

5TH EDITION

# INTELLECTUAL PROPERTY

VALUATION, EXPLOITATION, AND  
INFRINGEMENT DAMAGES

RUSSELL L. PARR

WILEY



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*To my mother, Dorothy Parr, who has demonstrated many times how love and patience overcome life's endless challenges. Thanks, Mom.*





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## ABOUT THE AUTHOR

Russell L. Parr, CFA, ASA, CLP is president of IPRA, Inc. ([www.ipresearch.com](http://www.ipresearch.com)). He is an expert in determining the value of intellectual property. Mr. Parr's books about intellectual property value and management are published in Japanese, Korean, Italian, and English. He is dedicated to the development of comprehensive methods for accurately defining the value of intellectual property.

Highlight assignments conducted by Mr. Parr have included the valuation of the Dr. Seuss copyrights for the estate of Theodor Geisel and valuation of the patent portfolio of AT&T for transfer to a holding company. Mr. Parr also has conducted valuations and royalty rate studies for communications technology, pharmaceuticals, semiconductor process and product technology, automotive battery technology, lasers, agricultural formulations, biotechnology, computer software, drug delivery systems, medical products technology, incinerator feed systems, camera technology, flowers, consumer and corporate trademarks, motivational book copyrights, video lottery gaming, and cosmetics. His opinions are used to accomplish license agreements, acquisitions, transfer pricing, litigation support, collateral-based financing, joint ventures, and infringement damages.

Mr. Parr has written articles that have been published in various professional journals. He has spoken at over 30 conferences regarding the value of technology, including those sponsored by the World Intellectual Property Organization in Singapore and Lima, Peru. He has provided guest lectures at Suffolk University Law School, Rutgers University, Leonard N. Stern School of Business, New York University, Johns Hopkins University, Saint Joseph's University, and Carnegie Mellon.

Mr. Parr also has testified in the United States and Canada about the value of companies and intellectual property infringement damages over 70 times at deposition, trial, and/or for arbitration.

Mr. Parr has a master's in business administration from Rutgers University (1981); and a bachelor of science in electrical engineering, from Rutgers University (1976). His professional designations include Chartered Financial Analyst (CFA) from the CFA Institute, Certified Licensing Professional from the Licensing Executives Society, and Accredited Senior Appraiser (ASA) of the American Society of Appraisers.

Among Mr. Parr's writings are ten books published by John Wiley & Sons and three books published by IPRA, Inc.

His Wiley books include *Royalty Rates for Licensing Technology*; *Valuation of Intellectual Property & Intangible Assets*, fourth edition; *Intellectual Property: Joint Venture and Profit Strategies*, second edition; *Intellectual Property Infringement Damages: A Litigation Support Handbook*, second edition; *Investing in Intangible Assets*; and *Corporate Strategies for Maximizing Value*.

His books published by IPRA, Inc. include *Royalty Rates for Pharmaceuticals and Biotechnology*, eighth edition; *Royalty Rates for Technology*, sixth edition; and *Royalty Rates for Trademarks and Copyrights*, fifth edition.



# PREFACE

The first version of this book, *Valuation of Intellectual Property and Intangible Assets*, was published in 1990 with co-author Gordon V. Smith. We followed it with *Intellectual Property: Joint Venture and Profit Strategies*, also co-authored with Gordon, and *Intellectual Property Infringement Damages: A Litigation Support Handbook*, solo authored by me. Somewhere along the way, all three books were combined into *Intellectual Property: Valuation, Exploitation, and Infringement Damages*. The previous edition of the combined book was updated 12 years ago.

A lot has happened since then, requiring an almost complete rewrite of the book into this new edition. Just a few examples show the continued dominance of intellectual property on all aspects of life around the globe:

- Creation of joint ventures between traditional automakers and high-tech firms to create automatous driving vehicles. These ventures reinforce the concept that no single company any longer possesses all of the needed core competencies to design and manufacture complex products.
- Advancement of cell phone usages to the point that many consumers are disconnecting from landlines demonstrates the disruptive nature of intellectual property inventions as the traditional dominance of hardwired telephone services is brought to its knees.
- A hyperloop transportation system proposed along the east coast corridor in the United States will move people between New York and Washington, DC, in 29 minutes, possibly making train travel once again predominant over air travel.
- Huge prices paid to acquire comic book copyrights to use as the basis of blockbuster movies and enormous theme parks generating billions of dollars in revenues and profits. Action heroes are being exploited to unleash powerful economic value never recognized in the past.
- Corporate use of big data to predict buying decisions before a consumer even considers the purchase is making companies hugely efficient as they can accurately predict the amount of location requirements associated with manufacturing and inventory.
- Decline of traditional media as Google and Facebook earn more from advertising than all the newspapers, magazines, and radio stations in the world represents another example of the disruptive nature of intellectual property, making once-dominant industries minor activities.
- Consumer purchases over the Internet via Amazon and others obliterating shopping malls across the country and changing the buying habits and lives of consumers.
- The rise of patent aggregators who assemble huge patent portfolios and sell participating interests to member corporations introduces an entirely new monetarization proposition for intellectual property.
- Patent trolls have emerged as a blight on high-tech companies, initiating thousands of patent infringement lawsuits and changing the way damages are calculated.

More specifically, 85% of the value of major corporations of all types is comprised of intellectual property and intangible assets. These assets are the basis for creating wealth.

The contents of this new book have been extensively updated and revised to reflect the most current thinking in the field. Even some of the basic valuation theory chapters have been revised to reflect what has been learned from serving clients with ever-changing and complex consulting assignments. To make information-seeking easier, this book is divided into four major parts:

1. Introduction
2. Valuation
3. Exploitation
4. Infringement Damages

In the first part of the book, “Introduction,” readers will find the definitions of intellectual property and intangible assets. Intellectual property consists of patents, trademarks, copyrights, and trade secrets. Intangible assets include an assembled workforce, contracts, licenses, operational software, practices and procedures, and many other items that integrate disparate assets into a going concern. The Introduction goes on to explain that the value of these assets must be considered as part of a business enterprise. In order to quantify the value of intellectual property and intangible assets, it is necessary to fully understand their nature and economic characteristics, and importantly it must be understood that these assets do not create value by themselves. They may be at the heart at creating value but they must be integrated with other assets in order to be economically exploited. These other assets are the tangible and monetary assets of a business enterprise. Therefore, the relationship between intellectual property and intangible assets and the business enterprise is discussed.

In Part II, valuation techniques are discussed. It begins with a discussion of basic concepts and is followed by details about various valuation methods and the analysis needed to implement them. The chapters in this part present and discuss the cost, market, and income approaches to valuation. For intellectual property, it will become clear that only the income approach is suitable, and this part is dominated by considerations related to defining economic benefits, the timing of their receipt, and the risk of receiving them. Discounted cash flow analysis is used to isolate the value of intellectual property from the value of an overall business enterprise.

The third part, “Exploitation,” looks at strategies for the exploitation of intellectual property and focuses on joint ventures and licensing. These forms of exploitation require a sharing of intellectual property and the burdens of exploitation. Consequently, the values previously discussed must be allocated between separate parties. For joint ventures, a division of ownership is required, and for licenses, royalty payments dominate.

Royalty rates are another form of value. They represent the economic foundation of licensing and consequently deserve their own section. Royalty rates are a form of value in that they set the price at which licensors will allow others to use a limited portion of their intellectual property rights. Instead of the prices being set as lump-sum amounts, they are set on a pay-as-you-go basis.

Joint ventures require special attention, because such alliances require the establishment of methods for appropriately sharing the economic benefits of intellectual property rights contributed to alliances. Sometimes royalties are involved in these transactions, but sometimes an allocation of ownership in the joint venture turns on the value of the intellectual property rights contributed.

Part IV, “Infringement Damages,” delves into the methods recognized by the courts for measuring intellectual property infringement damages. The law and methods for determining damages for patent, trademark, trade secret, and copyright misappropriation are



different, and I will attempt to address the methods appropriate for quantifying damages for these different properties. Great focus is placed on calculating lost profits and reasonable royalties, along with a discussion of the entire market value rule and the recent rise of basing damages on the smallest saleable unit theory.

The four appendixes cover:

1. The failure of accounting standards to accurately reflect intellectual property and intangible assets on balance sheets and in income statements
2. The life of IP and intangible assets over time
3. Royalty rate data for a variety for technology, trademarks, copyright, and pharmaceuticals
4. A comprehensive discussion of risk and uncertainty that is central to valuing IP

This new edition has used extensive real-world examples to illustrate theoretical topics. They make the book more real than any prior edition. I have also updated hypothetical case studies covering many of the nuances of a valuation, licensing, and damages analysis. While these examples demonstrate how to conduct an analysis, they unfortunately cannot reflect all of the complexities that each fact-specific real-world case involves. Still, my hope is that they turn theoretical topics into something that can be experienced.

The understanding of intellectual property has become a critical input to business decision making. It is at the heart of divestitures, restructurings, acquisition, and all strategies used by a company to create value.

I have been surprised and very pleased that prior editions to this book have been so well received by the legal, licensing, and financial professions communities. It is also gratifying to have some of the prior editions translated into Korean, Chinese, Japanese, and Italian. This new edition has been written with the hope that it will contribute to the exploitation of intellectual property for the creation of value.

February 2018  
Russell L. Parr  
Yardley, Pennsylvania



# ACKNOWLEDGMENTS

I continue to learn about the world of intellectual property from my clients, colleagues, and students and wish to recognize those who have come forth to contribute to this book.

Richard J. Gering, CLP of Asterion Consulting, provides consulting and expert witness services to clients with an emphasis on economic analysis and damages in complex commercial disputes and all forms of intellectual property—copyright, patents, trademark, trade secrets, and trade dress. Economic consulting in intellectual property matters includes commercial success, lost profits, reasonable royalty, price erosion, convoyed sales, and the Entire Market Value Rule. He has testified in arbitrations, depositions, and federal court. Richard has been published in the field of economic damages and valuation of intellectual property and has taught economic damages and strategy at the Villanova University School of Law. Mr. Gering's employment experience includes Big Four and regional accounting firms.

Mr. Gering has a Bachelor of Commerce in Economics and Business Administration (1980) and an Honors in Economics (1981) from the University of Natal Durban in South Africa and an MA in Economics (1986) from the University of Maryland, College Park, where he was a PhD candidate and completed all requirements except for his dissertation. He is a Certified Licensing Professional (CLP). His education has been supplemented by various continuing education courses offered by a variety of professional organizations. He has spoken before professional and educational groups on various aspects of intellectual property, economic damages, and valuation. His contribution to this book was accumulated over many years of comprehensive and challenging steak luncheon discussions about all aspects of intellectual property. Complex issues became so very clear after a few drinks with Richard. Thank you, Richard.

Debora R. Stewart, David J. Lambdin, and Megan E. Farrell, of InvotexIP, LLC have provided a wonderful chapter about auditing license agreement compliance with license and have found that royalty payment underreporting is widespread and it is often not malicious.

Debora R. Stewart, CPA, MBA, is a managing director and founder of InvotexIP, LLC (InvotexIP). InvotexIP assists intellectual property owners with a full range of financial IP advisory services, including royalty audits and license compliance and calculation and expert testimony on damages in IP infringement matters. Ms. Stewart leads InvotexIP's License Management and Royalty Audit and Compliance practice. She has more than 25 years' experience working with corporations, universities, and their counsel on intellectual property matters. She has worked with clients in a wide range of industries, from computer graphics, pharmaceuticals, and biotechnology to consumer goods. Ms. Stewart developed a proprietary Royalty Reporting Process to help clients take a proactive approach to managing royalty reporting and revenue. She has authored several articles and has given presentations and expert testimony on related topics.

David J. Lambdin, CPA, CFE, is a managing director of InvotexIP, LLC and provides a wide range of consulting services, including royalty audits, intellectual property compliance, forensic accounting, and other litigation services. He has more than 25 years of financial analysis, investigations, and accounting experience. Mr. Lambdin provides litigation and claims services on engagements involving all phases of the litigation process both in and out of bankruptcy. His assignments have included intellectual property, breach of contract, accounting malpractice, securities fraud, intellectual property, bankruptcy

avoidance actions, claims disputes, and other bankruptcy-related matters. Mr. Lambdin has also managed the financial and accounting aspects of large complex bankruptcies, including working for the debtors and creditors in both reorganizations and liquidations.

Megan E. Farrell is a manager at Invotex, LLC who assists intellectual property owners with a full range of financial IP advisory services, including royalty audits and license compliance, asset management, and calculation of damages in IP infringement matters.

Robert Goldscheider, John Jaroz, and Carla Mulhern have grappled with the complex controversies of the 25% Rule. Their work on this topic has left the entire licensing industry in a much better position. Their study in support of the 25% Rule is a chapter in this book.

Robert Goldscheider was a pioneer in the field of intellectual property licensing and technology transfer. Writer, lecturer, and teacher, he was a renowned member of the Licensing Executives Society and winner of their Gold Medal for outstanding work in the field. Mr. Goldscheider was known as the father of the 25% Rule, a method for calculating royalties when measuring damages in infringement litigations that has been used for over 50 years by countless attorneys.

John C. Jaroz, a managing principal with Analysis Group and director of the firm's Washington, D.C., office, is an economist who specializes in applied microeconomics and industrial organization. He has provided strategy consultation across a wide range of industries and delivered expert testimony in hundreds of depositions, trials, and hearings. His focus is on matters involving intellectual property, licensing, commercial damages, and antitrust. A frequent author and lecturer on the economics of intellectual property protection, Mr. Jaroz is the editor of *Eckstrom's Licensing in Foreign and Domestic Operations: The Forms and Substance of Licensing*. His articles and papers have been published in the *Stanford Technology Law Review*, the *Federal Circuit Bar Journal*, *Les Nouvelles: Journal of the Licensing Executives Society*, the *Journal of Business Valuation*, and the *Journal of the Patent and Trademark Office Society*.

Carla S. Mulhern is managing principal with Analysis Group where she specializes in the application of economic principles to issues arising in complex business litigation. She has served as an expert witness on damages issues in commercial litigation matters, including intellectual property and breach of contract cases, providing testimony in various district and state courts. Ms. Mulhern's intellectual property damages experience includes cases involving allegations of patent, copyright, and trademark infringement, as well as misappropriation of trade secrets; she has also provided expert testimony on these issues in Section 337 cases at the International Trade Commission (ITC). Before the ITC, she has testified on a variety of economic issues, such as domestic industry, remedy, bonding, commercial success, and public interest.

William J. Murphy is Professor of Law, Chair, Commerce & Technology Graduate Programs, University of New Hampshire School of Law. He has taught graduate and undergraduate courses at Harvard in the Extension and the Radcliffe Seminars Programs and in the College of Management at the University of Massachusetts–Boston. He has been a Visiting Professor of Economics at Dartmouth College and a Fulbright Scholar at University College Cork, Ireland. Professor Murphy also co-founded and co-directed the eLaw Summer Institute that was run in cooperation with University College Cork in Cork, Ireland, from 2005 to 2012.

Professor Murphy was an antitrust trial attorney for the Federal Trade Commission's Bureau of Competition (where he earned the Chairman's Commendation for Meritorious Service "for outstanding trial advocacy in complex antitrust matters") before continuing his education at the Harvard Business School where he received his MBA with Distinction, as well as a doctorate in Business Administration. He also received an appointment as an

Associates Fellow while at Harvard. During business school, he was a contributing founder of an educational software company and global pharmaceutical clinical trials company. Professor Murphy was one of the founding partners in a Concord law firm specializing in technology-based business law and intellectual property before joining the faculty at UNH Law and for many years served an Of Counsel role to one of the largest New Hampshire law firms.

Professor Murphy has provided a comprehensive discussion about risk and uncertainty as it relates to intellectual property valuation and exploitation in Appendix D.

Patrick Sullivan is an expert at creating profits from intellectual assets and is considered one of the leading conceptual thinkers in extracting value from intellectual capital. He is a founding partner of the ICM Group, a Palo Alto, California–based consulting company focused on managing intellectual capital to maximize value. He is also cofounder of the ICM Gathering, composed of managers of intellectual capital for large, diverse international companies who meet to exchange information on new and innovative management techniques. He is a frequent speaker on a range of topics concerning the management of intellectual capital, including stock value, licensing, and developing profits from IC. He is a member of the Licensing Executives Society (where he was the founding chairman of its Intellectual Capital Management Committee), the World Intellectual Property Trade Forum, and the American Bar Association Intellectual Property Licensing Section, and a fellow of the American Council on Education. He is a frequent contributor of articles on intellectual capital management for leading journals, the author of *Profiting from Intellectual Capital*, and the coauthor of *Technology Licensing: Corporate Strategies for Maximizing Value*, both published by Wiley. Mr. Sullivan’s contributions to this book are reflected in the chapters covering exploitation strategies.

Peter Ackerman is co-founder and chief executive officer of Innovation Asset Group, headquartered in the Silicon Forest Corridor near Portland, Oregon. IAG created a software platform called Decipher<sup>®</sup>, which companies around the world use for the management, analysis, protection, and monetization of innovation and intellectual property assets. Mr. Ackerman began his legal career at Intel Corp, where he handled a wide variety of issues related to patents, branding and trademarks, copyrights, trade secrets, licensing, and commercialization activities. In his private law practice, he provided intellectual property assessments and audit services, helping clients to see and understand their IP-related inventories and processes, highlighting risks and potential profit areas, and imparting best practices. He has spoken at a variety of events around the world on several topics related to the management and exploitation of intellectual property, including IP due diligence in M&A transactions.

Gordon V. Smith is Distinguished Professor of IP Management at Franklin Pierce Law Center. He has been a member of the AUS, Inc. board of directors since 1985 and became Chairman Emeritus in 2011. He was elected Chairman in 2002 and maintained that role until 2010. Mr. Smith has over 40 years of history with AUS, Inc. and is a well-respected expert in the field of intellectual property valuation, having been one of the first valuation professionals in the world to begin codifying methods for the valuation of intellectual property.

Mr. Smith originally joined AUS, Inc. in 1974 after working as a senior valuation appraiser at American Appraisal Company for 11 years. He spent 4 years working for AUS on valuation-related engagements. In 1978, he rejoined American Appraisal as Vice President and Manager of Professional Services for the Eastern Region. In 1983, he returned to AUS, founding and heading a separate valuation consulting practice—Associated Valuation Technologies, Inc. He continued in this capacity until his semiretirement in 2004.

## xx Acknowledgments

Mr. Smith has been a frequent lecturer at the National University of Singapore and Singapore Management University as well as for IP Academy Singapore, World Intellectual Property Organization (WIPO), and other global institutions. He has authored and co-authored books and articles that have been translated extensively and are considered authoritative sources worldwide. Mr. Smith has been helping to develop IP valuation standards in Southeast Asia, where he contributes to academic, government, and quasi-government organizations. Mr. Smith earned his B.A. from Harvard University in 1959.

Mr. Smith was co-author of the first edition of this book, *Valuation of Intellectual Property and Intangible Assets*, and several other editions. His fingerprints remain all over this new edition.

Most importantly, this book has only been possible because of the people who have contributed to my health, happiness, and relative sanity.

Andy Handler-Hraur of LiveFitWithAndy and Cheryl Herzog of Surfside Fitness regularly provide torturous personal training that invigorates me even while I continuously complain. Andy and Cheryl are demanding but patient.

Vic Scharko of Creative Machining and Dwayne Denton of Tony's Auto Repair are self-made successes who embody the basic principles of business and the integration of monetary, tangible, and intangible assets. They also make me laugh each time we play golf.

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# INTRODUCTION

In this first part of the book, readers will find the definitions of intellectual property and intangible assets.

Intellectual property consists of patents, trademarks, copyrights, and trade secrets. Intangible assets include an assembled workforce, contracts, licenses, operational software, practices and procedures, and many other items that are needed to integrate the intellectual property of a company into a going concern.

The value of these assets must be considered as part of a business enterprise. In order to quantify the value of intellectual property and intangible assets, it is necessary to fully understand their nature and economic characteristics, and importantly it must be understood that these assets do not create value by themselves. They may be at the heart of creating value, but they must be integrated with other assets in order to be economically exploited. These other assets are the tangible and monetary assets of a business enterprise. Therefore, the relationship between intellectual property and intangible assets and the business enterprise is discussed.





# INTELLECTUAL PROPERTY IS THE FOUNDATION OF VALUE

*Intellectual property* first entered the lexicon of the general U.S. population in 1993. Late-night talk-show host David Letterman did not get the nod from NBC to replace retiring Johnny Carson at *The Tonight Show with Johnny Carson*. David Letterman's rival, Jay Leno, got the job. Letterman went to CBS to host a new late show to compete with *The Tonight Show*. NBC threatened to sue Letterman if he used any of his regular running gags such as "The Top Ten List," "Stupid Pet Tricks," and "Viewer Mail," developed while Letterman was at NBC. The *Los Angeles Times* reported, "NBC's position is that, under 'intellectual property' laws, it owns the rights to *Late Night with David Letterman* and elements in the show . . ."<sup>1</sup>

The general public was aware of the elements of intellectual property such as patents and trademarks but not the collective term *intellectual property*, which was largely limited to professionals specifically operating in the field of intellectual property.

This book is about intellectual property: patented technology, trademarks, copyrights, and trade secrets. It describes the methods for valuing intellectual property and the practices of monetizing intellectual property, including licensing and royalty rates. It also spends considerable space on the determination of patent infringement damages.

This book also is about intangible assets that in conjunction with intellectual property create value in a business enterprise. Intangibles are categorized as rights and relationships. Examples of rights include licenses, contracts, and leasehold interest. Examples of relationships include an assembled workforce and distribution network. Their value can be substantial and will be discussed.

The reason for this book is that intellectual property is the central resource for creating wealth in almost all industries.

Patents convey exclusive rights to inventors for their innovations. The government allows a patent owner to exclude all others from using a protected invention for 20 years after filing for a patent. During the life of a patent, its owner can commercially exploit the patent invention, license it to others, sell it, or "park" it—not use it and keep all others from using it, too.

Patents encourage and protect the billions of dollars invested in the development of new products. Consider breakthrough medical therapies. It costs \$2.5 billion to get a new

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<sup>1</sup>[http://articles.latimes.com/1993-08-30/entertainment/ca-29527\\_1\\_stupid-pet-tricks](http://articles.latimes.com/1993-08-30/entertainment/ca-29527_1_stupid-pet-tricks)

#### 4 Ch. 1 Intellectual Property Is the Foundation of Value

drug from the laboratory, through development, and through FDA approval.<sup>2</sup> This massive investment would never be spent without patent protection. No company would invest this kind of money in developing a new drug if, after successfully entering the market, any other company could market a copy of the new drug. Patents protect investors by providing them with an exclusive period of time during which the investor can recover its huge investment and make a profit. In return for the limited exclusivity provided by a patent, at the end of a patent's life, the invention enters the public domain, free for all others to use.

Trademarks convey the messages of value, quality, and safety for coveted products and services to trusting consumers. These assets are often nurtured over decades of exposure to the public and enormous support from advertising. By the end of 2017, over \$200 billion in annual media ad spending will support the recognition of trademarks.<sup>3</sup> *Forbes* reports the value of the Google trademark at over \$44 billion.<sup>4</sup>

Think about the single aspect of safety conveyed by a trademark. A thirsty consumer is interested in buying an amber-colored, sugary carbonated drink. He faces two options. One is in a dirty glass bottle with an unknown brand name scrawled across the bottle with a grease pen. The other drink is presented in a gleaming bottle with *Pepsi* expertly printed on the bottle. Even though the Pepsi option is more expensive, the decision is obvious for those desiring a thirst-quenching experience without the risk of poisoning.

Trademarks also provide a consumer with cachet. Cars are a great example. Most cars produced today can get anyone from point A to point B reliably and safely. BMW and Mercedes, however, propel their owners with widespread respect and admiration. Enormous premiums are paid for such attributes.

Copyrights for the entertainment industry protect the creativity that goes into music, movies, art, and literature. Congress protects copyright owners as reward for their creativity. Like patents, time and money are required to create art, and the intangible benefits for society for entertainment and amusement are considered worthy of exclusive rights. Consider comic books. Disney purchased the rights to comic book characters like Iron Man, the Hulk, the Fantastic Four, the X-Men, and Spider-Man when it purchased Marvel for \$4 billion. Movies, theme parks, and merchandising of the superheroes have earned Disney billions of dollars annually.

Trade secret laws protect sensitive manufacturing, services, and marketing activities vital to many companies; think of the formula for Coke. Like patents, the development of trade secrets can be costly. Unlike patents, trade secrets rights do not expire. If the trade secret can be maintained as a secret, the initial investment can be enjoyed into perpetuity. The value of all the trade secrets in the world can never be known, but this book will teach how specific trade secrets can be valued.

## FOUNDATION OF VALUE CREATION

The United States Patent and Trademark Office conducted a study to estimate the impact of intellectual property (IP) on the economy. It identified IP-intensive companies as those using significant amounts of patents, trademarks, and copyrights. The report concluded that IP-intensive industries supported 45.5 million jobs and contributed \$6.6 trillion in value added in 2014, equivalent to 38.2% of U.S. GDP. The study also reported on the impact of IP in Europe.<sup>5</sup>

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<sup>2</sup><http://www.scientificamerican.com/article/cost-to-develop-new-pharmaceutical-drug-now-exceeds-2-5b/>

<sup>3</sup><http://www.emarketer.com/Article/Digital-Ad-Spending-Surpass-TV-Next-Year/1013671>

<sup>4</sup><http://www.forbes.com/sites/seanstonefield/2011/06/15/the-10-most-valuable-trademarks/2/#cc4f4f52c5c6>

<sup>5</sup>"Intellectual Property and the U.S. Economy," 2016 Update, USPTO.

The European Patent Office and the Office for Harmonization in the Internal Market (OHIM) published a comparable report in 2013 using European Union (EU) data. It relied on similar methodologies to identify intellectual property rights (IPR)–intensive industries in Europe and quantified their contribution to the European economy in the 2008–2010 period. The study found that IPR-intensive industries generated €4.7 trillion worth of economic activity, which amounted to almost 39% of EU GDP. Furthermore, the study found that IPR-intensive industries directly employed 56.5 million Europeans, which accounted for almost 26% of all jobs for the period.<sup>6</sup> According to another report, IP-intensive industries account for approximately 90% of the EU’s trade with the rest of the world.<sup>7</sup>

Intellectual properties are at the very core of corporate success. Properties such as patented technology and world-class trademarks are the basis for capturing huge market share, commanding premium prices, and maintaining customer loyalty. They are also in scarce supply. This combination of power and scarcity makes such assets very valuable. Companies that possess such assets will grow and prosper. Those without access to intellectual property will stagnate for a while in low-profit commodity businesses and eventually fade out of existence. Future success therefore requires that companies somehow gain access to intellectual properties. They must create them, buy them, share them, or arrange to rent them. As a result, licensing and strategic alliances will play a dominant role in future corporate deal-making. At the core of these strategies will be intellectual property.

Companies are seeking to expand product lines, increase market share, minimize new product development costs, expand market opportunities internationally, and reduce business risks. Companies are also seeking to create corporate value for investors. All of this is accomplished by exploiting patents, trademarks, trade secrets, and copyrights.

It is important also to consider the consequences of not having access to intellectual property. Without intellectual property, profits are low, growth is lacking, and corporate value is lost. Corporate managers realize more than ever that access to intellectual property is key to their ability to create corporate value and, more important, key to continued corporate survival. The forces driving the licensing and joint venturing of intellectual property include time savings, cost controls, and risk reduction. Consider Huawei Technologies Co. Huawei is the world’s third-largest maker of smartphones behind Samsung and Apple. Most American consumers have never heard of the company, and that is the problem for Huawei as it attempts to enter the U.S. market for the first time. U.S. carriers such as AT&T and Verizon distribute over 80% of handsets in the country. Huawei is a major force in China, Europe, the Middle East, Africa, and Latin America. Yet, the company has almost no sales in the world’s largest market for smartphones—the United States. Besides needing to make changes to its mobile chips to comply with cellular standards in the United States, carriers like Verizon and AT&T are reluctant to add Huawei phones to their already-crowded phone offerings because the Huawei brand is unknown in the United States. As a result, the company is having difficulty entering the world’s largest market for its products.<sup>8</sup> Such is the importance and value of trademarks. Compounding Huawei’s problem is that no established smartphone maker in the United States is going to even consider licensing their well-established trademark to Huawei.

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<sup>6</sup>Ibid.

<sup>7</sup><http://www.eubusiness.com/focus/16–10–25>

<sup>8</sup>Juro Osawa and Ryan Knutson, “For China’s Huawei, Hurdles Loom as It Plans U.S. Smartphone Sales,” *Wall Street Journal*, November 28, 2016, p. B4.

## LEGISLATION CREATED INTELLECTUAL PROPERTY

On September 5, 1787, the Committee on Detail reported to the Constitutional Convention that Congress should have the power “to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”

That recommendation was unanimously adopted without recorded debate, and the provision was incorporated into the final draft of the Constitution. Such a constitutional clause is highly unusual in that it instructs Congress to promote the progress of the useful arts—namely by securing to inventors the exclusive rights to their discoveries. It is even more unusual in that nowhere else in the Constitution is there any provision for an exclusive right to be granted to any individual or group of individuals; only authors and inventors are so blessed.

America was not the first nation to recognize special rights for inventors. The patent institution was established by the medieval Venetian state, which articulated the basic feature of the law today: spur innovation through the incentive of limited-time exclusivity by demanding the demonstration to the public of a working model and promising to seize and destroy counterfeit products. Patent rights arise because inventing is an expensive process and costs must be recouped to provide incentives to invest. If others can cheaply appropriate an inventor’s innovation, calling it their own without having invested time and energy in it, investments in innovation will not be made.

Venice institutionalized the right of patent in 1474 in a statute that contained all the main features of contemporary patent law, including requirements that the device be novel, be actually constructed (reduced to practice in modern jargon), and be made public. It also required that it be examined (although the examination was rather informal), that there be term limits to exclusive rights, and that there be remedies for infringement. Finally, the Venetian statute declared that the inventor must teach others how the invention worked and be granted exclusivity in return.<sup>9</sup>

Many important inventions were first discovered and developed by small companies and inventors who sought personal success: for some as wealth, for others as fame. Without the patent system, likely we would not have the economic power that we enjoy nor the quality of life we cherish. The Continental Congress had in mind the creation of a country and system of self-government like none ever tried before—a system that protected the rights of individuals above all else, a system where the governing body had only the powers granted to it by its citizens. The protection of the fruits of inventive energies seems a natural extension of the Miracle at Philadelphia. Economic prosperity and military strength were imperative for the new experiment to work. By stimulating and encouraging innovation, the United States has achieved economic prosperity that all other systems of government can only envy. Probably the first international recognition of the eminence of American invention came at the Crystal Palace Exhibition in London in 1851.

The Great Exhibition of the Works of Industry of All Nations was held in London in 1851. Having been staged in a huge building of glass it became known as the Crystal Place exhibition. At the time, England was experiencing a manufacturing boom. It seems that the time had come for England to demonstrate its pride to the world. There were some 100,000 objects displayed along more than 10 miles by over 15,000 contributors. Britain, as host, occupied half the display space inside with exhibits from the home country and the Empire.

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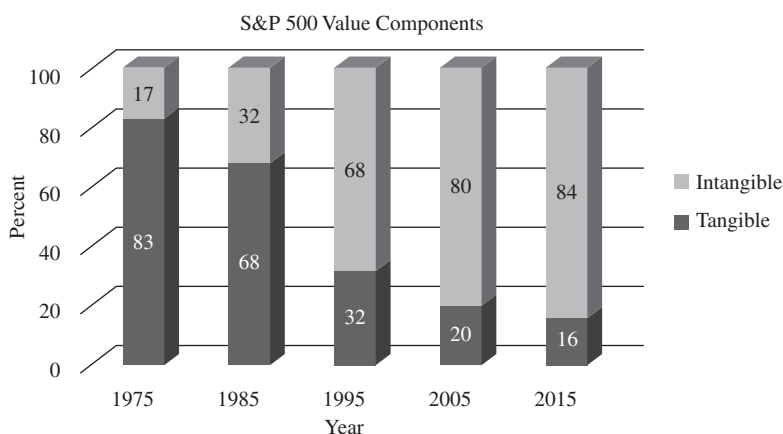
<sup>9</sup>Michael P. Ryan, *Knowledge Diplomacy, Global Completion and Politics of Intellectual Property* (Washington, DC: The Brookings Institute, 1998), pp. 21, 24, 25.

Many countries displayed their best, including France, Germany, Russia, and Canada. The *London Times* said, “It is beyond all denial that every practical success of the season belongs to the Americans.”<sup>10</sup>

At about the turn of the twentieth century, a Japanese official, Korekiyo Takahashi, was sent on a fact-finding tour of the United States; he subsequently reported, “We have looked about to see what nations are the greatest, so that we can be like them. We asked ourselves, ‘What is it that makes the United States such a great nation?’ and we investigated and found that it was patents, and we will have patents.”<sup>11</sup>

## INTELLECTUAL PROPERTY DOMINATES CORPORATE VALUE

Ocean Tomo is an integrated intellectual capital merchant bank.<sup>12</sup> It conducted an analysis of the largest companies in the United States and found that patents, trademarks, copyrights, and other intangible assets have exploded as a percentage of the S&P 500’s market value from 17% in 1975 to 84% in 2015. No longer do markets value companies based on balance sheet cash and fixed assets. Today, stock prices reflect the importance and value of all intangible assets, including patents, trademarks, copyrights, and trade secrets. Presently, intellectual property and intangible assets overwhelmingly represent the value of corporations. Today, only 16% of the value of major corporations is associated with *hard* assets, (i.e., cash, inventory, and tangible facilities). Intellectual property and intangible assets overwhelmingly dominate.



## EMERGENCE OF INTELLECTUAL PROPERTY EXPLOITATION STRATEGIES

The great fortunes built by Rockefeller, Vanderbilt, and Carnegie were based on oil, railroads, and steel. Hard assets ruled the day and their empires. These great fortune builders could not hope to recognize the current economic landscape. Their fortunes were built from tangible property. Today, fortunes are created from intellectual property. Hard assets have become less important to wealth creation. Intangible assets have become dominant. Bill Gates is a perfect example of the present and future. He built his billion-dollar fortune from

<sup>10</sup>Ibid.

<sup>11</sup>Ibid.

<sup>12</sup>[www.oceantomo.com](http://www.oceantomo.com), <http://www.oceantomo.com/2015/03/04/2015-intangible-asset-market-value-study/>

software. In fact, when personal computers were in their infancy, most companies, like IBM, NEC, Wang, H-P, and others, focused on developing and selling computer hardware. Bill didn't care about hardware and instead purchased the DOS operating system from IBM and made it the standard upon which all of the personal computers worked. Making and selling computer hardware became a cutthroat industry, driving computer prices and profits ever lower. Bill Gates didn't care because no matter where the computer was manufactured it needed an operating system, and his was the industry standard.

All future wealth creation will be based on the same intellectual foundation. In *Microcosm—The Quantum Revolution in Economics and Technology*, George Gilder explains that wealth is no longer derived from possessing physical resources. “Wealth and power came mainly to the possessor of material things or to the ruler of military forces capable of conquering the physical means of production: land, labor, and capital.”<sup>13</sup> Gilder explains that “today, the ascendant nations and corporations are masters not of land and material resources but of ideas and technologies.”<sup>14</sup>

D. Bruce Merrifield, professor of entrepreneurial management at the Wharton School of the University of Pennsylvania, echoed this theme in an article titled *Economics in Technology Licensing*. Merrifield said, “Wealth no longer can be measured primarily in terms of ownership of fixed physical assets that can be obsolete in a few years. . . . Wealth instead will be measured, increasingly, in terms of ownership of (or time-critical access to) knowledge-intensive, high value-added, technology-intensive systems.”<sup>15</sup> Of special interest is Professor Merrifield's parenthetical highlighting of the time-sensitive nature associated with intellectual property. Not only do companies need these knowledge-based assets, but they need them right now.

Lester Thurow, author and former dean of MIT School of Management, has written that the “only remaining source of true competitive advantage is technologies that others do not have.”

## FACTORS DRIVING STRATEGIC ALLIANCES: TIME, COST, AND RISK

Companies are seeking to expand product lines, increase market share, minimize new product development costs, expand market opportunities internationally, and reduce business risks. All of this is to create corporate value for investors, and today it is accomplished by exploiting patents, trademarks, copyrights, and trade secrets. It is important also to consider the consequences of not having access to intellectual property. Without intellectual property, profits are low, growth is lacking, and corporate value is lost. Corporate managers realize more than ever that access to intellectual property is key to their ability to create corporate value and, more important, key to continued corporate survival.

**TOO EXPENSIVE TO GO IT ALONE.** Even the largest companies cannot fund all the intellectual property programs that they may desire. Research programs can run into billions of dollars annually, and trademark costs can also reach billions of dollars. A major force behind the desire to form strategic alliances is the high level of investment needed to create new intellectual properties. And time is always vital.

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<sup>13</sup>George Gilder, *Microcosm—The Quantum Revolution in Economics and Technology* (New York: Simon & Schuster, 1989), p. 17.

<sup>14</sup>Ibid.

<sup>15</sup>D. Bruce Merrifield, “Economics in Technology Licensing,” *Les Nouvelles (Journal of the Licensing Executives Society)*, June 1992.