Intellectual Property: Pareto's Enabler of Space

by Mike Martensen | Jun 26, 2019 | IP Enforcement, Space Law

The Pareto principle states that roughly 80 percent of effects come from 20 percent of causes. In business, that principle suggests that 80 percent of sales come from 20 percent of clients. When describing wealth distribution in a society, the Pareto distribution has become known as the “80-20 rule” - 80 percent of the wealth of a society is held by 20 percent of its population.

In common vernacular, 80 percent of the work is done by 20 percent of the people. Society has rewarded this 20 percent for their contributions. But those "super contributors" didn't get to be in a class by themselves through sheer altruism and good will - they knew their inventions relied on strong intellectual property (IP) rights and ownership protections.

Today, two popular myths about IP continually recur in Silicon Valley startups and in government contracting circles:

1. There's no sense in getting a patent on software; and
2. There's no such thing as IP ownership in government contracts, since the government is going to own it, anyway.

Space is rapidly commercializing. In commercial markets, the protection of intellectual property is key to establishing and maintaining a competitive advantage. As space is increasingly reliant on computer-based systems, software protection has become a foremost concern. While copyrights have long been associated with the protection of software, copyrights alone fail to protect the functional aspects of code. Patents must be considered and utilized in conjunction with copyrights to provide companies with a defensible competitive advantage.

Intellectual Property

As described in a recent blog post, the term "intellectual property" is fairly broad. It covers copyrights, patents, trade secrets, licensing agreements, and branding.

There's no Sense in Getting a Patent on Software

Are software patents a waste of time and money? One well-known statistic suggests that 97 percent of all patents will fail to recoup their filing cost.[1] It has also been stated that half of all businesses will fail within the first five years, and only one third will see their tenth anniversary. However, there are an estimated 100 million new tech startups each year. It's hard to reconcile these numbers without an appreciation for the difficulty every startup faces in distinguishing themselves from the rest of the pack.

The Role of Patents

Where do patents play into this maze of statistics? Patents are simply tools to help companies achieve success. Fundamentally, patents aid a company in securing a competitive advantage, but they are not the only tool in the toolbox. In the world of IP, assets of the mind are bundled into patents, copyrights, trade secrets, and trademarks. Each of these aims to categorize those ideas of the mind and provide the originator some sense of privilege. They are much like four legs holding up a table. To adopt a notion that patents (software or otherwise) are a waste of time or money demonstrates a lack of understanding of the role patents play in securing innovation. The belief that there is no sense in getting a patent on software is a myth, and it can cripple an emerging company.

Operating in space is unforgiving of mistakes or even missteps. Reliable systems are a must. The products and processes used to make dependable products are critically valuable and often comprise a company's competitive advantage. When a competitive advantage is based on something intangible like software, the value of that advantage is only protectable through IP rights. And there is certainly great value in software. Of course, companies like Apple, Google, Microsoft, and Adobe attribute their value to more than just software. But software is undeniably a major factor in their valuations.

Do companies such as these invest in software patents, even though 97 percent of patent filings fail to recoup their filing costs? Absolutely. Google, once just a small startup, filed a software patent for "a method for node ranking in a linked database" (that database was the internet). To be clear, Google did not succeed just because of its patent. But Google could not have succeeded without it. That one patent established Google's rights to a solution that would bring it worldwide recognition. And that one patent, filed in 1997, spurred an industry leader to lay claim to 25,994 future patents,[2] many of which are also software patents. This begs the question: "If there is no sense in getting a patent on software, why would one of the world's most successful software companies invest in so many patents?"

Patents and the Wealth of Information They Contain

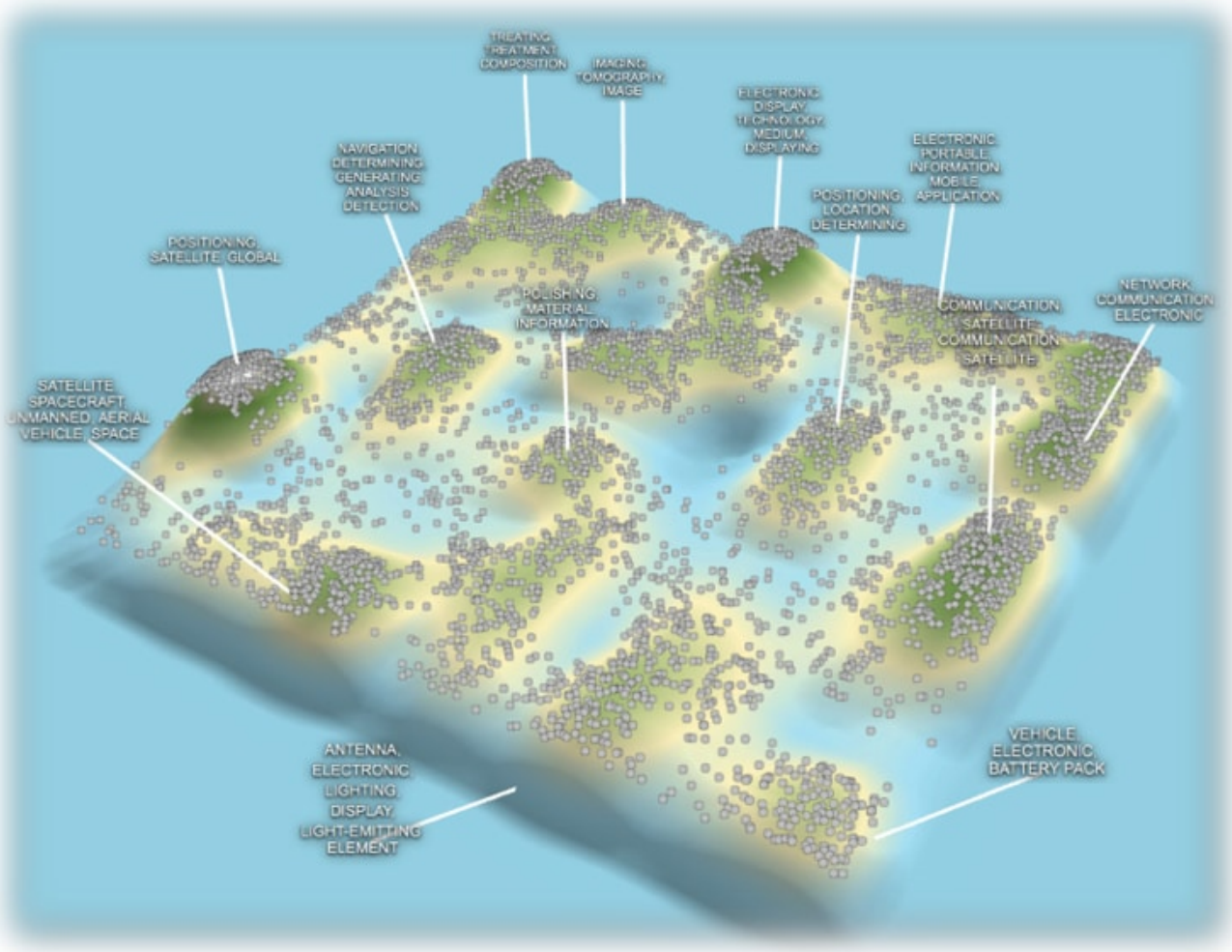
Patents are a snapshot of time. That single document identifies the inventors of new technology as well as the owners of rights granted by the patent when it does not rest with the inventors. It describes a new

concept in comparison to the current state of technology so that others can learn, make, and use the idea. It lays out the scope of rights claimed so others know exactly the metes and bounds of the inventive work. Patents also attempt to enable others to understand the "big picture" of the technology without having to fully comprehend the details, specifics, and precise verbiage so that one can grasp how the patent covers something new and not obvious. And perhaps most interestingly, patents identify trends. When looking at patent filings and grants, one can identify new inclinations of technology development as well as gaps. One can even determine which companies are investing in certain areas of technology and which are exploring different sectors. Indeed, patents can be a treasure trove of information.

Let's go back to Google. In 2006, they introduced Google Patents.[3] Before this, patents and public documents had to be searched for and analyzed through the antiquated tools offered by the United States Patent and Trademark Office. By using their search engine prowess, Google made it far easier for the public to access the vast library of patents. This was fitting as patents are designed to promote innovation by disclosing and teaching others of new innovations.

Google also collects data. It is well known that the search habits and preferences of Google's users is valuable information. It is similarly powerful to know what sort of technology companies are exploring, the rates of patents filings and allowances, company assignments, etc. And while a single patent can be telling, data collected from thousands of patents can reveal a great deal about business interests and innovation trends.

The image below, retrieved from a similar search tool as Google Patents, shows the power of patent analytics. This was from a search conducted on space-related software patents. In a single glance, one can determine in which sectors interest is high and those in which technological innovation is seemingly lagging. Each area can be examined in detail to gain additional clarity on which fields are rapidly changing. Add the element of time to this rendering and suddenly trends can become predictions, a very powerful tool. So not only do patents protect the rights of innovation, they also provide insight about the direction of innovation. Looking at the image, is there any doubt about the interest (and thus importance) of global satellite positioning technology?



The Limitations of Patents

It is important to note that patents are not flexible. They are limited in that they are a fixed depiction of an innovation at the time of filing. While certain aspects of an application can be modified, a patent is, for all practical purposes, a static document.[4] Software, on the other hand, is continuously evolving. Innovation related to software is often incremental, and patents, as illustrated above, are public documents. Constantly filing patent applications on each new innovation can be costly, inefficient, and can arguably provide competitors a valuable road map. So, is there some validity to the argument that software just doesn't fit into the patent framework? The answer lies in understanding what a patent (or any form of intellectual property) can and cannot do.

Copyrights: The Quick Fix

For the past decade, copyrights have been the quick fix, a kind of workaround for software protection. Remember, copyrights protect an original work of authorship fixed in a tangible medium. Software is unquestionably original and fixed in a tangible medium. And with the creation of each new version of code, a new copyright is created by law. Copyrights thus resolve the dilemma of how to protect something that is continually evolving. But copyrights only protect from unauthorized copying or use of the copyrighted work.[5]Copyrights do not protect from independent discovery or functionality. That task falls to patents. A better approach to protecting software then is not copyrights OR patents but rather copyrights AND patents.[6]

A patent provides its owner with the right to exclude others from making, using, selling, or importing the patented invention defined in the patent's claims.[7] These are powerful rights, but beyond giving an owner the opportunity for their day in court, a patent is a recognition of innovation by a third party. That recognition and evidence of title is often an invitation to negotiate. In other words, one value of a patent, especially for a startup, lies in its invitation to the table. Patents have their limits, but to ignore their contribution in protecting valuable technology, including that embodied in software, is to give up that seat at the table. Innovation without protection is either foolishness or philanthropy.

The Fallacy of the Myth

The framework by which we evaluate software patents continues to evolve. It is this evolution that provides the framework for understanding the overreliance on copyright protection with respect to software. The concept of a patent has been around for a long time. (Indeed, there is evidence that the granting of patent rights goes back to ancient Greece.[8]) Software, by comparison, is relatively new to the scene. The development of any legal doctrine is slow and methodical, but this painstakingly deliberate process is by design. A legal system that frequently flips back and forth is likely to cause chaos and anarchy. While the patent system is adept in dealing with inventions that are mechanical, chemical, or related to process, software has presented some challenges.

Initially, the patent system, at least in the United States, tried to treat software patents as it had other types of technology.[9] That didn't go very well, and as a result, myriad software patents were filed and later invalidated. However, the market maintained that there is value inherent in software. And where value lies, so does a desire for recognition and reward. Over the past two decades, numerous legal cases have examined and reexamined software inventions to more definitively identify what is and is not patentable.[10] Undoubtedly, the process will continue. In the meantime, innovation continues, along with the need to protect that innovation.

To adequately protect software, one must safeguard what the software does and how it does it, not merely its expression on a tangible medium. Patents squarely address this need. When software embodies an invention, a patent lays the groundwork to establish that innovative party as a technology leader and provide him or her with a seat at the table. As the law surrounding the protection of software evolves and new software-based innovations are created, more and more software-based patents are justified. Leaders of industry recognize that the value of software patents is questionable, but they also

recognize that the law surrounding patents is evolving. And as patents are static documents, the risk of not filing patents on valuable software is too high to ignore.

Google, Apple, Microsoft, and every other tech giant recognizes this. Patents are an imperfect way to protect software, but so too are copyrights. Put simply, patents have limitations that must be considered. However, failing to seek protection via patents is failing to recognize the inherent limitations (and strengths) of our legal system. The companies that succeed do not ignore these characteristics, but rather embrace them and learn how to use them to their advantage. Patents will continue to be part of the solution for software protection, just like copyrights and trade secrets. So, is there any sense in protecting innovative software with patents? Only if you want to succeed.

Some Key Words of Advice: Keep Innovations Secret Until Filing

The U.S. is unique among nations in many aspects of IP law. One of those aspects is the "grace period," the year of time allowed between a public disclosure of an invention and its patent application filing. Provided an inventor files within that one-year period, a patent can still be secured in the U.S. This is not the case in most other nations where the general requirement is "absolute novelty," meaning no disclosure of the innovation is permissible prior to filing without sacrificing patentability.

Defensively Publish if Filing is not Desired

If patent protection is not desired - say the potential invention is not squarely in the right innovation "lane" - a good, low-cost technique is to "defensively publish." This is publishing a description of an invention in a way that enables others to make and use the invention, and it is used to prevent patent infringement lawsuits in certain instances. Specifically, this technique permits operations in those innovation fields in which a patent is not needed while precluding others from gaining rights which may later be levied against you. Absent defensive publication, a competitor might bar such operations by seeking patents covering those areas.

There is no Such Thing as IP Ownership in Government Contracts

Over 30 years ago, Congress radically changed the way the government conducted business.[11] Whereas before, the government retained ownership of intellectual property for which it sponsored, after, the government took a broad license, allowing title of the innovation to remain with the innovator. The move was monumental. While the government gained sufficient rights to make and use the innovation, the innovator retained the right to commercialize the innovation. This act channeled government-sponsored innovation into the mainstream economy. Nonetheless, the myth remains that if the government pays for the development of an innovation, the government owns the IP.

The allocation of governmental rights in the procurement of property is laid out in numerous regulations and statutes. But chief among these rules are the Federal Acquisition Regulation or FAR. The FAR states, for example, that for a subject invention, the government shall have a nonexclusive,

nontransferable, irrevocable, paid-up license to practice, or have practiced for or on its behalf, the subject invention throughout the world.[12] Similar but not identical language is found in the Defense Federal Acquisition Regulation Supplement (DFARS).

And in yet another version, the National Aeronautics and Space Act codifies the process by which waivers providing for innovations to be owned by the innovators in exchange for a broad license is consistent with presidential directives and governmental policies. The grant of such a license is uniformly broad and this, coupled with clauses such as deferred ordering and deferred delivery, has created an inaccurate impression that title does not rest with the innovator but rather the government. But what is lacking in this broad right is just as important as what is granted: There is no right to sublicense, to transfer, or to assign. The reason for this is because the government is not a competitive body. Such rights, while valuable to the contractor, are essentially worthless to the government.

What About Space?

The Space Act,[13] designated as an "other transaction," does not fall under these procurement regulations and treats IP in a different way.[14] A procurement contract is to procure products in support of a government need. But the Space Act is not a true procurement contract, and consequently, the allocation of IP rights is slightly different. Under the Space Act, title to inventions made in the performance of work under a contract vests with the U.S. government. Nonetheless, the contractor receives title to inventions from the U.S. government either through an election (35 U.S.C. § 200 et seq.) or a waiver (42 U.S.C. § 2457(f)) process. (See above.)[15] The details are complex and well beyond the scope of this paper, but the message is clear: The innovator, not the government, retains title to their invention.

Whose Turf am I On?

FAR, DFARS, OTA, the Space Act, NASA Supp., etc., all provide their own rules with respect to IP ownership and rights. While the basics are the same, the details differ. And just as one needs to know the speed limit on the road on which they drive, contactors, innovators, and visionaries need to understand and appreciate the rules that govern their activities. A quick reference to Farsite.hill.af.mil lists 34 different regulation supplements. (Farsite.hill.mil is an online government resource listing the Federal Acquisition Regulations and associated supplements.)

Added to that list are rules and regulations dealing with "Other Transaction Agreements." And as important as these rules are, it is equally important to understand the practical applications of these rules in the contracting environment. All contracts, OTAs, and RFPs are not created or treated equally. Definitions and their application to what exactly is "produced in performance of" a contact or what is a "subject" invention can determine the fate of your rights. It is critical to know the turf on which you operate.

Evolving Landscape of Contractor IP Rights

There are numerous license models within each agency of the U.S. government. And within each are further layers of regulations to guide innovators on what rights the government gains in their endeavors. What is not covered is what rights a third party possesses. Recall that the government, in most instances, gains a "nonexclusive right" to the delivered technology. By the very nature of the rights granted to the U.S. government, the owner of the IP - the innovator - possesses the ability to thereafter grant rights to other parties.

But that right, the right to grant a license in a commercial sector, is only as good as the IP protection scheme possessed by the owner of the innovation. And thus, the danger of this second myth: Those who believe that the government owns the IP fail to make any effort to establish their own rights that would otherwise protect them in a commercial market. And once realizing the deficiency, IP laws preclude protecting innovations that have been publicly used or disclosed.

Conclusion

A few "take-aways" are important for all space-related innovators to keep in mind. Though IP and the commercialization of space will evolve - and likely co-evolve, to a certain extent - these principles will endure.

Don't buy into popular myths - especially IP myths protecting IP up-front is even more important now, when working in "uncharted territory," than it has ever been. Enduring but dangerous myths, like that there is no such thing as IP ownership in government contacts or that software patents are a waste of time and money, deter innovators from properly protecting their IP. Delaying IP protection is a damaging and often unsurmountable error. Don't believe these myths. Software inventions can be patented and, in most cases, the government does not own the IP you develop under federally sponsored programs - you do.

Resources:

[1]Key, S. (2010, November 03). 97 Percent of All Patents Never Make Any Money. Retrieved May 1, 2019, from https://www.allbusiness.com/97-percent-of-all-patents-never-make-anymoney-15258080-1.html

[2]Extracted from a combined assignee search for "Google" using PatSnap [Software as a Service]. (April 10, 2019).

[3]See https://patents.google.com

[4]The patent specification which describes the claimed technology sufficient to enable one of reasonable skill and art to make and use the invention cannot be materially modified after filing. While new matter can be added to what is thereafter called a continuation-in-part, this new patent application possesses a new priority date and becomes a separate patent application.

[5]A copyright provides the owner the right to reproduce and make copies of an original work, the right to prepare derivative works based on the original work, the right to distribute copies to the public by sale or another form of transfer, such as rental or lending, the right to publicly perform the work, the right to publicly display the work, and the right to perform sound recordings publicly through digital audio transmission. See 17 USC 1-8, 10-12 and 17.

[6]The author recognizes trade secret protection must be considered and utilized to fully protect innovation found in software. While omitted in this discussion, the importance of a sound trade secret protection strategy and its integration in an overall plan to protect software should not be underestimated.

[7]See 35 U.S.C. 271

[8]See https://en.wikipedia.org/wiki/History_of_patent_law

[9]Challenges of the patent system's ability to adapt to new technology is well documented throughout history. While the concept of rewarding those who contribute to the growth of technology and society is firmly based, the meets and bounds of those limits are often ill-defined. For example, the introduction of manned powered flight by the Wright Brothers brought a flurry of aviation-related patents whose limits were later redefined in numerous actions before the court.

[10]A long litany of Supreme Court and Federal Circuit cases have struggled with the patentability of software. As early as 1972 with the Supreme Court's ruling in Gottschalk v. Benson the Court examined whether software feel within the guidelines of patentability stated in 35 USC 101. Since then the Courts have revisited this issue no less than 20 times; each time offering additional guidance on what is and is not eligible for patent protection.

[11]The Bayh-Dole Act or Patent and Trademark Law Amendments Act (Pub. L. 96-517, December 12, 1980) is United States legislation dealing with intellectual property arising from federal government-funded research. The key change made by Bayh-Dole was in ownership of inventions made with federal funding. Before the Bayh-Dole Act, federal research funding contracts and grants obligated inventors (wherever they worked) to assign inventions they made using federal funding to the federal government.[3] Bayh-Dole permits a university, small business, or non-profit institution to elect to pursue ownership of an invention in preference to the government.

[12]FAR 52, 227-11 (c)2.

[13]2 U.S.C. § 2473(c)(5) and (6.)

[14]See a corresponding paper provided by Jack Stuart entitled "IP Rights in the Global Commons of Space.

[15]See 14 CFR 1245.103.

Contact:
Mike Martensen, Founder
mike@martensenip.com
719-358-2182
Download vCard