The Myth of Patent Quality

By Neal Solomon*

Abstract

The U.S patent system has been under attack for about a decade. One of the main justifications for changing the patent system has centered on the issue of patent quality. According to patent critics, patents are bad or low quality, justifying major changes to the patent examination and review system.

I argue that patent quality is a proxy for attacking patent validity, which has a complex history. Patent critics, particularly market incumbents, obtain a free ride when the bar is set low to attack patent validity. The changes to standards for patent obviousness have been a core source of lowering the standards for patent validity. The recent *Inter Partes* Review (IPR) program has overzealously applied the weak obviousness standards, causing a broad range of problems for innovators.

The false big-tech narrative that attacks patent quality has unduly undermined the patent system, with numerous adverse consequences. The introduction of IPRs pushes patent validity determinations out of the federal courts, which enable due process, into a politicized administration agency that generally denies due process for patent holders after a patent is presumed to be valid from the original PTO examination and grant.

The introduction of after-grant reviews, based largely on the myth of patent quality, have been used to justify wholesale changes to the patent system that deviate dramatically from validity tests the courts have applied for over a century.

The increase in transaction costs to defend a patent in after-grant reviews and in enforcement, after challenging free riding efficient infringers, alters the economics for innovators

and market entrants, with a tendency to diminish patent valuation. While once market forces were key determinates of an invention's value, artificial factors associated with reproving patent validity that originate with the false narrative of bad patent quality, have altered technology economics and have ultimately diminished incentives to invest in technology, with adverse consequences to productivity growth and aggregate economic growth.

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Patent Quality Relies on a Fictitious Narrative

The main tenets of patent critics have been that patents are poor quality, that patents hold up manufacturers and that patent "trolls" have unfairly abused the courts to extort settlements from infringers. In order to solve these conjectures of bad patents, patent holdup and patent "trolls," a big tech cartel narrative has influenced the courts to narrow enforcement remedies mainly for non-manufacturers and influenced Congress to institute radical changes that include a second window of patent review in the U.S. Patent and Trademark Office (PTO). The effects of these dramatic changes include a profound decline of investment in innovation beyond the big tech cartel, the broad-based decline of productivity growth and the decline of small technology companies, alongside the historical increase in patent infringement and growth in market capitalization and profits of big tech companies.

The patent system has been radically transformed on the premise that patents are "bad." If the complaint of patent quality is wrong, the dramatic changes to the patent system are misplaced.

According to the narrative of patent critics, a key problem with the patent system involves patent "quality," the cure for which is the "gold-plated patent" (golden patent) [See Lemley, M., D. Lichtman and B. Sampat, "What to do About Bad Patents," Regulation, Vol. 28, No. 4, pp. 10-13 (2005), for a first suggestion of a second window for review in the PTO] or one in which the PTO has extraordinary resources to vet each patent application. This notion was a thought experiment by defense attorneys until Obama instituted the idea with neither review nor debate. This solution for the problem of allegedly bad patents was the America Invents Act proposal to institute after-grant reviews (such as an Inter-Partes Review (IPR)) in order to properly vet bad quality patents. [See the critiques of this view in Solomon, N., "A Review of

Patent Validity Jurisprudence," SSRN (2010) and Kieff, F. S., "The Case for Preferring Patent-Validity Litigation Over Second-Window Review and Gold-Plated Patents: When One Size Doesn't Fit All, How Could Two Do the Trick?," 157 U. PA. L. Rev. 1937 (2009).] However, if the presupposition that patents are bad is false, the solution of IPRs is wrong too. Proving that the AIA and IPRs rely on a mistaken presupposition of bad patents would expose the big tech narrative that attacks patents as bad to be wrong. If patents are shown not to be bad after all, the fallacy of the big tech narrative would be exposed and the burdensome solutions would be seen as self-serving to the infringer lobby. The assertion that patents are bad is unwarranted by the facts. In actuality, attacking patents in IPRs raises barriers to competition, perversely incentivizes infringement and promotes a free ride for infringers.

The facts are that the quest for the golden patent is misplaced. The real problem has been the shifting and artificial criteria of patentability, inventiveness and "obviousness." In effect, the changing law on patent validity standards has essentially shifted the goal posts. The idea of a golden patent was originally rebutted because it is cumbersome, expensive and unworkable, with all of the burdens placed on the inventor as a sort of huge regressive tax.

Patents have become politicized in recent years according to which allegations of poor patent quality and patent trolls have become the core tenets of the big tech narrative attacking the patent system. In reality, this narrative has justified wholesale changes to the patent system that support the model of efficient infringement by the big tech cartel in order to support their Brobdingnagian profits. The big tech cartel – the modern equivalent of robber barons – is applying game theory to increase entry barriers by a factor of 100, with the effect to reduce competition. This self-serving and false narrative on patent quality, then, drives the debate on the need to reform the patent system. By so dramatically raising the bar for inclusion into the

patent system, a democratized U.S. system for the first time in two centuries transitions to an aristocratic system controlled by capital flows rather than creative labor.

The constant complaint by big tech companies about "bad" patents and poor patent quality has led to "ongoing efforts to improve patent quality" by the PTO. The term "patent quality" is in reality a term used by large technology companies that systematically infringe patents to attack the patent system. By attacking patent quality, they seek a free ride to steal others' technology.

It may seem interesting that neither the courts nor the PTO has defined patent quality. The main for reason for this omission is that there is no such thing as patent quality, any more than one can look at a work of art and say that it is great or poor. The notion of patent quality is highly subjective and impossible to justify or rebut.

Rather, the issue is mainly one of patent validity or patent valuation. Patent validity is closely related to issues of patentability and inventiveness, while patent valuation is typically driven by market forces of supply and demand. Not surprisingly, both patent validity and patent valuation are complex matters that require analysis and interpretation.

Naturally, the big tech cartel has expended virtually unlimited resources to hire academics and consultants to argue their case in public fora to justify the narrative of bad patents when the real motive is the justification for efficient infringement, suppression of entrants and promotion of monopoly profits. In recent years, the PTO and the courts have been unwitting and unreflective co-conspirators of the big tech narrative.

Patent critics attack the patent system on three fronts. First, they claim that patents *hold up infringers* when patent holders enforce their patent rights. However, in recent years, there has been limited hold up in the absence of injunctive relief, a remedy that has been eroded by the

courts. Second, patent critics attack *non-practicing entities* as not worthy of patent rights since they claim that only manufacturers are legitimate patent holders. Nevertheless, big tech incumbents have moved nearly all of their manufacturing off shore, effectively eviscerating U.S. manufacturing employment. Finally, patent critics claim that the presumption that patents are of *poor quality* justifies a second window of patent examination that is implemented without either an even playing field or due process. All three of these presumptions of patent critics are false.

Instead of a substantive argument, patent critics have politicized patents, which have led to adverse anticompetitive effects. The ultimate aim of the big tech cartel is to drive down input prices of technology from and to free ride on small tech companies that invent original technology. The agenda of big tech incumbents is not neutral, but rather is self-serving, viz., to constrain market entrants by raising the bar to competition. It is not in the interest of the patent system – a carefully designed balance of rights structured to support a healthy innovation ecosystem – for infringers to judge patents as good or bad. In fact, it is natural for infringers to attack patents as bad, a phenomenon that has occurred for hundreds of years. Ultimately, the revelation that others' patents are bad, while big tech company patents are good, reveals a blatantly hypocritical and self-serving position that undermines the patent system and the economy.

Nonetheless, the issue of patent quality is the key dividing line in the debate that polarizes the patent bar. Policy makers accepted the big tech narrative with neither factual support nor analysis, but rather only anecdotal information and outlier data.

While it is true that some claims in patent reviews are found to be ultimately invalid, the source of the problem is lack of due process, lack of efficient after-grant amendment practice, too loose review of combining prior art, too strict analysis of patent eligibility and a constant

moving of the goalposts that cabin the patent system into a very narrow path for patentability and patent validity. The combination of changes to U.S. patent law in recent years by Congress and the courts have severely restricted patents mainly to large portfolios in companies with very deep pockets, thereby essentially eliminating small entities from the market, with tragic long-term economic effects.

Much of the attention focused on patent holders has been on diminishing the rights of all because of a few nuisance lawsuits intended to use high transaction costs to force settlements against weak targets. But burning down the house to solve a termite problem is probably not the best solution for the patent system. Yet, this approach is completely logical from a game-theoretic viewpoint in which a relatively small amount of capital is expended to support a flawed narrative of bad patents to justify erection of an onerous mechanism to attack patents the consequences of which are to dramatically raise the bar to competition and thereby preserve big tech monopoly profits.

Consequently, the narrative of the big tech companies in attacking patent quality is generally anti-competitive, hypocritical and self-serving. This narrative also suggests a concerted effort to organize an attack on the patent system emanating from a strong antitrust component that requires careful examination.

A Brief History of the U.S. Patent System

Originally conceived as a grant from the King of a monopoly to inventors as early as the 14th century, patent laws originated in Venice in the 15th century. Inventors were entitled to an exclusive right to their inventions, supplying the economic model for a temporary economic monopoly in exchange for a publication of an original invention. In 1624, the English Statute of

Monopolies further developed a coherent mechanism for granting limited monopolies for inventors rather than relying on the whims of the sovereign. In contrast to the first patent laws in England, the French focused in 1791 on patent laws that emphasized the liberty of the inventor and the private property aspects embedded in the invention.

When the U.S. Constitution was ratified in 1790, one of the first laws of the young country was the Patent Act of 1790. Into the Constitution itself was embedded the intellectual property clause in order to supply inventors with "exclusive rights" to their discoveries for "limited times" thereby tracking both the British limited monopolies approach and the French private property rights approach. The Patent Act of 1790, just months after ratification of the Constitution, supplied a 14 year term of exclusive right in a patent because it often took many years to commercialize an invention. In addition, foreigners were not allowed to obtain a U.S. patent. Only the Secretary of State, the Secretary of War or the Attorney General were allowed to grant a patent. However, according to the statute, each patent application required examination in order to assess its originality and utility, which was time consuming. Only 55 patents were granted in the three years of activity of the 1790 Act.

Because of the complications of the first U.S. patent statute, Congress passed the Patent Act of 1793. The application process was simplified by seeking an examination from the Attorney General by a request to the Secretary of State. The standard of review was changed to "any new and useful art, machine, manufacture or composition of matter" and did not include the criteria of utility, which the market could resolve. The challenge of examining patents initially fell to the Secretary of State, Thomas Jefferson. Though he personally investigated some early patent applications, he eventually hired experts to examine patent applications for prior art and novelty. The demand for patent applications outstripped the supply of examiners and problems

arose when applications were not sufficiently examined. For example, patents were eventually granted to devices and discoveries that were neither original nor useful. Consequently, many cases landed in the courts in fights over patent validity and infringement. Over ten thousand patents were granted under the 1793 Act.

The Patent Act of 1836 created the Patent Office, originally in the Department of State, required regular publication of patents to disseminate information to libraries nationwide, enabled a 7 year extension of the original 14 year term and allowed foreigners to apply for U.S. patents. In 1849, the Patent Office, with its own Commissioner of Patents, was moved to the Department of Interior, perhaps to free the Secretary of State to focus on international matters.

The 1836 Act saw the U.S. through the Civil War, the move from agrarian society to industrial economy, the World Wars and Great Depressions. Various statutory amendments and Supreme Court rulings modified elements of the 1836 Act, but this single statute was largely responsible for the dramatic growth of the U.S. economy by embedding property rights in patents that encouraged original invention. The U.S. democratized system of invention was contrasted with the European aristocratic system, whereby any workman on the shop floor could invent in America, while the European system was extremely expensive and exclusive only to the domain of the elite.

By the end of WWII, however, the 1836 Act was atrophying, thereby requiring an update from Congress. The Patent Act of 1952 created the first modern patent system that we would recognize today, with a Patent and Trademark Office in the Department of Commerce. In addition to novelty and usefulness, a patent was also required to be "non-obvious," a concept invented to prevent inventors from patenting well-known discoveries.

In 1982, the creation of the Court of Appeals for the Federal Circuit in the Federal Courts Improvement Act consolidated federal appeals involving patents to a single appellate court. This consolidation of patent matters to a single court enabled national uniformity. During the 1980s and 1990s patents were highly valued and the U.S. is generally regarded to have witnessed an economic renaissance during this period largely because of the market dynamics enabled from the strong patent system. Productivity growth increased at high historic rates and the economy grew remarkably during this period, which led to the culmination of the Patent Act of 1999, the American Inventors Protection Act, intended to protect inventor rights.

With intense influence of the big tech cartel, Congress passed the Patent Act of 2011, the America Invents Act, which was largely written by large technology company lobbyists. With consensus from both parties, the congressmen followed the big tech narrative completely in order solve two main perceived problems in the patent system. First, the Patent Office was issuing bad software patents that were overly vague and impinged on big tech operations. Second, the problem of "patent trolls," conceived very broadly as companies that did not manufacture goods but rather licensed patents, needed to be controlled.

The solution to these perceived problems was creation of a second window of patent examination in the Patent Office in the form of post-grant reviews, including Inter-Partes Review (IPR), Post-Grant Review (PGR) and Covered Business Method (CBM). All of these post-grant review procedures were organized in the Patent Trial and Appeal Board (PTAB) within the PTO.

The Problem of Reducing Patentability to Novelty

The patent system consists of a fundamental bargain. In order to encourage invention of original technical research, the government confers a limited exclusive right to the inventor.

Inventors are supplied with an incentive of limited exclusivity in order to induce the difficult efforts to solve complex scientific and technical problems or to find applications for technological solutions. This bargain is fused with entrepreneurship, with multiple inventors competing in order to promote dynamic economic development. Society and the economy benefit from the progress that results from the incentives to invent that originate in a patent's exclusive right.

However, a patent is merely a detailed disclosure of an invention. The patent endows the patent holder with key rights as a reward for developing an original invention. The patent is a disclosure to the world about the details of an invention in such a way as to enable others to practice the invention. As such, the patent is an incentive to solve hard problems by contributing an original and useful solution.

One main theme of all patent laws dating back to before the 1624 English patent laws involves an emphasis on the originality of an invention. Great pains have been taken to ensure that a patent is conferred only on a novel invention.

Patent critics mistakenly associate tests of originality of a patented invention with patent quality. Assessing a patent's originality refers to a patent's validity, not its quality. Patent validity involves assessing tests of originality, typically novelty. The tests have generally been whether an invention is new and useful, not whether the invention is high-quality. In some sense, the notion of an invention's quality is non-sequeter with the test of scientific novelty. Neither does a well-written description or well-researched invention represent a quality invention. [Nevertheless, written description is a criteria for patent validity in that the specificity and particularity of an invention must be clearly described.] Patent validity mainly rests on a search of prior art to assess originality. The main question of novelty thus relies on the thoroughness of

the search of prior art. In some ways, patent quality is equated with this thoroughness of a search for prior art, not with any substantive aspect of an invention. The assessment of patent validity largely depends on delimiting the scope of prior art. Interestingly, this assessment is more art than science, since there is no objective standard for patent validity or assessment of prior art, particularly the combination of prior art.

On the other hand, assessments of patent eligibility rely on an interpretation of scientific abstraction, natural phenomena or a law of nature that lies on the outside of the functional utility of inventions. In the case of eligibility analysis, the goal posts have shifted over the years as the courts exclude matter from elibigiligy for technical reasons, whether in software or biochemistry. For instance, the Supreme Court's assessment has unduly limited abstract ideas (*Bilski* and *Alice*, with a connection to a machine akin to a 19th century test) and natural phenomena (*Mayo* and *Myriad*, requiring a human contribution beyond a discovery, despite the wording in the Constitution regarding conferring an exclusive right for limited times to "discoveries," suggesting a test for originality without utility). Inventions that would have satisfied the criteria in one nation or one time may not satisfy the criteria at other times or places. The net effect of arbitrarily changing standards in order to exclude patents from patentability is ultimately to limit competition and to protect market incumbents. Recent judicial decisions on patentability appear to represent an arbitrary and logically unjustifiable limitation of patent eligibility that has a tendency to retard progress.

Ironically, judicial decisions on patent eligibility tend to depend on inventiveness, with tests of originality that tend to refer to novelty, reducing the issue of patentability to novelty. For example, post-*Alice* Federal Circuit decisions in *Enfish* and *Bascom* flush out the two-step tests of a technical contribution and an inventive step, thereby reducing patentability to inventiveness.

Uncertainty about patent validity, the changing standards for assessing patent validity or the false equivalence between patentability and novelty, has tended to destabilize the patent system.

Between 1836 and 1952, a patent was valid if it satisfied the test of inventiveness. Did the invention satisfy the question of inventive step? If so, a patent should issue. However, in order to show an inventive step requires, first, delimiting, prior art in order to assess the invention's originality.

The 1952 Act changed the criteria required to assess originality or an inventive step. Rather than focusing only on "inventiveness," the new criteria included assessment of "novelty" (35 U.S.C. § 102) and "non-obviousness" (35 U.S.C. § 103). In 1946, a criteria was applied for a "flash of genius" that required an inventor to have an epiphany of an original invention. But this psychological criterion was vague and arbitrary. The 1952 Act created the notion of "non-obviousness" in order to enable a step beyond the indefinite notion of inventiveness. A patent was obvious if some *combination* of prior art would render the invention not innovative. Nevertheless, the notion of "obviousness" is itself vague and inherently unscientific.

Once a patent is examined and granted by the U.S. PTO, it is presumed to be valid (35 U.S.C. § 282). In 2010, the Supreme Court issued an opinion in *i4i*, which reiterated 150 years of jurisprudence on patent validity and the high bar to attack a patent that is presumed valid. In order to challenge the validity of an issued patent, a challenger must satisfy the clear and convincing standard. Most challenges have centered on attacking a patent for patentability after the changing criteria of *Alice* or *Myriad* and for non-obviousness after *Graham* and *KSR*. After satisfaction of the patent eligibility test, most patents have tended to be challenged for non-

obviousness by bringing in a flood of prior art that may be combined in different ways to attack the claims of a patent.

Whether in the PTO – in an original examination or in a post grant review – or the courts, the biggest challenge for patent validity to overcome is the challenge posed by the issue of non-obviousness.

The Problem of Obviousness

Like the 1793 Act and the 1836 Act, the 1952 Act required an inventor to show an invention's originality as set against prior art. Whereas before 1952, this originality was proved by showing inventiveness as novelty, the 1952 Act introduced in addition to the concept of novelty the notion of obviousness. "Obviousness" (or "non-obviousness") arose to challenge the subjective ideas of inventiveness by seeking to link inventiveness only to prior art, rather than, say, to a flash of genius. In the case of novelty (35 U.S.C. § 102), a patent must be shown to be original as against a single piece of prior art, with the prior art "anticipating" the invention. In the case of obviousness (35 U.S.C. § 103), an invention must be shown to be original against a *combination* of prior art references. In either the case of anticipation or obviousness, an analysis of prior art becomes crucial. Most interpretations of patent quality mistakenly refer to the issue of patent validity and thus most efforts depend on the analyses of prior art, with a more intensive analysis mistakenly determining the "quality" of a patent.

The main aim of introducing the idea of obviousness is to prevent an invention on a basic scientific advance that may include standard knowledge of a field. However, the challenge for an inventor is to get beyond these combinations of prior art by identifying the range of this prior knowledge and narrowing the art to the field of the invention. One main test established to

narrow the field of an invention was the teaching-suggestion-motivation (TSM) test in which an expert in a field would narrow the prior art to those references that are relevant to the invention. Only if prior art is clarified and precise can multiple relevant references be combined to attack an invention. For instance, if the prior art is interpreted broadly, with multiple references from different fields of art, many combinations of prior art will be found to exclude most inventions.

The main problem with obviousness began with the Supreme Court opinion in *KSR*. [Note, however, that *KSR* draws on *Graham v. Deere* (1966) and *Hotchkiss v. Greenwood* (1850), which discusses the first notion of obviousness, embedded in the patent statute in 1952.] *KSR* removed the TSM test as the exclusive test of exclusivity, thereby opening up the restriction of a broad interpretation of combinations of prior art. Virtually any art in any field could be introduced as prior art if it had a tangential relationship to the proposed invention. With much more prior art included in an obviousness determination, the combination of many more prior art references tended to limit the inventiveness of many proposed inventions. This is particularly the case with evolutionary inventions that require only a small inventive step, which is the main domain of large corporations that tend to patent hundreds or thousands of small inventions in a large portfolio.

In the internet era, it is straightforward to do a database search of prior art, but with the broad swath of prior art with minimum limitations beyond a localized field of an invention, many prior art references are included in a search. The database has taken the place of the expert from the TSM test, with problematic results. The search for prior art has become the main function of the patent examiner. However, the crucial function of interpretation of prior art, and the exclusive of irrelevant prior art, still remains somewhat subjective. The main challenge of the patent examiner -- and thus the main role of the patent office examination system – is to connect

how two or more prior art references may be combined to read on a patent claim. In some cases, the identification of a novel solution to a technical problem is a substitute for the problem of combining prior art references since there may be multiple solution options for the same technical problem. In any event, it is crucial to cabin obviousness challenges in order to provide more meaningful prior art analyses of inventions.

Logically, with more prior art references that are included in a patent examination, the more combinations of prior art that will be applied to kill the patent application. These combinations increase exponentially with the addition of prior art references. Two prior art references may be combined in a few ways, but dozens of prior art references may be combined in hundreds of ways, leaving the opportunity to kill an invention with hundreds of attempts. In addition to patent applications, the inclusion of published writings increases the opportunities to add prior art reference to combine to kill a patent application. The net effect of a broad view of obviousness has been to destabilize the patent system by providing tools to kill patents.

After KSR, the horse got out of the barn. A broad view of obviousness has become problematic since many inventions are ruled invalid based on a loose interpretation of a combination of unrelated prior art references. The very liberal interpretation of obviousness after KSR has been a core problem of the patent system. The Federal Circuit recognizes this problem and has recently begun to bring the TSM test back in vogue as a central tenet of obviousness. As the TSM test shows, the first challenge is to narrow the scope of the field of the invention. Once constrained, the inclusion of prior art references must be confined to the scope of the field of invention.

Increasingly, the Federal Circuit is applying secondary considerations (or objective indicia) to challenges of non-obviousness. These "objective indicia of non-obviousness"

secondary considerations include: (a) the invention's commercial success; (b) long felt but unresolved needs; (c) the failure of others; (d) skepticism by experts; (e) praise by others; (f) teaching away by others; (g) recognition of a problem; and (h) copying of the invention by competitors. Interesting, the Federal Circuit reiterated these factors in determining the validity of an invention involving a smartphone against a rival.

The overly inclusive nature of obviousness interpretations has led to problems. First, with an overly broad view of obviousness, patent applicants are encouraged to flood patent examiners with prior art references in order to immunize prosecution from future surprises of prior art, even though many of these references are irrelevant. This flood of prior art burdens examiners and encumbers the patent prosecution process. Second, PTO examiners, PTAB judges and the federal district courts have different standards of determining obviousness, with the courts maintaining a clear and convincing standard for challenging the validity of an issued patent. For example, examiners may tend to narrow prior art to the field of an invention, thereby allowing applications that are then retested in IPRs under broader (higher bandwidth) standards, thereby explaining discrepancies in IPR claim kill rates.

Obviousness requires examiners and judges to carefully interpret prior art references. So far, analyses of prior art have been inconsistent and subjective, with a need to narrow the broad range of prior art references to interpret references carefully and to connect references with each other and the patent claims. Interpretation theory (hermeneutics) may be helpful for these patent validity analyses.

The problem of obviousness is critical in determining patent validity. Since patent quality is typically used as a proxy for patent validity and since obviousness is so crucial to

patent validity and obviousness is a critical problem with increasing subjectivity and interpretation required, the state of the patent system relies on an unstable foundation.

Strictly speaking, if obviousness is so broadly applied, only a few pioneer patents would withstand scrutiny. The gold-plated patents would be these pioneer patents that represent fundamental or industry creating technologies. All others, according to this narrative, would be invalid or useless.

The Problem of Inter-Partes Review (IPR)

In 1981, Congress authorized patent reexams to review the validity of previously issued patents. The reexams were modeled on reissues in which a patent holder could modify claim language, including correction of errors. An *ex parte* reexam could be initiated by the patent holder and an *inter partes* reexam could be initiated by a third party. Both of these reexam regimes enabled claim amendment to repair errors in light of newly discovered prior art references in order to allow a patent to be non-obvious. However, the PTO reexam process was indeterminable and cumbersome, with *inter partes* reexams sometimes dragging on for years. The problem of terminal examination indefiniteness required a substantive solution.

In 2011, the AIA restructured the reexam process by creating a Patent Trial and Appeal Board (PTAB) and replacing *inter partes* reexams with *inter partes* reviews (IPRs). In addition, the AIA established post-grant reviews (PGRs) for patents issued within one year and covered business method (CBM) reviews for financial services patents. The IPR process was based fundamentally on the mistake that patents are bad, weak and poor quality. The suggestion was that patent examiners were poorly prepared to process patent applications with limited PTO resources and that the examiners could not properly search for prior art or sufficiently examine

patent applications. The patent critics – many supported by deep pocketed big tech incumbents – thought the PTO examination system was insufficient to produce a "golden" patent or one which was thoroughly vetted for prior art and examined. In order to endeavor towards the quest of the golden patent, IPRs were instituted as an oppositional process to provide tools for patent infringers to attack patents at any time in their twenty year life cycle. All IPR decisions are appealable only to the Federal Circuit.

When a patent was asserted in the federal courts, the alleged infringer could challenge the patent's validity in an IPR at the PTO. The theory was that the PTO contained expertise to review patents, which expertise the federal district courts lacked, and that questions of validity were therefore best reviewed in the PTO. Hence, a second window of patent review was established in the PTO based on the theory that patent quality at the PTO was poor.

Beyond the main presumption that patents were bad or weak, IPRs brought the issue of patent validity out of the courts and back to the PTO. Since the big tech incumbents essentially wrote the AIA, there was an incentive to remove jurisdiction on patent validity determinations from the courts, which protected patent holders with due process rights.

In 2010, the Supreme Court opinion in *i4i* reiterated a century and a half of jurisprudence on patent validity and the presumption of validity (35 U.S.C. § 282) in a patent, according to which the clear and convincing standard was applied to challenging patent validity. The district courts treated patents as a property right and supplied due process to the challenge of issued patents.

The AIA changed this formula for challenging patent validity by returning the re-test for patent validity to the PTO, which viewed patent review as a hybrid form of continued examination. The PTAB review board developed a set of rules to interpret the AIA IPR process

which generally denied patent holders due process of law. Rather than a patent being presumed to be valid, the patents were treated like patent applications, without a clear and convincing standard for challenge. In addition, once back at the PTO, there were limitations of claim interpretation, with the broadest reasonable interpretation (BRI) standard applied rather than the Phillips standard applied in district courts. Whereas the AIA statute specified the ability for patent holders to amend patent claims in an IPR, these were in reality instituted only in about one tenth of one percent cases. In addition, the AIA statute constrained estoppel provisions to limit continuous attacks on a patent, which have not been instituted by the PTAB. The combination of these features suggest that due process rights are not available to patent holders in the PTO compared to the district courts.

In addition to the procedural issues, IPRs introduced an asymmetric component which particularly burdens the patent holder by requiring a very expensive ten-fold higher cost to defend the patent in the PTAB relative to the alleged infringer(s) cost of initiating an IPR.

In sum, then, by writing the AIA for self-benefit, the big tech industry did an end run around *i4i*, breached the presumption of patent validity and pushed patent validity determinations back to the PTO with the objective to deny patent holders critical due process rights. The main impetus to persuade Congress to initiate this after grant review process lied in the false narrative of the big tech cartel that patents issued by the PTO are of a poor quality.

Because IPRs are applied to thousands of patents, with many claims from the majority of inspected patents ruled invalid, the after grant review process at the PTO has effectively destabilized the U.S. patent system. Ultimately, the IPR process has dramatically raised costs for patent holders, with adverse effects on the incentives to invent.

Interestingly, about a third of the companies instituting IPRs are the large technology companies that have a history of infringing patents, revealing that the IPR process was contrived to protect their monopoly profits and the subjugate their competitors to intensive attack legitimized by the imprimatur of the U.S. government. This situation is far more common in the Third World in which dominant corporations control economies that produce no progress. IPRs are a new game with rules written by big tech infringers and administered by pro-infringer and anti-patent ideologues.

Since the main motivation of the IPR process was to review bad quality patents, the main assumption of the AIA was that only *a few* patents were issued by the PTO without a proper examination and that the IPRs were organized to catch these. However, the IPR process was applied to *all* patents that were enforced in the courts, under the mistaken assumption that all patents issued by the PTO are of poor quality. The PTAB was driven by an inflexible anti-patent ideology promoted in PTO patent review policies. In general, the PTAB has been hostile to patent holder rights, further distorting PTO after grant review credibility. This one-sided view against patent holders delegitimizes the IPR process. For instance, there is a broad range of rules on institution decisions, claim interpretation, estoppel and lack of amendability that clearly benefits alleged infringers. Thus, rather than being viewed as a neutral arbiter that may fairly resolve disputes, the PTAB has politicized the issue of patent quality to benefit infringers, encourage efficient infringement and harm patent holders. The effects of IPRs are further delegitimized by the different outcomes realized from patent validity reviews from different standards applied in the PTO examination system, the PTAB and the federal courts. The dual and inconsistent patent validity tests in the courts and the PTAB is untenable. Ultimately, the

adversarial approach entertained in the PTAB is blatantly unfair to patent holders without the due process protections of the district courts.

The legitimacy of the IPR process rests on the notion that a gold plated patent is good since it lies on the presumption that patent quality in the PTO is bad. Only a gold-plated patent will survive an IPR, according to this view. This view of a gold plated patent derived directly from the big tech anti-patent narrative that relies on the mistaken belief that patent quality is bad.

Perhaps not surprisingly, the main problem with IPRs lies in the problem of obviousness. Almost all patents attacked in IPRs rely on obviousness to remove patent claims. The loose interpretation of obviousness is at the root of the problems in the PTAB. The combination of prior art references that are not limited to the field of invention of a patent is clearly the source of the IPR problem. This explains why multiple companies work together to identify a broad range of prior art and relentlessly attack patent claims by combining multiple prior art references to invalidate claims.

Particularly without due process protections, the broad attack of patents with a very loose interpretation of prior art references for obviousness becomes the main challenge for patent holders in IPRs.

Solutions for IPRs

In order to restore these patent rights and respect 35 U.S.C. § 282(presumption of validity), consistent with *i4i*, the following steps are required to constrain the PTO review process in *Inter Partes* Review (IPR), Post-Grant Review (PGR) and Covered Business Method (CBM) Review. Collectively, these elements are intended to balance the rights between the

patent owner and petitioner and to provide equilibrium in procedures between the Federal Courts and the PTAB.

1. No more than one member of the PTAB review board that institutes the IPR, PGR or CBM can be included in the board that evaluates a patent in an IPR, PGR or CBM.
2. Respecting the presumption of validity standard, the PTAB must apply the clear and convincing (C&C) standard, not the probability of prevailing or preponderance of the evidence standards, for institution of an IPR, PGR or CBM, particularly in cases in which the patent owner cannot amend claims.
3. Patent holders that have IPRs, PGRs or CBMs instituted have the option to select two different claim interpretation standards. First, they can select the broadest reasonable interpretation (BRI) standard, which will allow claims to be amended with N auxiliary claim sets to enable the PTAB to select a preferred claim set. Second, they can select the narrower Phillips standard, applied in the U.S. District Courts, which are applied to refer to infringement analysis, by waiving the patent owner's right to amend claims in the patent under review. IPRs are only useful if patents are amendable.
4. Challenges to IPRs, PGRs and CBMs have <u>one</u> opportunity to challenge a patent according to the "could have" brought arguments clause of the AIA. Serial challenges and multiple challenges based on different, or parallel, review modes, are a harassment of patent holders and an abuse of the system.
5. Since patent validity challenges are a proxy for litigation, to limit harassment, an infringer may be required to pay patent holder attorney fees if they lose an IPR, PGR or CBM, consistent with *Octane Fitness*, particularly in cases in which a serial infringer or hedge fund abuses the reexam system.

6. The PTAB must address all challenged patent claims in a final determination of an IPR, PGR and CBM. Estoppel is applied to claims not addressed as well as claims addressed in any reexam institution. Claims not challenged in action are not subject to a follow-up review. However, this should not foreclose the opportunity to timely challenge all claims in multiple IPRs, PGRs or CBMs directed to different claims as long as the IPRs, PGRs or CBMs are filed within a time limit of each other – e.g., 3 months – to allow for consolidation of proceedings. This is not to foreclose other Petitioners from filing separate challenges but to "shepherd" all challenges by Petitioner A against Patent X.
7. Challengers are limited to fifteen IPRs, PGRs or CBMs in a single year in order to limit abusive patent challenge practices of technology incumbents and hedge funds that are anti-competitive. Challengers must have standing to bring a patent review.
8. Once a District Court decides to review a patent's validity, further PTAB review is barred. Further, juries have a right to overturn a PTAB assessment of patent invalidity, reviewable for error.
9. The Department of Commerce must institute a Policy Oversight Board (POB) to review PTO rule-making and fee-setting. The 7-member POB will include different stakeholders. PTO Director initiatives must be reviewed and approved by a majority of the POB. The GAO may also review PTO procedures and initiatives and make periodic recommendations to Congress about PTO activities.
10. Review the standards for obviousness by interpreting prior art and limiting the combination of prior art references. Balanced, and consistent, standards need to be implemented.

11. Eliminate the PTO politicized bias in favor of infringers, which tends to delegitimize PTO authority.

IPRs are a sort of blockage designed by infringers to attack the patent system on the mistaken belief that all patents are bad and weak. The illegitimate procedures embedded in IPRs at the PTAB show that the issue of patent quality driven by the big tech narrative is the source of many problems in the patent system. Ultimately, the costs increase dramatically for patent holders to defend a previously issued patent in the PTO, which provides a huge advantage for infringers to maintain their efficient infringement strategy of ignoring and infringing patents. The low barrier to attack patent validity undermines the incentive to invest in R&D, particularly for capital constrained market entrants, which is required for a healthy economy. Without major changes at the PTO on patent review that will introduce some semblance of due process, the IPR process will be illegitimate and inefficiently undermine the patent bargain.

The Problem of Patent Valuation

The anti-patent narrative views patent quality as the major nexus that distinguishes bad patents from good patents. This article has argued that notions of patent quality are fictitious since they rely on patent validity, which has been politicized. Whether because of overcoming the subjective challenge of inventiveness, the overly broad interpretation of obviousness or the deprivation of due process in IPRs, the arena of patent quality has been politically charged, with anti-patent ideologues constructing biased policies to attack the democratization of patents, increase patent examination and review costs and increase patent enforcement costs, while enabling free riding and efficient infringement by big tech incumbents.

In many cases, the challenge of patent quality is reduced to questions of patent validity. However, in other cases, the quality of a patent depends on economic valuation, which is a market phenomenon. After all, if a patent lacks any value in market, why would infringers care about it at all? Only valuable patents that have market impact are directly attacked by incumbents. This observation leads to the revelation that all patent disputes are based, not on patent quality, but on patent valuation. In the main, most patents of high value are considered high quality inventions, with low quality inventions not having value in the market.

While the originality of a patented invention is related to the past, the valuation of a patented invention is related to the potential future of a technology. A future unknown market will determine the value based on market demand and supply dynamics. The key insight of the founding fathers in establishing the intellectual property clause was to embed a private right into a patent as a critical component to induce microeconomic competition. Only if a patented invention was valuable would the market respond by embedding a high value based on a high market demand. This value is inherently unknowable in advance. By limiting the patent term, the monopoly inherent in a patent was constrained, while the patent holder required a long period to wait for a market to develop, particularly if the patented invention was truly novel, since market infrastructure and network effects require a critical threshold of market development. For example, it is not unusual to wait a decade from invention to market development. Competition and economic dynamism is enabled by multiple companies introducing competing patented products that satisfy customer demand.

When patents are attacked for invalidity in the patent office or the courts, only large patent portfolios – that generally cost eight- or nine-digits for R&D and patent prosecution and defense – are valuable. By attacking patents in IPRs, the value of patents is diminished because

the risks of patent validity reviews substantially increase transaction costs. This increase in costs tends to have a higher burden for market entrants. Thus, challenging patent quality adversely influences the question of the value of patented technologies and diminishes incumbent patent input prices.

Since patents are the disclosure of original inventions, anyone can use the invention after the patent has been published. In order to protect the *ex-ante* costs for the inventor, the patent right is critical to enable a return on capital.

Though there is no objective way to determine value of a patented invention, since patent valuation is largely art and science, patent value is determined by market size and growth factors. A high demand invention will be compelling in the market and enjoy a high valuation. Analyses of market size, market growth and market share components are critical to determination of patent valuation. The market value and utility of inventions depend, then, on market evolution, which is typically out of the control of one or more competitors.

In fact, most markets are structured as oligopolies, with only a few competitors with significant market share. As one company originates a market with a pioneer invention, other companies join the original competitor in the emerging market.

Market incumbents have a strong self-interest in attacking patents since it enables them to maximize profits and obtain low patent input prices. In effect, the incumbents are applying game theory in which they designed the rules based on a false narrative largely depending on a fictitious argument about patent quality that enables them to relatively cheaply attack others' patents while they can efficiently infringe patents in which R&D others have invested heavily. The relentless attack on patents, sometimes benefiting from collusion of multiple infringers attacking the validity of the same patent, enables a free ride by market incumbents. The new

rules are clearly aimed to drive up patent costs for innovators and reduce patent costs for incumbents and efficient infringers. These market distortions have the adverse effect of destabilizing the patent system and the economy. The very existence of costly IPRs represents a high asymmetric cost for innovators to re-prove their patent validity, while infringer free-riding is optimized. These facts of dramatically increased transaction costs alter valuation models for patented inventions with a bias towards infringers and away from innovators.

In the short-run anti-patent strategies promote free riding by reducing input prices. However, in the long-run, big tech incumbents are forced to pay much higher for substantial portfolios of re-proved gold-plated patents.

Clearly, then, if patents are easily challenged in the PTO with low standards for patent validity, the consequences of errors in implementation of patent validity standards are to substantially increase inventor transaction costs (thereby turning patents from assets to liabilities), to inhibit investment into technology R&D from risk-averse investors and to fundamentally constrain productivity growth, which both is driven by business investment and depends on technology investment incentives. While the winners of the disintegration of the U.S. patent system are technology multinational corporations and their Chinese manufacturers, that are enabled to infringe with impunity, the losers are capital constrained market entrants and innovative companies.

Ultimately, therefore, the myth of patent quality is a proxy for attacking start-ups and market entrants. The democratization of the American patent system has been marginalized by the introduction of high transaction costs for IPRs and patent enforcement in face of free riding efficient infringers. The politicization of patents is based on the false narrative of big tech

incumbents or anti-patent ideologues that have wrongly argued for a wholesale shift of the American patent system.

There was a time not long ago when the patent system was neutral, enabling anyone to participate and providing a level playing field for competition. Those days are gone. Now, big tech corporations attack all patents, claiming that all patents other than their own are invalid and bad quality. The key issue is one of responsibility. The problem for the patent system is that increasingly big tech incumbents prefer dramatically increasing transaction costs for market entrants to bias the playing field rather than to maintain responsibility and fairness. These big tech incumbents blatantly flaunt the law by abusing their economic power because they have manipulated the courts to weaken both patent law and antitrust law. Thus, the weak patent system was engineered by the big tech cartel to ultimately destroy incentives to invent by instituting high transaction costs on market entrants. The anti-patent rhetoric belittles the extreme difficulty of doing the heavy lifting of original research, erodes incentives to invent and burdens those that need patents the most. Big tech incumbents would rather burn down the patent system than be held responsible for infringement.

Congress and the courts need to stop listening to the false narrative of big tech anti-patent critics. Patent quality is simply a code term applied by patent critics to destabilize the patent system. So far, the history of the patent system has revealed the shifting and artificial criteria for patent validity, a proxy for patent quality. The shifting goalposts of changing law on patent standards have enabled the anti-patent critics to undermine a stable patent system. The main objective of the destabilization of patents has been the devaluation of patents of market entrants.

The modern patent system originated in Venice. At first, it worked well. But eventually, a cartel of market incumbents exercised their market power, took over the system by modifying

its rules and diminished the effectiveness of the patent system for their self-interest. The effects of these changes were disastrous as technological progress slowed and the economy floundered.

We are seeing a repeat of this market phenomenon in the U.S., with the big tech cartel suggesting falsely that diminished patent quality justifies wholesale changes to the patent system. In fact, the problem clearly lies with the cartel itself, not with the issue of patent quality. In reality, the problem is one of competition, not the patent system.