



# IP Business Models

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# Out of Alignment—Getting IP and Business Strategies Back in Synch

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BY DAN MCCURDY

## PERSPECTIVE

The desire to extract decisive returns on innovation is clouding many companies' judgment. In an environment, where inventions have greater impact and court cases and legislative reform are weakening the value of many patents, confusion reigns about what constitutes the proper way for a CEO or board of directors to behave.

Dan McCurdy contends that most business executives are ill-equipped to use patent strategy or understand the IP marketplace. Often, they fail to deploy intellectual assets for their true value. He also believes that IP executives have done a poor job of conveying IP imperatives to senior management, especially those in the C-suite, and to shareholders.

"In virtually all other aspects of business, executives fully grasp the requirement to knit together various elements of business operations into a cohesive whole," says McCurdy, a licensing executive turned defensive strategist.

"They understand how to use a company's equity, its cash, real estate, human resources, global reach, supply and distribution chains, marketing prowess, customer relationships, personal relationships, banking relationships, and government relationships to advantage their business. But, curiously, they do not understand—or generally even have much

*(continued)*

curiosity about—how to use to their advantage perhaps their most valuable corporate asset—their intellectual property.”

McCurdy suggests that better alignment (or realignment) of IP strategy with business objectives starts with people. It includes having IP and senior corporate executives communicate better by getting to know one another and understand the challenges they each face. McCurdy believes it is important they not fear each other—their company’s future may depend on their ability to collaborate.

## THE CEO’S DILEMMA

The new millennium brought a flurry of activity and anxiety that has infused the global intellectual property community with both fear and opportunity. It is spilling over into the highest levels of corporate leadership. The anxiety is largely the result of mixed signals about how IP can impact business operations. Most business executives view intellectual property more as a problem likely to happen than an opportunity waiting to be unleashed. While there are a significant number of CEOs who have become aware of the profit-building business models of successful licensing companies such as IBM, Lucent, Philips, Thomson, Kodak and, more recently, Hewlett-Packard, a greater number of executives are becoming aware of the complexities and unpredictable outcomes that the licensing of intellectual property presents.

There was a time when companies that invested heavily in research and development and produced useful inventions that found their way into the products of others could collect significant royalties from infringers. Even then the battles were protracted and risks were present, but in the end the “first mover advantage” of a patentee seeking a royalty from a likely infringer was powerful and generally decisive. Thrown off balance by the attack, the potential licensee was frequently unable to regain its footing. After a few technical and business discussions that typically stretched across 12 to 24 months, the licensee caved and paid the aggressor a sum that was less than the royalty sought by the patentee, but much more than the tax expected by the licensee.

As this practice circulated around various high-tech industries for a couple of decades, old-time CEOs grew accustomed to it. However,

entrepreneurial New Age CEOs of highly successful companies were not so accommodating. They viewed “expansionist” patent enforcement as a rip-off. The *modus operandi* of these executives was to hire exceptionally smart people who were in tune with market needs and who would create products that solved important problems confronting their customers. These engineers were not reverse engineering the products of competitors seeking to steal their innovations, but rather were independently solving important problems facing their customers through the creation of new technologies. They knew their solutions—novel in their minds—would drive huge sales of problem-solving products.

It is possible that the solutions they independently created would unknowingly share some of the concepts of an invention previously made by another. The fact that someone else had come upon a similar (or even nearly identical) idea first, and had patented that invention, now created an obstacle to the use of this similar, independently created idea. Indeed, *neither* inventor had copied the idea, but nonetheless the first inventor was in a position to disrupt the latter invention’s use. This dynamic was particularly troublesome in high-tech companies, where hundreds—possibly even thousands—of inventions were synergistically combined into a system such as a laptop computer to provide a solution to a problem. Contrast this with a pharmaceutical innovation, where the discovery of a new molecule could cost as much as U.S. \$1 billion but alone could create tens of billions of dollars in revenue—or nothing. Infringement of such a pharmaceutical discovery was also more difficult because any resulting product would be subject to a dense minefield of regulatory oversight that would discourage or even prohibit such infringement, at least in countries enforcing their patents.

With this backdrop, put yourself in the shoes of a CEO. On the one hand, shareholders would argue that Lou Gerstner and Marshall Phelps at IBM made nearly \$2 billion dollars annually at the height of the IBM licensing program, most of which was pure profit, by offering IBM patents and technology to licensees (see Exhibit 1.1). But on the other hand, the world is increasingly littered with jury verdicts against significant product companies, ordering them to pay monstrously huge royalty payments to companies with smaller revenues, and with patent trolls, who successfully enforce their patents against the much larger “Goliath.”

## EXHIBIT 1.1

**SELECTED HIGH TECH PATENT LITIGATION  
AWARDS AND SETTLEMENTS, 2004-2007<sup>1</sup>**

<b>Year</b>	<b>Plaintiff</b>	<b>Defendant</b>	<b>Amount (\$US)</b>
2007	TGIP	AT&T	\$156 m
2006	NTP	RIM	\$612 m
2006	Rambus	Hynix	\$133 m
2006	Z4 Technologies, Inc.	Microsoft	\$140 m
2006	Texas Instruments	Globespan Virata	\$112 m
2005	EMC	Hewlett Packard Company	\$325 m
2004	Eolas	Microsoft Corporation	\$565 m
2004	Sun Microsystems, Inc.	Microsoft Corporation	\$900 m
2004	Intertrust Technologies Corporation	Microsoft Corporation	\$440 m
2004	Yahoo, Inc.	Google, Inc.	\$328 m

<sup>1</sup>Patent Infringement Damages, Statistics & Trends, 1990–2004, Navigant Consulting; ThinkFire, Inc. research.

In the mind of a CEO bent on success, a modest amount of revenue and profit can be derived from adversarial IP licensing, versus the amount of revenue and profit that can be derived from the sale of successful products and services. And yet the risk of a counterclaim that could impose a significant tax, or shut down a major product line, is ever present. Moreover, the distraction to technical, marketing, sales, and operational staffs caught up in the discovery phases of patent litigation have a major impact on product operations.

For this reason some CEOs, such as Steve Appleton of Micron and John Chambers of Cisco, have long concluded that building a strong offensive patent position ensures that their executive and operational staffs are not disrupted by the tedious intricacies of patent litigation, enabling personnel to give their full attention to building valuable products that solve problems that will make their customers more successful. Others have reached the conclusion that their resources will allow them to build such products and services *and* obtain royalty revenues from the use of their most valuable inventions. The jury is out, both literally and figuratively, as to the correct decision. This is the CEO's dilemma. Over the

past decade the actions of patent speculators have further magnified the risks that patents play in innovative business operations.

## THE EMERGENCE OF PATENT TROLLS, AND THEIR IMPACT ON IP LICENSING

At the turn of the 21st century, patent speculators, sometimes called patent trolls (or worse) began to grow in number and expand in capability. Their growth was driven by a perfect storm of intellectual property made available by the bursting dot-com bubble, significant capital, and massive revenues to be taxed by speculators intent on buying patents and enforcing them against product-producing companies. Operating companies, awakened with a jolt from their *détente*, were suddenly confronted with an adversary that did not respond to the IP skills and knowledge they had honed over the prior decades. The formula these operating companies had developed to deal with patent disputes with other operating companies no longer applied. They were up against an enemy they did not know, that used tactics they did not understand, that struck without warning, and that was invulnerable to a patent counter-attack.

Those product-producing companies that had developed active patent licensing programs, such as the aforementioned IBM, Lucent, Texas Instruments, Kodak, Thomson, and Philips to name just a few, each in a sense a patent “hunter” seeking royalties from those who used their inventions, were now the potential prey of a new breed of adversary. The patent landscape was changing again, requiring companies worldwide to develop new mechanisms, tools, and techniques to adapt to this environment. While the companies exposed are screaming “foul,” the fact is that this environment has exposed innovative companies since the patent laws were written into the U.S. Constitution more than 220 years ago. Charlatans of one sort or another have been exploiting the patent system ever since. The more things change, the more they stay the same.

The destabilizing impact of patent speculators has been, on the one hand, both significant and, on the other hand, potentially based on unfounded hysteria. There are now estimated to be more than 800 identified patent trolls, more than 200 of which are unaffiliated with one another. This excludes independent inventors and small companies pursuing patent enforcement of their inventions as a result of a failed attempt

to produce and/or market a product embodying the invention. Operating companies almost universally agree that a patent troll is any entity that attempts to enforce a patent against them and is not vulnerable to patent counter-assertion because they have no or an inconsequential amount of product sales. In this broad definition, patent investors, law firms that accumulate and enforce patents, failed companies, individual inventors, research institutions, and even universities would largely qualify. *Madey v. Duke* adds an interesting twist to this debate.<sup>1</sup> Given this broad definition, there are clearly thousands of “patent trolls” worldwide that pose a potential threat to successful product-producing companies.

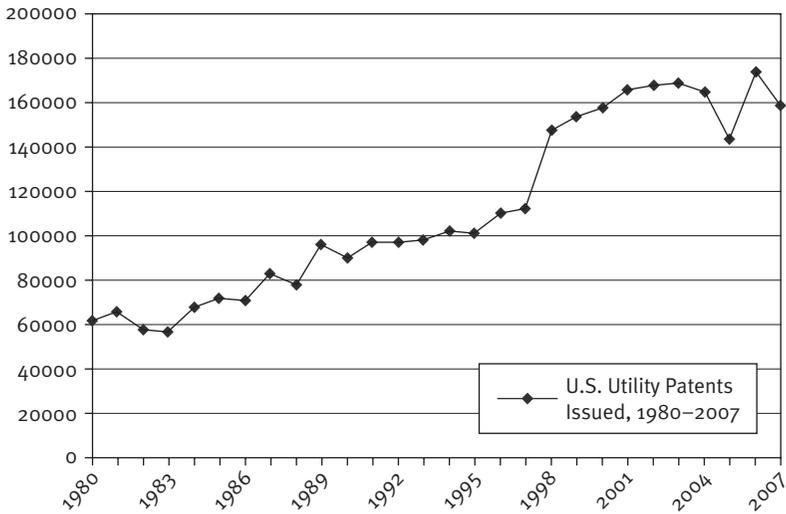
With the exception of research institutions, universities, and independent inventors, patent trolls generally are dependent upon purchasing or otherwise gaining enforcement rights to patents created by others as the weapons of their trade. In the case of most research institutions and universities, while their threat may be significant, their patent portfolios are generally “a mile wide and a millimeter deep,” which is sometimes enough to pose a credible threat. With independent inventors, their patent portfolios tend to be a millimeter wide and perhaps a millimeter deep. Thus, while these latter potential adversaries are very real, they are somewhat more readily assessed and potentially easier with which to grapple. There are always exceptions, e.g., NTP’s \$612M settlement with RIM, or the recent \$501 million dollar award to Dr. Bruce Saffran, who had sued Boston Scientific for infringement of a single patent.

## **IN A CHANGING IP AND BUSINESS ENVIRONMENT, WHAT IS THE CORRECT IP STRATEGY?**

Until the emergence of patent trolls, the primary IP concern of CEOs of innovative companies was that their R&D, patenting activities, and overall investment in innovation was sufficient to produce an ample supply of intellectual property that would competitively differentiate the company’s products from competitors and thereby drive higher revenues. At the same time, they would provide an adequately broad and deep IP portfolio such that if anyone tried to poke a stick in the company’s marketing wheel, there were more than enough sticks available in the firm’s patent portfolio to stop most patent enforcement strikes from other product-producing companies.

## EXHIBIT 1.2

## U.S. UTILITY PATENTS ISSUED, 1980–2007



This philosophy led to an enormous increase in issued U.S. utility patents in the period from 1980–2007 as companies built a patent arsenal capable of “mutually assured destruction” (see Exhibit 1.2).

By the early 1990s, as potential licensees were becoming more knowledgeable and sophisticated in the business and legal aspects of defending against patent aggression by others, the most experienced would-be licensors (such as IBM) had come to the conclusion that they needed to evolve their IP strategy to transform from “win-lose” (taxing those companies who used their inventions) to “win-win” (providing value to the licensee, rather than simply a patent license). One approach was to focus on the transfer of valuable and differentiating technology to the licensee (together with a patent license). Such a strategy provided that the licensor’s most talented engineers would teach engineers from the licensee how to adopt the licensed technology, thereby enabling the licensee to enter the market with products of improved performance and function sooner—and with less expense—than would have been possible without the transfer of the differentiating technology. The licensor received a higher royalty than they would have if they had licensed only patents without the know-how, and completed the transactions in less than a

year, rather than the two to five years that would have been required to complete the average patent-only “win-lose” license.

While this strategy worked extremely well for the few companies that adopted it broadly, such as IBM, in more than 15 years it has failed to gain the level of acceptance it deserves. The primary reason is that the strategy is counter-intuitive, and there are an insufficient number of executives worldwide to lead the adoption and implementation of such a strategy. This formula requires that the licensor make available to any licensee its most valuable technology. This need not take place on the same day a product is introduced by the licensor to the markets, but within a short period—not more than perhaps a year. For many within an innovative company, such a strategy appears to be heretical. Why would any sane company enable its competitors by permitting full access to its most valuable competitive technology? The answer: because the competitor will ultimately discover it on its own, or find an alternative solution (design around).

There may be an extraordinarily rare exception to the rule, but sustainable businesses are not built on exceptions, but rather on repeatable actions. Believing your latest innovation can ensure your competitive success is a fallacy. What ensures your success is the *next* innovation, and the one after that, *ad infinitum*. Leaders of research and development, and business leaders funding R&D, scratch their heads over the idea that the licensing of their most valuable intellectual property can help them achieve stronger business performance, when their instinct tells them the opposite. But if they were to step back from the trees and observe the forest, they would understand that when their intellectual property strategy is tied to their broader business strategy they are fully utilizing one of the most valuable assets within their enterprise.

## **THE NEED TO TIE INTELLECTUAL PROPERTY STRATEGY TO OVERALL BUSINESS STRATEGY**

In virtually all other aspects of business, executives fully grasp the requirement to knit together various elements of business operations into a cohesive whole. They understand how to use a company’s equity, its cash, real estate, human resources, global reach, supply and distribution chains,

marketing prowess, customer relationships, personal relationships, banking relationships, and government relationships to advantage their business. But, curiously, they do not understand—or generally even have much curiosity about—how to use to their advantage perhaps their most valuable corporate asset—their intellectual property. Techniques can be applied to fix this.

As observed earlier, most executives see intellectual property as a pending problem rather than an opportunity waiting to emerge. With rare exceptions, history has taught them that if the IP lawyer comes to visit, it is generally with bad news. Patents have long been thought of as the output of patent lawyers who sit buried in a company to codify the discoveries made within the company. Once a patent is issued, a technologist is frequently given a monetary reward for their discovery (an expense to the company), the patent is put in a drawer, and once a year the most innovative inventors are given an award presented by a senior business executive, delivered with words of encouragement to “continue the breakthrough technical work that drives the company’s success. . . .” Occasionally, some other company pulls some patents out of its drawers and claims infringement. A long, expensive battle ensues, where everyone loses. This is IP 101 from the perspective of most business executives.

Curiously, most IP executives know almost as little about business operations as business executives know about IP. Until relatively recently, most IP executives were patent lawyers or litigators who see their function as minimizing risks to the company and protecting the company’s products from copying by a competitor. They generally have never worked in marketing, sales, finance, product development, corporate strategy, or business development. Similarly, most business executives have never worked in IP or licensing functions. Moreover, since they do not share a set of experiences with most business executives, they may not even share an extensive common business vocabulary. What they worry about every day, or every quarter, is likely completely different. They have different performance metrics, with little or no intersection.

It should come as no surprise that if executives within a company are not regularly (at least monthly) talking about the issues they are facing and how the assets under one executive’s management might be used to help solve the most pressing problem facing another executive, it is unlikely the executives will help use these assets to improve

## EXHIBIT 1.3

PATENT BROKERAGE TRANSACTION  
DATABASE SUMMARY

Overall Summary Statistics	Value
Years covered	2002–2008
Quantity of deals	163
Total gross deal proceeds transacted	\$447.35 m
Total US issued patent families transacted	1,083
Median sale price/ issued U.S. patent family	\$110,000
Average sale price/ issued U.S. patent family	\$413,000

Source: ThinkFire, Inc.

the company's performance. This is a simple way of saying that intellectual property is *not* an esoteric asset. It is, in fact, completely—and increasingly—quantifiable. Currently, the median open market price to buy a single, high-technology patent family (a patent and all of its related patents, such as foreign counterparts) is about \$110,000. The mean is a little more than \$400,000 (see Exhibit 1.3).

The true value for those patents useful in patent enforcement or defense (a small fraction of the total number, perhaps two or three percent), could be 10×, even 100 times, that amount.

Even at the median price, in a company with a patent portfolio of 5,000 patents (IBM has six times this number), the patent portfolio alone would be valued at more than half a billion dollars. The know-how that underlies it would be worth at least that, probably more. The value of the corporate brands could be worth hundreds of millions, and in some cases more. Examined in this perspective, there exists an asset worth conservatively more than a billion dollars and in many cases many billions of dollars as a direct reflection of an increased quantity of assets, even without lucrative licensing activities. This value could be increased substantially (albeit with much higher risk) through the “win-win” licensing of the commercially important patents and the technology that underlies them. If most business executives were approached with a group of corporate assets worth billions of dollars that they could use to build their business, this would get their attention. Several conclusions might be drawn (see Exhibit 1.4).

One is that business executives generally are unaware of the enormous value of their company's intellectual property portfolio. Another is that the company's intellectual property leaders are unaware of the value of the

**EXHIBIT 1.4 SIMPLIFIED VALUATION OF 5,000 PATENT FAMILY PORTFOLIO**

<b>Assumption</b>	<b>Value</b>			<b>Comments</b>
Patent Families	5,000			Exemplary Global 2000 technology company
	<b>75th Percentile</b>	<b>Median</b>	<b>25th Percentile</b>	
Sale Value/ Patent Family	\$290,000	\$110,000	\$30,000	ThinkFire study, 2002–2008
Theoretical Portfolio Value	\$1.45 billion	\$550 million	\$150 million	

Source: ThinkFire, Inc.

portfolio. This would be understandable, given the fact that this is a business judgment, not a legal or technical judgment. It is also possible that even if the business and IP professionals understand the value of the IP portfolio, they are uncertain as to how these assets can be put to work to advantage the company's operations and financial performance. Again, this would not be surprising, since too frequently the business professionals know too little about the IP and how it might be used to put the puzzle together, and the IP professionals know too little about the business, its strategies, and its most pressing problems to know how to apply the IP assets to move the business forward.

## USING THE COMPANY'S INTELLECTUAL PROPERTY TO IMPROVE BUSINESS PERFORMANCE

Since the company's business strategy and objectives should always drive the IP strategy, and not vice versa, the first step in putting the company's IP to work is to open the line of communication between the company's business leaders and its IP executives. Without a strong relationship among these executives, the IP strategy will be necessarily misaligned with the company's. The question is whether with good guessing it might be close or, with bad guessing, a mile off with severe future market and financial consequences. No other critical function of a company where billions of dollars in value is on the line is left to chance. This critical function cannot be either. The line of communication required is not a one-time shot, but rather a true partnership, where IP is committed to helping their

business colleagues solve their most pressing near- and long-term problems. Business leaders must learn to see their chief IP executive (some consider this executive a “CIPO”) as a source of significant leverage to be used in every way possible to help them win. IP executives must see their job as a business leader, an integral part of every business leader’s team, aimed at making the leader’s team a success (and sharing in that success alongside them). Unless or until these deeply personal relationships are established, people will go through the motions, but the value will remain locked up.

To facilitate the relationship, it will be helpful for each side to provide a detailed introduction of where their functions are today, including their current perspectives on the business and the major business challenges they face. They should talk about key members of their team who can be drawn into the relationship, ensuring that working-level professionals are knit into the fabric of the relationship between the business and IP functions. The executives need to spend enough time together and find some common interests so they learn to like each other (like everything, people work best with people they like, and avoid the people they don’t like).

The IP executive must be prepared to help bridge the gap by providing practical examples of how intellectual property might be used to open the bottlenecks confronting a business executive. For example, what if the problem confronting the business executive is that her competitors are achieving a 4% lower cost of goods sold than she is, and her increased cost is driving down her profitability, making it virtually impossible to meet her profit objectives. In the discussion, the IP executive learns there are two primary suppliers of components to the company who, together, make up a major portion of the cost of goods sold. With a bit of exploration, the IP executive determines that neither of the suppliers is licensed to her company’s patent portfolio, and that both are selling products that infringe on that portfolio.

Working with the business executive’s supply chain team, both suppliers are approached with an offer to take a license to the patent portfolio, and to also receive some differentiating technology from the company that will improve the suppliers’ products. An agreement is reached that results in a royalty of 5% payable to the company. This is paid as a 5% discount in the price of the goods being sold by the suppliers to the company. Suddenly, the improved communication between the business and

IP leaders has led to a situation where the business executive now enjoys a 1% advantage in cost of goods sold over her competitors, and her profit objective can be realized.

There are an endless number of possibilities for the use of intellectual property to achieve meaningful business results. Most of them remain hidden because no one is looking. Most businesses and executives focused on IP exploitation tend to be fixated on royalties. Generally, they would do better to begin at a broader level, first seeking to discover business problems, then considering IP-based solutions.

One productive use of IP to rapidly find revenue and profit can be achieved through patent brokerage. As a result of the rapid accumulation of patents over the last several decades (see Exhibit 1.2), many companies have found themselves awash with patents that are both expensive to maintain and of limited value given that there are triplicates, quadruplicates, and more covering similar products. The result is that with this “over-coverage,” the company is investing in assets that will not improve its licensing position and are unnecessary in the quantity held to protect a key product from infringement by others. It is likely that in most companies with a significant patent portfolio (greater than 1,000 patent families), at least 20 percent of the patent portfolio could be sold with no negative impact on the IP position, either offensively or defensively. With the sale, two things are achieved. First, patent maintenance costs are reduced. Second, in a period of months many millions of dollars (even tens or several hundred millions of dollars, assuming sufficient quantities of high-quality patents) in revenue and profit can be realized.

Selection of patents to be divested, however, is a critical project that once again is intimately tied to the company's business strategy. Too frequently, a company will reach a judgment to sell a group of patents in a business area they are no longer pursuing. Stock is not taken of the company's current and future patent adversaries given an ever-changing company product mix and strategy. After the sale, the company may come to determine there are several potential adversaries that have been identified with patents that impact a new product introduction that is key to the company's new business strategy, and that the companies holding these patents have major products that infringe the patents divested. The divestiture was obviously poorly planned; this is a mistake that must be avoided.

Understanding the current business and the emerging product roadmap, and identifying other operating companies that could present patent challenges to the company's current or future freedom to operate, are critical elements to a successful divestiture process. Moreover, a firm policy should be adopted to never divest all patents in any area regardless of their use within the company. Keep a handful or two of the best patents for a rainy day. Weather is unpredictable. Of course, assessing the risks posed by potential adversaries, as well as evaluating a portfolio to separate the wheat from the chaff—recognizing every good patent lot sold for fair value always has both—is a time consuming process. Luckily, firms such as ThinkFire are expert in such analyses, having performed them for corporations worldwide for M&A-related transactions, portfolio tuning and maintenance decisions, and for brokerage assignments.

## **NOT MAGIC—JUST HARD WORK**

The world of intellectual property is not particularly difficult to understand, nor are the solutions that use IP assets as a lever especially challenging to create. But finding and implementing these levers requires a commitment from IP and business professionals to learn much more about the issues and assets that each is responsible for managing, and how those assets might be applied to create shareholder value. So, with this as a prerequisite, the question is how to get these groups of people to spend more time together, to commit to a process that necessarily will take time to mature.

At a minimum, upon finishing this chapter, every business executive should reach out to the IP executive in their company and start the dialogue. And every IP executive should jump at the opportunity. Don't rush the conversation. Get to know one another. Don't spend more than an hour initially if you don't know one another. Do it over lunch if you can (food always helps). Each party should take a small task away from the meeting, and agree on the next meeting date. Starting the dialogue is critical. As you get to know one another better, as trust is established, as a common vocabulary emerges, the business exec will learn more about IP, and the IP exec will learn more about the business.

Every business exec should ensure that an IP exec is included in every important business strategy meeting and, every time a business crisis occurs that can have a material effect on the business, the IP exec should be brought into the circle. Maybe there won't be an IP angle that can help,

but maybe there will be. Even if there is not, both will learn from the experience. The objective is clear: A corporate IP strategy is only useful if it supports the corporation's and each business unit's strategies. Lacking alignment, patents and other IP will be found in file cabinets, not on balance sheets. With alignment, it can put to work a wealth of assets that can mean the difference between winning big and just staying in the game.

#### ABOUT THE AUTHOR

**Dan McCurdy** is CEO of Allied Security Trust and Chairman of PatentFreedom, which helps companies manage their interactions with IP holders, including NPEs and patent trolls. Mr. McCurdy was cofounder and CEO of ThinkFire, Inc., a leading provider of intellectual property business strategy and advisory services. He has worked closely with senior corporate and IP executives and private equity investors. He was president of Lucent Technologies' Intellectual Property Business from 2000 to 2001, where he generated more than \$500 million in annual revenues from the licensing of 26,000 worldwide patents developed by Bell Laboratories and Lucent. Prior to that, he was vice president of IBM Corporation, responsible for the creation of the IBM Life Sciences business unit. Prior to rejoining IBM in 1999, Mr. McCurdy was vice president of corporate development for CIENA Corporation, serving on CIENA's senior management committee and directing overall corporate merger and acquisitions strategy.

From 1982 to 1997 he served in a variety of business and intellectual property management roles in IBM, including director of business development for IBM Research and corporate manager of technology and intellectual property policy. Mr. McCurdy received his B.A. *summa cum laude* from the University of North Carolina, where he received the Mangum Medal in Oratory and was admitted to Phi Beta Kappa and the Order of the Long Leaf Pine. He is a frequent author and speaker on the use of intellectual property to improve business results, and was a member of the Intellectual Property Policy committee of the United States' National Academies.

#### NOTE

1. See discussion on this subject in McCurdy and Reynolds, "U.S. Universities Enter the Real World of Patents," *Intellectual Asset Management*, April/May 2004, issue 5. <http://www.thinkfire.com/US%20UNIVERSITIES%20ARTICLE.pdf>

