

INTELLECTUAL PROPERTY

LICENSING AND JOINT VENTURE PROFIT STRATEGIES

THIRD EDITION

GORDON V. SMITH

RUSSELL L. PARR



WILEY

JOHN WILEY & SONS, INC.

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For my licensing colleagues who help
the world's innovators turn ideas into money—GVS

For my beautiful wife, Jane—RLP



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John Jarosz and **Carla Mulhern** are principals in Analysis Group/*Economics*, a consultancy and litigation support firm. Along with Robert Goldscheider, they have provided, in Chapter 7, a long-needed study showing the reliability of the 40-year-old 25% rule of thumb. Mr. Jarosz and Ms. Mulhern would like to thank the following individuals for their hard work and useful comments on their chapter: Jaime Baim, Laura Boothman, Jeff Kinrich, Jennifer Price, Chris Vellturo, and Robert Vigil. The views expressed in their chapter are their own and do not necessarily represent those of others at the International Licensing Network or Analysis Group/*Economics*.

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PREFACE

The U.S. economy is powerful because of our intellectual property. Very few companies are successful without it. Commodity products are manufactured more cheaply in developing nations, and consequently we cannot compete in the commodity arena. Our intellectual property is the defining characteristic of our success. This book is about licensing and joint ventures the finances and profits of intellectual property. It includes theoretical models that can be used to define negotiations and adds real-world information and insight from actual deals. We live in exciting times and are proud to provide this text for those who are structuring deals that center on the foundation of our economic success. In this book you will find:

Chapter 1, “Emergence of Intellectual Property Exploitation Strategies,” introduces the concepts and ideas that will be featured throughout the rest of this book.

Chapter 2, “Introduction to Exploitation Strategies,” introduces the business enterprise model and investment principles that will be utilized throughout the book. We also begin the discussion of intellectual property exploitation strategies.

Chapter 3, “Introduction to the History and Economics of Legal Limits on Licensing Intellectual Property Rights,” by John W. Schlicher, presents a wonderful history of the economics legal characteristics that have evolved around intellectual property.

Chapter 4, “Creating Industry Standards,” explains that sometimes the most profitable way to manage intellectual property is to give it to industry participants for free.

Chapter 5, “Economic Analysis of Exploitation—An Underlying Theory,” discusses the underlying economic theories of intellectual property exploitation and utilizes examples to guide the reader in their use.

Chapter 6, “Economic Contributions of Intellectual Property,” discusses the economic sources of the intellectual property contribution to business enterprise profits and introduces the very important discounted cash flow tools that are used repeatedly throughout this book.

Chapter 7, “Use of the 25% Rule in Valuing Intellectual Property,” by Robert Goldscheider, John Jarosz, and Carla Mulhern, presents a study by the authors that shows the current reliability of this 40-year-old rule of thumb.

Chapter 8, “Determining a Royalty Rate—An Example,” presents a thorough analysis of a hypothetical patented technology to show how different techniques can be used to determine an appropriate royalty rate.

Chapter 9, “An Infringement Damages Analysis for Determining a Royalty Rate,” considers the insight provided by the courts with regard to royalty rates. For licensing, royalty rates quantify the economic benefits that the creators of intellectual property enjoy. Setting royalty rates often is a significant part of negotiating licenses and includes both art and science. The art comes from experienced negotiators. The science comes from the quantitative analyses that are described. Additional guidance beyond art and science can be found in the techniques used by courts in intellectual property infringement lawsuits.

Chapter 10, “Risks of Exploitation.” The risks associated with the commercialization of intellectual property are extremely important elements in the valuation of intellectual property and are critical considerations in developing a successful exploitation strategy. This chapter discusses the significant elements of risk and their effects on the exploitation process.

Chapter 11, “Licensing Economics and Royalty Rates,” covers these critical aspects of a license, which are some of the most difficult areas to deal with. In this chapter, we discuss the factors that influence royalty rates and suggest some investment rate of return-based techniques for their development.

Chapter 12, “Dealing with Early-Stage Intellectual Property,” focuses on one of the most difficult tasks facing the licensing executive. This chapter discusses some important aspects of evaluating early-stage intellectual property and extends the use of the investment rate of return tools to that situation.

Chapter 13, “Trademark Licensing,” presents some unique aspects, due to the inherent differences between trademark rights and technology. It is important to understand these differences in the licensing of trademark rights and in other forms of exploitation. Increasingly, trademark rights are being bundled with patented and unpatented technology, and it is important to understand the various factors that influence the trademark side of such transactions.

Chapter 14, “Licensing Internet Assets,” presents a discussion of the Internet and the unique licensing opportunities it presents. We describe the nature of web sites and their business characteristics as well as their assets—some unique, some not so unique. The dot-com bubble may have burst, but the Internet is still going to be a powerful force in the future of business.

Chapter 15, “Licensing Negotiations and Agreements,” integrates many of the lessons learned in prior chapters into one comprehensive discussion.

Chapter 16, “Another View of Licensing Strategies,” discusses new trends in intellectual property-based business strategies. Some are driven by a corporate desire to conduct business on the Internet. Other licensing strategies are driven by the desire to maximize income from intellectual property. In the past, corporations looked to unused technology as a means to enjoy some additional revenue. Most recently this same unused technology is seen as a means by which companies can participate in new businesses. In some cases, royalty income is no longer enough.

Chapter 17, “Joint Venture,” uses a hypothetical story to illustrate the different economic advantages that can be enjoyed by creating a joint venture. Many valuable elements of intellectual property are associated with cost savings, time savings, and risk reduction. This chapter shows how to quantify each element.

Chapter 18, “Corporate Acquisition as an Exploitation Strategy,” discusses mergers and acquisitions as they relate to intellectual property. There is a growing tendency for corporate acquisitions to be focused on intellectual property. Substantial premiums are being paid for businesses, especially those with valuable intellectual property. These acquisitions can represent the embodiment of complex strategies to obtain control of essential “gap-filling” technologies or to open new markets.

Chapter 19, “University Technology Transfer,” addresses the fact that universities always have been a fertile source for new technology. We illuminate this special facet of the licensing process, mindful of the special circumstances facing universities. Nonprofit organizations want their inventions to broadly benefit humankind, and corporations want exclusive use of inventions primarily in order to increase shareholder wealth. Special considerations are needed when negotiating in such an environment.

Chapter 20, “Global Exploitation Potential,” covers an area that is being recognized more and more by licensing executives. Thus it is important to understand some of the accounting, cultural, and taxation issues that may affect cross-border exploitation of intellectual property.

Chapter 21, “Organizing for the Future,” explores the analysis needed to find out where one is and where one needs to be in the future. The gap analysis practiced by DuPont is discussed.

Chapter 22, “Understanding the Business and Risks of Licensing,” by Kathleen M. Kedrowski and Maria S. Lehman, looks at the business of transactions after they have been completed. The authors talk about the importance of conducting licensing audits and the things that can be learned from them for negotiating a better deal next time.

Appendix A, “Investment Rate of Return Requirements,” provides the basic theory of risk and return. Examples of how to estimate an appropriate rate of return to associate with intellectual property investments are included.

Appendix B, “Financial and Business Information Sources,” provides a collection of resources that we use for basic information in valuing and pricing intellectual property. It is not exhaustive, just the stuff we most often use.

Appendix C, “Licensing Transaction Examples and Royalty Rates,” provides real-world examples of intellectual property licensing and the royalty rates that resulted from the actual transactions. This information often is used as guidance for negotiation royalty rates. It also is used as part of the process for determining a lump-sum value for intellectual property. In addition, expert witnesses rely on some of this information for making presentations in court about infringement damages. We have obtained a selection of information from many different sources in order to provide the reader with a feel for the different levels of royalty rates for different industries. This information has been selected from different sources including: *Licensing Economics Review*; *Royalty Rates for Pharmaceuticals and Biotechnology*, 5th edition; *Royalty Rates for Technology*, 2nd edition; *Royalty Rates for Copyrights and Trademarks*, 2nd edition; Security and Exchange Commission 10-K filings; and Royalty Source®.

March 2003

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INTELLECTUAL PROPERTY

EMERGENCE OF INTELLECTUAL PROPERTY EXPLOITATION STRATEGIES

1.1 FACTORS DRIVING STRATEGIC ALLIANCES: TIME, COST, AND RISK 2	(a) Management Science Magic 5
(a) Too Expensive on Your Own 2	(b) Excess Asset Magic 5
(b) Impossibility of Mastering All the Necessary Tools 3	(c) Financing Magic 6
	(d) Changing Strategies 6
	(e) The Magic of Intellectual Properties 7
1.2 A SHORT HISTORY OF CORPORATE STRATEGIES 5	1.3 LEGAL ATTITUDES ENHANCE VALUE 8
	1.4 ONWARD 8

Pullman. Carnegie. Morgan. The great fortune builders of 100 years ago could not hope to recognize the current economic landscape. Their fortunes were created from railroads, oil, and real estate. 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 the future. He built his billion-dollar fortune from software, and it would seem that 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.”¹ Gilder explains that “today, the ascendant nations and corporations are masters not of land and material resources but of ideas and technologies.”² 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”: “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.”³ 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. Consequently, time is also an important force that drives royalty rates and joint venture equity splits.

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

2. Ibid.

3. D. Bruce Merrifield, “Economics in Technology Licensing,” *Les Nouvelles* (Journal of the Licensing Executives Society) (June 1992).

2 Ch. 1 Emergence of Intellectual Property Exploitation Strategies

Intellectual properties are now 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, or arrange to borrow 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—especially technology and trademarks.

1.1 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. Companies also are also seeking to create corporate value for investors. All of this can be accomplished by exploiting patents, trademarks, 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.

(a) **TOO EXPENSIVE ON YOUR OWN.** Even the largest companies cannot fund all the intellectual property programs that they may desire. Research programs can run into hundreds of millions of dollars annually, and trademark costs can 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. The list below provides an indication of the amounts required to create, acquire, or protect keystone intellectual property:

- Hoffman LaRoache paid \$300 million to Cetus Corporation for the Polymerase Chain Reaction technology.
- American Brands paid \$372.5 million to acquire seven liquor brand names from Seagram.
- Philip Morris spends over \$2 billion annually on advertising programs to support the continuing recognition of its portfolio of brand names.
- Whoopi Goldberg reportedly received \$6 million for her book, *Whoopi*, a collection of her thoughts and musings about the world today.

One of the first major joint ventures of the 1990s was the combination of pharmaceutical product lines from DuPont with the distribution network of Merck & Co. The new joint venture company was equally owned by the two companies. Its name was DuPont-Merck. DuPont had a product line of drugs but needed help with international distribution. The time and cost needed to create its own network of sales staff were formidable obstacles to fast growth and return on the research effort that DuPont had in the new drug line. Part of DuPont's worries included the remaining patent life associated with some of

its drug products. By the time a self-created distribution network was established, some of the valuable products would be off patent. Full exploitation of patents required that sales be maximized during the premium price years that would exist before generic products hit the market. DuPont needed a way to tap its full market potential fast.

Merck had annual sales that ran above \$6.5 billion. It also has one of the largest research and development budgets in the world. Even so, Merck has limitations as to the number of new drugs that it can discover, investigate, develop, and commercialize. Access to a new line of already commercialized products was a great attraction to Merck.

The DuPont-Merck joint venture saved DuPont both time and money. It gave DuPont immediate access to an international distribution network. Merck gained immediate access to a whole new product line that would have cost enormous amounts of time and money to develop.

This joint venture is a classic case of how the factors of time and cost drive strategic alliances that are founded on access to intellectual property. It also illustrates how strategic combinations of key intellectual property can reduce the investment risk associated with new strategies. If DuPont had attempted to build its own international distribution network, the cost would have been high and the time needed long, and there was no assurance that it would successfully construct a network that could move the goods. Merck enjoyed a reduction in investment risk by gaining access to the profits associated with the DuPont product line. If Merck had embarked on its own plan to duplicate the DuPont product line, there was no assurance that it would have been completely successful. Furthermore, there existed the risk that the Merck product line could have ultimately infringed on the DuPont product line. The two companies saved research funds, gained immediate access to commercialized intellectual property, and reduced business risk. Judy Lewent, chief financial officer at Merck & Co., told the *Wall Street Journal* that the DuPont-Merck deal “added about a third to our research capacity.”⁴

The cost to establish and maintain world-class trademarks is no different. Huge sums of money are required and customer recognition takes time. One of the first mega-launches of a new product in the cosmetics industry was Yves Saint Laurent’s 1978 Opium party to introduce his new fragrance. In attendance were Cher, Truman Capote, BBC correspondents, the crew of *60 Minutes*, and leaders of the fashion industry. The party cost \$250,000, which in 1978 was a staggering amount for a single party to launch a new product. The total launch budget was \$500,000. It turns out that those were inexpensive times. Similar launch budgets now run between \$20 and \$25 million. Joseph Spellman, executive vice president at Elizabeth Arden, said, “Today everything is global The competitive level is way up. The packaging, concept, advertising, staging—all of it has to be fabulous. The attention is always on big productions, so launches have escalated to mega proportions.” The reason for the high costs to launch new product names was simply and accurately described by Edith Weiner, president of Weiner, Edrich, Brown, Inc., trend trackers and marketing strategists, when she told *Mirabella* magazine, “There’s a product glut. . . . It’s getting harder and harder to get people’s attention.” And this is exactly why an established trademark that already has an attentive audience is valuable.

(b) IMPOSSIBILITY OF MASTERING ALL THE NECESSARY TOOLS. Beyond time and cost factors are capability limitations. Products have become more complex. Mastering

4. “Financial Prescriptions for Mighty Merck,” *Wall Street Journal*, June 30, 1992, p. A17.

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all of the divergent technologies that go into a single product is not always realistic. Consider the new battery technology that stores electricity mechanically instead of chemically. Such technology may be the breakthrough needed to make electric-powered automobiles a reality. The new technology may possibly power a car for 600 miles on a single charge. Conventional chemical-based batteries have a range potential of 100 miles at most. The new battery technology is the product of American Flywheel Systems, a company comprised of former scientists from the Environmental Protection Agency and military aerospace researchers. The new battery is referred to as a flywheel electro-mechanical battery that stores energy kinetically. It operates on the same principle that drives the ancient potter's wheel. A heavy mass rotates at a very high speed inside a vacuum enclosure suspended by magnetic bearings and controlled by sophisticated electronics. The first electric car was created 100 years ago, but chemical batteries required frequent recharging. The old batteries also involved toxic wastes, subjected other car components to corrosives, and introduced an explosion potential. Flywheel batteries were studied in the 1970s but could not be perfected until recently. Advanced technological development in three separate fields of science were required before the flywheel battery could become viable. Advances in composite materials, computers, and electromagnetics were all required to make the flywheel battery a reality.

A confluence of three critical technologies in materials, magnetics, and computing speed were needed to make the flywheel battery a viable technology. Lightweight but strong materials, such as graphite, have come into being recently. In 1990, the army tested a flywheel battery that used graphite components having a tensile strength of 52,000 pounds per square inch. Graphite now has a tensile strength of 1 million pounds per square inch. The second critical breakthrough occurred in computer power. Faster computers allow the performance of millions of calculations and the simulation of thousands of prototypes. This breakthrough allows scientists to turn ideas into working machines more quickly. The third direct scientific advance involved the development of magnetic bearings. These electromagnetic fields allow objects to spin in vacuums without friction. All of these technologies are needed for just one product idea, illustrating the problem currently challenging most companies. Technology is becoming more complex. Investigating any one of these critical technology areas requires a multidiscipline understanding of a wide variety of sciences such as physics, chemistry, and electronics. Advanced knowledge in each discipline is required, not just one specialty and a superficial understanding of the others. Corporations are a lot like people. A professional architect with expertise in marina design cannot cope with the complexities of modern life without outside assistance. Tax-preparation services, medical treatment, lawn services, and many other areas of individual expertise must be acquired from others in order for the architect to survive. Corporations, too, have their specialized areas of expertise, but to deliver the products of tomorrow, these specialized corporations will need to incorporate into their products advanced aspects of different technologies. This will require specialized knowledge that they do not possess and will require them to participate in corporate transactions that are centered on sharing access to technology.

Speaking to the *Wall Street Journal* about pocket-sized cellular telephones, where wireless telecommunications technology must be integrated with portable computing, information services, and satellite technological know-how, John Sculley, former chief executive officer of Apple Computer, Inc., said, "No one can go it alone anymore."⁵

5. "Getting Help: High-Tech Firms Find It's Good to Line Up Outside Contractors," *Wall Street Journal*, July 29, 1992, p. A1.

1.2 A SHORT HISTORY OF CORPORATE STRATEGIES

The primary goal of business strategies is to create corporate (shareholder) value. This has always been the goal, but the strategies used have been through various mutations, including:

- Management science magic, where large egos believed they could run any company any time
- Acquisition fever, where large egos believed they saw unrealized value in everyone else's backyard
- Financial management magic, where large egos believed that the trick to higher value was simply higher risk tolerance

(a) MANAGEMENT SCIENCE MAGIC. In the 1960s, businesses were driven by diversification and integration strategies. Diversification spread economic risks among many businesses to counter the negative effects of being too focused in cyclical industries. Integration merged manufacturing, raw materials suppliers, and distribution networks to bring control and profits from indirectly related activities under one corporate roof. Manufacturing companies acquired raw material suppliers. Then finance companies and other vaguely related businesses became desirable. As acquisitions hit their stride in the 1960s, completely unrelated businesses were combined into a portfolio of diversified business investments. Anything and everything was a potential acquisition target. The underlying notion was that acquirers would introduce management science and centralized control, thereby enhancing the value of all the portfolio components. Management science was considered the missing and magic element that would make the combined entities more powerful, successful, and profitable than when the businesses were independent. “Conglomerate” was a descriptive term that managers eagerly sought to have bestowed on their company. It carried images of power and expansive management skills. With superior organizational skills founded in management science, the acquirers of the 1960s thought that they could manage any business. Understanding the nature of the business didn't matter. Sadly, overreaching occurred and conglomerate builders found that more than a little knowledge about the acquired businesses was needed. Huge and unwieldy corporate structures were needed just to monitor the performance of the unrelated businesses that comprised these conglomerates. Long delays occurred in decision making, and strategy meetings with Corporate killed any inventive ideas that were developed at the operating level. Often the accounting systems used to monitor one of the conglomerate components were completely unworkable for monitoring other components. Management time was spent studying the portfolio rather than managing the business. Instead of gaining investment performance from portfolio diversification, the centralized control structures introduced antisnergistic costs of time and money. In almost all cases the conglomerates have failed. Stock performance for these portfolios of management science was dismal. Companies soon learned that management science magic was a false deity. Conglomerates were dismantled. Managers did everything possible to shed the dark shadow that now accompanied the once-coveted descriptive word “conglomerate.”

(b) EXCESS ASSET MAGIC. Acquisitions of the late 1970s and early 1980s focused on the value of excess assets. These assets were on the balance sheet but were not adequately reflected in the stock price. They included real estate, cash hoards, and resource reserves like timberland and oil, especially oil. Companies that had excess assets were the delight of acquirers who wanted to restructure them. If the excess asset was cash, the

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company could be acquired and then the cash was issued as a special dividend or used to pay down the debt associated with the purchase of the company. In some cases the target company's own cash was used to finance part of the takeover. If the excess asset was real estate, then after acquiring the company a sale-leaseback deal was put into effect. Valuable land and buildings were sold to institutional investors as safe investments, providing the acquired company with cash, while long-term leases allowed the company to continue to use the property.

In the case of oil, acquirers went on a binge. T. Boone Pickens Jr. was trained as a petroleum geologist. In the late 1970s, the cost to find oil was at about \$15 per barrel and oil prices were rising as fast as the OPEC nations could schedule price-fixing conferences. The stock exchange became an easier place to search for oil reserves than in the Indonesian jungles. The stock market was perceived to be undervaluing asset-rich companies. On the stock exchange, the cost of oil could be as low as \$5 per barrel. As with all good ideas, other people quickly see the benefits and join the party. Bidding wars erupted, bargains disappeared, and the game abruptly ended.

(c) FINANCING MAGIC. In the late 1980s and early 1990s, business strategy involved acquisition fever fueled by the idea that a little more debt and a willingness to accept just a little more risk would shower profits on those that knew how to introduce financing magic. Acquirers during this period focused on the introduction of financing capabilities, once again not caring about the business they were buying and often not even understanding the business. Leveraged buyouts (LBOs) fueled acquisitions during the late 1980s. Raiders looked to enhance investments by using more aggressive financial structures. At times the restructuring made a lot of sense. LBOs combined an aggressive leverage strategy with the excess asset concept. Instead of gaining access to particular assets like cash and real estate, takeover artists focused on entire business units that they considered undervalued or completely unrepresented in the stock price of the target company. Initially it can be argued that raiders contributed in a positive way to Corporate America. Leveraged buyouts provided a means to get Corporate America back on track. Overbloomed corporate executives who ignored shareholders just had to go. They spent money on lavish perks, gave themselves extraordinary bonuses, even in poor performance years, and acted more like caretakers. It seemed that the attitude of corporate managers was: *Why take risks when mediocrity can get you eight-figure compensation packages?* LBOs provided a means to get rid of these timid managers and return America's business power to the hands of managers that had a financial stake in the business's success. Once again, however, good ideas are often extended far beyond realistic applications. Early successes in LBOs caught the attention of many raiders. Bidding wars erupted again and the bargains disappeared. Watching the devastating effect of "just a little" more debt became a sad legacy of the 1980s.

(d) CHANGING STRATEGIES. The earliest of the new strategies was industry domination. A growth company would capture a huge market position, and the value of the company would soar along with growing sales volume. The next step led to vertical and horizontal integration of operations. Suppliers were acquired, and distribution outlets also were folded into the dominating company's portfolio. Stock prices continued to rise until all forms of integration were optimized. Mature markets led to stagnation and stock prices stopped rising. The next strategy was to build a conglomerate. Managers could be heard to say, "I can dominate my core business and all others that I choose." The strategy involved doing for new acquisitions what the managers had done for their