Crisis in American Innovation

How the Decline of the U.S. Patent System is Killing Creativity

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The United States patent system is in freefall. U.S. patents have become effectively useless to the very entities they were created to help: independent inventors and patent-based startups. Patents can no longer be reasonably defended by small entities. It is an unfortunate economic fact that a patent that cannot be defended cannot attract investment. With stagnant investment into startups, our primary job creation engine has become stagnant.

Amazon, Apple, Google and Microsoft, the four largest multinational corporations by market capitalization[i], along with dozens of other multinational corporations that benefit from weak patent protection, have sustained a multi-decade attack on inventors and startups through massive public relations campaigns, totaling hundreds of millions of dollars, that have manufactured the narrative of the so-called ***patent troll*** while filling political coffers in Washington.

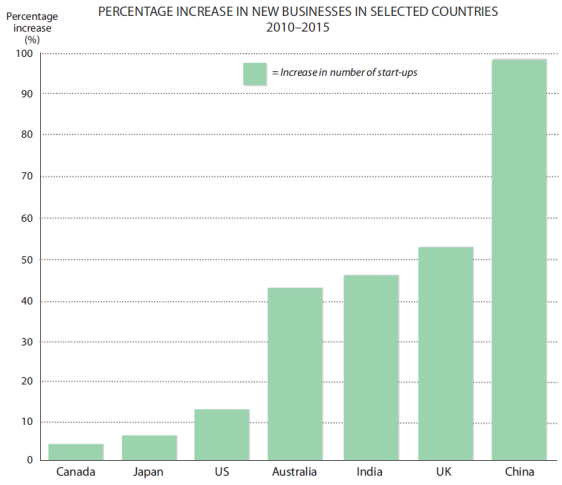
Just in the past decade, the patent system has been turned on its head. Inventors have become villains simply because they assert their patent rights against companies that steal their inventions. This theme suggests that our national innovation ecosystem is somehow fostered by the theft of patented technologies. Speed and market power cover up multinational theft of core property rights belonging to startups and inventors. False statistics and analyses, paid for by multinational infringers, shore up this huge lie.[ii] Infringing multinational corporations, who only a few short years ago were considered patent thieves, are today successfully portraying themselves as our innovators. Those same multinationals that created this "patent troll" narrative engaged high-powered lobbyists and public relations firms to hijack the airwaves with loud attacks on inventors, thus driving over a decade of continuous patent reform.[iii] This highly vocal concoction of myth, media and money has silenced all other voices.

It is independent inventors, startups, research labs and universities that suffer the brunt of patent reform damage.[iv] Most inventors lack a means of voicing their objections due to lack of organization, funding, knowledge, relationships or experience. For most, the damage remains unknown until they attempt to either commercialize or license their inventions, and then find it impossible to protect their invention in the market it created. Worse, if they defend their patented

invention, they will burn millions of dollars and are often forced to forfeit the patents for lack of resources. Thus, lawmakers and courts do not hear their objections and continue with more and more damaging reforms.

In response to this rampaging campaign that effectively silenced dissent, the "*…government has changed rules and laws in prior art scope, invention priority, injunction conditions, litigation venue, patent construction, error correction, enabling disclosure requirements, expanded mental step doctrine, abstract idea doctrine, invalidation procedures etc. to make sure that patent applicants will not get patents, patent applications will be denied, granted patents will be invalidated, survived patents cannot be enforced, patents in suit will get less or no damages, and patent owners are thrown out of court or rewarded with liabilities.*"[v] **Virtually every long-standing construct of patent law has been changed to negatively affect inventors.**

CHINA BENEFITS FROM THE DECLINE OF U.S. PATENT SYSTEM



We live in a global economy so actions taken here have counteracting actions abroad. China watched as we weakened our patent system and responded by strengthening theirs.[vi] The America Invents Act was made law in 2011, which dramatically weakened patent protection for inventors. Not so coincidentally, China began strengthening its patent system the same year.[vii] By 2015, nearly twice as many patents were filed in China (1,101,864) than in the U.S (589,410).[viii] Venture capital is fleeing to China as a result.[ix] In the U.S., the number of angel and seed stage funding rounds dropped 62 percent in the first quarter of 2017.[x] U.S. startups are now at a 40-year low.[xi] Not surprisingly, "*In 2015, about 12,000 new companies were founded each day in China and the number of newly registered companies grew to 4.4 million with a growth rate of 21.6% year-on-year.*"[xii]

Clearly, venture capital, startups, new technologies and jobs are moving to China as China continues to strengthen their patent system. In July 2017, China's President Xi Jinping said, "*Wrongdoing should be punished more severely so that IP infringers will pay a heavy price.*"[xiii] Certainly, China sees that its strengthened patent system attracts more investment and startups. On our side of the Pacific, for the first time in American history, more U.S. companies are going out of business than are starting up.[xiv] We are killing the very engine that made the United States the greatest economic power in history.[xv]

The effect of weakening the protection of a property rights is to crash its value based on public sales and licenses.[xvi] In the last three years, the gross value of patent sales is down 83 percent,

the number of patents sold is down nearly 50 percent, and the average price per patent is down about 55 percent.[xvii] New patent suits have dropped by as much as 40 percent in one year.[xviii] Most of that drop is in software inventions,[xix] a very important American industry that feeds innovation in every other industry, and an industry critical to our economic and national security.[xx]

We are on the cusp of a substantial economic shock. To remain compliant with the Sarbanes-Oxley Act, public companies are required to adjust the value of patent assets held on their books to the current fractional values.[xxi] Collectively, these companies may be forced to write down trillions of dollars in patent assets from their books.[xxii] Asset write-downs on this scale have the potential to crash the economy and send the U.S. economy into recession.

While the loss of economic growth and job creation is bad enough, the loss of our technological lead will prove devastating to our national security. Entire new fields of technology are now controlled by Chinese firms.[xxiii] **This will soon bring a national security disaster as the U.S. is forced to purchase technologies critical to our infrastructure and national defense from an increasingly powerful China.**

THE MYTH OF "PATENT TROLLS"

Some characterize *patent trolls* as rich investors who hijack[xxiv] patents from inventors. Then, while providing no societal value, these *patent trolls* are viewed as extorting billions of dollars from small businesses and threatening R&D-related value creation based on the patent.[xxv] [xxvi] Others describe *patent trolls* as lying in wait for the market to develop on an invention, and then sneaking up and attacking unsuspecting infringers.[xxvii] Some even allege that *patent trolls* actually invent new technologies themselves and then they patent it.[xxviii]

Except for the last curious characterization, the figures supporting these myths are erroneous and not backed by fact. Recently, *The Wall Street Journal* exposed Google as paying seemingly credible academic institutions to produce fake reports.[xxix] In other reporting, the underlying data, and the conclusions based on that data, come from biased sources with vested interests in a weak patent system.[xxx] [xxxi] Often, the underlying data is secreted, making it impossible to corroborate.[xxxii] For example, one widely publicized report attacking the quality of patents owned by *patent trolls* states that approximately 90 percent of cases brought by them lose when brought to court.[xxxiii] This report is highly disputed with contrary evidence showing virtually no difference between *patent troll*-owned patents and all others.[xxxiv] Another report by Boston University attacking the societal cost of *patent trolls* states that the "direct accrued costs" of *patent trolls* was $29 billion in 2011 and that this is somehow a bad thing.[xxxv] This report is frequently cited despite that the "direct accrued cost" actually represents perfectly legitimate and often voluntary licenses paid to patent holders for the use of their patented technologies.[xxxvi] In another widely used and misleading report, the number of lawsuits filed by so-called "patent trolls" has tripled from 29 percent to 62 percent since 2011.[xxxvii] The actual increase is near zero; the cited numerical increase is a direct result of rule changes in the AIA, which forced suits against multiple infringers to be filed separately.[xxxviii] In other words, the AIA forced the most compelling statistic

supporting anti-troll legislation, i.e, case count, to move significantly up, thereby creating a false basis supporting a new round of anti-troll legislation.

Notably, reports where the underlying data is made publicly available contradict the reports where data is secreted. The truth is, even if there is a real problem with a few people abusing the system, the economic impact is far lower than claimed and is no different than has been the case for over 200 years.[xxxix] The risk associated with such misconceptions is that the proposed cure may be worse than the disease or may even kill the patient.[xl]

As recently as July 13, 2017, Julie Samuels of Google-funded Engine Advocacy testified under oath, "*It has been estimated that patent trolls cost the U.S. economy at least $29 billion per year.*" [xli] **As noted above, this is the Boston University School of Law report by professors James Bessen and Michael Meurer[xlii] that has been widely debunked as fake research likely paid for by Google.** The danger is that a falsehood repeated enough times will become a credible perception of truth, as seems to have become the case.

It is ironic that the definitions used to describe *patent trolls* actually describe individual inventors, universities, small patent-based businesses, practicing companies and other legitimate patent holders who legally, and rightfully, enforce their hard-earned patent rights.[xliii] [xliv] [xlv] [xlvi] [xlvii] [xlviii] [xlix]

WEAKENED PATENT PROTECTION IS KILLING INNOVATION

Anti-troll legislation, court decisions and administrative rule-making that target perceived bad actors have, in fact, damaged the U.S. patent system in general and have fully disabled it for individual inventors and small businesses, the very people the U.S. patent system purports to help. Curiously, large multinational corporations are still able to enforce their patents against small entities. (Some have cynically observed that perhaps the unintended consequences are intended.)

A report of the period immediately following *Alice Corp v. CLS Bank* showed a 28 percent drop in patent lawsuits compared to the same period in 2013 (July 1 to October 31).[l] Other research reported as much as a 40 percent drop in patent lawsuits since 2013.[li]

This drop hits hardest in two critical areas. First, 88 percent of that decrease is attributed to non-practicing entities (NPE), or so-called *patent trolls*,[lii] defined as patent holders who do not commercialize an invention, but instead license the invention to others who commercialize it. While this definition encompasses individual inventors, patent-based startups, research labs and universities, it also encompasses entities that acquire patents and enforce them —- NPEs. NPEs make up the secondary market for patent assets and are a critical part of the patent economy. Inventors often sell their patents directly to NPEs so they can continue inventing. This is a critical outlet because few inventors are startup executives who can effectively commercialize an invention either due to personal disposition or personal desire. Those inventors who wish to commercialize the invention can collateralize patents to attract investment and commercialize the invention. If the company fails, investors often take control of the collateralized patents and either

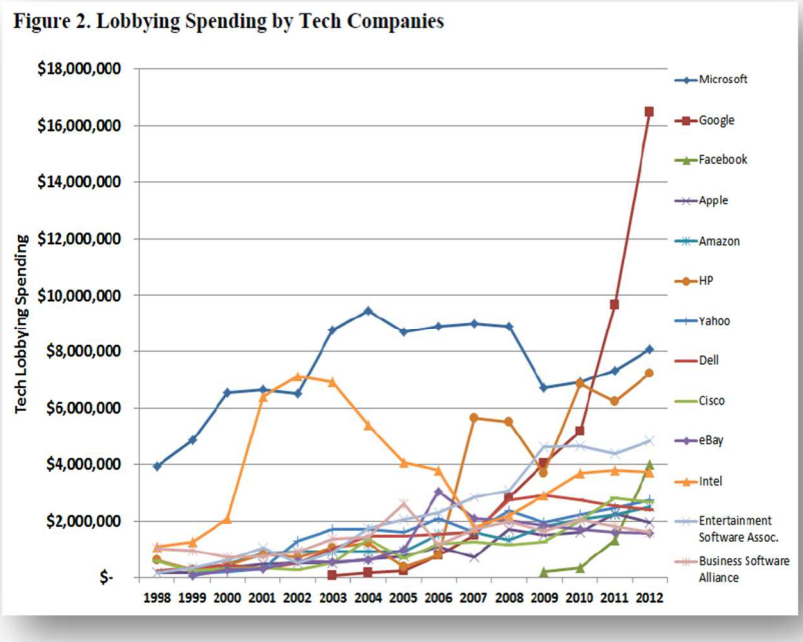
become an NPE and enforce the patents, or they sell the patents to an NPE to return their initial investment and go on investing in other startups.

This secondary market of investors and NPEs is critical to a healthy patent system and critical to the capitalization of startups that bring the next big technology to market, thus driving our economy and creating jobs. While NPEs are the target of multinational patent reforms, damaging NPEs not only harms inventors and startups, but it also harms the economy overall and U.S. job creation.

Second, the number of software patent lawsuits filed was down 42 percent in the period from July 1 to October 31 of 2014 compared with the same period in 2013.[liii] The drop in lawsuits directly affects software patents more than any other technology. At the same time, software inventions are used nearly everywhere, from personal computers to household appliances, from consumer electronics to tennis shoes and even the buttons on shirts. **Since 2011, software related inventions accounted for over 50 percent of all U.S. patents issued.**[liv] Software is a primary area of innovation simply because it is an essential element relevant to nearly everything made today, regardless of whether that software innovation is the actual product or is manifested in an enhancement to a product. When a product does not use software directly, it is software that controls how the product is engineered, manufactured, distributed, financed, marketed, sold and serviced. The software industry created 3.65 million U.S. jobs and contributed $526 billion to U.S. GDP in 2012, and it is growing at 50 percent.[lv] **Software is one of the greatest American industries and one where, as it stands today, America leads the rest of the world.**

Despite the importance of software to our economy, software patenting is the target of multinational "patent reform" lobbying. These reforms are aimed at preventing creative individuals and small software startups from beating the industry tech giants to the punch. Large tech corporations have strong financial resources, large numbers of programmers, market dominance and a sticky customer base. Inventors have none of these advantages. Yet, while large tech corporations have successfully silenced inventors and tilted patent law in their favor with hundreds of millions of dollars of political spending in the last decade,[lvi] they are still not satisfied and seek further reform.

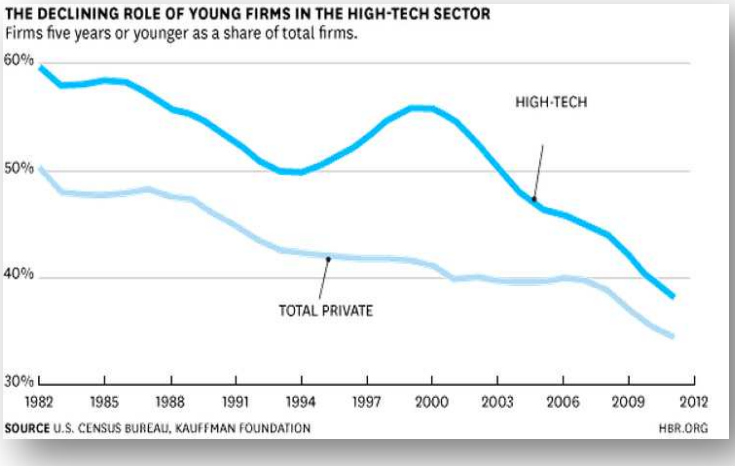
Figure 2. Lobbying Spending by Tech Companies



While the graph above ends in 2012, the trend of tech multinational tech corporations pouring money into Washington continues.[lvii]

Software innovation will likely continue for decades and may never end. However, if American software inventors cannot protect new ideas, as has become the case today, whether the U.S. continues to lead the world in software or is displaced by China is highly uncertain. In stark contrast to the U.S., China and the rest of the world have been strengthening their patent systems.[lviii] These positive changes are stimulating innovation in those countries and growing their economies.

The U.S., unfortunately, is going in the opposite direction. We are weakening patent protection. Today, we have more companies going out of business than starting up for the first time in our history. It is not surprising that since the creation of the *patent troll* myth and the corporate push for patent reform beginning in the late 1990s,[lix] the number of technology related startups in the U.S. is down nearly 40 percent.[lx]



If we continue down this anti-patent road, the U.S. will no longer lead the world in critical infrastructure and military technologies. China will.

It is important to understand that degrading patent protection for software affects all other types of patents equally. Today medical related patents are damaged in the same way and to the same extent. **In fact, some medical research companies have stopped research of key medical related technologies, such as Ebola treatments, in part because patented inventions cannot be adequately protected**.[lxi]

Because software in increasingly integrated in almost everything we use, it is a dangerous path to separate patent law related to software from patent laws related to other technologies. The Internet of Things (IoT) is a prime example of this separation problem. IoT is integrating virtually everything we use into a network you control. Home appliances like washers, dryers, refrigerators, stoves, dishwashers, security systems, furnaces, air conditioning systems and televisions, and cars and much more (many yet to be invented) are being interconnected into systems and networks that can be controlled from smart phones and elsewhere. Software at every level (e.g., operating systems, embedded code, applications, etc.) and of every type (e.g., GPS, wireless, phone apps, computer apps, etc.) are integrated with these devices. Thus software development is critical to the development of this new and exciting industry. Separating software patent laws from the rest of patent law will destroy investment in new software technologies critical to the development of the IoT market and impede the development of the entire industry.

Congress, the administration and the courts all see that the patent system is broken. They are right: It is broken—but not for the reasons they think. The facts have been hijacked by the loud, impermeable voices of a few moneyed multinational companies that benefit from weak patent rights. Those negatively affected — the inventors and the American public — cannot get a word in edgewise. **If our policymakers continue enacting broad, harmful changes under the misguided *patent troll"*narrative, it is all but certain that greater damage will be inflicted the U.S. economy, our standing in the world and to our national security**.

ASSAULT ON THE U.S. PATENT SYSTEM

Today, actions taken by all three branches of government have all but destroyed the effectiveness of patent protections for small entities.

- In 2006, the Supreme Court in *eBay v. MercExchange*[lxii] effectively eliminated the exclusive right of a patent. The result is that an inventor cannot exclude others from using their invention because an inventor must prove injunctive relief is in the public interest, an impossibly difficult thing to prove. Proving that the public interest is served by granting an injunction against an infringer effectively requires proving that denying the public of the infringer's product does not deny the public access to the invention. To accomplish this, the patent holder effectively must have a product on the market to replace the infringing product.

  But startups fail at rates of 90 percent.[lxiii] Often the reason is competition from large incumbents.[lxiv] Since *eBay*, if an incumbent believes they can capture the market and kill the startup, they have no fear of injunctive relief.

  When the startup fails, investors often take control of the patents and use the patents to recoup their investment. When an investor evaluates a company *before* investing, patents are valued for this likelihood. Investors estimate the value of a patent based on what they believe the overall market will be for the patent. This market value then leads them to a reasonable estimate of the value of the patent within that market. For example, if a patent can be projected to create a $10 million market, it can be reasonably valued at some percentage of that market, perhaps 3 to 5 percent of the total market, or a potential value of $300,000 to $500,000. That number then helps justify the investment.

  However, this evaluation only works in a fair and free market. If the startup fails, the investor does not have a product and will not be able to satisfy the public interest test to enjoin the infringer. Therefore since eBay, a forced license is the only remaining remedy with an arbitrary value set by a court with no real world experience in the technology or the market. Estimating a patent's future value for investment at the earliest stages of commercialization becomes a wild guess. It is not possible to forecast what value a court will place on the patent years in the future. So establishing a value is much too risky for

investors, so investment must be justified under other assets. This effect is a primary reason that funding for startups is falling.

The only place in the U.S. Constitution to use the word "*Right*" is Article 1, Section 8, Clause 8: "*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*". The "exclusive Right" is the very essence of a property right, so the effect of eBay is to redefine a private property right as a public entitlement subject the public interest, much like food stamps or a driver's license.

The natural economic effect of eBay is to encourage potential infringers to steal the invention and quickly saturate the market with infringing products. eBay discourages settlement of infringement cases because the loss to the infringer can be delayed by litigation, and many small inventors cannot sustain litigation costs. It is a better business decision to litigate the inventor into oblivion or capitulation with an arbitrary or minimal settlement. Indeed, attorneys advise their infringing clients to do exactly that.[lxv]

But the most critical failure of eBay is to devalue all patent values at the earliest stages of commercialization, thus damaging funding to commercialize our most important technologies.

- In 2011, Congress passed the America Invents Act (AIA) [lxvi] and destroyed any Presumption of Validity by creating three procedures to invalidate issued patents in an administrative tribunal called the Patent Trial and Appeal Board (PTAB).[lxvii] Prior to AIA, a patent had a strong Presumption of Validity in black letter law much like any other property right.[lxviii] Only an Article III court (under the Judicial Branch of government) could invalidate an issued patent. This was done in an adversarial process. A showing of clear and convincing evidence, the highest standard in U.S. law, of a failure to meet statutory requirements of patentability was required. The burden to prove this failure was on the party seeking to invalidate the patent. Only a party to the suit could ask a court to invalidate the patent.

The AIA changed all that by flipping each construct upside down. The PTAB is an administrative tribunal that presumes a patent *invalid.* A PTAB procedure is initiated by showing the lowest level of evidence in U.S. law, more likely than not. [lxix] An Administrative Law Judge (ALJ), under the Executive Branch of the government, presides over a process to re-validate the patent under a "broadest reasonable interpretation" of the claims. The burden to prove again that the patent is valid is placed on the inventor. PTAB turns patent law on its head[lxx] by treating a property right like a government entitlement more akin to welfare assistance.

PTAB procedures were established with the clear purpose of increasing the probability that a patent will be found invalid. **Today, PTAB procedures invalidate patents at rates more than 90 percent**.[lxxi] There is no longer any Presumption of Validity

as required in 35 USC 282 in practice, and the cost of proving and reproving the patent valid is an enormous, and often unsurmountable, burden on the inventor.[lxxii]

Just a single PTAB procedure, costing the petitioner around $20,000, can cost the patent holder as much as $1,050,000.[lxxiii] If the petition for a PTAB procedure is denied, about 75 percent of the cost is returned to the petitioner. PTAB procedures have no estoppel, and another PTAB procedure can be filed if the current PTAB procedure fails to invalidate the patent. Multiple PTAB procedures from multiple petitioners, often on the very prior art already reviewed by the USPTO during examination, are being launched one after another by infringers to keep the infringement case in court stayed, to drive patent holder costs to untenable levels, and, playing the odds, to eventually invalidate every claim. **One patent holder suffered 125 separate PTAB procedures against just 10 patents until all of the claims in all of the patents were invalidated**.[lxxiv]

Unlike litigation in court, PTAB litigation does not end with financial settlement or a license agreement. The patent holder is fighting solely to preserve the patent right. Therefore, investors or contingency attorneys will not help because the risk of losing is extraordinarily high with no hope of any payout. This leaves most patent holders with no access to money other than what they have themselves, so an infringer can easily drive the patent holder into financial ruin succeeding based on access to money alone.

Anyone can petition for a PTAB procedure and remain anonymous. In fact, several new companies were founded for the sole purpose of initiating PTAB procedures against third party patents.[lxxv] Often, these companies engage in extortion-like activities asking for licenses that they can sell to infringing companies or a cut of future settlements in exchange for dropping the PTAB procedure.[lxxvi] [lxxvii] Other third parties are leveraging these PTAB procedures to force patent holders in settlements that pay nothing to the patent holder.[lxxviii] The same large multinational corporations who lobbied to pass the AIA, which created the PTAB in the first place, fund these PTAB extortion companies.[lxxix] In a different twist on PTAB abuse, the founder of Dallas-based Hayman Capital Management, L.P. challenged 15 key drug patents to PTAB procedures. While it seems unlikely that a hedge fund would want to harm drug companies, short selling stock then filing PTAB procedures against key patents to crash the stock price could make the hedge fund millions of dollars.[lxxx]

A single PTAB procedure can burn five or more years of the patent's enforceable life, or about 30 percent. During the pendency of the PTAB procedure, most courts stay litigation until the PTAB procedure resolves, and it is not possible to start litigation against new infringers.[lxxxi] That lost time is not added back to the patent's term—it is just lost altogether, thereby substantially devaluing the patent.

The PTAB is a politically driven administrative tribunal currently invalidating over 90 percent of the patents it evaluates.[lxxxii] Administrative law judges are not bound by a code of conduct[lxxxiii] and their careers are advanced through a management chain leading to the President. The White House is by its very nature a political office, and any

administration can strengthen or weaken patent rights by changing PTAB rules and by passing down policy through chain of command to administrative law judges. Thus, every election brings with it the likelihood that patent rights will be made either stronger or weaker, and this could happen every four years.

The PTAB grants the Executive Branch effective power over one of our country's most important property rights. **As long as the PTAB exists, investment into early stage technologies will suffer.** The very existence of the PTAB means that the value of a patent asset cannot be known to investors more than four years out and nobody is going to invest.

- The AIA forced patent suits against similarly situated infringers to be filed separately. Independent of that, the U.S. Supreme Court in *TC Heartland v. Kraft* defined the term "reside" for the purposes of venue to mean the state where a company is incorporated. Now patent infringement cases must be filed in the state of the infringer. Unfortunately, there is no counterbalancing provision that allows a patent holder to sue an infringer where the patent holder resides.

For the most significant inventions that we as a nation want invented here, those with the greatest commercial success that have created or significantly improved entire industries, particularly those in technology, there are often dozens or even hundreds of infringers, and these infringers often reside in a dozen or more states. In these cases where there are numerous infringers, *TC Heartland* means that patent suits should be filed in the state where the defendant is incorporated, so similarly situated patent infringement cases could end up scattered across multiple states.

Managing this complexity and cost is prohibitive for all but a few inventions. Certainly, the logistics will become impossibly difficult and costs will skyrocket as each court will require local counsel, and the inventor, technical and damages experts, and lawyers will need to travel to each court multiple times. But the real problem comes when different courts find different answers to the same questions of claim construction, validity and more. When any court finds something unfavorable to the inventor, all infringers in other courts will likely petition their court to adopt that decision. This will generate a cascade litigation in every court for virtually every decision. If decisions conflict, the resulting chaos will eventually need to be sorted out in the Federal Circuit causing multiple appeals. What happens when one court invalidates the patent? Do all the other courts adopt that same theory of invalidation? *TC Heartland* will bring litigation chaos to the most valuable inventions.

From a practical perspective, *TC Heartland* under the current venue laws means that many of the most valuable new technologies will very likely be unenforceable in the U.S. These are the same technologies that construct our infrastructure and national defense and create most of our new jobs.

- A patent can take more than 10 years of examination at the U.S. Patent and Trade Office before it is granted.[lxxxiv] In one case, a patent application has been in examination for almost 40 years.[lxxxv] A patent term begins on the filing date and ends 20 years later.[lxxxvi] In addition, a patent is a wasting asset and is highly time sensitive. However, most of the time lost in examination is not added to the back-end of the patent. Many patents lose a large percentage of their life, and therefore a large percentage of their value, due to USPTO delays. Some USPTO art groups allow less than 10 percent of patent applications.[lxxxvii]

- Title 35 USC is the governing law on patents. It defines the requirements of obtaining a patent, among other things. Within 35 USC, Section 101 is effectively the door into the patent system by defining what is considered patentable subject matter. The Supreme Court has created three exceptions to patentable subject matter: abstract ideas, natural phenomena, and laws of nature.

  The U.S. Supreme Court in *Alice v. CLS Bank* threw the definition of what is patentable subject matter under 35 USC 101 into chaos by judicially creating an exception to Section 101 called the "abstract idea." However, the courts provided no definition of what constitutes an abstract idea and has conflated analysis of other provisions in patent law into Section 101 analysis. Today, different branches of government come to different conclusions on the validity of the same patent and no one knows what is or is not patentable. This complete confusion has brought the patent system to a screeching halt for technology inventors. No investor can reasonably assume that any patent will be held valid if challenged as an abstract idea, and 67.6 percent of those challenged are found abstract.[lxxxviii]

Many other Supreme Court decisions have slashed damages, eliminated obviousness tests and changed other long standing tenets of patent law. Virtually all of these changes have damaged the ability of small entities to defend their patent rights against multinational corporations. The net effect has been to rip the floor out from inventors for the benefit of large moneyed corporations that steal inventions, and to open the exit door for startups to move to China.

TO SAVE THE U.S. PATENT SYSTEM

Strip the Patent Trial and Appeals Board (PTAB) of All Authority over Issued Patents

Some argue that changing the PATB can be fixed by changing the rules. The STRONGER Patent Act attempts to do this. However, just fixing the rules will not correct the rogue nature of the PTAB.

Rules that govern PTAB procedures are the domain of the USPTO Director, who reports to the president. This means that the enforceability and therefore the value of a patent will likely change every four years. The stability of enforceability is critical to attracting investment in new technologies.

The PTAB must be eliminated altogether. If it is not eliminated, it must not have any authority over issued patents.

Eliminate the "Abstract Idea" Exception to Patentable Subject Matter

As stated earlier, the judicially created exception of patentable subject matter called the abstract idea has thrown the patent system into chaos. It is not possible to define an abstract idea in such a way that it can be repeated reliably for all inventions. In fact, the very definition of an abstract idea is abstract in itself. The vast majority of decisions finding an invention abstract have conflated Section 102 (anticipation), Section 103 (obviousness) and Section 112 (enablement) in the analysis of Section 101. The fatal flaw of analysis under the abstract idea is subjective catchall that results in conflation of the rest of patent law to fit a predetermined belief that the patent should not have been allowed in the first place.

Section 101 must be rewritten to eliminate the "abstract idea" exception. See US Inventor's proposed changes to the language of 35 USC 101.

Restore Injunctions and Injunctive Relief

The Constitution defines a patent as nothing but an "exclusive Right", therefore injunctive relief was the default judgement upon a finding of infringement for over 200 years. As a practical matter, injunctive relief served both as a strong deterrent to patent infringement, and as the basis for projecting the future value of a patent at the earliest stages of commercialization. Establishment of that future value is critical to attracting investment to commercialize patented technology.

In 2006 a Supreme Court decision called *eBay v. MercExchange* effectively eliminated injunctive relief by requiring an impossibly difficult test to prove injunctive relief is in the public interest. Because of *eBay,* courts now impose a forced license at an arbitrary value with no relation to the market of the invention. Investors cannot project the future value of a patent as a result. The net of *eBay* is to encourage infringement and to devalue patents in funding startup companies.

Injunctive relief must be the default judgement upon a finding of infringement.

End Accelerated Examination in the USPTO

Accelerated examination was created to speed examination in exchange for additional fees. While marketed as a tool for small entities to get patent protection faster thus helping to attract funding to startups, it has the opposite effect. Most small entities cannot afford the higher fees. However big corporations can and the primary users of accelerated examination are big corporations. The net effect is to sap examination resources from smaller entities in favor of big corporations. There are unfortunate side effects to examiners first learning about new technologies from just a handful of big corporate applicants. First it injects a technology bias into the minds of examiners that acts to devalue other technologies. Second, the regular applications of smaller entities are judged under the sieve of hindsight because accelerated applications are examined first, but were invented as long as ten years after the regular applications of smaller entities, which are evaluated later.

Return to "First to Invent" from "First to File"

The Constitution grants a patent to the inventor. Under this first to invent system, an inventor only needed to keep records documenting the invention through its reduction to practice to show inventorship. But, first to invent was changed to a first to file system creating the very real possibility that some other person could steal the invention and file for patent protection ahead of the inventor. Moreover, if an invention is disclosed to anyone prior to filing for patent protection, the invention may become its own invalidating prior art making the invention unpatentable.

Inventors must now file for patent protection as soon as the idea is dreamed up and before disclosing it to anyone else to determine the invention's viability, marketability or cost. This adds thousands of dollars in upfront costs for risky unproven inventions to the people least able to afford that cost and risk. The net effect of first to file is to discourage inventors to the point of abandoning the patent system.

Overall, today's patent system no longer encourages investment in new technologies. It actually discourages the creation of new technologies by enabling big corporations to crush startups and inventors. **Congress must act to stop this damage to our economic engine and the American Dream.**

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[i] https://en.wikipedia.org/wiki/List_of_public_corporations_by_market_capitalization#2017

[ii] https://www.wsj.com/articles/paying-professors-inside-googles-academic-influence-campaign-1499785286

[iii] See http://www.opensecrets.org/news/2011/02/google-facebook-lead-new-generation/

[iv] See http://thehill.com/blogs/congress-blog/technology/204995-patent-reform-legislation-will-hurt-the-american-inventor

[v] http://www.ipwatchdog.com/2017/07/23/call-enacting-urgent-patent-reform-new-patent-system-securing-u-s-technological-leadership/id=85906/

[vi] See http://english.sipo.gov.cn/news/official/201402/t20140226_907949.html and http://www.managingip.com/Article/3384964/China-patents-How-specialised-courts-will-affect-patent-cases.html and CHINA'S IQ (INNOVATION QUOTIENT) TRENDS IN PATENTING AND THE GLOBALIZATION OF CHINESE INNOVATION, REUTERS September 2014

[vii] http://www.nytimes.com/2011/01/02/business/02unboxed.html

[viii] http://www.wipo.int/pressroom/en/articles/2016/article_0017.html

[ix] http://watchdog.org/283886/venture-capital-chases-patents-friendlier-climes/

[x] http://www.siliconvalley.com/2017/04/04/silicon-valley-investing-slump-continues-fewer-startups-get-funded/

[xi] http://money.cnn.com/2016/09/08/news/economy/us-startups-near-40-year-low/index.html

[xii] Handbook for Finnish Startups Entering the Chinese Market, ISSN 1797-7339, ISBN 978-952-457-630-7 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwimwsnIspvVAhXFQiYKHRk3DFcQFggqMAE&url=https%3A%2F%2Fwww.tekes.fi%2Fglobalassets%2Fjulkaisut%2F338_2017_handbook_for_finnish_start-ups_for_entering_chinese_market.pdf&usg=AFQjCNGQ07NuqdFJeyXKdMuk-iKJigBYSA&cad=rja

[xiii] http://www.ipwatchdog.com/2017/07/23/chinese-president-xi-jinping-says-infringers-punished-pay-heavy-price/id=85953/#comment-2743864

[xiv] See http://www.washingtonpost.com/business/on-small-business/more-businesses-are-closing-than-starting-can-congress-help-turn-that-around/2014/09/17/06576cb8-385a-11e4-8601-97ba88884ffd_story.html

[xv] https://judiciary.house.gov/wp-content/uploads/2017/06/06.13.17-Mossoff-Testimony.pdf

[xvi] Statement of JUDGE PAUL R. MICHEL (Ret.) former Chief Judge United States Court of Appeals for the Federal Circuit Before the Subcommittee on Courts, Intellectual Property, and the Internet COMMITTEE ON THE JUDICIARY United States House of Representatives "The Impact of Bad Patents on American Businesses" July 13, 2017

[xvii] http://www.ipwatchdog.com/2014/12/11/is-the-patent-market-poised-for-rebound-in-2015/id=52593/ A quote from Richard Baker, a senior IP licensing executive who is on the Board of LES, "the dollar value of patent sales are down 83% and the number of patents sold is down about 50%, and this is just in the last two years, but the most striking piece of data is that the average price per patent has gone down about 55%. So you a dramatic drop in value."

[xviii] See http://www.law360.com/articles/585536/new-patent-suits-drop-off-sharply-from-last-year

[xix] See DECEMBER 2014/JANUARY 2015, WWW.MANAGINGIP.COM, Software patent lawsuits plummet after Alice. This report contains parts 1 and 2 in a series of in-depth articles by Managing IP covering recent trends in patent litigation.

[xx] https://www.nap.edu/read/2021/chapter/8#57

[xxi] See http://www.journalofaccountancy.com/Issues/2005/Nov/ValuingIpPostSarbanesOxley.htm

[xxii] See http://www.i4ilp.com/court/2011-03-17%20AmiCOUR%20IP%20Group%20Amicus%20Brief.pdf

[xxiii] http://money.cnn.com/2016/09/08/news/economy/us-startups-near-40-year-low/index.html

[xxiv] Extracting a Toll From a Patent 'Troll', By FLOYD NORRIS, New York times, Published: October 17, 2013 http://www.nytimes.com/2013/10/18/business/extracting-a-toll-from-a-patent-troll.html?pagewanted=all&_r=0

[xxv] Patent Trolls, the Sustainability of 'Locking-in-to-extort' Strategies, and Implications for Innovating Firms Joachim Henkel, Markus Reitzig, December 2010

[xxvi] http://www.youtube.com/watch?v=-gU09bWifFo

[xxvii] http://en.wikipedia.org/wiki/Patent_troll

[xxviii] Ars Technica article by Jon Brodkin - Aug 14 2013, 2:20pm CDT http://arstechnica.com/tech-policy/2013/08/bill-gates-still-helping-known-patent-trolls-obtain-more-patents/

[xxix] https://www.wsj.com/articles/paying-professors-inside-googles-academic-influence-campaign-1499785286

[xxx] GAO Report on Patent Litigation Confirms No "Patent Troll" Litigation Problem, blog post by Adam Mossoff — 17 December 2013. http://truthonthemarket.com/2013/12/17/gao-report-on-patent-litigation-confirms-no-patent-troll-litigation-problem/

[xxxi] One such example is the misleading claim that frivolous patent suits cost businesses $84 billion in annual litigation costs; yet, on its face this number is not credible. Approximately 6500 new Category 830 cases are logged annually in the PACER system and the vast majority are quickly settled or dismissed, suggesting the claimed calculation of $12 million in legal defense costs per case as somewhat ridiculous. Nor does this widely disseminated $84 billion number square with "buy the case back" no fight troll settlement numbers being discussed by experts and ranging from $75K to the extreme of $750K. In other words, if every defendant folded his hand for the maximum of $750,000, the theoretical maximum economic impact on business would be less than $4.9 Billion.

[xxxii] GAO Report on Patent Litigation Confirms No "Patent Troll" Litigation Problem, blog post by Adam Mossoff — 17 December 2013. http://truthonthemarket.com/2013/12/17/gao-report-on-patent-litigation-confirms-no-patent-troll-litigation-problem/

[xxxiii] Patent Quality and Settlement Among Repeat Patent Litigants, by JOHN R. ALLISON, MARK A. LEMLEY & JOSHUA WALKER, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1677785
[xxxiv] Framing the patent troll debate, by Professor Michael Risch; http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1792442
[xxxv] James Bessen & Michael J. Meurer, The Direct Costs from NPE Disputes, 99 CORNELL L. REV., (Manuscript at 102–03) (2013). http://www.bu.edu/law/faculty/scholarship/workingpapers/revcov.html
[xxxvi] ESSAY, ANALYZING THE ROLE OF NON-PRACTICING ENTITIES IN THE PATENT SYSTEM, David L. Schwartz & Jay P. Kesan 2013 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2117421&rec=1&srcabs=2158455&alg=1&pos=3
[xxxvii] PATENT ASSERTION AND U.S. INNOVATION, Executive Office of the President, June 2013 and http://www.whitehouse.gov/blog/2013/06/04/taking-patent-trolls-protect-american-innovation
[xxxviii] www.npedata.com
[xxxix] Study Paper 1a, Intellectual Property and Economic Development: Lessons from American and European History, http://www.iprcommission.org/papers/pdfs/study_papers/sp1a_khan_study.pdf
[xl] Indeed, the across the board imposition of Sarbanes-Oxley regulations seemed like a great idea at the time and was passed unanimously. The intended result of reducing financial fraud was barely curbed, but businesses, particularly smaller ones, faced mountains of paperwork and skyrocketing accounting costs and IPO activity moved offshore. http://en.wikipedia.org/wiki/Sarbanes%E2%80%93Oxley_Act#Criticism
[xli] https://judiciary.house.gov/wp-content/uploads/2017/07/Samuels_Written_Testimony_Bad_Patents_July2017.pdf
[xlii] Bessen, James and Michael Meurer. "The Direct Costs from NPE Disputes." 28 June 2012. Cornell Law Review , Vol. 99, 2014, forthcoming. Boston Univ. School of Law, Law and Economics Research Paper No. 12-34: p. 2. https://www.bu.edu/law/faculty/scholarship/workingpapers/documents/BessenJ_MeurerM062512rev062812.pdf .
[xliii] Techdirt article Patent Troll Wins Again, from the open-that-cash-register dept. http://www.techdirt.com/articles/20051215/1210207.shtml
[xliv] GigaOM article: Troll wins Newegg encryption patent case, threatening web firms that protect customers, By David Meyer, Nov. 26, 2013. http://gigaom.com/2013/11/26/troll-wins-newegg-encryption-patent-case-threatening-web-firms-that-protect-customers/
[xlv] Patent Troll Wins 5Mil from Google, On April 25, 2011, in Emerging Issues: Patent Reform, IP in the Digital Age, by Wesley W. http://www.yalelawtech.org/ip-in-the-digital-age/patent-troll-wins-5mil-from-google/
[xlvi] Microsoft's Samsung Android Patent Troll Win by Steven J. Vaughan-Nichols for Linux and Open Source | September 28, 2011. http://www.zdnet.com/blog/open-source/microsofts-samsung-android-patent-troll-win/9634
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[l] http://www.law360.com/articles/585536/new-patent-suits-drop-off-sharply-from-last-year
[li] https://lexmachina.com/2014/10/september-2014-new-patent-case-filings-40-september-2013/
[lii] DECEMBER 2014/JANUARY 2015, WWW.MANAGINGIP.COM, Software patent lawsuits plummet after Alice. This report contains parts 1 and 2 in a series of in-depth articles by Managing IP covering recent trends in patent litigation.
[liii] DECEMBER 2014/JANUARY 2015, WWW.MANAGINGIP.COM, Software patent lawsuits plummet after Alice. This report contains parts 1 and 2 in a series of in-depth articles by Managing IP covering recent trends in patent litigation.
[liv] See GAO Report titled INTELLECTUAL PROPERTY Assessing Factors That Affect Patent Infringement Litigation Could Help Improve Patent Quality http://www.gao.gov/assets/660/657103.pdf
[lv] See The U.S. Software Industry As an Engine for Economic Growth and Employment, Robert J. Shapiro, September 2014
[lvi] WORKING PAPER No. 13-12 July 2013, A HISTORY OF CRONYISM AND CAPTURE IN THE INFORMATION TECHNOLOGY SECTOR, by Adam Thierer and Brent Skorup, Mercatus Center, George Mason University. http://mercatus.org/sites/default/files/Thierer_CronyismIT_v1.pdf , Figure 1
[lvii] https://www.opensecrets.org/industries/contrib.php?cycle=2016&ind=B
[lviii] See supra at 11
[lix] http://en.wikipedia.org/wiki/Patent_troll
[lx] With Fewer New Firms, the High-Tech Sector is Losing its Dynamism, by Ian Hathaway, February 12, 2014 http://blogs.hbr.org/2014/02/with-fewer-new-firms-the-high-tech-sector-is-losing-its-dynamism/
[lxi] See http://www.ipwatchdog.com/2014/12/26/can-diagnostics-companies-afford-to-provide-ebola-testing/id=52779/

[lxii] See eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006) ("That test requires a plaintiff to demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law are inadequate to compensate for that injury; (3) that considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.")
[lxiii] http://fortune.com/2014/09/25/why-startups-fail-according-to-their-founders/
[lxiv] https://www.cbinsights.com/research-reports/The-20-Reasons-Startups-Fail.pdf
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[lxvi] http://en.wikipedia.org/wiki/Leahy-Smith_America_Invents_Act
[lxvii] PTAB procedures for the purposes of this document include Inter Partes Review (IPR), Covered Business Method Review (CBM) and Post Grant Review (PRG). All are similar in that they are performed administrative tribunals capable of invalidating issued patents.
[lxviii] 35 USC 282 "A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity"
[lxix] See http://www.uspto.gov/aia_implementation/bpai.jsp "An inter partes review may be instituted upon a showing that there is a reasonable likelihood that the petitioner would prevail with respect to at least one claim challenged." "A post grant review may be instituted upon a showing that, it is more likely than not that at least one claim challenged is unpatentable."
[lxx] See http://www.venable.com/10-reasons-every-defendant-in-patent-litigation-should-consider-inter-partes-review-04-23-2014/
[lxxi] http://www.ipwatchdog.com/2017/06/14/90-percent-patents-challenged-ptab-defective/id=84343/
[lxxii] Senator Jon Kyl, Remarks at Executive Business Meeting of the Senate Judiciary Committee (Mar. 31, 2009), available at http://judiciary.senate.gov/webcast/judiciary03312009-1000.ram; ("[T]he patentee is at a distinct disadvantage where the only alternatives are to pay the costs associated with an opposition proceeding or forgo his rights under the patent. The repugnance of such a quandary needs no explanation."); Anthony H. Handal, Re-Examination: Some Tactical Considerations—A Private Practitioner's Viewpoint, 9 AIPLA Q.J. (1981) ("[I]t is possible that a number of patents might be lost solely due to the inability of the patent holder to financially deal with the problem." "Like other forms of action under the patent law, the new reexamination procedure is susceptible to substantial misuses."); see also Interview by the Reexamination Center with IP lawyer Taraneh Maghamé (Oct. 12, 2009) (noting opportunities for requesters to abuse the reexamination system and explaining that "[s]uch abuse takes the form of serial reexaminations of the same patent . . . or the filing of non-meritorious requests for reexamination"), at http://www.maghamelegal.com/uploads/The_Reexamination_Center_Executive_Interview_-_Taraneh_Maghame.pdf.
[lxxiii] See supra at 29
[lxxiv] https://www.patexia.com/feed/weekly-chart-32-not-a-single-claim-survived-after-125-ipr-challenges-20170314
[lxxv] See https://www.eff.org/files/2014/05/29/hacking_the_patent_system.pdf
[lxxvi] See http://www.therecorder.com/home/id=1202678962497/Trolls-Taste-Own-Medicine?mcode=1202615733861&curindex=0&slreturn=20141119235938
[lxxvii] See http://interpartesreviewblog.com/curious-case-new-bay-capital-llc-virnetx-inc/
[lxxviii] "Success … is defined as a positive institution decision, invalidation, or no money settlement by entity." https://www.unifiedpatents.com/success/
[lxxix] See http://www.irondome.com/
[lxxx] See http://www.patentspostgrant.com/the-ptab-as-a-hedge-fund-tool
[lxxxi] See http://www.iplitigationcurrent.com/2014/07/21/new-guidance-from-the-federal-circuit-on-motions-to-stay-litigation-pending-a-ptab-proceeding/
[lxxxii] http://www.ipwatchdog.com/2017/06/14/90-percent-patents-challenged-ptab-defective/id=84343/
[lxxxiii] http://www.ipwatchdog.com/2017/05/31/uspto-response-foia-confirms-no-rules-judicial-conduct-for-ptab-judges/id=83914/
[lxxxiv] The authors has multiple patents pending more than 14 years.
[lxxxv] See http://www.patentlyo.com/patent/2014/01/hyatt-v-uspto-three-generations-of-poor-examination-are-enough.html
[lxxxvi] See 35 U.S.C. § 154 (setting the patent term as 20 years from the date on which the application for the patent was filed).
[lxxxvii] http://www.ipwatchdog.com/2016/07/12/patent-office-refuses-understand/id=70809/
[lxxxviii] http://www.bilskiblog.com/blog/2017/06/alicestorm-april-update-and-the-impact-of-tc-heartland.html