



**The Strength *of the*
American Patent
System *and the*
Impact on Startups**

OCTOBER 2018



Engine

INTRODUCTION

For a startup, protecting the creation of intellectual property is part of building a successful business. Startups frequently apply to have their inventions patented knowing they are building value as well as helping the long-term interests of the public. However, startups need balanced laws that protect new ideas while preserving a framework that promotes innovation.

Congress, the courts, and the United States Patent and Trademark Office have made key changes to our patent system in the past five years which have led to a rise in patenting activity as well as startup growth, R&D, and venture capital investment. However, the patent policy debate continues in Washington, so it is important to understand the fundamentals of patent law and its impact on innovation.

In this booklet we explain the basics of what a patent is and how the patent system functions. We detail the abusive patent litigation problem and its impact on startups. Then we examine two important policy issues that have improved patent quality. First, we provide an in-depth analysis of Section 101 of the Patent Act and the Supreme Court cases that have helped clarify what is patentable and what is not. Next, we look at how patents are reviewed at the United States Patent and Trademark Office (USPTO) and the mechanisms used by the office to remove patents that should not have been granted in the first place. Finally, we look forward to the current patent debate and which policies will impact startups.

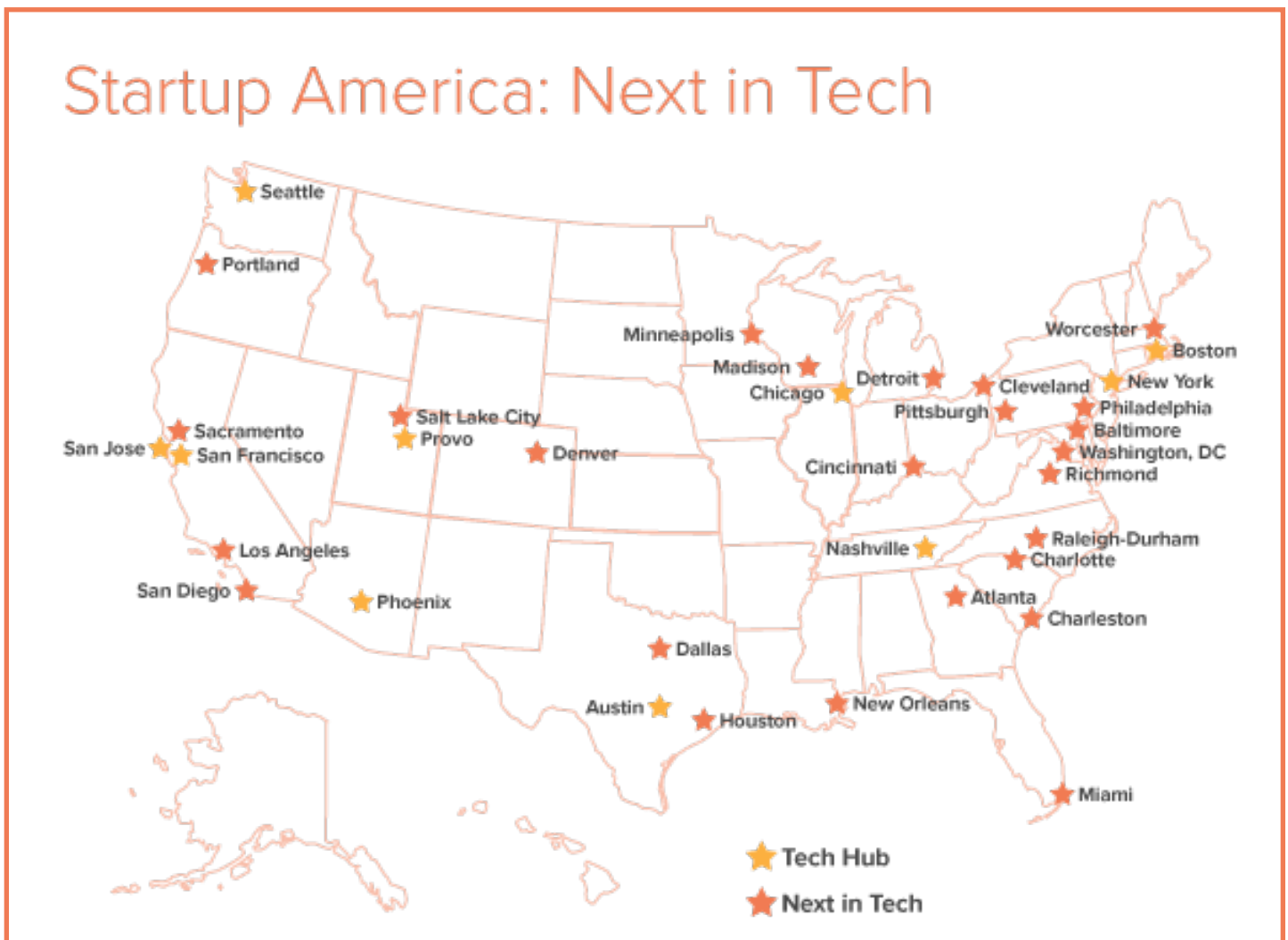
The Strength *of the* American Patent System *and the* Impact on Startups

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THE STATE OF STARTUP ACTIVITY

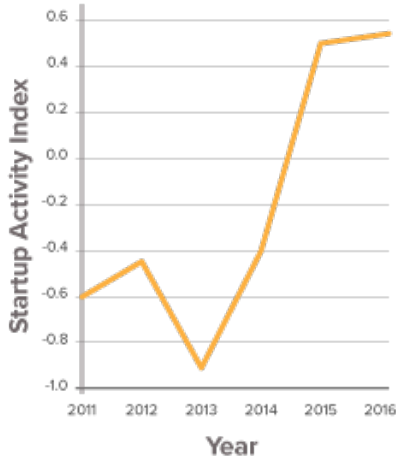
Startups play an important role in the strength of our economy and the everyday lives of people across the country. As relentless problem solvers, startups work to create innovative products and services in industries ranging from education and health care, to agriculture and manufacturing. There is no doubt that the American startup ecosystem is the envy of the world, driving our economy and creating a dynamic workforce. Additionally, startup activity is quickly migrating from traditional tech hubs like San Francisco, Boston, and New York City, to every corner of the country. Almost half (48 percent) of startups are being established outside of the 35 largest metropolitan areas in the United States, proving that startups are thriving beyond typical entrepreneurial hubs.¹



Source: Next in Tech: 25 Emerging Startup Hubs, TechNet, March 30, 2017

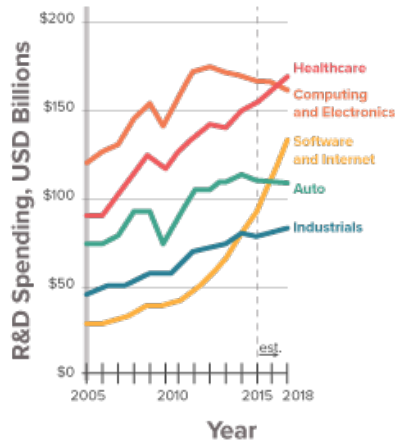
With startup activity increasing by 194 percent since 2012, we can expect to see a number of positive trends for innovators nationwide.² First, startups drive job growth, having created roughly 1 million jobs in 2017 alone and offering the highest potential for job growth, outpacing older companies.³ Next, startups are the engines of innovation, spurring more investment in research and development in both software and hardware advancements. Finally, the amount of venture capital investment has risen consistently over the last 15 years and nearly doubled from 2012 to 2016, from \$32.8 billion to \$61 billion—an 86 percent increase.

Kauffman Startup Activity Index



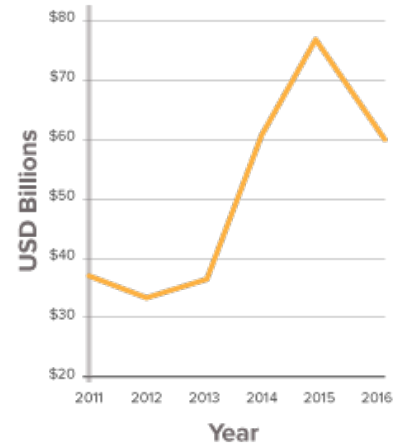
Startup activity has increased 194 percent since 2012, according to the Kauffman Research Foundation

U.S. R&D Spending by Year



R&D spending in the United States has increased dramatically over the past decade, according to Bloomberg Data, Capital IQ data, Strategy & Analysis

U.S. Venture Capital Investments by Year

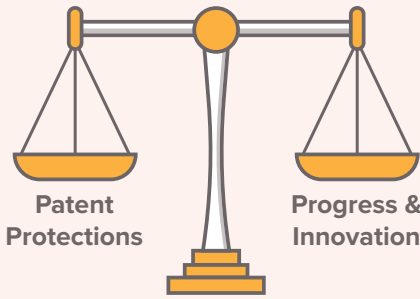


Venture capital funding in the United States increased dramatically since 2012, according to PwC/CB

These positive trends should be reassuring to lawmakers since startups have always been the drivers of innovation and the creators of breakthrough inventions. Patents are a key way to protect the intellectual property that underlies invention and startups benefit tremendously from a stable and predictable patent system. Over the past decade, there have been several key changes in patent policy which have helped create a system that promotes startup activity, job creation, and a well-functioning intellectual property framework.

While promoting innovation has always underpinned patent policy, in recent years, the debate in Washington has been intensely focused on addressing the serious problem of patent litigation abuse. For startups, the threat of frivolous patent litigation still looms large, but the key to solving the problem lies in improving patent quality.

WHAT IS A PATENT?



A patent is a reward that the government grants an inventor, generally for 20 years, for devising an invention. The government grants this monopoly to an inventor in exchange for the ability to share with the public an explanation of her invention and how to use it. This trade-off allows the public to benefit from the invention and creates a limited property right for the patent holder to stop others from making related products that are similar enough to the patented invention to constitute infringement.

Historical Context:

With more than 10 million patents issued over the past 228 years, and 1 million of those issued within the past three years,⁴ the patent system is one of our oldest and most successful government programs. It is enshrined in Article 1 Section 8 of the Constitution, which states: “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Over the years, Congress has frequently debated how to design a patent system that best promotes the “progress of science and useful arts.” Today we call that progress “innovation.”

When Does an Inventor Get a Patent?

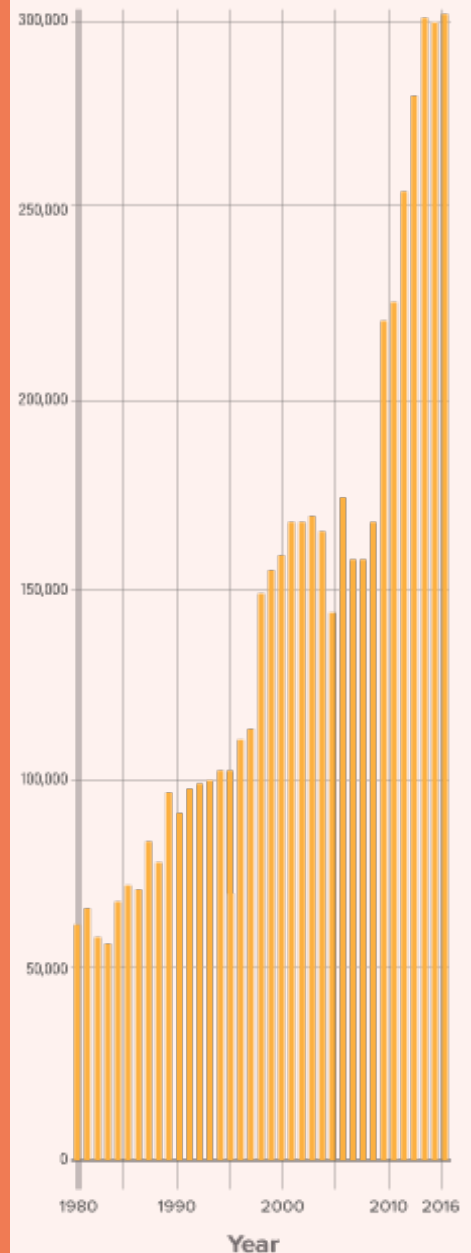
For an invention to be eligible for a patent, an inventor must apply for a patent with the Patent Office within one year of publicly disclosing the invention, i.e. publishing a description or offering the invention for sale. Additionally, sections of 35 U.S.C. require that an inventor must prove the invention is:

- **“Novel,”** meaning that it is different from other similar inventions;
- **“Non-obvious,”** meaning that someone who is skilled in the field would consider the invention unexpected or a surprising development; and
- **“Useful,”** meaning that it has some beneficial use and is operable.

When is a Patent “Infringed”?

Because a patent grants exclusive rights for a limited period of time, if an inventor thinks someone has used her patented invention without permission, she may sue. Copying someone’s patented technology is clearly infringement, but a business can also infringe on a patent by incorporating a patented invention (or something similar) into a product. This action can constitute infringement whether it is done knowingly or not. Patent litigation is expensive and time-consuming so most cases settle out of court, usually with the accused party paying for a license to use the patented technology.

U.S. Utility Patent Grants Per Calendar Year



Source: Utility Patents for 2016, Patently-O.

WHY DO STARTUPS CARE?

Filing for a patent can be an expensive and time-consuming process that generally includes teams of lawyers and engineers and years of back-and-forth with the USPTO. However, the time and energy is worth it because when the process works well, a startup may be rewarded with a valuable asset and protection for its intellectual property. Despite the challenges to getting a patent, the desire to have inventions patented is on the rise. More patent applications were filed in 2016 and 2017 than any other years in history.⁵ Between 2012 and 2016, patent filings increased 15 percent.⁶

Unfortunately, the only interaction many startups will ever have with the patent system comes through predatory patent litigation. All too often, a startup will receive a demand letter or a lawsuit from a lawyer armed with low-quality patents simply to extract a quick settlement or licensing fee. These lawyers, who have no intention of commercializing the invention, are sometimes referred to as “non-practicing entities” or “patent assertion entities,” but are more commonly known as patent trolls.

Patent trolls disproportionately target small businesses and, before key changes in 2011 to patent laws started to improve the system, it was estimated that patent trolls cost the economy over \$80 billion a year.⁷ Luckily, the stability of the patent system has improved in recent years and while startup founders still lie awake at night fearing a patent troll lawsuit, they now have better tools to fight back and are not condemned to just paying up. It is important to remember that while the number of patent lawsuits has decreased, just one abusive patent suit can be disastrous for a startup, forcing a CEO to decide between hiring engineers and product developers or patent lawyers.



PATENT LITIGATION & TROLLING

For the vast majority of startups, their first interaction with the patent system will come in the form of a demand letter alleging patent infringement. Despite important changes in law which helped stop some abuses, the threat of a dreaded patent troll lawsuit is still very real for small startups.

What is a Patent Troll?

Sometimes called non-practicing entities (NPEs) or patent assertion entities (PAEs), patent troll is a colloquial term for a patent attorney who buys patents for the sole purpose of suing to extract licensing fees from businesses, rather than commercializing an invention.

When is Patent Litigation Trolling?

Patent holders are well within their rights to enforce their intellectual property and sue infringing parties. But patent litigation becomes trolling most frequently in the following situations:

1 When the disputed patent is of such a low quality that it should never have been issued in the first place. The owners of these vague patents, often covering old technologies, know that the patents would not survive judicial scrutiny, so they file nuisance lawsuits to extract quick settlements that cost less than responding to the demand letter.

- *Example:* Actress Kate Hudson’s athletic brand Fabletics was sued by PanIP, LLC, a patent troll claiming to have a patent on “e-commerce transactions between remote sites.” PanIP sued Fabletics for \$45,000 to buy a license to the patent, knowing it would cost \$50,000 to hire a lawyer to respond.⁸



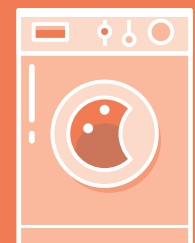
2 When a plaintiff files patent infringement suits against multiple defendants without doing any due diligence on whether or not those companies truly infringed the patent.

- *Example:* MPHJ became the quintessential patent troll by sending hundreds of demand letters to small businesses that employed office scanners. MPHJ demanded licensing fees from targets for \$1,000 per employee—enough to make a business feel pain, but not enough to fight in court.⁹



3 When the plaintiff sends demands letters or sues multiple end users of a product instead of the manufacturer, hoping that the “unsophisticated” defendant will settle to make the lawsuit go away.

- *Example:* In June 2018, a shell company called Upaid Systems, Ltd. sued 22 laundromats across the country for their use of a cashless card system that Upaid claims to have patented.¹⁰ Upaid did not sue the makers of the card system, instead going after small laundromats.



WHAT IS THE IMPACT OF PATENT TROLLING ON STARTUPS?

Since startups are unlikely to have patent attorneys on staff and are more vulnerable to failure than larger companies, they are often under enormous pressure to settle quickly, becoming easy targets for trolls. Indeed, 82 percent of troll activity targets small and medium-sized businesses¹¹ and 55 percent of troll suits are filed against startups with revenue of less than \$10 million.¹² Additionally, in a study done at the height of patent troll abuse in 2012, 40 percent of companies under \$10 million were sued for their use of a widely available technology—meaning they were merely end users of infringing products.¹³

A key reason for patent trolling behavior is the low cost of suing, partnered with the significant burden of defense against an infringement claim. Think about this: the average startup launches with around \$75,000 of outside funding.¹⁴ It can easily cost \$50,000 to hire a patent lawyer just to evaluate a demand letter. And if you wanted to fight, the average amount spent by a defendant on legal fees is \$950,000 to defend against a patent troll lawsuit.¹⁵ Therefore, there is a large incentive to settle early, rather than let the litigation drag out.

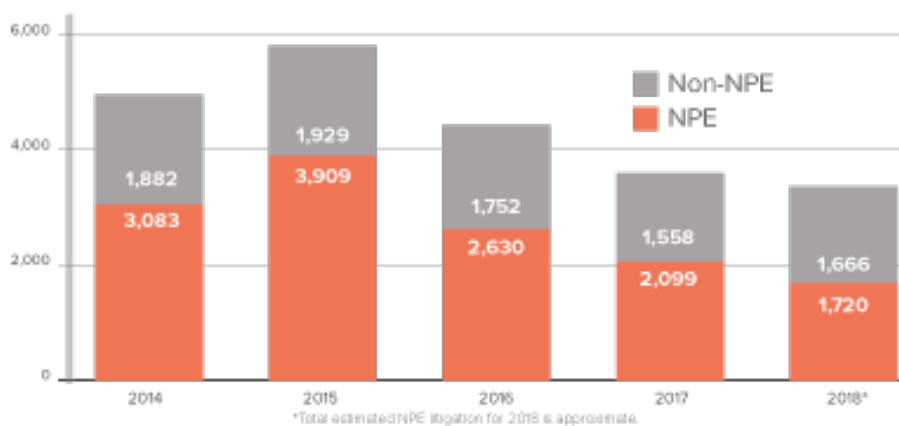
What Can Congress Do?

Level the litigation playing-field.

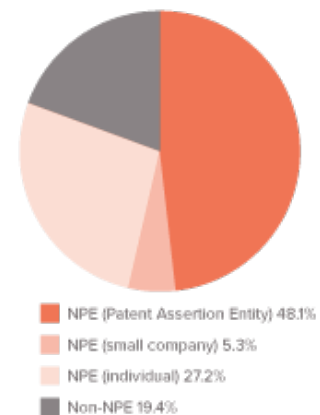
The patent troll shakedown hits startups the hardest because the costs of litigating are so one-sided. Legislation could fix that.

Finally, for a startup, the threat of litigation can be ruinous to growth, crippling the organization's ability to seek investment, build a team, or find new partners. The majority of startups who were sued by a patent troll report "significant operational impacts," including delayed hiring, a forced pivot in business strategy, or loss of valuation. Additionally, patent troll suits have chilling effects on investment. In a recent survey of 200 venture capitalists, 100 percent indicated that the presence of a patent demand letter would be a major deterrent in their decision to invest.¹⁶

Litigation Brought by Patent Trolls



Litigation brought by patent trolls over the past five years has decreased, but remains a significant portion of all patent lawsuits.



80 percent of new patent cases filed against small and medium sized enterprises in 2018 have come from non-practicing entities.

Source: Unified Patents, 2018 Q3 Patent Dispute Report.

IN THEIR OWN WORDS: BITMOVIN'S STORY

Caveant Troglodytae (Trolls Beware)



Kenneth Carter, Bitmovin's General Counsel, wrote about his company's patent troll fight on Bitmovin's blog on August 15th, 2018. Bitmovin was founded in 2013 and is a multimedia technology company which provides services that convert digital video and audio to streaming formats.



Innovation and Patents

One of our core values at Bitmovin is technological innovation and pursuing the real, hard work of groundbreaking research and development. The visible part of this core value is in our published academic work—which includes dozens of papers and thousands of citations—and our portfolio of over 14 U.S. pending patents and 7 PCT applications. Although we are huge fans of open technologies and an open internet, we are supportive of a balanced patent system. The patent system, and intellectual property as a whole, helps to provide a return on investment by offering the incentives necessary to innovate, extend the scope of human understanding beyond the horizon, and share that knowledge publicly. We continue to pursue patents on the inventions our employees make and encourage them to always be innovating. Clearly, we are proud of our innovation and the patents which protect them. I, myself, hold two U.S. patents and I am just the company's lawyer.

Abuse of the Patent System

But, like all good things, patents can be subject to abuse. So, we were quite dismayed when we found out that we were recently made the defendant in a patent lawsuit by a notorious patent troll. This was one of 7 lawsuits based on the same patent brought by the troll in different jurisdictions. We felt strongly that the suit was not a threat to Bitmovin, but rather a chance for us to show our strength.

Patent trolls tend to be at the bottom of the IP food chain. If the patents they held were really valuable, the patents would have already wound up in the hands of someone who could make the invention. These trolls behave like bullies, threatening companies actually servicing customers, hoping to pick up some quick cash. The troll knows about and takes advantage of the fact that it is cheaper for those companies to pay it off than to endure the cost of litigating the case. By contrast, patent holders who are making products for customers tend to be more rational. Sure, sometimes the likes of Apple, Google, Microsoft, and Samsung get one another involved in multi-year, multi-million dollar lawsuits, but for the most part these companies don't extort one another. It's a better use of their time to make products than to sue.

Dealing with Trolls

In dealing with a troll, the best strategy is to stand up. The difficulty in pursuing such a strategy is the fact that lawsuits with trolls are asymmetrical. In most cases, it would cost more to defend the suit than to simply pay the troll off. Moreover, the troll has nothing to lose. It can use the courts to

bring your business to a halt. There is no way to do the same to the troll—they don't make any products. Thus, the key to this strategy is to change the nature of the asymmetry to a balance in your favor.

In our recent case, the patent on which the troll sued is at best a weak one, relating to multi-audio and multi-language streaming of multimedia content which has been around for decades. The patent itself is from 2010 and addresses a very specific issue of processing audio and video data from a data source (such as a DVD or Blu-ray disc) when handling a data stream having multiple language-specific content. The patent covers something akin to a digital 8-track player. It was very clear to us that Bitmovin's technologies are far more advanced and do not infringe the patent. In fact, the infringement claims against Bitmovin were so baseless, we believed that the troll's attorneys had not adequately fulfilled their obligation to conduct a minimal pre-filing investigation based on publicly available descriptions of Smooth Streaming, HLS, HDS, MPEG-DASH, and similar existing approaches, as required by the Federal Rules of Civil Procedure.

Our Approach and Outcome

We threatened to counter sue the troll, win the case on the merits, and then seek recovery of our fees and costs from the troll and its lawyers. Further, we pledged that Bitmovin would, as a public service, reinvest any recovery in invalidating all of the troll's other patents. Through our initial investigation, we found the person behind the troll who had acquired some 15 patents originally held by a European technology company. This person then placed these patents in at least two other LLCs. In turn, those LLCs were asserting these patents in no fewer than 13 other lawsuits against defendants such as Sony, Microsoft, Cisco, Polycom, Blue Jeans Networks, and Motorola. Bitmovin pledged to use our recovery to assist those 13 companies and 6 other companies defending against the current patent in finding prior art and filing Inter Partes Reviews at the USPTO's Patent Trial and Appeal Board to invalidate all of those patents. Without another word, the troll dismissed its lawsuit against us.

Key Takeaways from Bitmovin's Experience:

Bitmovin's story is only unusual in that they are brave enough to tell it. This experience is common for startups, but many do not live to tell the tale. Here's what's important to remember.

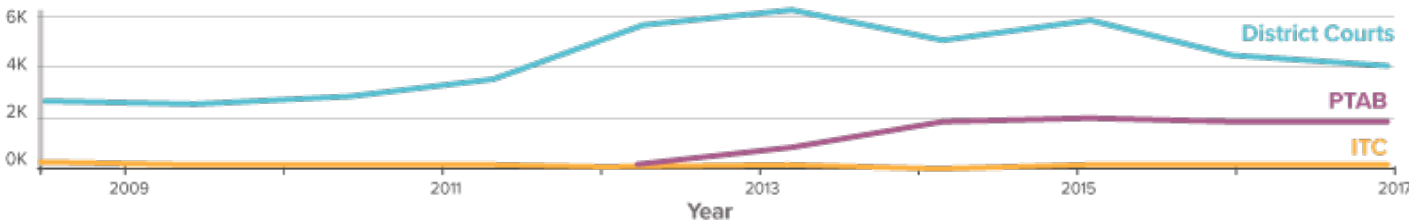
- Startups value patents. Bitmovin has several patents themselves to protect their IP.
- The patent troll aggressively sued small companies in multiple jurisdictions without doing the proper due diligence on who truly infringed the patent.
- The patent at the heart of the suit was incredibly vague and the technology was out of date, no longer applying to the startup's business.
- The patent troll made attempts to obfuscate the owner of the patent in shell companies, driving up the cost of litigation and mitigating the risk to the larger patent troll entity.
- Once Bitmovin made it obvious they would fight the case, the troll walked away voluntarily to ensure the weak patent would not be invalidated. That means the troll could try this again.

EFFORTS TO STOP PATENT TROLLS

What Has Congress Done to Stop Patent Trolling?

In 2011, Congress addressed the growing problem of frivolous litigation combined with low-quality patents by passing the Leahy-Smith America Invents Act (AIA). The AIA improved patent quality by creating a faster, cheaper way to weed out invalid patents, but did not cover litigation reform. Therefore, in both the 113th and 114th Congresses, lawmakers tried to stop patent trolls with the Innovation Act. In 2014, the bill passed overwhelmingly in the House of Representatives, but was not signed into law. Startups supported the legislation as it would have helped solve the extreme imbalance of the costs of litigation by increasing transparency, limiting discovery, and requiring the losing party to pay the legal costs. Additionally, the Innovation Act included provisions to allow defendants, who are merely customers using the product with allegedly infringing technology, to halt litigation until the plaintiff had first sued the manufacturer. This remains a key priority as trolls frequently target startups for being end users of technology.

New Patent Litigation Proceedings 2008-2017



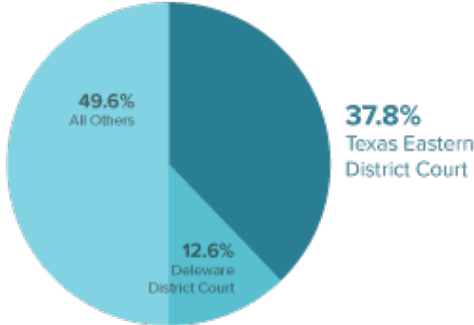
Patent litigation has decreased since reforms in the America Invents Act started implementation.
 Source: Docket Navigator Plus, 2017 Retrospective.

What Has the Supreme Court Done to Stop Patent Trolling?

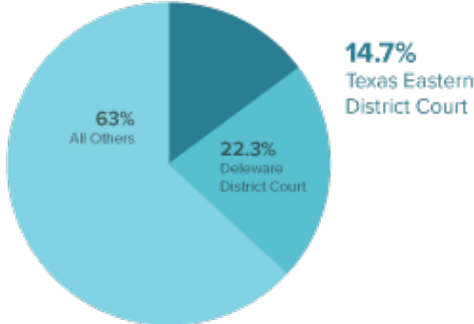
After several egregious patent troll cases made their way to the Supreme Court, the justices issued numerous decisions that have helped curb the patent litigation abuse problem. Many of these cases have directly overturned the Federal Circuit, an appeals court that was established to handle patent cases. In recent years, the Supreme Court has ruled on key patent troll issues, including subject matter eligibility in *Alice v. CLS Bank*,¹⁹ the “definiteness” or clarity in patent claims in *Nautilus Inc. v. Biosig Instruments Inc.*,²⁰ and on fee-shifting and the outrageous costs of patent litigation in *Octane Fitness v. Icon*.²¹

The most notable of these cases was *TC Heartland, LLC v. Kraft Foods Group Brands, LLC*, a 2017 case that dramatically impacted the notorious U.S. District Court for the Eastern District of Texas (EDTX). With streamlined local patent rules, extensive discovery, and quick jury trials, EDTX had become the patent troll choice of venue, forcing startups to travel to the far-flung district to litigate claims. Before *TC Heartland*, 45 percent of ALL patent cases were litigated in EDTX and 90 percent of that patent litigation was brought by patent trolls.²² One year later, the number of cases in EDTX has dropped to just 14.7 percent of all patent cases, and many trolls have closed up shop entirely.

May 2016 - May 2017, 1 Year Before TC Heartland



May 2017 - May 2018, 1 Year After TC Heartland



Source: Unified Patents, 1st Half of 2018 Patent Dispute Report.

WHERE THE PATENT POLICY DEBATE IS HEADED

Patent litigation reform will continue to be the top priority for startups. There are two key areas of patent policy being debated in Washington: [Section 101](#) of the Patent Act and the USPTO's [Inter Partes Review](#) process for reexamining granted patents.

Patent Litigation Reform Still Necessary

While patent trolling has decreased, there is more to do. In fact, in the first half of 2018, 80 percent of all patent litigation filed against startups or small companies was initiated by trolls.²³ Here are a few key actions Congress could undertake to help startups fight back when sued by a patent troll, including:

- Passing legislation to address the high costs of defending against patent trolls by leveling the burdens placed on defendants rather than plaintiffs.
- Passing legislation to address the abusive practice of targeting end users of technology with something like a so-called “customer-stay” provision.
- Codifying *TC Heartland*. Keep frivolous patent suits out of the Eastern District of Texas.
- Keeping pressure on the USPTO to improve patent quality.

Patent Quality is the Key

For innovation to flourish, the USPTO must ensure that only truly new inventions are granted a patent. Allowing low-quality patents to flood the patent market depresses confidence in the entire system. If patents are mostly seen as a weapon to terrorize defendants, innovators will be less likely to spend time and money to protect their inventions. To ensure patent quality, Congress needs to protect the gains made over the past decade in two areas.

Establish High Standards for Patentability

Rigorous patent quality standards create a more valuable system for everyone. Since the passage of the AIA in 2011, the USPTO has implemented new safeguards to improve patent quality. The Supreme Court has also weighed in several times to define what is patentable and what is not by clarifying how it interprets Section 101 of the Patent Act, which details what subjects are patentable. For a startup, clarity in laws and regulations will always help foster innovation.

Allow the USPTO to Weed Out Bad Patents

Inter Partes Review, a tool created in the AIA in 2011, allows the USPTO to review granted patents. Additionally, it allows startups to challenge weak patents used by patent trolls in a low-cost and effective way. With over one million patents issued in the past three years alone,²⁴ there are bound to be some mistakes. Policymakers should allow the USPTO to continue its efforts to identify and remove low-quality patents.

SECTION 101, SUBJECT MATTER ELIGIBILITY, & THE ALICE-MAYO FRAMEWORK

Generally speaking, Section 101 is the first step in determining if your idea is even eligible for patenting. It allows an inventor to patent a “process, machine, manufacture, or composition of matter.” The U.S. has some of the broadest eligibility requirements in the world and if you’re inventing a physical product, you’re likely covered. However, there are a few issues patent examiners must consider when deciding to issue a patent.

Section 101 and the Alice-Mayo Framework

Over 150 years ago the Supreme Court made clear that abstract ideas, laws of nature, and natural phenomena could not satisfy the Section 101 requirement and be patented, which intuitively makes sense. The patent system is supposed to promote new technological inventions and leave abstract ideas and laws of nature for all to build on. Ultimately, the Constitution allows Congress to establish a patent system to “promote the useful arts.”

Some people have tried to get around the long-standing prohibition on patenting abstract ideas and laws of nature by tacking trivial or conventional elements onto an application. The Supreme Court clarified a two-part test to determine when a patent could be granted in *Mayo Collaborative v. Prometheus Labs.*²⁵ The first step is to determine whether the claims are related to a law of nature or an abstract idea. If not, you’re good to go. If they are, you’re only eligible for a patent if they contain an “inventive concept,” which is something more than a trivial, conventional step. For example, putting receipts in chronological order is an abstract idea, doing it “on the Internet” is a trivial step that does not make the idea of chronological receipts patentable.

So You Have An Idea ...Can You Get A Patent?

The key sections of the U.S. Patent Act of 1952 set out four key requirements to qualify for a patent. The invention must be:

Statutory - Not everything is patentable. The invention must fit into approved categories of subject matter eligibility (Sec. 101)

Novel - Invention is new and not in the public record (Sec. 102)

Non-obvious - Invention is a step beyond previous inventions (Sec. 103)

Described - As a trade-off for getting a patent, the inventor must tell the public how to make and use the invention (Sec. 112)

The Supreme Court’s *Mayo* test to determine when a patent should be granted under Section 101:

First Ask:

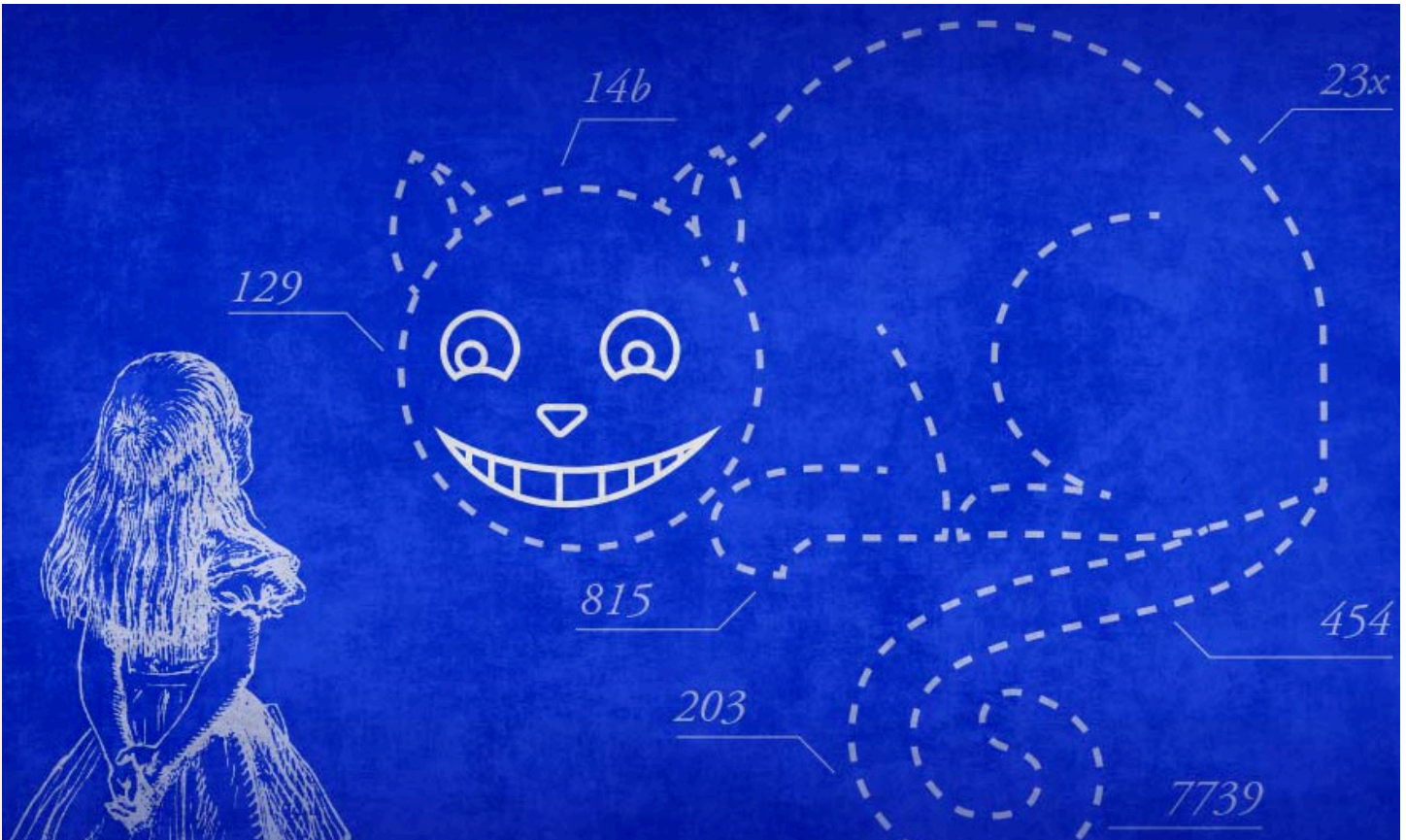
Is the patent related to a law of nature or an abstract idea?

No? You’re Done.

Proceed as usual with patent application, determining if patent is novel, non-obvious, and definite..

Yes? Move to Step 2.

Ask if the patent contains an “inventive concept,” or something more than a trivial, conventional step.



If you want to learn more about startups and small businesses that have been successful in defeating patent trolls by challenging the patent's validity under Section 101, see the Electronic Frontier Foundation's web series called "Saved by Alice." EFF does pro bono work to help entrepreneurs who are threatened with frivolous patent litigation. eff.org/alice

The *Mayo* case applied to laws of nature and a medical diagnostic invention, but in 2014 the Supreme Court expanded the application of the *Mayo* framework to abstract ideas and software in *Alice Corp v. CLS Bank International*. In that decision, the justices said implementing an otherwise abstract idea like an escrow contract, or financial market hedging, on an ordinary computer using conventional techniques is not patentable. While *Alice* made clear that advances in software technology are patentable, this decision addressed the problem plaguing a lot of software patents that had been issued in the early 2000s. Many of those software patents were attempts to claim ownership of vague ideas and functions, often business methods, performed on a computer without making any real contribution to progressing technology or innovation.

Key Takeaway:

The Supreme Court ruled in *Alice* that an abstract idea does **not** become patentable simply by being implemented on a computer. The decision increased patent quality by ensuring that only truly inventive ideas were patentable.

HOW DOES ALICE WORK IN PRACTICE?

The *Alice* decision provided startups with a new tool to fight spurious infringement claims. When a startup is sued for patent infringement, it can look at the patent in question and, if it is an abstract idea, the startup can **immediately** challenge its subject matter eligibility. Therefore, Section 101 helps startups get frivolous lawsuits dismissed early, before costs become unbearable. One study of infringement actions found that 76 percent of defendants' motions to dismiss under *Alice* were granted when filed in the initial stages of litigation.²⁶ However, it's still a lightly-used tactic and only about **four percent** of all patents cases since 2014 have included an *Alice* challenge.²⁷

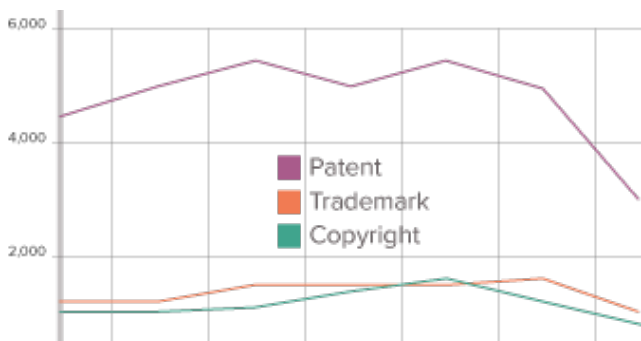
Why is Alice Important to Startups?

Not only does *Alice* help startups fight back against patent trolls, but the decision serves as an important course correction for software patents. Before 2014, patents on abstract ideas were used to shakedown unsuspecting startups and small businesses. These vague, broad, and otherwise low-quality patents were easily weaponized by patent trolls to sue small companies and extract quick settlements. This was particularly common in the software space, where many of the patents covered common business practices like tracking emails or posting product information online, so it was hard for startups to prove they were innocent. *Alice* has helped restore confidence and balance in the patent system. We have seen startup activity in the software space skyrocket since the *Alice* decision in 2014.²⁸

What Alice Did Not Do:

Alice does not mean that software can't be patented. Indeed, R&D in software has surged since the *Alice* decision²⁹ and many, many software patents have been issued because they are genuine technological advances and not abstract ideas. Despite overblown fears that *Alice* would hurt the software industry, we've seen increases in patent applications, venture capital funding, and research spending since the decision was handed down.

IP Litigation Costs (>\$25 million at risk)



The cost of patent litigation has also decreased sharply since 2014, after the *Alice* decision.

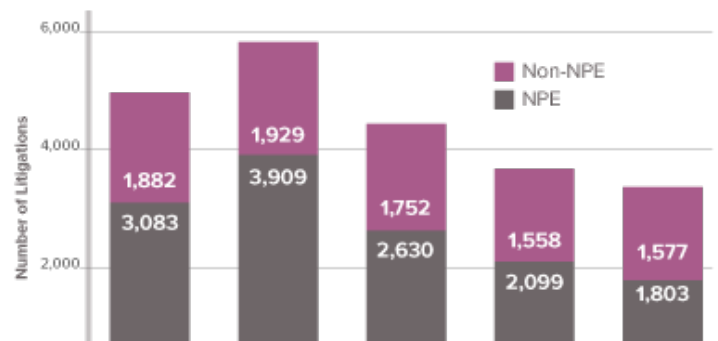
Source: 2018 AIPLA Report of the Economic Survey.

What Can Congress Do?

Keep improving patent quality.

Patent trolls thrive on low-quality patents. Rigorous patent quality standards create a more valuable system for everyone.

2018 AIPLA Report of the Economic Survey



After the *Alice* decision, the number of patent troll lawsuits decreased, as has the amount of total patent litigation.

Source: Unified Patents, Q3 Patent Dispute Report.

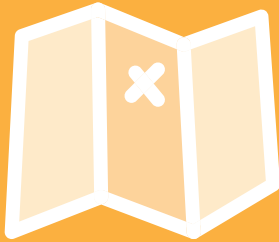
ALICE EXAMPLES

Understanding how important *Alice* is to startups can seem like an abstract concept. Here are a few examples of how *Alice* can help a startup have a frivolous patent case dismissed early, saving valuable time and money:



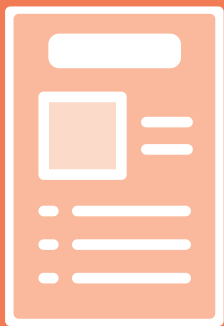
The Crowdfunding Shakedown

Gust is a company that connects startups with investors. In 2016, Gust was sued by AlphaCap Ventures, a patent troll that claimed to have invented the concept of online equity funding. Even though AlphaCap had already extracted licensing fees from the top crowdfunding players, Gust challenged the patent under *Alice*, arguing that the abstract idea of crowdfunding is not patentable simply because it is done on the Internet. A district court in New York ruled the patent was invalid under *Alice* and forced AlphaCap to pay Gust's legal fees.³⁰



The Troll Treasure Hunt

In 2017, a patent troll sued Coopercode, alleging the small game company infringed on a patent for "Treasure Hunt Game Utilizing GPS Equipped Wireless Communications Device." The patent had been granted for combining widely used GPS technology and the age-old pastime of treasure hunts. Coopercode's attorney wrote back explaining that the claims were invalid under *Alice*. Facing a defendant willing to fight back, the patent troll withdrew the lawsuit immediately.³¹



Low Nutritional Value

Nutritionix is a startup that offers a nutrition calculator and database to restaurants so that they can offer guests more accurate nutrition information. The startup was sued for infringement by DietGoal, a troll which had a patent on using picture menus on a computer. DietGoal sued over 70 companies for supposedly infringing its invention, including Dunkin' Donuts and Sweetgreen. In 2014, days after *Alice* was decided, a district court judge in New York threw out DietGoal's patent, citing that it did not add anything that transformed the abstract idea into a patent-eligible invention.³²



The Token Troll

In April 2018, GTX Corp, a patent troll, sued several small video game companies, including Playsaurus, for the use of "electronic tokens" in a game. Playsaurus responded to the suit by saying that "after *Alice*, buying and using tokens for transactions (like a kid would do at Chuck E. Cheese's), cannot be patented by simply reciting computers and the Internet." Rather than try to survive judicial scrutiny with only two years left on the low-quality patent, GTX Corp immediately dropped the suit.

THE PATENT TRIAL & APPEAL BOARD AND INTER PARTES REVIEW

In 2011, the America Invents Act (AIA) created new procedures allowing the USPTO to review questionable patents through the Patent Trial and Appeal Board (PTAB). One review method is the Inter Partes Review (IPR), which has provided an invaluable tool for startups defending themselves in patent lawsuits.

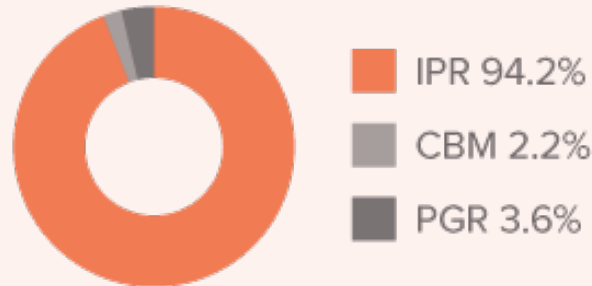
Why Did Congress Create the PTAB?

Congress passed the AIA to “provide a meaningful opportunity to improve patent quality and restore confidence in the presumption of validity that comes with issued patents in court.”³³ Congress created these review processes to address concerns that the USPTO incorrectly grants thousands of patents every year and these low-quality patents harm all patent stakeholders, including inventors and the public.³⁴ The Supreme Court reaffirmed this purpose recently when it upheld the PTAB’s constitutionality, noting that IPR protects “the public’s paramount interest in seeing that patent monopolies are kept within their legitimate scope.”³⁵

How Does the IPR Work?

Under the AIA, the PTAB assigns a panel of patent judges to conduct hearings to determine if the patent should have been granted in the first place. Anyone can challenge a patent at the USPTO by filing a petition and the PTAB then makes a decision if the patent is valid. There are three types of PTAB proceedings: Inter Partes Review, Post-Grant Review, and Covered Business Method patents. However, 92 percent of the PTAB reviews have been IPRs.³⁶

1st Half of PTAB Petition Types



In 2018, over 94 percent of all PTAB petitions were IPRs.

Source: Unified Patents. 1st Half of 2018 Dispute Report.

How is This Different Than District Court?

While a district court can rule that a patent is invalid, the primary purpose of patent litigation in court is to decide if the defendant infringed upon the plaintiff’s patent. For a defendant, challenging the patent’s validity in court can take a significant amount of time and may be cost-prohibitive.

Why File an IPR Rather Than Fight in District Court?

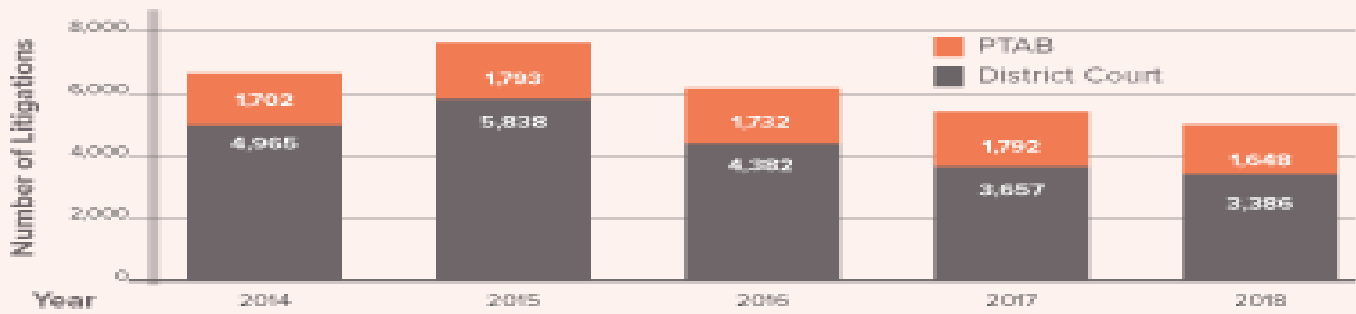
Filing an IPR petition allows startups to fight low-quality patents in a few key ways.

- 1. Expertise.** IPRs are held in front of a panel of judges who are subject matter experts, rather than judges and juries who may not have much intellectual property experience.
- 2. Cost.** The median cost of invalidating a patent with an IPR is \$100,000,³⁷ much lower than in district court, where the median cost of a patent case is roughly \$1 million.³⁸
- 3. Speed.** An IPR is resolved within one year, much quicker than federal court proceedings.

How Often Do Patents Get Challenged at the PTAB and What’s the Impact?

As of June 2018, there have been **8,617** PTAB proceedings.³⁹ While this number may seem small compared to the 2.5 million patents that are currently in force,⁴⁰ economic analysis shows that the implementation of IPR has helped plaintiffs and defendants avoid at least **\$2.31 billion** in deadweight losses by providing an efficient system for challenging patents.⁴¹ Most of the patents challenged in IPR have been sued on in patent litigation.

PTAB v. District Court Litigation



The vast majority of patent litigation is still brought to the district courts, rather than the PTB.

Source: Unified Patents. 1st Half of 2018 Dispute Report.

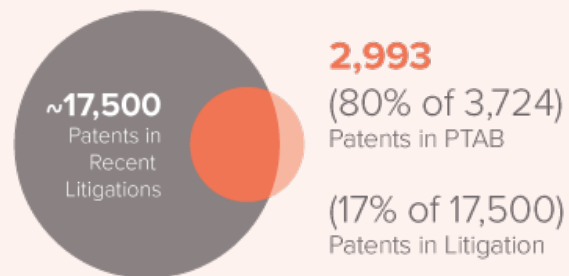
How Do PTAB and District Courts Interact?

IPR and district courts can be used in tandem. 86 percent of IPR petitions are related to patents that are already being litigated, proving that IPR is frequently used as a mechanism to challenge low-quality patents in a more cost effective way.⁴² Additionally, IPR proceedings can speed up the resolution of district court cases, making the entire system more efficient. Overall the results between the two venues are substantially similar with both bodies finding a patent's claims invalid about 40 percent of the time.⁴³

What the Critics Say:

Because IPR is so effective, patent trolls have relentlessly attacked the system since the AIA's enactment. Recent legislative proposals would gut IPR and make it useless. Arguments that IPR has ruined American innovation are unfounded and dangerous. The critics don't admit that all of the reliable data produced by the USPTO shows that IPR is a fair and balanced procedure that makes the patent system work better for everyone except those that want to exploit bad patents. Weakening IPR will only return the entire system back to a time where poor-quality patents can be used as a club to threaten startups and innovators.

PTAB in Perspective



80 percent of the patent cases in front of the PTAB are related to ongoing district court proceedings, proving that PTAB can be a low-cost alternative to dispute resolution.

Source: RPX Data, 2017

What Can Congress Do?

Protect the USPTO's efforts to invalidate bad patents.

Review processes at the USPTO give startups an opportunity to fight back against patent trolls in a low-cost and effective way.

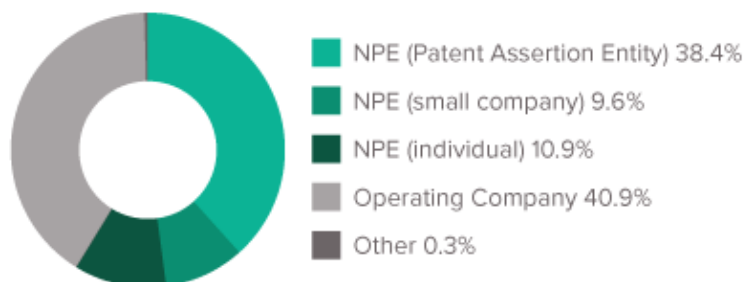
Key Takeaway:

IPR is a key reason behind the dramatic rebound of confidence in the patent system by innovators large and small. It weeds out bad patents that can otherwise be weaponized in litigation.

WHY IS IPR IMPORTANT TO STARTUPS?

Startups play an outsized role in driving innovation and job creation in our economy. However, startups also face a disproportionate number of lawsuits from patent trolls, wielding low-quality patents.⁴⁴ Since 2012, IPR has given startups an affordable way to fight back and is a vitally important tool. In 2018, approximately 62 percent of all PTAB petitions challenging technology patents were instituted against patent trolls.⁴⁵ Startups are just beginning to see stability in a system that has been abused by patent extortionists for too long.

Q1-Q3 2018: High-Tech PTAB Litigation



About 60 percent of high tech patents challenged at the PTAB were owned by patent trolls.

Source: Unified Patents. 1st Half of 2018 Dispute Report.

Examples of Startups Benefitting from IPR

Understanding why a startup would use IPR as a tool to combat patent trolls can seem like an abstract concept, so here are a few examples of how IPR has worked to protect startups.



The Podcasting Patent

Perhaps the most well-known IPR case was brought by the Electronic Frontier Foundation against Personal Audio, LLC, a patent troll that sued dozens of small podcasters on a patent for a “system for disseminating media content” in serialized episodes. The PTAB found the patent invalid after a significant amount of evidence, referred to as prior art, proved that Personal Audio did not invent podcasting. The PTAB decision was upheld by the Supreme Court in May 2018.⁴⁶



The Toll Troll

In 2015, a patent troll called Transportation Technologies, LLC sued the Los Angeles County Metropolitan Transportation Authority for infringing on a patent for an EZPass that transmits the number of occupants in a car.⁴⁷ Believing that this patent was incredibly vague, LA challenged the patent at IPR and the PTAB invalidated the patent. It was estimated that this decision saved the city over a million dollars in litigation fees.⁴⁸



The Scan to Email Scam

Patent troll MPHJ claimed to own the technology behind scanning a document to email and sent letters to approximately 16,465 small businesses nationwide, claiming those businesses infringed on MPHJ’s patents. It demanded a licensing fee of thousands of dollars from each.⁴⁹ State attorneys general from states including New York, Vermont, and Minnesota went after MPHJ, as did the Federal Trade Commission, for behavior that likely violated consumer protection statutes. MPHJ was finally put out of business when the Federal Circuit upheld a PTAB ruling invalidating the patent claims at the heart of MPHJ’s arguments.⁵⁰

WHAT CAN POLICYMAKERS DO?

The patent system has greatly improved in the past five years, as the Supreme Court has brought clarity to a complicated system by creating a two-part test with the *Alice-Mayo* Framework and getting startups out of the Eastern District of Texas in *TC Heartland*. Additionally, the implementation of AIA and the creation of the PTAB has improved patent quality, benefiting all patent holders.

What Can Congress Do?

Startups want to have their inventions patented. However, patent trolling will remain a problem for startups as long as the asymmetry of costs continue to exist. If a startup is spending all of its capital fighting frivolous litigation, it means it is not developing new products and creating jobs. This is a drain on innovation. Here are a few key actions Congress could undertake to help startups fight back when sued by a patent troll, including:

- **Level the litigation playing-field.** The patent troll shakedown hits startups the hardest because the costs of litigating are so one-sided. Legislation could fix that.
- **Keep improving patent quality.** Patent trolls thrive on low-quality patents. Rigorous patent quality standards create a more valuable system for everyone.
- **Protect the USPTO's efforts to invalidate bad patents.** Review processes at the USPTO give startups an opportunity to fight back against patent trolls in a low-cost and effective way.

The Key Takeaway? Ensure Patent Quality.

As long as low-quality patents are in the system, trolls will have the ammunition they need to target startups. Allowing low-quality patents to flood the patent market depresses confidence in the entire system. Unfortunately, there is no shortage of low-quality patents that have been issued. Examples include patents on filming a yoga class,⁵¹ using a computer to count calories,⁵² changing TV channels,⁵³ showing ads on the internet before a user can view copyrighted content,⁵⁴ and, famously, exercising a cat with the help of a laser pointer.⁵⁵ Congress must allow the USPTO and the courts to invalidate these vague patents.

To ensure patent quality, and help startups fight patent trolls, Congress needs to protect the gains made over the past decade in two areas.

Establish High Standards for Patentability.

Rigorous patent quality standards create a more valuable system for everyone. The USPTO has implemented new safeguards to improve patent quality. The Supreme Court has also weighed in several times to clarify what is patentable and what is not by clarifying how it interprets Section 101 of the Patent Act, which details what subjects are patentable. For a startup, clarity in laws and regulations will always help foster innovation.

Allow the USPTO to Weed Out Bad Patents.

IPR allows the USPTO to review granted patents. Additionally, it allows startups to challenge weak patents used by patent trolls in a low-cost and effective way. With over one million patents issued in the past three years alone,⁵⁶ there are bound to be some mistakes. Policymakers should allow the USPTO to continue its efforts to identify and remove low-quality patents.

GLOSSARY OF TERMS

AIA:

The Leahy Smith America Invents Act of 2011 addressed many problems with patent quality and created the first review procedures for granted patents, known as the Patent Trial and Appeal Board.

Design Patent:

As distinct from a utility patent. A design patent protects only the ornamental design or appearance of an article of manufacture, but not its structural or functional features.

Direct Infringement:

A person directly infringes a patent if she actually performs all of the steps of at least one method claim of the patent; or sells, manufacture, uses, or imports a product that contains all of the elements of at least one system or apparatus claim of the patent. The direct infringer is the one who actually infringes a patent.

Disclosure:

One of the primary objectives of the patent system. In return for the government-granted right to exclude that is embodied in the patent, the inventor must disclose to the public through his patent the invention for which protection is sought. Inventors unwilling to disclose their invention to the public may instead opt for trade secret protection.

IPR:

Inter Partes Review. A procedure created by the AIA for challenging patents. Intended to be similar to a court proceeding, the parties argue before an Administrative Patent Judge, not a patent examiner. The challenger must show a reasonable likelihood of successfully invalidating one claim before the PTAB will agree to grant a petition for review.

Non-obviousness:

A requirement for patentability based on 35 U.S.C. § 103 of the Patent Act. An invention cannot be an obvious variant of something that is already known, that is, the invention must not be obvious to a “person having ordinary skill in the art.”

NPE:

Non-Practicing Entity. A broad term associated with trolls but now disfavored because it includes universities and legitimate technology developers that seek to license technology in advance rather than after a producing company has independently developed it.

PAE:

Patent Assertion Entity. A narrower term for trolls that focuses on the core business model rather than whether the entity is actually making use of the patented technology.

PTAB:

Patent Trial and Appeal Board. Reviews adverse decisions of examiners on written appeals of applicants and appeals of reexaminations, and conducts Inter Partes Reviews and post-grant reviews.

Troll:

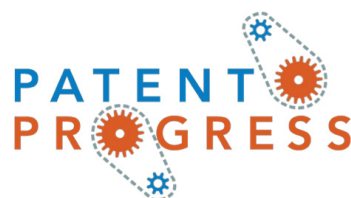
An entity in the business of being infringed—by analogy to the mythological troll that exacted payments from the unwary.

Utility Patent:

As distinguished from design patents and plant patents. Generally, references to ‘patents’ are to utility patents.

Definitions provided by Patent Progress.

An excellent resource for learning more about recent patent developments and analysis. Find the blog at patentprogress.org.



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