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Opportunities for New Business

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Apollo, the ancient world's most beloved of gods, was the god of truth and light and intellect. Just as Apollo gained mastery of the mythological world through intellect, so a key to the technology game in today's business world is a thorough understanding of the role and impact of intellectual property.

OPPORTUNITIES FOR NEW BUSINESS

PROTECT IT OR LOSE IT—AN INTRODUCTION TO PATENTS AND INTELLECTUAL PROPERTY

Just like "real property," intellectual property may be sold, transferred, acquired and even stolen by industrial spies.

Intellectual property can take a variety of forms such as patents, designs, industrial models, trademarks and copyrights, which are defined by legal statutes in virtually every country of the world. There are also valuable bodies of knowledge, such as trade secrets, which are not defined. These are referred to by the catch-all term "know-how."

How then do we protect our rights against others? How do we protect ourselves against those who came before us? How should we interact with our competitors and protect our turf while avoiding theirs? This may be more important to the small business person than actually filing a patent.

Patents are legal monopolies granted by sovereign governments for novel, useful, and unobvious inventions. In the United States, for example, the U.S. Patent Office grants these monopolies for 14 years for design and 20 years for utility inventions. The paragraphs (claims) at the end of the patent define the scope. Ask a patent lawyer what the claims in the patent cover. These claims stake out the protected turf. Find out what other products, services, and features can be manufactured, sold, or used without infringing a competitor's rights.

The patent statutes state that any person who invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent.

Patent searches are useful but not legally necessary to engage in business. However, sometimes an ounce of prevention is worth a dollar of cure. The newer on-line computerized databases all contain recently published U.S. patents and can be searched quickly and easily.

A "patent pending" mark on a product is not legally enforceable. It is also illegal to mark a product with a patent notice if the product is not within the scope of any patent claim.

Patents give us the right to *exclude* (note this key word) others from making, using, or selling items specified in our claims. Patents then can be used in suing infringers and in transferring, selling, or licensing the patent rights to others.

Patents can be sold, assigned, or licensed exclusively or nonexclusively for fixed periods up to the life of the patent and for specific areas and applications.

Make certain a patent will help the business before paying money for the rights. Be careful not to infringe your competitors' patents.

Copyrights cover written works. In the U.S., copyrights are granted by the U.S. Library of Congress for the life of the author plus 50 years or 75 years where the work is done for a corporation. Works are protected by applying a notice at the time of first publication and may be perfected by filing an application with the library.

Copyrights protect the expressed form of the work, not the idea. Protectable works include maps, music, paintings, computer programs, telephone books, and customer lists. A description of a machine can be copyrighted, but this would not prevent others from writing a different description or from making or using the machine.

Trade secrets are classified by lawyers as something that is not generally known in the trade or industry to which it applies, and which provides a competitive advantage. Trade secrets include formulae, patterns, devices or compilations of information. The Coca-Cola formula is one of the best examples of a trade secret.

If we take reasonable steps to prevent others from learning our trade secrets, we may be able to prevent others from using our trade secrets if they obtain them by illegal means. Of course if any other person finds the secret independently, there is no legal recourse.

Trademarks are words, names, symbols, slogans, devices, or any combination of the same, which are used to distinguish our products or services from those of others. Trademarks cannot be reserved in the U.S. as they can be in certain other countries. Trademarks are created from actual commercial use of the distinguishing features displayed on the product and are later registered with the patent office. Unlike a patent, registration of a trademark does not in itself establish any exclusive rights. It is simply a recognition by the U.S. government that we have the right to use the mark to distinguish our goods from those of others.

Trademarks are registered in various classes and remain in force for 20 years from the date of registration. They may be renewed for periods of 20 years unless canceled or surrendered.

Be prepared to define turf from within as well. "The easiest way to find out what a competitor is doing is to hire away an employee," wrote *Business Week.* Executive turnover from the company is a primary way of losing trade secrets and intellectual property rights. Most employees tend to stay in their industry, and their field of expertise, and either join a competitor or establish a competitive enterprise. Other disclosures occur through published articles or research reports, or just a slip of the tongue.

Since employees are the pivotal point between confidentially and disclosure, build any internal security program around them. Consider written confidentiality agreements with

all technical and management people. Tell them what is expected, what is considered secret, and what they may or may not do when they leave the company. Such agreements typically provide for the assignment to the company of any inventions, patents, etc., which are developed by an employee of the company. Conduct exit interviews to remind departing employees of their obligations and to unearth any flaws in the current policy.

Similarly, in business arrangements with consultants and customers, obtain a written understanding of how they will treat the company's intellectual property. Let consultants know what services are expected in return for what they are being paid. If they create an invention while designing a product for the company, the company should own it, and they should not use or disclose it to others. Trade secrets also can be lost through ordinary business relationships with suppliers and customers. For example, our company may request another company to design a special piece of equipment. Later, we find out that the manufacturer subsequently sold our new design to our competitors. We can protect ourselves with confidential disclosure agreements. Spell out each party's rights and duties and how the rights to any intellectual property that may be developed during the arrangement will be divided.

Always involve a lawyer when new circumstances arise. Never make assumptions about managing intellectual property. Ask what needs to be done to protect the company rights. Find out the good, and the bad, and do not be afraid to ask how much it will cost—the ugly.

Failure to protect our intellectual property turf and our associated technology can have drastic effects on our companies' profits and continued survival. Technology is a powerful force that inexorably drives the world towards a single converging commonality. Make sure that our companies are winners that seize technology to gain competitive advantage.

How to Use Intellectual Property to Create and Protect Markets

If we haven't begun to fully realize this trend, where do we start? Start at home with a policy statement on what the game plan is concerning rights invested in inventions and intellectual properties that exist now or may be developed by employees or by others in the future. Failure to plan ahead is, and continues to be, the most common failing of business. Write, publish, and implement a broad policy statement.

Sample Policy Statement: "Intellectual properties developed or owned by SmallBiz, Inc. are sensitive, proprietary, confidential, and of great potential commercial value. They will be developed and protected through appropriate staff, consultant, vendor, and corporate agreements to assist the corporation in reaching its strategic and operating objectives and in such a manner as will preserve the good reputation of SmallBiz in the marketplace."

To implement this policy, address ownership issues as they relate to employees, contractors, universities, and even the government.

Basic Approach: What's the common rule in dealing with any party regarding intellectual property? If we hire or assign someone to do something, work on a project, perform a task, or accomplish a stated objective and we pay for that work, then we own the result. If we pay someone to solve a problem, if that is part of the job, then the solution is ours.

In the case of an employee or consultant, this principle is called "hired to invent." Ownership is not affected by an issued patent with the employee as the inventor. If the company owns the invention or discovery, it owns the patent rights too.

Have an attorney draft up standard staff and consulting agreements. At a minimum, agreements should contain statements on requirements during the term of employment and for a brief period after:

Preserve as confidential all information pertaining to the business, projects, and products, the disclosure of which would be prejudicial to the business interests

Disclose all inventions or discoveries made solely or jointly with others relating to the business and assign right, title, and interest in such inventions

Obtain and enforce patents and execute patent applications

Disclose writings, art designs, prints, labels, and software

There is a lot of litigation in this area with much of it revolving around just what an employee or consultant was hired and paid to do. If an employee is not hired to invent, can an employer have rights in any such discoveries?

Shop-rights: There are common law principles that apply to this situation. When employees make inventions outside the scope of their employment (something they were not hired to do), but use the employer's resources or facilities in making the invention, that invention may be owned by the employees. Employee ownership, however, is subject to a "shop-right" to the employer. A shop-right means the employer has a non-exclusive right to use the invention without paying royalties. Conversely, when employees make inventions working outside of their employment and without use of the employer's resources, then the invention may belong solely to the employee.

Going Outside: In using research and development (R&D) resources outside the company to develop new technology, processes, and products, keep in mind the basic principle that most countries use a "first-to-file" approach under their patent laws. The United States has recently changed its laws a from a "first-to-invent" requirement to a "first-to-file" to align its intellectual property laws with the majority of the rest of the world. Under the old law, this meant that the first person who made the invention could secure rights in the

invention—but now this has become the person who first files a patent application. Exactly what do we mean by an invention?

Invention Defined: Every invention has two elements: *mental*—an idea conceived by the inventor, and *physical*—an application, or a reduction to practice, of that idea to achieve a practical result. Both elements are required, but it is not necessary to build a working model to meet the second element.

What is important, however, is that employees document and protect inventions through invention disclosures prior to engaging in a dialog with other parties. In practical terms, this establishes and protects "prior rights" in an invention and prevents possible claims of joint invention and ownership in the future. It also helps us better understand all of those exception clauses in standard secrecy agreements we've signed. This is particularly critical when working with universities, research institutes, and the government.

Research Institutes: In general, most research institutes are not-for-profit and were founded to contribute to national and regional scientific and economic development. Since their primary business is selling research services (work-for-hire), when pushed, they will include a standard clause in the engaging contract which basically says that "any and all patentable inventions pertaining to the scope of this project made by staff while performing the project work, as well as any resulting patent applications or patents, shall become the property of the client." They also will agree to confidentiality, but make this a requirement of the engaging contract as a matter of course.

In certain instances, institutes (and universities) may want to retain rights to any discoveries and inventions because of the experience and expertise the staff brings to the project. Unless the institute has already established prior rights in the discoveries, this is a little like the fox-in-the-chicken-coop argument since many institutes were established with public and foundation moneys and trusts. Stick to our common law rights—if it's our idea, and we pay, we own! Of course, if they approach us to develop their prior idea, we now have a negotiation.

Government Funds: A potentially sticky situation—working with government funds. In certain cases, such as joint university R&D projects and NIST's Manufacturing Technology Centers, R&D funding is a cost sharing arrangement. The basic principle—any time the government invests funds in a project, the government gets shop-rights and "march-in" rights. March-in rights means the government has the right to commercialize any subsequent inventions if we fail to exploit the opportunity. I know of no case where the government has exercised such rights. The government has heretofore figured the invention must have little value if industry declines interest.

Freedom of Information: Of greater concern, however, is the potential disclosure of trade secrets (know-how) under government reporting and Freedom of Information requests.

The government is continuing to pass legislation in this key area. One of the more recent is the Cooperative Research And Development Act (CRADA), which provides for prenegotiated rights and greater confidentiality. Tread carefully and spend a little money on expert advice.

Government Contracts: Another way to develop and acquire ownership in technology is by performing R&D directly for the government. Details of such projects are published in the *Commerce Business Daily*. Inventions resulting from such work are treated differently if the organization performing the work is a small business, not-for-profit, or a university. In such cases, these organizations can elect title to such inventions thereby obtaining prior rights. Of course, the government still retains shop- and march-in rights.

To successfully compete in the '90s, the private sector must leverage the wealth and resources of the public sector—universities, government, and research institutes—to perform R&D essential to the survival of their businesses. A working knowledge of the management and commercial use of intellectual properties and their ability to create and protect market niches is essential.

EVALUATING TECHNOLOGY FOR OPPORTUNITY

Over the years, I have developed a number of surveys for screening technology-based business opportunities. In venture capital parlance, this is called *due diligence*.

Is the technology technically feasible (eliminate perpetual motion machines)?

Is the product a breakthrough or merely an improvement over the current product (this is called "cutting the corner" on technology)?

As an improvement, what significant advantage does it have over the current product? Is the advantage clearly discernible?

How much does cost to make?

Is there a sufficient market? In fact, does a market currently exist, or do we have to create one?

How developed is the technology?

How much money and time is required to produce a product we can sell?

How large is the window of opportunity?

How much protection?

Who own the rights to the technology? What rights—patents, know-how, show-how, and copyrights?

Who are the major players in the existing game?

Is this the only game in town?

In marketing, the key is to match the product or service to the market and the customer—this is called niche marketing. This matching process requires an understanding (and practicing) of the four P's taught in any introductory marketing class: *product*, *price*, *place*, and *promotion*.

Taking a lead from this elegant approach, I developed a simple three-P system for evaluating technology opportunities: *people*, *protection*, and *price*. This system is designed to be used by neophytes and uses basic people skills and common sense to build a decision bridge between high-powered science and enterprise.

People: With the advent of desktop publishing and the services of high-priced consultants, all high-tech proposals can look like winners. Remember that, first and foremost, business is a people science. To evaluate a proposal, always ask for a presentation by the inventor. Qualify the individual before looking at the technology!

Given the odds for a success in this game (about 100 to 1), we want a person who has the staying power to deal with the inevitable disappointments—we want enthusiasm, zeal, and commitment. Ask a few basic questions:

In one simple sentence, explain the nature of the high-tech opportunity. This question qualifies communication ability and shows whether the opportunity fits in a market.

What role does the presenter want in developing the technology? If the answer is "to pass the idea along for development and funding," stop right then. The successful entrepreneur/inventor is very protective about his baby and never believes anyone else can do the job!

If we formed a start-up company, what position would the inventor want? Scientific inventors, in general, find it difficult to make it as a small business person. Particularly in biotech, most scientists develop a "petri dish" mentality. Because their research can be duplicated in a glass dish in one day, they are naturally suspicious of anyone and tend to be loners, not team players.

Who is going to buy the products developed from the technology? Why? Focus on an established end user, and for the most part, the consumer—a large buying market. Creating new markets becomes a sell in philosophy and a tough sell at that.

Protection: If the presenter passes the people-hurdle, then take a serious look at how to establish the business without the threat of serious competition. There's no future in being a trail blazer if Johnny-come-lately can capture the market.

In crass terms, technology-based businesses sell time and protection: time to leapfrog the competition and protection to establish an embryonic business beyond a competitor's reach. This most often is achieved through a legal monopoly—a patent. A U.S. patent gives its owner the right to exclude others from making, using, or selling a process, device, method, or product depending on its claims. It confers this right for 20 years.

The key question is how strong is the patent position? Is the technology the subject of patents or can patents be filed? When and where were these patents developed? Who paid for the R&D? Are the rights unencumbered—not pledged or assigned to another party?

In the R&D business, whoever pays for the R&D owns the resulting technology. Unless, of course, the R&D organization reserved these rights before starting the R&D. Then, too, there are some sticky questions on publicity and prior use of the technology before patenting—these can invalidate the patent, and with it, the business.

Technology can be classified into three simple groups: pioneer (7 to 10 years from market), partially developed (3 to 7 years), and fully developed. Most high-tech opportunities fall into the first two early stage categories and require some vision (and money) to capitalize on the opportunity. Most inventors are looking for "other people's money" to develop their idea. The lack of adequate financing for new ventures is often a criticism of banks. Remember, banks, by their charter, are first and always lenders not investors.

A strong patent portfolio can build protected markets and hence businesses. Zero in on just what market niche is covered by the opportunity. Novel opportunities are better than "me-too" improvements that merely cut the corner of a technology.

It is not necessary to own the patent to gain the necessary protection. We can buy protection in other ways: licensing, franchising, distributorships, or even outright acquisition of the intellectual property rights. Intellectual property rights come in a variety of forms including patents, copyrights, trademarks, and trade secrets (know-how and show-how).

If the opportunity still feels good, talk to the presenter's patent attorney and seek counsel from trusted people who can seriously evaluate the technical and business merits of the opportunity. The golden rule in the evaluation game is if we can't evaluate it adequately, it's not for us.

Price: This is the last hurdle. Pricing the fruits of the technology—the product—is critical. The selling price of the product must cover the cost of the R&D, production and

distribution, plus a reasonable profit to the owner and subcontractors. The key to any distribution system is to provide enough gross margin to ensure that the final product can find its way along a multitier system—everyone has to get their cut. All too often, small businesses tend to undervalue high-tech products when they are first introduced. They fail to consider how much effort is needed to successfully propel the product through a sales force or distribution channel.

Proper pricing is necessary to generate the cash flow to support loans and debt equity to establish commercial enterprises. If the underpricing is severe, the product will be undervalued in the eyes of the marketplace, which will hamper, if not prevent, the growth of the product and thus the company. We can't win the fight against major competitors by cutting prices—this was why we want a protected business niche. On a high-tech product, a minimum 5-to-1 markup from production cost to selling price is almost essential.

Be slow and prudent when evaluating technology-based business opportunities. During the process (typically lasting around 18 months), the principals on both sides of the deal get to develop relationships and learn to trust each other. Approach technology opportunities as partnerships. Imagine the technology as a bride with a dowry of products and patents. Court the bride with money, manufacturing, management, marketing, and distribution. Aim for a long engagement and get married slowly.