



TEK MANAGEMENT CONSULTING

Patent Strategy

A Roadmap for Senior Executives



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Patents provide an opportunity to drive superior shareholder value, outmaneuver the competition, and stimulate innovation. However, companies often lack the processes, organization, and systems to fully leverage that opportunity. Here's a blueprint for developing a powerful patent strategy—and how to do it again and again.

NEW OPPORTUNITIES, NEW STRATEGIES

“Industrial assets” once meant factories and equipment. But in today’s world, intellectual assets overshadow physical plant. By 2007, intellectual assets will account for 90 percent of the value of the world’s top 2,000 enterprises, according to estimates cited by the accounting firm PricewaterhouseCoopers.

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What exactly are intellectual assets? In the broadest sense, intellectual assets are all the valuable skills, knowledge, and information that a company controls. Trade secrets, engineers’ know-how, and innovative designs and business methods all create competitive advantages that translate into positive cash flow. But often, these advantages last only until a competitor discovers and copies them. That’s why companies often focus on more tangible forms of intellectual assets, called intellectual property. Intellectual property includes the patents, trademarks, and copyrights that legally protect the company’s innovations.

By any definition, intellectual property can be an important income generator during boom times and is sometimes the only source of growth in lean economic times. Businesses are bought and sold for their intellectual property, and ownership of strategic patents can raise a company’s valuation far beyond what its balance sheet would indicate.

That was then...

In the old smokestack economy, patenting was an afterthought. Most companies regarded it as a technical exercise best left to lawyers. The patent department, usually part of the legal counsel’s office, was a cost center, not a profit center. Senior executives turned their attention to patents only to ensure that they could continue manufacturing their core products without risking infringement suits.

There were good reasons to put patents on the back burner. Not only was the pace of innovation slower, but also patents were notoriously hard to enforce. In the United States,

judges were often ill equipped to understand patent issues, and struck down patents more often than not. Outcomes could differ wildly depending on where the suit was filed. One regional appeals court, nicknamed “the graveyard of patents,” upheld less than 10 percent of the patents it considered.

...This is now

In 1982, a new centralized patent appeals court, staffed by expert judges, began to establish nationwide standards, making the entire system more predictable. Businesses can now apply for patents with more certainty that they will be granted and upheld. Today, around 80 percent of patents are upheld, and damages for infringement are much higher than they were before 1982.

Since 1994, enforcing non-U.S. patents has also become easier. The World Trade Organization has pushed member countries to reform their protection of property rights, and created a system for settling international patent disputes.

As patents became more enforceable, and thus more valuable, leading companies began viewing them as strategic assets and managing them as attentively as their other assets. Some have succeeded spectacularly: In 2002, IBM generated more than \$1 billion in licensing royalties from its IP portfolio. Xerox, which failed in the 1970s to patent the technologies that would eventually drive the computer industry, now produces around 900 patents annually, putting it among the top 10 U.S. innovators.

Missed opportunities

In the last several years, smaller companies have also begun managing their intellectual property more actively. For the most part, however, their approach has been tactical. They have instructed their legal departments to maximize the number of patents they apply for and to defend those patents vigorously.

In Europe, companies spend \$20 billion each year on R&D projects that duplicate existing inventions.

Most companies are still not taking a strategic approach (see Figure 1) to patenting their innovations or to using their patents. They are thinking in terms of defending their technology, not of using intellectual property to create value for their companies. In fact, the authors of a *Harvard Business Review* article estimated that, in 1998, U.S. companies owned more than \$1 trillion worth of unused patents. The value of unpatented but marketable inventions may be even higher. In Europe, companies spend \$20 billion each year on R&D projects that duplicate existing inventions, according to the European Patent Office.

Businesses sometimes believe that the patent strategies pioneered by IBM, Xerox, and others are beyond their organizational capabilities. But there is no mystery about how to optimize the value of patents — it’s a matter of *people* and *process*. Instead of leaving

patenting to the legal department, senior executives must set patent policy and assign teams of business, legal, and R&D specialists to carry it out. They must create robust processes for turning ideas into inventions, inventions into patents, and patents into sustainable profits.

Figure 1, Patent Management Continuum

	Nonexistent	Tactical	Strategic
Patent Strategy	None	Technology-driven	Business-driven
Objectives	Minimize cost	Defend technology	Create value
Tactics	None	Maximize number	Maximize quality
Processes	None	Limited	Extensive/integrated
Process Owner	None	Legal department	Senior management

GENERATING VALUE

It's easy to see how a factory produces wealth: raw materials come in one door and finished goods go out the other. But the process by which an invention or a patent creates wealth is harder to see — and this is one reason why so much intellectual property is neglected.

At the simplest level, a patent is a licensed monopoly that allows its owner to raise prices and operating margins and protect sales and market position for an extended period of time.¹ This licensed monopoly can create a competitive advantage and generate value for the company in several different ways. Leading companies use patent strategies that take advantage of all of these mechanisms for value creation.

Protect the business. Most commonly, patents protect your investments in R&D and other resources by discouraging competitors from imitating your products and services. Start-up companies often use patents to prevent larger competitors, with greater resources, from quickly imitating their innovations.

Generate revenue. Some of your inventions may be usable in existing products that don't compete with yours. If you don't want to manufacture these products, you can license the patents to companies that do. Licensees will often pay to avoid the cost and risk of developing alternative technologies. Some companies license patents to their direct competitors, as long as the patent is not central to maintaining a competitive

advantage in the market. Also, in cases where companies are already using your technology without a license, a patent gives you the right to collect damages for infringement.

“Good patents have become a kind of currency.”

Create bargaining chips. If you are in a competitive market and your competitors own some of the technology you need (or claim that they do), you can use your patents to gain access to that technology through cross-licensing. In many industries there is a high degree of overlap in IP among competitors. Patents, in this case, are often used as bargaining chips to avoid patent infringement lawsuits and to secure freedom to operate in the marketplace. As Dr. Claus Weyrich, head of corporate technology at Siemens, put it, “Good patents have become a kind of currency.”¹¹

Build brand equity. High-tech companies often want to be known as prolific inventors. In 1999, HP introduced the tagline “invent” to enhance its brand image, and set an internal goal of breaking into the “Top Ten” of patenting. Its rate of innovation soared as a result; by 2002, HP was ninth in the U.S. in patents, up from fifteenth in 2001.

Hedge against uncertainty. Patents provide flexibility in uncertain situations. In emerging technologies, several competing technologies often coexist in the marketplace until one of them proves to be the most feasible or the most marketable of the group. Patenting key inventions in each of these areas ensures that, when the shakeout comes, you won't be left behind.

THE PATH TO SUPERIOR PATENT MANAGEMENT

Intellectual assets, like other assets, must be managed diligently. Factories can't generate profits if no one is running them, and neither can creative resources. Senior managers need to manage these resources so as to protect the company's position and create new opportunities.

Developing and managing a company's IP portfolio takes effort and planning. It's a major project that should be organized like any other project: A project team must be drafted, responsibilities assigned, and a series of tasks planned, executed, and tracked.

Who's in charge?

Setting policy. The company's CEO and board of directors are responsible for setting overall IP policy. They decide how critical IP is to the company's success, and how it should be used. The IP policy should fit the company's culture and objectives. For example, if the company's widget line is to be phased out over the next two years, the IP policy will give little if any attention to widget technology. Choosing key areas for technology

The company's CEO and board of directors are responsible for setting overall IP policy.

development, deciding how aggressively to enforce intellectual property rights, and deciding whether to pursue patent licensing are examples of CEO-level policy issues.

Developing strategies. Senior business and technology managers should be responsible for translating the overall IP policy into a broad plan of action with specific objectives (for example, become the leader in technology X) and goals (for example, generate \$50 million in licensing revenue by 2007).

Some companies create separate business units to oversee IP, while others assign this task to managers with other operational responsibilities. In either case, it's important to involve both business and technology specialists. The strategies won't succeed unless they are based on a realistic assessment of both business needs and technological capabilities.

Implementing strategies. Tactical decisions are usually best left to patent attorneys and the organization's legal counsel, who are expert in the finer points of patent laws and procedures. Drawing up a set of patents so that they cover all possible uses of an invention without leaving room for challenge, or deciding how best to challenge a competitor's patent, are examples of tactical decisions.

Another aspect of implementation is guiding research and development along the path set by the strategists. Engineers and other inventors need to be told where to focus their efforts and how to identify inventions that are of strategic value to the company. Patent attorneys and business and technology strategists are responsible for working with the engineers to align their efforts with the business's strategies.

Planning a Patent Strategy

To begin using a patent strategy, you must first understand your needs and opportunities, then develop the strategy itself, and finally build the capacity to implement the strategy. These three steps — strategic IP analysis, patent strategy system, and patent strategy process capability — are illustrated in the Patent Strategy Planning Model shown in Figure 2.

Strategic IP Analysis

Your patent strategy cannot be effective unless it is realistic. If you ignore the dynamics of the marketplace and of technology, you are likely to create goals that are overly ambitious — or not ambitious enough. Before you set a patent strategy, therefore, you must understand your company's intellectual property and competitive environment in light of its overall business strategy. This is why the first phase consists of information gathering and analysis.

Technology analysis. The first step is to determine which technologies the company will need access to over the next five to ten years. Input from senior executives, business plans, and an analysis of technology trends can provide guidance about which technologies will be most critical for competing in the future. The analysis becomes more speculative the further out along the timeline you are. For the out-years, you may hedge your bets by identifying several alternative technologies.

Self-analysis. By auditing your company's existing technology portfolio and analyzing its strengths and limitations, you can determine whether the company has the resources and capabilities to deliver the technologies you need.

A good way to assess portfolio strength quickly is to classify your patents. There are many ways to characterize a patent portfolio: by age, country, technological maturity, type of technology, place in the value chain, breadth of claims, business value, etc. The classification scheme you use depends on your situation and on the insights you need to develop.

Competitive analysis. By documenting its competitors' recent patenting activity and publications, a company can reach conclusions about each competitor's strategies and about the likely direction of technology development in the industry as a whole. (Powerful IP analysis tools introduced in the last few years have made this step much faster and easier.) Competitive analysis can identify "white spaces" — relevant areas of technology where no one is patenting — that might be advantageous to exploit. It also reveals competitive weaknesses that need to be shored up with new patents, as well as competitive strengths that can be exploited.

Competitive analysis can also suggest opportunities for licensing patents to others, or for cross-licensing with competitors. Finally, it may reveal situations where the company's patents are being infringed upon, and where patent rights should be enforced.

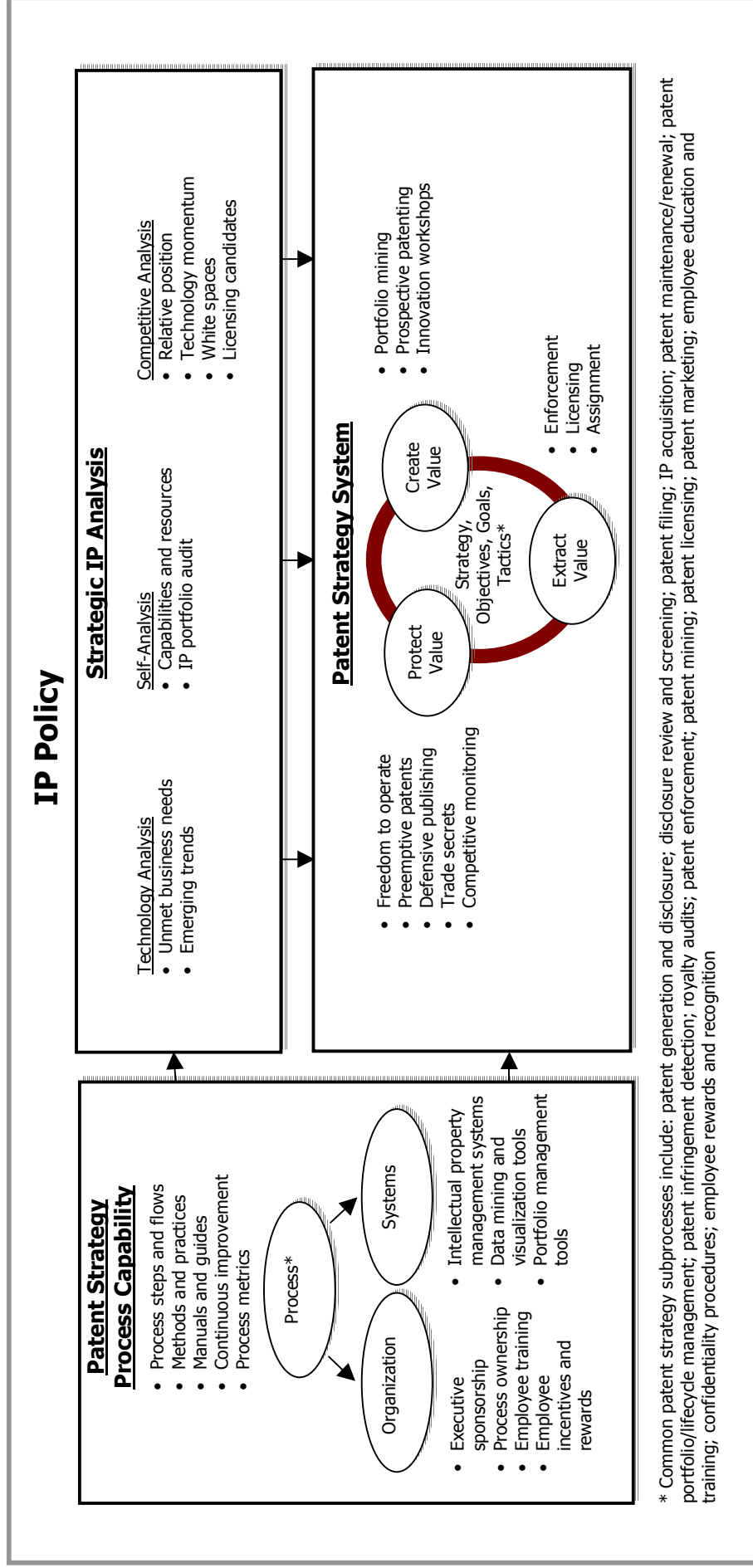
Strategic IP analysis output. After understanding the required technology portfolio, the company's existing technology portfolio, and the competitive landscape, you will be able to answer the following questions:

- What are the gaps in the company's technology portfolio?
- Where do we need to focus our IP efforts?

Patent Strategy System

The patent strategy system is the core of the patent planning model. In this phase, a company details its objectives and goals for creating, protecting, and extracting value from patents, and then develops strategies and tactics to achieve these objectives and goals. The input from the strategic IP analysis ensures that the patent strategies are aligned with corporate, technology, product, and market strategies.

Figure 2, Patent Strategy Planning Model



* Common patent strategy subprocesses include: patent generation and disclosure; disclosure review and screening; patent filing; IP acquisition; patent maintenance/renewal; patent portfolio/lifecycle management; patent infringement detection; royalty audits; patent enforcement; patent mining; patent licensing; patent marketing; employee education and training; confidentiality procedures; employee rewards and recognition

Definitions:

- Policy:** a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions
- Strategy:** a broad plan of action to achieve objectives
- Objectives:** broad aims or desired outcomes
- Goals:** objectives made specific with regard to degree and time
- Tactics:** the details and components of the strategy that show how it will be implemented

Patent Strategy Process Capability

You will probably find that you need to create or re-engineer some processes. Processes that have grown up in the absence of an overall patent strategy will usually have been devised by a single department, such as legal or engineering, to optimize its own performance. But when these organizations begin working together to support a coherent patent strategy, they need processes that are efficient and effective from a corporate standpoint. Local subprocesses must be reconsidered in the context of a broader companywide process.

Changes in processes will require changes in organizations and systems — processes don't work unless people are responsible for executing and reviewing them, and unless systems help those people work effectively. A company may find it needs a new business unit to coordinate IP policy, or a new business unit in charge of licensing patents. The use of an in-house patent database or of online databases may be required. But process should always be the primary focus of the strategy team's efforts. Organization and systems should support the processes, and not vice-versa.

Active support from top management is critical to developing a successful patent strategy.

Successful development and implementation depends on the cooperation of inventors, lawyers, license negotiators, R&D managers, product developers, market researchers, business strategists, and others across the company — including, most importantly, top management. Only when top management is seen to be championing the patent strategy planning process will others in the organization invest the time and effort necessary for its success.

Best results are achieved when senior management sets clear, aggressive performance targets; implements a comprehensive change management program; dedicates resources with drive and determination; allocates sufficient human and financial resources; and constantly reinforces the strategy planning process by educating employees and communicating progress and expectations regularly.

BENEFITS

A well-thought-out patent strategy planning model can enable your company to:

Foster innovation. Educating potential inventors about the patenting process encourages them to think differently about how they work and teaches them how to look for opportunities to create IP that is aligned with business objectives. Monitoring your competitors' patents will enable you to search out new opportunities and generate new ideas. Understanding their research and development may suggest new directions for your own.

Contribute to stronger operating profit margins. The purpose of every patent will be clear — either it's needed for current or future operations; it's keeping competitors out of a market that you want to dominate, it's being licensed, or it's being sold. You will save considerable patent maintenance fees by dropping valueless patents. You will gain additional cash flow by unlocking the revenue-generating opportunities in unused but valuable patents.

Utilize R&D resources more efficiently. A robust patent strategy will enable you to generate more informed, higher-quality patents and help you avoid R&D projects that duplicate existing technology. (A surprising number of inventions are invented two or three times, because researchers don't know what their colleagues are working on.)

Protect your core business more effectively. By monitoring the patent activities of others, you have a greater chance of avoiding catastrophic consequences from patent infringement.ⁱⁱⁱ Monitoring your competitors' products will also enable you to determine if they are infringing on your patented technology.

Figure 3, *Patent litigation is more common than you may realize, and more expensive. An effective patent strategy helps avoid litigation that can disrupt your business.*

The top ten patent damage awards of all time (through 2002):

1. Polaroid v. Eastman Kodak, 1991, \$873m
2. IGEN International v. Roche Diagnostics, 2002, \$505m
3. Advanced Cardiovascular Systems v. Medtronic, 2002, \$166m
4. City of Hope National Medical Center v. Genentech, 2002, \$500m
5. Haworth v. Steelcase, 1996, \$211m
6. Hughes Tool v. Smith International, 1986, \$204m
7. Procter & Gamble v. Paragon Trade Brands, 1998, \$178m
8. Exxon. v. Mobil Oil, 1998, \$171m
9. Viskase v. American National Can, 1999, \$164m
10. Hughes Aircraft v. United States, 1994, \$154m

Source: Intellectual Property Today, March 2003

Block competitors. By patenting all the technologies and business methods that are critical to your business, then “inventing around” your key patents, you will prevent competitors from doing so. You will understand where to “invent around” competitors' key patents to keep them from using those patents to monopolize a market.

Look ahead. By analyzing the direction in which the technology — yours and your competitors’ — is heading, you will be able to acquire or develop patents that you believe will be needed several years out.^{iv} For these early-stage or emerging technology areas, you will be able to create patent applications resulting from thought experiments rather than waiting for invention from more traditional means, thus opening up strategic options for the future.

JUMPSTARTING THE PROCESS

Putting a world-class patent strategy planning model into place can take several years. Even with strong executive support and focus, generating the right system solution can take anywhere from three months to a year, and implementing the system can take an additional year or two.

For small and midsize companies, it often makes sense to outsource the patent strategy process to an experienced partner.

For small and midsize companies, it often makes sense to outsource the patent strategy process to an experienced partner who can help you develop a strategy and continue to review your patent activities once or twice a year. The frequency of review, and the type of review, will depend on where your products are in the development cycle.

A firm with expertise in patent strategy development can:

- audit your current processes to determine where you are on the IP management continuum;
- evaluate your current capacity for managing intellectual property;
- identify and prioritize issues you will need to address;
- propose performance objectives;
- identify opportunities for dramatic improvements; and
- suggest changes in processes, organization, and systems to take advantage of these opportunities.

Whether you decide to develop a patent strategy system in house or outsource it, it’s a good idea to look for “quick wins” that can build momentum and credibility. A quick win might be a flurry of patent disclosures from engineers, a licensing contract for a previously overlooked patent, or a joint venture with another company to exploit synergies between patent portfolios.

These early successes demonstrate to everyone in the company that the larger patent system is worthwhile, and generate the support that keeps an implementation project moving ahead to a successful conclusion.

One of the best ways to develop “quick wins” is through a facilitated IP generation workshop. In this kind of workshop, a group of key players, with executive sponsorship, meets to develop a roadmap for strengthening the company’s IP position. Using a series

of creative exercises, the group creates, captures, and prioritizes patentable ideas that support the roadmap. At the end of the workshop, they present ideas to senior management, and those ideas that are approved are set into motion immediately.

The key to the workshop's success is finding the right facilitators. Here's what to look for:

- Broad experience in both business strategy and technology. Just as your in-house team combines business and technical expertise, the workshop facilitators must understand the company's business and technical issues.
- A methodology that puts your business strategy and culture front and center, so that the ideas coming out of the workshop will be right for your company.
- Experience in developing — not just benchmarking — patent strategies.

The IP generation workshop doesn't just generate ideas, it generates excitement. It puts your company into creative gear, gets key managers thinking about using IP to achieve your business goals, and lays the groundwork for successful development of powerful patent strategies and value-creating patent portfolios.

ABOUT TEK MANAGEMENT CONSULTING

Tek Management Consulting is dedicated to helping technology-intensive companies achieve greater competitiveness, profitability, and growth. We work with clients to define technology strategies, assess existing and emerging technologies, create patents and intellectual assets, integrate new technologies into new or existing products, and effectively manage product development.

Our proprietary tools and methodologies, delivered by our highly skilled and experienced consultants, ultimately helps clients reduce risk, maximize the value of their existing intellectual property, and generate a higher ROI for their technology investments.

For additional information about TMC, please visit www.tekmc.com or call us at 978-897-3766.

ABOUT THE AUTHORS

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ⁱ A patent becomes effective on its issue date, but expires 20 years after the filing date of the application. Thus, the actual time a patent is in force depends on how long it takes the patent to go through the prosecution process at the Patent Office.

ⁱⁱ Siemens press release, June 26, 2002.

ⁱⁱⁱ The consequences of infringement can be catastrophic in terms of business disruption and damages; Kodak made a \$3 billion error when it used technology patented by Polaroid.

^{iv} For example, Amati Communications developed some of the seminal patents on DSL and was acquired on very favorable terms by Texas Instruments when it became apparent that the demand for high-speed Internet access would create a market for DSL.