer company that commissioned the work for hire. If a taxpayer employee in the scope of his or her employment creates the work, then the intellectual property rights would be owned by the taxpayer employer, also under the work made for hire doctrine. In the case of inventions, generally speaking, a taxpayer employer owns the rights to inventions created by employees within the scope of their employment. Alternatively, the taxpayer company may have an implied license known as a "shop right" to use the invention royalty-free.

It is noteworthy that there is a distinction between copyrights and patents. A copyright arises immediately upon creation of the work of authorship. In contrast, an "invention," in terms of a patent right, does not arise unless a patent authority grants a patent. Rather, in the case of unpatented inventions, the right that would arise immediately upon creation may be a trade secret, depending if trade secret conditions have been met.

If an intellectual property operator is not the intellectual property owner, then there typically would be some form of a use license agreement between the two parties. The intellectual property operator will typically pay a royalty fee to the intellectual property owner in exchange for the ability to use the intellectual property.

Factors that the Valuation Analyst Should Consider

Typically, the first procedure in the intellectual property valuation analysis is for the valuation analyst to identify the valuation subject.

A typical dictionary definition of intellectual property is:

> Property that derives from the work of the mind or intellect; specifically: an idea, invention, trade secret, process, program, data, formula, patent, copyright, or trademark or application, right, or registration relating thereto.[6]

"A patent or a copyright is typically more valuable at the beginning of its legal protection life."

As mentioned above, there are four types of intellectual property: (1) patents, (2) copyrights, (3) trademarks, and (4) trade secrets. The intellectual property is the patent or the copyright itself. The intellectual property is not the product that is patented or the manuscript that is copyrighted.

Factors Related to Whether the Taxpayer Intellectual Property Is Valuable

The value of an intellectual property is influenced by its exclusivity. For example, once a patent or copyright has expired and it can be used by any party, it will have far less value.

A patent or a copyright is typically more valuable at the beginning of its legal protection life. When a patent is first granted, the intellectual property taxpayer/

owner can be assured of years of the exclusive ability to prohibit anyone else from using, making, and selling the related property.

The intellectual property taxpayer/owner may look forward to royalty income and/or operating income (however defined) from the intellectual property. As the legal protection expiration date approaches, the amount of future royalty and/or operating income typically decreases. Therefore, the value of an intellectual property typically decreases over its life cycle.

General Reasons to Value Intellectual Property

There are numerous general reasons why the taxpayer company (or its legal counsel) may ask the valuation analyst to value a commercial intellectual property.

These various reasons may be grouped into the following categories of taxpayer company motivations:

1. Transaction pricing and structuring
2. Intercompany use and ownership transfers
3. Financial accounting and fair value reporting
4. State and local ad valorem property taxation planning and compliance
5. Financing collateralization and securitization
6. Litigation claims and dispute resolution
7. Management information and strategic planning
8. Corporate governance and regulatory/contractual compliance
9. Bankruptcy and reorganization analysis
10. License, joint venture, and other development/commercialization opportunities

The following discussion presents a nonexhaustive list of many of the specific reasons why the taxpayer company (or its legal counsel) may ask the valuation analyst to value intellectual property.

Specific Reasons to Value Intellectual Property

There are many specific reasons why the taxpayer company (or its legal counsel) may require a valuation of intellectual property rights.

1. Transaction pricing or structuring
   - Pricing the sale of a taxpayer intellectual property or a portfolio of two or more intellectual property assets.
   - Pricing the license of a taxpayer intellectual property or a portfolio of two or more intellectual property assets.
   - Equity allocation in a taxpayer business enterprise or joint venture formation when the different investors contribute different tangible assets, general intangible assets, and intellectual property to the start-up business.
   - Asset allocation to the equity owners in a liquidation of a taxpayer business enterprise or joint venture when different investors receive tangible assets, general intangible assets, or intellectual property in exchange for their equity interests.
2. Intercompany use and ownership transfers
   - The transfers of intellectual property between the wholly-owned subsidiaries (or other business units) of a consolidated taxpayer business enterprise.
   - The transfer of intellectual property between less than wholly-owned subsidiaries (with different minority shareholders) of a consolidated taxpayer business enterprise.
   - Product inventory cost accounting for in-process goods transferred between business units with varying intellectual property ownerships in a consolidated taxpayer business enterprise.
3. Financial reporting and fair value accounting
   - Business acquisition purchase price allocations among all acquired tangible assets and intangible assets.
   - Goodwill and intellectual property annual impairment testing.
   - Post-bankruptcy fresh start accounting for all taxpayer business entity tangible assets and intangible assets.
4. Taxation planning and compliance
   - Purchase price allocations among all acquired tangible assets and intangible assets in a taxable business acquisition.
   - Depreciation and amortization accounting for purchased tangible assets and intangible assets.
   - Charitable contribution deductions of donated intellectual property.
   - Intercompany transfer pricing of intellectual property owned by controlled foreign subsidiaries of a multinational taxpayer corporation.

- State and local ad valorem property tax compliance and appeals related to exempt (or taxable) intellectual property.

5. Financing collateralization and securitization
   - Use of intellectual property as collateral on cash flow-based or asset-based corporate debt financings.
   - Sale/leaseback or sale/licenseback financing of taxpayer intellectual property.
6. Bankruptcy and reorganization
   - Use of intellectual property as collateral on taxpayer secured debt.
   - Use of intellectual property as collateral or debtor in possession (DIP) secured debt.
   - Intellectual property sale or license as a DIP cash generation spinoff opportunity.
   - Use of taxpayer intellectual property in the assessment of a debtor corporation solvency or insolvency.
   - License or operating use of debtor intellectual property as part of plan of reorganization.
7. Litigation claims and dispute resolution
   - Intellectual property royalty rate analysis in infringement claims.
   - Intellectual property breach of contract or noncompete/nondisclosure agreement economic damages claims.
   - Intellectual property condemnation, expropriation, eminent domain, or dissipation of taxpayer corporation claims.
   - Intellectual property lost profits in interference with business opportunity or lender liability claims.
8. Management information and strategic planning
   - Formation of intellectual property joint venture, joint development, or joint commercialization agreements.
   - Negotiation of inbound or outbound intellectual property use, development, commercialization, or exploitation agreements.
   - Analysis of intellectual property–based capital formation alternatives.
   - Analysis of intellectual property–based (license, sale, use, etc.) wealth creation alternatives.
9. Corporate governance and regulatory compliance
   - Custodial inventory of all the taxpayer owned and licensed intellectual property.
   - Assessment of insurance coverage needed on the taxpayer intellectual property.
   - Development of defense strategies against infringement, torts, breach of contract, and other wrongful acts.
   - Development of defense against dissipation of taxpayer corporation assets allegation.
10. Commercialization and development opportunities
    - Identification of intellectual property license, spin-off, joint venture, and other commercialization opportunities.
    - Negotiation of intellectual property license, spin-off, joint venture, and other commercialization opportunities.

Each of the above-listed motivations indicates a reason why the taxpayer company or legal counsel may ask the valuation analyst to analyze intellectual property.

For each of these assignments, the valuation analyst may consider one or more of the following related (but subtly different) quantitative analysis objectives:

1. To estimate a defined value for a specified ownership interest in the intellectual property
2. To measure an appropriate royalty rate or license fee associated with the third-party license of the intellectual property
3. To calculate the arm's-length price (ALP) for the intercompany transfer of intellectual property between controlled foreign entities of a multinational corporation.
4. To quantify the expected remaining useful life (RUL) of the ownership or operation (or associated rate of change in the value) of the intellectual property.
5. To determine the amount of lost profits or other economic damages associated with a damages event suffered by the intellectual property.
6. To opine on the fairness (or solvency, adequate consideration, excess benefits, etc.) of an intellectual property sale or license transaction.

The following discussion focuses on the first category of these intellectual property analyses—that is, to estimate a defined value for the taxpayer intellectual property.

Nonetheless, there are numerous similarities in the generally accepted approaches, methods, and procedures that the valuation analyst may use in the performance of all types of intellectual property valuation, forensic analysis, and financial opinion engagements.

Generally Accepted Intellectual Property Valuation Approaches and Methods

There are numerous methods and procedures that may be used in the valuation of intellectual property. Due to the fundamental similarities and differences of these valuation methods and procedures, they are categorized into three generally accepted valuation approaches. These three generally accepted intellectual property valuation approaches are based on fundamental economic principles.

The three generally accepted intellectual property valuation approaches are: (1) the cost approach, (2) the market approach, and (3) the income approach.

The generally accepted valuation approaches encompass a broad spectrum of microeconomics principles and property investment dynamics. Each of the three generally accepted valuation approaches has the same objective: to arrive at a reasonable indication of a defined value for the taxpayer intellectual property.

Accordingly, analytical methods and procedures that are based on the same economics principles are grouped into the three valuation approaches.

A valuation analyst will typically attempt to value the taxpayer intellectual property using all three generally accepted valuation approaches—in order to obtain a multi-dimensional perspective on the intellectual property. However, the individual methods and procedures that are associated with the three valuation approaches may or may not be applicable to the valuation of a particular intellectual property.

Consequently, the valuation analyst's selection of the valuation methods and procedures used to value a particular intellectual property will depend on the following factors:

1. The unique characteristics of the intellectual property
2. The purpose and objective of the subject analysis
3. The quantity and quality of available data
4. The ability of the valuation analyst to conduct adequate due diligence related to those data
5. The transactional practices in the subject taxpayer industry
6. The experience and judgment of the valuation analyst

The objective of using more than one valuation approach is to develop mutually supporting evidence for the value conclusion. The valuation analyst's value conclusion is typically based on a synthesis of the value indications derived from each applicable valuation approach and method.

Market Approach Valuation Methods

The market approach is based on the economics principles of competition and equilibrium. These economics principles indicate that, in a free and unrestricted market, supply and demand factors will drive the intellectual property price to a point of equilibrium.

The principle of substitution also influences the market approach. This is because the identification and analysis of the equilibrium price for a substitute intellectual property will provide pricing evidence with regard to the intellectual property value.

Market Approach Valuation Principles

The valuation analyst will often attempt to apply market approach methods first in the valuation process. This is because the market—that is, the economic environment where arm's-length transactions between unrelated parties occur—often provides the best indication of value.

However, the market approach may not be appropriate for the valuation of certain taxpayer intellectual property. This is particularly the case if the condition of the taxpayer intellectual property is not sufficiently similar to the intellectual properties that are transacting (by sale or license) in the marketplace.

In that case, the guideline intellectual property transactional prices may not indicate the expected price for the intellectual property.

The price of an intellectual property is not necessarily equal to its value. Value is often defined as

an expected price. That is, value is the price that the intellectual property owner would expect to fetch in the appropriate marketplace.

In contrast, price represents what one particular buyer paid to one particular seller for one particular intellectual property.

In any particular intellectual property sale (or license) transaction, either participant may have been influenced by nonmarket, participant-specific influences. If such influences did occur, and if such influences are not general to the marketplace, then that particular intellectual property transactional price may not be indicative of the expected price for the intellectual property.

Even if the intellectual property was itself bought or licensed, that transactional price should not be naively relied upon to indicate an expected future price. This is because this transactional price may have been influenced by nonmarket, participant-specific influences.

The Market Approach Valuation Process

Within the market approach, there are generally recognized valuation methods. The practical application of these market approach methods involves a complex and rigorous analytical process. There is a general systematic process—or framework—to the application of intellectual property market approach methods.

The basic procedures of this systematic process are summarized as follows:

1. Research the appropriate exchange market to obtain information about sale or license transactions, involving either "guideline" (i.e., generally similar) or "comparable" (i.e., almost identical) intellectual property that may be compared to the intellectual property—in terms of characteristics such as intellectual property type, intellectual property use, taxpayer industry in which the intellectual property operates, date of the sale/license, etc.
2. Verify the information by confirming (a) that the data obtained are factually accurate and (b) that the sale or license exchange transactions reflect arm's-length market considerations. If the guideline sale or license transaction was not at arm's-length market conditions, then adjustments to the transactional data may be necessary. This verification procedure may also elicit additional information about the current market conditions for the sale or license of the intellectual property.
3. Select relevant units of comparison (e.g., income multipliers, dollars per unit, or other metrics—units such as "per drawing," "per customer," "per line of code") and develop a comparative analysis for each selected unit of comparison.
4. Compare the selected "guideline" or "comparable" intellectual property sale or license transactions with the taxpayer intellectual property using the selected elements of comparison; and adjust the sale or license price of each guideline transaction appropriately to the taxpayer intellectual property. If such adjustments cannot be measured, then the valuation analyst may eliminate the sale or license transaction as a guideline for future valuation analysis consideration.
5. Calculate the various pricing metrics (for each unit of comparison) derived from the guideline or comparable transactions. Quantify the mean, median, high, and low pricing metrics from the sample of selected guideline or comparable transactions.
6. Select the various pricing metrics (e.g., revenue multiples, income multiples, price per drawings, price per line of code, etc.) that is appropriate to the intellectual property. The selected pricing metrics may be at the low end of the range, middle of the range, or high end of the range provided by the guideline or comparable transaction data. The valuation analyst should select taxpayer-specific pricing metrics based on the analyst's comparisons of the intellectual property to the guideline/comparable intellectual property.
7. Apply the selected taxpayer-specific pricing metrics to the intellectual property financial or operational fundamentals (e.g., revenue, income, etc.) in order to conclude one or more value indications.
8. Reconcile the various value indications produced from the analysis of the guideline/comparable sale or license transaction

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pricing metrics into either (a) a single value indication or (b) a range of values.

The reconciliation procedure is the last procedure of any market approach valuation analysis in which two or more value indications are derived from market-derived transactional data.

In the reconciliation procedure, the valuation analyst summarizes and reviews (1) the transactional data relied upon and (2) the analyses that resulted in each value indication. The valuation analyst then resolves these value indications into either a range of values or into a single value indication.

It is important for a valuation analyst to consider the strengths and weaknesses of each value indication derived, examining the reliability and appropriateness of (1) of the market data compiled and (2) the analytical procedures performed.

Cost Approach Valuation Methods

The cost approach is based on the economics principles of substitution and price equilibrium. These economics principles indicate that a willing buyer will pay no more for a fungible intellectual property than the cost to obtain (i.e., either to purchase or to construct) an alternative intellectual property of equal utility.

In other words, a willing buyer will pay no more for a fungible intellectual property than the price of an intellectual property of comparable utility. For purposes of this economics principle, utility can be measured in many ways, including functionality, desirability, and so on.

Accordingly, an efficient market will adjust the price of all assets (including intellectual property) in equilibrium so that the price the market will pay is a function of the comparative utility of each intellectual property.

The cost approach often has application limitations with regard to a taxpayer intellectual property valuation. This is because most intellectual properties are not fungible. Instead, most intellectual properties are unique. That is, the intellectual property cannot be substituted for a comparable intellectual property.

When the intellectual property is unique (functionally, technologically, or legally), then the valuation analyst should carefully consider the application of the cost approach to the property tax valuation.

Within the cost approach, cost is influenced by the marketplace. That is, the relevant cost is often the greatest amount that the marketplace is willing to pay for the fungible intellectual property.

This value is not necessarily the actual historical cost of creating the intellectual property, and it is not necessarily the sum of the historical costs for which the willing seller would like to be compensated. This is because value is not equal to cost, at least not to cost as measured in the historical accounting sense.

The conceptual foundation of all cost approach valuation methods relates to the following economics principles:

- The substitution principle—This principle concludes that no prudent buyer would pay more for a fungible intellectual property than the total cost to develop a new intellectual property of equal desirability and utility.
- The supply and demand principle—This principle indicates that shifts in supply and demand (1) cause costs to increase and decrease and (2) cause changes in the supply of different types of intellectual property.
- The externalities principle—This principle indicates that gains or losses from external factors may affect the value of an intellectual property. For this reason, external conditions may cause a newly created intellectual property to be worth more or less than its cost.

Definition of Intellectual Property Cost

There are several generally accepted cost approach valuation methods. Each of these valuation methods uses a particular definition of cost. Two common cost definitions are as follows:

1. Reproduction cost new
2. Replacement cost new

Reproduction cost new is the total cost, at current prices, to develop an exact duplicate or replica of the taxpayer intellectual property. This duplicate intellectual property would be developed using the same materials, standards, design, layout, and quality of workmanship used to create the original intellectual property.

Replacement cost new is the total cost to develop, at current prices, an asset having equal functionality or utility of the intellectual property.

Functionality is an engineering concept that means the ability of the intellectual property to perform the task for which it was designed.

Utility is an economics concept that means the ability of the intellectual property to provide an equivalent amount of satisfaction.

The replacement intellectual property would be (1) developed with modern methods and (2) developed according to current standards, state-of-the-art design and layout, and the highest available quality of workmanship.

Accordingly, the replacement intellectual property may have greater utility than the taxpayer intellectual property. If this is the case, the valuation analyst should adjust for this factor in the obsolescence analysis of the replacement cost new less depreciation method.

Moreover, while the replacement intellectual property performs the same task as the taxpayer intellectual property, the replacement asset is often "better" (in some way) than the taxpayer intellectual property. The replacement asset may yield more satisfaction than the taxpayer intellectual property. If this is the case, the valuation analyst should adjust for this factor in the replacement cost obsolescence estimation.

Further Reading

Robert F. Reilly. "Intellectual Property Assets in the Taxpayer Corporation." *Journal of Property Tax Administration* 6, no. 2 (2009).

There are several other cost definitions that may be applicable to a cost approach analysis. For example, some valuation analysts consider a measure of cost avoidance as a cost approach method. This method quantifies either historical or prospective costs that are avoided (i.e., not incurred) by the taxpayer company due to the intellectual property ownership.

In addition, some valuation analysts consider trended historical costs as a value indication. In this method, actual historical intellectual property development costs are identified and quantified and, then, "trended" to the valuation date by an appropriate inflation-based index factor. Regardless of the specific definition of cost used in the analysis, all cost approach valuation methods typically include a comprehensive and all-inclusive cost definition.

Intellectual Property Cost Components

The intellectual property development cost measurement (whether replacement cost, reproduction cost, or some other cost measure) should include not only direct costs (e.g., materials) and indirect costs (e.g., engineering and design labor). The cost measurement should also include the following:

1. An intellectual property developer's profit (on the direct cost and indirect cost investment)
2. An opportunity cost/entrepreneurial incentive (to economically motivate the intellectual property development process)

The developer's profit is a cost component that is sometimes overlooked in the cost approach analysis. From the perspective of the intellectual property developer, first, the developer expects a return of all of the material, labor, and overhead costs related to the development process.

For example, a building contractor expects to earn a reasonable profit on the construction of any residential, commercial, or industrial building. Likewise, an intellectual property developer expects to earn a reasonable profit on the development of the intellectual property.

The developer's profit can be estimated by using several procedures. It can be estimated as a percentage return on the developer's investment in material, labor, and overhead. It can be estimated as a percentage markup—or as a fixed dollar markup—to the amount of cost and time involved in the development process. It can also be estimated as a fixed dollar amount.

The valuation analyst may sometimes disaggregate the developer's investment into two subcomponents:

1. The amount financed by external financing sources (e.g., banks and other financial institutions)
2. The amount financed by the owner/operator's capital

The developer's profit associated with the costs financed by external sources is analogous to construction period interest accrued in the construction of a tangible asset.

Some valuation analysts include this construction period interest in the developer's profit cost category, and some valuation analysts include this interest as overhead in the indirect cost category. Usually, a higher rate of return is assigned to the cost amount financed by the owner/operator's capital, as compared to the cost amount financed by external financing sources.

The opportunity cost is another cost component that is sometimes overlooked in the cost approach valuation analysis. Nonetheless, opportunity cost is an important consideration of the cost approach analysis. The opportunity cost is the amount of economic benefit required to

". . . both the intellectual property developer and the real estate developer expect to be compensated for the conceptual, planning, and administrative efforts associated with putting the entire project together."

motivate the owner/operator to enter into the development process.

The opportunity cost is often measured by reference to the intellectual property replacement/reproduction time period—that is, the amount of time required for the owner/operator to replace or reproduce the intellectual property de novo.

The valuation analyst will estimate the amount of the difference between

1. the amount of economic income that the owner/operator will earn by operating the taxpayer intellectual property during the replacement time period and
2. the amount of economic income that the owner/operator will earn (without operating the subject intellectual property) during the intellectual property replacement time period.

Typically, the intellectual property developer will earn zero or negative economic income during the replacement/reproduction time period. The difference between these two economic income estimates (i.e. (1) positive for ownership/operation of the intellectual property and (2) zero or negative for development of replacement/reproduction intellectual property) is one procedure for measuring the opportunity cost component of the cost approach analysis.

With regard to the cost approach, intellectual property developers may be compared to real estate developers (e.g., the developer of a shopping mall or a residential apartment complex). There is an opportunity cost associated with the development process for both the intellectual property developer and the real estate developer. The time (and the financial resources) that they devote to the subject project is time (and resources) they are diverting from another development project.

Alternatively, the time (and the financial resources) that they devote to the subject project is time (and resources) they are diverting from owning the subject (operational) intellectual property or residential/commercial real estate complex.

Likewise, both the intellectual property developer and the real estate developer expect to be compensated for the conceptual, planning, and administrative efforts associated with putting the entire project together. They both expect to be compensated for the full period of time between

1. when they initially begin the development of the subject project and
2. when they realize the full commercial potential of the subject development project.

This opportunity cost concept may be easier to understand with regard to the real estate developer. From the time the real estate developer first begins to construct the shopping mall until the time all of the retail stores are leased and occupied, the developer is likely to experience negative cash flow during this development period. Let's assume that this time period is two years.

A real estate developer who purchased an operational (i.e., fully leased) shopping mall two years earlier would experience positive cash flow during that same two-year period. The foregone cash flow during the two-year development period is one indication of the opportunity cost required to motivate the real estate developer to build a new shopping mall (instead of buying an existing shopping mall).

Accordingly, this opportunity cost measure may be considered as one of the cost components in the real estate valuation cost approach analysis.

The same type of opportunity cost is necessary to motivate the intellectual property developer to produce a new patent, trademark, computer program copyright, chemical formulation trade secret, food recipe trade secret, or other taxpayer intellectual property.

The taxpayer company should be compensated for the risk of the new development process compared to the relatively low risk of using the last generation of technology, consumer brands, computer software, and so on.

The intellectual property developer should be compensated for the forgone economic income (however measured) during the development period. This forgone economic income is one indication of the opportunity cost required to motivate the developer to create a new intellectual property (instead of buying an existing intellectual property).

Accordingly, this opportunity cost measure should be considered as one of the cost components in the cost approach analysis.

All four cost components—that is, direct costs, indirect costs, developer's profit, and opportunity

cost—should be considered as part of a cost approach analysis. So, while the cost approach is a fundamentally different set of valuation analyses from the income approach, there are necessary economic analyses involved in the cost approach.

These economic analyses (which may involve some analysis of the intellectual property income) provide indications of both

1. the appropriate levels of opportunity cost (if any) and
2. the appropriate amount of economic obsolescence (if any).

Cost New Less Depreciation

The replacement cost new is the total cost to create, at current prices, an intellectual property having equal utility to the taxpayer intellectual property. However, the replacement asset would be (1) developed with modern methods and (2) developed according to current standards, state-of-the-art design and layout, and the highest available quality of workmanship.

Accordingly, the replacement intellectual property may have greater utility than the taxpayer intellectual property.

Reproduction cost new is the total cost, at current price, to construct an exact duplicate or replica of the intellectual property. This duplicate intellectual property would be created using the same materials, standards, design, layout, and quality of workmanship used to create the original intellectual property.

The intellectual property cost new (however measured) should be adjusted for losses in value due to

1. physical deterioration,
2. functional obsolescence, and
3. economic obsolescence.

Physical deterioration is the reduction in the intellectual property value due to physical wear and tear resulting from continued use. It is unlikely that intellectual property will experience physical deterioration.

Functional obsolescence is the reduction in the intellectual property value due to its inability to perform the function (or yield the periodic utility) for which it was originally designed. Technological obsolescence is a decrease in the intellectual property value due to improvements in technology that make an intellectual property less than the ideal replacement for itself.

The technological component of functional obsolescence occurs when, due to improvements in design or engineering technology, a replacement intellectual property produces a greater standardized measure of utility production than the taxpayer intellectual property.

Economic obsolescence (i.e., a component of external obsolescence) is a reduction in the intellectual property value due to the effects, events, or conditions that are external to—and not controlled by—the intellectual property current use or condition.

The impact of economic obsolescence is typically beyond the control of the owner/operator. For that reason, economic obsolescence is typically considered incurable.

Further Reading

C. Ryan Stewart. "Functional Obsolescence Considerations in the Cost Approach Valuation of Industrial and Commercial Property." *Willamette Management Associates Insights* (Summer 2008).

In any cost approach analysis, the valuation analyst will estimate the amounts (if any) of physical deterioration, functional obsolescence, and economic obsolescence related to the intellectual property. In this estimation, the valuation analyst often considers the intellectual property actual age—and its expected RUL. Such an age/RUL consideration is a common component of the cost approach.

In the cost approach, the typical formula for quantifying the intellectual property replacement cost new is: reproduction cost new – curable functional obsolescence = replacement cost new.

To estimate the intellectual property value, the following formula is often used: replacement cost new – physical deterioration – economic obsolescence – incurable functional obsolescence = value.

Income Approach Valuation Methods

The income approach is based on the economics principle of anticipation (also called the principle of expectation). In this approach, the intellectual property value is the present value of the expected economic income to be earned from the ownership/operation of the intellectual property.

As the name of this economics principle implies, the willing buyer "anticipates" the "expected" income to be earned from the intellectual property.

This expectation of prospective income is converted to a present worth—that is, the intellectual property indicated value. This conversion requires the valuation analyst to estimate the investor's required rate of return on the intellectual property generating the prospective economic income.

This required rate of return will be a function of many economic variables, including the risk—or the uncertainty—of the expected economic income.

Measures of Commercial Intellectual Property Income

There are numerous alternative income measures that may be relevant to a taxpayer intellectual property valuation. If properly applied, these different income measures can all be used in the income approach to provide a reasonable value indication.

Some of the alternative income measures include the following:

1. Gross or net revenues
2. Gross income (or gross profit)
3. Net operating income
4. Net income before tax
5. Net income after tax
6. Operating cash flow
7. Net cash flow
8. Incremental income
9. Differential income
10. Royalty income
11. Excess earnings income
12. Several others (such as incremental income)

There are different income measures that may be used in the income approach. Therefore, an important procedure in this valuation approach is for the valuation analyst to ensure that the discount rate or the direct capitalization rate used is derived on a basis consistent with the income measure used.

There are at least as many income approach valuation methods as there are alternative income measures.

In addition, all of the different income approach valuation methods use two categories of mathematical procedures:

1. Direct capitalization procedures
2. Yield capitalization procedures

However, most income approach valuation methods may be grouped into the following categories of valuation methods. These categories of income approach valuation methods have similar practical and conceptual considerations.

Income Approach Valuation Methods

These common categories of intellectual property income approach valuation methods are summarized below:

1. Valuation methods that quantify the incremental level of intellectual property income—that is, the taxpayer company will earn greater revenue (however measured) by owning/operating the intellectual property as compared to not owning/operating the intellectual property. Alternatively, the taxpayer company will incur lower costs—such as investment costs, capital costs, or operating costs—by owning/operating the intellectual property as compared to not owning/operating the intellectual property.
2. Valuation methods that estimate a relief from a hypothetical royalty payment—that is, the amount of a royalty payment that a hypothetical third-party licensee would be willing to pay to a hypothetical third-party licensor in order to obtain the right use of the intellectual property. The taxpayer company does not have to pay (i.e., is relieved from paying) this hypothetical license royalty payment. This is because the taxpayer company actually owns the intellectual property. Therefore, the taxpayer company does not have to inbound license the intellectual property from a hypothetical third-party licensor.
3. Valuation methods that measure a differential level of income—that is, these methods compare the income that the taxpayer company actually earns with the intellectual property in place to some benchmark income measure. The benchmark income measure can be an industry average level of income, a measure of income earned by selected guideline companies, the income earned by the taxpayer company before the intellectual property was developed, etc.
4. Valuation methods that consider "comparable" companies—that is, these methods compare the taxpayer company to selected comparable publicly traded companies. These companies typically operate in the same industry as the taxpayer company, and they may be competitors to the

taxpayer company. The difference is that the selected companies don't operate the taxpayer intellectual property. These methods compare the taxpayer profit margin (typically the earnings before interest and taxes—or EBIT—margin) to the comparable companies. These methods assign any excess profit margin (above the profit margins earned by the comparable companies) to the taxpayer intellectual property. These methods are often called comparable profit margin (CPM) methods.

5. Valuation methods that quantify a profit split—that is, these methods start with the taxpayer total operating profit margin, typically measured as the EBIT margin. These methods "split" or allocate the taxpayer profit margin between (a) the intellectual property and (b) all other contributory assets. Contributory assets are all of the taxpayer other working capital assets, tangible assets, and other (routine) intangible assets that are used to produce the total operating income. The profit split percent (e.g., 20 percent, 25 percent, 30 percent) allocated to the intellectual property is typically based on the valuation analyst's functional analysis of the taxpayer business operations.
6. Valuation methods that requantify residual or excess profits—that is, these methods also start with the taxpayer total operating income, typically measured as the net cash flow. Next, the valuation analyst identifies all of the taxpayer contributory assets. Third, the valuation analyst assigns a fair rate of return to each of the contributory assets. The fair rate of return multiplied by the value of the taxpayer contributory assets results in the capital charge, or the contributory asset charge. Last, the total net cash flow minus the contributory asset charge equals the taxpayer residual or excess profits. These residual or excess profits are then associated with the taxpayer intellectual property.

Direct Capitalization Procedures

In a direct capitalization analysis, the valuation analyst (1) estimates a normalized income measure for one future period and (2) divides that income measure by an appropriate investment rate of return. The appropriate investment rate of return is called the direct capitalization rate.

The direct capitalization procedure can be used any time the intellectual property income is expected to change by a constant rate (whether that rate is positive, negative, or zero percent) over a multiyear period.

The direct capitalization rate may be derived for (1) a perpetuity period of time or (2) a specified finite period of time. This decision will depend on the valuation analyst's expectation of the intellectual property income flow duration. And, the expected income flow duration is typically equal to the intellectual property RUL.

Few intellectual property assets have an infinite RUL. Therefore, it is a more common procedure to use the direct capitalization procedure on a limited RUL basis. That is, the analyst will calculate a direct capitalization rate for a finite RUL, such as 10 years or 20 years.

If the valuation analyst projects an infinite RUL for the taxpayer intellectual property, then the analyst will typically also project that the taxpayer will incur some amount of annual maintenance expenditures (e.g., R&D expense, advertising expense, publishing expense) in order to continually maintain the intellectual property life.

In the limited life direct capitalization procedure, the appropriate direct capitalization multiple is typically the present value annuity factor (PVAF) for the selected capitalization rate for the intellectual property expected RUL.

Yield Capitalization Methods

In a yield capitalization analysis, the valuation analyst projects the intellectual property income measure (however defined) for a discrete time period into the future. This income projection is converted into a present value by the application of a present value discount rate.

The present value discount rate is the investor's required rate or return—or yield capitalization rate—over the expected duration of the intellectual property income flow.

The duration of the income projection period—and whether or not a residual value or terminal value should be considered at the conclusion of the projection period—depends on the valuation analyst's estimate of the income duration. And, that estimate of the income duration is typically based on the intellectual property RUL.

The yield capitalization procedure is typically used when the taxpayer intellectual property income flow (however defined) is expected to change on a nonconstant growth rate over the income projection period. In such an instance, the direct capitalization procedure is not applicable,

and the yield capitalization procedure is perfectly applicable.

The result of either the direct capitalization analysis or the yield capitalization analysis is the income approach value indication. Either capitalization procedure can be used with any of the intellectual property income measurement methods described above.

Income Tax Amortization Adjustment

Regardless of whether the yield capitalization procedure or the direct capitalization procedure is used, there is one additional income approach procedure that the valuation analyst should consider.

That procedure relates to the cash flow effect of the income tax amortization deduction related to an intellectual property that is purchased as part of a taxable business combination.

More often than not, the valuation analyst does not need to make this income tax amortization adjustment to the preadjusted income approach value indication. However, the valuation analyst should consider whether such an adjustment is appropriate in each intellectual property income approach valuation analysis.

When an intellectual property is purchased as part of the taxable acquisition of a going-concern business, the price of that purchased asset may be amortizable to the acquirer for federal income tax purposes.

This amortization deduction is allowed under Internal Revenue Code Section 197. That is why such intellectual property assets are referred to as Section 197 intangible assets.

However, the valuation analyst should realize the following:

1. Not all taxpayer intellectual property qualify as Section 197 intangible assets.
2. A Section 197 intangible asset has to be purchased as part of a going-concern business acquisition (and not on a stand-alone basis).
3. The business acquisition has to be a taxable transaction, such as a cash for assets transaction under Section 1060 (and not, for example, a Section 368 stock for stock merger).
4. The intellectual property owner/operator contemplated in the defined standard of value should be a taxpayer company that is able to use the amortization-related income tax deduction—that is, the owner/operator must be a taxpayer (and not tax exempt) entity.

Therefore, before applying an income tax amortization adjustment, the valuation analyst should consider the following questions:

1. Is the intellectual property a Section 197 intangible asset?
2. Would the intellectual property normally sell as a Section 197 intangible asset?

If the answer to either question is yes, then the valuation analyst may consider applying an income tax amortization adjustment. Section 197 allows the business acquirer to amortize the fair market value (presumably, the price paid) of the purchased intellectual property over a statutory 15-year amortization period. This annual amortization is a deduction that reduces the acquirer's taxable income and, therefore, income tax expense.

The value of this amortization deduction is the present value of the income tax expense savings over 15 years, present valued at the same discount rate used in the intellectual property income approach valuation analysis.

When applicable, this present value of income tax expense savings is added to the preadjusted income approach value indication for the intellectual property. The sum of (1) the present value of the income tax savings and (2) the preadjusted value indication equals (3) the final intellectual property income approach value indication.

Alternatively, some valuation analysts use an income tax amortization factor as a shortcut to the 15-period tax expense savings calculation.

The common income tax amortization factor formula is:

$$Amortization\ value\ adjustment\ factor = \frac{1}{1 - (income\ tax\ rate) \times \frac{(present\ value\ annuity\ factor)}{amortization\ period}}$$

In this formula, the income tax rate should be the same tax rate that was used in the unadjusted income approach analysis. The present value annuity factor is the present value of an annuity of $1 for 15 years at the present value discount rate that was used in the unadjusted income approach analysis. The amortization period is always 15 years for a Section 197 intangible asset.

For example, let's consider a business acquirer with a 40 percent effective income tax rate and a 20 percent present value discount rate.

Using the amortization value adjustment factor formula, the intellectual property income approach value indication amortization adjustment would be calculated as follows:

$$amortization\ value\ adjustment = \frac{1}{\frac{1-(40\%)(4.6755)}{15\ years}}$$

amortization value adjustment factor = 14%

Assuming that the unadjusted income approach value indication for the taxpayer intellectual property is $1,000, the amount of the amortization value adjustment is $140 rounded (i.e., $1,000 × 14%). When using the amortization value adjustment factor formula, the total income approach value indication for the taxpayer intellectual property is $1,140 (i.e., $1,000 unadjusted value + $140 income tax amortization value adjustment).

This income tax amortization value adjustment (however calculated) is intended to reflect the increment in net cash flow related to the amortization-related income tax expense savings. This net cash flow increment is not reflected in the unadjusted income approach analysis.

This adjustment, then, properly reflects the amount of income tax expense that should be included in the income approach valuation analysis.

Since it is an adjustment to income tax expense in the income approach, this adjustment is not applicable to either the cost approach or the market approach. In other words, the income tax amortization adjustment should not be considered in intellectual property valuation analyses based on either the cost approach or the market approach.

Remaining Useful Life Analysis

After the valuation analyst has identified the appropriate intellectual property valuation approaches and methods, the typical next procedure is the RUL analysis. The estimation of the intellectual property RUL (i.e., a "lifing analysis") is a common component of each of the generally accepted valuation approaches.

In the income approach, a lifing analysis may be performed to estimate the projection period for the intellectual property income subject to either yield capitalization or direct capitalization.

In the cost approach, a lifing analysis may be performed in order to estimate the total amount of obsolescence, if any, from the estimated measure of "cost"—that is, the intellectual property reproduction cost or replacement cost.

In the market approach, a lifing analysis may be performed to select, reject, and/or adjust "comparable" or "guideline" intellectual property sale or license transactional data.

For each valuation approach, the RUL analysis has a direct and predictable effect on the intellectual property value indication. The likely expected effect on the taxpayer intellectual property value indication is summarized below.

Expected Effect on the Income Approach Value Indication

Normally, in the income approach, a longer RUL estimate results in a greater intellectual property value. The income approach value is particularly sensitive to the RUL estimate when the RUL is less than 10 years.

The income approach value is not particularly sensitive to the RUL estimate when the RUL is more than 20 years.

Expected Effect on the Cost Approach Value Indication

Normally, in the cost approach, a longer RUL estimate results in a greater intellectual property value. That is because a longer RUL generally indicates less obsolescence in the intellectual property.

Normally, a shorter RUL estimate results in a lower intellectual property value. This is because a shorter RUL generally indicates greater obsolescence in the intellectual property.

Expected Effect on the Market Approach Value Indication

The market should indicate an acceptance for the taxpayer intellectual property RUL. If the taxpayer intellectual property RUL is materially different from the guideline sale or license transaction intellectual property RUL, then adjustments to the market-derived transactional pricing multiples (or other metrics) should be considered.

If the taxpayer intellectual property RUL is more than materially different from the guideline sale or license transaction intellectual property RULs, then this fact may indicate a lack of marketability for the taxpayer intellectual property. This fact may indicate a lack of market demand for an intellectual property with the taxpayer intellectual property age/life characteristics.

Exhibit 1
Taxpayer Corporation
Copyrights on Computer Software
Fair Market Value
As of January 1, 2011

Cost Approach Valuation Analysis

Software Systems	Person-Hours to Replace the Computer Software	Average Base Cost per Person-Hour ($)	Employee Benefits and Overhead Cost Allocation Factor	Full Absorption Cost per Person-Hour ($)	Replacement Cost New Less Depreciation Components ($)
Facility scheduling	150,000	75	1.85	139	20,850,000
Facility processing	80,000	75	1.85	139	11,120,000
Inventory control	100,000	85	1.85	157	15,700,000
Administration and accounting	85,000	90	1.85	167	14,200,000
		Total direct and indirect costs			61,870,000
		Plus: Developer's profit at 15% [a]			9,280,000
		Plus: Entrepreneurial incentive [b]			3,558,000
		Replacement cost new (RCN)			74,708,000
		Less: Functional obsolescence (at 15% of RCN) [c]			11,206,000
		Equals: Replacement cost new less depreciation			63,502,000
		Equals: Software copyrights fair market value (rounded)			64,000,000

Footnotes:
[a] estimated software developer's typical profit margin
[b] 10% rate of return on the average RCN investment
[c] based on all of the taxpayer computer programs that are scheduled for replacement as of 1/1/11

Common Factors Influencing Intellectual Property Expected RUL

The following list presents some of the factors that the valuation analyst may consider in the taxpayer intellectual property RUL analysis:

- Legal factors
- Contractual factors
- Functional factors
- Technological factors
- Economic factors
- Analytical factors

The valuation analyst will typically consider each of these categories of life influence factors in the intellectual property RUL estimation. Typically, for ad valorem property tax intellectual property valuation purposes, the life factor that indicates the shortest RUL deserves primary consideration in the intellectual property RUL estimate.

Valuation Illustrative Examples

As explained above, the taxpayer intellectual property values indicated by all three generally accepted valuation approaches should be considered in the final value synthesis and conclusion. This is due to the fact that the valuation variables used—and the value indications concluded—in each approach provide a different perspective on the intellectual property value.

The following discussion presents simplified illustrative examples with regard to an intellectual property valuation for a hypothetical Taxpayer Corporation. Each simplified example illustrates one of the three generally accepted valuation approaches.

Taxpayer Corporation is a centrally assessed taxpayer. The current assessment date is January 1, 2011. Let's assume that all intangible personal property (including intellectual property) is exempt from property tax in the subject taxing jurisdiction.

The taxpayer's legal counsel retained the valuation analyst with the instruction to identify and value all Taxpayer Corporation intellectual property as of the assessment date.

First, the valuation identified and valued the copyrights associated with the taxpayer's internally developed computer software. The analyst decided to use the cost approach and the replacement cost new less depreciation method to value this intellectual property.

A summary of this cost approach valuation is presented on Exhibit 1.

Second, the analyst identified and valued the utility patent associated with a taxpayer proprietary process. The analyst learned that the taxpayer uses the patent, in part, for defensive purposes. That is, Taxpayer Corporation management believes that its competitors could easily reverse engineer the proprietary process within two years, without the patent protection.

However, the patent allows the taxpayer to maintain its process superiority (and operating cost) advantage in the industry.

The analyst decided to rely on the income approach and a discounted cash flow method. The analyst considered the economic advantage related to the patent over a two-year period; the expected period over which the patent protects the taxpayer's technological market advantage.

Therefore, the analyst considered the revenue and profitability of the product produced by the patented process over the next two-year period. This patent valuation analysis is summarized on Exhibit 2.

Third, the analyst identified and valued the trade secret related to the taxpayer's (unpatented) proprietary technology and its related documents. Such documents include engineering drawings, procedural and operational manuals, and related technical documentation. These trade secrets are used to generate a substantial amount of the taxpayer's total production.

Exhibit 2
Taxpayer Corporation
Patents
Fair Market Value
As of January 1, 2011

Income Approach Valuation Analysis Patented Process Projection Variables ($ in 000s)	Year 1	Year 2
Net sales [a]	$146,912	$161,603
Gross margin	38,197	42,017
Operating expenses	(16,160)	(17,776)
Earnings before interest and taxes	22,037	24,240
Income tax expense	(7,933)	(8,727)
Operating income	14,104	15,514
Depreciation expense	1,469	1,616
Capital expenditures	(1,469)	(1,616)
Capital charge on contributory assets [b]	(2,200)	(2,200)
Incremental net working capital investment	(696)	(735)
Net cash flow related to patents	11,208	12,579
Present value factor at 10% discount rate	.9524	.8658
Present value of net cash flow	10,674	10,891
Equals: Patent fair market value (rounded)	22,000	

Footnotes:
[a] Assumes a two year patent protection period, a period that protects the taxpayer from a competitor's reverse engineering of the patented process.
[b] Contributory assets include other taxpayer tangible assets and routine intangible assets that are used to generate this income projection.

The valuation analyst worked with Taxpayer Corporation management to (1) develop a projection of the economic benefits associated with the trade secrets (unpatented) technology and (2) estimate the appropriate intellectual property RUL (and associated economic benefits).

Based on the results of those analyses, the valuation analyst decided to use the income approach and the multi-period excess earnings method (or MEEM).

The summary of this intellectual property valuation analysis is presented on Exhibit 3.

Finally, the valuation analyst identified and valued the Taxpayer Corporation trademarks and trade names. The analyst decided to rely on the market approach and the relief from royalty method.

The analyst searched for and selected several comparable uncontrolled transaction (CUT) arm's-length licenses of similar trademarks.

The valuation analyst worked with Taxpayer Corporation management to (1) develop a revenue

Exhibit 3
Taxpayer Corporation
Trade Secrets (and Related Technical Documentation)
Fair Market Value
As of January 1, 2011

Income Approach Valuation Analysis

Valuation Analysis ($000s)	12/31/11 $000	Pro Forma Years [a] 12/30/12 $000	12/30/13 $000	12/30/14 $000	12/30/15 $000	12/30/16 $000	12/30/17 $000	12/30/18 $000	12/30/19 $000	12/30/20 $000
Total taxpayer revenue	464,323	445,021	418,475	388,011	354,885	354,885	354,885	354,885	354,885	354,885
Revenue growth rate	-1.2%	-4.2%	-6.0%	-7.3%	-8.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Revenue generated from the proprietary technology	357,528	260,435	184,999	128,982	88,304	67,994	52,355	40,314	31,041	23,902
EBITDA	157,312	114,591	81,399	56,752	38,854	29,917	23,036	17,738	13,658	10,517
Less: Depreciation/amortization expense	79,301	55,296	37,542	24,835	16,026	12,340	9,502	7,316	5,633	4,338
Equals: EBIT	78,010	59,295	43,857	31,916	22,827	17,577	13,534	10,421	8,024	6,179
Less: Income taxes @ 37%	28,864	21,939	16,227	11,809	8,446	6,503	5,007	3,856	2,969	2,286
Equals: Net income	49,146	37,355	27,630	20,107	14,381	11,073	8,526	6,565	5,055	3,892
Plus: Depreciation/amortization expense	79,301	55,296	37,542	24,835	16,026	12,340	9,502	7,316	5,633	4,338
Less: Contributory asset charge										
Working capital capital charge	2,753	2,005	1,424	993	679	523	403	310	239	184
Tangible assets capital charge [b]	(82,302)	(59,945)	(42,558)	(29,646)	(20,273)	(15,610)	(12,020)	(9,255)	(7,126)	(5,487)
Routine intangible assets capital charge [b]	(16,475)	(12,396)	(9,152)	(6,647)	(4,762)	(3,667)	(2,823)	(2,174)	(1,674)	(1,289)
Equals: Income related to the trade secrets	32,423	22,315	14,885	9,642	6,051	4,659	3,588	2,762	2,127	1,638
Discount periods	0.50000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000
Present value factor @ 11% discount rate	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
Present value of trade secrets income	30,776	19,082	11,467	6,691	3,783	2,624	1,820	1,263	876	607
Present value of trade secret-related income	78,994									
Trade secrets fair market value (rounded)	79,000									

Footnotes:
[a] Assumes a ten year remaining useful life, with a decay in trade secrets—related revenue/income as a new taxpayer (unpatented) trade secret technology is introduced to replace the current (unpatented) taxpayer trade secret.
[b] These contributory asset charges provide for a fair rate of return on all of the other taxpayer tangible assets and routine intangible assets that are used to generate this income projection.

projection for the trademarked products and an estimate of the trademark RUL.

A summary of the market approach intellectual property valuation analysis is presented in the Exhibit 4 series.

Summary and Conclusion

This discussion summarized the valuation analyst considerations related to the valuation of the taxpayer intellectual property for ad valorem taxation purposes.

Such taxpayer intellectual property includes the following:

1. Patents
2. Copyrights
3. Trademarks
4. Trade secrets

Exhibit 4A
Taxpayer Corporation
Trademarks
Fair Market Value
As of January 1, 2011

Selected Comparable Uncontrolled Transactions
Third Party Trademark License Royalty Rates

Guideline License	Guideline Licensee	Guideline Licensor	Start Date	Term Years	Royalty Rate %	Other License Consideration
1	Licensee A	Licensor A	2009	15	6	$4m [a]
2	Licensee B	Licensor B	2009	10	5	$10m [b]
3	Licensee C	Licensor C	2008	12	10	[c]
4	Licensee D	Licensor D	2008	10	4.5	[d]
5	Licensee E	Licensor E	208	15	5.5	[e]
6	Licensee F	Licensor F	2009	20	8-10 [f]	[d]

Footnotes:
[a] represents Licensor upfront payment
[b] represents Licensor payment after 5th year
[c] this license also settles a pending $50 million litigation
[d] the trademark owner also receives other payments from the licensee
[e] there are numerous relationships between licensor/licensee parties
[f] rate varies based on annual sales volume

An intellectual property enjoys special legal recognition (compared to general intangible assets). In addition, intellectual property can generate income to the taxpayer company owner in the form of either (1) license royalty income and/or (2) use operating income.

The taxpayer company (or its legal counsel) may ask a valuation analyst to value the intellectual property for a variety of reasons. These reasons include transaction (sale or license), financing, commercialization, taxation, accounting, strategic planning, and forensic analysis purposes.

In particular, valuation analysts are often asked to value the intellectual property (and other intangible personal property) of taxpayer companies that are assessed using the unit valuation principle for state and local property tax purposes.

Such taxpayer companies typically operate in the following industries:

- Telecommunications
- Electric utilities
- Oil and gas refining
- Pipelines
- Water and wastewater utilities
- Cable television
- Airlines
- Railroads
- Mining and mineral extraction
- Other operationally integrated industries

The intellectual property valuation process begins with the definition of the valuation assignment. This assignment definition includes: (1) the purpose and objective of the analysis, (2) the description of the taxpayer intellectual property and the related bundle of rights, and (3) the statement of the valuation "as of" date.

Often the first procedure in the valuation analysis is the identification of the subject intellectual property ownership rights. The taxpayer intellectual property value is often a function of its potential to earn and/or protect income for the taxpayer owner/operator.

The next procedure in the intellectual property valuation is the consideration of the three generally accepted valuation approaches—the cost approach, the market approach, and the income approach.

Each valuation approach has the same objective: to arrive at a reasonable value indication for the taxpayer intellectual property. Within each valuation approach, there are numerous methods and procedures that may be appropriate for the intellectual property valuation.

Exhibit 4B
Taxpayer Corporation
Trademarks
Fair Market Value
As of January 1, 2011

Analysis of CUT Trademark License Agreements
Royalty Rate Adjustment Grid

Guideline License [a]	License Royalty Rate %	How Comparable to Subject? [b]	Comparative Size of Market [c]	Comparative Growth of Market [c]	Relative Market Share [c]	Other License Consideration	Adjusted License Royalty Rate
1	6	3	0	0	–	+.5% [d]	6%
2	5	2	++	++	0	+1% [d]	7%
3	10	2	0	0	0	-2% [d]	8%
4	4.5	3	0	0	–	– [d]	4%
5	5.5	2	+	+	0	– [d]	6%
6	8-10	3	–	–	–	-2% [e]	7%

Royalty Rate Mean	6.3%
Royalty Rate Trimmed Mean	6.5%
Royalty Rate Median	6.5%
Royalty Rate Mode	6.5%
Royalty Rate Conclusion	6.5%

Footnotes:
[a] from Exhibit 4A.
[b] on a scale of 0 to 3; where 0 is less comparable to the subject taxpayer trademark and where 3 is most comparable to the subject taxpayer trademark
[c] on a scale of –, -, 0, +, ++; where – is the smallest and where ++ is the largest
[d] valuation analyst adjustment based on an assessment of other factors (1) in the license agreement or (2) between the licensor and the licensee
[e] valuation analyst adjustment due to differences in the subject taxpayer trademark vs. the selected guideline trademark

The analyst's selection of the appropriate valuation methods and procedures is based on several factors, including the following:

1. The characteristics of the taxpayer intellectual property
2. The quantity and quality of available data
3. The analyst's ability to conduct a sufficient due diligence analysis
4. The purpose and objective of the valuation assignment
5. The experience and judgment of the valuation analyst.

The final intellectual property value conclusion is typically based on a synthesis of the value indications derived from each applicable valuation approach and method.

These generally accepted valuation approaches, methods, and procedures are relevant to the taxpayer intellectual property analysis during the entire ad valorem tax return filing, assessment negotiation and appeal, and taxpayer litigation process.

Notes:

1. "What Is a Patent?" U.S. Patent and Trademark Office, www.uspto.gov.
2. Ibid.
3. "Copyright Basics," U.S. Copyright Office, www.copyright.org: 1
4. Ibid.: 3.
5. Uniform Trade Secret Act, Section 1.
6. *Merriam-Webster's Dictionary of Law*.

Robert Reilly, CPA is a managing director of the firm and is resident in our Chicago office. Robert often writes, lectures, and testifies with regard to the valuation of intellectual property for ad valorem taxation (and other) purposes. Robert can be reached at (773) 399-4318 or at rfreilly@willamette.com.

Exhibit 4C
Taxpayer Corporation
Trademarks
Fair Market Value
As of January 1, 2011

Relief from Royalty Valuation Method
Application of Selected Royalty Rate

Market Approach Valuation Analysis

Trademark Valuation Variables (in $ million)	Trademark Royalty Income Projection Period [a]								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Revenue growth rate [b]	10%	10%	10%	0%	0%	0%	-12%	-12%	-12%
Trademark product revenue (year 0 = 400) [b]	440	484	532	532	532	532	369	412	363
Selected patent license royalty rate	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Projected "relief from royalty" license expense (rounded)	29	31	35	35	35	35	30	27	24
Projected legal and maintenance expense (year 0 expense = 10)	10	11	11	11	12	12	12	13	13
Projected license net expense "relief" (rounded)	19	20	24	24	23	23	18	14	11
Present value discount factor (at 20%, mid-year convention)	0.91	0.76	0.63	0.53	0.44	0.37	0.30	0.25	0.21
Present value of license net expense "relief"	17	15	15	13	10	9	5	4	2
Total present value of license net expense "relief"	90								
Equals: Trademark fair market value (rounded)	90								

Footnotes:
[a] based on the estimated trademark RUL.
[b] based on taxpayer management projections related to the trademarked products.