

Apportionment of

Damages and apportionment calculations in patent cases can present economic issues that are as complex as the underlying technological issues. Intellectual property rights are designed to leverage value—through innovation and synergy—from inventions and business systems. Untangling these complex, complementary effects and assigning appropriate value to patent claims can be a challenging proposition, one that increasingly must be addressed in patent litigation. Recent decisions by the U.S. Court of Appeals for the Federal Circuit add to the challenge by requiring a more rigorous nexus between damages analyses and market analyses, supported by well-developed evidence and expert opinions. In the modern age of technology litigation, patent valuation and apportionment lie at the crossroads between sound economic theory and compelling legal practice.

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Intellectual Property Value

Where Economic Theory Meets Legal Practice

A CEO asks her accountant what one plus one equals, and the accountant replies, “What do you want it to equal?” Potential customer service and professional responsibility implications aside, there are numerous situations where, in fact, one plus one is greater than two. In reality, most transactions are consummated based on this belief—not as a matter of mathematics, but rather as a goal of strategic combination or, more to the point, of synergy.

Through synergy, the whole becomes greater than the sum of the parts. Virtually every public company merger, acquisition, or consolidation comes to be through a tender offer for a premium over the current trading value because the acquirer envisions it resulting in synergies justifying the cost. Those synergies are often expected to result from the elimination of redundancies or market impediments, tax advantages, and/or the beneficial sales effects of the cross-pollination of research and development, sales and marketing, or other corporate functions.

The concept of synergy is equally important when analyzing and valuing the individual assets of a particular company. Intellectual property (IP) is one such asset, and it seldom operates in a vacuum. Rather, contributory assets often breathe life into an IP portfolio and, more importantly, the valuation thereof. For example, many technology patents are but one piece of a larger, more complicated system—whether a software suite, physical product, or proprietary method. Without the contribution of other integral assets (including technology, designers, engineers, sales force, supply chain, fabricators, distribution network, and licensing platform), many products with household names may never have come to market.

Practically speaking, there are many reasons to apportion value separately to IP, including financial reporting, tax report-

ing, and management planning. For example, financial reporting requires companies to value IP separately where a purchase price is allocated among the assets purchased. Other reasons include licensing, debt collateral, bankruptcy, business formation, acquisition, and dissolution purposes. Separate IP values may also be required for various tax purposes, such as purchase price allocation, transfer pricing, or establishing the basis for gifts, estate planning, divorce, property tax, or other transactions. Lastly, some courtroom situations, such as in patent litigation, necessitate apportioning the value of IP.

Common valuation techniques determine the IP valuation, albeit with some nuanced differences. This paper focuses on valuing IP and apportioning value to it for the purpose of litigation (as possibly the most rigorous and vetted analytical, adversarial context), especially as it relates to patent cases, which have become an area of intense focus given the recent record-breaking damages award of \$1.17 billion in favor of CMU against Marvell.

Apportionment Techniques

Numerous IP apportionment techniques exist. Most originate from the valuation profession, while some borrow from economics, accounting, or statute. However, in all cases, the intangible nature of IP often makes determining its value more complex as compared to tangible assets. For example, while the price of many tangible assets is readily available at stores or through dealers, there are no “IP stores” *per se*, and licensed IP where rates are public and apparent is vastly outnumbered by unlicensed IP. In many cases, while the synergistic value of a product containing the IP may be apparent conceptually (e.g., the price of an iPhone®), actually determining the “one plus one” value of such IP synergy can be a daunting task (and one that has been scrutinized by courts). In this section, we’ll cover various apportionment techniques and later we’ll discuss how these techniques have been accepted or addressed in a number of court cases.

The valuation profession applies three basic techniques: the income approach, the market approach, and the cost approach. Apportionment may include any one or a combination of these approaches. Sometimes the availability of the underlying data determines the method applied, while other times multiple

approaches are used and triangulated based on a number of factors to arrive at a single estimate of value.

While the market approach looks to the market for comparable transactions of similar IP, the income approach looks to the cash flows generated by the IP. These typically begin as either revenue-based approaches, such as license royalty streams, or cost-savings-based approaches where use of the IP results in lower costs of production. The cost approach looks to the costs incurred to create the IP or that would be incurred to create similar IP.

Variants of the three basic approaches include:

- **Excess Profits Method:** The IP value is determined from the additional profits earned from products containing the IP compared with similar products without the IP. These profits can be in the form of higher incremental pricing, margins, market share, or a combination of any of these. This method is sometimes called the cost-savings method, where the IP value is determined based on the production costs/expenses saved or avoided from using the IP compared with the costs that would be incurred without using the IP.
- **Relief-From-Royalty Method:** The IP value is determined from the royalties the IP owner avoids from not having to pay license fees for similar IP at market rates.
- **Contributory Assets Charge Method:** The IP value is determined based on the income remaining after appropriate capital charges relating to other assets are removed from income.
- **Profit Split Method:** The IP value is determined by splitting or dividing overall income between the IP and other assets.

Market Approach

There may be a market approach situation where the IP or similar IP has recently been sold or licensed to a third party in an arms-length transaction. In a case where neither the buyer nor seller is under particular compulsion and each party has adequate knowledge of the relevant information involving the IP, a recent transaction of similar IP may offer a very good indication of value. The challenge is to find similar arms-length transactions. IP is seldom sold outright, IP licenses are often confidential, and IP is more often transferred internally with the intention to take advantage of favorable tax treatment or sold as a bundle of assets. Analysis of value via these latter complex types of transactions must be approached with care.

Market Approach—Internal Transfers

Take, for example, the frequently occurring situation where a company transfers a piece of IP from one subsidiary to another. IRS transfer pricing rules will typically apply if the transfer results in the IP being owned by a foreign entity. Internal company transfer (ICT) prices and litigation reasonable royalties may not be comparable due to intangible nonmonetary forms of collaboration/consideration and for various other reasons. Care should be exercised if attempting to apply ICT prices in a reasonable royalty analysis. The following is a brief summary of some of the complicating factors of such an analysis.

Comparable License Rates

The agreement between a parent and subsidiary or between two subsidiaries may not result in a representative commercial license. The parent may ultimately control the profit flow of its subsidiaries and can elect to collect those profits in a number of ways, either with

or without an internal license of IP. A parent company often elects to take some of its subsidiary's profits through a license because it may receive favorable tax treatment, ultimately lowering taxes for the consolidated entity. While those tax rules require, in part, that the ICT rate be similar to other rates negotiated by other parties for similar licenses, what qualifies as a similar license in the tax analysis can differ from what qualifies as a similar license in IP litigation. In IP litigation, for example, an increasing number of courts are finding and allowing similar comparisons only where the licenses directly involve one of the parties in the litigation or involve the IP at issue.¹

Scope of the License

In an ICT, the licensor (e.g., the patent) is typically not producing products under the IP, so the equivalent license in such a case would be an exclusive license, with the licensee (e.g., the subsidiary) being the only producer. Further, to retain the ability to pursue lost profit damages in patent litigation, the parent company must generally make the subsidiary the exclusive licensee. Conversely, under a litigation reasonable royalty, there would be not one exclusive licensee but at least two non-exclusive licensees: the subsidiary and the infringer.

Commercial Relationship

In an ICT, the IP monopoly is often maintained in that no entity outside of the corporate family is allowed to practice the patent, maintaining the benefit within the corporate family. In a litigation reasonable royalty situation, the IP owner is effectively compelled to forgo a monopoly and grant a license to the infringer. The infringer, on the other hand, may be a direct competitor whose sales represent potential lost sales and market share of the IP owner or its subsidiary.

Convoyed Sales

Convoyed sales are sales of non-patented products driven by the sale of the patented invention. For example, the sale of an unpatented razorblade handle may be a convoyed sale to the patented razorblade sale. In an ICT, the deal between the parent and subsidiary can be structured to allow for a royalty on the convoyed sales. However in litigation with an infringer, the convoyed sales are not included in the royalty base, and no direct payment for convoyed sales is made. Consideration of convoyed sales, therefore, is relegated to analysis of the appropriate litigation royalty rate under the factors set forth in *Georgia-Pacific Corp. v. U.S. Plywood Corp.*²

Market Approach—Bankruptcy Transfers

Another increasingly common form of transfer is the bankruptcy transfer of IP, whereby IP and other assets are sold through a bankruptcy auction, free and clear of any other creditor claims. The advantage is that the auction process itself is typically designed in an attempt to leave no money on the table, i.e., to extract the highest possible payment for the IP at issue through a publicized competitive bidding process. But is a bankruptcy auction really a valid market price indicator?

Several challenges exist when comparing the bankruptcy process to a true market transaction. First, unlike the common definition of the market approach where both the buyer and seller are under no undue compulsion, the bankruptcy estate is compelled to sell. By the time it sells, it has likely exhausted most other options, and the IP may have already been negatively impacted by the bankruptcy itself, either through contracting operations, negative publicity, or other factors.

Next, the due diligence process, while open to a very broad array of potential bidders, is often completed under a compressed timeline, and full details of encumbrances such as licenses relating to the IP may not be fully disclosed due to their confidential nature. Third, bankruptcy assets are generally bundled for sale. Take for example the Nortel bankruptcy of 2009, where approximately 6,000 patents were ultimately sold in a bundle for \$4.5 billion. While this averages out to approximately \$750,000 per patent, it may be that no individual patent was worth \$750,000, with some being worth next to nothing and others worth substantially more. Disaggregating the bundle to determine the value of a particular patent, as is necessary to determine a value for litigation, is challenging and potentially impossible.

Market Approach—IP Bundling

A number of patent-assertion-entities (PAEs) have arisen in recent years with business models that involve purchasing patents with the intention to license them in bundles. Typically a licensee will pay a fee to obtain access to entire portfolios of patents. While these bundle licenses make it challenging to determine the appropriate value apportionment to any particular patent within the bundle, some entities have chosen to sell the patents subject to retaining the right to offer the patents in their own licensing bundles. The new owner of the patent is typically interested in pursuing litigation against potential infringers, with the PAE sometimes retaining rights to share in litigation proceeds. One can easily see the challenges in using such a transaction value as an indication of market value, as the initial purchase price excludes potentially significant income streams in the form of licensing revenue and litigation award sharing.

Income Approach

Sometimes IP (or similar IP) has been licensed to a third party in an arms-length transaction and is generating an income stream at a specified fixed or ongoing royalty rate. Such an established rate is often the best indication for the apportioned value of the IP when applied to the appropriate income stream/royalty base, especially in a litigation context. If such a rate exists, it can be very difficult for either the plaintiff or defendant to argue a more accurate valuation method. Proving an established rate often negates the need for further analysis.

As stated by the Federal Circuit:

The reasonable royalty may be based upon an established royalty, if there is one, or if not upon a hypothetical royalty resulting from arm's length negotiations between a willing licensor and a willing licensee.³

The courts have shown significant flexibility in what constitutes an established rate. For example, the Supreme Court has ruled that one license does not constitute an established rate:

It [the rate] must be paid by such a number of persons as to indicate a general acquiescence in its reasonableness by those who have occasion to use the invention.⁴

Further, the Federal Circuit has restated this requirement in modern English:

A single licensing agreement, without more, is insufficient proof of an established royalty.⁵

Prior to the *ResQNet* case ruling in 2010,⁶ licenses entered into under a threat of a lawsuit or in settlement of a lawsuit were generally excluded from consideration. However, in the *ResQNet* ruling, the Federal Circuit stated that the most probative licenses were those that had been entered in settlement and, as a result, district courts have begun admitting more settlement licenses into the analysis. As courts have long understood that litigation can exert pressures that may lead to rates having little to do with market rates and more to do with litigation costs and potentially large jury verdicts, the facts and circumstances surrounding settlement licenses should be analyzed carefully.

Cost Approach

Assuming costs have been tracked, the cost to develop a piece of IP may be a ready indication of its apportioned value. However, most valuation professionals agree that cost is not the best indication of value of an operating or income-generating asset because cost often ignores the expected return on investment that the asset may earn. In these instances where IP is expected to generate profits, the cost approach will likely yield a result lower than its apportioned economic value. Of course the opposite could be true as well, that the costs incurred to develop the IP exceed its apportioned economic value, due perhaps to an inefficient or unfruitful development process (such as for a drug that ultimately fails the regulatory approval process). The relevant costs may include R&D, legal costs, other labor and capital costs, regulatory approval costs, and an opportunity cost is sometimes recognized to account for the fact that the resources could have been used for other purposes.

There are various forms of the cost approach, and most involve determining the replacement or recreation cost of a similar piece of IP at the valuation date. Determining the replacement/recreation cost will involve understanding the various types of potential obsolescence adjustments that should be made, as well as any costs that may have inflated since the time the IP was developed. Various types of potential obsolescence include the following:

- **Economic Obsolescence:** A decline in value due to factors external to the technology, such as new regulatory restrictions
- **Functional Obsolescence:** A decline in value due to an inability to perform the intended function (e.g., when cell phones using older technology no longer function on the latest cellular networks)
- **Technological Obsolescence:** A decline in value due to improvements in competitive technologies (e.g., when the DVD effectively replaced the video cassette)

Design-Around Concept

Defendants in IP litigation who apply the “design-around” concept argue that the value of the IP can be no more than what it would cost to design around the IP by creating a similar product or functionality without the IP. For example, in software patent infringement matters, the defendant will often argue that its software engineers could have written new, non-infringing software code in a matter of days or weeks that would have performed the same functions.

The frequent rebuttal by plaintiffs, which is frequently successful, is that if it were possible to design around the patent, then why did the defendant not do so once it had notice of the alleged infringement? Often the defendant's argument is based on testimony from its own engineers via theoretical argument and/or spreadsheet

forecasts but without an actual working prototype or a replacement of the alleged infringing IP in its products. Stronger defense arguments include one or some combination of the following:

- A working prototype of the design around
- A replacement of the alleged infringing IP with a design around
- A showing that a substitute to the IP was available at the time of the alleged infringement via a working prototype or a product already on the market

Excess Profit Methods

Excess profit methods (sometimes called incremental income or profit methods and dubbed the “analytical approach” by the courts) seek to apportion value to the IP by looking at excess returns available from the products with the IP versus comparable products that do not contain the IP. These can be in the form of higher incremental pricing, margins (i.e., lower costs), higher market share, or a combination. The difference in profitability is the amount attributable to the IP. In a litigation context, this method is typically based on the infringer’s own internal profit projections at the time infringement begins, which may be different than actual margins earned during the infringement. A simplified example of the analytical approach for a patented product is shown below.

Some courts have allowed a reasonable royalty equal to the entire

incremental profit margin attributable to the IP,⁷ while others have argued that this amount would be split between the parties in a hypothetical negotiation, thereby leaving the defendant some incentive to have begun production in the first place. Further, it is a common valuation technique to subtract the company’s pre-launch margin or an industry margin from the incremental margin once the IP is launched into use, although pre-launch and post-launch similarity should be carefully examined to attempt to control for factors other than the IP.⁸

Often the most challenging aspect of the analytical approach is identifying products similar to the product with the IP but that do not include the IP at issue. In many cases these products do not exist or analysis of the similar product reveals no incremental profitability or market share due to the IP. Using version-based software as an example, subsequent versions may not be priced any higher than previous versions even though many new features have been added. In these cases, plaintiff experts have looked outside of the parties-in-suit to attempt to find products where the IP feature (or something similar to the IP feature) is the primary feature of a third-party product or the IP feature (or a similar feature) is available a-la-carte as a so-called add-on.

Contributory Assets Method

The contributory assets method of valuing IP does so through a process of elimination. In a nutshell, the IP value is determined

Analytical Approach Example

Incremental Profit Margin on Patented Product	50%
Less: Incremental Profit Margin on Similar Unpatented Product	40%
Incremental Profit Margin Attributable to the Patent Available to Split Between the Parties as a Reasonable Royalty	10%

Contributory Asset Method Example

Tangible Assets	<i>a</i>	\$ 20,000,000
Tangible Asset Capital Charge Rate	<i>b</i>	10%
Tangible Asset Capital Charge	$c = a \times b$	\$ 2,000,000
Other Intangible Asset	<i>d</i>	\$ 25,000,000
Other Intangible Asset Capital Charge Rate	<i>e</i>	15%
Other Intangible Asset Capital Charge	$f = d \times e$	\$ 3,750,000
After-tax Cash Flow	<i>g</i>	\$ 7,500,000
Less:		
Tangible Asset Capital Charge	<i>-c</i>	\$ (2,000,000)
Other Intangible Asset Capital Charge	<i>-d</i>	\$ 3,750,000
Net After-tax Cash Flow Attribute to Remaining IP	$g - c - d$	\$1,750,000

based on the income remaining after appropriate capital charges are removed from income relating to other assets. For example, in the table on the opposite page, once tangible and other intangible asset charges are removed from the after-tax cash flow of a business, \$1.75 million remains, which is attributed to the IP at issue.

The resulting amount can then be divided by total after-tax cash flow to derive the value of the IP as a percentage to total income (i.e., a reasonable royalty rate) or could be forecast forward and discounted to present value to derive a lump sum value.

This method works best with relatively simple asset bases where most of the assets are either tangible or where other intangible asset values are already established, such as through recent purchases. As capital structures are increasingly weighted toward intangible assets, this approach becomes cumbersome as numerous assumptions are generally required in assessing the value of other intangible assets and the appropriate tangible and intangible asset charges.

Relief-from-Royalty Method

The relief-from-royalty method is a favorite for valuing IP outside of the litigation context. The method determines IP value based on the royalties the IP owner avoids by not licensing it from a third party. In order to use this approach, similar royalties are determined through research of comparable arms-length royalty agreements. The familiar challenge here is finding comparable agreements or making adjustments to otherwise incomparable agreements to make them comparable.

As shown in the example below, a variety of additional assumptions are also required, including the economic life of the patent, the revenue stream impacted by the patent, maintenance charges, associated income taxes, and an appropriate discount rate. Each of these assumptions may involve detailed analyses of their own.

Further, a tax amortization benefit (neither shown here nor in examples of other methods in this article) may increase attributable value depending upon whether the IP value will be booked to the balance sheet at fair value. This benefit results from the ability to amortize the value of the IP over time to decrease tax liability.

In an IP litigation damages context, the reasonable royalty rate is the desired end result, which allows the damages expert to calculate reasonable royalty damages. The primary difference between the royalty rate used for nonlitigation versus litigation purposes is the level of comparability of third-party agreements required by the courts. Increasingly, courts are hesitant to admit third-party licenses into the analysis where the underlying IP is unrelated to the IP at issue.⁹ While the lack of directly related IP licenses will not preclude the use of the relief-from-royalty method for nonlitigation purposes, damages experts are increasingly hesitant to rely on them.

Profit-Split Method

The profit-split method does just that. It values the IP by splitting the profit between that generated by the IP and by other assets. It is a variant of the contributory asset method because it implicitly considers appropriate profit rates for all of the assets of the company. However, instead of being a bottom-up approach, where all a company's assets are grouped and analyzed for appropriate returns, the profit-split method is typically a top-down approach used without reference to other individual asset classes. The challenge, of course, is answering questions like what is the right split and how do I support it?

Until 2011 in the *Uniloc v. Microsoft* case,¹⁰ a profit-split method known as the 25 percent rule was arguably the most common method used in litigation matters. This is a rule-of-thumb share of total operating profits (not excess profits) retained by the licensor for the

Relief from Royalty Method Example

Economic Life of Patent	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Product Net Revenue	\$10,000,000	\$10,700,000	\$11,449,000	\$12,250,430	\$13,107,960	\$14,025,517	\$15,007,304
Gross Royalty Charges	3.0%	300,000	321,000	343,470	367,513	393,239	420,766
Less Maintenance Charges		(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)
Net Royalty Charges		295,000	316,000	338,470	362,513	388,239	415,766
Less Income Taxes	40.0%	118,000	126,400	135,388	145,005	155,296	178,088
Net Cash Flows from Royalties Avoided		\$177,000	\$189,600	\$203,082	\$217,508	\$232,943	\$249,459
Discount Period	0.50	1.50	2.50	3.50	4.50	5.50	6.50
Present Value Factor	20.0%	0.9129	0.7607	0.6339	0.5283	0.4402	0.3057
Present Value of Net Cash Flows		\$161,578	\$144,234	\$128,741	\$114,905	\$102,550	\$91,517
Sum of the Present Value of Net Cash Flows		<u>\$825,193</u>					

licensee's use of the IP (and hence a measure of apportioned value). Proponents of the 25 percent rule claim it recognizes that the licensee generally bears most of the risks of development, operations, and commercialization, and therefore should receive the larger share of the profits. Proponents of the 25 percent rule have published studies showing that across many industries, dividing average license rates by average operating margins often yields ratios near 25 percent. Many licensing professionals and damages experts had relied on the 25 percent rule in instances where there were not comparable licenses under *Georgia-Pacific* factors 1, 2, or 12 to come up with a place to begin their reasonable royalty analysis.¹¹ Even in situations where there were comparable licenses (i.e., a strong market/income approach), the 25 percent rule had been used to support those rates.

The courts, including the Federal Circuit, had accepted the usage of the 25 percent rule until *Uniloc*, where it ruled that it was a flawed tool and should not be used because it fails to tie a reasonable royalty rate to the facts of the case at issue. Further, the fallacy of the blind application of the 25 percent rule is clear for products covered by more than four patents, as the collective value attributed would be greater than 100 percent of the profit. While arbitrary profit-split methods such as the 25 percent rule cannot be used in the courts for patent infringement cases, a profit-split method is still used in nonlitigation valuation settings. In litigation, however, the appropriate profit split must be supported by a careful analysis of the facts and circumstances of the case and the relative bargaining positions of the parties through an analysis such as *Georgia-Pacific*.

Judicial Application and Scrutiny of Apportionment Methods

Not surprisingly, nowhere has IP value apportionment been more intensely debated than in the context of litigating patent infringement damages. Judges have significant discretion as gatekeepers in allowing the admission of apportionment evidence, and a number of cases shed light on the current direction toward requiring increasing levels of proof of apportioned value.

*Carnegie Mellon Univ. v. Marvell Tech. Group, Ltd., and Marvell Semiconductor, Inc.*¹²

This case highlights how a plaintiff successfully used the excess profit apportionment approach in garnering the largest surviving patent infringement award to date. On Dec. 26, 2012, a Pennsylvania jury adopted Carnegie Mellon University's (CMU) expert's opinion and awarded \$1.17 billion in its patent infringement suit against Marvell Semiconductor (Marvell), one of the world's leading fabless semiconductor companies, shipping more than a billion chips a year for use in smartphones, tablets, and personal computers. The case involved two CMU patents relating to detecting data stored on high-density magnetic storage drives.

CMU's expert argued that the reasonable royalty should be \$0.50 per chip based on an analysis of the 15 *Georgia-Pacific* factors. A lynchpin of the analysis appears to have been an excess profit approach. In this analysis, the value of the product containing the patent is compared to a similar product that does not contain the patent. The difference in value between the two products is then attributed to the patented feature.¹³

CMU's expert computed the price-per-chip (\$4.42) and operating profit-per-chip (\$2.16) based on Marvell's internal sales data. It then compared the sales of Marvell's chips to certain customers (Maxtor and Toshiba), where products were sold with and without

the addition of the allegedly infringing feature. From this data, the expert claimed that Marvell received "excess profits" of between \$0.06 and \$0.72 per chip from its sales of patented chips. Based on the expert's analysis of other *Georgia-Pacific* factors, such as the patented technology being industry standard and a "must-have" for Marvell's business success, the expert argued that the reasonable royalty was \$0.50 per chip. This reasonable royalty represented 11.5 percent per unit, based on the average sales value, and yielded damages of \$1.17 billion (based on sales of 2.3 billion units at an average sales price of \$4.42 per chip over the damages period).

*Lucent Tech., Inc. v. Gateway, Inc., et al.*¹⁴

Lucent was originally awarded almost \$360 million by the district court for Microsoft's patent infringement in the form of Outlook's™ "date-picker" function.¹⁵ The Federal Circuit vacated that award as not supported by substantial evidence and remanded for a new trial as to damages. In the second damages trial, the district court excluded a number of Lucent's damages expert's apportionment analyses. In one analysis, the expert attempted to apportion value to the patent by using an add-in value as a proxy. An add-in is separately sold software that can be added to existing software to provide additional functionality. Here, the district court ruled that "Lucent has not presented any evidence of the number of sales of the E-mail follow-up add-in. Thus, without evidence that there is a market for this add-in, the add-ins analysis does not meet the requirement for damages being based on "sound economic principles and factual predicates."¹⁶

In another apportionment preclusion related to the proper royalty base, the court concluded "that Lucent's method of apportionment does not properly apportion between the patented and unpatented features of Outlook in a way that separates out from the royalty base the portion that can be attributed to the Day patent technology." While Lucent's expert showed that 43 percent of customers used the patented technology, the court noted that they used many other features and that 43 percent did not correspond to the percentage of customers who would not have purchased Outlook™ but-for the patented feature. This case not only highlights the importance of using appropriate apportionment techniques, but also the importance of matching an appropriately apportioned royalty rate with an appropriately apportioned royalty base, as supported by compelling evidence.

*Apple, Inc. et al. v. Motorola, Inc., et al.*¹⁷

As a cautionary tale, this case offers two examples of apportionment analyses being excluded by the court in discharging its gatekeeper function (Posner, Circuit Judge, sitting by designation). The result was catastrophic in that the case was dismissed with prejudice (both claims and counterclaims) for a complete failure of proof on damages. Without such proof of damages, the court ultimately held that there was no justiciable case of controversy. *Motorola II*, at 18, 35, and 38.

The first order relates to the application of customer survey data in apportionment analysis. In this case, Apple's expert based his \$14 million damages opinion on a consumer survey conducted by Motorola. Survey respondents were asked to pick from a list of the attributes of a Motorola cell phone those that were among the top five "main reasons" for buying the \$270 phone. Fifteen percent of the respondents selected "appealing features and functions," which Apple's expert multiplied by the \$270 price of the cell phone to apportion \$40 in consumer value. It was further assumed that the only "appealing features and functions"

that contribute to the phone's value to consumers are those used by a consumer every day. Four percent of the survey respondents replied that they "reviewed notifications" every day. The expert then multiplied \$40 by 0.04, yielding \$1.60, then divided that result by 2 to reach \$0.80 per unit. He divided \$1.60 by 2 because "reviewed notifications" might not be limited to looking at the notifications window at issue. He multiplied that figure by the number of cell phones that Motorola sold, coming to the value of \$14 million.

In precluding this expert, the district court identified a number of flaws. First, the court found fault with apportioning value to only the top five "main reasons" listed for purchasing the phone. There could be hundreds of other reasons why customers purchased a phone that were not main reasons. Second, the judge found unsupported the assumption that only "appealing features and functions" that contribute to the phone's value are those used by a consumer every day. Third, the expert failed to compare a cell phone that has a notification window that cannot be partially obstructed (the patented feature) with one that has a notification window that can be. The judge ruled that the expert should have performed his own customer survey to determine more precisely "How much lower would the price of a smartphone have to be to compensate you for the occasional partial obstruction caused by these windows?" The judge said, "Apple could have conducted a survey of Motorola customers (or consumers, or would be consumers, of cell phones generally) targeted on determining the value consumers attach to having a notification window that is never partially obstructed by another window; consumer surveys designed to determine the value of a particular feature or property of a consumer product are a common and acceptable form of evidence in patent cases."¹⁸ Thus, by attempting to shoehorn customer survey results not focused on the patented feature without sufficient additional evidence to support his opinion, the expert was precluded.

The court's second order excluded the parties' further attempted damages analyses for failing to apportion: (1) the extent to which an alleged infringing software chip provided functionality that drove sales of the accused devices; (2) how much of the price of the chip set (rather than the price of the entire smartphone) should be attributed to the infringement; and (3) how much the patented feature contributed to the value of the device irrespective of the patent's adoption of an industry standard.

*Pacific Bioscience Labs., Inc. v. Nutra Luxe MD, LLC, et al.*¹⁹

This is another patent case where an expert opinion was precluded, in part, based on a failure of apportionment. This case involved L'Oreal's leading Clarisonic® health and beauty product (a powered skin-cleansing brush) and Nutra Luxe's infringing Nutra Sonic device. The defendant's expert performed an apportionment of Nutra Luxe's operating margin between the plaintiff's research and development (R&D) expenditures and plaintiff's marketing expenditures. This profit split argument had at its core what was essentially a cost-approach argument—that the value of the patent could be derived from the share of cost to develop the patent versus the cost to sell the patented product.

One of the co-authors of this article was retained by the plaintiff to provide a proper damages analysis and concluded why the defense's damages contentions failed on a variety of grounds:

- First, as noted above, the cost approach is generally a poor measure of value for an income-generating asset.
- Second, *Georgia-Pacific* factor 13 generally involves an apportion-

ment based on the value of the features offered by the patented product. Here, R&D and marketing expenditures are not "features" that drive customer demand of the patented skin-cleansing product.

- Third, no credible authority (legal, economic, or otherwise) was offered to support this specific application of the cost-split or profit-split approach.
- Fourth, no link was offered between the plaintiff's expenditures as a reasonable apportionment base for the defendant's operating margin.
- Finally, the actual mechanics of the defense expert's calculations failed as the R&D expenditures used were not related to the patented products (which were already on the market), but rather to new, unrelated products in the pipeline.

Ultimately the judge precluded the defendant's expert from offering any testimony or opinions about this apportionment in relation to *Georgia-Pacific* factor 13 in his reasonable royalty analysis, and the jury awarded the plaintiff lost profits as the predominate measure of damages as opined by the plaintiff's expert.

*Laserdynamics, Inc. v. Quanta Computer, Inc.*²⁰

Recently, the Federal Circuit reviewed the damages award to a plaintiff in a patent infringement case after two separate trials on the issue of damages. The plaintiff owned a patent covering an optical disk drive (ODD) that automatically enabled a computer to recognize the type of disk inserted (e.g., CD vs. DVD). After the first trial on damages, the jury awarded the plaintiff \$52 million in damages. In response, the defendant moved for a new trial, arguing that the defense expert had failed to establish that the entire market value rule applied. The court agreed, vacated the jury award, and granted the motion.

After the second trial, the jury awarded the plaintiff \$8.5 million in damages. On appeal, the court vacated the operative (second) damages award because it was based on an improper hypothetical negotiation date and because the plaintiff's expert witness' "product value apportionment" of the royalty rate "appear[ed] to have been plucked out of thin air based on vague qualitative notions of the relative important of the ODD technology."²¹ The court noted that the defense expert's royalty rate analysis was "untethered from the patented technology" and lacked sufficient detail for the court to review for error. Thus, the court remanded the case to the district court for a third trial on damages.

Conclusion

In the digital age of technology, the synergies between distinct innovations and their corresponding IP rights have made apportioning value to IP increasingly important. This article has surveyed certain apportionment theories, practices, and legal precedents to provide a lens through which various approaches can be viewed. The type and role of IP in an organization, product, or transaction will often dictate the appropriate apportionment technique.

No matter the technique used, courts presiding over patent litigation focus on apportionment methodologies in a number of respects, including matching reasonably apportioned royalty bases with reasonably apportioned royalty rates; demanding reasonable surveys or other evidence to substantiate customer demand for small components combined within larger systems; and requiring that experts vigorously comply with the rules of law, economics,

violently. Yet Lincoln attempted to resupply it anyway. Perhaps, Cooper allows, Lincoln came to believe he had no other choice. But he says that Lincoln also knew that making the Confederacy the aggressor would unify the North and “weld the Republican Party behind him.” That, of course, is exactly what happened. The Confederacy bombarded Fort Sumter and forced its surrender; Lincoln summoned state militias into federal service and Congress into special session; pro-Unionists in the Upper South were quickly overwhelmed and four more states chose to secede; and the North and the Republican Party united behind Lincoln’s efforts to restore the Union. A civil

war more costly than any of its protagonists expected had begun.

The display of scholarship in this book is remarkable; and, even though every reader knows the eventual outcome, Cooper ably communicates a sense of the hopefulness, desperation, and ultimately anguish that attended efforts to keep the Union intact. As noted, the book suffers at times from a pro-Southern bias. According to Cooper, the primary responsibility for the failure of the various efforts to maintain the Union during the five months between Lincoln’s election and the firing on Fort Sumter lay with Lincoln and the Republican Party; the irrational

extremism of many pro-slavery Southerners and the persistent intransigence of the seven Deep South states seemingly played only secondary roles. Notwithstanding this caveat, however, *We Have the War Upon Us* vividly illuminates a crucial segment of our history and is well worth reading. ☺

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and evidence. A significant misstep in any of these areas may lead to unintended and unfortunate consequences.

As the Federal Circuit has put it, the road to apportionment is “exceedingly difficult and error-prone.” Fraught with peril as it is, the complexities of IP valuation underscore the importance of qualified financial and legal counsel in IP transactions and litigation. ☺

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Court of Appeals for the Federal Circuit, respectively, both have experience with patent litigation and IP valuation from the perspective of the courts, the government, and private litigants.

Endnotes

¹See *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 869 (Fed. Cir. 2010); *Wordtech Systems, Inc. v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308 (Fed. Cir. 2010); and *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009).

²317 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff’d*, 446 F.2d 295 (2d Cir. 1971).

³*Hanson v. Alpine Valley Ski Area*, 718 F.2d 1075, 1078 (Fed. Cir. 1983).

⁴*Rude v. Westcott*, 130 U.S. 152 (1889).

⁵*Trell v. Marlee*, 912 F.2d 1443 (Fed. Cir. 1990).

⁶*ResQNet.com Inc. v. Lansa, Inc.*, 594 F.3d 860 (Fed. Cir. 2010) (affirming district court finding of patent infringement but reversing and remanding as to damages based on the plaintiff’s expert’s reliance on improper evidence—in the form of past licenses *not* reasonably related to the claimed invention—in the calculation of the proper royalty rate).

⁷*TWM v. Dura*, 789 F.2d 895 (Fed. Cir. 1986), represents a patent case example.

⁸*Ibid.*

⁹For example, see *IP Innovation, LLC. et al v. Red Hat Inc. et al.*, No. 07 447 (E.D. Tex. March 2, 2010, Order) (Rader sitting by designation), and *ResQNet v. Lansa*, 594 F.3d 860 (Fed. Cir. 2010).

¹⁰*Uniloc v. Microsoft*, 632 F.3d 1292 (Fed. Cir. 2011).

¹¹*Georgia-Pacific Corp. v. United States Plywood*, 318 F. Supp. 1116 (S.D.N.Y. 1970), *modified and aff’d*, 446 F.2d 295 (2d Cir. 1971).

¹²No. 09-290 (W.D. Pa. Dec. 26, 2012).

¹³See *TWM Mfg. Co., Inc. v. Dura Corp.*, 789 F.2d 895 (Fed. Cir. 1986)

¹⁴580 F.3d 130 (Fed. Cir. 2009), *and on remand, Lucent Tech., Inc. v. Microsoft Corp.*, No. 07-2000H (S.D. Cal. July 13, 2011).

¹⁵The infringing “date-picker” function characterized by the CAFC as a “tiny” portion of one feature of a much larger software program” (i.e., Microsoft Outlook®)—allows users to select and view particular dates or dates ranges from within an Outlook calendar. 580 F.3d at 1332.

¹⁶2011 WL 2728317, at *9.

¹⁷No. 11 8540 (N. D. Ill. May 22, 2012).

¹⁸Citing *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d at 855–56; *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1333–34 (Fed. Cir. 2009).

¹⁹No. 10-230, Dkt # 200 (W.D. Wash. Aug. 21, 2012).

²⁰694 F.3d 51 (Fed. Cir. 2012).

²¹*Id.* at 69.