

LICENSING BEST PRACTICES

**The LESI Guide to Strategic Issues and
Contemporary Realities**

Robert Goldscheider,
Editor



John Wiley & Sons, Inc.

Praises for *Licensing Best Practices*

“A comprehensive digest of national and international advances and developments in licensing! Licensing Best Practices is a veritable anthology and compendium on general and industry-specific licensing practices and licensable intellectual property assets. It is a handbook every licensing executive and intellectual property practitioner will want to peruse and keep on their desk!”

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Franklin Pierce Law Center
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“It was a great privilege to be given the opportunity to preview this outstanding work. The Licensing Executives Society is the world’s leading organisation of technology licensing and management professionals. Bob Goldscheider and his team have drawn upon the rich resources of its members to produce a work of immediate impact and lasting influence on a field of economic endeavor which, as the work itself shows, is expanding exponentially. Don’t leave home without it.”

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Consultant (and former Partner)
Davies Collison Cave, Patent Attorneys and
Barristers and Solicitors
Melbourne, Australia

“This book does serious double duty. It is a helpful primer for business executives and people breaking into the licensing field because it provides broad, often in-depth coverage. It also serves a helpful purpose for seasoned licensing executives and lawyers: first, it endorses many of the things that we do and think and hence serves as a reality check; second, at a deeper level, it proposes techniques and analyses, some of which are necessarily new to each of us because the thing about licensing is that you learn every time out. This book provides learning for even the most seasoned.”

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“Licensing Best Practices is a necessary book for any person involved in licensing. The book provides valuable, practical insights that can be readily utilized in licensing matters. The comprehensive contents are set forth in understandable, reader-friendly language. I highly recommend this work.”

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Chair, Intellectual Property and Technology
Practice
Weil, Gotshal & Manges LLP

**LICENSING
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John Wiley & Sons, Inc.

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Published by John Wiley & Sons, Inc., New York.

Published simultaneously in Canada.

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ISBN: 0-471-21952-5

Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1

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About LESI

The Licensing Executives Society is one of the most dynamic professional organizations in the world. It was born in 1965 when 10 corporate executives and lawyers who were involved in some way with licensing recognized a common need to educate one another about the burgeoning fields of licensing and technology management. They met in Hollywood, Florida, and set up an infant group at that time.

It immediately became obvious to many people that the existence of LES meets real needs. The Society has rapidly and regularly grown in its number of members and geographical presence. As of 2001, there are more than 10,000 members, belonging to 27 national chapters all over the world. About half the membership is in LES (United States and Canada), the current name of the founding group. The backgrounds of the members include scientists in many fields, corporate executives, intellectual property and commercial lawyers, university officers, government officials, and consultants. LES International (LESI) is the coordinating organ of the local societies, and its board of delegates meets twice each year.

LESI is responsible for the Society's respected journal, *les Nouvelles*, as well as other useful publications. Numerous local, national, regional, and global conferences are convened throughout the year, featuring plenary speeches, workshops, and active industry committee meetings. All of these functions provide valuable venues for networking.

For further information, contact the Society's office:

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USA

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Preface

The genesis of this book was a challenge in late 2000 from Ed Shalloway as he began his term as president of LES International. I had just renewed my term as chairman of the LES Education Committee. Ed's challenge to me and our committee was to do something different and memorable. Thus began an adventure that has resulted in this volume and the analogous audiotapes.

Our original idea was to produce a film of several prominent LES members who would speak about their respective areas of specialty. A two-hour film of four lecturers giving a basic licensing course at an LES USA and Canada annual conference in the early 1980s had been well received. A surprisingly large number of tapes were sold over a period of 10 years. With this in mind, several of our peers were questioned about their interest in participating. Everyone was enthusiastic.

Early on, it occurred to me that a serious film needs a script. It would therefore be useful to have the participants prepare texts that would clearly articulate their ideas. More than 20 different segments were envisaged. Thus, the germination of a book occurred.

Next, we had to locate an appropriate publisher. During the past few years, I have been favorably impressed by several books pertinent to the licensing field that had been published by John Wiley & Sons. A number of LES members are pleased to have their work handled by Wiley. I therefore contacted them and was fortunate to be referred to Susan McDermott, who had just joined the company as acquisitions editor. She was enthusiastic about this LES project, obtained the support of the decision makers, and "the rest is history."

Our goal was to produce an anthology of serious thoughts about many facets of licensing. I contacted a group of LES members whose styles and quality of independent thinking I respect. They have very different backgrounds and experience. Their least common denominator is professionalism, diligence, and intellectual excellence. When discussing the contributions they were invited to provide, I was gratified to note that everyone took this opportunity seriously.

The results have exceeded my optimism. As chapter after chapter was received, I was more than merely impressed. I was genuinely excited that members of the society to which I have devoted considerable effort and emotion for more than 30 years were creating a joint work of exceptional value to the world of licensing.

I consider the chapters to be of a uniformly high standard. Each of them deserves special mention.

Willy Manfroy was asked to write on the somewhat general subject, “Expanding Business of Licensing.” He was approached because he has been heading a creative task force that is producing sophisticated sets of new materials intended to instruct licensing executives at the introductory, intermediate, and advanced levels. As such, he is providing important tools to improve the licensing discipline. His eloquent description of the environment in which we work, in the opening chapter of the book, provides a useful keynote for the chapters that follow.

Richard Razgaitis was invited to provide a chapter titled “Technology Valuation” in recognition of his recent, successful book titled *Early-Stage Technologies: Valuation and Pricing*. Rather than merely rest on his laurels, Raz submitted additional, valuable insights about this active subject.

John Ramsay has been stimulating and entertaining LES audiences for years on the subject of “Dreadful Drafting.” He has supplemented those materials in an essay bearing the subtitle “The Do’s and Don’ts of Licensing Agreements,” which contains good-natured wisdom for both veterans and rookies in the field.

Heinz Goddar and **Alan Gordon** have drafted a bifurcated chapter discussing “Recent Changes in Patenting Procedures and Protection: Developments in the European and U.S. Patent Systems.” These comments reflect the fact that they are both leading practitioners at the cutting edge.

Mel Jager’s chapter on “The Critical Role of Trade Secrets Law in Protecting Intellectual Property Assets” highlights the key thinking in his respected and readable multivolume treatise on the same subject.

Michael Lechter had a particularly difficult assignment in my view, since he was asked to address the rapidly evolving subjects of “Copyright, Software, and Web Site Issues in the Internet World.” His chapter is brilliant and taught me a lot. These subjects are very pertinent to all serious practitioners.

The jointly written chapter on “Trademarks, Trade Names, and Trade Dress,” by **Tom Small** and **Ken McKay**, covers the pertinent legal situations in the United States and Canada. This is one of the longest chapters in the book, but it has been published in its entirety because of its excellence. Indeed, I consider this to be perhaps the best commentary on these subjects, with which I happen to be quite familiar, that I have ever read.

Cathryn Campbell is senior partner of a thriving IP law firm that focuses on biotechnology inventions. She has written a savvy chapter titled “Licensing in the Biotechnology Industry,” describing several actual situations. It is enjoyable to read and highly instructive.

Tom Picone treats the other major area of health care activity in a chapter titled “Pharmaceutical Licensing During the Revolution.” This is probably the most active area in all of licensing, and these comments should be useful to the many practitioners in the field.

Two of the most successful operators in the academic area, **Lou Berneman** and **Kathleen Denis**, have written an insightful chapter titled “University Licensing Trends and Intellectual Capital.” I thought their original text was just fine, but they insisted on supplementing it, thereby adding even greater value.

Another jointly written article, “What to Do with Technology Rights That Are Financial Assets and Instruments,” is a very innovative piece in itself. It was written by the husband and wife team of **Nir Kossovsky** and **Bear Brandege**. A scenario with a dialog among “players” has been constructed that engagingly explains several novel and somewhat difficult points.

“IC-based Corporate Carve-outs: Strategy, Structure, and Funding,” jointly written by **Jim Malackowski** and **Suzanne Harrison**, is a sophisticated discussion of several innovative financial issues. The type of thinking signals the wave of the future to this grizzled licensing executive.

Another duet dealing with “Licensing and Litigation” from the American and European viewpoints has been presented by **Ron Grudziecki** and **Arnaud Michel**. Their interaction and collaboration has been effective and highlights several important issues.

My first and last choice for authorship of a piece on ADR was **Tom Arnold**, who is widely considered to be the dean in this special field. When I contacted Tom’s office, I learned that he was recovering from a serious illness and probably would not be strong enough for several months to write a chapter. Tom later sent word that I should look for a substitute. I indicated that, in view of the circumstances, we would omit this subject. In early June, to my complete surprise, I received Tom’s brilliant manuscript titled “Alternative Dispute Resolution: Fighting Smarter, Spending Less,” which has been included as written. This not

only demonstrated that Tom Arnold was as clear thinking as always, but also that he was keenly interested to be a member of this team. It set the tone for the later contributions that steadily streamed in.

A tripartite chapter authored by **Peter Chrocziel**, **Nigel Jones**, and **Thierry Sueur**, is “Ignore Europe at Your Peril!” This comments on a variety of European developments relating to IP, antitrust, and financial areas that reflect certain respective viewpoints of the British, French, and German contributors. The chapter also tends to reflect the state of flux currently existing in the European Union.

Larry Evans, as expected, delivered a masterful chapter on “Challenges of Licensing to and from China and Hong Kong.” He is one of the most experienced and successful LES members in negotiating with Chinese executives. He offers numerous shrewd comments about achieving successful results in this market, which is now prime. A founding member of LES China, **Chi Shaojie** had access to Larry’s draft text and has confirmed its accuracy.

Dennis Unkovic provided a candid commentary in his chapter, “Is There a Future for Japan?,” which is sobering because of its lack of optimism. At my urging, he added a section on “A Korean Counterpart,” which reflects a more positive spirit.

Natalia Karpova forwarded a lengthy and informative essay titled “Licensing in Russia: Opportunities and Pitfalls.” One of the most valuable aspects of this work was the comparative treatment of inventions in the former USSR and in modern Russia. We found that the English-language draft received from Professor Karpova could benefit from some linguistic editing by a native speaker. **Marcia Rorke**, who I consider to be the most talented editor in LES (USA and Canada), answered our call. She did her usual splendid work, and the chapter is now both instructive and easily readable.

Rodney DeBoos decided to focus his chapter about Australia on “Australia: Licensing Opportunities in the Medical and Biotechnology Industry.” He has thus provided a clear description of important achievements, as well as Australian policies in this area, which compare favorably with certain attitudes in the United States. For instance, there is a description about the freedom to perform stem-cell research Down Under that may attract leading scientists from America and elsewhere to relocate there in order to pursue initiatives in this pioneering field.

Three separate chapters were received from authors describing needs, in their respective jurisdictions, for help from the developed nations of the world and from sister LES societies located at the sources of technology. These chapters are:

- “Challenges to Arab Industries in Acquiring and Selling Appropriate Technologies” by **Talal Abu-Ghazaleh**. An articulate and moving Author’s Note about the attitude of enlightened Muslims to the events of September 11, 2001, is appended to this piece. The text is reproduced at the end of Chapter 21.
- “The South African Experience in Economic Development” by **Alan Lewis** and **Don MacRobert**
- “Prospects for Increased Licensing in Latin America” by **Gabriel Leonardos** and **Fernando Noetinger**

All of these pieces describe the strengths and weaknesses in their respective areas, and indicate open-minded attitudes about sensitive assistance. It is hoped that this volume will have a catalytic effect that will inspire some of its readers to answer these calls for input and collaboration.

Finally, I drafted Chapter 3, “The Expanding Role of Technology Management Consultants.” It is hoped that this will be the opening move for the formal recognition of consulting activities that should not only be respected, but should also be regulated to the effect that persons intending to utilize the title *Consultant* should qualify to do so by obtaining suitable training and credentials. This activity might be coordinated with the ambitious educational programs that have been developed by LES (USA and Canada), which are currently being expanded from the introductory to the intermediate and advanced levels, and which will eventually be available throughout LESI.

All of the written texts were received prior to the 2001 annual meeting of LES (USA and Canada), and the follow-up meeting of the board of delegates of LES International, which took place in Palm Desert, California, from October 21 to November 3, 2001. We originally planned to produce 10-minute film clips of the authors during this period. This turned out to be too costly. Instead, audio versions of all of the chapters have been substituted for video.

We believe that this electronic analog to the book can be a valuable teaching tool. We produced a set of English-language audiotapes of the authors reading shortened versions of their chapters. This was duly accomplished in Palm Desert, in excellent facilities provided by the organizers of the LES conference. We captured more than 320 minutes of recordings, which are designed to be marketed as a set of CDs. If these prove to be as valuable as hoped, efforts will be made to have translations promptly recorded in several foreign languages, including Chinese, Russian, Arabic, Japanese, Korean, and Spanish.

Several people did “heavy lifting” and/or supplied important moral support to this team effort. **Ed Shalloway** not only issued the initial challenge but also steadily provided encouragement and practical ideas. **Ken Payne** made it clear that financial support for our efforts from the LESI Endowment Fund would be available, if needed. **Clyde Willian**, the LESI general counsel, saw to it that our contractual arrangements, both to LESI, the organization, and the individual authors, were appropriately protected. **Alan Rose** and **Art Nutter**, in their roles as chairpersons at the 2001 LES Annual Conference, provided us with superb recording facilities and administrative support.

Ken Schoppmann, the outstanding director of the LES office in Alexandria, Virginia, has been helpful in the past and will continue to be so in connection with the production, promotion, and distribution of these materials. His attitude and skills made my task much easier.

I have saved the final kudos for **Susan McDermott**. She is bright, creative, and simply wonderful as a person and an editor. Susan is a new member of LES, and will hopefully get as much knowledge and satisfaction from our society as have all of the members of the LES “family” noted in this introduction. I am confident that she and John Wiley & Sons, Inc., will play an increasingly important role in LES.

If this book is as successful as I anticipate, it is tentatively planned to produce succeeding editions in three-year intervals. I am hopeful that *Licensing Best Practices* will come to be known as a leading authority in our chosen field. I already have several ideas for an expanded second edition—but first we must walk; then we will be ready to run.

Robert Goldscheider
November 2001

Part One

The Changing Landscape of Licensing

Expanding Business of Licensing

By Willy Manfroy

INTRODUCTION

The profession of licensing has been around for a long time, but its importance in society and in business corporations has evolved dramatically over the years. This chapter presents a brief history of licensing and points out developing trends. It interprets the major factors that influenced these changes and affected the profession as a whole. The chapter concludes with our vision of the future and of the challenges faced by licensing professionals.

HISTORY OF LICENSING

The history of licensing is closely related to the history of patents. A good start is to look at the etymology of both words. *Webster's Dictionary* gives the following definitions:

- *License*. Authority or liberty given to do or forbear any act; especially, a formal permission from the proper authorities to perform certain acts or to carry on a certain business, which without such permission would be illegal; a grant of permission; as a license to preach, to practice medicine, to sell gunpowder or intoxicating liquors. The document granting such permission.
- *Patents*. Open to public perusal—said of a document conferring some right or privilege; as letters patent. Appropriated or protected by letters patent; secured by official authority to the exclusive possession, control, and disposal of some person or party; patented; as a patent right.

The French equivalent, *brevet*, derives from the word *bref*, meaning “short” (time and content), which describes well the content and time life of such instruments. The English patent or letter patent is related to the French *patente* (derived from Latin *patere* or “to open”), which was a privilege delegated by the kings or powers to allow people the privilege to exert certain acts, usually in exchange for something more tangible.

Patents can be traced back thousands of years. They were used by the Phoenicians, for example. Later, they show up in the Republic of Venice, where the first patents were granted in 1474. The interface between patents and licenses

dates back to more recent history and the establishment of patent offices in the industrial world. Patents grant exclusion for a specific period of time, whereas licensing is a system developed to allow someone else to remove the exclusion of forbidden knowledge by special permission granted by the patent owner.

After World War II, licensing was extensively and effectively used by Japan to rebuild its industry and develop dominance in fields such as consumer electronics and optics. It was also used as a base to modernize Japan's chemical, petrochemical, and pharmaceutical industries. Japan was and is still running a large deficit in technology-related balance of payment, but its strategy of extensive licensing allowed it to jump start the country rebuilding and, in the case of the consumer electronics, to dominate worldwide markets with its innovations.

Apart from Japan—and, at a later date Taiwan, Korea, and other Asian countries—licensing was not broadly used, particularly in the Western world. The first industry to make use of systematic licensing in Western Europe and the United States was the pharmaceutical industry. In the 1970s, very few companies had a truly global presence. The cost of developing new drugs was considered high at the time (\$50 to 150 million/drug), and the probability of finding acceptable new products was low. Merck had not yet pioneered its approach to finding new entities based on fundamental research on the mechanism of action of biological paths. Therefore, most really new drugs were discovered through the tedious process of screening new molecules for interesting pharmacological activities. Pharmaceutical companies were buying the right to screen libraries of chemical compounds, including rights to possible pharmaceutical uses (e.g., Probucol, one of the first cholesterol-lowering drugs, was licensed from a coal-mining company). Microanalysis techniques and combinatorial chemistry had not yet been developed. Thus, the probability of finding the right biologically active molecule was low. It was therefore extremely important to make sure that any discovery reaching commercialization stages be exploited to its maximum potential. This was the golden age of territorial swapping—companies were exchanging rights to specific geographies. Chemical companies believed they could enter the pharmaceutical field based on their extensive libraries of new chemical entities (NCE). The exit of Du Pont from the pharmaceutical business and the sale of BASF's Knoll pharmaceutical mark the end of that period.

During that time, some chemical and petrochemical corporations, under the leadership of Sohio (now BP) and Union Carbide (now Dow Chemical), were initiating programs to sell their process technology—primarily to countries in development and secondarily to their competitors. The engineering companies were the implementers of the technology transfer efforts, combining their project management and construction skills with the know-how generated by the chemical industry. In the rest of the chemical industry, however, licensing was not widely practiced. With a few notable exceptions, licensing was considered an unimportant afterthought and not central to a company's strategy.

RECENT TRENDS

Since the mid- to late 1980s, the situation has changed significantly. Extraction of value from a corporation's intellectual assets (IA) has become big business. The most notable example is IBM, where revenues from IA grew from the low teens to over \$1.3 billion annually in a little more than 10 years (see Exhibit 1.1—reference Annual Report and public quotes). IBM is not the only one. It has been widely reported that for a number of years Intel Corporation earned more money from its aggressive licensing deals than from its day-to-day operations.

Also, the size and frequency of publicly available license grants, voluntary or not, has increased over the last 10 years (see Exhibits 1.2 and 1.3).

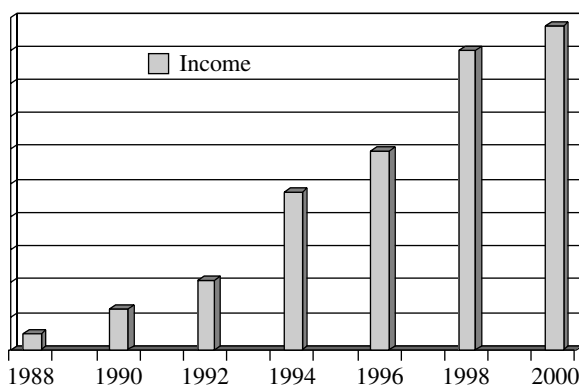


EXHIBIT 1.1 IBM's Reported Licensing Income

Parties	Award (in millions)	Date
<i>Polaroid v. Eastman Kodak</i>	\$873	Jan. 1991
<i>Haworth v. Steelcase</i>	\$211	Dec. 1996
<i>Smith International v. Hughes Tool</i>	\$205	Mar. 1986
<i>Exxon v. Mobil Oil</i>	\$171	Aug. 1998
<i>Viskase v. American National Can</i>	\$165	Jul. 1999
<i>Hughes Aircraft v. United States</i>	\$154	Jun. 1994
<i>3M v. Johnson & Johnson</i>	\$129	Sep. 1992
<i>Fonar v. General Electric</i>	\$129	Feb. 1997
<i>Honeywell v. Minolta</i>	\$96	Jan. 1992

EXHIBIT 1.2 Damage Awards for Patent Infringement

Parties	Settlement (in millions)	Date
<i>Digital Equipment v. Intel</i>	\$1,500.0	Oct. 1997
<i>Texas Instruments v. Samsung</i>	\$1,100.0	Nov. 1996
<i>Texas Instruments v. Hyundai</i>	\$1,100.0	May 1999
<i>Medtronic v. Siemens</i>	\$ 300.0	Sep. 1992
<i>University of California v. Genetech</i>	\$ 200.0	
<i>Procter & Gamble v. Paragon Trade</i>	\$163.5	Feb. 1999
<i>Genetech v. Eli Lilly</i>	\$145.0	Jan. 1995
<i>Honeywell v. Seven Camera Makers</i>	\$124.1	Aug. 1992
<i>Kimberly-Clark v. Paragon Trade</i>	\$115	Mar. 1999
<i>Rhone-Poulenc Rorer v. Baxter</i>	105.0	May 1993

EXHIBIT 1.3 Top Patent Damage Settlements 1990–June 2000

As a result, the subject of technology transfer has moved from the specialized press to center stage. Following are a few examples of the treatment of the subject in the popular press.

- Kevin G. Rivette and David Kline. *Rembrandts in the Attic*. Boston: Harvard Business School Publishing, 1999.
- Pamela Sherrid. “Psst, Wanna Buy A Corporate Secret? Companies are Selling Their Know-how, Too.” *U.S. News & World Report*, September 20, 1999.
- “J&J Wins \$324M in Patent Suit Against Boston Scientific.” *Wall Street Journal*, December 18, 2000.

Simultaneously, world-renowned experts in public accounting (e.g., Baruch Lev from the Stern School of Business, New York University) have been talking about the lack of relevance of current income statements. Steve Wallman, ex-Commissioner of the SEC, has publicly proclaimed the need for corporations to disclose more of their IA strategies in the name of public fairness and corporate health. The result of his efforts led to a thorough report by the Brookings Institute on the subject.¹ Intellectual assets—specifically, technology and service activities—and their relationship to licensing agreements are discussed in detail in Chapter 20.

Merrill Lynch has published data showing that the price-to-book ratio of the S & P 500, which could be considered a fair representation of the U.S. industry at large, went from almost 1-to-1 in 1978 to 6-to-1 in 1998 (see Exhibit 1.4).

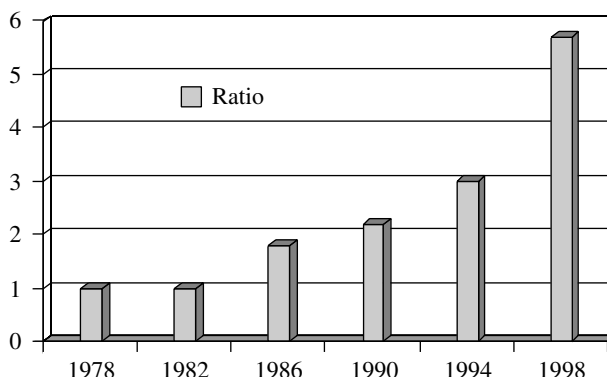


EXHIBIT 1.4 The Average Market-to-Book Ratio of the S & P 500 Companies

In essence, this means that on average, 85 percent of the value of the United States' largest corporations is unexplained in the traditional annual reports. This phenomenon is, of course, not limited to the U.S. and Canadian corporations.

MAJOR FACTORS BEHIND INCREASE IN LICENSING

The reasons for the evolution of the licensing profession stem from four different and equally important factors: legal, business, internationalization, and knowledge management.

Legal

The establishment of the Court of Appeal of the Federal Circuit (CAFC) brought in the most momentous change in the United States. Even though the courts of first instance have not changed, the mere existence of this specialized appeal court has notably altered the practical landscape of patents. In the not-too-distant past, the chief patent counsel of a large chemical company was instructing his attorneys and researchers not to file for end-use applications of existing compositions of matter because they were a waste of time and money and would probably not stand in court. This kind of business philosophy changed in response to the establishment of the CAFC. Studies have shown² that since the CAFC was established, the proportion of challenged patents that were invalidated as a result reversed from roughly two-thirds to one-third. The practical consequence has been that for most corporations, patents have shifted from an asset of limited value and high cost to one of strength and potential strategic importance. As a result, the number of patents filed and granted in the United States has grown significantly in the past few years.

Business

The emergence of information technology (IT) as a separate industry segment has also greatly affected the licensing profession. It can be correlated with the growth and wide dissemination of hardware (computers and electronics) and the development of the Internet.

First, as a service to existing corporations and institutions, IT allowed greater access and transparency of information. Second, it created its own set of intellectual assets that were licensed, enforced, or traded. Third, it initiated the dot-com frenzy with its excessive valuation bubble and subsequent correction.

The thirst of industry, government, and institutions for instantaneously available data spurred the growth of software and hardware. New marketing tools (e-markets for technology), data manipulation, and retrieval tools (patent mapping, citation trees, intellectual property (IP) databases) were created for licensing or tech-transfer specialists. This enabled tech-transfer people to increase their productivity and led to more internationalization and globalization of the profession.

Internationalization

The globalization of industry and the leveling effect of the Internet on the availability of information have led to the parallel growth of licensing worldwide. Industries in countries where patents were traditionally filed only in their own domestic markets have increasingly boosted their overseas patent portfolio, particularly in Europe and the United States of America. Korea is typical but not the only representative of this trend. The gross analysis of patent filing by different industry sectors in Korea shows a near simultaneous growth in the number of U.S. patents granted. Samsung Electronics is the most striking example, but companies such as LG Chemicals and others follow the same trend.

Knowledge Management

At the time corporations realized the growing impact of their IP portfolios, major business restructuring was taking place (mostly in North America and later in Europe), leading to a reduction in work force and an important loss of continuity in skill sets. The loss of manpower exacerbated an already existing need to preserve the knowledge of the corporation that resides in its employees and transform it into a more tangible form. Knowledge management became one of the top priorities in companies.

CONSEQUENCES OF INCREASED LICENSING

These four major factors—legal, business, internationalization, and knowledge management—caused a number of significant changes in the licensing field.

They can be grouped in three major areas:

1. Corporate vision and systems development
2. Intensity of technology transfer
3. Impact on tech-transfer professional qualifications

Corporate Vision and Systems Development

Companies, academics, and consultants started building up different models of management to try and capture the new phenomenon and to develop the needed tools and systems. Pioneers in this area include C.K. Prahalad and Gary Hansel of the University of Michigan (“The Core Competence of the Corporation,” *Harvard Business Review*, May 6, 1990, 79–90); Nonaka (Nonaka, Ikujiro, and Takachi, *The Knowledge-Creating Company*, New York: Oxford University Press, 1995); Patrick Sullivan (*Profiting from Intellectual Capital*, New York: John Wiley & Sons, Inc., 1998); and Leif Edvinsson (Skandia Corporation, IC Annual Supplements). Leif Edvinsson was the first to apply the new elements and to publish the first Intellectual Capital Supplement for Skandia in the mid-1990s. He was recognized for these pioneering efforts by a Brain of the Year Award.

In many corporations, the practical results of all these efforts have been the development of the *core technology competency concept*, the creation of the chief technology officer (CTO) position, the creation of the *intellectual capital model* of the corporation, and the addition of an *intellectual asset management* function. A final result is that regulatory authorities and corporations have had to better quantify intangible assets.³ This effort is a work in progress.

Core Technology Competency Concept. Prahalad defines *core competency* as a set of skills and behaviors that consistently provide a competitive advantage. The core competencies have to be defined narrowly enough to differentiate them from similar competencies of competitors. They also need to be defined in such a way as to be able to be managed efficiently (people, technology, impact).

The best-in-class companies have linked core competencies, people, products, and intellectual assets. The process of clearly linking core competencies to intellectual assets has given these companies a powerful tool to decide where to invest their R & D resources and a roadway to extract value from their intellectual asset portfolio.

In order to highlight the importance of the core technology competencies and the systems around them, these corporations have also made them the responsibility of a Board Director or of the newly created position of Chief Technology Officer, with responsibilities beyond R & D.

Intellectual Capital Model. Leif Edvinsson and Patrick Sullivan together with the IC Gathering—and others—have developed models of a company

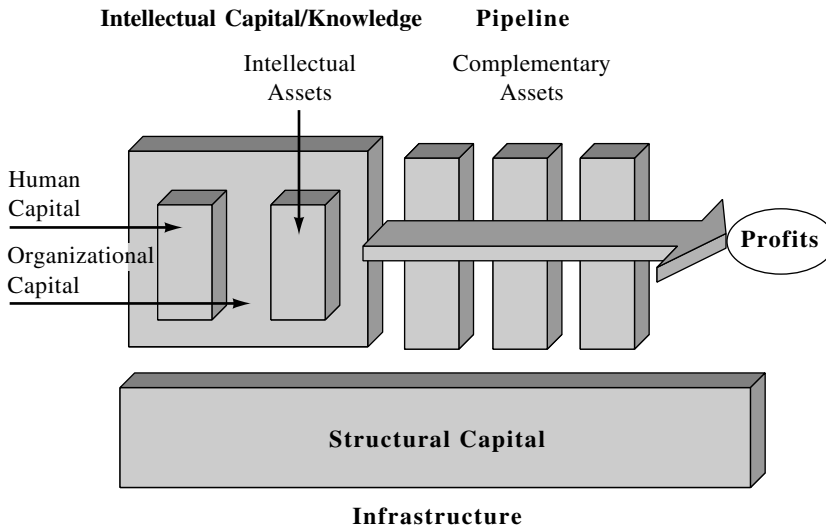


EXHIBIT 1.5 Intellectual Assets Business Model

from the intellectual assets perspective. These models are an attempt to explain how the different pieces of a corporation fall together, how they interrelate, and their impact on intellectual assets and profitability (see Exhibit 1.5). Readers interested in a more thorough analysis should consult any of the cited bibliography.

In the model shown, which works well for companies with a manufacturing component, intellectual capital is overlaying the structural capital (physical or hard assets) together with some defined complementary assets (nontechnical competencies) to create earnings. *Intellectual capital* (IC) has two major components: human capital and intellectual assets. *Human capital* is the manpower of a corporation. It includes the manpower’s ideas, creativity, and ways of thinking and of resolving problems. *Intellectual assets* (IA) are the systems, processes, designs, operational manuals, show-how and know-how created by the human capital.

The most protected intellectual assets are the traditional elements of intellectual property (patents, provisionals, utility patents, trademarks, copyrights, etc.). It is essential for a company to make sure that whatever is in people’s minds (the left side of the intellectual capital box) be transformed into a more tangible form—the intellectual assets. Intellectual assets are an asset of a corporation and belong to it. Human capital is certainly an asset but does not belong to the company because it can freely leave or move. Knowledge management is the critical system developed to ensure that the transfer process from human capital to intellectual capital is taking place in a consistent and effective manner.

Another way to think of this is to express these terms in contrasting equations:

Human Capital = value-creating component

Intellectual Assets = value-extracting component

Intellectual Asset Management. There are only a finite number of ways in which value can be extracted from intellectual assets (see Exhibit 1.6). Of these, four do or should involve the licensing professional: outright sale, donation, license, and joint venture or alliance. The decision on which avenue to select depends on market and business considerations. Market position, business strategy, and availability of the appropriate complementary assets or the possibility to develop or acquire these will dictate which strategy to pursue (see Exhibit 1.7).

- Outright sale
- Donation
- License
- Joint venture or alliance
- Reduce competitive threat
- Incorporation into existing business
- Create a new business

EXHIBIT 1.6 Value Extraction Mechanisms of Intellectual Assets

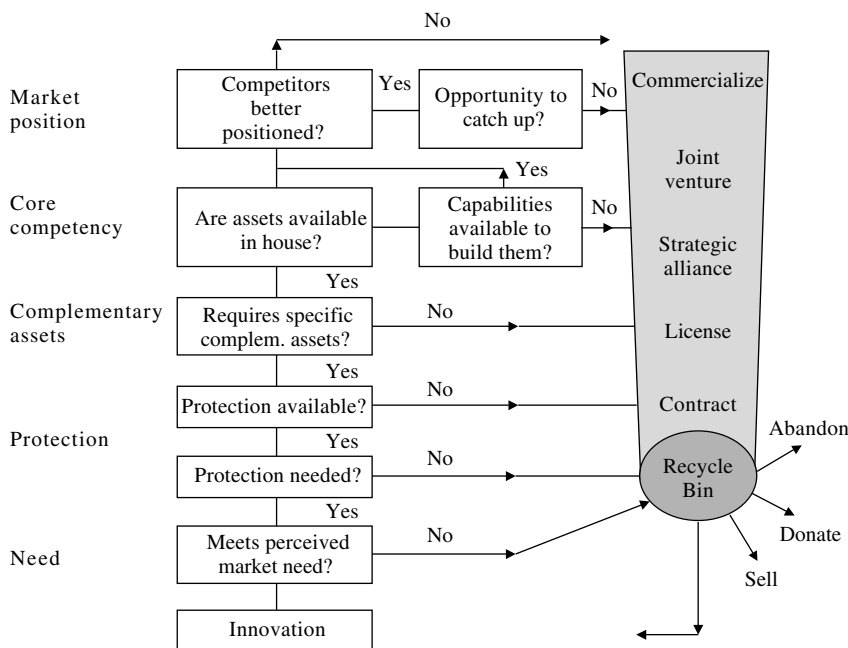


EXHIBIT 1.7 Intellectual Assets Exploitation Funnel

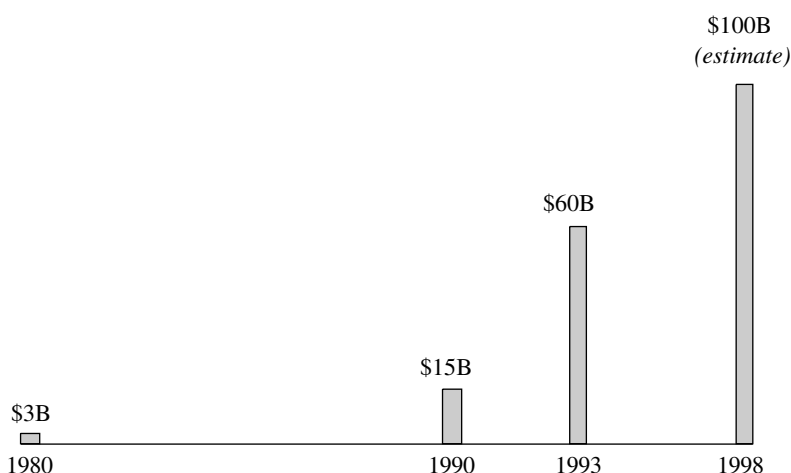
Intensity of Technology Transfer

It is very difficult to obtain accurate statistics on the number and value of licensing deals. The majority of the transactions is of a private nature and is not published. Exceptions include court-related transactions (litigations), which have shown a definite up trend (see Exhibits 1.2 and 1.3).

An estimate of the total value of these deals indicates a considerable increase in the last 10 years (see Exhibit 1.8), from \$5 billion to \$100 billion/year. These are only rough estimates. The intensity of the growth varies considerably by industry, with the bulk of it concentrated in the IT, computers, telecommunications, pharmaceutical, and biotech sectors. IBM has had consistently growing revenues, well over \$1 billion. Lucent, Intel, Honeywell, and Dow Chemical have revenues in the nine digits. Start-up biotech and IT companies regularly announce transactions in the tens of millions. The Association of University Tech Transfer Managers (AUTM) has published data (AUTM Annual Licensing Survey, 1999) showing that the value of licensing transactions between publicly traded corporations and universities has grown to more than \$1 billion in the United States and Canada.

The size of each single transaction has also grown. Intel conducted a \$1.1 billion transaction with several Korean companies. The size of litigation-based awards reaches well into the hundreds of millions of dollars and crosses industrial sectors. These increases are the direct result of the corporations' movement from a passive to an active mode of exploitation of their intellectual assets.

As a consequence, a number of companies have established licensing as a bona fide business and have created a novel approach toward patenting: *invention on demand*.



*Based on *The Economist*, *The Patent Wars*, and *SmartPatents*.

EXHIBIT 1.8 Patent Licensing Revenues for U.S. Companies*