

MEMORANDUM

TO: MS&E273

FROM: Mark Radcliffe

DATE: January 1, 2004

RE: Intellectual Property: Critical Issues

This memorandum will summarize the intellectual property issues which board members and officers should consider when working with a technology startup. Intellectual property is frequently the most important asset of such a startup. A startup's mistakes in protecting or exploiting its intellectual property can be expensive, and, sometimes, fatal. We will be using many examples from publicly traded companies because mistakes made by private companies rarely become public (Napster is an exception to this rule). For example, the failure of Xerox PARC to patent inventions such as the computer mouse and the graphic user interface resulted in other companies such as Logitech and Apple Computer, Inc. building companies based on these innovations without payments to Xerox. Napster's intellectual property strategy proved fatal to the company. Even worse, Napster's intellectual property strategy resulted in still pending lawsuits by the record companies against its investors, Bertelsmann and Hummer Winblad as well as the individual venture capitalists who were on the board or served as interim officers. Board members and officers should be sensitive to intellectual property issues both in making the decision to become involved with a startup and in guiding the startup after accepting a position. Board members and officers should ensure that an integrated "due diligence" report of the startup's intellectual property rights is prepared by experienced attorneys, ideally prior to soliciting funding. Such a report would include a review of assignments, patents, trademarks, inbound licenses and outbound licenses. This due diligence is most effective when performed by attorneys who specialize in the relevant legal areas (which are quite different): patents, trademarks and licensing. Many intellectual property problems can be subtle, for example the wording of a license grant resulted in Apple Computer, Inc. losing the right to prevent Microsoft Corporation from creating a Mac-like graphic user interface in its Windows products. Most such due diligence focuses on the intellectual property owned by the startup, but more sophisticated investors will also want to understand the competitive environment and so corporate board members and officers should consider conducting a study of patent rights of competitors to ensure that a third party does not own rights which would block the product or service of the startup. Such reviews are standard in life science investments because patents are essential to protect products with long development cycles as well as long sales cycles (many drugs are sold for decades, even after the original patents expire). Board members and officers should ensure that the startup uses seasoned counsel to develop an integrated intellectual property strategy using the different forms of intellectual property to support its business strategy. This intellectual property strategy needs to be reviewed on at least an annual basis to ensure that it continues to support the startup's business strategy as it evolves.

This memorandum will discuss the basic forms of intellectual property, common mistakes made by startups, and the development of an intellectual property strategy. These topics could easily fill several books, so this memorandum will necessarily only provide a

summary of the issues. This information provides general advice and may not cover a particular situation (see further information in the disclaimer at the end of the memorandum).

A. The Basics of Intellectual Property Protection

The board member and officer must first understand the different types of intellectual property in order to understand how they can be used by a particular company. The major forms of intellectual property used by technology startups are described below. Intellectual property is protected by national laws, which may vary between countries (for example, unlike the United States, France and Germany do not grant patents on business processes); we will be describing intellectual property laws as they exist in the United States.

- **Patents.** Patents protect inventions which are new, useful and non-obvious (when we discuss patents, we will be referring to “utility” patents; other types of patents, design patents and plant patents, are rarely used by technology startups). Such inventions can be electrical, biological, mechanical, chemical or even a business process. Example of works protected by such patents are the laser, genetically engineered bacteria for cleaning up oil spills, a method of running cash management accounts, and a method for curing rubber. The usefulness requirement is generally easy to meet, but the requirements of novelty and non-obviousness require that the invention must not have been known or used by others in a country before the applicant invented it. The startup must apply to the government in each jurisdiction in which protection is sought and comply with such jurisdiction’s legal criteria. A patent in the United States now has a term of 20 years from the filing date. Patents permit the owner to “exclude” others from making, using, selling, offering for sale, and importing a product or service embodying the invention. The fact that a patent is a “negative” right is very important because it means that obtaining a patent does not give a startup the right to sell a product or provide a service: many products and services are covered by the claims of multiple patents owned by different parties. Patents are generally viewed as the strongest form of intellectual property because they can prevent a competitor most effectively from making its product: by using its patents, Polaroid was able to stop Eastman Kodak from making instant cameras and collected over \$900 million in damages. Patents are sufficiently important that we have included a companion memorandum solely on the issue of patent strategy.
- **Copyrights.** Copyrights protect “original” works of authorship which are “fixed” in a tangible medium of expression. The standard for originality is very low. Technology products covered by copyright are manuals, firmware and computer software as well as more traditional works such as songs, novels and motion pictures. Unlike patents, copyrights arise automatically when a work is created and do not require an application to the government (however a United States company needs to “register” the copyright prior to bringing a court action for infringement). Although the term of copyright has varied over time, currently a copyright developed by a company endures for the longer of ninety-five years after the date of first publication or one hundred and twenty years after creation (copyrights created by individuals have a different term). Copyright law gives the owner the exclusive right to reproduce, distribute, modify, publicly perform and publicly display the work. However, unlike a patent, a copyright does not protect the idea behind a work: thus, while a patent may protect a method of creating a multi-threaded computer operating system, copyright law would permit multiple implementations of that idea so long as

a company's implementation is not "substantially similar" to the implementation of another company. Copyrights can be particularly useful in preventing counterfeiting or exact copying by competitors: most major consumer software vendors, such as Microsoft and Adobe Systems Incorporated have active anti-piracy efforts. Copyrights can be very powerful: the record companies and music publishers shut down MP3.com's My.MP3.com service and were reported to have received over \$160,000,000 in confidential settlements from MP3.com for copyright infringement. The record companies' enforcement of their copyrights enabled them to shut down Napster.

- **Trademark.** Trademarks (for simplicity, we include servicemarks in the term trademarks) are words, names, symbols, slogans, smells, sounds or devices used by manufacturers of goods or providers of services to identify their goods and services. Trademarks include the bitten apple logo for computers, the word "Google" for Internet searching, the roar of the MGM lion for films, and the three-dimensional design of the Coca Cola bottle for soft drinks. Trademarks can endure forever so long as they are continuously used. Trademark rights in the United States can arise through use but such rights are limited to the geographic area where the mark is used. However, a federal trademark registration provides the presumption of rights throughout the United States and permits the ability to file and obtain future protection of the trademark prior to use. By contrast, most foreign countries require registration with the government before recognizing trademark rights except for "famous" marks (unlikely for a startup). Trademark law prevents a third party from using a trademark which is confusingly similar to the trademark of the startup. Confusing similarity depends on a number of factors, including the closeness of the trademark, the goods or services and distribution channels. For example, Apple was able to prevent the use of the trademark Pineapple on Apple-compatible products. Descriptive words, such as Windows for a window based operating system, are difficult to protect. In fact, some words cannot be protected under trademark law: the general term for a type of goods (a "generic" term) cannot be used as trademark, because all companies in the market need to use it. For example, "CAM" would not be protectable for computer aided manufacturing software. One particular risk for startups is that their trademark will become the general name for a new type of product and, thus, unprotectable: Google is facing that risk as "googling" becomes a general term for Internet searching.
- **Trade Secret.** Trade secret law protects information of any type that is valuable to its owner because it is not generally known in the industry and its owner has taken reasonable steps to maintain the information in confidence. Examples of trade secrets include customer lists, source code, and semiconductor manufacturing processes. Trade secrets can include both positive and negative information. For example, the knowledge of which compounds are not effective therapeutic drugs against cancer can be very valuable and save a company tens or even hundreds of millions of dollars. Trade secrets arise automatically if a company takes the appropriate steps; they continue to be enforceable so long as they meet those criteria. Consequently, a trade secret can endure forever. One of the most famous trade secrets is the formula for Coca Cola. Once a trade secret is disclosed, it is no longer protectable. Trade secret law provides rather limited protection: it prevents the "misappropriation" of the trade secret. Misappropriation of a trade secret requires "wrongful" taking. For example, a classic example of trade secret misappropriation occurs when an individual takes confidential information from his

employer to start a new company. On the other hand, reverse engineering, unless such reverse engineering breaches an agreement, is not misappropriation. The major offense of the founders of Avant, who eventually went to prison and paid significant fines, was trade secret misappropriation of database code of their employer, Cadence Design, which they used in a competitive product.

Most products and services can be protected by a combination of intellectual property rights. For example, computer software can be protected by patents, copyrights, trademarks and trade secrets. Microsoft protects certain functions of its Windows computer software with patents; it uses copyright to protect the actual code of the Windows software from copying; it uses trademark law to protect the “Microsoft” and “Windows” trademarks which identify the product; and it uses trade secret law to protect the structure and methodology of its source code. However, once a patent issues, trade secrets in the part of the computer software protected by the patent will be disclosed and will no longer be protected by trade secret law.

B. Common Intellectual Property Mistakes by Startups

Despite the importance of intellectual property, startups frequently make the same mistakes either because of ignorance or lack of focus. Based on our over thirty years of experience working with hundreds of startups, we describe below the most common intellectual property mistakes made by startups. These mistakes can be detected by appropriate intellectual property due diligence and most of these mistakes can be corrected or mitigated if they are discovered at the early stages of a company or before the company has been funded.

1. **Failure to Secure Ownership (or License) of Intellectual Property Rights.**

The most common mistake by startups is failing to obtain proper written assignments or licenses of intellectual property rights that are developed by the founders prior to the startup’s incorporation or rights developed either by employees or consultants after the startup’s incorporation. This mistake can be very expensive to resolve; in some situations, it can be fatal to the startup. If a startup does not actually own or have a license to the intellectual property in its products, a disgruntled founder or employee can hold the startup hostage until the company either revises the product to remove his contributions or makes a deal to obtain assignment or license of the rights. A very common form of this problem is the failure to obtain the assignment of the intellectual property rights to the product developed by the founders either prior to incorporation of the startup or prior to the founders becoming employees of the startup. For example, we represented a corporate investor in a Series B round in which the due diligence determined that for the entire first year of development the founders were “independent contractors” and had not assigned their intellectual property rights to the startup. In addition, during that period the original chief technical officer had left and continued to be on poor terms with the company. Thus, the startup did not own essential rights in its product. This problem can continue even after formation if the startup fails to establish a program to consistently ensure that all employees and contractors execute appropriate assignment agreements. The failure to do so can be expensive and embarrassing: one major golf company was horrified when it received a demand letter from the graphic artist who had created its logo (the golf company had invested tens of millions of marketing dollars in the three years since the logo’s first use) who stated that he had not assigned the copyright in the logo to the company and demanded payment; the company settled the matter privately by paying over \$1 million to obtain the assignment of copyright in the logo.

2. **Missing Opportunities for Patent Protection.** Many startups miss the opportunity to protect the most important elements of their products by not understanding the deadlines in patent law or not implementing a strategy for patent protection of products and services. Xerox PARC made the express decision not to patent the inventions in the computer mouse and the graphic user interface. Consequently, Logitech and Apple Computer, Inc. were able to commercialize those inventions without any payments to Xerox PARC. The deadlines for patent prosecution are complicated and we have addressed them in detail in a companion memorandum. Briefly, most countries will not permit patent protection for an invention unless the application is filed prior to public disclosure of the invention, such as by demonstrating a product at a trade show, publishing technical papers or offering it openly for sale to third parties. The United States is an exception and its patent law permits filing an application for an invention for up to one year after its public disclosure. Startups need to be aware of these deadlines and ensure that they make appropriate decisions regarding protection before demonstrating their products at a tradeshow, publishing technical papers about it or offering it for sale to third parties.

3. **Poor Trademark Selection.** Although trademarks were once ignored by technology companies, Intel has proved that trademarks can be very valuable. The company's "Intel Inside" campaign has increased its ability to sell its semiconductors to manufacturers through demands by customers for Intel microprocessors in their personal computers. The value of trademarks can be remarkable: although most of Napster's intellectual property strategy was a disaster, the Napster logo has proved to be one of the few assets which had any value in its bankruptcy. Roxio purchased the trademark and used the logo to open a new online music service. Startups frequently do not select their trademarks carefully and adopt trademarks which are difficult to protect. For example, Microsoft adopted "Windows" as the trademark for its operating system. Unfortunately, the word "windows" is descriptive (perhaps generic) because it describes the most important feature of the way the graphic user interface operates (the strongest trademarks are arbitrary marks such as Apple for computers or Xerox for copiers). Although Microsoft has been able to protect the mark to date, the enforceability of the Windows trademark is currently being challenged by Lindows and it is possible that the trademark will be found to be "generic" and thus not protectable. This "genericide" risk is important for technology companies introducing new types of products. A trademark which becomes "generic" is no longer protectable and can be used by anyone. Intel had this problem with its '386 trademark for microprocessors: Intel failed to formally adopt this term as a trademark (it developed as a nickname for the product and only later was adopted by Intel as a trademark) and permitted '386 to become the general name for microprocessors with certain functions. When Intel tried to assert the '386 trademark against a competitive AMD microprocessor, the court found that the trademark was no longer protectable. Google is beginning to have this genericide problem as more individuals use "google" as a common term for Internet searching, whether or not based on the Google search engine. If Google is not able to correct this problem, "google" may join "escalator" and "thermos" as trademarks which became "generic" and ceased to be protectable. The cost of changing a trademark can be very expensive: when Disney lost a trademark infringement suit for its use of a "green stop light" logo for its Go.com portal, it paid over \$20,000,000 in a settlement. However, an executive stated that the cost to Disney was over \$40,000,000 to change collateral, remove the infringing logo mark and find and clear a new logo.

4. **Errors in Licensing.** A startup needs to be careful about both licenses to the startup from third parties (so called “inbound licenses”) and licenses of its own intellectual property to third parties. For example, an inbound license with a narrow field of use may require renegotiation as the startup’s products evolve: once the third party technology is integrated into the startup’s product, the startup will be at a severe disadvantage in such renegotiation and the third party can charge a premium for expansion of the field of use. Another problem with inbound licenses is their assignability in the case of a merger, because the exit strategy for the vast majority of technology startups is a merger or sale of assets. The most famous example of this problem occurred in the automotive industry when Volkswagen purchased the Rolls Royce Motor Cars Ltd. (“RRC”) for \$712 million only to discover that the “Rolls Royce” trademark for automobiles was owned by Rolls Royce PLC and licensed to RRC: a license which terminated upon Volkswagen’s purchase of RRC. Consequently, Volkswagen failed to obtain the most important asset of RRC because of the terms of the license. A common problem for life science startups are university licenses that have unrealistic milestones to retain exclusivity. If negotiated by the founder or inexperienced counsel, these license terms may prevent rather than encourage investment (unless they can be renegotiated).

A startup’s license of its own intellectual property must also be carefully considered. One common problem is granting exclusivity at an early stage in product development: this mistake could prevent the startup from using its own technology in the licensed field or tie up fields of use that are not exploited by the licensee, thus blocking the startup from exploring new revenue opportunities. Even the wording of non-exclusive licenses can be critical: Apple Computer, Inc. learned this lesson the hard way in its license of its graphic user interface design (“GUI”) to Microsoft for its early Windows software programs. Apple believed that they had limited the license to a GUI which used “tiled” windows in which the windows on the screen did not overlap. Microsoft successfully contended that the license permitted a GUI that had either “tiled” or “overlapping” windows. Consequently, Microsoft was able to develop its Windows operating system to include functionality which made it competitive with Apple’s own operating system.

5. **Use of Trade Secrets or other Material from a Prior Employer.** A major risk for a startup is the use by founders of materials from their prior employer. Such materials can range from trade secrets such as customer lists or semiconductor design methodology to computer software. This mistake can cripple a startup, because companies are becoming more aggressive in defending their intellectual property rights: a lawsuit, even if the startup wins, can prove to be fatal either due to delays in product introduction or distraction of the startup’s management. If the startup loses, it will need to recommence its product development and may have to pay substantial damages. In more serious cases, the founders can be subject to criminal liability and may even serve time in jail like the founders of Avant.
6. **Use of Open Source Software in Product Development.** The incorporation of open source software into a startup’s product can create significant problems in an exit based on merger or an asset sale. The most widely used open source license (the General Public License or GPL) requires that companies which base their software on open source software licensed under the GPL must make available source code of the startup’s software to the startup’s licensees and to permit such licensees to modify and redistribute the startup’s software without charge to the third

parties. Many acquiring companies are demanding representations in the acquisition agreement that the products of the startup (the acquired company) do not include any open source software. If the startup's software includes open source software, the acquiring company may terminate the acquisition, reduce the acquisition price or require that the startup eliminate the open source software from its product. After its acquisition of Linksys, Cisco discovered that Linksys was accused of using open source software in its products and the Free Software Foundation is demanding that Cisco make the source code of the software available.

C. Developing an Intellectual Property Strategy

The protection and exploitation of intellectual property by the startup will become even more important for board members and officers after the startup has been funded. Successful startups have an intellectual property strategy, sometimes an informal one, which is consistent with the business strategy. The most effective intellectual property strategy integrates the different types of intellectual property to provide overlapping layers of protection.

The appropriate mix of intellectual property rights will depend on the product and the market, but board members and officers should ensure that the startups in which they are involved have an intellectual property strategy which matches their business strategy. This intellectual property strategy should be reviewed on a regular basis to ensure that it continues to match the business strategy. For example, many startups file patents without focus on the key inventions. The authors of Edison in the Boardroom studied how large corporations manage their intellectual property and found that more than half of the patents in their portfolio were no longer valuable in their current business. Startups frequently have similar problems. On the other hand, a startup which is making a product for sale directly to consumers will probably find trademark selection and protection equally or more important than patent filing.

The elements of an effective intellectual property strategy include (which should be reviewed on at least an annual basis):

1. Patent Strategy.
 - a. The startup should have a process for identifying potentially patentable inventions. The decision should take into account the tradeoff between patent and trade secret protection. The startup should focus on "chokepoint" inventions which can control versions of the product made by a competitor. The strategy could include patenting both the product and the method of manufacture. The startup should have experienced counsel review the patent portfolios of its competitors to determine which of the startup's inventions are most valuable to protect. The strategy should take into account the patents filed by competitors in order to be able to respond to potential challenges by such competitors.
 - b. This process should also provide a method for deciding the countries in which the invention will be protected based on its importance, cost and the availability of protection under local law.
 - c. The patent strategy should ensure that the decisions regarding protection of inventions are made prior to public disclosure.

- d. The patent strategy may also include a decision to disclose some inventions so a third party cannot patent it. Many large companies such as IBM have a substantial publication strategy but startups can also benefit from this approach.
 - e. The patent strategy should also address how to participate in standard bodies if the product or services will be based on standards.
2. Copyright Strategy.
- a. The startup should ensure that it has appropriate transfers of copyrights developed by employees and independent contractors.
 - b. The startup should consider registering the copyright in its most important products to ensure that they can enforce the copyrights in court on short notice and obtain “statutory damages” (these damages are set by the courts up to \$150,000 per copyright, rather than reflecting actual damages; the record companies were initially awarded statutory damages of \$25,000 per song against MP3.com for its copying of songs to webcast them) as well as attorneys fees.
 - c. Employees should be sensitized to copyright issues to avoid unauthorized use of third party software, manuals or other copyrightable materials.
3. Trademark Strategy.
- a. The selection, clearance and protection of trademarks is expensive and the startup should ensure that the adoption of trademarks is controlled or the marketing group will frequently adopt a new trademark for each product. The most common trademark strategies are as follows: (1) single trademark for virtually all products (Intel is close to this strategy); (2) a primary trademark used on all products, with secondary marks for certain products (Microsoft has adopted this strategy using Microsoft on all products and secondary marks such as Internet Explorer, Windows and Word for specific products) and (3) a trademark for each product with customers rarely knowing who manufactures the product (the best example is Proctor & Gamble (“P&G”) which uses Tide, NyQuil and Metamucil, but does not use P&G on its products).
 - b. Prior to adopting a trademark, it should be “cleared” to ensure that another company does not have rights in the trademark both in the United States and overseas.
 - c. Once cleared, the startup should determine in which countries to protect the trademark. These decisions may vary for different trademarks depending on the importance of the trademark and the product. For example, Adobe Systems Incorporated knew that “Acrobat” would be an important trademark and started clearing the trademark in over twenty countries at least nine months prior to the introduction of the product.

- d. The startup should ensure that it has a trademark use policy to ensure that the trademark is used properly and that the startup's use of its own trademark does not undercut the startup's ability to enforce the trademark (like Intel in the '386 mark).
 - e. The startup should ensure that its trademark is not misused by third parties and that other parties do not adopt a confusingly similar trademark (for example, Apple Computer Inc successfully objected to the use of "Apple Soup" by a startup for peer to peer software).
4. Trade Secret Strategy.
- a. The startup should have procedures in place to protect its trade secrets and be able to prove the use of such procedures in order to enforce trade secret rights in court. To enforce its trade secret rights, the startup needs to prove that it used "reasonable measures" to protect their confidentiality. These measures can include employee assignment and confidentiality agreement, non-disclosure agreements and a marking program.
 - b. The employees should be trained to recognize and properly protect trade secrets.
 - c. The trade secret program should coordinate with the patent program, because the issuance of a patent will terminate trade secret protection.
5. Licensing Strategy
- a. The startup should carefully review inbound licenses to ensure that they include rights that are sufficiently broad to take into account the evolution of the startup's product and the research necessary to develop it: the ability to sublicense these rights may be important, particularly for life science startups who will be partnering with large pharmaceutical companies to manufacture the startup's product. These licenses, if critical, must also be transferable in the case of a merger or asset sale.
 - b. The startup should ensure that its exclusive licenses do not preclude it from exploiting its technology in other markets which it intends to enter and include appropriate minimum performance requirements.
 - c. The startup should carefully consider how much risk of liability it will accept through warranties and intellectual property indemnities to its clients.
 - d. The startup should establish a policy for the use of open source software in its products and ensure that it is followed.

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