

**PRACTICAL STRATEGIES TO DEVELOP AN IP PORTFOLIO
AND AVOID MISTAKES PERTAINING TO IP
FOR HIGH-TECH STARTUP AND SMALL TECHNOLOGY COMPANIES¹**

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PRACTICAL STRATEGIES TO DEVELOP AN IP PORTFOLIO AND AVOID MISTAKES PERTAINING TO IP FOR HIGH-TECH STARTUP AND SMALL TECHNOLOGY COMPANIES

I. INTRODUCTION

For many startup and small technology companies, especially in the high tech sector, one of the most important assets associated with them is their intellectual property (IP). In many cases, the IP is the invention, discovery or concept that will serve as the foundation and primary advantage for the company's business model. An IP portfolio can be one of the important aspects of a company's ability to attract investment dollars and allow the business to develop and initiate new products, generate income through the licensing, sale, or commercialization of the IP-protected products or services that may significantly improve the company's market share or profit margins, and to maximize the return for investors in the event of a sale, merger or acquisition, or even dissolution.

However, too many startup and small technology companies have utilized IP an in ad-hoc basis without considering IP as a strategic part of their business model. This paper will focus on the importance of protecting intellectual property (IP), several forms of IP protection available for startup and small technology companies, and practical IP strategies to develop an IP portfolio that can be aligned strategically with their business model and to avoid mistakes pertaining to IP that can be costly or fatal for a startup and small technology company.

II. THE IMPORTANCE OF PROTECTING INTELLECTUAL PROPERTY

For companies in the high tech sector today, protection of new ideas and innovations by way of patents, trademarks, copyrights, and trade secrets (collectively, "intellectual property," or "IP") is critical for survival. Startups, in particular, must protect their new ideas and innovations to increase their financial worth and, hopefully, compete with more established companies.

The increasing importance of IP in the high tech sector has manifested in many different ways, such as the proliferation of high-impact IP litigation and large damage awards between high tech companies facing both domestic and foreign competitors, the frequency of cross-licensing and patent pooling arrangements, and, in particular, the substantial royalty fees obtained from strong IP portfolios. Several examples of high-impact IP litigation are presented as follows:

In 1990, Polaroid was awarded a record-setting \$925 million in damages after the Massachusetts court concluded that Eastman Kodak had infringed seven of Polaroid's patents relating to instant photography.² As a result of such patent infringements, Kodak was forced to shut down its \$1.5 billion manufacturing plant, lay off 700 workers, and spend nearly \$500

² Polaroid Corp., v. Eastman Kodak Co., 16 U.S.P.Q.2d 1481 (D. Mass 1990).

million to buy back the 16 million instant cameras sold to consumers between 1976 and 1985. Kodak's entire instant photography business was destroyed.

In August 2003, Eolas Technologies Inc. was awarded \$565 million in damages after a court concluded that Microsoft Corp., had infringed the claims of its patent (U.S. Patent No. 5,838,906) for browser plug-ins, tools that enable developers to embed interactive programs in Web pages.³ The Web browser technology of Eolas Technologies allows users to execute a remote program, such as a Flash or Media video player, and other interactive Web content, so that content from the remote program will be displayed on the browser window. Microsoft had improperly used the patented technology in its Internet Explorer browser application that was bundled into Windows. The verdict subsequently got reversed on appeal in March 2005, on the ground of new "prior art", but did not undermine the significance of large damage awards.

More recently, in early 2005, NTP, Inc., a patent holding company, established in the early 1990's by an inventor, Thomas Campana and his patent lawyer, Don Stout, to manage a patent portfolio regarding wireless email technology, settled a patent infringement lawsuit with Research in Motion (RIM), maker of the popular BlackBerry handhelds for \$450 million.⁴ The settlement was reached after RIM was ordered by a Virginia court to pay \$53.7 million for damages and attorneys fees, and an injunction was granted enjoining RIM from selling, using or importing BlackBerry handhelds and server software in the U.S.⁵

Trademark, copyright and trade secret litigants are also receiving high damage awards. For example, in 1988, Fujitsu agreed to pay approximately \$1 billion to IBM to resolve a dispute over copyrights on mainframe operating system software.⁶ Early in March 2005, a California jury found Toshiba Corp., guilty of theft of trade secrets in Toshiba's NAND flash chips, CompactFlash cards, Secure Digital and xD-Picture cards from Lexar Media and issued damages of \$381.4 million dollars, and an additional \$84 million in punitive damages.⁷ The \$465 million in total damages represent the largest IP verdict in California history and the third largest IP verdict in the United States.

International competition is another reason why U.S. companies are focusing on IP. Valid IP rights can restrict infringing products from being imported and sold in the U.S. Foreign companies, particularly Japanese and Korean companies, are placing great emphasis on IP. For example, listed below are the top 10 companies to receive the most U.S. patents in the last two calendar years, 2003 and 2004.

³ Eolas Technology v. Microsoft Corp., No. 99 C 0626 (N.D. Ill. Jan. 14, 2004)

⁴ Wall St. J., March 17, 2005; Patent, Trademark, Copyright Journal - Vol. 69, No. 1712 - March 18, 2005, pages 504-505.

⁵ NTP Inc. v. Research in Motion, Ltd., 270 F.Supp.2d 751 (E.D. Va. 2003).

⁶ Bus. Wk., May 22, 1989, at 78.

⁷ Lexar Media v. Toshiba Corp., Case No. CV-812458, Superior Court in San Jose, California.

Top 10 Private Sector Patent Recipients for the 2003 Calendar Year

Preliminary Rank in 2003*	Preliminary # Patents in 2003*	Organization*	(Final Rank in 2002)	(Final Number of Patents in 2002)
1	3,415	International Business Machines Corp.	(1)	(3,288)
2	1,992	Canon Kabushiki Kaisha	(2)	(1,893)
3	1,893	Hitachi, Ltd.	(5)	(1,601)
4	1,786	Matsushita Electric Industrial Co., Ltd.	(6)	(1,544)
5	1,759	Hewlett-Packard L.P.	(9)	(1,385)
6	1,707	Micron Technology, Inc.	(3)	(1,833)
7	1,592	Intel Corp.	(15)	(1,077)
8	1,353	Koninklijke Philips Electronics N.V.	(16)	(842)
9	1,313	Samsung Electronics Co., Ltd.	(11)	(1,328)
10	1,311	Sony Corp.	(7)	(1,434)

Top 10 Private Sector Patent Recipients for the 2004 Calendar Year

Preliminary Rank in 2004*	Preliminary # Patents in 2004*	Organization*	(Final Rank in 2003)	(Final Number of Patents in 2003)
1	3,248	International Business Machines Corp.	(1)	(3,415)
2	1,934	Matsushita Electric Industrial Co., Ltd. **	(4)	(1,774) **
3	1,805	Canon Kabushiki Kaisha	(2)	(1,992)
4	1,775	Hewlett-Packard	(5)	(1,759) ***
5	1,760	Micron Technology, Inc.	(6)	(1,707)
6	1,604	Samsung Electronics Co., Ltd.	(9)	(1,313)
7	1,601	Intel Corp.	(7)	(1,592)
8	1,514	Hitachi, Ltd	(3)	(1,893)
9	1,310	Toshiba Corp.	(13)	(1,184)
10	1,305	Sony Corp.	(10)	(1,311)

In 2003, six of the top 10 U.S. patent holders were foreign companies. In 2004, seven of the top 10 U.S. patent holders were foreign companies. These foreign companies, particularly, Japanese and Korean companies have been very aggressive in securing U.S. patents, and forcing many U.S. startups or young technology companies to take more licenses, or even, opt out of business if their IP rights are not properly secured. For example, in early 1990,

Motorola's 68030 micro-processor allegedly infringed a single patent owned by Hitachi. Such a microprocessor was commonly employed in many PCs at that time, including those from Apple Computer. Hitachi obtained a court injunction to prevent Motorola from producing these microprocessors until a royalty fee was paid. Motorola was faced with a business decision to cease production of a highly profitable product, or pay a significant fee to Hitachi. Motorola was forced to negotiate a cross-license with Hitachi and eventually re-design the portion of the 68030 that infringed that Hitachi patent.⁸ Thus, a single patent owned by Hitachi temporarily crippled both Motorola and Apple Computer.

Apart from litigation and foreign competition, some United States companies have also utilized IP assets as a means to obtain substantial profits. For example, during the period of 1987-1992, Texas Instruments ("TI") earned approximately \$900 million simply from patent license royalties, which was more than its net income from the same period.⁹ More recently, IBM's aggressive IP effort has boosted patent licensing royalties a phenomenal 3,300 percent, from \$30 million in 1990 to well over \$1 billion annually today. This is \$1 billion in net annual recurring revenues which is almost 1/9 of IBM's yearly pretax profits - flowing straight to the bottom line. The successes of Texas Instruments ("TI") and IBM have spurred other high technology companies, such as Xerox, Hewlett-Packard ("HP"), Intel, and Micron Technology to systematically mine their IP portfolios and aggressively pursue litigation for revenue opportunities.

In view of the threat of litigation, foreign competition, and aggressive licensing programs, there is no question but that IP has become a key economic component in every high-tech startup. IP rights are generally obtained from four common categories: patents (new or incrementally improved devices, designs, processes or methods), trademarks (slogans, logos, or product names), copyrights (songs, graphics, or text) and trade secrets (formulas, patterns, compilations, programs, processes, and business information such as market research studies, pricing policies, and customer lists). Certain ideas (such as software) may be protected in more than one way (e.g., copyright, trade secret and patent). The processes, costs, difficulties and benefits associated with each type of protection vary from relatively simple and inexpensive (copyrights) to more complex and costly (patents). Whatever its form, however, protecting IP can provide startup technology companies with several competitive advantages, advantages which frequently take on disproportionately increased importance for their businesses.

First, IP rights can be used "offensively," allowing the company to control who uses its creations, technologies or ideas. As a result, the company can charge more for its products than products which lack the innovations. In addition, the company can also improve its brand and market position, while maintaining its product or service advantage. IP rights, combined with other marketing tools (such as advertisements and other sales promotion activities) can be crucial for differentiating products and services and making them easily recognizable; promoting products or services and creating a loyal clientele; and diversifying a market strategy to various target groups. Alternatively, the company may opt to license its ideas to competitors, either for a fee or in exchange for the right to use some desired technology belonging to the competitor (a "cross-license"). For smaller companies, offensively exploiting IP assets to their fullest monetary and competitive potential often can mean the difference in the long run between success and failure on the bottom line.

Second, acquiring and maintaining an IP portfolio can have a "defensive" value as well. Having patents on a particular technology, for instance, often may help insulate a company from

⁸ 36 Elec. News 1820 (1990).

⁹ Wall St. J., Jan. 15, 1992.

accusations of infringement by a competitor holding patents on related technologies. If the smaller company is able to secure patents on its technology, it will often be a much less attractive lawsuit target by bigger competitors. Conversely, if left unprotected, the startup company may essentially be inviting infringement accusations from those which have IP on related concepts or technologies. Even if defensible based on the facts, competitors know that patent litigation is one of the most costly types of lawsuits and can quickly drain a smaller company of vital resources. Having a portfolio of IP assets both helps deter competitors from pursuing otherwise questionable claims of infringement, as well as providing the smaller company with "bargaining chips" (cross-licensing, etc.) to use in settling lawsuits.

Third, in an industry where joint ventures, investment capital influxes, mergers and acquisitions are commonplace, IP assets have a transactional value as well. In the high-tech sector, an IP portfolio is the recognized way of identifying and valuing a company's assets. In a typical high-tech startup, these intangible assets are often more valuable than a company's "hard" assets, and are thus critical in terms of obtaining financing or enhancing a startup's merger or acquisition value. Investors look for companies with income streams and/or defensible market positions. A great deal of emphasis is thus placed on the IP portfolio as a clear and concise delineation of a business' underlying technology and its attendant ability to secure those positions and generate the desired income stream.

Investing in the development of new ideas can be a smaller company's most valuable means of competing in an already competitive industry. However, without corresponding protection and leveraging of the creations and innovations which result, such efforts far too often are wasted. Actively pursuing and protecting IP assets is critical to the success of a smaller company in the high-tech industry, as is being careful to avoid infringement of its competitors' patents, trademarks and copyrights. Failure to do either can devastate a company. Although the downside of failing to incorporate IP planning and leveraging is potentially catastrophic, smaller startups in this sector also stand to potentially gain the most through strategic IP acquisition and management. As larger companies already fully realize, it is critical to understand the rights available to protect new ideas and innovations and to continually evaluate how to maximize the advantages (both offensive and defensive) that such assets provide. Without a coherent plan to acquire, manage and protect its IP, a startup or small company in the high-tech sector will always be, at best, a small company.

III. TYPES OF IP PROTECTION

An understanding of the major types or categories of intellectual property (IP) rights is a prerequisite for their successful management. A broad overview of the basics of intellectual property is presented below from a startup perspective.

1. Patents

Innovative and creative ideas are at the heart of most successful businesses. Ideas by themselves, however, have little value. They need to be developed, turned into innovative products or services and commercialized successfully to reap the benefits of innovation and creativity. Patents can be crucial for turning innovative ideas and inventions into competitive products that significantly increase profit margins.

Patents are governed exclusively by federal law. Under the patent statute, there are three primary types of patents: utility, design and plant patents. However, plant patents are not relevant in the context of high-tech startup companies, and, therefore, need not be described

herein. For high-tech startup companies, a utility patent covers the useful or functional aspects of innovative technology, including, for example, machines, processes (e.g., software algorithms and related processes), chemical compositions, methods of manufacturing, articles of manufacture,¹⁰ such as computer readable media containing software instructions,¹¹ and even, methods of doing business.¹² In contrast to a utility patent, a design patent protects only the appearance or ornamental aspects of a useful article, not its functional aspect.¹³ A design patent covers, for example, the shape or body features of an Apple iPod, a Nokia cell phone or a Sony MP3 player.

In general, a utility or design patent application must be "novel" and not "obvious" to a person of "ordinary skill in the art" at the time the invention was made.¹⁴ In addition, the utility patent application must be sufficiently descriptive of the disclosed invention in clear and complete terms as to enable any person skilled in the art to make and use the invention, including the best way to make and use the invention known at the time of filing the patent application.¹⁵ Moreover, patent applications need to be filed within one year of any public disclosure.¹⁶ The term "public disclosure" includes a prior sale or offer for sale, prior use, prior publication, prior public and general knowledge, or similar public displays or advertising. There are some exceptions as to what constitutes "public disclosure"; but once this one-year period has run, the patent filing will not be permitted, or otherwise, be void.

A patent, once granted, gives the patent owner the right to exclude all others from exploiting, i.e., making, using, or selling the patented (claimed) invention.¹⁷ The right to exclude covers products that are not only identical but also "equivalent" to the patented (claimed) invention.¹⁸ A utility patent is granted to the patent owner by the government, typically, for a period of 17-20 years depending on its filing date, in return for a complete description of the invention in the patent application.¹⁹ A design patent expires 14 years after issuance.²⁰ This is considered to be a fair reward to the inventor or patent owner for an adequate disclosure of a claimed invention which is novel, useful and non-obvious. In this way, the patent system seeks to balance the need for exclusivity of the patent owner with the need to encourage the wider dissemination of new knowledge or information so that others may learn from it and improve upon the so-called 'prior art' (which may otherwise be kept as a trade secret indefinitely). The

¹⁰ 35 U.S.C. §101.

¹¹ See In re Beauregard, 53 F.3d 1583 (Fed. Cir. 1995).

¹² See State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d 1368, 1374, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998), which relates to an investment structure (U.S. Patent No. 5,193,056) comprising a "Hub and Spoke" arrangement in which the assets in mutual funds ("Spokes") were pooled in an investment portfolio ("Hub") so that the funds could be treated as a partnership for federal income tax purposes.

¹³ 35 U.S.C. §171.

¹⁴ 35 U.S.C. §102 and §103.

¹⁵ 35 U.S.C. §112.

¹⁶ 35 U.S.C. §102(a), §102(b), and §102(e).

¹⁷ 35 U.S.C. §154 (1988).

¹⁸ See Graver Tank Co. v. Linde Air Prod. Co., 339 U.S. 605, 85 U.S.P.Q. (BNA) 328 (1950), which states that "the produce is deemed equivalent if it performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed invention."

¹⁹ A "utility" patent issuing from a patent application filed on or after June 8, 1995 will expire 20 years from the earliest effective filing date. Utility patents which are in force on or before June 8, 1995 will expire either 17 years from the issue date or 20 years from the filing date, whichever is greater. Utility patents issuing after June 8, 1995 from patent applications filed before June 8, 1995 will expire 17 years from issuance or 20 years from the filing, whichever is greater. In contrast to "utility" patents, design patents, which can be obtained to protect the ornamental (i.e., non-functional) design features of a particular product, expire 14 years from issuance.

²⁰ 35 U.S.C. §173.

patent owner can then benefit from a limited monopoly as defined in the claims of the granted patent — in that she/he can commercially exploit her/his invention, or can license the IP rights to others to exploit the invention, perhaps in return for a sum of money (royalty).

Patents are obtained through a costly and lengthy process (usually about 3-4 years at the cost of about \$15,000 to \$25,000 per patent). While the acquisition of patent protection is not a guarantee for commercial success, such acquisition is always important in ensuring that the patent owner has the opportunity to look for ways in which he/she can commercialize his/her invention.

Since a high-tech startup is often at the center of innovative activities, owners/managers of such an enterprise must be made aware of the basic principles and practices in designing and using the patent system. Below is a brief summary of key reasons why a high-tech startup should consider patenting an invention:

- Exclusive rights — Patents provide the exclusive rights, which usually allow the patent owner to use and exploit the invention for twenty years from the date of filing of the patent application in the U.S.
- Strong market position — Through these exclusive rights, the patent owner is able to prevent others from commercially benefiting from the patented invention, thereby reducing competition in the marketplace and enhancing the chances of business success of the patent owner.
- Higher returns on investments — Having invested a considerable amount of money and time in developing innovative products, the patent owner, under the legal cover of the exclusive rights provided by a patent, may commercialize the invention to obtain higher return on investment.
- Opportunity to license or sell the invention — If the patent owner chooses not to exploit the patent itself, then he/she may sell it or license the rights to commercialize it to another entrepreneur or enterprise and get a one-time or recurring income.
- Increase in negotiating power — The patents owned by a high-tech startup may be of considerable interest to another enterprise or institution. Through a cross-licensing arrangement it becomes possible to exchange the patent rights between the two parties to mutual advantage. The negotiating strength of either party is linked to the strength of their respective patent portfolios.
- Positive image of the startup — Business partners, investors and shareholders may perceive patent portfolios as a demonstration of the high level of expertise, specialization and technological capacity of an enterprise. This may prove useful for raising funds, finding business partners and raising the market value of the enterprise.
- Take action against free riders — As patent owner an entrepreneur is in a stronger position to combat unlawful imitation or copying by competitors.

2. Trademarks

A well-crafted trademark often becomes a decisive factor in the success of a high-tech startup in the market place. A trademark enables users or consumers to distinguish products or services of an enterprise from those of its competitors and to associate the products or services of an enterprise with desired qualities. In other words, a trade or service mark is a distinctive sign which identifies certain products or services as those produced or provided by a specific person, or an enterprise allowing the consumer to distinguish them from goods or services of others. A trademark may be a word, name, symbol, device, or combination of such elements used to identify the source of goods or services.²¹ For example, KODAK, NIKON and POLAROID are trademarks of a generic product - a camera. In addition, trademark subject matter also includes geographic terms and personal names, slogans, shapes, colors, scents, or visual appearances. Listed below are several examples of trademark subject matter:

Fanciful Words	GOOGLE or YAHOO
Geographic Terms	"Washington State" Apples
Personal Names	Hewlett-Packard
Slogans	"The Real Thing" of Coca-Cola
Symbols	McDonald's Golden Arches
Shapes	"Mrs. Butterworth" syrup bottle
Colors	The color pink in Owings Corning's fiberglass insulation
Visual Appearance	TIME Magazine's cover
Scent	Embroidery yarn having distinctive floral fragrance

In order to develop trust, confidence and loyalty in its products or services, every forward-looking high-tech startup company has to develop and maintain a distinct identity, image or reputation. Only then would it be able to distinguish itself and its products or services from those of its competitors. The startup company must also, at the same time, provide a mechanism for linking the provider of a product or service to the valuable business assets of trust and goodwill. This is mostly achieved through a distinctive trade name and one or more trademarks. These play a pivotal role in the marketing strategy of differentiating products or services from those of rivals and in developing longer-term positive relationships with customers by communicating an assiduously nurtured image or reputation.

Trademarks are governed under federal, state and common laws. To qualify for federal trademark protection throughout all states, products or services must be traded in foreign commerce or across state lines. In contrast, protection under state trademark law extends only to the state's territorial boundaries. In the United States, rights in a trademark are established primarily through using the trademark. Trademarks that are used but not registered under federal and state laws are known as common law trademarks, which are enforceable but only in the market area (region) in which they are actually used. Obviously, federal trademark protection is preferable over state or common law trademark protection, particularly if a company intends to trade in interstate commerce, or to prevent cyber squatting of a domain name.

In general, there are three criteria to consider when selecting a trademark or service mark. First, a mark cannot contain immoral, deceptive or scandalous matter. Second, it is best to select a mark that is distinctive (at the time of registration or becomes distinctive over time) and is not "merely descriptive" of the goods and/or services with which it is associated. Third, a mark must not be confusingly similar to an existing mark. Fanciful, arbitrary, and suggestive

²¹ 15 U.S.C. § 1127 (1988); Lanham Act § 45.

marks are inherently distinctive and can be registered immediately. Merely descriptive marks are not eligible for trademark protection unless they have acquired "distinctness" through secondary meaning in the marketplace. Such marks acquire secondary meaning when over time consumers have grown to recognize such marks from a particular company's products. Merely descriptive marks that have been in exclusive and continuous use for 5 years are generally considered to have attained secondary meaning and thus are distinctive.²² In general terms, the function of a trademark is to inform consumers of the origin of the product, not to describe the product itself. As a result, the trademark must be displayed on the product or container for the products so that the customers can view the marks in the marketplace.

A mark is infringed when someone later uses a mark which is "confusingly similar" to the earlier mark. There is no objective test to determine "confusing similarity." Rather, the test is a subjective one in which the appearance, sound and effect of the marks are compared. The right to use the mark is, in most cases with the first user of the mark. This is at least true with respect to the geographic area in which the earlier user used the mark. If two marks are found to be confusingly similar, then the earlier user of the mark is typically allowed to stop the later user of the mark from continuing the use of the mark. The earlier user can force the later user to destroy materials which include the mark, including packaging, advertising, etc. The earlier user may also be able to collect money damages from the later user.

State registration of a mark typically lasts 10 years. Federal registration and renewals issued prior to November 16, 1989 are good for 20 years. Those issued after that date are enforced for 10-year periods and can be renewed indefinitely. Compared to patents, trademarks are obtained within a moderate time period (usually under 2 years), and cost significantly less than patents (usually about \$3,000 - \$5,000 per registered mark). Both before, during, and after the period of registration, mark owners should be particularly careful to protect and enforce their marks. Where it comes to your attention that another company is using a mark which is so similar in nature to your mark for the same types of product or service that a member of the public may find the marks "confusingly similar," it is important to attempt to stop the competing company from using your mark. Failure to enforce your mark can result in your losing rights to the mark.

3. Copyrights

Copyrights protect "original works of authorship" including literary works, musical works, dramatic works, artistic works, choreographic works, pictorial and sculptural works, motion pictures, sound recordings, architectural works and certain other intellectual works (like computer software), both published and unpublished, that are fixed in any tangible medium of expression, from which the works may be perceived, reproduced, or otherwise communicated.²³ For example, words fixed to a page, voices fixed to a compact disc, and images fixed to a videotape are all eligible for copyright protection. Computer programs, both high level software and low level operational codes, are registrable as "literary works." However, copyright protection does not extend to an idea, procedure, process, system, method of operation, concept, principle, or discovery, but only to the form of expression itself.²⁴

Copyrights are governed exclusively by federal law. Under the copyright statute, copyright protection is secured automatically when a work is created and fixed in a tangible medium. However, such original works need not be registered with the Copyright Office to

²² 15 U.S.C. § 1052(f) (1988); Lanham Act § 2(f).

²³ 17 U.S.C. § 102(a) (1990).

²⁴ 17 U.S.C. § 102(b) (1990).

receive copyright protection.²⁵ Nevertheless, registration remains desirable because of its proof of validity and its requirement in an infringement action under the copyright statute.²⁶ In addition, a copyright notice (© plus year of publication or creation plus name of copyright owner) need not be placed on the work. Notice is still recommended because of its ability to maximize damages in an infringement action.²⁷

A copyright owner is provided with the following exclusive rights: (1) to reproduce the copyrighted work; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute copies of the copyrighted work for sale, transfer, rental or lending; (4) to perform the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, motion pictures and other audiovisual works; and (5) to display the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works.

In general, works created since January 1, 1978, are automatically protected from the moment of creation until 70 years after the author's death. The copyright on joint works (prepared by two or more authors) lasts for 70 years after the last surviving author's death. Finally, copyrights on works made for hire, anonymous and pseudonymous works, last 95 years from publication or 120 years from creation, whichever is shorter.

The copying, adoption, distribution, public display or performance of a copyrighted work by someone other than the copyright owner can constitute an infringement of the work. However, similarity alone is not sufficient; actual copying must have occurred. This means that the work must have been directly copied, or the copyright owner must show that the two works are similar and that the alleged infringer had access to the copyrighted work.

The digital revolution and an era of converging technologies have created exciting business opportunities for startup companies in the entertainment, mass media, computer, and telecommunications industries, as well as for multimedia, consumer products and financial services companies that can take advantage of the new interactive technologies. There is a greater need than ever to safeguard copyrightable material on the Internet in the entertainment industry, including film, theatre, music and print publishing transactions. While the first line of action concerns dealing with IP issues in relation to e-mails, the next one is about IP issues in relation to the Web site of the enterprise. All enterprises have to take special measures to deal with the problem of protecting widely distributed factual confidential or copyrighted information on or in relation to Web sites — even claiming trademark rights against unwelcome hypertext links to their Web sites.

Multimedia is a new form of expression made possible by digital technology. With multimedia technology, graphics, video, animation, text, still images, sound and data can simultaneously appear on a computer screen and the user can interact with the content. Copyright or related rights of course protect most of these works (music, photos, paintings, texts, film extracts, etc.). To exploit them in an interactive multimedia product, it is first necessary to clear the rights. Clearing the rights simply means obtaining authorization from the owner of the rights to exploit the work or parts thereof in a multimedia product, and negotiating how much that will cost. This authorization is generally in the form of a user license in writing granted by the owner of the rights. Examples of multimedia content include distance learning, virtual visits to historic sites, and interactive games for children. Frequently offered on CD-ROM or on the Internet, multimedia presentations have become an innovative and efficient means for

²⁵ 17 U.S.C. § 408(a) (1988).

²⁶ 17 U.S.C. §§ 401, 412 (1990).

²⁷ 17 U.S.C. § 401(d) (1990).

communicating information and for storytelling or entertainment. Most multimedia companies are small high-tech startups. As users of copyright, these companies need to understand the importance of proper use of the IP system in all facets of their business. This is not limited to use of copyright and related rights but often includes protection of trade secrets, creation, protection and use of trademarks, and protection of novel software by patents in the US.

4. Trade secrets

Today's business environment has increased the importance of trade secret protection for business by developing and implementing information protection practices that address the risks associated with a global marketplace, rapid advancements in technology and telecommunications, a mobile, highly skilled workforce, and networked strategic business relationships, including extensive outsourcing. Technology is changing so rapidly that trade secret protection is, in some cases, the most attractive, effective and easily available intellectual property right. As with all intellectual property, trade secrets can be valuable to a company's growth, competitive advantage and, sometimes, survival.

Trade secrets are governed solely by state law. There is no federal trade secret law. However, the Uniform Trade Secret Act (UTSA) provides a model, uniform treatment of trade secrets among the states. Like the majority of states, California has adopted a version of the UTSA which defines a "trade secret" as information of any type, including a formula, pattern, compilation, program, device, method, technique, or process that is actually or potentially valuable to its owner, not generally known or readily ascertainable by the public, and for which the owner has made reasonable efforts to keep it secret. Such "reasonable efforts" can include "advising employees of the existence of a trade secret, limiting access to the information on a 'need to know basis,' requiring employees to sign confidentiality or non-disclosure agreements, and keeping secret documents under lock."

A trade secret generally has some cost associated with its development, and is not common knowledge in the industry. As a result, even negative information, such as research options that have been explored and found worthless, can be trade secrets. Therefore, practically any type of confidential technical and business information that gives the business a competitive advantage, may be protected as a trade secret; the following categories are illustrative:

- Data compilations, for example, lists of suppliers or customer (the more information a list contains, the more likely it would qualify for trade secret protection)
- Designs, drawings, architectural plans, blueprints, and maps
- Algorithms and processes that are implemented in computer programs and the programs themselves
- Instructional methods
- Manufacturing or repair processes, techniques and know-how
- Document tracking processes
- Formulas for producing products

- Business strategies, business plans, methods of doing business, marketing plans
- Financial information
- Personnel records
- Production or maintenance schedules
- Operating, maintenance or training manuals
- Ingredients of products
- Information about research and development activities of an enterprise

A trade secret may also comprise a combination of characteristics and components, each of which, by itself, is in the public domain, but where the unified process, design and operation of such characteristics or components, in combination, provides a competitive advantage. Inventions and processes that cannot be patented may be protected as trade secrets. High-tech startup companies should rely on a trade secret route to safeguard the details of research and development, including draft patent applications, and patent applications before their official publication or grant. Even after grant of a patent, the associated knowledge is protected as a trade secret. A newly developed but not yet published or used design or trademark may be valuable confidential information.

Trade secrets can create an advantage over competitors in many ways. The right to use trade secret information can also be licensed or sold. Although trade secrets provide no protection against those who independently develop the trade secret information, trade secrets never expire as do patents, trademarks and copyrights. However, contrary to patent, trademark and copyright protection, trade secrets are protected without any procedural formalities or registration costs. However, public disclosure, inadvertent or otherwise, may cause irreversible loss of trade secret rights.²⁸

Below are several example situations in which a high-tech startup may benefit from trade secret protection.

- When the secret is not patentable.
- When the likelihood is high that the information can be kept secret for a considerable period of time. If the secret information consists of a patentable invention, trade secret protection would only be convenient if the secret can be kept confidential for over 20 years (period of protection of a patent) and if others are not likely to come up with the same invention in a legitimate way.
- When the trade secret is not considered to be of such great value to be deemed worth a patent.
- When the secret relates to a manufacturing process rather than to a product, as products would be more likely to be reverse engineered.
- When the startup has applied for a patent and is waiting for the patent to be granted.

²⁸ See, e.g., Cadillac Gage Co., v. Verne Eng'g Corp., 203 U.S.P.Q. (BNA) 473 (Mich Cir. Ct. 1978).

IV. PRACTICAL STRATEGIES TO DEVELOP AN IP PORTFOLIO

From the day it is founded, a startup company should consider adopting an aggressive IP strategy that would provide a strong IP portfolio. IP rights should be obtained to protect not only various aspects of the company's core technology and commercial interests at various stages of design, manufacturing and product operation, but also technology that may be of interest to non-competing companies. At the design and development stage, copyrights and trade secrets can be immediately enforced. Core technologies embodied in novel products and methods (e.g., key methods and processes - whether these are manufacturing, distribution, or even business methods) that deliver the greatest performance advantage over rival products in the market can then be patented and trademarked. Once a product or service is developed, issued patents and registered trademarks protect the technology and associated names and symbols. An aggressive IP strategy can block competitors from the company's present market and potential future market, and can also force a license bringing revenue to the company. A strong IP portfolio can be used to attract financing from venture capitalists, enhance future strategic alliances, and promote product differentiation.

However, securing IP rights could require significant resources (time, staff, and funding) that a startup company may not necessarily have. As a result, a startup company should adopt a **Two-Level IP Strategy**, which consists of using as much as possible the free-of-charge protection tools such as copyright and trade secrets, and of making a cost benefit analysis with respect to trademark and patent protection.

1. First Level IP Strategy:

A. Trade Secret Considerations

- Mark all company's "confidential" documents and materials as such;
- Have employees, contractors, and 3rd parties sign non-disclosure, or confidentiality agreements requiring restrictions on disclosure, prohibiting misappropriation or misuse of trade secrets, and preventing disclosure of sensitive information to future employers;²⁹
- Have applicants sign a statement confirming that they will not bring to their new job any confidential or propriety information or trade secret from their former employer, and that they will not reveal such information either during the recruitment process or after being hired;
- Conduct exit interviews with departing employees reminding them of their post employment confidentiality obligations.

B. Copyright Considerations

- Place a copyright notice (© plus year of publication or creation plus name of copyright owner) on all the documents, computer programs (both high level software and low level operational codes) and Web pages produced by the company; and
- Consider filling such computer programs at the U.S. Copyright Office for registrations (typically, for a nominal fee).

²⁹ Most states, except California, recognize non-compete agreements with reasonable restrictions on employment practice.

C. Ownership Considerations

- Have founders, employees, consultants, or 3rd parties sign agreements to assign all (current or future) IP rights to the company, including, for example, copyright in the software written by vendors or independent contractors; and
- When conducting joint research with other enterprises, universities, or governments, make sure that there is sufficient clarity on who will own potential IP generated from the research project. Listed below are some example rights of universities, governments and co-inventors:

(i) Rights of Universities: Agreements between universities and inventors of the key technology should be studied to ensure that a university cannot assert rights in the company's IP. Universities may have collaborator rights to a company's IP as well.

(ii) Rights of the Government: A company funded by government sponsorship should be aware the government might retain rights in a patented or unpatented invention resulting from government support. Such rights may include the right of the government to practice the claimed invention or to have others practice the same on behalf of the government, all without compensation to the company, as well as unique reporting requirements which can result in complete forfeiture of rights if not followed.

(iii) Rights of Co-Inventors: In the absence of a contrary agreement, each co-inventor retains the right to practice the invention without compensating the other co-inventors. Therefore, if IP assignments are not rigorously enforced, a co-inventor that has not assigned IP rights to the company can assign those IP rights to another company to the detriment of the startup.

2. **Second Level IP Strategy:**

A. Trademark Considerations

- Select trademarks that are inherently distinctive, i.e., fanciful, arbitrary, or suggestive;
- Check trademark databases for clearance (for example, at U.S. Patent & Trademark Office "USPTO" at www.uspto.gov);
- Search selected trademarks, via known search engines on the Internet, such as Google or Yahoo, for common law problems; and
- Consider filing selected trademarks at the USPTO for registrations (typically, about \$3000 - \$5000 per registered mark).

B. Patent Portfolio Development: A fundamental objective of a patent portfolio is to protect the core technologies (family jewels), core products and business practices of the company. Additionally, patents may be obtained that enable the company to enter into reciprocal (i.e., cross) licensing arrangements with competitors who assert patent infringement claims against the company in the same field of interest. Considerations should also be given to acquisition of patents from others in addition to patents resulting from internally developed

technology. Obviously, significant financial resources are required to obtain protection for the core technologies and all core products. However, the high cost associated with obtaining proper patent protection can be controlled depending upon whether the patent portfolio is intended for "defensive" or "offensive" purposes. Either way, patentable subject matter needs to be identified early enough to avoid losing the invention to competitors. In addition, patentable inventions should not be disclosed, offered for sale, shared with others or published before filing a patent application, or at least within a 1-year grace period of such disclosure or publication.

(i) Defensive Strategy: A "defensive" strategy should be considered if financial resources are limited, and if competitors are seen as unlikely to copy the company's products. Patent applications should be filed to protect core technologies (family jewels) embodied in core products that deliver the greatest performance advantage over rival products in the market. Provisional patent applications should be considered for other types of technology until financial resources could be secured. The advantages of filing provisional patent applications will be discussed in a separate section below. In addition to provisional patent applications, defensive publications should also be considered with regard to various improvement features or incremental innovations so as to prevent competitors from gaining improvement patents that could block the company from effectively using the core technologies. Freedom-to-operate (FTO) opinions should further be obtained from outside counsel to ensure the startup company's ability to function in the marketplace in view of the patent rights of others. In particular, FTO opinions should identify others' patents that will block or severely limit the company's ability to market a product or establish a dominant patent position. Such FTO opinions may be necessary because a patent does not provide the company the right to commercialize the protected technology but only the right to exclude all others from commercializing the same.

(ii) Defensive Values:

- IP assets
- Cross-licensing as bargaining chip
- Counterclaims
- Valuation
- Prestige
- Funding

(iii) Offensive Strategy: An "offensive" strategy should be considered if significant resources (time, staff, and funding) are available to lock up a new technology space, and create a patent wall of patent protection covering key differentiating features that reinforce and communicate the product's brand positioning and key performance. In addition, key methods and processes need to be patented - whether these are manufacturing, distribution, or even business methods - that are essential to the building, marketing, or selling of the product. Listed below are different types of patents obtained for "offensive" reasons:

(a) "Picket Fence" Patents: Obtain patents on all commercially available improvements or small incremental innovations around the core technology of a competitor, which can serve as a barrier to the effective use of the competitor's core technology. The owner of the picket fence is then in a position to force a cross-license of patents to acquire the competitor's core technology for its own use. For example, when faced with a fundamental patent of another for a new technology, the strategy is to file patent applications on every conceivable improvement so that as the technology develops, the competitor will not be able to improve upon the original invention without obtaining a license.

(b) "Design-Around" Patents: Obtain patents based on efforts to design around a company's own patents in order to prevent competitors from inventing around the patents. Usually, designing around solutions that avoid infringement of the patent can also be patented. Design around a competitor's patents can be an effective part of a response to a competitor's action for patent infringement. Moreover, design around efforts can also be a very effective method to prepare a new product introduction into a competitive market while avoiding liability for infringement.

(c) "Toll Gate" Patents: Identify the direction of competitor's patent portfolio or industry R&D, so as to obtain patents with very broad claims for the next generation of improvements or products, even when a company may have only a vague concept of the best products to implement these improvements. This way the patents can act as a toll gate to the industry when its actual products develop to that level of advancement.

(d) Acquisition of Patents: Acquire key patents owned by others in areas of current or future interest.

(e) Competitor Watches: Survey the existing patent landscape, and monitor the marketplace to identify infringing products and services. For example, on-line databases for patent related information can be used to search for patent activities centered around a key patent owned by the company in order to identify potential infringers of the patent.

(iv) Offensive Values

- Royalty Income
- Injunctions

3. Special Considerations:

In addition to patents on core products and processes, software and business method patents deserve special considerations.

A. Software Patents: Software technologies such as computer programs, electronic databases, graphical display screens and user interfaces, and related media can be protected by copyright at virtually no cost. In fact, copyright protection is often suitable to secure digital media such as video and audio creative works, often even without compliance with copyright registration and notice requirements. However, copyright protection of computer software, both high level software and low level operational codes, is legally vulnerable to reverse-engineering efforts by competitors. In this scenario, perhaps patent protection may be more appropriate to secure the underlying ideas or functions of a novel algorithm, data structure, methods and computing software machines.

B. Electronic Commerce & Business Method Patents: E-commerce and business method patents are important for Internet-based startup companies because these patents can be used to block out the competition from offering a similar product or service in a business climate with low barriers to entry. These patents can be a great "equalizer" for small companies attempting to enter a competitive market of large players. Listed below are example e-commerce and business method patents obtained for a wide variety of e-commerce business models:

Amazon.com	U.S. Patent No. 5,727,163 (June 10, 1998) Secure method of communicating credit card data when placing an order on a non-secure network.
	U.S. Patent No. 5,960,411 (September 28, 1999) A "1-click" ordering system that allows repeat online shoppers to buy items by clicking a single button, without having to fill out payment and shipping information each time.
Priceline.com	U.S. Patent No. 5,794,207 (August 11, 1998) Bilateral buyer-driven (so called, "name your price") e-commerce system covering a "reverse auction" concept in which the buyer names a price it will pay (e.g., for airline tickets) and guarantees payment with a credit card.
CoolSavings.com, Inc	U.S. Patent No. 5,761,648 (June 2, 1998) Distribution of coupons, via the Internet.
Mastercard Int'l.	U.S. Patent No. 5,699,528 (December 16, 1997) System for bill delivery and payment, via a network.
Citibank	U.S. Patent No. 5,930,764 (July 17, 1999) Sales and marketing support system using a customer information database.

E-commerce and business method represent the new patent frontier. The Internet has redefined business, allowing anyone to create unique, automated business processes and to scale them rapidly. However, controversy continues to exist because of the relatively broad scope of coverage and the potential for inventors to own patents covering entirely new systems of commerce where the economic stakes are very high.

4. Patent Filing Considerations:

Since startup companies have limited resources (time, staff, and funds), the following are suggestions for an efficient approach to patenting inventions:

A. Avoidance of Statutory Bar Dates: A patent application may not be filed in the U.S. if the invention has been published anywhere or has been in public use or "on sale" in this country more than one year prior to the filing date. An invention can be considered "on sale" where it has only been "offered for sale," not actually sold. In most foreign countries there is no one year grace period for public disclosures.³⁰

³⁰ Most industrialized foreign countries (not Taiwan) are members of the Paris Convention which provides that one who files a patent application in any member country has up to one year to file subsequent applications in other member countries and be able to backdate the effective filing dates of the subsequent applications to that of the first filed application. Therefore, an application filed in the U.S. before any public disclosure will enable subsequent filings in other member countries within one year, even if an intervening public disclosure occurs.

B. Provisional Applications: An alternative to the filing of a traditional patent application is the filing of a provisional application in order to obtain an early filing date. A provisional application does not require all of the formalities of a regular application, and is less expensive to prepare and file in the USPTO. Several aspects of a provisional application include:

- Does not receive substantial examination and cannot mature into a patent. A regular (utility) application must be filed within 1 year to receive the benefit of its earlier filing date;
- Does not trigger the start of the 20 year patent term; and
- Requires the filing of a sufficiently detailed specification to satisfy the (1) "enablement," and (2) "best mode" requirements of the patent law under 35 U.S.C. § 112.

Other aspects of a provision application include: (1) no requirement for inventor signatures, (2) no requirement of patent claims, and (3) no publication of such a provisional application.

For startup companies, one approach is to file a series of provisional applications at different stages of developments to capture all improvements and establish a filing date for these improvements. So long as one or more regular applications are filed within 1-year of the earliest provisional application, the later filed regular applications may claim priority back to all of the provisional applications.

C. Foreign Filings with Selective Key Markets - (PCT): Foreign filings can be extremely expensive, even for established multinational corporations doing business in foreign markets. Nonetheless, startup companies doing business in countries outside the U.S. or faced with overseas competitors need to understand the differences between U.S. patent regulations and foreign patent regulations and deadlines, and to formulate a global patenting strategy that is consistent with the business plan in terms of potential foreign markets, competitors, and cost-benefit considerations.

For example, when overlapping patent applications are filed by two independent inventors, the United States uses the "first to invent" rule, whereas the rest of the world uses "first to file" rule to determine which inventor will be granted the patent. In addition, in the U.S., once an invention is placed on sale or disclosed publicly, a 1-year clock is started. Within 1-year, the inventor must file a patent application in the USPTO, or else the invention will lapse into the public. In most other countries, however, there is no grace period after a public disclosure or sale has occurred. Once an invention is placed on sale or disclosed publicly anywhere in the world, it is barred from patentability and is in the public domain. As a result, startup companies that want to sell their products overseas should learn the proper procedures for acquiring foreign patents. However, the Patent Cooperation Treaty (PCT) procedures could provide a platform for a single international patent application based on an earlier U.S. patent application to be processed and entered in the National Phase of all designated PCT member countries (except Taiwan) some 30 months after the PCT priority date for examination and issuance. This way, smaller companies could delay many of the filing costs until they have time to access those markets.

Because of the differences between the U.S. and foreign patent procedures, startup companies interested in developing overseas markets should consider the following steps: First, because most countries outside the U.S. award patents to the "first-to-file" a patent application, U.S. startup or small technology companies should keep their invention confidential until patent applications are filed, and then file U.S. patent applications as soon as possible. Then, within a year, a corresponding PCT application should be filed which would have the

effective filing date of the U.S. patent application. Second, because placing a product on sale creates an immediate bar on its patentability in most countries, it is critical that U.S. startup or small companies file for at least a U.S. patent application before publicly marketing an invention. Finally, U.S. startup or small companies need to be sure to apply for foreign patents before U.S. patents are issued. If a U.S. patent is published before a company files a foreign patent application, most foreign patents will be barred.

Alternative strategies regarding to PCT filings should also be considered. For example, a corresponding PCT application could be filed claiming priority from an earlier filed provisional patent application, rather than a traditional patent application. As previously discussed, the provisional application is significantly less expensive than the traditional patent application and, more importantly, is not publishable so as to avoid publication barring events. The PCT application could then be entered National Phase in the U.S. at any time after the PCT application is filed for search and examination purposes. Similarly, a PCT application could be filed as a first filing in the U.S. to avoid redundant filing costs and to selectively speed up/streamline national processing. These options could be attractive for certain fast-moving technologies where long delay may mean product obsolescence before patent issuance.

D. Fast-Tracking the Patent Process - Petition to Make Special: A patent application normally does not get examined initially for about 2-3 years from the original filing date; and the average pendency of a patent application in the USPTO from filing to issuance is about 3-4 years. However, a fast track procedure is available in the USPTO, whereby the applicant can "Petition to Make Special" for an accelerated examination. A requirement for the granting of the petition is that the applicant must perform a prior art search and submit the results to the USPTO along with the petition, along with a statement of the relevancy of each reference.

E. Reissue: Consider filing a request for reissue to broaden the scope of claims (within 2 years) to create literal infringement of a newly developed product of competitor(s).

F. Reexamination: Consider filing a request for re-examination as part of a defense strategy (often time, anonymously) to challenge the validity of a competitor's key patents on the basis of new issues of patentability raised by a prior art.

G. Continuation Applications and Continuation-in-Part (CIP) Applications: Consider keeping continuation applications and/or continuation-in-part (CIP) applications pending in the USPTO for important technology that is still evolving. CIP applications should be considered when new features, improvements or future modifications are discovered and need to be incorporated into the original patent application, and claims could be shaped to follow the direction of technological evolution. Such continuation and CIP applications should be regarded as a bridge until a potential infringer is found. When a potential infringer is found, consider filing a Petition to Make Special and include claims that will capture the actual infringer literally.

5. Estimate Patent Filing Costs:

<u>Steps</u>	<u>Cost</u>
• Conception	Nominal
• Disclosure	Nominal
• Prior Art Search	\$500 to \$2000
• Patent Application	\$7,500 to \$12,000 (depending upon the level of complexity of the disclosed invention)
• USPTO Filing Fee	\$1000 or more (depending upon number of claims) (_ for small entity)

• Office Action (rejection)	\$2,000 to \$4,000 per action
• Grant (issue fee)	\$1,400 (_ for small entity)
• Maintenance Fees	\$900, \$2300 and \$3,800 (3.5, 7.5 and 11.5 years) (_ for small entity)
Total	<hr/> \$15,000 to \$25,000

IV. AVOIDABLE MISTAKES PERTAINING TO IP

As IP lawyers who frequently advise technology companies, we often see IP mistakes that are costly or fatal, but for the most part, could have been avoided. Below are actual cases which show, for example, the dangers of inadequate considering IP issues or drawing inaccurate conclusions when making strategic, managerial, and routine decisions during the course of business. Some of the businesses were devastated and forced to leave otherwise lucrative markets because of their failure to comply with IP laws. Other businesses lost profitable opportunities. Consider the suggestions offered to head off avoidable mistakes pertaining to IP in high-tech startup and small technology companies.

1. No Assignment of IP from Founders, Employees, Consultants, or 3rd Parties

It is important to determine up front who owns the IP and obtain a written assignment. Startup companies should rigorous document all IP issues that could be applied equally to everyone, including founders, employees, consultants or 3rd parties. Employees and consultants should enter into agreements with the company assigning IP rights, requiring restrictions on non-disclosure, and prohibiting misappropriation or misuse of trade secrets. Non-compete agreements and non-solicitation agreements should also be considered that would bar former employees from soliciting current employees and clients under terms that meet reasonableness and legal consideration standards of the relevant jurisdiction.³¹

In the context of joint ventures pertaining to technology development or the license of technology from 3rd parties, IP rights should be clearly understood in advance to avoid any unpleasant surprise.

Case Study:

In Fieldturf, Inc. v. Southwest Recreational Industries, Inc.,³² Fieldturf obtains a license to practice the claimed "artificial turf" as an alternative to natural grass for playing surfaces for athletic games, as disclosed in U.S. Patent No. 4,337,283. Evidently, the inventor of the '283 patent, Frederick Haas Jr., had assigned the patent to a Louisiana partnership that, through a succession of entities, conveyed the exclusive license rights to Fieldturf. Fieldturf asserted the '283 patent against Southwest, the maker of AstroPlay™ (a rubber and sand-filled system), on the basis that Southwest's manufacture of AstroPlay™ was alleged to infringe the patent. However, on appeal from a Kentucky district court, the Federal Circuit dismissed the patent claim because Fieldturf did not have standing to enforce the patent because the licensing

³¹ Most states, except California, recognize non-compete agreements with reasonable restrictions on employment practice.

³² 57 F.3d 1266 (Fed. Cir. 2004).

agreement was nothing more than a bare license that did not grant the right to enforce the patent, either explicitly or impliedly. Fieldturf was neither the patentee, a successor in title to the patentee, nor an exclusive licensee of the patent at issue. To have an exclusive license, Fieldturf must show that it possesses "all substantial rights in the patent, which Fieldturf was not able to do so. As a result, Fieldturf cannot bring suit against Southwest.

Lesson Learned: Make sure that the company obtains all IP assignments that are full and complete from everyone, including the founders, employees, consultants, or 3rd parties working on behalf of the company.

2. Disclosing IP without a Confidentiality Agreement

Consistent use of non-disclosure agreements (NDAs) is advised at all stages of the company's life. However, such agreements are often overlooked by entrepreneurs who eagerly present their business plans containing the crown jewels to potential investors, vendors, joint-venturers, or facilitators in an effort to get the company financed or a product built. However, sensitive information should not be included in the business plan, at least until the NDA is signed.

Case Study:

In Dreamcatcher Software Development, LLC. v. Pop Warner Little Scholars, Inc.,³³ Dreamcatcher Software Development, LLC ("Dreamcatcher") is a Connecticut organization that developed a software program called Keystroke Administrator for automating the management of paperwork and other administrative functions associated with the operation of a local Pop Warner youth football and cheerleading sports league ("League"). Dreamcatcher enlisted the League to aid in the sales and marketing of its software to other organizations within the League. The Executive Director of the League entered into a nondisclosure and confidentiality agreement with Dreamcatcher that stated the League was "interested in examining a product idea of [Dreamcatcher] and may wish to become a strategic development partner of [Dreamcatcher], or a customer beta site for the product and in connection therewith will be given access to certain confidential and proprietary information."³⁴ Subsequently, according to Dreamcatcher, the League then secretly used Dreamcatcher ideas to develop its own administrative software, in violation of the agreement. Dreamcatcher sued, alleging breach of contract and trade secret misappropriation.

Lesson Learned: Make sure that the company obtains non-disclosure, or confidential agreements from all employees, contractors, and 3rd parties which require restrictions on non-disclosure and prohibit misappropriation or misuse of trade secrets

3. Failing to Document IP

The startup company should document the existence of all of its IP, and maintain it for appropriate archiving purposes. The discipline of gathering IP and establishing early documentation procedures can ensure the capture of information that the company may not know existed. Such documentation is critical when the need arises later to establish a date of conception of invention for purposes of patent priority, or dates of authorship of programs or infringement in litigation. For purposes of copyright, if early versions of software are overwritten,

³³ 298 F.Supp.2d 276 (D.Conn. 2004).

³⁴ *Id.* at 280.

or copies of the full program are not kept that correspond to the identifying portions submitted with an application for copyright registration, the startup company may face dismissal of a later copyright litigation for lack of evidence.

Case Study:

In Dr. Henry Huang v. California Institute of Technology,³⁵ a federal district court in Los Angeles ruled that researcher Henry Huang's claim that he co-invented the automatic DNA sequencer used to map the human genome—arguably one of the most important advances in biology in the 20th century—was not supported by sufficient laboratory notebook evidence. Dr. Huang contended that the work he did as a post-doctorate fellow at the California Institute of Technology from 1997 to 1982 was used to develop the automatic DNA sequencer. Although Dr. Huang was viewed as a credible witness, he could not meet his burden of establishing inventorship by clear and convincing evidence. Most of the documents relied on to support his claim of inventorship were, in contrast to bound and witnessed lab notebooks, in the form of “loose-leaf sheets that were not consistently dated and could not be corroborated by anyone.”³⁶

Lesson Learned: Make sure that the company documents all IP, including notebooks of all R&D projects.

4. Failing to Obtain Patents

As previously discussed, there are many reasons why high-tech startup companies need patents. The startup should obtain patents most directly supportive of the company's business plan, and recalibrate the patenting strategy regularly as the business plan and business conditions evolve. The patent specification should be thorough, and should articulate as many details, variations, and future possibilities as can be imagined at the time. This can allow the company to “mine” the patent specification for years to come through continuing applications, with new claims being filed for subject matter as it becomes commercially important. Below are case studies of one company failing to obtain patents, while another company demonstrating the rewards of a strong patent portfolio.

Case Studies:

In Lotus Development Corp. v. Paperback Software International,³⁷ Lotus Development Corp., (“Lotus”) which had only copyright protection, but no patent for its famous spreadsheet program, Lotus 1-2-3, sued Paperback Software International (“Paperback”) for copyright infringement in 1990. The court found that Paperback had reverse engineered Lotus 1-2-3 spreadsheet program, copied the structure, sequence, and organization of the Lotus menu command system, including the choice of command terms, the structure and order of those terms, the presentation on the screen, and certain long prompts. However, Paperback did not literally copy the actual Lotus source code. As a result, no copyright infringement was found. Evidently, Lotus did not pursue filing patents covering the spreadsheet program because it was under the mistaken impression that software could not be patented. At the time, the market for spreadsheet software was about \$1 billion in sales a year in the U.S. alone, and Lotus was the market leader with about 40 percent of the market. Had Lotus obtained a patent covering the

³⁵ No. CV 03-1140 (C.D. Cal. 2003); see also, Brenda Sandburg, *Lab Notebooks Not Enough Proof for DNA Patent*, The Recorder, Feb. 23, 2004. Order by judge on Feb 17, 2004.

³⁶ *Id.*

³⁷ Copyright L. Rep. (CCH) § 26,595, 15 U.S.P.Q.2d 1577, 740 F.Supp. 37 (D.C. Mass. 1990).

functionality of its spreadsheet software, it would have still monopolized the spreadsheet market.

In contrast to the Lotus case, in NTP, Inc. v. Research In Motion, Ltd.,³⁸ Thomas Campana, an engineer and inventor at a small wireless pager company, called "TeleFind Corp.", developed wireless email technology and diligently patented dozens of inventions in the field in the early 1990's. The genius of Campana inventions at the time was the merging of systems that existed in the prior art - commercially available land-line email systems and wireless data networks - to provide access to "pushed" email for wireless mobile users. These systems were integrated in a manner that permitted wireline users to keep using their existing email systems, but incorporated the "push" functionality of TeleFind's wireless paging network to open the wireline email systems to mobile users. This way emails could be delivered to a mobile user without the need for a dial-in request by the mobile user. Unfortunately, the Campana wireless email technology was ahead of its time, and Campana was never able to commercialize his products. Eventually, Telefind Corp., went bankrupt. However, recognizing the potential of such wireless email technology, Campana formed a patent holding company, called "NTP Inc.," which developed a patent portfolio of 16 patents covering not only the core wireless email technology but also all possible aspects and future application possibilities. Armed with such a patent portfolio with more than 2400 claims, NTP Inc., successfully asserted patent infringement actions against Research in Motion (RIM), maker of the popular BlackBerry handhelds in early 2002.³⁹ RIM was ordered to pay \$53.7 million for damages and attorneys fees. In addition, an injunction was also issued enjoining RIM from selling, using or importing BlackBerry handhelds and server software in the U.S. Faced with the real prospect of a permanent injunction, RIM settled the lawsuit with NTP Inc., for \$450 million in April 2005.⁴⁰

Lesson Learned: Make sure that the company has patents covering its core technology and potential applications.

5. Obtaining Patents with Poorly Crafted Disclosure and Claims or with Unnecessary Narrow Scope of Coverage

No company wants a patent that cannot be enforced because of poorly crafted claims or unnecessary narrow scope of coverage, particularly, after significant resources have been expended to obtain such a patent. Avoidance of obtaining such patents can be best achieved using guidelines as follows:

- Describe as many alternative embodiments of the disclosed invention as practical as well as how the disclosed invention might be implemented differently as the technology advances.
- Claim both broadly and deeply. Ensure that, in addition to broad coverage of the inventive concepts, claims exist to cover the specifics of the commercial embodiments and all equivalents disclosed in the specification, including as many foreseeable alternatives or modifications of the disclosed invention or elements as possible.
- Target the claims to the right entity or acts of infringement. Claims may be directed to different entities (e.g., manufacturer, retailer, and end user) and acts

³⁸ 270 F.Supp.2d 751 (E.D. Va. 2003).

³⁹ Michael Barbaro, *BlackBerry's Maker Infringed on Patent*, Washington Post, Nov. 22, 2002 at E02.

⁴⁰ Wall St. J., March 17, 2005; Patent, Trademark, Copyright Journal - Vol. 69, No. 1712 - March 18, 2005, pages 504-505.

within the stream of commerce. Claims where no single entity can infringe are not effective. Therefore, it is important to ensure that the claims allow the right entity to be identified for suit for direct infringement (e.g., the competitor, not just the end user), and not for contributory infringement. For example, claims may be directed to processes performed by the end user of the software. Claims may also be directed to a program stored on a computer-readable media (so-called program product claims, or “Beauregard” claims).⁴¹ Claimed this way, the infringing article is the medium (e.g., disk) on which the program is stored, allowing enforcement against the software publisher rather than limiting enforcement to just the end users of the program.

- Perform a design-around analysis. An analysis of potential design alternatives that circumvent the claims should be performed before filing the patent application, and new claims drafted to plug the holes.
- Avoid estoppel in prosecution. In 2002, the U.S. Supreme Court substantially changed the legal effect of amending patent claims. The Court’s decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.,⁴² states that a narrowing amendment to a patent claim may give rise to an estoppel that later bars asserting infringement under the doctrine of equivalents. Particularly, “[a] patentee’s decision to narrow claims. . . may be presumed to be a general disclaimer of the territory between the original claim and the amended claim.”⁴³ Thus, when a patentee originally claimed subject matter alleged to infringe but then narrowed the claim in response to a rejection, “courts may presume the amended text was composed with awareness of this rule and that the territory surrendered is not an equivalent of the territory claimed.”⁴⁴ The patentee may overcome the presumption of an estoppel if the patentee can “show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.”⁴⁵ In addition to Festo, the Federal Circuit also held in Johnson & Johnson Assocs. Inc. v. R.E. Serv. Co.,⁴⁶ that any subject matter disclosed in a patent application but not claimed is deemed dedicated to the public, and that the patent holder is estopped from invoking the doctrine of equivalents to recapture such dedicated subject matter. These decisions heighten the need for extra care in crafting the scope of subject matter to be surrendered in prosecution. As a result, claims need to be carefully drafted with different but complete scope of coverage so that amendments and inadvertent subject matter dedication to the public may be minimized during prosecution.

The case studies below illustrate several examples of unfortunate situations that can face a patent owner when a patent is scrutinized in the heat of litigation.

⁴¹ In re Beauregard, 53 F.3d 583 (Fed. Cir. 1995).

⁴² 234 F.3d 558 (Fed Cir. 2000) (en banc) (“Festo I”), vacated by 522 U.S. 722 (2002) (“Festo II”), and opinion on remand, Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 344 F.3d 1359 (Fed Cir. 2003) (en banc) (“Festo III”).

⁴³ Festo II at 740.

⁴⁴ Festo II at 741.

⁴⁵ Festo II at 741. This can be shown by one of the following three criteria: (1) the equivalent may have been unforeseeable at the time of the amendment; (2) the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; or (3) there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question. Festo III at 1365.

⁴⁶ 285 F.3d 1046 (Fed. Cir. 2002).

Case Studies:

In Gentry Gallery, Inc. v. Berkline Corporation,⁴⁷ the court declined to allow a broader construction of a claim because such a claim cannot be broader than the supporting disclosure, and therefore that a narrow disclosure will limit claim breadth.

The patentee's claim defined "a pair of control means, one for each reclining seat, mounted on the double reclining seat sofa section [of a sectional sofa]" without expressly requiring such "control means" to be located on a "fixed console disposed in the double reclining seat sofa section".⁴⁸ However, the disclosure only described the "control means" as specifically located on the "console."⁴⁹ In addition, the patentee argued during prosecution that the "control means" was located on the console.

On appeal from a finding of no infringement, the Federal State indicated that Gentry was limited to that specific embodiment. Therefore, by distinguishing the claimed invention over the prior art, and by indicating what the claims do not cover, Applicant is by implication surrendering such protection. The patentee could have easily provided alternative options for the location of such "control means" relative to the "console," but did not.

In Chef America, Inc. v. Lamb-Weston, Inc.,⁵⁰ the court declined to rewrite the limitation in a claim in a patent for a process of producing a dough product, and held that the patent was not infringed based on the ordinary meaning of the terms in the patent claims. The court explained that its settled practice is to construe a patent claim as written, not as the patentees wish they had written it.

The patentee's claim required "heating [the] batter-coated dough to a temperature. . . of about 400 degrees F."⁵¹ The problem is that if the patentee heated its own dough to 400 degrees as the claim instructs, "it would be burnt to a crisp" with the resultant product of such heating being something that "resembles a charcoal briquette."⁵² What the claim should have said, but failed to say, was that it is the *oven* in which the dough is placed, that should be heated to 400 degrees F. Unfortunately, the claim did not say "heat *at* a temperature," but said "heat to a temperature."

On appeal from a finding of no infringement, the Federal Circuit stated: "We agree with the district court that the claim means what it says (the dough is to be heated 'to' the designated temperature range) and therefore affirm. . . . Plaintiff's patent could have easily been written to reflect the construction plaintiff attempts to give it today. It is the job of the patentee, and not the court, to write patents carefully and consistently."⁵³

Lesson Learned: Make sure that the patent application contains written disclosure that covers alternative embodiments, and claims that are technical accurate and complete.

6. Relying Solely on Copyrights for Software Protection

⁴⁷ 45 U.S.P.Q.2d 1498 (Fed. Cir. 1998).

⁴⁸ *Id.* at 1500.

⁴⁹ *Id.*

⁵⁰ 358 F.3d 1371 (Fed. Cir. 2004).

⁵¹ *Id.* at 1372.

⁵² *Id.* at 1373.

⁵³ *Id.*

As previously demonstrated in the Lotus case, copyright does little more than protect against literal copying of the original source code, and does not protect against reverse-engineering efforts by competitors. For software technologies, such as computer programs, graphical display screens and user interfaces, the best protection against reverse engineering or alternative source code development is still patents.

7. Failing to Take Advantage of Provisional Patent Application Procedures

As previously discussed, provisional patent filings are attractive because of the lower initial investment required, with one full year to assess the invention's commercial potential before committing to the higher cost of filing and prosecuting a regular (utility) application. However, danger exists in their potential for imperfect use. This is because in order to obtain the benefit of the filing date of a provisional application, the subject matter claimed in the later-filed non-provisional application must have adequate support for it in the provisional application. Specifically, the provisional application must be sufficiently descriptive of the disclosed invention and meet the (1) "enablement," and (2) "best mode" requirements of the patent law under 35 U.S.C. § 112. Provisional applications that are not well thought out are likely to suffer deficiencies of inadequate disclosure for later claimed subject matter. Also, when claims are included in a provisional application, if they are not carefully crafted they can interject estoppel problems into the prosecution history as the claims become later amended in the regular application.

Case Study:

In New Railhead Mfg. Co. v. Vermeer Mfg. Co. & Earth Tool Co.,⁵⁴ the Federal Circuit affirmed a decision that the specification provided in a provisional application did not adequately support claims which issued in the subsequent utility patent, 5,899,283. Specifically, the provisional application did not disclose the later claimed drill bit angle for drilling rock formations. Because the utility patent was not entitled to the filing date of the provisional application, the '283 patent became invalid under the on-sale statutory bar.

Lesson Learned: Make sure that the provisional application contains sufficient description of the disclosed invention and meet the (1) "enablement," and (2) "best mode" requirements of the patent law under 35 U.S.C. § 112. Include the kitchen sink in the provisional application.

8. Failing to Take Advantage of Patent Cooperation Treaty ("PCT") Procedures

Careful considerations should be undertaken in determining whether the startup company needs patent protection in foreign countries. Foreign patenting can be very expensive, even when fees are deferred using the Patent Cooperation Treaty (PCT) procedures. Nevertheless, for those startup companies planning to do business in countries outside the U.S., the following factors ought to be considered for foreign filings: (i) size of market in different countries; (ii) ability to detect infringement; and (iii) scope of the claims. Once the foreign filing rights are given up, they can never get back.

9. Failing to Investigate Competitor Patents

⁵⁴ 298 F.3d 1290 (Fed. Cir. 2002).

Startup and small technology should investigate competitors' IP, and determine IP position of key competitors. As explained above, this is an important component of development of the company's own IP in staking out good patent coverage. It is also an important facet of overall risk management. Organized investigation, however, should not be confused with unsupervised identification and examination of 3rd party patents. When a suspect patent is identified, the startup should be mindful to avoid creating evidence of internal communications that may later be misconstrued.

10. Failing to Seek Competent Legal Counsel When Alerted of Potential Infringement

Under 35 U.S.C. § 284, damages for patent infringement may be increased up to three times the amount found or assessed in exceptional cases premised on willful infringement or bad faith. The Federal Circuit has stated that, "An alleged infringer who intentionally blinds himself to the facts and law, [and] continues to infringe, [] can hardly be surprised when his infringement is found to be willful."⁵⁵ When faced with knowledge of another's patent, the startup is best served to investigate the patent and obtain proper legal advice on issues of patent infringement or validity. An independent opinion of non-infringement, when competently prepared and properly supported, can obviate the risk of enhanced damages even if there is a subsequent finding of infringement.

Case Study:

In Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.,⁵⁶ the Federal Circuit affirmed a Western District of Texas jury verdict of willful infringement based upon evidence that the defendant, TriTech, failed to obtain any competent legal opinion of non-infringement or invalidity after being notified by the plaintiff of its potential infringement. The record also showed that TriTech had developed the infringing devices by copying the plaintiff's patented parts, and that TriTech had been aware of the plaintiff's patent three years before suit was filed and had even attempted an unsuccessful design around.

Lesson Learned: Make sure to seek competent legal counsel when alerted of potential infringement.

VI. CONCLUSION

Once having developed an aggressive IP strategy that will provide a strong IP portfolio, including patent positions that can avoid critical mistakes as described above, the startup and small technology companies may learn more sophisticated approaches to management of its IP, including effective means to obtain disclosure of inventions, to review the disclosed ideas, to establish patent licensing programs to elevate the prestige of a company as well as generate substantial revenues.

⁵⁵ Kloster Speedsteel A.B. v. Crucible Inc., 793 F.2d. 1565 (Fed. Cir. 1986).

⁵⁶ 246 F.3d 1336 (Fed. Cir. 2001).