

PATENTING FOR SMALL TECHNOLOGY-ORIENTED COMPANIES

-Everyday Tips from a Patent Professional in Silicon Valley-

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ABSTRACT

Because of their limited resources, small companies must be especially clever in creating their organizations and processes for efficiently converting budget into patent portfolio value. This article first discusses the role of an in-house patent professional (IP pro) and patent committee. Next is a discussion of the process from idea harvesting, to prior art searching, to evaluating inventions for patenting. Following that is a discussion of the relationship between the IP pro and outside counsel. Finally, is a discussion of international patenting considerations.

INTRODUCTION

A patent portfolio is the intersection of technology, law, and business. Small companies face especially high stakes and, therefore, must be especially judicious in developing a patent portfolio within budget constraints. This article suggests organizations and processes that most effectively use the skills of the CTO, the IP pro, and the outside counsel. The article also offers strategies for small companies to use in making key decisions.

Small companies progress through four stages.

1. Desperation - The founders have an idea, but no money, and need to file a patent application to pitch their idea to investors who might otherwise steal it.
2. Disregard - Developing the product supersedes all other priorities, and no one has time to file patent applications.
3. Exuberance - The company is taking business

from a competitor with a formidable patent portfolio. The company aggressively files patent applications without due regard for strategy. This creates a patent portfolio, though rarely one of much value.

4. Discipline - Maintenance fees and legal costs are significant in the budget. Venture capital investors and potential business partners run due diligence valuations of patents. The company prioritizes inventions and countries and decides how to allocate resources to maximize market value.

This article addresses disciplined high-tech companies¹⁾. Such companies are large enough to have a full-time IP pro, but not large enough to have a patent department. Such companies typically have 50 to 500 employees.

This article addresses the implementation of the best practices, with a small team and budget. Smaller companies have less person-time to spend

1) This article is written from the perspective of mechanical, electrical, and software arts. Chemical, pharmaceutical, and other such arts have other constraints not considered here. Also, this article is written from the perspective of US companies. Companies in other countries have other constraints not considered here.

on quantitative analysis. Though they act rationally, their decision-making will depend on gut feeling. Gut feeling is a combination of past work experience in different companies and industries and knowledge gained from studying others through reading and personal networking.

ORGANIZATION

In some undisciplined small companies one person keeps an Excel spreadsheet of ideas, decides which to patent next, and occasionally has a boss quickly sign off on the decision with little consideration. This process causes the company to miss opportunities.

A small company should have a patent committee that includes people with each of the three disciplines of technology, business, and law. The patent committee evaluates inventions to decide which to patent, makes key decision such as what countries in which to patent and whether to file divisional applications, and decides which patents to maintain, license, sell, or buy.

A CTO evaluates inventions in light of the direction of the industry. A VP of Marketing evaluates the value of the competitive advantage of a patent on each invention. The IP pro considers patentability according to her/his best knowledge of the patent laws of various countries.

The patent committee may also include the VP of engineering to discuss inventor time allocation, CEO for overall strategy decisions, and general counsel to check for legal risk.

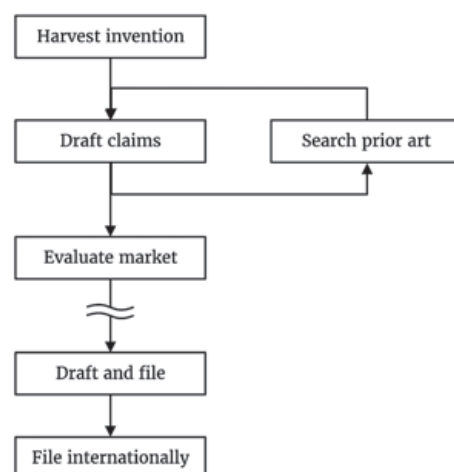
Every small company is different, and because smaller companies have fewer employees, each one has a bigger influence on decision making. The background of people in authority, and their interest in patenting, influences the effectiveness of the committee and the outcome of the company's patenting effort.

Some small companies have no marketing team or a team that focuses on outbound and product marketing without much analysis. Some CTOs focus very much on product development and team management. Some CTOs even believe that patenting is unethical because it can impede the sharing needed for software development by open source communities. Some CEOs like numerical performance metrics, and therefore measure the patent program simply on numbers of applications filed and patents granted without regard to their future value for sale or licensing.

Every small company is different. The IP pro must fill in for the disciplines missing from the patent committee. For example, if the company's marketing department does not estimate future market value and market share, the IP pro should make those estimates. If the company CTO does not participate, the IP pro must explain the inventions to the committee. In any case, the IP pro should explain the legal requirements, such as deadline dates, to the committee. The IP pro also administers the company patent processes, studies prior art, assesses patentability according to legal rules and statutes, and manages the budget.

THE PORTFOLIO CREATION PROCESS

An optimal process for creating a patent portfolio involves massaging ideas through a pipeline of the following 5-stage.



The main steps are as follows.

1. Harvest ideas from inventors, ideally in the form of invention disclosure forms.
2. Search for prior art and draft claims. Each idea deserves a modest initial prior art search. Propose a range of claims of different scope. The goal of the initial prior art search is to eliminate claims that are too broad and find the broadest allowable claims.
3. Estimate the market value of the broadest allowable claims. This article does not discuss how to estimate market value. However, the process should consider the broadest allowable claim and what incremental value its subject matter adds to conventional technology. The process should consider both product market opportunity and potential licensing revenue.
4. Routinely, sort the queue based on the market value of each invention and look at the most valuable invention in the queue. To the extent that time and money are available, draft applications for the most valuable invention.
5. Prosecute the applications in one or more international patent offices.

HARVESTING

Ideas are the raw material for patents. Ideas lead to the growth of other ideas. Therefore, collecting ideas for patenting is more like harvesting a crop than mining diamonds. Harvesting with encouragement promotes productive creativity.

The most successful way to harvest ideas depends on company culture. In traditional companies that use meetings to exchange ideas, harvesting might involve scheduling routine brainstorming meetings, each with a few engineers at a time. In casual companies, it is effective to chat up engineers in the break room, asking about their project plans, moving the Q&A to a whiteboard, and brainstorming creatively. In companies with strong

hierarchies, it is useful to ask managers what their team has created recently and what are the long-term development plans for the team.

When harvesting, direct the discussion to the way that things will work 10 years in the future. Add all harvested ideas to a queue and never tell an engineer that their idea isn't patentable.



FIGURE 1 FOAM STARS AND LABORATORY GLASSWARE WITH A CUSTOM LOGO AS GIFTS FOR INVENTORS

Inventor incentive plans can help. Older employees usually prefer money, but younger employees prefer unique swag with a custom logo. T-shirts and jackets are nice, but some employees make many inventions, and do not need many jackets. Gifts that inventors can collect are best. Furthermore, the primary purpose of giving collectible gifts is to make other employees notice and offer their ideas. For this, it is helpful to choose gifts that cause conversation.

Consider giving incentives for each invention disclosure form, for each first filing of a patent application on an invention, adjusting the bonus for provisional patent applications, and giving incentives for issuance of a first patent on the invention.

Consider doubling or tripling money bonuses for inventions with multiple co-inventors, but splitting the bonus if the number of co-inventors is large. Consider the possibility that some inventors might

leave the company before a patent issues. Some companies pay for ideas and application filings but not for issued patents in order to avoid financial obligations to non-employees.

PRIOR ART SEARCHING

A well written patent claim captures as large a market as possible within the boundaries of prior art. Patent examiners serve the public by attempting to ensure that claims are within those boundaries. Examiners do so by searching for prior art as thoroughly as possible with a limited time. The limit on patent examiners' time is a government-set balance between the public interest and the amount of fees that are reasonable to charge patent applicants. The fees fund the searching.

Inevitably, an accused infringer with a strong financial interest in proving the claim invalid will spend much more time searching.

WHY IT IS IMPORTANT

An applicant who files claims ignorant of the boundaries is liable to either claim an unnecessarily small market or, more commonly, claim far more than is allowable.

Smart people solving similar problems tend to arrive at the similar solutions. Thus, many inventions, though new to their inventors, are not new or unobvious to the world. Without a prior art search, an applicant is likely to disclose their invention and make claims that are completely unallowable. It typically costs an applicant between \$5000 USD and \$15,000 USD to have the examiner figure it out.

Even if the applicant's specification has any matter that is new over the prior art, it might be so specific that it captures no significant market

value. Often, the narrow implementations disclosed in the specification are specific to the uncommon details of the applicant's products, and do not read on any other products.

HOW TO DO IT

Search for an amount of time greater than the examiner. Typically, \$1000 to \$2000 USD worth of person-time is a good range to budget. It is not reasonable to search as much as an accused infringer will, but it is important to include dependent claims as fallback positions for when the broader claims fall.

Dependent claims should cover the sub-markets that are valuable enough to be interesting. Usually, there are two or three worthwhile sub-markets for any market targeted by an independent claim.

Many applicants file far more dependent claims than necessary. Perhaps, it is because claim drafters are not well aware of which variations of the invention capture a valuable sub market.

Google, Google Scholar, and Google Patents are readily available and easy to use resources. They are sufficient for most pre-application prior art searching. A small company prior art searcher should use all three resources to form a basic understanding of which of the inventors' variations could likely be claimed validly.

While many inventions are patented, many more are published without patenting. That is why it is important to search non-patent literature. After forming a basic understanding of likely valid claims, supplement the search with a focus on non-patent literature. That will complement the examiner's search, which typically focuses on prior art patent applications.

Since motivated accused infringers will search the

world over, a search of literature in languages other than those used by the patent office, to the extent that it is within the searcher's abilities, provides another complementary method to ensure patent value.

Searching skill improves with practice. Typically, it involves reading 1 publication for every 10 abstracts and 1 abstract for every 10 titles and efficiently choosing which references to follow and key words to search. Computerized natural language understanding will improve in the future; improving the relevance of search results and making humans even more efficient at searching.

Prior art searching is one of the best ways to learn about the company's field of technology. Every IP pro should do it when they first join their company. It can be an enjoyable process.

THE EXTENT OF SEARCHING

Small companies need to profit from a relatively small number of inventions and do so with a relatively small budget. Thorough prior art search is valuable for small companies to avoid wasting resources on worthless attempts for patents. In contrast, some large companies plan and budget for target rates of patent application filings, expecting to abandon a portion of their applications. To meet their filing targets, such companies choose inventions from a lengthy list of disclosure forms. Such companies have technologists choose inventions based on a gut feeling for novelty or have marketing specialists choose inventions based on plans for future products. Such companies file applications on the chosen invention without prior art searching, and wait for the examiner's search results to decide how to amend the claims or whether to abandon.

Prior art searching does create some risk. If a company performs methods or sells products that

it knows infringe a patent, the company may be liable for extra damages awards in some jurisdictions. Every jurisdiction is different and every case is different, but it might help a small company avoid potential liability to prevent the people involved in developing the company's products from being involved in prior art searching. However, this is often misused as an excuse for not searching. One approach to avoiding this problem is to search only non-patent literature. Another approach is to maintain significant separation between the IP pro and engineers such that the IP pro remains unaware of product details. Another approach is to hire an outside search firm and instruct them to report on all prior art that they find except for patents owned by specific threatening entities. Another approach is to ignore the concern of knowing infringement since courts rarely assess penalties for willful infringement, and those are most often for cases in which the defendant continued to infringe after being specifically informed by the patent owner.

TESTING WHETHER TO PATENT AN INVENTION

Calculating the actual market value of a broadest allowable claim for a prospective patent that would issue years in the future in a fast-moving high-tech field is a fool's errand (a "fool's errand" means basically impossible). Fortunately, for sorting a queue, what matters is the relative value of different ideas. It is usually possible to decide whether an invention is worth filing at all with just a rough order of magnitude market value estimate.

WORKING WITH OUTSIDE COUNSEL

Building a patent portfolio involves harvesting ideas, searching prior art, evaluating the ideas, preparing applications, and prosecuting them in patent offices.

Harvesting works best when an IP pro has frequent short interactions with inventors. This is more efficient for an IP pro than for outside counsel. Prior art searching is most effective when done by an expert who is familiar with the academic and industry terminology specific to the narrow sub-field of the invention. Few outside law firms can employ specialists in all clients' fields to do so as effectively as an IP pro who studies the technology, full-time. Evaluating ideas for patenting involves assessing the market value of the broadest claims that the prior art search finds likely allowable. That is a marketing function, not a role for outside counsel.

Though an IP pro is most efficient at harvesting, prior art searching, and evaluating ideas, outside counsel are most competent at prosecuting applications in patent offices since they do so more frequently than small companies. Furthermore, while the IP pro spends their professional development time learning the company's technology and markets, outside counsel spend their professional development time learning best patent office practices and evolving case law.

Between evaluating an invention and prosecuting an application is the step of drafting the application. It is ideal to do most drafting work in house because the salary for an in-house IP pro is less than fees for outside counsel and the IP pro is closer to the inventors. However, outside counsel specializes in interacting with the patent office and is most familiar with case law. It is necessary for outside counsel to read and edit the application in order to be able to prosecute it with confidence. The IP pro and outside counsel need to develop a productive drafting relationship. It should be somewhere between a relationship of co-authors and a relationship of author and editor. Co-authors have much discussion and rounds of revisions. Editors defer to authors as experts without injecting improvements.

In any case, for a small company larger than 50 employees, it is valuable to hire at least one IP pro to work full-time on harvesting, prior art searching, and evaluation of ideas.

INTERNATIONAL STRATEGY

It is beneficial for a diligent IP pro to learn a little bit about a lot of different countries' patent systems, statutes, and common-law precedents. Most countries' patent offices publish relevant information, in English. Furthermore, many experienced practitioners give professional training at educational events and in online law blogs.

Knowledge of different countries' systems allows a more accurate market analysis and efficient decision making. For example, some countries allow utility model registration, but a market value calculation should consider whether it has a shorter term than a utility patent. The IP pro should also consider whether getting a grant for one precludes getting a grant for the other. For another example, time from filing to allowance is much longer in some countries than others, some countries' examiners spend more time on prior art searching, and some countries have stricter requirements for literal spec support for claims amendments. These all affect the best filing strategy for using the Patent Prosecution Highway. For another example, different countries have different statutory law and case law on patent eligibility of some subject matter, such as business methods, and medical diagnostics. For another example, some countries' courts rarely grant injunctions, but give large damages awards for infringement while other countries have low statutory caps on damages, but give automatic, enforced injunctions .

If a small company files less than five foreign applications per year then it is probably more cost

effective, and certainly simplest, to let outside counsel intermediate between the company and foreign associates for translation and prosecution. If a small company has a greater rate of international patenting then it might be more cost-efficient to work directly with foreign associates, which avoids the additional fees from the principal outside counsel.

However, when working directly with associates in different countries, it is important for the company to comply with obligations to cross-cite prior art found by other offices' examiners for patent offices, such as the US, that have such an obligation. Professional grade docketing systems with awareness of different country laws help to automate cross citing and other processes specific to each patent office.

CLOSING THOUGHTS

Small companies lack the economies of scale that large companies have in the patenting process. As a result, small companies need to be more disciplined at combining technology, legal, and

business skills. Doing so enables small companies to be most effective in converting their budget into patent portfolio value. A dedicated IP pro helps the process by harvesting ideas, measuring them against prior art, estimating their value, and preparing applications for the most valuable ones. With disciplined processes, even small companies can build a competitive patent portfolio on a global scale.

ABOUT THE AUTHOR

Jonah Probell has worked for 7 small companies over 20 years. He is a patent agent registered with the USPTO. He currently manages the IP portfolio at SoundHound, Inc.²⁾ Jonah teaches at a monthly forum (Discussion of Patents) in Silicon Valley. He also wrote a book, *Patenting for the Small Company* and has spoken about IP for small companies to the Silicon Valley IP Law Association and the US National Association of Patent Practitioners. Jonah is available by email at jonah@probell.com.



2) SoundHound Inc. turns sound into understanding and actionable meaning. We believe in enabling humans to interact with the things around them in the same way we interact with each other: by speaking naturally to mobile phones, cars, TVs, music speakers, and every other part of the emerging 'connected' world. Our consumer product, Hound, leverages our Speech-to-Meaning™ and Deep Meaning Understanding™ technologies to create a groundbreaking smartphone experience, and is the first product to build on the Houndify platform. Our SoundHound product applies our technology to music, enabling people to discover, explore, and share the music around them, and even find the name of that song stuck in their heads by singing or humming. Through the Houndify platform, we aim to bring voice-enabled AI to everyone and enable others to build on top of it. We call this Collective AI Our Mission: Houndify everything. SoundHound Inc. is one of the most successful startups in the Plug & Play Tech Center community. See <http://japan.plugandplaytechcenter.com>.