

Chapter 1

Introduction

The lightbulb and its inventor, Thomas Alva Edison, have become synonymous with invention. When we think of a bright idea, we envision a lightbulb. When we think of prolific inventors, Edison usually tops the list. But the true legacy of Edison did not stop with invention; it expanded to include innovation—the subject of this book.

Invention is merely the conception of an idea—the start of a process that will eventually produce value. *Innovation*, by contrast, is the life of an idea. It begins with “invention” and ends with value that can be captured and demonstrated in financial statements and, yes, in the cash box. An invention becomes an innovation when it is successfully introduced into the marketplace. And this is true whether the “product” emerges as tangible goods or an intangible service.

It is innovation, not invention, that generates corporate profits and competitive advantage. Far too many companies focus solely on invention at the expense of devoting resources and attention to the full process of innovation.

Most companies are fascinated by invention—from proof of concept to launch. Much energy goes into creating an initial working version of a product, scaling it to achieve industrial levels of production, and creating and testing a beta version.

To some companies, it may seem that, at this point, the job is done. In truth, it is only beginning.

To extract commercial value from an invention, a company must do more. It must *innovate*, by creating the pipeline of business capabilities needed to transform the invention into a marketable product and positioning it in locations where the customer can obtain it. This means creating (or contracting for) the key business assets or capabilities needed to convert the invention into something a customer can buy. This may include manufacturing and distribution, advertising, financing, packaging, and even legal protection for the original idea and sometimes also for additional inventions that will support the creation of the eventual product.

For centuries, companies have converted ideas into profits by embedding their new concepts (legally protected or not) into products that are sold or bartered. In recent decades, however, the emergence of intangibles as important business assets has revolutionized the way companies get value out of their ideas. In addition to embedding an invention into a product to create value (classical innovation), ideas are licensed, sold, or bartered in their raw state. But for greater amounts of value, companies often link the invention to the firm's complementary capabilities, thus creating new and marketable innovations. In some cases, this value through innovation fails to recapture the original investment; in other cases it turns a profit; and in yet other instances it makes an ongoing fortune that can be shared all along a value chain.

So how are companies profiting from their ideas? In brief, they are deriving value through intellectual property (IP) management. But to do this requires a new mind-set. Intangible assets, much more than tangible ones, can be difficult to value and to measure. *Edison in the Boardroom*, first published in 2001, described the real-life experiences of companies at different levels of IP sophistication and how they manage their intellectual property for business value. When Davis and Harrison wrote the earlier edition of *Edison* a decade ago, they wanted to create a simple framework to measure the differences in how IP management is

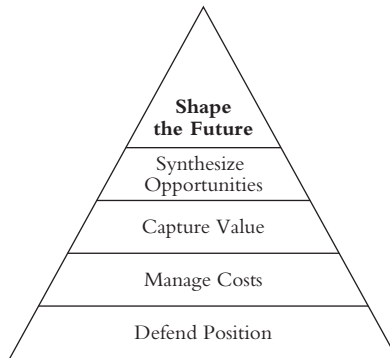


Figure 1.1 The Value Hierarchy

practiced by a range of companies. Ultimately, they identified five different levels of IP management that they had observed—from the primary need to defend a concept to more sophisticated use of IP to shape the future. They called this the Value Hierarchy (see Figure 1.1) and it is discussed later in this chapter and throughout this book.

The pyramid describes how companies used their IP portfolio to support the firm's business and what it was trying to accomplish. To learn best practices for companies residing at each level of the pyramid, Davis and Harrison turned to the ICM Gathering, a group founded in 1995 that focused on discovering how to get value out of a firm's intangibles.¹ The Gathering companies helped revise the descriptions of each level, discussed the processes involved, and eventually provided examples of best practices for companies at each level, based on their own applications of the principles of IP management, which they had evolved through The Gathering for themselves.

Why Update *Edison in the Boardroom*?

Over the decade since the original *Edison* was published, the ICM Gathering companies have continued to meet and discuss how to create and extract ever more value from their intangibles, particularly in the face of the rapidly changing business and IP environments.

Sharon Oriel, CEO of Talisker Consulting and a member of The Gathering since its inception, explains, "Gathering companies are able to

share what they do to manage their patents, so that Gathering companies are able to learn from each other and yet no competitive advantages are lost by the sharing company. Why is that? The reason is that the ‘what’ is shared and discussed, but not the ‘how.’ Since each company needs to adapt the ‘what’ to their own company, each company is free to create a competitive advantage with how they implement the new IP process[es].”

But many of the best practices mentioned by Gathering members in the original *Edison* began to change. As the first decade of the new century progressed, significant changes began to appear, along with changes in the world of technology, such as cloud computing,² Skype, and the iPad. For their part, the grantors of intellectual property rights revolutionized their own technology through such innovations as the electronic Priority Document Exchange (PDX).³ Gathering companies began to recognize that their IP management techniques were evolving to reflect the changing state of the IP and business worlds.

Eventually the Gathering companies began to discuss whether to update the original *Edison* book to reflect the current state of play. They decided to share their own experiences and observations as they related to the levels of IP management sophistication, and best practices associated with each new level.

Julie Davis’s professional interests had shifted away from IP management toward images analysis in IP litigation. Suzanne Harrison turned to her ICM Gathering co-facilitator and long-time collaborator, Patrick Sullivan, and soon the new edition was under way. Originally seen as a cut-out-the-old-stuff and paste-in-the-new-stuff book, it soon became apparent that this would not be possible. The changes in the business and IP environments were too significant and their impact on IP management too great. A total update was needed.

This book retains the format of the original edition, as well as a small amount of its material. Over 85 percent of the content of this book is new:

- We’ve added a chapter describing the changes that have occurred in the environment within which IP is managed by companies in 2011 as compared with 2001.
- While we have retained the pyramid icon, the focus of each level has been updated to reflect the changes that have occurred in the IP management environment over the past decade.
- All of the best practices for each level have been upgraded or revised.

- The generic IP management system has been significantly updated to reflect the latest practices of Gathering companies.
- We've added a chapter that speaks directly to companies asking themselves what they should do if they aren't even sophisticated enough to qualify for the first level of the Edison pyramid.
- This book differentiates between invention and innovation and shows how Gathering companies are managing that distinction to benefit their companies.
- In the first edition, the focus for companies was largely inward; what they could and should do to match their IP management activity with what they wanted to accomplish. In *Edison Revisits the Boardroom* we show how IP-sophisticated companies are focused on using IP to gain strategic position outside of the company.
- In the first edition, optimizing the interaction between IP and R&D was simple and relatively direct. In *Edison Revisits the Boardroom*, a core premise of the future is that IP and R&D will need to become intertwined. This book discusses and shows examples of how companies use Open Innovation to expand their invention and innovation capabilities, as well as use it to improve the company's profit position.
- We've added several new Appendices:
 - Significant Developments in Intellectual Property Law in the Past 10 Years.
 - The Rise of Patent Aggregators.
 - An Update on IP Damages.
- In this book we have added a number of topics that have become part of the IP management set of capabilities for Gathering companies:
 - Determining the Context of the Future.
 - Influencing and Creating the Future.
 - Developing Make versus Buy Decision Processes.
 - IP Metrics and Reporting.
 - Managing IP Risk/Reward Trade-Offs.

There is, however, an important distinction about the new book that should be called out. *Edison in the Boardroom Revisited* is a book about patents. This does not imply that there is nothing new in either copyrights or trademarks; it is merely a reflection that the ICM Gathering has spent much of the past three years focusing on how changes in

the patent ecosystem have affected their bottom lines and their need to create better processes to manage those impacts. But one important part of this book has not changed since our first edition: the history of how this book began.

A Brief History

The authors first became interested in the business value of intellectual property in 1987 after reading a research paper by Professor David Teece of the Haas School of Business at the University of California, Berkeley.⁴ Even prior to Teece's work, it was common knowledge that patents, trademarks, and copyrights have value. But Teece's concept went further. His hypothesis that they have *additional* economic value beyond their defensibility was startling, as was Teece's concept of the steps companies could take to increase the amount of that value. It was to be seven more years until a few adventurous companies would begin methodically extracting economic value from their company's knowledge, know-how, and intellectual property.⁵

Historically, tangible assets held the greatest value for business and industry: cash, real estate, oil, gold, and so forth. But by the middle of the 1990s an invisible line was crossed and things that were *intangible* came to be of greater value.

In October 1994, Tom Stewart of *Fortune* magazine coined the term intellectual capital (IC), which he defined as the intangible assets such as skill, knowledge, and information. In late 1994, The ICM Group, LLC, a consulting company founded by the authors, began contacting all the companies who were actively trying to manage their intangible assets. In January 1995, representatives from seven of these companies assembled for a meeting to share what their IC efforts entailed. At that first meeting, the group defined intellectual capital as "knowledge that can be converted to value." They also determined that IC has two main components: human capital (tacit knowledge—ideas we have in our heads) and intellectual assets (codified knowledge—ideas that have been codified in some manner). Within intellectual assets, there is a subset of ideas that can be legally protected, and these are called intellectual property (IP). See Figure 1.2.

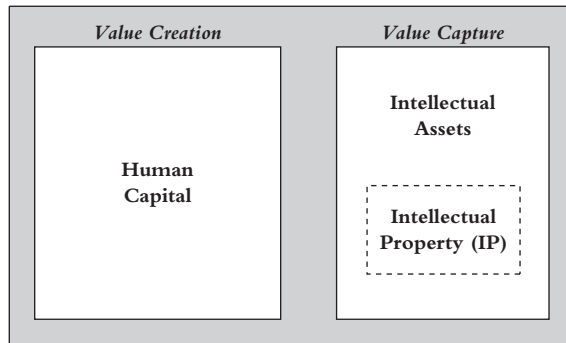


Figure 1.2 Intellectual Capital

The original group of seven companies that met in January 1995 has now grown to over 30 companies that meet three times a year to create, define, and benchmark best practices in the emerging area of ICM. This group is collectively known as the ICM Gathering. The Gathering has spent the past years working on creating and defining systems and processes for companies to routinely create, identify, and realize value from intellectual assets.

Early in its existence, The Gathering decided to share its lessons openly, reasoning that the more companies there were that practiced these lessons in practice, then the more companies there would be to learn from. To date the members of the ICM Gathering have produced five books (including this one) and more than four dozen published articles, all about capturing and realizing value from an organization's intellectual property.

This value is growing with each new generation. We all know that in-process research and development (R&D)—as well as the entire patent portfolio—has immense value to the firm, yet in accounting, value is not “accounted for” until it is realized or a transaction has occurred.

The businessperson's view of the world has been shaped largely by double-entry accounting, which was first created in 1494 by Luca Pacioli, an Italian monk. Believe it or not, this is fundamentally the same accounting system that is used by global corporations around the world today to calculate and report revenues, profits, and expenses, and make decisions about resource allocations, risk management, and investment returns. While accounting is very good at recording transactions that

have occurred in the past, it is not good at predicting future revenue streams. In addition, accounting only records transactions, so financial statements routinely exclude ideas that have not yet manifested themselves in a transaction.

In recent years, the amount of company value attributable to intellectual capital has increased dramatically. In a study of thousands of nonfinancial companies over a 20-year period, Dr. Margaret Blair, of the Brookings Institute, reported a significant shift in the makeup of company assets. She studied all of the nonfinancial publicly traded firms in the Compustat database. In 1978, her study showed that 80 percent of the firms' value was associated with its tangible assets, with 20 percent associated with its intangible assets. In 10 years, by 1988, the makeup had shifted to 45 percent tangible assets and 55 percent intangible assets. By 1998, only 30 percent of the value of the firms studied was attributable to their tangible assets, while a stunning 70 percent was associated with the value of their intangibles.

This study, often cited as support for assertions about the increasing portion of a firm's market value associated with its intangibles, was prescient, but flawed.⁶ Like many analysts of corporate value, Dr. Blair defines the value of a company's intangibles as the difference between its market value and the value of its tangible assets. But this definition treats IP as if it could be valued as an "asset." Our experience is different. We find that IP acts more like a mini-generator of revenue and income than it does as an asset. From our perspective, valuing IP as an asset is meaningless, whereas valuing it as a generator of value seems to more accurately reflect the kind of value it provides to the firm.⁷ It is best to analyze this for oneself; the market is too volatile to make such a determination. We agree, however, with Dr. Blair that the portion of a firm's value associated with its intangibles has increased dramatically and persistently over the past four decades, and for this finding we owe her a debt of gratitude.

Intellectual Property: The Big Three-Plus

Patents

A patent is typically defined as a grant extended to the owner of an invention (the individual inventor, or an entity that owns the

invention) that excludes others from making, using, or selling the invention, and includes the right to license others to make, use, or sell the invention. Patents are protectable under the U.S. Constitution, and under the Patent Cooperation Treaty of 1970, in Title 35 of the U.S. Code. Patent protection can be extended to inventions that are novel (new and original), useful, and not obvious. Some corporations have patentable inventions but choose to protect them as trade secrets, rather than filing for a patent.*

Patents may be issued for four general types of inventions/discoveries: compositions of matter, machines, man-made products (including design and bioengineering), and processing methods (including business processes). To obtain a patent, the inventor must send a model or a detailed description to the U.S. Patent and Trademark Office, which employs examiners who review applications. The average time between patent application and issuance is about 2.5 years, although the process may be much shorter or longer, depending on the situation.

Under current international trade law (as described in the most recent General Agreement on Tariffs and Trade), patents are issued for a nonrenewable period of 20 years measured from the date of application. Inventors being granted patents in the United States must pay maintenance fees. Federal courts have exclusive jurisdiction over disputes involving patents.

Trademarks

A trademark is the right to use a name associated with a company, product, or concept, as well as the right to use a symbol, picture, sound, or even smell associated with these factors. The mark can already be in use or be one that will be used in the future.

*A trade secret is “information, including a formula, pattern, compilation, program, device, method, technique, or process” that is kept a secret and that derives value from being kept secret. Many states have adopted the Uniform Trade Secrets law to govern this area.

(Continued)

A trademark may be assigned to a trade name, which is the name a company uses to operate its business. Trademarks may be protected by both federal statute under the Lanham Act, which is now part of Section 15 of the U.S. Code, and under a state's statutory and/or common law. Trademark status may be granted to unique names, symbols, and pictures, and also unique building designs, color combinations, packaging, presentation, and product styles (called trade dress), and even Internet domain names. Trademark status may also be granted for identification that does not appear to be distinct or unique, but that over time has developed a secondary meaning identifying it with the product or seller.

The owner of a trademark has the exclusive right to use it on the product it was intended to identify and often on related products. Service marks receive the same legal protection as trademarks but are meant to distinguish services rather than products. A trademark is indefinite in duration, so long as the mark continues to be used on or in connection with the goods or services for which it is registered, subject to certain defenses. Federally registered trademarks must be renewed every 10 years. Trademarks are protected under state law, even without federal registration, but registration is recommended. Most states have adopted a version of the Model Trademark Bill and/or the Uniform Deceptive Trade Practices Act.

Copyrights

A copyright is the right of ownership extended to an individual who has written or otherwise created a tangible or intangible work, or to an organization that has paid that individual to do the work while retaining possession of the work. Copyright protection grew out of protection afforded by the U.S. Constitution to "writings." Subsequent law (U.S. Copyright Act, U.S. Code in Title 17, Section 106) has extended this term to include works in a variety of fields, including architectural design, computer software,* graphic arts, motion pictures, sound recordings (for example, on audio compact discs and MP3 files), and videos. Any

*Uniform Trade Secrets Act, Section 1ff., 14 U.S.C.A. 541.

type of work may be copyrighted, as long as it is “original,” and in a “concrete medium of expression.” (Computer software, although intangible, is considered a concrete medium.)

A copyright gives the owner exclusive rights to the work, including right of display, distribution, licensing, performance, and reproduction. A copyright may also grant to the owner the exclusive right to produce (or license the production of) derivatives of the work. In general, a copyright lasts for the life of the owner, plus 70 years. “Fair use” of the work is exempt from copyright law. The fairness of use is judged in relation to a number of factors, including the nature of the copyrighted work, purpose of the use, size, and substantiality of the portion of copyrighted work used in relation to that work as a whole, and potential market for or value of the copyrighted work. Copyrights are protected under both state and federal law, with federal law superseding. A number of organizations promote the protection of intellectual property, including the World Intellectual Property Organization, which covers copyrights, patents, and trademarks.

The Edison Mind-Set

The growing emphasis on ideas is not new to the times. In Thomas Edison’s era, the key inventions were related to the airplane, lightbulb, telegraph, telephone, and automobile. Today key inventions are emerging around the Internet, software, and business processes. Thomas Edison personified the “creative genius” of the era when he said (in a phrase captured by his colleague Francis Upton):

Men are just beginning to propose questions and find answers, and we may be sure that no matter what question we ask, so long as it is not against the laws of nature, a solution can be found.⁸

The “we” here was no mere rhetorical device, but a new way of thinking. Thomas Edison is often romanticized as a maverick inventor—the creator of the lightbulb, the motion picture, the microphone, and

myriad other technologies. Less well known is his invention of the modern research laboratory using teams of inventors.

To be sure, Edison will forever be the very symbol of brainpower. In his lifetime, he would obtain 1,093 patents, including one for the incandescent electric lamp—a prototype of the “lightbulb” that would come to symbolize the “bright” idea. Other patents included those for the phonograph, the microphone, and the motion picture projector—technologies that would shape a century. His years of invention came at the outset of an era. Starting in the late nineteenth century, the United States would experience a steady rise in patents that would continue to the present, boosted by innovations in telegraphy, electricity, automobiles, airplanes, synthetics, aerospace, and most recently, high technology including the new Internet economy.

But despite the brilliance of Thomas Edison’s inventions, one might well say that his greatest contribution to society was not any particular discovery, but rather the creation of the world’s first research laboratories—two laboratories, in fact, in Menlo Park and West Orange, New Jersey. As one source notes, his workshops were “forerunners of the modern industrial research laboratory, in which teams of workers, rather than a lone inventor, *systematically investigate a problem.*”⁹ Edison, more than any other scientist of his day, knew that to generate ideas and successfully commercialize them required *sustained and methodical effort*.

The Lightbulb: A Brief History

The lightbulb may symbolize the quick flash of invention, but it also represents the long, slow process of bringing an idea to the marketplace. Known technically as the incandescent lamp, a lightbulb is simply a glass bulb enclosing an electrically heated filament that emits light. As simple as it may sound, this object was very difficult to produce, and had a significant impact on society.

Before Thomas Edison began working on the lightbulb, 20 inventors before him had similar insights, but nothing significant came of their efforts. For example, in 1802, Humphry Davy passed an electric current through a platinum wire and lit it up, but he did not protect or pursue this invention. In 1845,

American J. W. Star received an English patent for a “continuous metallic or carbon conductor intensely heated by the passage of electricity for the purpose of illumination.” Building on Star’s invention, Joseph Swann experimented with lamps between 1848 and 1860, but never produced anything practical until 1877, when he renewed his efforts at exactly the same time that Thomas Edison was turning his attention to electricity.

Edison was by far the most persistent of this line of inventors. He experimented with a variety of materials—including mandrake bamboo from Japan—before he finally hit on a solution: the use of a filament made of carbonized cotton sewing thread. Edison patented this procedure, but lost a patent infringement case initiated by Swan. In order to make peace, the two men formed the Edison and Swan United Electric Light Company Limited in 1883. The company acquired several other companies and renamed itself Edison Electric. It eventually merged with another company, renaming itself General Electric, or GE, in 1892.

Interestingly, it was a GE scientist who finally made the commercial breakthrough. Irving Langmuir tackled a persistent problem with the lightbulb—the tendency of the filament to crumble, and the bulb to blacken, after a short period of use. After three solid years of experimentation, Langmuir solved the problem in GE labs, and won the Nobel Prize for his discovery.*

*This history is based on a variety of sources, including the Edison books cited in other notes to this chapter. The portion on Langmuir comes from Robert Buder, *Engines of Tomorrow: How the World’s Greatest Companies Are Using Their Research Labs to Win the Future* (New York: Simon & Schuster, 2000), 76.

The level of effort seen in Edison’s laboratories continues in America’s companies today. The authors work with clients who hunger to find new sources of value—but where? Companies have already been reengineered, reorganized, and restructured. Their workforce has been downsized, right-sized, and empowered. Their inventory is just-in-time. Their core competencies have been benchmarked and noncore

functions outsourced. And companies have streamlined their factory operations, introduced many quality initiatives, and partnered with suppliers, customers, and communities. How then can more value be created?

To quote Edison's optimistic phrase again, "*no matter what question we ask, so long as it is not against the laws of nature, a solution can be found.*" In our work together, we share the mind-set of Thomas Edison. We agree with him that inventiveness will never end, but more important, we agree that it is hard work and perseverance that fuels the continuing flow of invention. This is a message that companies today can take to heart as they develop, protect, and enhance their intellectual assets day in and day out—for months, for years, and for generations.

The answer for our clients then and now has been a rediscovery of intellectual assets—current and future, legally protected or not. Intellectual assets that are legally protected are covered by patent, trademark, and copyright laws, as well as laws protecting trade secrets. Intellectual assets that are not protected by such laws include company know-how, culture, and contracts—all clearly very important to any company, yet not protectable.

The Enhanced Business Reporting Framework¹⁰ an initiative of the American Institute of Certified Public Accountants features this checklist of assets and competencies:

- Key processes
- Customer satisfaction
- People
- Innovation
- Supply chain
- Information and technology
- Intellectual property
- Financial assets
- Physical assets

With the exception of the last three items, few of these are protectable—yet they clearly contribute to company value.¹¹

In our joint work with companies around the world, we have developed an appreciation for the best practices in the management and capitalization of intellectual assets—and how those practices yield results that affect both profits and shareholder value. From working behind the

scenes, we know from experience that the real value in intellectual assets lies not only in the inspiration that gives it life, but also in the perspiration that fully develops it and captures its value. That is why Edison's dedication to innovation appeals to us.

Marching in step with Edison, we believe that inventions will continue to stream forth, and that each and every one of them will require *hard work* to bring into full value. Our own systematic work in investigating extracting value from patents (as a prototypical type of intellectual property) has led us to study their “sweat” component—the diligent, methodical work of *defending ownership, controlling costs, extracting profits, integrating with other aspects of a business, and, finally, mapping out a future strategy*. We have identified the best practices of leading companies that relate to the realization of value from their intellectual assets.

We have found, though, that benchmarking best practices without any regard for the underlying culture of the firm can be problematic. For example, many firms want to make money from licensing fees. We have met many IP executives who have been told by their CEOs, “If our competitor can get \$1 billion in licensing fees, by golly, so can we,” and then in the next breath have also said, “but don't come back here and tell me I need to hire any more lawyers.” The point, of course, is that it took a substantial investment in both R&D and legal resources to generate that \$1 billion royalty stream. Most CEOs are not prepared to make a similar investment. So we realized that it was important for companies to understand where they were in their awareness of the management of intellectual property, and to create a way for them to articulate where they want to be, and then identify best practices to allow them to get there.

The Value Hierarchy

From that research we have developed an appreciation for the best practices in the management of intellectual assets, especially intellectual property, and how those practices yield results that affect both profits and shareholder value. The collective learnings of the Gathering companies are the foundation for the best practices of this book. But a raw list of best practices is relatively difficult for new companies to integrate into their existing processes and decision systems, and therefore we presented the Value Hierarchy (previously shown in Figure 1.1).

Think of the Value Hierarchy as a pyramid with five levels. Each level represents a different expectation the company has about the contribution that its IP function should be making to the corporate goals. Each higher level on the pyramid represents the increasing demands placed upon the IP function by the executive team and the board of directors. Like building blocks, each higher level relies on the foundation of the lower levels. Mastery of the practices, characteristics, and activities of the prior levels builds the foundation for greater increases in shareholder value at the next level. The more one builds on intellectual property on Level One, the better one is able to enhance the value of all intellectual assets—and more broadly, intellectual capital—at the higher levels.¹²

- Level One of the Value Hierarchy is the “Defend Position” level. If a corporation owns an invention (such as a great business concept), it can prevent competitors from using the asset. By staking a claim on its valuable intellectual properties, a company builds a base from which to obtain more value from them. This is the most fundamental of the IP functions, which is why it is at the base of our pyramid. At this level, the IP function provides a patent shield to protect the company from litigation. By stockpiling patents, companies can shield themselves from litigation because they may be able to negotiate cross-licenses rather than go to court. The IP function of companies involved heavily in this level tends to be run by the company’s intellectual property counsel. Companies at this level generally view IP as a legal asset.
- Level Two is the “Manage Costs” level, in which companies focus on how to reduce the costs of filing and maintaining their IP portfolios. The focus also shifts more toward managing IP-related risk while still maintaining cost control. Finally, conversations around innovation preferences (make versus buy) should begin in this level. Well-executed strategies in this area can save the company millions of dollars annually. Companies focusing on this activity may still put an attorney in charge of the function, but the attorney is more likely to have a background in business. Intellectual property is still viewed primarily as a legal asset.
- Level Three of the Value Hierarchy is the “Capture Value” level. Companies reach this level when they are interested in putting IP

on the management scorecard. Having learned how to control many of their patent-related costs, companies at this level turn their attention to more proactive strategies that can generate millions of dollars of additional value, while continuing to trim costs. Passing from the previous levels of activity to this one requires a *major change* in a company's attitude—and even organization. In Level Three companies, IP may have its own function, and the individual in charge may even be Chief Intellectual Property Officer (CIPO). It is at this level that companies begin to view IP as a business asset, rather than just a legal asset.

- Level Four is the “Synthesize Opportunities” level. In this level company management has grasped the power of using IP for a range of business roles. Companies at this level recognize that IP is truly a strategic asset for the firm, and CIPOs look to more sophisticated IP management processes. A more systematic process to measure IP risk/reward trade-offs is implemented. Clarity around the relationship of invention to innovation is discussed broadly within the company. Here the focus is on the process, not just on IP.
- Level Five, the final level, is the “Shape the Future” level. These companies, having reached this level, are looking outside themselves and into the future. In this level, the IP function, having already become deeply ingrained in the company, takes on the challenge of identifying future technology trends and consumer preferences. It anticipates technological revolutions and actively seeks to position the corporation as a leader in its field by acquiring or developing the IP that will be necessary to protect the company's margins and market share and by placing patent options in the future. Finally, companies at this level recognize that they need to utilize group dynamics to both predict and influence possible futures for the firm.

Few, if any, corporations *in the world* have mastered all five levels and captured the maximum value from their intellectual assets. *Every* corporation has room for improvement. *Every* corporation has an opportunity to increase its value by strengthening and building on its intangible assets.

Keep in mind that each level on this pyramid serves as the foundation or building block for the levels above it. Many, if not most,

companies may actually be engaging in activities from several different levels simultaneously. These same companies, though, can benefit by candidly assessing where they stack up compared to others. It is not a bad thing to recognize that your company may only be functioning in the bottom levels. Indeed, there are a number of very large and very sophisticated companies at Levels One and Two. Companies at these levels can make a difference in their IP management and improve shareholder value in a noticeable way. Yet many can do better.

Moving from one level to the next in the Value Hierarchy requires discipline, organization, and leadership. And it requires a road map to avoid the mistakes made by similar organizations in the past. It is important for a company to know the best practices used by other IP leaders, both inside the company's industry as well as in other industries. By mastering all five levels, a company can get the most out of all its intellectual capital—including, perhaps most importantly, its patents.

In this book, we focus on intellectual property, especially patents.

Of all types of intellectual property, the quintessential one is the patent. Indeed, it bears the very name of public protection. The term *patent* derives from *litterae patentes*, which means something that is disclosed, rather than secret. By publishing or rendering “patent” an invention, the inventor protects his or her rights to it. The patent is also the most common form of intellectual property, and as we say, “is the most tangible of the intangibles.” Also, the protection it grants is arguably the strongest.

The Intellectual Property Management System

To fully understand the Value Hierarchy, we need to see how companies systematically manage and extract value from their intellectual assets. We call this the Intellectual Property Management System (IPMS). Figure 1.3 depicts a generic IPMS as now visualized by the Gathering companies.

Though no one company uses a system identical to the one shown below, the Gathering companies have agreed that if they were to start all over again, they would each likely design a system with the components described in the box below. In the chapters to follow we focus on each

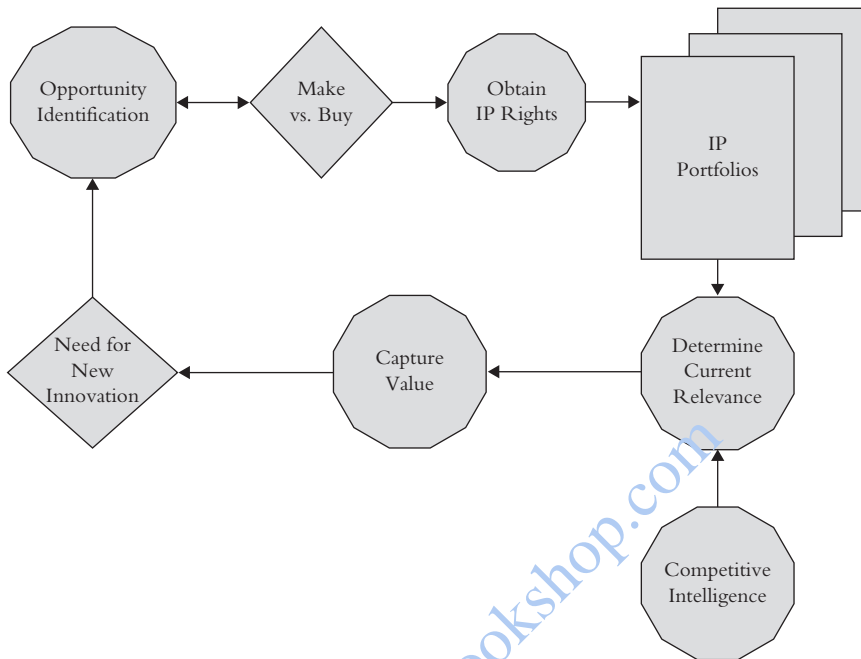


Figure 1.3 Generic IPMS

of these components as they relate to the best practices detailed for each level of the hierarchy.

Opportunity Identification

All firms have their own approach and method for developing new or innovative ideas that create value. For many technology companies this process is housed in an R&D activity; service companies, on the other hand, often have a creativity department; still others rely on their employees in the field to produce innovative ideas. Whatever the firm's source of new inventions, Opportunity awaits.

Opportunity Identification is one of the most important parts of the IPMS. It comprises four individual steps (see Figure 1.4).

Step 1: Update (Renew) Understanding of the Current Business Plan It is important for decision-makers in the patenting process to be completely up to date on the firm's current business direction. Typically,

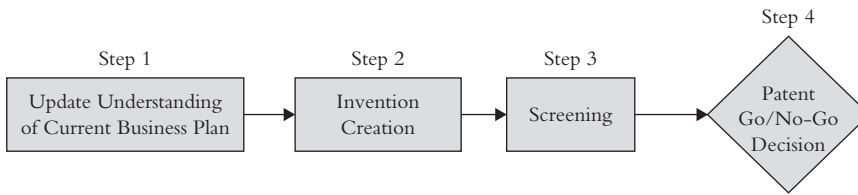


Figure 1.4 IPMS Steps

the firm's patent committee does this periodically, usually yearly. Updating involves a review of the firm's mission, vision, long-term objectives, and business strategy for achieving them. Once the business plan and strategy are verified, the patent committee can identify any elements or initiatives that could benefit from the kind of support intellectual property can provide. Looking broadly at the kind of support the firm needs from IP, one often finds that it may be summarized into three to five definable kinds of value sought from intellectual property. When specific business opportunities have been identified, and the kinds of value the company seeks to obtain from any IP that is to be created, one can then define the specific kind of IP needed (e.g., patent, copyright, trademark), as well as the specific characteristics and protections that must be provided by the new piece of IP.

Step 2: Invent (Create an Invention) Once it has been determined which aspects of the business plan require support from IP and why, this information may be turned over to the people in the organization who have responsibility for invention. For companies whose invention function resides in R&D, or for companies with a creativity function, the management of these units takes on the task of identifying the desired kinds of inventions. But for other kinds of companies, those where creativity and ideation comes from employees generally within the firm, broader engagement may be needed. Sometimes these firms convene "invention disclosure" or "ideation" events, where employees gather, usually informally, and are asked to fill out some kind of form. These forms, often called "invention disclosures" capture a raw idea and the individual's thoughts about how that idea may be used to create value for the firm.

However it is accomplished, the result of the Invention Creation step is a number of invention disclosures the IP attorney and the patent committee may consider.

Step 3: Screening (Pick and Choose among Inventions) Many of the disclosed inventions will inevitably not be suitable for action by the company, and these need to be culled. The process for narrowing down the list of inventions usually involves several sets of screens. The first, and in some ways the most straightforward, is to determine whether the idea is capable of being converted into intellectual property. Many of the ideas will not meet the criteria for patent-ability, and others may not provide the protection desired through copyright or trademark. The second set of screens concerns the potential business value of the invention to the company; would investing in a patent on the idea provide the kind of value that the company needs. The third set of screens involves the technical desirability of the idea. Here the technology people weigh-in to determine whether the idea has technical merit, even if it has potential business value.

Step 4: Decide (Make a Patent Go/No-Go Decision) At this step in the Opportunity Identification Process the company (usually via its patent committee) must decide which of the surviving ideas of inventions are of sufficient merit to warrant investing in intellectual property protection. For each company this is a straight-up financial decision. Is the idea worth the expense of investment in protection, and perhaps subsequent commercialization?

The Make versus Buy Decision

Once the company's patent committee has a list of the ideas or inventions it has decided to protect, the next choice to consider is whether to make or buy—whether such a patent is to be developed and prosecuted by the company itself (“make” the patent), or whether it is preferable to go outside the firm to acquire the needed protection (“buy” the patent). The patent committee is faced with three alternative outcomes for their decision:

- Proceed with internal creation of the appropriate IP.
- Buy pre-existing IP from an external source.
- Commission an external source to create the IP under contract.

Make

- *Internal Invention:* Companies deciding to “make” their own patented technology first must ensure that they have the ability to develop the technology to the degree of sufficiency that is needed. Secondly, the firm must ensure that the invention meets the Patent and Trademark Office (PTO) standards for patentability. And, third, the firm must ensure that the prospective patented technology is at least consistent with the company’s internal policies concerning patentability.

Buy

- *External Invention:* Companies deciding to have an external party create the technology must define the technology to be created. In addition, they must ensure that they can obtain unencumbered patent rights to the technology as part of their transaction agreement with the outside technology developer.
- *External Purchase:* In some cases the existing technology is already patented and available for purchase from another entity. When the company identifies such a circumstance, and then moves toward a purchase, it must also ensure that it is able to obtain the unencumbered patent rights to the technology as part of the transaction.

Obtaining the IP Rights

Following the decision to make or buy the needed IP protection, the organization will proceed down one of the three paths identified above. For each patent sought, the company’s intent is to manage one of the three processes identified previously in order to produce the desired patent and insert it into the portfolio. See Figure 1.5.

Managing the IP Portfolios

Once a new patent or other piece of IP has been inserted into its respective portfolio, the IP manager becomes responsible for its administrative

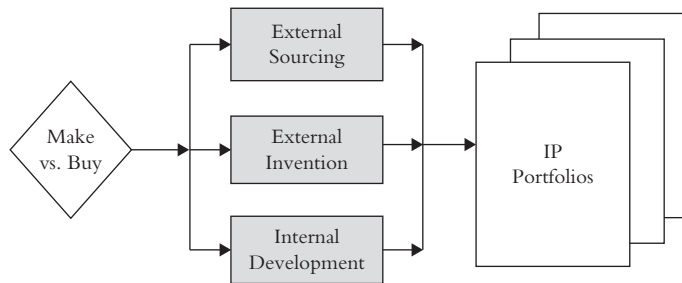


Figure 1.5 One of Three Paths

maintenance and for its intended use in support of the business. The first activity is purely administrative in nature and is usually turned over to the administrative staff. This activity involves the payment of all maintenance fees, along with information updates and the handling of requests for patent information.

The second activity is another story. Managing the IP portfolios for business value can be a complex activity, requiring a number of pieces of auxiliary information about the patent and its intended use for the firm. Here an electronic database is usually helpful for the IP manager. The database, in addition to containing all of the appropriate administrative information about each patent should also contain information about the patent and its relationship to the company's business. It may, for example, include information about the products or services the patent is intended to protect, the technology family to which the patent belongs, the business unit(s) with an interest in the protection provided by the patent, and so forth.

Portfolio management also implies that the IP manager will make routine reports about the portfolio's contents, its aging, its gaps vis-à-vis the company's desired protection, and information about the pace and content of the company's patent acquisition process.

Determining Relevance

Determining the relevant value of a patent involves two steps. The first step is to match the piece of IP with the firm's business strategy, tactics, and product/market mix. The second step is to quantify the amount of value it expects the innovation to provide.

The relevant value may have changed due to market conditions that have changed since the patent was developed and/or granted. For this reason, the effective IP management system will include an ongoing competitive intelligence activity that is focused on competitor patents.¹³ While competitive assessments in business are commonplace, the competitive assessment contemplated here is one that is focused on the intellectual assets of the competition. In the case of technology companies, that focus might be on a competitor's technology as well as on its portfolio of patents.

Once a patent makes the grade as relevant and valuable, then the firm has the information it needs to capture the value it secured through the patent.

Value Capture

The Value Capture process is a natural follow-on to the preceding step. While firms have many ways to capture value from their patents, the following lists some of the most commonly used methods:

- **Productize the patent:** Use the patent to protect new product features.
- **Monetize the patent:** Obtain revenue directly from the use of the patent in a license or other value-generating use.
- **Litigate the patent:** Use the patent defensively as a deterrent to entities seeking to litigate and/or use the patent offensively in litigation.
- **Positioning:** Use the patent for competitive blocking, to create barriers to competitive entry and to enhance company reputation.

The Need for New Innovation

Sometimes in the course of innovation a company realizes that an existing invention needs another new invention to make it more marketable or more useful to the firm. In this case, the question is, What new invention may be needed? This becomes another input to the "Opportunity Identification" phase of the IPMS.

Every firm involved in extracting value from its intangible assets inevitably goes through the steps outlined earlier, each in its own way. One of the great challenges of IP management is how to create a

system that works for each company according to its particular circumstances.

Summary

How exactly can a company convert its intellectual assets—particularly intellectual property—into the greatest value over time? In our consulting careers the authors have been privileged to meet individuals who are clearly “ahead of their time” when it comes to realizing value from their companies’ innovations and ideas. As mentioned earlier, we have learned much by working with the members of the ICM Gathering. This book contains a collection of their learnings, along with success stories of other leading companies we have encountered in our work with clients who were striving to do a better job in leveraging and monetizing their intellectual assets.

Like Edison, the ICM Gathering practitioners are at the forefront of this value realization revolution. Many of the individuals we interviewed had a mandate to find value within a company that had already been mined for such gold. Most were expected to fail, but many succeeded. Like Thomas Edison, and like the companies he founded, the companies featured in this book exemplify the value of sustained, collective effort. It was this kind of effort that would eventually enable Edison to create and realize value from his innovations, showing that the place for value creation and realization is not only the laboratory but also the boardroom.

In the following pages, we will help you use a forward-looking yet methodical approach worthy of the Man from Menlo Park. For the remainder of this book, we authors, accompanied by the spirit of Thomas Edison, will travel with you as we build a Value Hierarchy for your company’s intellectual assets. So turn the page to take the next step of the journey.

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