

## ***Exceeding Auditor Expectations: A Guide to IP Valuation Reports***

***By Ryan Brewer and Michael Pellegrino\****

Today's financial auditor is often fundamentally challenged when auditing a company's intellectual property (IP) portfolio. The auditor may be subject to errors and omissions liability when trusting a third party's independent appraisal. It is not enough for the auditor to know that an independent person or entity opined on the value; rather, the auditor must know if there is a basis to rely on the value opinion. This article provides a basic guide for the financial analyst to ensure that the data collection, valuation methods, data analyses, and value conclusions in an IP valuation report will pass auditor review and gain auditor confidence.

### **Standard provisions**

First, the report should contain all boilerplate provisions consistent with valuation reporting standards. It must be dated and the value conclusion must be expressed as of a particular, historical date. A clearly written purpose is also essential for the IP valuation report. This section does not need to be long, but it should comprehensively state the purpose that the valuation report intends to serve. If more than one purpose exists, the report must state each purpose clearly and distinctly.

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The report must state the intended, primary users of the report as well as any other expected readers. This requires the analyst to forecast who may have an interest in the IP and, consequently, who may read and use the report's analysis and conclusions. Although it is impossible to predict all possible readers, the analyst must clearly list the individuals and/or entities that may rely on the report and the nature of their anticipated interest. This includes explicit technical descriptions of the particular assets and markets that the opinion covers, and it will indicate the analyst has adequately considered all potential readers of the report.

The analyst's background is also paramount. It is not enough for the valuation firm to have a strong brand; the auditor will need to see the qualifications of the people that actually performed the work on the report and how these relate to the particular assignment, especially in the area of patents or trade secrets. The analysts must demonstrate that they have the education, capacity, and scientific understanding to perform a credible, competent review of the subject technology.

Finally, the report author(s) must sign the report themselves. The signatures authenticate their work and are essential to establish legal sufficiency of the document.

### **Economic and industry conditions**

Certain economic indicators have less impact on the value of a particular IP portfolio. Which indicators are germane to the valuation? The answer is tricky, but there are general guidelines wherein we suggest flexibility. Most macroeconomic indicators (historical consumer confidence, interest rates, inflation rates, employment

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rates, currency exchange rates, housing starts, job growth, etc.) may or may not influence the subject IP valuation. Critically, if analysts include an indicator, they must articulate why and how that indicator affects the value assessment. Likewise, any exclusion of a widely published economic indicator must be justified.

Ultimately, the market drives IP value. Macroeconomic indicators may yield limited insights

in the analyst's effort to discover the fair market value of the subject IP, but merely parroting historical statistics is not enough. Industry attributes are likely to offer considerably more explanatory power. An analyst must consider the relative size, growth, and trends in the IP's industry to determine whether credible value opportunities exist. In general, IP with a large and credible market is worth more than IP that has limited market applications, and growing markets will support longer-term value while shrinking markets can indicate little long-term value prospects. Value is a forward-looking concept, and the analysts' report should reflect an effort to persuasively forecast future economic events. Where is the market going in three years? How will suppliers, buyers, rivals, and barriers interplay through time? What is the effect of attrition or obsolescence? What is the anticipated market response to the substitution effect of other products? A credible IP valuation report will speak materially to these issues.

The competitive market also impacts value. If the market views a specific IP as superior in features, performance, and value, then it pays a premium for those benefits. Conversely, if the market sees competitors offering an easy substitute with low entry barriers, then this threatens the value of the IP's incremental benefits, forcing vendors to compete solely on price in a commodity market, putting downward pressure on IP value. It is not enough for a report to mention competitors in passing; an analyst must evaluate the competitive technologies, feature-by-feature (perhaps in a multifactor decision model or market survey), to ascertain the IP's advantages and disadvantages and appropriately reflect these in the valuation model.

## IP utility, government protections

The analyst must clearly describe the intellectual property and the underlying protected assets, revealing a strong, detailed knowledge about the relevant science and technology, sufficient to forecast its applicable utility. After all,

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science creates utility, and utility creates value. Should the analyst lack a deep working knowledge of the relevant technology, then a gap exists and may call into question the report's credibility. Since IP cases are by their nature technologically complex, we strongly recommend that IP valuers hold undergraduate degrees in science, engineering, or related disciplines. Without such rigorous training, an analyst may be unable to process, understand, and describe the technology underlying the assets, which creates value to the users.

For the IP to retain value, it must maintain certain sustainable value drivers (e.g., patent protection), or market forces will erode the IP's economic power and drive a lower or commodity value. One key value driver is the ability to detect infringement: The easier and less costly it is to detect and prove infringement, the more valuable the IP. For example, Nike can more easily find and sue a shirt company that makes knockoffs of its best-selling golf shirt than Qualcomm can reverse-engineer the software code in a competitor's cellular device to discover possible patent infringements. A credible IP valuation report considers the effects of infringement detection and speaks to the corresponding value effects. Such a report also includes a detailed, systematic assessment of the owner's ability to police its protections.

Another key value driver is the ease by which a third party can design around the IP's claims (patents) and protections (marks and secrets). The analyst should detail the design-around attributes of the subject IP, quantify them, and build these directly into the valuation model as one of the independent variables that affects value. If third parties can easily circumvent the IP, the analyst should also consider possible value impairment. Companies that maintain trade secrets, for example, will inherently impair their value by maintaining loose confidential and noncompete agreements. A credible valuation report will consider the effects of design circumvention and speak to the corresponding value effects.

A third value driver is the ability or willingness of the IP owner to defend the IP in the market

against attack. If a company owns a patent but it does not pursue infringers aggressively, for example, or they lack the necessary resources, then the patent may be worth less because infringers are less likely to pay royalties and/or halt their usurpation. An IP report should address this game-theoretic perspective and consider possible value impairment if a company tends not to defend its IP or expresses a lack of willingness to do so.

### **Functional realization and demand**

IP analysts must rigorously challenge the hypotheses that the underlying technology will actually work, and offer concrete examples of how or why the technology will suffer operating risks. The report should include a section on such "challenges," including the invention's inherent physical, electro-mechanical, chemical, biological, or software risks and how the owners plan to overcome them. The analysts should systematically transform these scientific challenges into a repeatable, quantified risk assessment, upon which the IP valuation process depends. Once again, an educational background in the IP's particular science or technology is recommended for this significant and tedious process.

A workable technology will drive market acceptance, which drives demand, which drives IP value. Market acceptance occurs when end users report satisfaction with the products and indicate a demand for more. Prior to that level of market acceptance, a willing buyer uses a substitute or rival product, or does nothing (i.e., status quo, which is one of the largest competitive threats to new products). IP that has generated acceptance and economic activity (i.e., revenue) is worth more than IP that has yet to earn a return. Realization of actual revenues shows that the owner has overcome significant hurdles to prove buyer utility, while budgets and forecasts have additional considerations to be persuasive. A credible valuation report will speak materially to market acceptance and demonstrate a realistic demand analysis based on historical performance and other quantified, scientifically feasible future cash flow indicators.

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### **Financial history and timing**

Historical financial statements should be available for a going-concern with considerable IP, or one that has exploited IP in past periods. Look to use these as a reality check for the value conclusion. If the technology has not yet been exploited, then historicals will likely not be available; if the market is changing, then they may not reflect future opportunities. In either case, the analyst must develop forecasts or projections, derived from engineering economic analysis. Client-provided forecasts should always prompt careful review, and using them without scrutinizing their assumptions is not advisable.

Timing for IP-associated revenues explains much of the variance ascribed to the several drivers of value. The analyst should take care to quantify the economic cost arising from marketing, preproduction, or startup time. This will include necessary time to produce the product, prepare materials, extend marketing efforts, hire additional staff, and grow sales, etc. This time impacts value, as it defers cash flows from the IP while immediately introducing negative cash flows. Revenue and expense recognition policies also yield reflections of the future that may require adjustment. Revenue recognition policies that are aggressive on the front-end of a project will generate a higher number, because such policies permit the company to use cash sooner rather than later. However, such policies may be unrealistic in the market. A valuation analyst should adequately consider such revenue recognition policies and make sure they do not conflict with broader financial economics.

### **Royalty rate analysis**

IP, by definition, is unique. Its utility, the way its benefit is realized, and its invention (for patents) or its mark (for trademarks) are all unique. If comparability is low, why would an analyst consider economics of other technologies when establishing a basis for value? While the respective technologies may indeed be unique, the economic problems they attempt to solve generally are not, and the industries in which such properties are transacted often treat "similar" technologies in similar economic ways. When conducting

a royalty rate analysis, the analyst depends on a comparability argument. To do so, he or she should analyze industry or product-type specific royalty rates with much rigor. The report should describe in detail the comparable royalty rates and underlying technologies. For each license transaction used, the analyst should make a compelling, competent case why it is comparable to the subject IP. This enables the reader to see that the IP valuation analyst has fluently understood the underlying technologies of the comparable IP; without this recognition, the IP valuation report will lack persuasion and readers may question the net present value conclusion.

Two methods utilize net present value when valuing IP. In the first, the analyst values the royalty from a license agreement to a third party. In the second, the analyst forecasts cash flows that will arise from the direct exploitation of the protected asset. An assignment may call for one or both of these methods. For the direct exploitation model, the analyst should detail several particulars:

*Revenues.* Revenue forecasts must be grounded in a reasonable analysis of likely pricing and volume estimates. Price growth, demand analysis, market size, growth, and penetration are important components to support a strong, sensible revenue forecast.

*Fixed costs.* Estimates of fixed costs turn on the likely financing for the plant, property, and equipment necessary to produce IP at appropriate volumes. These may be leased or purchased, secured vertically or outsourced.

*Variable costs.* These include labor, utilities, travel, and other non-fixed business costs. The analyst must spend considerable time identifying the fixed-variable cost mix that reflects the owner's ability to secure assets, gain financing, and survive the start-up period without requiring working capital from operations. Timing of costs and revenues must be realistic.

*Cash flow.* A rigorous understanding of the science, engineering, and economics of the IP

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will help the analyst to develop revenue and cost structures used in part to forecast likely cash flow numbers. The concept of remaining useful life is relevant to the time period of the cash flow projection.

*Risk level.* The analyst must provide a comprehensive defense of the risk profile that inures to the IP and that fits industry expectations, including the likelihood of its adoption in the marketplace versus currently available competitive products and substitutes. The risk level should factor into the present value calculations of expected cash flows.

### **Valuation approaches**

In any IP valuation assignment, the analyst must distinguish the operational profit that is attributable to the IP from the profit that accrues due to factors such as management, customer relationships, and margin on materials. Without such delineation, bias may enter into the value opinion, as the analyst could attribute an abnormally low or high amount of cash flow to the IP. There are ways to segregate the value of the IP from the product or service that embodies it (e.g., profit split), and the report should clearly present such value segregation to the auditor.

Generally, the asset (cost) approach is not applicable to IP valuations, and an analyst must provide compelling support for its use in a particular case, including reasons consistent with current accepted practice and financial theory. A lack of historical cash flows is not a sufficient reason, as the actual costs to produce the invention has little relation to future cash flows. The report can state that the analyst considered and rejected the cost approach, but any IP value conclusion based solely on the cost approach could constitute valuation malpractice.

Given the unique nature of IP an analyst should also question the wholesale use of certain market methods in performing IP valuations. In addition to the royalty rate method, another market method involves comparing the financial performance of companies that own the IP against those that do not, with the difference

attributable to IP ownership. However, little academic research supports this method with a reasonable degree of confidence; IP ownership cannot explain an abundant amount of variance when compared against traditional market indices. In fact, applying certain market methods of valuation in an IP context can sometimes yield a negative value indication, meaning IP ownership has in fact hurt the firm—a nonsensical conclusion in many instances. In any case, analysts must specifically articulate why a market method is appropriate and why other methods are not.

### **Statistical competence and replicability**

Analysts often consider certain statistics and parameters in IP valuations, including simulations where a model containing fifteen or twenty independent variables generates thousands of data points. These cases are likely to prompt statistical or econometric issues such as heteroskedasticity, skewness, multicollinearity, or non-random samples, which can threaten the validity of the results. Generally, using large amounts of data in formulating valuation conclusions requires a level of statistical and mathematical seasoning that transcends the capabilities of traditional analysts, perhaps those with solely accounting backgrounds. We intend no offense to our highly esteemed CPA peers, who may at times face engineering-related IP valuation assignments. This realm is related less to accounting and more to science, engineering, and mathematical logic. To avoid any liability from errors and omissions, we encourage our CPA-peers to get appropriate expert assistance with technology-heavy IP valuations.

Key portions of the IP valuation process should be repeatable by competently trained analysts. To comply with this requirement, the analyst must state and quantify all assumptions and describe all methods, tools, inputs, and analytical processes. The report must share the entire series of data collection methods, data analysis methods, and deductions and inferences made. Without such transparency, the valuation report cannot stand alone and its conclusions may be questioned, often putting considerable sums of money—and client confidence—at stake.

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