The Economics of Patent Litigation, Part 1

By Samson Vermont[1]

Seventy-six percent of patent suits settle,[2] but not before each side incurs more than $1 million in direct legal fees and indirect expenses.[3] And usually what we could have settled for at the outset is no better or worse than the deal we accept down the road.[4] So the question arises: if most of us are going to settle anyway, why not do so before incurring the costs?

This appears to be easier to say than to do because in the last five years 11,000 patent suits were filed in the US[5] and more than half remained unresolved after the first 12 months.[6] The

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[2] Kimberly A. Moore, Judges, Juries, and Patent Cases – An Empirical Peek Inside the Black Box, 99 *Mich. L. Rev.* (2001). See also Eugene R. Quinn, Jr., Using Alternative Dispute Resolution to Resolve Patent Litigation: A Survey of Patent Litigators, 3 *Marquette Intell. Prop. L. Rev.* 77 (1999).

[3] Most patent litigants—93.1 percent—do not litigate through trial. Moore, Judges, supra. The legal fees for the average litigant, who usually settles after discovery, are about $1 million. The figure of $1 million derives from the *American Intellectual Property Law Association Report of Economic Survey 1999* (hereinafter, "AIPLA 1999"), which found a median amount for litigating through discovery of $800K. Enhanced this by 30 percent (for reasons discussed below) results in a total of $1 million in direct legal costs. By taking into account indirect expenses (discussed later), I added $500K to the $1 million to obtain $1.5 million. It is a coincidence that this $1.5 million is the same as AIPLA 1999's finding of a median of $1.5 million in direct legal costs to litigate through trial.

[4] See James J. Foster, How to Manage the Cost of Patent Litigation—Suggestions of Trial Counsel, 68 *J. Patent and Trademark Office Soc'y* 131 (No. 3, March 1986). Also, it's been said that 80 percent of what you know by the time of trial was usually available at the beginning of the litigation from your own people and documents. James L Ewing IV, 'Patent Litigation Management and Alternative Billing,' in *Patent Litigation 1999*, p. 1062 (Practising Law Institute 1999).

[5] Trends in Patent Infringement Lawsuits 1990-1999, Navigant Consulting Inc. (2000) (available from Dr. William O. Kerr, Washington DC).

[6] Kimberly A. Moore, Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation? 79 *N.C. L. Rev.* (2001). Moore's study indicates an average time to resolution of

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difficulty in settling early stems from divergence between the parties in information and expectation.[7] Theory and evidence suggest that parties tend to litigate when at least one side is overly optimistic about its case; [8] they tend to settle when their information and expectation converge, i.e., when they both become realistic. When approached conventionally, this convergence comes slowly since each side must first gradually develop a feel for, or a judge's ruling must indicate, which way the case might go at trial.[9]

Again, one reason for this delay is sheer optimism and bias.[10] For example, IP damage experts say that patent owners often dramatically overestimate the recoverable damages and defendants typically underestimate them.[11] And litigants are not always disabused of these false hopes early in the process. Although 85 percent of patent attorneys claim to start valuation of the case before filing, damage experts are hired before filing only about 19 percent of the time.[12] (All

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1.12 years. Lanjouw and Lerner find an average case pendency of about 1.4 years. Jean O. Lanjouw and Joshua Lerner, Preliminary Injunctive Relief: theory and evidence from patent litigation, Table 3, NBER Working Paper No. 5689 (NBER 1996).

[7] And divergence in stakes. See generally Joel Waldfogel, Reconciling Asymmetric Information and Divergent Expectations Theories of Litigation, NBER Working Paper No. 6409 (Feb. 1998); Bruce L. Hay and Kathryn E. Spier, Litigation and Settlement, in *The New Palgrave Dictionary of Economics and the Law* (Stockton Press 1998); Leandra Lederman, Which Cases Go to Trial?: An Empirical Study of Predictors of Failure to Settle, 49 *Case W. Res.* 315 (1999). See also Jean O. Lanjouw and Mark Schankerman, Stylized Facts of Patent Litigation: value, scope and ownership, NBER Working Paper No. 6297 (NBER 1997).

[8] See generally Richard A. Posner, *The Economic Analysis of Law*, 5th ed., 554-560 (Little Brown & Co. 1992). Or when the stakes are higher for one side. See generally Moore, Judges, supra; Lederman, supra.

[9] Only about 25 percent of cases settle without any court action. See Moore, Judges, Juries, supra.

[10] See generally David P. Hoffer, Decision Analysis as a Mediator's Tool, 1 *Harv. Negotiation L. Rev.* 113 (Spring 1996); Lionel Tiger, *The Biology of Hope* (Kodansha Int'l 1995).

[11] William O. Kerr, Penta Advisory Services, Personal Email Communication (April 9, 2001); Anonymous IP Damage Expert, Personal Telephone Communication (April 2001).

[12] Quinn, supra at 30-34.

patent litigators agree that a damage expert must be hired prior to the close of discovery.[13] In fact, one-third generally hire more than one damage expert.[14])

Another reason the feel for case value is tardy is that the human mind is bad at manipulating large numbers of interrelated and uncertain variables.[15] Indeed, the average person cannot hold, much less manipulate, more than seven things in his mind at once, which is one reason that phone numbers have seven digits.[16]

Ben Franklin articulated these cognitive limitations in 1772:

> When those difficult cases occur, they are difficult, chiefly because while we have them under consideration, all the reasons pro and con are not present to the mind at the same time; but sometimes some set present themselves, and at other times another, the first being out of sight. Hence the various purposes or inclinations that alternately prevail, and the uncertainty that perplexes us.[17]

These obstacles have given rise to a science of decision making, a subdivision of the field of operations research called decision analysis. This chapter introduces a subdivision of that subdivision—quantitative decision tree analysis. Decision tree analysis helps us determine whether we should settle or litigate and if the former for what amount. If the latter, it helps us focus and strategize.

More specifically, decision tree analysis enables us to (1) decompose a problem into parts simple enough for our minds to wrap around, (2) weigh the relative significance of those parts, (3)

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[13] Id.

[14] Id.

[15] Carl S. Spetzler and C.A. Stael Von Holstein, Probability Encoding in Decision Analysis, 22 *Management Science* No. 3 (Nov. 1975); Daniel Kahneman, Paul Slovic, and Amos Tversky, Judgment under uncertainty: Heuristics and biases (Cambridge University Press 1982); Amos Tversky and Daniel Kahneman, Judgment Under Uncertainty: Heuristics and Biases, 185 *Science* 1124-31 (Sept. 26, 1974); Paul Goodwin and George Wright, *Decision Analysis for Management Judgment* 2nd ed. 55-72 (John Wiley & Sons Inc., 1998).

[16] G.A. Miller, The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information, 63 *Pyschological Review* 81-97 (March 1956).

[17] Benjamin Franklin, Letter sent from London on September 19, 1772, to Joseph Priestly.

systematically assign probabilities to them, (4) recompile all of our judgments, and (5) boil the whole problem down to a few numbers, for example, the dollar value of settling versus the dollar value of litigating.[18]

The Last Barrier

Patents are more important than they used to be[19] because the confluence of the Internet, global venture capital and cultural changes have eroded other traditional barriers to entry. Eroding barriers include:

- Capital Formation. It used to be that the biggest bank account would often win because the competition simply couldn't gather the funds to build factories, finance startup operations, etc. Capital formation is easier now.
- Recruiting and Retention of Key Employees. Never have employees been so mobile and quick to jump ship for a slightly better offer.
- Proprietary Distribution Systems. Even when competitors developed better products at a better price, they often lacked access to customers, i.e., they lacked the requisite bricks and mortar facilities to physically put the product in front of the buyer.
- Proprietary Supplier Relationships. Big companies, or companies established in a niche, used to incur relatively low supply costs because they could buy in bulk and/or enjoyed close

[18] See generally Marc B. Victor, How Much is a Case Worth? 20 *Trial* 48 (July 1984); — The Proper Use of Decision Analysis to Assist Litigation Strategy, 40 Business Lawyer 617 (Feb. 1985); — Risk Evaluation in Intellectual Property Litigation, in *Intellectual Property Counseling and Litigation* (Matthew Bender 1988); — Evaluating Legal Risks and Costs with Decision Tree Analysis, ch.12 in *Successful Partnering Between Inside and Outside Counsel* (West Group/American Corporate Counsel Association 2000) (Victor's best article on the subject); Alexander I. Poltorak and Paul J. Lerner, Litigation Risk Analysis in Patent Infringement Lawsuits, *Managing Intellectual Property* (May 2001); Bruce L. Beron, *Litigation Strategies & Risk Management Primer* (LRMI 1996); Stephen C. Glazier, *Patent Strategies for Business*, 3rd ed., p.83-97 (LBI Institute 2000).

[19] In total but not necessarily individually because the rate of increase of patent filing *now* may be greater than the rate of increase of licensing revenue.

relationships with vendors. Now, via aggregation through the Internet and other means, new entrants can also buy at a discount.[20]

So companies are wringing more out of intellectual property.[21] Accordingly, while about 108,000 U.S. patent applications were filed in 1980, about 289,000 were filed in 1999.[22] And the rate of increase is increasing. From 1990 to 1994, a five-year period, filings increased 17 percent (meaning that the number of patents filed in 1994 was 17 percent higher than the number filed in 1990). From 1997 to 1999, a three-year period, filings increased 25 percent, and issuances increased 61 percent.[23] Aside from an economic downturn, there is no reason to expect this to stop. Nor is the phenomenon limited to the U.S., although filings in most other countries have risen less dramatically. For example, filings in the European Patent Office increased 40 percent from 1990 to 1999.[24]

Licensing revenues have risen even faster than patent filings. From 1980 to 1999, U.S. patent licensing revenues increased about 4,000 percent.[25] Patent suits are also giving chase. The number of patent suits is growing more than three times faster than the number of non-patent

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[20] Kevin Rivette, Innovate, Protect and Leverage, presented at Patent Strategy & Management Seminar (Tysons Corner, VA Nov. 2000).

[21] "Patent efficiency"—the number of patents per million dollars of R&D–increased 18 percent from 1997 to 1998. *1999 Intellectual Property Metrics Report*, PriceWaterhouseCoopers (1999). See also *2000 Intellectual Property Metrics Report*, PriceWaterhouseCoopers (2000).

[22] http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.pdf

[23] Id.; IP News, 6 *Intellectual Property Strategist* 8 (October 2000).

[24] Fons Theis, Phillippe Bautier and Annette Simes, Germany Is by Far the Most Active Member, *//europa.eu.int*, (March 2001). Also EPO 1997 application information, available at the EPO website, shows an increase of 10 percent from 1993 to 1995 and 22 percent from 1995 to 1997.

[25] Emmett J. Murtha, 'Licensing as a Business,' in Jack Barufka and Michael Einschlag, *Patent Strategy & Management Seminar Handbook*, Samson Vermont (ed.), pp. 1-25 (American Lawyer Media Inc. Nov. 2000); Kevin Rivette and David Kline, *Rembrandts in the Attic: Unlocking the Hidden Value of Patents* 4-6 (Harvard Business School Press 2000). They increased about 700 percent in the last eight of those years. Rivette and Kline, supra at 4-6.

civil suits.[26] For example, in 1991 just over 1178 patent suits were filed.[27] Throughout the 1990s, patent suits increased about eight percent each year[28] such that, in the year 2000, 2486 were filed.[29]

Awards are also up. The total amount awarded in the 1990s was double the total amount awarded in the 1980s[30], which well exceeds the cumulative inflation from the 1980s to the 1990s of about 30 percent. Also, the cumulative average of all awards from 1996 to 1999 was 55 percent higher than the cumulative average of all awards from 1992 to 1995.[31]

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Next month, we will evaluate the general costs and benefits of patents and patent litigation. These evaluations will serve as vehicles for the presentation of little known patent facts and statistics, some of which we will later plug into decision trees. In following months, we will look at litigation costs, review the basics of decision analysis, set up a hypothetical patent suit and climb into the decision trees. The object of this multi-part series is to learn the relevant patent numbers while learning how to manipulate them.

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[26] William O. Kerr and Gauri Prakash-Canjels, Some Evidence of the Influence of Patent Law on Innovation and Technology, p.3 (Penta Advisory Services 2000); Quinn, supra at 7-8; Survey Predicts More, Costlier IP Disputes in Future, *Patent Strategy & Management* (June 2000).

[27] See generally Trends, supra; Kerr and Prakash-Canjels, supra.

[28] Id.

[29] Welcome Page, Patent Enforcement and Royalties Ltd., www.peralltd.com. See also Phillip A. Beutel, Is the Tide Turning in Defendant's Favor? Evidence from Recent Judgments in Patent Cases 12 (NERA Dec. 2000). But see Mark Lemley, Rational Ignorance at the Patent Office 9, Working Paper No. 2000-16 (U.C. Berkely Law and Economics Working Paper Series 2000).

[30] See generally Ronald B. Coolley, Overview and Statistical Study of the Law on Patent Damages, 75 J. *Patent and Trademark Office Soc'y* 517 (No. 7, 1993); See generally Trends, supra. But the *proportion* of money awards is about the same. Beutel, Is the Tide, supra at 13.

[31] See generally Trends, supra; Kerr and Prakash-Canjels, supra.