



The 2005 U.S. Patent Landscape For Electronic Companies¹

**Robert Greene Sterne², Michael Q. Lee³
Patrick E. Garrett⁴, Michael V. Messinger⁵
Donald R. Banowit⁶**

The patent landscape for Internet, computer and other companies in the electronics industry (“electronic companies”) has changed greatly over the last 25 years. The driving forces for these changes have been the creation of the Federal Circuit, substantive changes in the patent law, the creation of the Internet, international competition and a global marketplace, active patenting across the electronics sector by large and small electronic companies, valuation of patents by investors, and aggressive offensive licensing.

For electronic companies, the patent asset has become increasingly valuable. In the late 1970s, it was not uncommon for even the largest and most successful electronic companies to have very small patent portfolios and little appreciation for the value and risks of patents. However, substantial patent damage awards and increased global competition, particularly the very effective use of patents by Japanese companies, have changed the landscape completely.

Patents have become a type of commercial paper that can be bought and sold. In certain litigation situations, for example, patents are sought by electronic companies to attempt to neutralize the litigation through counter suit. Brokers and finders engage in the marketing, selling and buying of such patents. These individuals vary from attorney to business person to investor. The result is the creation of a market, albeit still young and inefficient, for patent rights, where several years ago no such market existed at all.

Today, established electronic companies that previously disregarded patent protection for even their most significant technology have embraced patent protection and have publicly declared an express intent to build and maintain very large patent portfolios for offensive and defensive business reasons. Start ups and emerging electronic companies now need to address patent issues from the inception of their business in order to compete and be successful.

This article begins by exploring the evolution of patent enforcement in the electronics industry. All of the current licensing and monetization trends and business models are discussed and mapped to the history from which they evolved. History is an important component in understanding the current state of affairs. We have tried to present the history and the current state of affairs in an unbiased, complete manner so that all competing views or approaches are presented fairly. It is important to know that there is no universal view or approach on any of

these topics. Moreover, the topics tend to change over time, sometimes rapidly when a new “driver” emerges. Dealing with patent threats has become a big issue for the electronics industry and it continues to grow. Some believe the sky is falling and that ultimately, royalties and damages extracted by patent owners will erase profitability for electronic companies. This profitability issue portends to be one of the “blockbuster” patent issues for electronic companies in the next five years.

In the second section, various patent portfolio strategies are discussed in terms of their “architecture” and how they are created and maintained. This area has seen an almost 180 degree shift since the 1970s. The seemingly simple task of identifying patentable inventions and determining whether and when to file turns out to be quite complex. There are completely different approaches used by electronic companies, each with certain strengths and weaknesses. Moreover, inventions tend to keep on evolving as the technology is developed and refined. Tracking this migration with additional patent filings is also complex and varied in approach. The critical dimensions of foreign filing strategy and budgeting of the entire portfolio are addressed. The patent issues surrounding evolving industry standards are also discussed.

The third section addresses mechanisms for comparing a company’s position in the patent landscape to that of its competitors. Patent benchmarking is used by many larger electronic companies as a management metric to ascertain how normalized patent portfolio numbers compare with competitors. Smaller electronic companies are beginning to back into the process. Investors and industry analysts use benchmarking data as tools for their decision making and predictions. Monitoring the patents of competitors is also discussed. One would think that an electronic company could freely monitor the U.S. patents of its competitors and others without incurring any legal liability in the process; however, under the current state of the patent law concerning willful infringement, this may not be the case. This issue is addressed along with some of the current approaches used by electronic companies to deal with it.

The aim of this article is to provide a basis for the reader to understand the complexity and possible solutions for dealing with the patent landscape today. With an eye toward the future, we conclude by noting a few emerging areas of patent law for electronic companies that are beyond the scope of this article but which we believe are here or are coming and will be important to the industry in the immediate future.

I. The Value Proposition

A. A Firm Legal Foundation

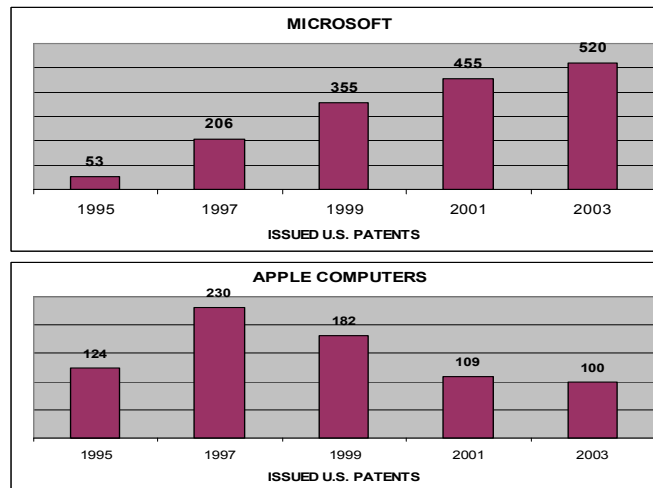
In the 1970s, U.S. electronic companies by and large did not license their patents, and seldom enforced them in court. The companies believed that patents were weak and judicial enforcement depended largely on in which of the federal circuits the litigation was brought. The creation of the United States Court of Appeals for the Federal Circuit in 1982 was probably the driver that changed this whole business landscape. The Federal Circuit’s initial decisions were very pro patent and injected a new sense of power and worth into patent rights.⁷ That court unified the patent law⁸ and provided an increase in the rate at which patents are upheld in enforcement actions. Patent owners and the industry responded accordingly.

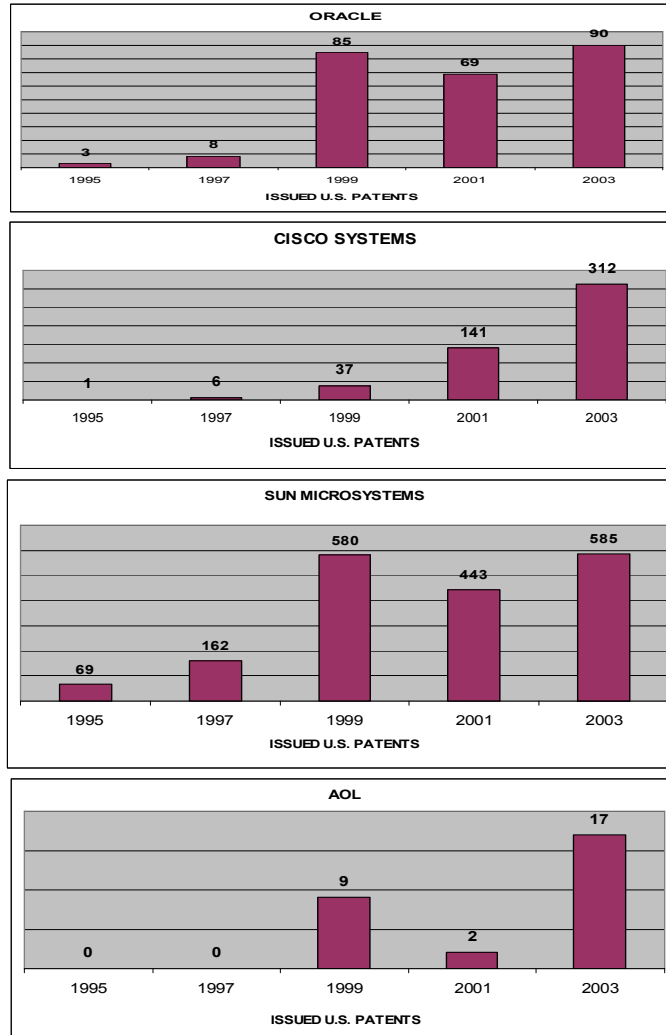
B. Industry Responds

1. Getting Patents

In the mid 1980s, the U.S. electronics industry really woke up to patents. Japanese competition was the driver. Japanese electronics companies beginning in the late 1960s had mastered the rules and strategy of the U.S. patent system and had created large U.S. patent portfolios that they were starting to use to protect their significant increase in U.S. market share. University experts, Congress and business consultants advised senior management and boards of directors of U.S. electronic companies that their patent strategy was behind that of their foreign competitors and they immediately needed to create large U.S. patent portfolios. The companies began to create their own large patent portfolios. What evolved was the strategy of filing many U.S. patent applications tightly drawn on inventive aspects of key products and services to create a large patent portfolio like the ones that had been created by the large Japanese competitors.

The 1980s saw an amazing business phenomena in the U.S. of creation of many start up electronic companies, some of which broke out of the pack of their competitors to become very large companies in their own right. Notable examples are Apple, Microsoft, Oracle, Cisco, Sun, AOL, and Google. Many of these companies now dominate their market segments. As upstarts, these companies in general did not embrace patents in the slightest. However, by the mid to late 1990s, many had been stung by patent suits resulting in big dollar settlements or awards, and by cross license programs from IBM and other more established competitors that required significant royalty payments. The upshot of these developments was that emerging companies got “patent religion” and began following the large patent portfolio model noted above. Some interesting statistics that show this trend for 6 major electronics companies follow:





2. Assertion and Monetization of Patents in the U.S. Electronics Industry

a) Leveraging by Corporate Patent Owners

The mid 1980s saw the first big assertion of patents in the U.S. electronics industry. Texas Instruments and other U.S. electronic companies brought patent infringement actions against foreign competitors in the DRAM and other market segments. These enforcement actions often resulted in very sizable damage awards and on-going royalty payments. It is folklore for example that these payments kept TI profitable for 5 straight quarters during this time frame when it was experiencing significant sales losses due to foreign competition. Another early example is MOSTEK, an early leader in DRAM, which filed patent applications extensively as it slid into bankruptcy due to foreign competition. Its patent estate was purchased out of bankruptcy by SGS Thomson, which went on to reap huge returns from the portfolio through litigation and licensing. Since then other U.S. companies have successfully brought such actions. Examples in the early 1990s are Honeywell with the autofocus patents it asserted

against the Japanese camera industry, and Unisys with its JPEG patent portfolio that it licensed to the industry.

IBM had traditionally used its massive patent portfolio only for freedom to operate purposes. However, in the early 1990s, Lou Gerstner became Chairman and changed this by requiring the IBM patent portfolio to become a profit center. This change resulted in IBM entering into a large number of patent cross licenses with electronic companies, first in the hardware arena, and later in the software arena after the U.S. Patent and Trademark Office (USPTO) issued its Software Patent Guidelines.⁹ Public information from the 2003 Annual Report seems to indicate that IBM realized over US\$1B from its IP portfolio in 2003.

Other U.S. electronic companies with sizable patent portfolios followed IBM's lead. Notable was Lucent which embarked on a significant cross licensing program of electronic companies. Agere and Honeywell are other examples.

What emerged from these offensive licensing efforts was an arms war, where companies devoted substantial resources to building their own patent portfolios. These portfolios were used to at least partially neutralize the offensive licensing programs of competitors. A company would be able to reduce the license fees owed to one of these offensive licensing companies by cross-licensing its own patents.¹⁰

b) Leveraging by Individual Patent Owners

The mid 1980s also saw the emergence of the assertion of patent portfolios of individual U.S. inventors by contingency attorneys who sued large numbers of electronic companies. Most prominent was the patent litigation and licensing program brought by Jerome Lemelson which purportedly resulted in over US\$1.5 B in royalties.¹¹

Lemelson was granted more than 550 patents during his lifetime.¹² One of America's most prolific inventors in terms of patents obtained, Lemelson is seen by some as a champion for the individual inventor. Not satisfied to sit back and let big companies steal his ideas, Lemelson utilized the American legal system to force these big companies to take him seriously.

Lemelson's early success included licensing arrangements with Sony in 1974 and a deal reportedly worth over US\$5M with IBM in 1981.¹³ In the late 1980's, Lemelson engaged Chicago patent litigator Gerald Hosier on a contingency basis. Their first major target was the Japanese automobile industry. When Hosier threatened to bring a U.S. patent lawsuit to enforce Lemelson's machine vision and bar coding patents in the early 1990s, Lemelson was awarded a settlement of US\$100M from the Japanese auto industry.¹⁴ Shortly thereafter, another US\$350M was paid by 30 more companies, including European auto makers and Japanese electronics manufacturers.¹⁵ With this war chest, Lemelson returned to America and went after the American automobile industry.¹⁶ Ford fought back in the court, but as the uncertainty of the outcome of the patent litigation grew, Ford settled in 1998. GM and Chrysler also settled shortly thereafter.¹⁷

As a result of these successes, Hosier broadened his approach. At the height of the Lemelson licensing program in the late 1990's, Hosier was reportedly signing up licenses at a rate of one per day.¹⁸ Rather than asserting against manufactures of machine vision and bar coding equipment, which may have been able to defend against a patent lawsuit, the Lemelson Foundation targeted end-users and threatened complex and expensive patent litigation if they should choose not to pay royalties.¹⁹ Hosier and Lemelson adopted a philosophy to accept less money per license, but make it up in volume.²⁰ Reportedly, they have entered into over 750 license agreements since the early 1990s.²¹ The high cost of patent litigation in America coupled with the uncertainty of its outcome, especially before judges and juries who often do not understand the complex technical issues, convinced companies to license the Lemelson portfolio. In the end, the cost of licensing the Lemelson portfolio was far less than the cost of litigation.²²

Jerome Lemelson died in 1997. Much of the money he made thru licensing continues to be donated by his heirs to a variety of programs that foster invention and innovation. Among the recipients are MIT and the Smithsonian, both which created inventorship programs in Lemelson's name.²³ The for-profit Lemelson Medical, Education & Research Foundation, Limited Partnership, on the other hand, continues to enforce Lemelson's portfolio to this day.

But not all have succumbed to Lemelson's threats. To many, Lemelson is seen as a manipulator of the U.S. patent system. Some critics doubt that he actually invented much of anything.²⁴ Lemelson has been accused of utilizing so-called "submarine patents," patent applications filed on emerging technologies that remained hidden under the secrecy provisions once afforded by the U.S. Patent and Trademark Office and then surfaced as issued patents after the broadly claimed technology had been widely adopted and used by the industry. Lemelson's machine vision and bar coding patents, for example, issued in the 1980's and 1990's from U.S. patent applications filed in the 1950s and 1960s. Lemelson filed a series of continuation applications to keep his patents pending at the USPTO. As the machine vision and bar coding industry developed, Lemelson would file new claims to cover it, often with the targeted products in hand, and in many cases more than 30 years after the filing of his original patent applications. In 1995, after Ford and other Fortune 500 companies lobbied Congress for a change, the U.S. patent law was amended to change the term of a U.S. patent from 17 years from date of issue to 20 years from its earliest filing date, significantly limiting the viability of submarine patents. Additionally, in 1999, the U.S. patent law was changed to require patent applications to be published 18 months after their earliest filing date, removing the secrecy provisions from the U.S. patent system. However, U.S. patent applications filed before the changes in the law, including Lemelson's applications, were not affected.

In the late 1990's, manufacturers of machine vision and bar coding equipment, including Cognex Corp., Symbol Technologies and others, brought declaratory judgment actions against the Lemelson patent estate. Frustrated that Lemelson was targeting their customers, which would often license the Lemelson portfolio and then seek indemnification, the manufacturers sought to have the machine vision and bar coding patents declared unenforceable, invalid and not infringed. The declaratory judgment actions were combined in 2000 into a single action before the U.S. District Court for the District of Nevada.

The Lemelson Foundation filed five separate lawsuits in April 2000 in the U.S. District Court for the District of Arizona naming more than 400 defendants. However, this time, many of the defendants chose to wait the outcome of the manufacturer's declaratory judgment action in Nevada, rather than pay unnecessary licensing fees. The Lemelson Foundation's licensing program was officially halted in August 2001, after the Arizona court stayed each of the Lemelson Arizona actions pending a final resolution of the manufacturer's declaratory judgment action in Nevada.

The tide began to turn against the Lemelson Foundation in 2002. On an interlocutory appeal from the Nevada court, the Federal Circuit held in January 2002 that the manufacturers could raise the doctrine of prosecution laches as a defense against Lemelson's patent infringement claims.²⁵ Armed with this Federal Circuit decision, the manufacturers argued in the Nevada court that Lemelson unreasonably delayed the prosecution of his U.S. patent applications. The Nevada court entered a judgment in favor of the manufacturers on January 23, 2004, finding that the claims of Lemelson's machine vision and bar coding patents were invalid, unenforceable, and not infringed. The Court held the Lemelson patents unenforceable under the doctrine of prosecution laches and invalid for lack of written description and enablement.²⁶ The Nevada decision is currently on appeal to the Federal Circuit.²⁷

Despite the recent setbacks, Lemelson's licensing success has given birth to an entire cottage industry of contingency patent litigation in the electronics industry. The success of the Lemelson portfolio produced a myriad of other patent assertion programs by contingency attorneys. Whole law firms have been dedicated to this contingency business model and some have achieved significant financial success. Other licensing contingency programs have been launched by larger law firms. Two notable examples are the Niro, Scavone, Haller & Niro²⁸ firm of Chicago, and Robbins, Kaplan, Miller & Ciresi LLP²⁹ of Minneapolis. Tort and general litigation lawyers have jumped into the business as well. So have some large multi-city general practice law firms with sizable litigation practices. The underfunded owner of a patent portfolio is no longer unable to find an attorney willing to take on some or the entire financial burden of an enforcement program of major proportion. Instead, there has been an explosion of such patent enforcement programs of varying degrees of success. Additionally, investors have entered the market and have funded or are considering funding individual litigations, or groups of litigations selected to produce an investment portfolio effect. It is not uncommon for a major electronic company to receive a communication a week from attorneys or owners representing a patent portfolio that often is being licensed to the industry. Because of this development, electronic companies have evolved sophisticated strategies for handling such inquiries based on the perceived risk to the company.

3. Entire Business Models Developed Around Exploitation of Patents

The last 5 years has seen a significant increase in offensive³⁰ patent licensing and patent monetization by a variety of different types of business entities with different business models.

a) Patent Holding Company Spin-off

One such business model is a patent holding subsidiary of a large U.S. electronic company. Originally these were created for tax reasons as passive holding companies incorporated in states with favorable treatment of IP royalties. Delaware and Nevada have often been used for such passive holding companies. Off shore passive holding companies are also being used and are located in favorable tax jurisdictions such as Bermuda, the Channel Islands, or the Caymans. Such companies own the patents and other intellectual property of their corporate parent. They then license these IP rights to other entities of the corporate parent which pay royalties to the passive holding company. The royalty payments are accorded favorable tax which results in savings in state and foreign taxes. These savings result in greater profitability of the corporate parent.

This business model has evolved to patent licensing companies operated as a separate profit center that generates income by asserting the IP against other electronic companies. Because the patent licensing company only licenses patent and other IP rights, it is thought to be immune from counter-suit because it does not engage in any possible infringing activities as might its corporate parent. Examples of such patent licensing subsidiaries include the Hewlett-Packard Development Company, L.P., to which HP has transferred its IP assets (<http://www.hp.com/hpinfo/abouthp/iplicensing/>). Ford Motor Company is another example of a company who has formed a patent licensing company.

b) Special Purpose Entity for Patent Enforcement

Another business model used to assert a patent portfolio is a special legal entity that is created for the sole purpose of acting as the corporate vehicle for such an assertion program. The legal entity may be owned by the patent owner and other investors.

A premier example of patent owners licensing their own portfolios through such entities is Ronald A. Katz Technology Licensing, L.P. which has very successfully asserted and licensed the very extensive Ronald Katz patent portfolio.³¹ Ron Katz is a very successful inventor in the space of marrying computers with telephones. Starting in the mid 1980s, Katz saw that new applications at telephone call centers could be achieved with the advent of the touchtone phone, caller identification, advanced database software and other technologies. By first filing on his inventions, then entering into a joint venture with American Express to commercialize his inventive technology, he was thereafter able to successfully enforce his patent rights in court against competitors. He then purchased his patent portfolio back and went on to license the industry, including IBM, Microsoft, HSN, MCI, Sprint, Gallup Organization, AT&T, to name a few.³² According to published reports by 2002, Ronald A. Katz Technology Licensing, L.P. has collected over US\$750M in license fees, and “he expects to reach \$2 billion by the time his call-center patents expire in 2009 - - an all-time record for an independent inventor.”³³

Another example is LPL Licensing LLC³⁴. It is successfully licensing the Richard Libman patent portfolio to the financial products and services industry of banks, credit card companies and insurance companies. The Libman patent portfolio covers the automatic generation of customized marketing communications offering financial products and services.

The communications can be sent to customers through any channel, including print and the Internet. The communications can be sent stand-alone, or can be sent as part of other documents, such as statements, invoices, etc. (this is called “statement marketing”). As part of their licensing effort, LPL Licensing recently licensed one of the very largest financial institutions and direct mailers in the United States.

Acacia Technologies Group is a further example. Acacia is a public company (Nasdaq: ACTG) which is actively licensing its patent portfolio that relates to distributing digital content via several means including Internet, cable, satellite and wireless systems (commonly known as audio-on-demand, video-on-demand, and audio/video streaming). Acacia has over 250 licensees, including 175 licenses for online entertainment, movies, music, news and sports. Acacia also has a number of licensees of cable TV companies.³⁵ Acacia has also targeted colleges and universities, alleging that use of video streaming technology in areas like distance learning and video lectures infringes its patents.³⁶

In 2003, Acacia sued several adult entertainment sites. While this suit is still ongoing, a number of adult entertainment companies have licensed the Acacia patents, including Larry Flynt Productions Inc., which owns the Hustler websites.³⁷

In December 2004, Acacia announced that it was acquiring the assets of Global Patent Holdings, LLC, which owns 11 patent licensing companies including TechSearch, LLC. The deal would increase Acacia’s arsenal by 121 U.S. patents and foreign counterparts. Acacia was expected to pay US\$5 million in cash and approximately 3.9 million shares in stock.³⁸

NTP, Inc. is another example. It owns the patent portfolio of Thomas Campana (who died on June 8, 2004) that relates to systems and methods for integrating existing electronic mail systems (“wireline” systems) with radio frequency (“RF”) wireless communication networks, to enable a mobile user to receive email over a wireless network. Campana and his other two inventors filed their first patent application on May 20, 1991. NTP sued Research In Motion, Ltd. (“RIM”), the maker of the BlackBerry, on 5 patents in United States District Court for the Eastern District of Virginia on November 13, 2001. The district court issued its Markman Order on August 14, 2002. A jury rendered a verdict on November 21, 2002, and found in favor of NTP on every issue presented, and awarded NTP damages in the amount of approximately US\$23M based on a reasonable royalty calculation. On August 5, 2003, the district court³⁹ awarded monetary damages totaling US\$53,707,322, based on compensatory damages, attorneys’ fees, prejudgment interest, and enhanced damages. The court also entered a permanent injunction against RIM, which was stayed pending the appeal to the Federal Circuit. A re-examination process involving the patents in suit is now pending at the USPTO. On December 14, 2004, the Federal Circuit issued its opinion⁴⁰ and found that the district court erred in construing the claim term “originating processor,” but let the remainder of the district court decision stand and affirmed-in-part, vacated-in-part, and remanded the case to the district court for further proceedings. It is reported that RIM has created a significant reserve for this case.⁴¹

There are also companies specially formed to assume the responsibility of licensing the patent portfolio of another company or owner. This is an outsourcing model for

“commercializing intellectual assets” so that the owner of the asset obtains a “return on invention.” This outsource model is an “IP commercialization or invention to cash business process.”⁴² An example of such a company is IPValue, which according to its website is based in the United States and Europe.⁴³ Other examples are Thinkfire⁴⁴, BTG⁴⁵, and Fairfield Resources.⁴⁶

c) Patent Business Model to Monetize R&D

Successful companies now exist that generate intellectual property (IP) as their primary product. These companies have three business areas: (1) forward-looking research and development, (2) licensing of associated IP, and (3) customer support relating to the developed IP.

One example is Qualcomm (Nasdaq: QCOM) based in San Diego, California, which, among other things, develops Code Division Multiple Access (CDMA) technology for wireless communication.⁴⁷ According to Qualcomm’s 2003 Annual Report, Qualcomm has more than 3,000 U.S. patents and patent applications directed to CDMA and other technologies and has entered into patent license agreements with more than 125 manufacturers of subscriber equipment utilizing CDMA standards.⁴⁸ Through licensing of its intellectual property portfolio, Qualcomm generated approximately US\$985 million in licensing and royalty fees in fiscal year 2003.⁴⁹

Another example is Rambus Inc.⁵⁰ (Nasdaq: RMBS) based in Los Altos, California. Rambus does not manufacture chips. Instead, Rambus licenses its RDRAM memory technology to semiconductor manufacturers. According to Rambus’s July 28, 2004 Quarterly Report, revenues from royalties during the first six months of 2004 amounted to US\$57.1 million, approximately 85% of Rambus’s total revenue. Revenues from their top five licensees amounted to 76% of their total revenues for the first half of 2004.

A further example is MPEG LA, LLC⁵¹, the self-proclaimed “world leader in one-stop technology platform patent licensing.” Rather than requiring users to negotiate separate licenses with multiple patent holders, MPEG LA’s business model provides users with the capability to acquire patent rights from multiple patent holders necessary for a particular technology standard or platform in a single transaction. MPEG LA has been successful in utilizing this licensing model for MPEG-2, IEEE 1394, DVB-T, MPEG-4 Visual (Part 2), MPEG-4 Systems and AVC/H.264 (also known as MPEG-4 Part 10) standards.

The ability of the financial community to understand such IP business models is growing. It is expected that these business models will be used more and more in the future as innovative groups are formed to focus on invention and innovation and not on manufacturing and commercialization. This model fits well in a global economy if the IP laws are strong in all industrialized countries.

Another development has been the emergence of patent portfolios of commercially failed R&D efforts that have become valuable as licensing and litigation tools. These portfolios have often produced returns for the owners that are significant multiples of the cost to prepare and

prosecute the patent portfolio. These situations often involve R&D efforts that were at the leading edge of the technology by companies that did not have the capacity to commercialize them against more entrenched competitors or which arrived too early into their market.

d) Large Investment Fund Patent Licensing Model

The rise in patent legal protection, the widespread patenting by electronics companies in the last decade, and increasing damage awards have created a business climate that has spawned investment funds aimed at exploiting patent portfolios. These funds have created a robust “patent buyers” market. Such funds and acquisition companies buy patents and patent applications from individuals, universities, bankrupt or distressed companies, and even large companies that wish to monetize portions of their portfolios. They also fund foreign filing of patent applications beyond the country where the invention occurred.

Once these funds amass large patent portfolios, it remains to be seen how they will use their patent portfolios to generate a return to their investors. Knowledgeable industry sources suggest that a pure assertion model, business formation model or combination of the two may be used. In a pure assertion model, an investment fund or acquisition company may amass large patent portfolios and license relevant industry sectors and vertical markets. In the business formation model, a fund may license or sell parts of its portfolio and to specific start-up or emerging companies to facilitate their growth and market entry into new areas.

One example fund is Intellectual Ventures, which was founded by Nathan Myhrvold and Edward Jung, both former top technology executives of Microsoft. Intellectual Ventures both invents and patents their own inventions as well as investing in outside inventions. Intellectual Ventures has reportedly raised over US\$350 million, and its goal is to buy and license patents on a very large scale.⁵² The IV model is to aggregate a large patent portfolio in the information technology space. This aggregation will allow licensees to obtain in a single license the right to practice the protected technologies in the IT space without having to incur the time and cost of multiple license negotiations with multiple owners, some of which may refuse licenses completely, or ask for exorbitant rates. This “one stop” license model will foster the dissemination of patented technology at lower rates than if the patents had remained with their original owners. Proponents of this business model claim that this fosters innovation and commercialization of the protected technology by all licensees. It is similar to the Qualcomm or MPEG LA model of licensing broadly to all interested parties, discussed above.

Another example may be JGR Acquisitions, which in late 2004 beat out Intellectual Ventures, ThinkFire and others in a bankruptcy auction closely watched by industry leaders. JGF’s winning bid was US\$15.5M for a patent portfolio including several patents and many more patent applications developed by Commerce One, Inc. relating to Web services.⁵³

Detractors of this business model compare it to “patent trolls,” an analogy to the Norwegian mythical animal which lived under bridges and charged passersby a toll to cross. The opponents claim that this business model produces no goods or services and thus is abusing the patent system.

But careful analysis shows that this argument reveals the fundamental tension of the patent system. It all depends on which side of the patent table you are on. If you are the patent owner, then you want the patent system to be strong so that you can receive your just due for your side of the public policy bargain of disclosing your invention to the public. If you are the alleged infringer, you want the patent system weak so that the patent you are facing is invalid, not infringed, or unenforceable because you are already practicing the technology and see no benefit for paying royalties to others. As stated by Barry Aurenbraun, former general counsel for Home Shopping Network:

“ ‘Our Constitution is such a work of genius,’ Aurenbraun notes, ‘and it says that the best way to promote useful industry is to give inventors an incentive to develop new ideas, and if you don’t, it will frustrate progress.’ Paying someone a ‘tariff’ for a technology you’re already using is ‘counterintuitive,’ he says, but it’s ‘an anomaly inherent in our system.’⁵⁴

Moreover, the tension reveals the first inventor scenario. The history of invention is replete with examples of multiple inventors inventing the same invention at essentially the same time, sometimes within days of each other. The argument that the invention would have been invented by others later if the first inventor had not come along misses the point completely. The patent system of a country is either a first to file or a first to invent regime, but under either scenario the first comer wins and all later comers lose. So the argument goes, that if practicing the invention is a requirement for obtaining value for the patent rights, then the patent system is fundamentally thwarted because this would discourage invention and inhibit disclosure of technical information, and that would produce inefficiencies caused by the duplicative inventive effort of multiple parties.

e) **IP Brokers, Advisors, Investment Bankers and IP Merchant**

Banks

A cadre of professionals have formed business entities directed at specific IP services to the electronics industry that traditional have not been provided by attorneys, accountants, investment bankers or merchant bankers. These individuals usually have extensive patent experience coupled with deep financial expertise focused on IP issues.

As one explained to the authors, the need is great. Traditionally, investment bankers in a transaction involving a high tech company paid little if any attention to the IP issues of the transactions. If they did, it was so far along in the negotiation process that the price of the transaction had already been fixed so that the IP due diligence could only result in the killing of the deal. In other words, the IP component was effectively excluded from the deal unless it was of deal breaking proportions. The rationale was that there was no way to put the “financial hands” around the IP issues in any meaningful, empirical manner. An analogy was drawn to a real estate transaction where non-prudent buyer of a piece of land would not have a title search, survey and environment study done prior to closing. Yet in a technology deal, such a transaction would be closed without any corresponding attention to the IP.

While this is not an exhaustive list or endorsement of such service providers, the following are very prominent “trail blazers” who are creating this new service component in the IP world. It is interesting to see how they characterize their services and why they believe are needed.

Bramson & Pressman is an organization that supports its clients by assessing, strategizing and realizing the value of patents and technologies by sale or licensing. They act as a legal advisor and consultant to identify, evaluate, strategize, sell and license important patents and technologies, particularly in the computer hardware and software, Internet, electronics and telecommunications industries.⁵⁵ According to their website, they have established, raised funding for, managed infringement litigation for, and operated a patent licensing company with wireless communication patents, collecting over \$100M in royalties. They have sold important computer technology patents to Asian companies for major computer firms. They have established a successful licensing program for a data compression technology. They have evaluated, strategized and implemented the sale and licensing of a major computer and electronics patent portfolio of over 250 U.S. and 600 overseas patents. They have organized, marketed, and managed the auction sale of an important computer technology related portfolio. They have participated in portfolio mining of various portfolios of up to 5,000 U.S. patents.

Inflexion Point Strategy, LLC⁵⁶ an IP investment bank located in Palo Alto was formed in January, 2004 by a pair of former patent lawyers who headed the IP strategy & transactions groups in the Silicon Valley offices of two major U.S. law firms -- Ron Laurie (Skadden Arps) and Joe Siino (Brobeck). Laurie and Siino had each led IP diligence teams in many of the largest technology company mergers and IPO's ever done (e.g., HP-Compaq: US\$25 billion). In working on these transactions, they observed that lawyers, and particularly IP lawyers, became involved in the process “too late in the game,” i.e., IP was dealt with only as a risk factor and almost never as a value driver. Thus, IP issues were considered in risk identification (e.g., pending or prospective third party patent infringement claims and potential loss of key inbound licenses) and risk allocation (via reps and warranties, covenants, closing conditions, indemnities, etc). However, IP was rarely considered in the early stage business discussions involving target selection and pricing. The one notable exception was Laurie's experience while at Skadden representing Intertrust in the sale of the company to a Philips-Sony joint venture for about US\$450 million. At the time of the sale, Intertrust's only assets were an extensive patent portfolio in the area of digital rights management and a pending patent infringement suit against Microsoft, which was settled several months after the sale for about US\$430 million.

Laurie and Siino founded Inflexion Point around the premise that the Intertrust deal was the precursor of a new appreciation of the role of IP in M&A and corporate finance transactions. They were later joined by Maria Wilhelm, CEO of a digital media company based in Los Angeles. Inflexion Point's mission is to participate, both as an advisor and as an investor, in new business formation where IP is a critical value driver. This can occur at the company level via a merger, joint venture, divestiture (spin-out or spin-off), or IPO. It can also occur in the form of the sale of an operating business unit. Finally, it can occur via a transfer of patents with or without associated know-how, and/or human capital via consulting arrangements. Inflexion Point's clients include both technology companies and private equity groups. The firm uses an outsourcing model where its advisory board members recruit and lead deal teams on a project-

by-project basis. These advisory board members include recognized experts in technology, business and intellectual property law. (e.g., former R&D director of a major electronics company, former CTO of a large semiconductor equipment manufacturing company, former chief IP counsel of a large biotech company, former CEO of an internet software company, patent law professor at a top-tier law school).

Another service provider is Ocean Tomo, LLC.⁵⁷ Ocean Tomo is “an integrated intellectual capital merchant bank providing corporate finance, asset and risk management, valuation, research, analytics, and expert services.” Ocean Tomo’s mission is to be the first choice for financial services related to “Intellectual Capital Equity.” Ocean Tomo assists corporations, law firms, governments and institutional investors in maximizing value from their Intellectual Capital Equity.

II. Extracting the Patent Asset

Success of all of these patent-driven business models depends in large part on the strength of the inventions and the degree of innovation captured in a patent portfolio. Companies generally want high value innovation covered by good patents. Corraling innovation, however, is not simple. There are two process issues that must be met: (1) identification of invention/innovation; and (2) procuring patent protection.

A. Uncovering Patentable Inventions: Mining

Identifying innovation of IP value is critical and more difficult than it might seem. IP assets by their nature are hard to define and select. In addition, the value of a patent can often be determined only in hindsight. Such hindsight occurs at the time of licensing, litigation, acquisition or other business event that relies on the patent – often years after the initial “mining of ideas” for patenting has occurred. Identifying valuable innovation further involves a blend of knowledge and analysis across technical, business and legal sectors of a company.

In many companies, this needed multi-disciplinary expertise can only be obtained in a joint effort of engineers, senior management, and patent attorneys. Engineers bring specific technical knowledge of a company’s innovation and sometimes can lend valuable insight on its relationship to technical trends of an industry. Senior management often best appreciates how a particular innovation may fit within a company’s business plan, solve needs of customers, block competitors, or credential a company’s IP value to investors. Patent attorneys or legal staff can help identify and hone analysis of innovation of value and offer insight on specific patent filing strategies. Patent attorneys are often in a unique position to act as a kind of bridge or “glue logic” to ensure that the technical, business and legal aspects of newly created innovation in a company are vetted by senior management to further a company’s business plan and best practices, and to help insure that the IP is leveraged in a cost effective manner.

There are two main approaches to identifying inventions: Bottom-Up and Top-Down.

- The Bottom-Up Approach (Inventor Driven Patenting): This approach relies on engineers and scientists (*i.e.*, the inventors) to bring inventions to the attention of

management and/or the company's legal department. Companies that use the bottom-up approach sometimes provide some financial compensation to inventors for participation in the patent process. Alternatively, some companies formally add the patent process to employee job descriptions. In this latter case, engineers and/or project managers may be required to identify to the legal department a certain number of inventions each year. In some companies, inventors submit their invention ideas to the legal department via a patent submission web page on the company's intranet. Other companies use less formal approaches for invention submission, such as email or interoffice mail.

- The Top-Down Approach (Project Based Patenting): This approach works if top level management buys into the importance of patenting the company's inventions, and works best if there is appreciation at the Board of Directors level of the importance of patents. Under this approach, the legal department keeps in regular contact with management to identify the top projects being performed at the company. A few months prior to the roll-out of the projects, the legal department meets with project managers to identify the inventions embedded in the projects. This meeting might take the form of a data mining session attended by the legal department, the project manager, and the project's key technical personnel.

Significant limitations exist for both the Bottom-Up and Top-Down approaches. A Bottom-Up approach is often too "ad hoc" and dependent upon inventors themselves or fellow engineers to identify and flag potential inventions. This approach can create a disconnect between the amount of a company's investment in R&D and the resources allocated to patenting. Such engineers may be working "too close" with a technology over a long period of time to appreciate its significance to others outside the company. In many cases, inventors shortchange their own work. This undervaluation often occurs in software development. Much software development occurs by defining a desired functionality and then bringing known programming tools and techniques to bear to solve problems and achieve the functionality. In such a process, a developer can discount the degree of novelty involved in identifying the functionality and advantages it provides. This undervaluation is even more likely when the functionality is first defined by a sales team in response to customer needs. Further, the incremental nature of coding in a known language with familiar tools frequently does not present "Eureka-type" moments to the software engineer where a sharp break between old and new innovation is clear. Neither the sales team nor the developer implementing the code may then be in a position to recognize patentable and valuable innovation relating to the product functionality.

Moreover, many patent strategies are time-sensitive. In a bottom-up approach, inventions may not be brought to the attention of management in a timely manner prior to an activity that will preclude obtaining a patent such as a public disclosure through releasing the product or presenting it at a trade show. Further, the broader range of eligible patent subject matter which now extends to business methods makes it even more important for employees with primarily sales, services, and marketing roles to identify innovation.⁵⁸ Given that this business method sector has not historically been trained to identify inventions for patenting, important inventions may be overlooked.

The top-down approach can be a more proactive and systematic approach to identifying inventions; however, it too can have practical drawbacks. Frequently, a top-down approach is implemented based on key events such as a product release. Management will ask engineering teams to scope technology relating to a product development and file patent applications where cost-justified. Patent attorneys are then brought in on the eve of launch. By coupling the demands of patent preparation with product or service launch, engineers face competing demands on their time. They are torn between advancing product development to a “commercial ready” stage and preparing effective patent applications that meet increasingly sophisticated strategic goals. For instance, these situations likely need to cover inventions arising from the product development itself with sufficient scope to survive court scrutiny, anticipate competitors’ design around efforts, and further a company’s sales, licensing, freedom-to-operate or other business goals.

Both the top-down and bottom-up approaches can be hindered by a misunderstanding of “what is patentable”. Patentability is a legal question. It involves a number of issues such as whether the invention is novel and non-obvious over prior art. The complexity of the issues and the fact that what is considered “prior art” is often not known make it very difficult for a company to assess what is “patentable” in a cost-effective manner. In practice, many companies decide whether to file a patent application based on an impression of patentability gained by their own understanding of the marketplace and their experience, and do only a limited pre-filing search of prior art.

Increasingly, we see companies adopting a blend of top-down and bottom-up approaches with a greater sensitivity to engaging a patent filing process early in a product development process.⁵⁹ Greater in-house training and education is carried out to ensure inventions are identified before potential patent-barring events occur like an offer for sale or public disclosure.⁶⁰ We have often advised management by participating in white board meetings at early stages of product development. Such meetings allow the development and articulation of a patent filing strategy, as well as comprehensive planning throughout a product development cycle. Several major companies, such as HP and GE, have tried to deliberately focus the capture of innovation to cover inventions framed in such a forward-thinking or offensive nature.⁶¹

B. The Cost Benefit Analysis

Once innovation of value is identified, further cost-benefit analysis of business, management, technical and legal factors comes into play.⁶² This table shows examples of such factors used to support cost-justified patent filings.⁶³

- Business Factors
 - Gross and net revenue (actual or projected) of the related or similar products
 - Size of the market of the related product
 - Number of competitors in the relevant market, and the position of a company relative to the competitors
 - Direction of competitors – do they appear to be moving into the market?
 - How many patents does a company already have in this space?
 - How many patents do company’s competitors have in this space?
 - Would competitors care if company had a patent covering this technology?
- Management Factors
 - Are the inventors still employed by a company?
 - Do the inventors have the time to work on patent applications? To what extent would the patent process disrupt product development?
 - Is the patent process supporting innovation?
- Technical Factors
 - How have others addressed this problem?
 - How difficult would it be to solve this problem using a different approach?
 - Is it possible to keep the invention a secret, even after public release of the associated product?
 - Is a company the first to operate in this space?
 - Is the invention more at the high-level conceptual level or the “nut-and-bolts” implementation level? Where on this spectrum does the invention fall?
- Legal Factors
 - Has the invention been commercialized (sold or offered for sale)?
 - Has the invention been publicly disclosed?
 - Are there any related patent applications pending?
 - Is development of the invention complete, or still in progress?
 - Do the inventors know of any pertinent prior art?
 - Is the invention related to a standard? Is a company a member of the standards committee?
 - Was the invention developed solely by company employees? Were any contractors involved? Was another company involved?

Many companies use a filtering mechanism or “patent funnel” to prioritize and rank inventions. Depending upon the size of a company and volume of innovation, responsibility for carrying out such patent filtering is often tasked to a chief technology officer, an in-house patent coordinator, a patent committee, outside patent counsel or combinations.⁶⁴ In many cases, intellectual property decisions, including the level of investment to be made and scope of

protection sought for key products and services or licensing efforts, are now carried out at senior executive level by the CEO and at a Board-level.

In larger companies, these patent mining or filtering processes are part of an increasingly sophisticated intellectual asset management (IAM) model using tools developed within the company. For example, at XEROX Corporation patent filtering has been carried out as part of a detailed Intellectual Asset Life Cycle. An intellectual asset is considered from its creation, to use and maintenance, primary value generation and end of life or replacement. The life cycle includes value generation and value extraction. Numerous work processes and databases are used to manage intellectual assets.⁶⁵ Similarly, Avery-Dennison has developed numerous tools to execute their patent mining process. Ideas are first captured in a map format, such as, a 3x3 matrix map, star map, or funnel map. These maps are reviewed for high value inventions. More detailed invention reports are drafted for the specific high value inventions. These inventions are then approved for patent application drafting and filing. Stages of this process are recorded with a Patent Funnel Map. Other tools used to try to extract value are a Patent Value Model which classifies patents owned by Avery according one of five technology values (key, base, space, pacing and emerging). The Patent Value Model also includes labels identifying the level of sponsorship or control of an asset (prohibited, strategic, commercial, potentially strategic, excess, not possible). Finally, this information for different patents and technologies is compiled in a matrix map to provide a summary of the value of the intellectual property.⁶⁶

The processes and tools used at XEROX and Avery are just examples of rational business responses to identifying and managing innovation, where the role and value of patents has a great impact on a company's earnings. We see similar processes and tools implemented with varying degrees of formality across electronic companies. The rise of databases and data mining tools aimed specifically at managing and maximizing the value of intellectual property has been significant. Entire companies now exist that deliver a plethora of IAM tools and services.⁶⁷

C. Mining to Filing

Having moved beyond getting 'patent religion', electronics companies now find processes of business development, inventing, and patenting to be intertwined. Innovative companies weave invention mining and strategic patent filings throughout the course of business development. The interrelationship between business development, inventing, and patent filing processes is significant. Effort spent in any of these processes can have synergistic effects across the other processes. Figure 1 illustrates a flowchart for inventing, business development and patent processes.⁶⁸

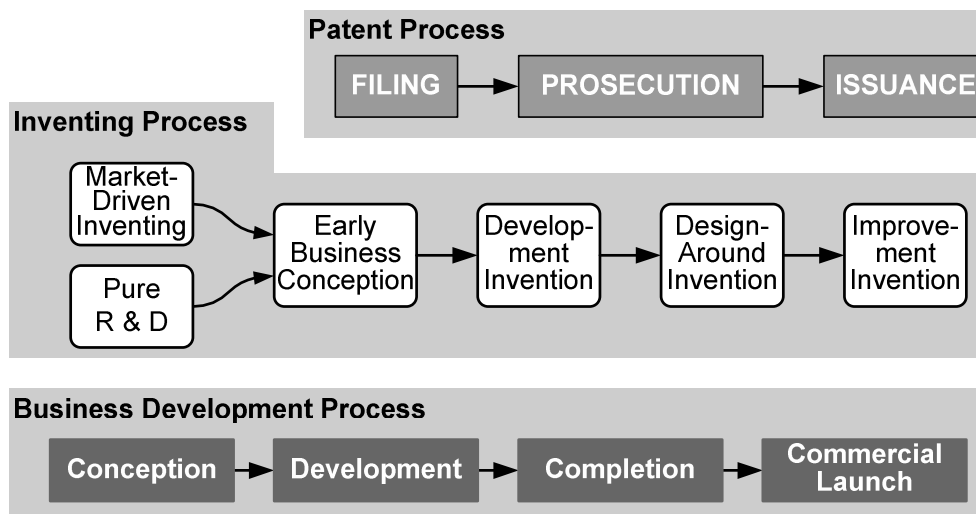


FIG. 1 Intertwined Inventing, Business Development, Patent Processes Timeline

As evident from an inspection of this figure, at any given day most electronic companies are engaged in some aspect of an inventing process. Inventions may arise out of new areas: new pure R&D from a government grant project or joint venture development or market-driven advances into new product or service areas. At some point, a conception of the business value of these new areas coalesces and business development process begins. Patent mining begins and initial patent filings may be made. Additional development inventions may arise as problems are met and solved during the course of product development. Design around inventions which cover areas competitors or others are likely to pursue may also be invented as the product is completed and time to market analyses are carried out. Improvement inventions frequently occur after a product launch as developers gain greater understanding of the product and its interrelationship with other technologies and trends in the marketplace. Throughout the inventing and business development process, inventions continue to be mined and incorporated in an on-going patent filing strategy. It is vital to maintain continuing oversight since patent applications can remain pending at the USPTO for long periods before examination - in many electronics technologies the delay between application and issuance is running about 2-3 years.⁶⁹

It is helpful for decision makers, especially those managing patent budgets, to be familiar with the variety of types of patent applications used and the timing of patent expenses. Figure 2 shows the processes of Figure 1 overlaid with examples of the types of patent applications employed. The strength of United States patent system and the treaties among many industrialized countries drive many electronics companies based in the United States and abroad to file U.S. patent applications first. Provisional utility applications (“provisionals”) are often filed at the earliest stages of development. These applications are not examined and have a lower filing fee. Provisionals are effective ways to capture concepts and inventions quickly. When development is ongoing and changing, a series of provisionals may be filed. As development and the related inventions become more settled and within a year after the filing of the first provisional application, one or more corresponding non-provisional utility patent applications are filed in the United States and abroad. An international application may be filed under the Patent Cooperation Treaty (“PCT application”) or directly in different nations (“direct

international application”) depending upon treaty arrangements with the United States and other strategy goals. For example, if PCT is elected, more expensive direct applications may be postponed for filing later (about 30 months later from the date of the first provisional). Additional related new non-provisional applications can be filed that build upon the earlier cases to cover new related inventions, design-arounds, or improvements not covered in earlier filings. Even after patents issue, continuation applications may exist or reissue patent applications may be filed to continue to ensure that the claim scope of an entire patent portfolio is effective and valuable. In this way, an agile filing strategy tracks on-going technical and business development.

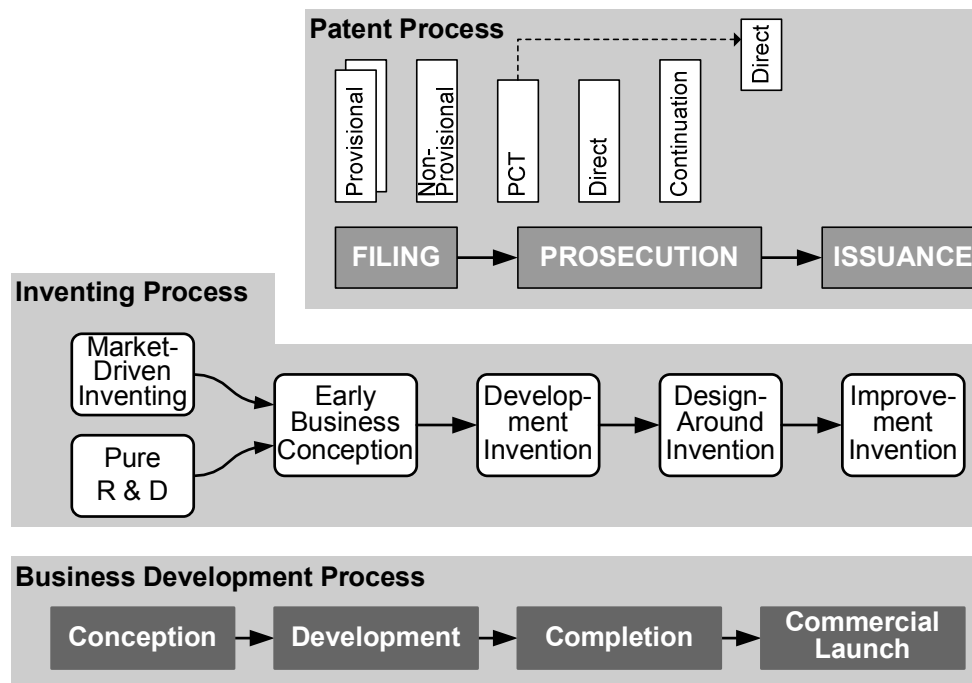


FIG. 2 Different Patent Application Type Overlay and Timeline

Expenses associated with creating and maintaining the patent portfolio also tend to vary over the patent process. The complexity and expense involved means that patent filing needs to be smart and targeted. Bursts of activity occur at key filing junctures. These are the initial non-provisional patent application filing and international application filings. Attorney services are often most intensive at this time. Filing fees have recently risen in the United States and are even more expensive abroad (the cost in Europe and Japan is multiples of the cost in the US). A relative lull may occur while cases are in queues waiting for examination. Expenses increase significantly during prosecution and at allowance as patent offices charge different issuance and grant fees.⁷⁰

D. Foreign Filing Considerations

Generally speaking, a patent applicant has one year after filing a U.S. patent application to file corresponding applications outside the United States, and be entitled to the priority date of

the original U.S. filing. Selecting the countries in which to file counterpart applications (and whether to foreign file at all) has important legal and financial implications.

Some industries, such as the pharmaceutical industry, tend to file in every country where there is a market for the particular invention. This can be prohibitively expensive for smaller companies. The cost to file a typical electronics/software patent application in Japan and Taiwan is \$15,000 - \$20,000 for each country. The cost to file in Europe is about \$10,000 - \$15,000. Thus, the cost to file in just those three jurisdictions is about \$40,000 - \$55,000. This estimate reflects only the cost to initially file in those countries. Prosecution and issuance costs can add in the range of three times the filing costs. Also, these foreign filing costs are after the cost of preparing and filing the corresponding U.S. application. The total lifetime cost of a comprehensive foreign filing strategy corresponding to a single U.S. patent application could easily run into the hundreds of thousands of dollars.

To build a defensive patent position in a more targeted fashion, many electronic companies identify countries with markets important to their own sales or manufacturing efforts or that of their competitors. Companies then selectively file in those countries. It is not unusual, however, for an electronic company to file in just Europe and/or Japan, or not to file at all if the company's U.S. patent position is strong.

E. Example U.S. Patent Filing Strategies

1. The Evolution of a Typical Large Company Patent Strategy

Patent strategies for large electronic companies often include an initial phase followed by a mature phase. The initial phase entails patenting anything and everything. This phase tends to resemble a mad scramble to catch up with the market. It is an attempt to capture everything in which the company has invested R&D funds, and which are not barred by statutory bars such as prior sales or public disclosures of inventions. One or more outside law firms are typically retained to prepare and prosecute the large volume of patent applications. During the initial phase, engineering managers typically serve as the primary contact between inventors and the law firms. Budgets may be set, but are not necessarily closely adhered to.

As time progresses, individuals within the electronic company become more patent savvy. As a result, controls begin to be implemented on pre-patenting public disclosures. Marketing people become more involved in the process in order to avoid on-sale bars that preclude patenting. As time goes on, patent paralegals and in-house patent attorneys are hired to help manage the process, and budgets become more important. Thus begins the transition to the mature phase.

In the mature phase, the electronic company may have one or a team of in-house patent attorneys. The in-house patent attorneys typically perform management oversight of the patenting process. In some cases, in-house patent attorneys perform substantive patent work, including preparation and prosecution of patent applications.

In the mature phase, budgets become more important. By this stage, an electronic company has typically built a relatively formidable patent portfolio, providing the company with significant freedom to operate. Thus, individual patent applications become less important to the company's strategic position. The strategy of patenting anything and everything evolves to strategic patenting with budget constraints. Hundreds or thousands of patent applications may still be filed per year, but the numbers are typically based on benchmarking of competitors, which is described below, and/or based on investor expectations.

In the mature phase, inventions are often filtered through a patent review board, which decides which inventions worth investing the cost of patent applications. The decisions typically take account of the company's business strategy and available funds.

In some cases, additional budgeting constraints are placed on the patenting process. This often leads to budget negotiations with outside patent firms. The result can be fixed fee work, fee caps, and/or other budget constraints. Mature stage companies typically have formidable in-house legal staff that handles strategic IP planning and portfolio management, which lessens the need for these services from outside law firms.

The nature of the inventions during the mature phase tends to change as well. In many cases, the major patentable systems have been covered by patent applications during the initial phase. Those patent application typically required more resources to describe systems from start to finish. During the mature stage, patentable inventions become more focused and are typically directed to incremental improvements. Few of these patents, if any, are "bet the company" patents. The patent applications thus tend to be more focused and succinct. Mature phase companies may shop these applications around to different law firms for pricing deals. A company may, for example, offer to supply 100 invention disclosures per quarter to a law firm, provided that the law firm agrees to certain price constraints. Because the applications tend to be focused, relatively little interaction (and time) is needed with the inventors, which keeps the outside firm's costs down. Where the price constraints are fixed fees rather than caps, cost overruns on one case tends to be countered by cost under runs on another case.

The model described above has served a number of large electronic companies well. It is not, however, suited for all companies nor all situations. Two particular situations that require additional strategic thinking are provided below. Although the following two situations are frequently encountered by smaller electronic companies, the situations are not limited to smaller electronic companies.

2. Patent Filing Strategies in a Developed/Established/Mature Field

In the first situation, an electronic company makes incremental improvements in a field that is crowded with patents. By definition, the company will have limited freedom to operate amongst others' patents. In other words, the company's products will very likely infringe patents of others.

In order to protect the product from patent infringement lawsuits, it is imperative to obtain a defensive patent portfolio. A suitable defensive patent portfolio must include claims that will likely be infringed by competitors. In this way, the company will be in a better position to force a cross license, and/or to obtain royalties and/or an injunction against a competitor.

Since it is impossible to predict the exact technical features that will be at issue in a future patent infringement lawsuit, the defensive patent portfolio is built by drafting claims to as many incremental improvements as possible, in as many variations as possible. The patents must be written to cover every conceivable alternative embodiment, every nuance, and every detail of the improvements. The patent drafter must carefully craft the patent claims to weave through the crowded field. If the claims are too broad, they will be unenforceable. If they are too narrow, they may be relatively easy to design around.

In some cases, the company may want to brainstorm improvements that a competitor is likely make to the competitor's product, even though the improvement might not be suitable to the company's own product. Such improvements are, nevertheless, patentable by the company. This will help to buttress the defensive patent portfolio.

3. Patent Filing Strategies in an Open Space/Pioneering/New Field

In the second situation, an electronic company has made a major, significant technological advancement that opens up a new technological field or solves a technical problem with an entirely new approach. In this situation, the company should seek maximum patent protection, from the broadest level to the narrowest level. Since others will likely improve upon the invention as soon as it becomes public, the strategy typically includes keeping the invention secret as long as possible while the company develops and patents as many features and alternative designs as possible.

In the patent applications, the invention is described at multiple levels. The broadest level is analogous to an "elevator ride" description of the invention. It is understandable, on its face, to a judge, jury, company executive, and sales and marketing people. Subsequent levels of description contain successively greater levels of detail. This is sometimes described as peeling an onion.

In the patent applications, each individual feature of the invention is described as implemented on its own, and in as many other combinations with other features as possible. This helps to insure adequate written description support for later filed claims, which may recite various subsets of the features of the invention.

The patent application also includes substantial description of well known elements and underlying theories. For example, rather than noting that a certain feature can be implemented with a conventional element, operation and theory of the conventional element is provided. This approach helps insure that the patent will withstand attack by an opposing expert who will argue that the invention is not sufficiently described so as to enable one to practice the invention.

Continuation applications and continuation-in-part applications are filed early and often in an attempt to stay ahead of the competition.

4. Blended Control Patent Strategies

Patent filing decisions (what to file, what scope of patent coverage to seek, and what level of investment to make) all occur in the context of a marketplace where companies rely on a blend of proprietary and open technology including technology outside the company's control. Many business opportunities require interoperation with industry standards, open source software, and technology developed by other companies. In this "blended control" environment, freedom to operate has become even more critical and owning patents a greater source of leverage. Electronic companies have traditionally relied on patents to deter competitors' claims of infringement. Now patents are taking on more complex roles in providing leverage and increasing options for companies as they navigate and try to interoperate with fluctuating standards activity, open source trends, and jointly develop with others.⁷¹

a) Navigating Industry Standards

Large vertical markets of the electronics industry are now impacted by industry standards. In many ways, this rise in the volume of standards activities has *increased* the role of patents. This is especially true for electronic companies inventing in areas that may later be directly covered by a standard or which build upon the standard. Standards in many cases initiate their work around certain patented technologies and can dramatically increase licensing opportunities.⁷²

Different standards bodies develop and promulgate specific standards. Much of the current and future Web development is impacted by the W3C Consortium ("W3C").⁷³ W3C is a body that manages hundreds of different standards working groups. The working groups draft specific standards. Many of these W3C standards are now household names: such as HTML (hypertext mark-up language used in web pages) and XML (an extensible mark-up language supporting increased functionality in web documents), or are directed to emerging high dollar markets like ebXML (extensible XML aimed at the multi-billion dollar B2B e-commerce market). The telecom sector has relied upon many standards promulgated by ANSI, OSI, and others for an even longer period of time.

Standards activity tends to be a work-in-progress. Working groups form and develop specifications to meet changing technical and market needs. The extent of involvement and roles of particular companies in these standards varies greatly. Depending upon the process followed by a particular standards body, companies can be heavily involved as founding or original members and make significant contributions of intellectual property, technical specifications, and time. Other companies may be moderately involved as working group members that attend and participate in meetings to develop standards. Others may be even less involved advisory members. Companies frequently move in and out of different roles and drop in and out standards work altogether.

The standards bodies have adopted a range of intellectual property rights ("IPR") policies. Two of the most common types of IPR policies are royalty-free ("RF") and non-discriminatory reasonable royalty bearing basis ("RAND"). In many standards processes, companies are often expected at some point to identify patents they own that may have "Essential Claims" relating to the particular standard and to make a statement about the

applicable RF or RAND license. The scope of what is considered an “Essential Claim” can be relatively narrow. In this way, RF or RAND standards obligations often are not worded in a manner that encumbers related patents of participating companies. Thus, even if a standard is released on a RF or RAND basis, many other companies - including those developing the standards - may be actively patenting applications, uses or extensions building upon the standard.

The value of patents relating to a widely-used standard can be high. This value is driven higher in large part because adoption of the standard acts to increase the potential licensing footprint of the patent. Forgent has extracted royalties from a patent relating to a JPEG compression standard that has now migrated to a mass market standard. Forgent acquired the patent from Compression Labs which had not asserted the patent for a long time.⁷⁴

Recently, several patents and many more pending applications were sold at a bankruptcy auction for US\$15.5M.⁷⁵ The auction was hotly contested and watched by many Internet companies and the Electronic Frontier Foundation. The patent portfolio was originally filed by Commerce One - even as Commerce One was likely involved in various standards activity including ebXML, UBL (xCBL), and UDDI.

A company with patents may also have additional options or leverage with other patent owners involved in the standards, or may be able to participate in patent pools that are set up to further operation of the standard.⁷⁶ Care must be taken in such patent pooling to avoid patent misuse. Philips, Sony and others adopted a patent licensing strategy for compact disks (including CD-R and CD-RW formats) with a patent pool arrangement estimated by some in the industry to have earned hundreds of millions in patent royalties.⁷⁷

In addition, from a freedom to operate perspective, many electronic companies are wary of relying solely on the RAND and RF policies promulgated by standards. Among other things, obligations on companies to submit or identify any patents impacting a standard vary, or are even unstated, and are not necessarily enforced in a timely fashion. Standards can dissolve too. Anecdotes abound about large-patent holding companies delaying and scuttling standards work while retaining their patent rights. Consider the story by Karen Coyle as quoted in the NISO white paper:

“One organization I sat in on EBX, refused to move its standard from .9 to 1.0 unless all organizations involved disclosed any patent interests. I sat in a room and watched folks from Microsoft, Adobe, Xerox and other companies sit stone-faced, each refusing to [speak] first, and finally the organization dissolved.”⁷⁸

Electronic companies who invested in the standard without an independent patent position are then exposed. In this context, a patent position is seen as a valuable tool that remains at the control of management if needed. Absent a patent holding, innovation may be lost and management’s strategic options diminished.

b) Navigating Open Source

Another blended control environment, electronics companies encounter involves open source software. Open source software is often released for free with an open source license.

Many flavors of open source licenses exist and their enforceability has gone largely untested by courts.⁷⁹ While open source is often thought of as a copyright license, some proponents argue an implied patent license may attach as well. Discussions are said to be underway to make a free patent license explicit in the next version of the most common open source, the GNU General Public License, originally authored by Richard Stallman. Most electronic companies active in open source development, such as HP, remain aggressive in filing patents too. Since open source does not provide a specific royalty stream - securing a controllable proprietary position and obtaining patents on other aspects of a product or service wrapped around an open source release can become more critical. This reality requires careful IP management to maintain a clear division between proprietary and open technologies developed by a company.

c) Navigating Joint Development

Many electronics companies rely on technology developed by others in their product development cycle. For example, many electronic devices are a hybrid of software and hardware. The devices often employ electrical, optical and other technologies. Companies can often get to market quicker and faster by drawing on technology, including proprietary technology, from different companies. Joint development agreements are increasingly being used to drive these ventures.⁸⁰ These agreements have explicit provisions on ownership of intellectual property and patents arising out of the joint venture. Electronic companies engaged in joint development must carefully navigate and identify inventions and which party conceived the invention. This is critical in managing ownership of a patent portfolio, ensuring freedom to operate, and avoiding encumbrances to transferring assets related to the joint development.

III. Level of Investment

A. Patent Benchmarking

Electronic companies find it useful to compare their patent filing activity to the levels of their competitors. The simplest approach is to compare the total number of patents filed in a given year (or a given period) to the filings of the competitors over the same time period. Usually, however, this metric is not useful given the differences between the companies (i.e., different company size, different number of employees, different market share, different revenue, etc.).

It is more useful to consider patent filing data that has been normalized according to some publicly-available company metric, such as gross revenue, net revenue, or dollars devoted to research and development.⁸¹ Consider the following patent filing comparison of IBM and Microsoft based on gross revenue.

Company	Gross Revenues 2003	Issued US Patents 2003	Issued US Patents Per US\$100M of Gross Revenue
IBM	US\$89,130M	3435	3.9
Microsoft	US\$32,190M	520	1.6

An electronic company uses benchmarking data to determine, from a purely quantitative point of view, whether its filing activity is commensurate with the filings of its competitors. While useful, the numbers require a fair amount of interpretation. For example, one might conclude from the above table that Microsoft lagged IBM's patent activity in 2003, given that it received less than half as many patents per US\$100M of gross revenue as did IBM. From another point of view, one could argue that since Microsoft's gross revenue was about 36% of IBM's, then its patent activity should also be about 36% of IBM's. In fact, Microsoft's patent activity was 41% of IBM's in 2003 (i.e., comparing Microsoft's metric of 1.6 to IBM's of 3.9).

It is also useful to generate benchmarking data over a number of years, to more accurately compare companies, and to discern trends. For example, the following table presents IBM's benchmarking data based on gross revenue for years 2000 - 2003. This table illustrates that IBM is fairly consistent in its patent activity, at least over this time period.

Year	Issued US Patents Per \$100M of Gross Revenue
2000	3.3
2001	4.0
2002	4.1
2003	3.9

The above benchmarking data is based on patents *issued* in a given year. Ideally, benchmarks would be instead based on patent applications *filed* in a given year. Even with recent changes in U.S. patent law, complete patent filing information is not available to the public.⁸² Accordingly, benchmarking is typically based on issued patents, as in the examples above.

Emerging companies have a more difficult time performing benchmarking because they are often in emerging vertical markets that do not have established competitors with patent portfolios. However, they can extrapolate benchmarking data from other vertical markets that are representative.

B. Monitoring The Patents of Others

There are a number of situations where a company would like to monitor the patents of others. For example, prior to investing money in a product, or prior to releasing a product into the market, a company may want to know whether it has freedom to operate in the relevant field, free of any constraints imposed by patents of others. The company may also want to know whether its product is patentable in view of prior issued patents. Alternatively, the company may have identified a technical problem and would like to review issued patents to see if and how others have solved the problem. The company may want to design around the issued patents or to improve on its current technology. Indeed, the latter situation is exactly what the patent system is intended to facilitate.

Under the doctrine of willful infringement, however, if a company is found to have infringed a patent that the company knew about, the company could be subject to treble damages

and/or attorney fees incurred by the patent owner. The law concerning willful infringement is complex and changes from time to time, so companies are well advised to seek legal advice before searching patents of others, and after becoming aware of patents of others. These issues are discussed in greater detail in Sterne, Robert G., and Cornwell, David K.S, "Monitoring the U.S. Patents of Competitors: The Willfulness Risks to the Innovator,"⁸³ reproduced at the end of this article as an Attachment A.

As described by Sterne and Cornwell, in the recent past, knowledge of the existence of patents of others created a near absolute obligation for a company to obtain an exculpatory opinion of counsel when a potentially infringed patent was uncovered, regardless of whether there was any realistic expectation that the patent would ever be asserted against the company. Failure to obtain an exculpatory opinion of counsel, or failure to produce an opinion of counsel at a subsequent patent infringement trial, created an adverse presumption that such an opinion was or would have been unfavorable to the company. The adverse presumption often led to a finding of willful infringement, with the possibility of accompanying treble damages and/or attorney fees.

Obtaining opinions of counsel for known patents can be time consuming and expensive. As a result, many companies implemented policies to discourage or forbid patent searching by inventors and patent attorneys. As a result, one of the main purposes of the patent system was voided because the an important portion of the public, the people actively working in a particular field of technology, intentionally avoided learning from the patent disclosures of other.

In the *Knorr-Bremse* decision⁸⁴, the Federal Circuit recently revisited prior holdings associated with opinions of counsel and willful infringement. In particular, the court held that "no adverse inference shall arise" from a failure to obtain an opinion of counsel, or from a refusal to produce an opinion of counsel at trial. *Knorr-Bremse* thus arguably negates at least some of the reasons for avoiding monitoring the patents of others.

As discussed by the dissent, however, the majority noted that, "there continues to be 'an affirmative duty of due care to avoid infringement of the known patent rights of others.'"⁸⁵ The court did not define the scope of this duty. Nor did the court indicate whether a failure to abide by the duty would lead to a finding of willful infringement. It appears that the duty requires some action short of an exculpatory legal opinion. Perhaps a review by technical people within the company would suffice to meet the duty. Such a review would likely require a review of the prosecution history of the patent. But whether a review of such complex legal documents by anyone other than a patent agent or patent attorney would suffice is not clear. Moreover, it is unlikely that technical people alone would be competent to evaluate issues such as invalidity of patent claims, adequacy of the written description, infringement under the doctrine of equivalents, and claim construction. In time, the courts will no doubt be faced with fact-specific issues that will help to define what the duty entails as well as the ramifications for failure to abide by the duty.

In the meantime, risk-adverse companies will likely continue as they have in the past, either restricting the monitoring of other's patents, or obtaining opinions of counsel whenever

patents are identified. Under *Knorr-Bremse*, such opinions can be used in court when favorable, or withheld if unfavorable, without any adverse presumptions.

Less risk-adverse companies will monitor patents of others, as they have in the past. These companies should perform at least an initial evaluation on their own of any potentially relevant patents. These companies would be well advised to seek advice of counsel if there is any question as to infringement. In any case, the company should document any and all attempts to avoid infringing known patents of others, including in-house evaluations and attempts to design around the patents.

One could argue that it would be prudent for an electronic company to make sure it did not have a U.S. patent problem before releasing a product or service in the U.S. Theoretically that may make good business sense. But in practice a sizeable percentage of U.S. electronic companies do not perform such a freedom to operate investigation. The calculus used in reaching this prevalent approach is one balancing time and cost versus the down side risk of possible infringement. It is assumed that there may be many U.S. patents that could possibly cover an electronic product or service and if an infringement problem surfaces later it can be dealt with at that time.

By and large, most electronic companies do not monitor the U.S. patents of competitors. This is in contrast to some other industries, such as pharmaceuticals and medical devices where such practices are much more prevalent. There are two main reasons why failure to monitor is the predominant approach in electronics: timing and possible legal liability. Timing is due to the lag between when a patent application is filed to when it is published or issued, which at a minimum is 18 months. The technical literature is often much quicker in reporting technical breakthroughs, albeit not in the detail often found in a patent specification.

The trend seems to be for electronic companies of all size and age to monitor the patents of their competitors. The thinking is that the needed knowledge outweighs the possible willful infringement risk. These companies typically do not prepare a legal opinion of a patent of a competitor unless it perceives the patent to be of substantial infringement risk. Thus, under this approach, these electronic companies do not let the current state of the law to inhibit them in their strategic information gathering or to cause them to incur the significant cost of preparation of opinions on patents that may or may not be asserted against them in the future.

IV. Conclusion

The patent world for electronic companies is complex and changing. It is becoming more important all the time. No longer is it an obscure issue as it was 25 years ago. C level management (that is senior managers at the CEO, COO, CTO, CFO, CIO, etc. level) and Boards of Directors, as well as other corporate stakeholders, must concern themselves with the patent issues of the company: ownership of patents and other IP; deciding on what inventions to patent; the size and composition of their patent portfolio; the patent portfolio outside the U.S.; monitoring the patents of competitors; freedom to operate; protecting market share and profitability using patents; enforcement licensing; patent issues involving standards; and

benchmarking their patent portfolio against others in their industry. We consulted key IP thought leaders in preparing this look in to the near future.

Kevin Rivette, Executive Advisor to The Boston Consulting Group and author of the famous Harvard Business School Press book *Rembrandts in the Attic* says,

“The “C” level position for IP strategy is a reality. The ascension of Marshal Phelps at Microsoft and Joe Byer’s monthly meetings with HP’s CEO and quarterly conversations with HP’s board on IP issues should be a real wake up call for most electronics companies. The need to integrate IP and business strategy to achieve business goals at the highest management levels is here today and growing. As I have spoken about in the past, the Chief Intellectual Property Officer (CIPO) role will become a clear differentiator for successful companies. This new CIPO or VP of Intellectual Property Strategy (just ask Jack Klingert who is said to have recently been appointed to just such a position at Amazon.com) will develop the new competitive IP business models and strategies. These new strategies will define how well electronics’ companies create advantaged innovation networks, how they deal with the threats and opportunities of Open Source and industrial standards as well as how they shape and architect the new core competencies of the corporation in an out-sourced, off-shored world. This is an exiting time as IP and business strategies converge and reshape competition as we know it.”⁸⁶

Confronted with this patent asset playing field, insatiable demands for new innovation, and sometimes swift, punishing market swings, companies feel as if they face a Hobson’s choice – patents or else. On the other hand, new monetization opportunities for patents and ways to yield value are available that were unheard a short time ago.

With outsourcing and offshore business models, the intellectual property regimes of other countries are also increasingly coming under intense scrutiny. India and China are the two biggest examples. While India is perceived to have a somewhat effective IP regime, based on a British model, China⁸⁷ is perceived to be a “lawless” space in the intellectual property firmament where infringement is pervasive and will remain so until the Chinese Government is convinced its industry has leapfrogged to the point that it has the technology to compete equally on the world stage.⁸⁸ The top tier VCs in Silicon Valley, for example, are rumored not to fund an electronic startup today unless it has an off shore, out sourcing component, and it has an adequate IP plan for its activities in China.

Universities engaging in electronic research are experiencing similar concerns. Universities traditionally have engaged in fundamental research that leads to breakthrough inventions that spawn new technical industries. But they have lagged in effective ways to spin out their technology that provides sufficient rate of return to foster further basic research. Governmental and grant financing has filled the funding gap for such research. The biotech revolution changed the business model significantly in that universities were able to effectively spin out patented inventions to start ups and to collaborating larger companies for substantial payments and royalties. Similar licensing success has begun in the electronics arena. The next

five years may see even greater gains as universities increasingly monetize their patent portfolios in electronics both by creating new companies and by the license or sale of their electronic patents.⁸⁹

There are other important patent issues for electronic companies that are not covered in this article but are and will be important in the near future - - the next five years. The underfunding of the USPTO by the siphoning off of user fees by the U.S. Government continues at a high level and causes chronic problems for the agency. This has been a problem for the USPTO for many years. According to Herbert C. Wamsley⁹⁰, Executive Director of the Intellectual Property Owners Association:

"Congress has diverted three-quarters of a billion dollars away from the USPTO since 1992. The agency's current patent backlog and patent quality crises have been caused, in large part, by this diversion of funds. In its 2004 lame duck session, Congress raised patent fees but left open the possibility -- or likelihood -- of huge fee diversions in future years."

The alleged deficiencies by patent examiners in their patent searches and examinations are another concern. This is a funding and staffing issue. The uncertainty in claim construction and the resulting lack of notice to the public of what the patent covers is caused by Federal Circuit case law. The high cost and amount of time for patent litigation at the District Court and the uncertainty in the process and procedure of the Markman claim construction ruling are high on the list of concerns. The economic impact of enforcement licensing and the deterioration of profit margins caused by stacked royalties are of great concern.

The role of the Board of Directors in monitoring the strategic model and the implementation of the patent function of the company is becoming an important issue. IP assets are critical to shareholder value. As stated by Peter Detkin, former head of IP for Intel, and now a founder of Intellectual Ventures:

"Intellectual property assets are very valuable and strategic assets of a corporation. They are expensive to develop and maintain, and shareholders have a right to require that directors and officers manage these assets in a strategic and effective manner."

The high cost and huge management resources required for patent litigation has caused many to ask if there is a better way to solve patent disputes. Moreover, the criticism that the USPTO may be issuing patents that would not be allowed if the Examiner knew all of the relevant facts has also resulted in similar questioning. One solution now being proposed is the creation of an opposition system, which would allow members of the public to oppose the issuance of a patent application. The process being contemplated would mirror opposition mechanisms at the European Patent Office, the Japanese Patent Office, and other patent offices in major industrialized countries. The forum would probably be the USPTO and the officials running the process would probably be senior patent examiners or administrative law judges. It may be that the process will be the final step in the patent examination process so that patent attorneys would be the ones handing the proceedings for the patentees and the opposers. There

are many unanswered questions and concerns, but it seems clear that this idea will be very carefully considered in the next five years, and possibly implemented.

There is one thing that is certain about patents and electronic companies: Patents are a very important issue now and that will not change in the foreseeable future. C level management and Boards of Directors need to review the patent strategy and implementation of their company on a regular basis in order to protect the company and discharge their responsibilities to the other stakeholders of the company.

But with all of these issues predicted as coming in the next five years, it would be easy to jump to the wrong conclusion that the problems outweigh the benefits, that the “sky is falling” in the U.S. patent system. That could not be further from the truth. Yes, there are significant problems. But patent systems have always had significant problems. The law is always behind the technology. With the rapid pace of innovation in electronics today, it is easy to see why there would be problems in a patent system that has the same laws and rules for all technologies and all industries. But the importance of the U.S. patent system to innovation and job creation cannot be overstated. We asked Q. Todd Dickinson, former USPTO Commissioner, and now Vice President and Chief IP Counsel for GE, about what he thinks of the situation:

"Even though there are major systemic challenges, the U.S. patent system is finally coming in to its own for electronic companies, and is providing a set of legal rules that foster innovation, job creation, and investment through out the industry. It is critical that innovators receive ample returns for their inventions in order to foster rapid technical progress. The United States needs a strong, highly effective patent system to encourage and accelerate technical progress so that the U.S. maintains its preeminent position in this global marketplace."

The U.S. patent system is critical to electronic companies. It creates and maintains a legal framework that allows all participants to know how to make their best decisions. It fosters innovation, competition, and dissemination of technical information, eliminates duplicative efforts, rewards successful innovative risk takers, and penalizes copiers and poachers. It needs all of its stakeholders to foster the common good and not just look at the system for personal gain. The laws and regulations as well as the operation of the system need to fulfill the high ideals of the Constitution to foster progress in the useful arts by granting to inventors for a limited term exclusive rights to their inventions.

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² Founder in 1978 of SKGF. Email: rsterne@skgf.com

³ Director of SKGF. Email: mlee@skgf.com

⁴ Director of SKGF. Email: pgarrett@skgf.com

⁵ Director of SKGF. Email: mikem@skgf.com

⁶ Associate of SKGF. Email: dbanowit@skgf.com

⁷ Evan I. Schwartz, *Juice: The Creative Fuel That Drives Today's World-Class Inventors* 171 (Harvard Business School Press, Cambridge, MA, 2004) (“This uneven and capricious system of patent enforcement had endured from the previous half century, to the point that it became exceedingly rare for an independent inventor to win a case against a corporation. That’s one reason Katz had always aimed to negotiate and avoid going to court. But in 1982, everything turned around. That’s when the U.S. Court of Appeals for the Federal Circuit was established to hear all appeals of federal patent cases. With far more knowledgeable judges and uniform guidelines for patent enforcement, for the first time inventors now had something akin to a level playing field. This new central authority sent a clear message to the corporate world. This was the court that ended up ruling in 1991, that Kodak had infringed on Polaroid’s instant photography patents. The judge ordered Kodak to exit that business immediately and pay Polaroid near \$ 1 billion in damages, a record.”)

⁸ Recently the Federal Circuit has heard a number of cases *en banc* on fundamental issues of patent law. So the current state of patent law is far from finalized.

⁹ In fact, IBM brought about these Software Patent Guidelines as a result of its settlement with the USPTO of its Federal Circuit appeal of *In re Beauregard*, 53 F.3d 1583 (1995).

¹⁰ Another recent development is the cross licensing that is going on between very large non-US electronic companies. For example, Sony and Samsung just announced that they have agreed to share the bulk of their patents, roughly 90%, “in an unusual move that shows how changes in the electronics industry are pushing some rivals into closer cooperation.” Phred Dvorak and Evan Ramstad, *Sony, Samsung Will Share Bulk Of Their Patents*, THE WALL STREET JOURNAL, December 15, 2004, at B2.. This is in contrast to the patent litigation of Toshiba Corp of Japan which sued Hynix Semiconductor, Inc of South Korea in November, 2004, over memory-chip technology; while Matsushita Electric Industrial Co. of Japan and LG Electronics of South Korea are in a patent war over plasma displays that has resulted in a ban of each company’s products from its competitor’s home market. *Id.*

¹¹ Nicholas Varchaver, *The Patent King*, FORTUNE, May 5, 2001, at 202, available at

<http://www.fortune.com/fortune/investing/articles/0,15114,373291,00.html>.

¹² See http://www.lemelson.org/about/bio_jerry.php

¹³ Varchaver, *supra* note 11.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Arthur H. Stroyd, *Lemelson Lawsuits Languish*, May, 2000, available at

<http://www.mhia.org/psc/pdf/LemelsonLawsuitsLanguish.pdf>

²⁰ Varchaver, *supra* note 11.

²¹ *Id.*

²² Janet Rae-Dupree, *Powers of Invention*, U.S. NEWS & WORLD REPORT (Feb. 11, 2002) at 66, available at

http://www.lemelson.org/news/articles_of_interest_detail.php?id=418.

²³ Varchaver, *supra* note 11.

²⁴ Rae-Dupree, *supra* note 22.

²⁵ Bill Roberts, *How to Sink a Submarine*, ELECTRONIC BUSINESS, Apr. 1, 2002 at 27, available at

<http://static.highbeam.com/e/electronicbusiness/april012002/howtosinkasubmarinerulinginalemelsoncaseisavictory/>.

²⁶ Symbol -Tech. Inc. v. Lemelson Med. Educ. & Research Found., Ltd. P’ship., 301 F.Supp 2d 1147 (D. Nev. 2004).

²⁷ Symbol-Tech. Inc. v. Lemelson Med. Educ. & Research Found., Ltd. P’ship., No. 04-1451 (Fed. Cir. filed June 23, 2004).

²⁸ Raymond P. Niro is the founding and driving force of the firm and an outspoken advocate of this patent litigation contingency model as the only really effective mechanism for an individual inventor, small company, or investor group to obtain adequate relief against better financed electronic companies. He claims on his website to have “represented corporate and individual clients in more than 200 major patent cases” and that in “the past six years, Ray has recovered more than \$400 million for his clients through trials and settlements, and defeated claims brought against his clients for over \$100 million.” See <http://www.niroscavone.com/ourfirm/ourattorneys/raymondniro.html>

²⁹ Michael V. Ciresi and Ronald J. Schutz are the driving forces in this firm for patent litigation. They have achieved some very significant success. Notable are their wins in *Honeywell v. Minolta* camera auto-focus

litigation; *Atlantic Richfield Company, et al. v. Unocal Corporation, et al.*, gasoline additive case; *Fonar Corporation v. General Electric*, medical imaging litigation (USD\$103M jury award affirmed by the Federal Circuit); and their three *St. Clair* digital camera litigation wins in Delaware. See www.rkmc.com/selected_results.asp?resultId=4.

³⁰ This activity is often referred to as “offensive” licensing in the U.S. It is referred to as “enforcement” licensing in the U.K. because “offensive” has a negative connotation: it is “foul” or has an unpleasant “odor.” But regardless of the terminology employed, it involves a patent owner “forcing” a patent license on another for royalty or other financial/strategic benefit.

³¹ Schwartz, *supra* note 7, Chapter 10, which provides a fascinating account of Ron Katz’s inventions, patent strategy, and litigation and licensing success. A must read.

³² Schwartz, *supra* note 7, at p. 180: “He’s going after the top two thousand companies in the United States, and he has already landed financial giants such as Bank of America, First Union, T. Rowe Price, and Vanguard as licensees.”

³³ *Id.* at 180.

³⁴ An innovation used by LPL Licensing, LLC to present information to potential licensees is a two disk CD set that includes PDFs of the issued patents, their file histories, art of record, and other information. This eliminates the need of the potential licensee to obtain these records. SKGF and Bartlit, Beck represent LPL

³⁵ Press Release, “*Acacia Technologies Signs 64 New Digital Media Transmission License Agreements*,” November 2004.

³⁶ “*Update 1: Heat Turned Up on Streaming Video Patents*,” Aug. 8, 2004, at available at <http://www.forbes.com/associatedpress/feeds/ap/2004/08/08/ap1495622.html>.

³⁷ Hachman, “*Larry Flynt, Others Bow To Acacia Patents*,” ExtremeTech, Oct., 2003.

³⁸ John Borland, “*Acacia Purchase Creates New Patent Powerhouse*,” CNETnews, December. 16, 2004, available at, http://new.com.com/Acacia+purcahse+creats+New+patent+powerhouse/2100-1030_3-5494119.html?tag=st_prev.

³⁹ *NTP, Inc. v. Research in Motion, Ltd.*, No. 3:02CV767 (E.D. Va. Aug. 5, 2003)(“Final Judgment”).

⁴⁰ *NTP, Inc. v. Research In Motion, Ltd.*, No. 03-1615 (Fed. Cir. Dec. 14, 2004).

⁴¹ Patrick Seitz, *RIM Beats Analyst Views, But Patent Suit Troubling*, INVESTOR'S BUSINESS DAILY, December 22, 2004, front page. According to this article, RIM has reserved 12 cents per share for Q3 2004 for this patent litigation. This reserve should be measured against its profits of 58 cents per share for this period. Wall Street is watching this patent suit very carefully even though RIM sales and profits continue to grow dramatically.

⁴² See <http://www.ipvalue.com/company/index.html>.

⁴³ See www.ipvalue.com.

⁴⁴ www.thinkfire.com.

⁴⁵ www.btgplc.com.

⁴⁶ www.fairfield.com.

⁴⁷ See, Qualcomm home page at <http://www.qualcomm.com/>.

⁴⁸ Qualcomm 2003 Annual Report, available at http://www.qualcomm.com/ir/annualreport/QCOM_AR2003.pdf.

⁴⁹ *Id.*

⁵⁰ See, Rambus home page at <http://www.rambus.com/>.

⁵¹ See, MPEG LA home page at <http://www.mpegla.com/>.

⁵² Brad Stone, *Factory of the Future?*, NEWSWEEK, Nov. 22, 2004 at 60, available at <http://www.msnbc.msn.com/id/6478691/site/newsweek>.

⁵³ See, e.g., Alorie Gilbert, *Commerce One patent sale ends in mystery*, CNET NEWS.com, Dec. 07, 2004, available at <http://uk.builder.com/architecture/web/0,39026570,39228956,00.htm> and Commerce One Web Services offering described at <http://xml.coverpages.org/CommerceOnePatents.html>.

⁵⁴ Schwartz, *supra* at note 7, at p. 178.

⁵⁵ See www.b-p.com

⁵⁶ See www.ip-strategy.com

⁵⁷ See www.oceantomo.com

⁵⁸ Robert Greene Sterne, Michael Q. Lee, Richard M. Libman, “*Business Method Patents For Financial Products and Services*,” IP VALUE 2005, BUILDING AND ENFORCING INTELLECTUAL PROPERTY VALUE, AN INTERNATIONAL GUIDE FOR THE BOARDROOM, Globe White Page Ltd, London, UK, 2004, at 147-151.

⁵⁹ See, for example, the “snapshot” patenting approach described in our earlier article published by the Cutter Consortium, “*Snapshot Patenting-- A Practical Alternative to Protecting Innovation*,” Parts 1 and 2, by M. Lee and M. Messinger, Jan. 27, 2004, available at <http://www.cutter.com/research/2004/edge040127.html>.

⁶⁰ For start up and emerging companies, we have found that a informal “brown bag” lunch sessions with a patent attorney can be specially effective and fun. These sessions provide an excellent forum for engineers and senior managers (CEOs, COOs, CFOs, etc.) to debunk myths, swap war stories, and discuss what is “patentable”, how patents impact a company’s bottom-line or shareholder value, etc.

⁶¹ At one conference in 2001, GE in-house patent counsel indicated inventions at GE were divided into two groups for defensive and offensive patenting. Additional care was then taken during the drafting and filing of patent applications to ensure they covered defensive or offensive goals. Generally speaking, defensive cases focused on GE core products and services. Offensive cases extended the focus to cover competitors’ potential design around efforts or attempts to migrate to new business areas. HP in-house counsel have outlined a remarkable process for conducting workshops (called InventShops and Innovation Workshops) where inventors or company thought leaders are gathered for half-day or two-day sessions solely to brainstorm futuristic inventions that may apply five or more years out into the future. See, “*Making Innovation Pay*,” by Stephen P. Fox and Guy J. Kelley, 199-210, included in *From Ideas to Assets: Investing Wisely in Intellectual Property* by Bruce Berman.

⁶² See, earlier article by Mike Lee originally published by Cutter Consortium, “Cutter IT E-Mail Advisor, June 2004, the weekly supplement of the Cutter IT Journal,” text available at <http://www.skgf.com/media/news/news.119.pdf>.

⁶³ Note that there is a fair degree of overlap between the factors.

⁶⁴ We have also carried out with several companies a regular monthly budget and planning process that explicitly brings technical, business and legal resources together, once a month, to analyze and approve a cost-effective intellectual property strategy. We have found this be an especially agile approach.

⁶⁵ See, selection by Joseph J. Daniele of XEROX Corp., “*The Intellectual Asset Manager*” 186-204, included in *Profiting from Intellectual Capital: Extracting Value from Innovation* by Patrick Sullivan (Wiley & Sons. Inc., New York, NY, 1998).

⁶⁶ See, selection by Lori Morrison and Paul Germeraad of Avery-Dennison Corp., “*Intellectual Asset Management at Avery Dennison*” 221-241, included in *Profiting from Intellectual Capital: Extracting Value from Innovation* by Patrick Sullivan (Wiley & Sons. Inc., New York, NY, 1998).

⁶⁷ Examples of such IAM tools and products include those offered by PatentCafe (<http://erp.patentcafe.com/erp.asp>), and Delphion (<http://www.delphion.com/products-research>).

⁶⁸ See, similar Exhibit 3-1 discussed in “*Capturing Innovation: Turning Intellectual Assets into Business Assets*,” by Jeffrey Brandt, included in *From Ideas to Assets: Investing Wisely in Intellectual Property*, 68 by Bruce Berman.

⁶⁹ See, the recent warning on patent pendency and inadequate resources at the USPTO posted at CNET news. Herb Wamsley, “*The Looming Threat to U.S. high tech’s future*”, Dec. 1, 2004, available at http://news.com.com/The+looming+threat+to+U.S.+high+techs+future/2010-1028_3-5471673.html.

⁷⁰ A more detailed description of the types of applications and filing process is found in the article by Eric Steffe and Michael Messinger, “*Overview of the Patent Process*” available at http://www.skgf.com/index.php?page=ip_advisor§ion=process.

⁷¹ We only scratch the surface here of what may be a powerful new industry paradigm. As noted by one commentator, in many electronics sectors an “open innovation” business model that leverages innovation developed within a company and that of others may be most profitable in today’s interrelated marketplace with wide dissemination of knowledge. See, Henry W. Chesbrough, *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Publishing Corp. Cambridge, MA, 2003.

⁷² This is especially true for commercial quality video and audio coding as noted by ANSI “[I]t is virtually impossible today . . . to develop an audio or video coding standard with a reasonable performance that does not require the use of one or, more likely, several patents.” The World Intellectual Property Organization (WIPO) points this is true also for “a number of other products, particularly in the fields of telecommunications and electronics. What this means is that companies willing to manufacture products that comply with certain standards may need to use patented technology, for which prior authorization from the patent holder will be required.” See, http://www.wipo.int/sme/en/documents/ip_standards.htm.

⁷³ See, www.w3c.org.

⁷⁴ See, white paper prepared for National Information Standards Organization, by Priscilla Caplan, *Patents and Open Standards*, at 2 Oct. 2003, available at http://www.niso.org/press/whitepapers/Patents_Caplan.pdf

⁷⁵ See, "Mystery bidder snaps up Commerce One Patents," *The Register*, at http://www.theregister.co.uk/2004/12/07/commerce_patent_sale, and "Bankrupt Commerce One Patents Fetch \$15.5M," BizReport, at <http://www.bizreport.com/news/8461>.

⁷⁶ For example, 18 different rights holders formed a patent pool administered by a Denver company for the audio compression standard ISO/IEC MPEG-4. See, P. Caplan at 5.

⁷⁷ See, e.g., <http://www.licensing.philips.com/licensees/conditions/cd/>.

⁷⁸ P. Caplan *supra* note 52 at 8.

⁷⁹ See generally www.opensource.org.

⁸⁰ See, e.g., the recent joint development between Cross Match Technologies, Inc. and Lumidigm Corp. described in the New York Times article, *WHAT'S NEXT: Is It Really You? A Scanner Delves Beneath Fingerprints*, by Ian Austen, Oct. 14, 2004, available at <http://www.nytimes.com/2004/10/14/technology/circuits/14next.html?oref=login>.

⁸¹ The value of patent benchmarking data is a function of the accuracy of the publicly-available information used to generate the benchmarks. It is sometimes difficult to obtain accurate and complete information, and this is the case even with the example benchmarking data provided herein.

⁸² Under current U.S. patent law, a patent application is not published until 18 months after its effective filing date. This time delay makes it impossible to generate current benchmarks based on patent filings. Also, it is possible for an applicant to prevent publication by agreeing to not file the subject patent application outside the United States. Thus, there is no certainty of having complete filing information when generating patent benchmarks based on filing statistics.

⁸³ The SEDONA CONFERENCE JOURNAL, Vol. 5, Fall 2004.

⁸⁴ Knorr-Bremse Systems Fuer Nutzfahrzeuge v. Dana Corp., 383 F.3d 1337 (Fed. Cir. 2004).

⁸⁵ *Id.* at 1345.

⁸⁶ See also, Kevin G. Rivette, *How to Win the IP Triathlon*, CHIEF LEGAL EXECUTIVE, vol. 2 no. 3 at 33 (Fall 2003) (highlighting the tasks of a CIPO).

⁸⁷ See Bharat Anand and Alexander Galetovic, *How Market Smarts Can Protect Property Rights*, HARVARD BUSINESS REVIEW at 73 (December 2004). According to these authors, "Nintendo estimates that counterfeiting in China alone cost it \$720 million in sales last year. Perhaps five out of six motorcycles sold in China bearing Yamaha nameplates are fakes. And, according to the trade group Business Software Alliance, more than half of all installed software programs in Asia Pacific, Latin America, and Eastern Europe are pirated versions of some company's legal property." At 73. The authors go on to say, "China's accession to the WTO, for example, entails committing itself to safeguarding foreign intellectual property. And as China's own companies begin to innovate and turn their innovations into sought-after product lines, it's conceivable that its government will recognize an element of self-interest in protecting IP generally." At 74. They further state, "[t]he protections that bundling offers explain why Microsoft is willing to do business in the Chinese market, where 92% of all software installed last year, it is estimated, was pirated." At 77. The authors explore six strategies to help companies cope with the problem of weak IP rights in many developing countries.

⁸⁸ See Kevin Rivette and David Michael, *Protecting Trade Secrets in China: How CEOs Must Build Intellectual Property Strategies*, CHIEF EXECUTIVE at 52 (July 2004).

⁸⁹ See e.g., Bernard Wysocki, Jr., *Columbia's Pursuit of Patent Riches Angers Companies*, THE WALL STREET JOURNAL, Vol. 244, No. 121, at A1 (December 21, 2004).

⁹⁰ See, www.ipo.org