



Patent Litigation and Marketplace Report

Public Excerpt

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RPX Corporation is the leading provider of patent risk solutions, offering defensive buying, acquisition syndication, patent intelligence, insurance services and advisory services.

Since its founding in 2008, RPX has introduced efficiency to the patent market by providing a rational alternative to litigation. The San Francisco-based company's pioneering approach combines principal capital, deep patent expertise, and client contributions to generate enhanced patent buying power. By acquiring patents and patent rights, RPX helps to mitigate and manage patent risk for its client network.

As of December 31, 2018, RPX had invested over \$2.4 billion to acquire more than 43,000 US and international patent assets and rights on behalf of approximately 320 clients in eight key sectors: automotive, consumer electronics and PCs, e-commerce and software, financial services, media content and distribution, mobile communications and devices, networking, and semiconductors.

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The US patent system is often described as a pendulum, swinging between periods of change favoring first patent owners and then defendants. Just a few years ago, that arc bent toward defendants, as reforms implemented by the America Invents Act (AIA) and judicial decisions like *Alice* made it easier for companies to defend against patent suits and pushed patent prices down.

However, there are now clear signs that the pendulum is swinging back. While 2018 saw a 7% drop in US patent litigation overall, a trend evident since 2016, the rate of decline has slowed from the preceding two years.

2018 also brought significant changes to the patent ecosystem that, on balance, weighed in favor of patent plaintiffs—changes that may contribute to a reversal in the down-trend. While *inter partes* review (IPR) survived a constitutional challenge, other judicial rulings and changes implemented by the Patent Office have begun to tilt AIA review proceedings back toward patent owners. Meanwhile, some of the cases interpreting *Alice* have narrowed the decision considerably, making it much easier for plaintiffs to enforce certain types of patents that improve on existing technology, and restricted defendants' ability to bring *Alice* defensive challenges in certain cases.

Other legal trends have also favored plaintiffs. Although *TC Heartland* vastly curtailed forum-shopping in patent cases, some courts have adopted a broad reading of a related aspect of venue law that could effectively reestablish nationwide venue for companies engaged in e-commerce, while other rulings threaten to expand the scope of patent damages for some lawsuits. The past year also saw a new crop of NPEs step forward to assert patents divested from others pulling back from the market. Patent prices, meanwhile, appear to be stabilizing.

In this report, RPX provides an in-depth quantitative and qualitative analysis of these and other notable trends from 2018. This report is designed both to spark further debate about the direction of the patent system and to highlight the ways in which RPX data, analytics, and intelligence can help parties make informed decisions.

Patent Litigation Filing Activity

The number of defendants added to patent litigation campaigns in 2018 decreased slightly (about 5%) from 2017, after two years of more significant decrease (about 20% over the course of 2016 and 2017).

- Furthermore, the percentage of defendants added by NPEs decreased from 55% to 47%.

Over the past five years, the Eastern District of Texas has seen more large NPE campaigns (those hitting at least five defendants) than any other district. But in the last two years, the Eastern District of Texas has seen a significant drop in filings, largely as the result of *TC Heartland*.

- Top market sectors for NPE litigation include E-Commerce and Software (33% of defendants added by NPEs), Consumer Electronics and PCs (17%), and Networking (15%).

For operating company litigation, the top sectors are Consumer Products (42% of defendants added by operating companies) and Biotech and Pharma (21%).

Venue Trends and Legal Developments

Overall, the District of Delaware saw the most defendants added to campaigns in 2018 (about 1,000), with the Eastern District of Texas following (about 530 defendants added).

The District of Delaware and the Eastern District of Texas remain the first- and second-most popular districts for NPE litigation, continuing the trend observed since *TC Heartland*, while those districts hold the first and fifth spots for operating company litigation.

- *TC Heartland* has also continued to cause notable increases in litigation for certain districts that have historically been less popular.

District courts and the Federal Circuit have become divided over how to establish proper venue based on whether a defendant has a “regular and established place of business” in a given district.

- However, the Federal Circuit provided clarity for a variety of narrower issues related to venue in 2018, though uncertainties remain as to the law surrounding venue for foreign defendants.

Top Parties for NPE Litigation

The top plaintiffs of 2018 included multiple NPEs that have remained top filers for years, including [IP Edge LLC](#) and [Leigh M. Rothschild](#). Other NPEs that have historically been among the most prolific litigants were not among the top filers of 2018, including [Brian Yates](#) and [Acacia Research Corporation](#), although their decreased US filing activity can be explained by certain factors (including increased international litigation).

Top Parties for Operating Company Litigation

The top operating company plaintiffs of 2018 targeted various types of consumer products, including products related to personal hygiene, food preservation, and replacement cartridges.

Jury Verdicts

Nationally, six out of ten patent jury trials favor plaintiffs, with the other four favoring defendants.

- The District of Delaware and the Northern District of California closely follow this trend, while the Eastern District of Texas has historically been more balanced than the nationwide average, with about half of jury verdicts favoring defendants.
- The balanced win rates in the Eastern District of Texas can be explained by certain circumstances and rules relatively unique to that district, including its posture toward summary judgment motions.

Patent Eligibility

The Federal Circuit's decisions in *Berkheimer* and *Aatrix* have caused a shift in how courts apply *Alice* in certain cases, raising questions about whether patent eligibility will ultimately become an issue not properly raised until much closer to trial, or even later.

- Even the Federal Circuit itself remains divided as to whether those cases fundamentally changed the Section 101 analysis, while HP has appealed the ruling in *Berkheimer* to the Supreme Court.

As of December 31, 2018, district courts nationwide have cumulatively invalidated claims in about 64% of all patents challenged under *Alice* since that decision's issuance.

- Among the districts that have handed down the most *Alice* rulings per patent, Delaware has invalidated claims in 60% of the patents challenged under *Alice*, while the overall invalidation rate of the Eastern District of Texas is 50%.

Courts have issued eligibility rulings for 164 patents since the *Berkheimer* and *Aatrix* decisions. Of those patents, about 42% saw decisions in which the court addressed factual issues raised by the plaintiff.

- Courts found that no factual issues precluded judgment and then invalidated 55% of those patents, while they denied *Alice* challenges due to factual disputes for 45% of patents challenged in that period.

Meanwhile, the USPTO has made changes to the examination process to reflect recent shifts in Section 101 caselaw.

- An April 2018 memorandum on *Berkheimer* tightens the requirements for finding that a claim is not directed to “well-understood, routine, and conventional activity”.
- A new guidance, first teased by Director Andrei Iancu last September and issued on January 7, 2019, has revamped the process for assessing patents under the “abstract idea” step of *Alice*.

Damages and Injunctions

The median compensatory damages award per case (excluding default and consent judgments) in NPE litigation from 2013 through 2018 is just over \$2M—meaning that the same number of cases reached awards less than that amount as did those that saw awards exceeding it.

- For NPEs, the 75th percentile is \$14.2M, and the 90th percentile is about \$44M; while for operating companies, the percentiles are lower at a median of \$2.1M, 75th percentile of \$16.3M, and 90th percentile of \$76M.

Since 2013, only about 400 requests for injunctions have been fully briefed and adjudicated.

- The Eastern District of Texas grants injunctions at a far lower rate (23%) than the District of Delaware (62%) or the Northern District of California (49%).
- Across other districts, about four in ten requests for injunctions have been granted since 2013.
- A more granular analysis addresses the timing of rulings on injunctions and the market sectors in which they are most frequently granted.

PTAB Developments

PTAB filing levels were comparable to those seen in 2017, with 1,719 petitions for AIA review filed in all of 2018—a mere 4.5% decrease from the previous year.

While the Supreme Court upheld IPR's Article III constitutionality in *Oil States*, its decision in *SAS Institute* that banned partial institution decisions has increased the PTAB's workload enough to force a hike in AIA trial fees.

Meanwhile, additional constitutional challenges not foreclosed by *Oil States* remain pending before the Federal Circuit, including an argument that the retroactive application of IPR to pre-AIA patents is a violation of due process.

The Federal Circuit's *Click-to-Call* decision—finding that defendants still have only one year to challenge an asserted patent after being sued, even when they are dismissed without prejudice—places additional pressure on defendants considering whether to file IPR petitions, and has raised the possibility that NPEs will try to unfairly leverage the decision to their advantage.

- RPX data reveals that NPEs dismiss cases without prejudice at a notably high rate, indicating that concerns over gamesmanship (where an NPE would dismiss a lawsuit without prejudice only to refile it against the same defendant after the one-year IPR window has closed) are not unfounded.

Allergan and the [Saint Regis Mohawk Tribe](#) have asked the Supreme Court to review the Federal Circuit's decision that Native American tribes' sovereign immunity does not apply to IPR, halting the petitioners' controversial patent-shielding strategy.

The USPTO has issued a series of controversial reforms that could make IPR more favorable to patent owners: a proposed new process for claim amendments could give patent owners more chances to reshape their claims to avoid invalidation, while the change to the narrower *Philips* claim construction standard for AIA reviews could make claims ultimately harder to invalidate.

Patenting

An analysis of data from the USPTO's Cooperative Patent Classification (CPC) system, used to organize patent documents into specific technology groupings, reveals that the largest percentage increase from 2014 to 2018 was "GENERATION; CONVERSION OR DISTRIBUTION OF ELECTRIC POWER". The CPC subsection with the largest percentage decrease during that period was "MICROSTRUCTURAL TECHNOLOGY; NANOTECHNOLOGY".

Patent Marketplace and Pricing

Throughout 2018, the divestiture of patents by [Intellectual Ventures LLC](#) (IV) continued to be a driver of new litigation, with NPEs asserting divested IV assets launching a variety of notable litigation campaigns in the past year. The most prominent NPEs asserting former IV assets include subsidiaries and/or affiliates of [Dominion Harbor Enterprises LLC](#) and [IPValuation Partners LLC](#) (d/b/a IPVal).

Multiple campaigns were also launched in the second half of 2018 over patents developed by South Korea's [Electronics and Telecommunications Research Institute](#) (ETRI). At least two of those plaintiffs are purportedly the exclusive licensees of the patents-in-suit—an arrangement that has yielded mixed results for ETRI and its licensees in the past.

Price per patent in RPX-acquired portfolios dropped by double digits from 2013 through 2017, but has stabilized in 2018.

Federal Circuit Filing Trends

Federal Circuit cases peaked in 2016, a year after a corresponding peak in district court filings. For the last several years, the Federal Circuit has averaged about 1,000 cases per year, with 975 cases filed in 2018.

Just under half of Federal Circuit appeals originate from cases in district court, followed by the PTAB (just under 40%).

NPE cases comprise about half of all Federal Circuit appeals.

Most Federal Circuit appeals involve appellants that have filed fewer than five total appeals, while top appellants—the small number of parties that filed more than 11 appeals each—account for just a fifth of the court's total caseload.

Chinese Litigation Overview and Outcomes

Patent litigation in China differs markedly from the US system with respect to the structure of its patent system, litigation procedure, and available remedies.

RPX data on Chinese patent litigation outcomes shows that plaintiffs win the majority of cases that reach a merit-based outcome, while defendants get a “clean win” (a win on all asserted patents and claims) only about 20% of the time. Roughly 20–30% of cases involve a mixed outcome (often where multiple patents or claims are at issue).

Damages awarded in China are much lower than those seen in US patent cases, with the overwhelming majority amounting to \$100K or less.

In contrast, injunction rates are much higher in Chinese patent cases than for those in the US. When the plaintiff prevails (either outright or in a mixed-outcome judgment), an injunction is issued more than 90% of the time. Chinese injunctions also present greater risk for defendants with supply chains in China, as they can also block export of patented articles.

Section 101, *Alice*, and *Berkheimer*

Section 101, *Alice*, and *Berkheimer*

The past year brought a variety of substantive and procedural changes to the law governing patent subject matter eligibility. In February, the Federal Circuit's decisions in *Berkheimer v. HP* and *Aatrix Software v. Green Shades Software* threatened defendants' ability to bring early *Alice* challenges, holding that Rule 12 and summary judgment motions brought under Section 101 cannot be granted if the plaintiff properly raises a factual dispute over whether a patent contains an inventive concept. Courts remain divided as to the impact of those decisions, which have already begun to affect eligibility rulings. Meanwhile, the Patent Office has revised its examination procedures for Section 101, refining the "inventive concept" analysis in response to *Berkheimer* and revamping the "abstract idea" analysis to better reflect the controlling caselaw.

***Berkheimer* and *Aatrix*: The End of the Early *Alice* Challenge?**

Patent eligibility challenges became a common defensive tool after the Supreme Court's 2014 *Alice* decision, which has allowed many defendants to reduce their legal expenses by bringing such motions earlier in the course of litigation.

Although subsequent caselaw has since narrowed the metes and bounds of *Alice* in key respects, those early challenges remained routine until February 2018.

That month, the [Federal Circuit held](#) in *Berkheimer* that summary judgment of patent ineligibility is premature where a party raises questions of fact as to whether the patent's claims contain an inventive concept, as required for the claims to survive the second step of *Alice*. The court applied this same reasoning later that month in its [companion ruling](#) in *Aatrix*, holding that such factual disputes could also preclude resolution of 101 challenges at the Rule 12 stage. *Berkheimer* and *Aatrix* have since raised questions about whether patent eligibility will ultimately become an issue not properly raised until much closer to trial, or even later.

The *Berkheimer* and *Aatrix* decisions have also ignited a debate over the underlying nature of the Section 101 analysis itself, as well as over the role that factual issues should play in the analysis.

Prior precedent followed the core premise that patent eligibility is a question of law, with subsidiary factual issues playing a role in the inventive concept analysis but not serving as a threshold issue, and the Federal Circuit has itself become divided as to whether *Berkheimer* represents a departure from that precedent. Circuit Judge Jimmie Reyna has forcefully argued that it does,

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emphasizing in an opinion issued alongside the majority holding in *Aatrix* that patent eligibility is purely a legal question and criticizing the majority for "attempt[ing] to shoehorn a significant factual component into the *Alice* § 101 analysis". In contrast, Circuit Judge Kimberly Moore—who authored the court's opinion in *Berkheimer* and the majority opinion in *Aatrix*—has asserted (in a concurrence issued alongside the Federal Circuit's [decision not to rehear](#) the two cases *en banc*) that the holdings are "narrow" and that they "stand for the unremarkable proposition that whether a claim element or combination of elements would have been well-understood, routine, and conventional to a skilled artisan in the relevant field at a particular point in time is a question of fact."

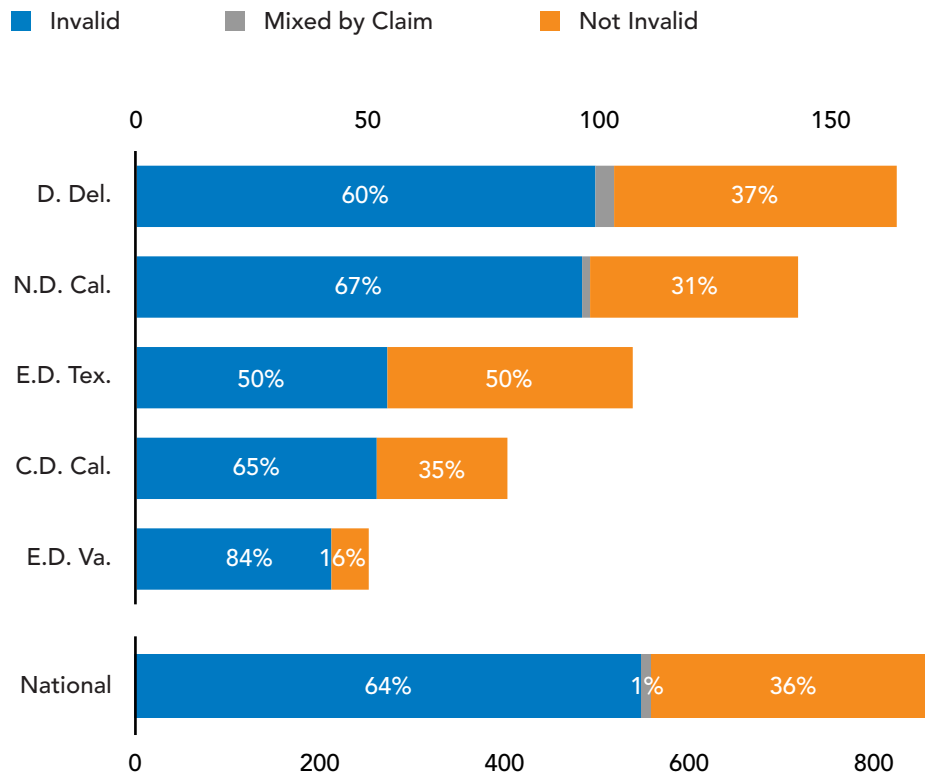
That debate may soon come before the Supreme Court, which on January 7, 2019 requested the views of US Solicitor General Noel Francisco as to the [certiorari petition](#) filed by HP last September in the *Berkheimer* case.

In that petition, HP framed the core issue as the nature of the *Alice* test itself, arguing that precedent clearly dictates that the test is first and foremost a question of law. HP further argues that the Federal Circuit erred by converting the Section 101 analysis into a factual analysis, by "conflat[ing] non-routineness with an inventive concept", and by improperly injecting novelty into the eligibility analysis—whereas patent eligibility does not change over time based on the state of the art. The appellee in that case, inventor [Steven E. Berkheimer](#), has in response attempted to frame the issue as limited to the procedural, case-specific question of whether "additional fact-finding was necessary" to determine if the claims at issue constituted "well-understood, routine, [and] conventional activity" under *Mayo* and *Alice*.

Data Update: Alice Outcomes Since *Berkheimer* and *Aatrix*

As courts and parties continue to adjust to *Berkheimer* and *Aatrix*, RPX data indicates that as of December 31, 2018, district courts nationwide have cumulatively invalidated claims in about 64% of all patents challenged under *Alice* since that decision’s issuance. Figure 1 below compares the nationwide invalidation rate to those for the districts that have issued the most *Alice* rulings by patent. Of those districts, Delaware’s overall invalidation rate remains close to the national average at 60%, while the Eastern District of Texas unsurprisingly has a lower overall invalidation rate of 50%.

Figure 1: Top Districts (and National Breakdown) by Patents Challenged Under Section 101, Decisions Issued Since *Alice* and Through 2018



A further breakdown by case stage shows that of the patents that have seen rulings under *Alice*, courts invalidate about two thirds of patents challenged under Rule 12 and around 56% through motions for summary judgment.

Additionally, a breakdown by district shows that Delaware invalidates 56% of patents challenged under Rule 12 and 63% of patents challenged under summary judgment. Notably, the Eastern District of Texas grants Rule 12 motions at a higher rate than the national average, at 68%, but grants summary judgment just 19% of the time—far less than the national average.

Figure 2: Patents Challenged Under Section 101 by Procedural Route, Decisions Issued Since *Alice* and Through 2018

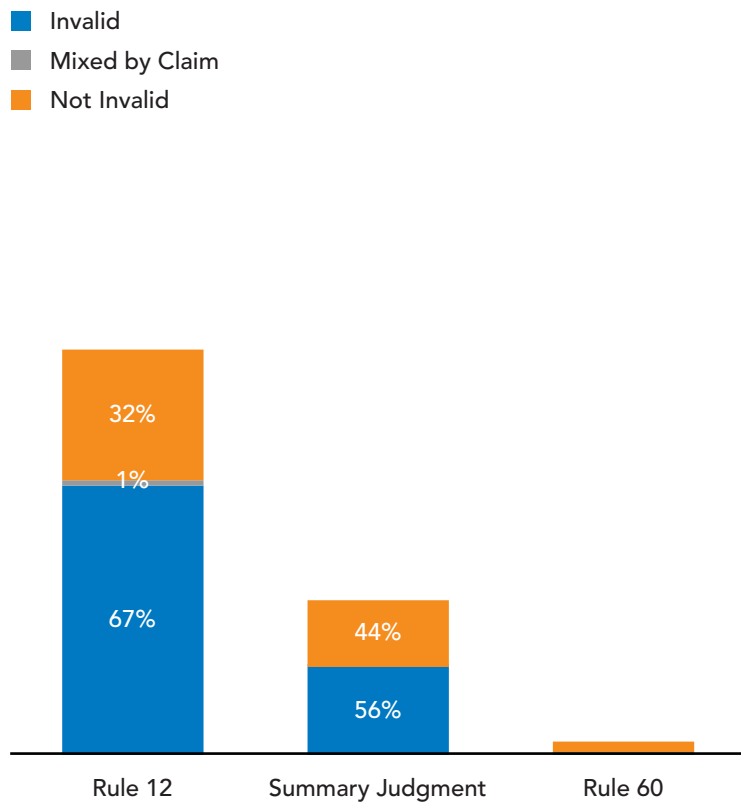
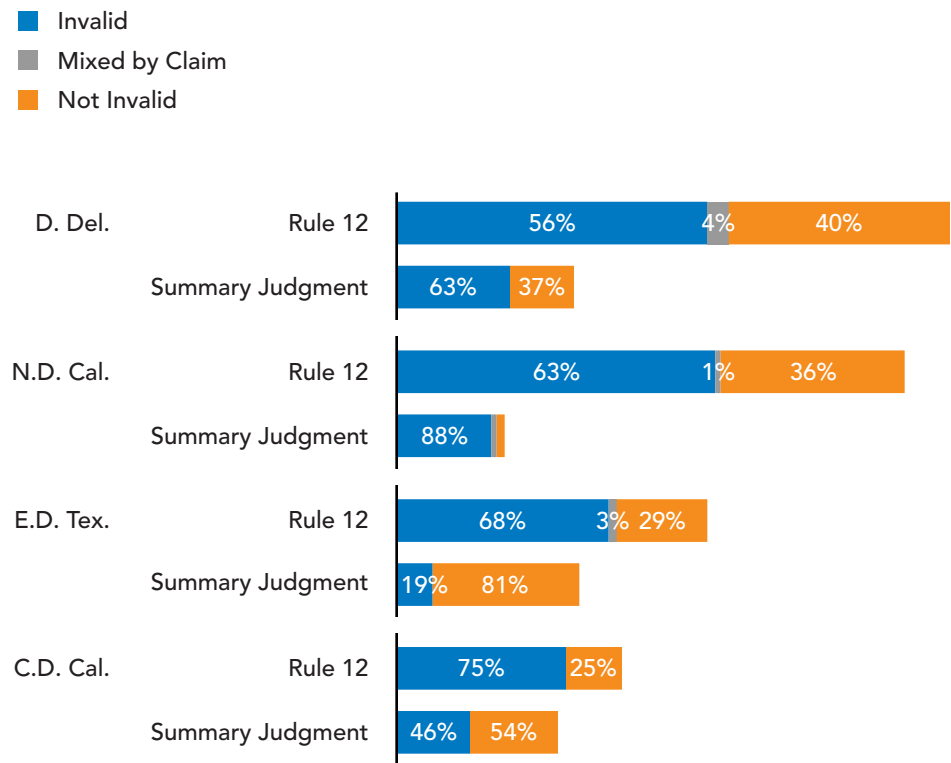


Figure 3: Patents Challenged Under Section 101 by District and Procedural Route, Decisions Issued Since *Alice* and Through 2018



Additionally, for *Alice* rulings issued after *Berkheimer* in 2018 (thus including decisions citing the later-issued *Aatrix*), the overall invalidation rate was 47%. Out of the 164 patents that have seen rulings on their eligibility within that period, 61 of those patents (around 37.2%) saw decisions that turned on *Berkheimer* and *Aatrix*, where a plaintiff asserted that a factual issue precluded early resolution and the order actually addressed that issue.

Courts found that no factual issues precluded judgment (and also found the patents invalid) for the majority of those adjudicated patents (35 patents, or 57.4%),¹ while they denied *Alice* challenges due to factual disputes for 26 of those patents (or about 42.6%). Thus, 15.8% of all *Alice* challenges that were decided after *Berkheimer* in 2018 were denied due to *Berkheimer* or *Aatrix*.

Furthermore, of the *Alice* challenges where *Berkheimer* or *Aatrix* has been raised that were decided in 2018, the vast majority have been at the Rule 12 stage: 45 of those patents were challenged under Rule 12, or 73.8% of the total number; while just 16 patents were challenged through motions for summary judgment, or 26.2%.

Patents challenged under Rule 12 are also far more likely to be upheld despite the plaintiff asserting that *Berkheimer* or *Aatrix* preclude judgment: Of the 35 patents held invalid in 2018 despite *Berkheimer* and *Aatrix*, 32 were challenged under Rule 12, and just three were challenged under summary judgment.

However, patents for which factual disputes precluded judgment were evenly split between the two stages. Courts declined to grant Rule 12 challenges for this reason for 13 patents, and at the summary judgment stage denied motions for summary judgment for 13 patents as well.

USPTO Reforms Since *Berkheimer* and *Aatrix*

The USPTO updated its examination procedures and guidelines in 2018 to reflect the current state of Section 101 jurisprudence. Specifically, the Patent Office issued an April 2018 memorandum on the “inventive concept” analysis issued in response to *Berkheimer* and a revised guidance on Section 101 in January 2019—both of which shift the balance towards the patentee in prosecution and litigation.

The *Berkheimer* Memorandum

Following the issuance of the *Berkheimer* decision, the USPTO issued a [memorandum](#) for examiners in April 2018 that addressed the effect of that opinion on Step 2B of the examination process, which encompasses step two of the *Alice* analysis. The memorandum states that for the “inventive concept” analysis, an examiner must now show specific evidence for a determination that a claimed limitation amounts to a “well-understood, routine, and conventional activity”—evidence that can include prior art. Here, the USPTO tightened the evidentiary requirements for such a determination by an examiner, clarifying that the cited prior art cannot just disclose the element at issue, as for a 102 or 103 analysis; rather, it must show that the element is “widely prevalent or in common use in the relevant industry”.

This shift effectively created a presumption that an element amounts to “significantly more” absent a specific showing to the contrary and could theoretically reduce the subjectivity of the “inventive concept” analysis. Since the date of the *Berkheimer* memorandum, a greater number of patent applicants have reportedly chosen to fight Section 101 rejections through appeals to the PTAB, historically a lesser-used avenue for fighting rejections.² While this increase in appeals has led to an increase in the reversal rate for those rejections in the months after that memorandum was released, that reversal rate has apparently since stabilized at around 15%, according to Anticipat³—well below the reversal rates in the 20–30% range seen in from August 2016 to April 2017.⁴

However, the full impact of the *Berkheimer* memorandum on prosecution may not be seen until applications drafted with the memorandum’s criteria in mind in the first instance finish making their way through the examination process.

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January 2019 Eligibility Guidance

The Patent Office has also recently taken steps to refine the examination process with respect to the first step of *Alice*. On January 7, 2019, as first promised by Director Andrei Iancu in September 2018, the USPTO published a new [guidance](#) for examiners on Section 101, focusing primarily on the determination of whether a patent is directed to an abstract idea.

Among the most notable changes are those made to examination Step 2A (encompassing the first step of *Alice*), which has now been broken down into two sub-parts: a first part where the examiner must determine if a claim is directed to an abstract idea or other judicial exception; and, if so, whether the claim contains a “practical application” of that idea, in which case it is not abstract.

Step 2A, Sub-Step 1

For the first sub-step, the Patent Office purports to have synthesized the various types of subject matter found by courts to be abstract into three categories, and establishes that any claim falling within those categories is abstract: “[m]athematical concepts”, including “mathematical relationships, mathematical formulas or equations, [and] mathematical calculations”; “[c]ertain methods of organizing human activity”, including “fundamental economic principles or practices”, “commercial or legal interactions”, and “managing personal behavior or relationships or interactions between people”; and “[m]ental processes”, namely “concepts performed in the human mind (including an observation, evaluation, judgment, [or] opinion)”.

See the [table](#) at the end of this section for an overview of the cases cited by the USPTO as the bases for these categories.

Where claims do not recite matter in those categories, they “should not be treated as reciting abstract ideas”, except when the examiner can convince the Technology Center Director otherwise. This expanded framework replaces a shorter set of criteria for the abstractness analysis—a “Eligibility Quick Reference Sheet Identifying Abstract Ideas”⁵—previously made available to examiners.

Step 2A, Sub-Step 2

Next, for the second sub-step, the guidance lays out a revised set of criteria for determining if a claim is “directed to” an abstract idea or another judicial exception. A claim is not so directed if it integrates the judicial exception into a “practical application” of that idea, meaning that it implements that idea “in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception”. As with the above criteria for evaluating abstractness, the guidance draws on judicial opinions (as well as other USPTO publications citing those decisions) to provide examples of “additional elements” that save the claim at step one of *Alice*. These examples include:

- Claim elements that provide an “improvement in the functioning of a computer” or other technology (citing [MPEP 2106.05\(a\)](#), which lists several exemplary Federal Circuit decisions where such claims survived;⁶ and an April 2018 USPTO memorandum (the “*Finjan* Memorandum”) that highlighted two other Federal Circuit decisions that upheld patents containing such improvements with respect to antimalware technology and graphical user interfaces;⁷
- Claim element(s) that apply a “judicial exception to effect a particular treatment or prophylaxis for a disease or medical condition”;⁸
- Claim element(s) that “implement...a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or manufacture that is integral to the claim”, citing primarily [MPEP 2106.05\(b\)](#);⁹
- Claim element(s) that “effect...a transformation or reduction of a particular article to a different state or thing”, citing the example from *Diamond v. Diehr* of a process that uses a mathematical algorithm to control a mold in order to transform “raw, uncured synthetic rubber into precision-molded rubber products”, as well as [MPEP 2106.05\(c\)](#); and

- A catch-all category where the claim(s) apply or use “the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception”—again citing the example of *Diehr*, in the context of the specific combination of steps (“including installing rubber in a press, closing the mold, constantly measuring the temperature in the mold, and automatically opening the press at the proper time”) that, together, amount to more than just a patent on the mathematical formula used.¹⁰

Unlike the three abstract idea categories, however, the guidance states that the above-listed examples of a “practical application” are non-exhaustive. Furthermore, the revised guidance “specifically excludes consideration of whether the additional elements represent well-understood, routine, conventional activity”. That analysis, instead, is now to be confined to examination Step 2B (or *Alice* step two), the consideration of whether a claim contains an inventive concept, or whether the claim contains “significantly more” than the abstract idea. Step 2B is relatively unchanged from the prior guidance, and refers back to the *Berkheimer* memorandum.

The guidance has led some observers to assume that it is intended to reduce Section 101 rejections—particularly for software patent applications.

The January revised guidance is not binding on examiners or the PTAB, and courts are unlikely to defer to the guidelines when reviewing a patent’s eligibility *de novo* in light of growing judicial skepticism toward the doctrine of *Auer* deference, under which an agency is given deference in its interpretation of its own regulations. (The Supreme Court agreed to review the constitutionality of this doctrine in December.)

Nonetheless, the guidance has led some observers to assume that it is intended to reduce Section 101 rejections—particularly for software patent applications, since revised Step 2A’s “mental processes” abstract idea category could arguably make it easier to patent such applications where claims are directed to processes that cannot be performed in the human mind.

In any event, the USPTO has since clarified—in a January 10 webinar—there is no “intent to expand” rejections under Section 101 through the new guidance (emphasis added). Rather, the guidance is merely intended to help “examiners and applicants...come to agreement easier and quickly” with respect to eligibility issues despite the complicated state of the law in this area.

Finally, the revised guidance has begun to impact eligibility proceedings before the PTAB. On January 10, the PTAB ordered the parties in an ongoing covered business method review (*Fidelity Information Services et al v. Mirror Imaging*, [CBM2017-00064](#)) to submit briefing to address the guidance’s impact on the Section 101 arguments asserted by petitioner Fidelity

Information Services. Patent owner [Mirror Imaging L.L.C.](#) has since [argued](#), in part, that the Board’s institution decision runs counter to the new guidance, as it addressed conventionality in the context of *Alice* step one (whereas the guidance stated that such arguments should be limited to the “inventive concept” analysis), thus barring Fidelity from offering expert testimony or prior art on that issue. Fidelity has [responded](#) that since the revised guidance, by its own terms, applies existing law, it cannot change the outcome of the proceeding.

- 1 To date, in each decision where a court has found that factual issues do not preclude judgment under *Alice*, it has also found the challenged patent claim(s) invalid.
- 2 See “Section 101 *Alice* (Abstract Idea) Appeal Decisions Surge, but Reversal Rate Stays Steady”, *Anticipat Blog* (Jan. 1, 2018) (available at <https://blog.anticpat.com/2019/01/01/section-101-alice-abstract-idea-appeal-decisions-surge-but-reversal-rate-stays-steady/>).
- 3 *Id.*
- 4 See “The PTAB quietly hit a milestone in June in reversing *Alice* Section 101 rejections”, *Anticipat Blog* (July 26, 2018) (available at <https://blog.anticpat.com/2018/07/26/the-ptab-quietly-hit-a-milestone-in-june-in-reversing-alice-section-101-rejections/>).
- 5 Last updated in July 2018; available at <https://www.uspto.gov/sites/default/files/documents/ieg-qrs.pdf>.
- 6 See *DDR Holdings v. Hotels.com* (Fed. Cir. 2014, [2013-1505](#)) (holding that claims were directed to “modification of conventional Internet hyperlink protocol to dynamically produce a dual-source hybrid webpage”, as summarized by the USPTO), *Enfish v. Microsoft* (Fed. Cir. 2016, [2015-1244](#)) (claims directed to a self-referential database that “improved the way the computer stores and retrieves data in memory in combination with [a] specific data structure”), *BASCOM Global Internet v. AT&T Mobility* (Fed. Cir. 2016, [2015-1763](#)) (claims directed to an “[i]nventive distribution of functionality within a network to filter Internet content”), *Research Corporation Technologies v. Microsoft* (Fed. Cir. 2010, [2010-1037](#)) (claims directed to a “method of rendering a halftone digital image”), *Amdocs v. Openet Telecom* (Fed. Cir. 2016, [2015-1180](#)) (claims directed to a “distributed network architecture operating in an unconventional fashion to reduce network congestion while generating networking accounting data records”), *Visual Memory v. NVIDIA* (Fed. Cir. 2017, [2016-2254](#)) (claims directed to a “distributed network architecture operating in an unconventional fashion to reduce network congestion while generating networking accounting data records”), and *Apple v. Ameranth* (Fed. Cir. 2016, [2015-1703](#)) (claims directed to a “particular way of programming or designing software to create menus”); but see *TLI Communications v. AV Automotive* (Fed. Cir. 2016, [2015-1372](#)) (claims directed to “[t]echnical details as to how to transmit images over a cellular network or append classification information to digital image data”, but held invalid under *Alice* step one because they “fail to provide requisite technical details necessary to carry out the function”, and also under step two, as the “[p]articular structure of a server that stores organized digital images” found in the claims constitutes merely the use of a generic server, insufficient to add an inventive concept).
- 7 See *Finjan v. Blue Coat Systems* (Fed. Cir. 2018, [2016-2520](#)) (antimalware patent held eligible for claiming an improvement in computer functionality through a method that “generates a security profile that identifies both hostile and potentially hostile operations, and can protect the user against both previously unknown viruses and ‘obfuscated code’”, as summarized by the USPTO) and *Core Wireless Licensing v. LG Electronics* (Fed. Cir. 2018, [2016-2684](#)) (graphical user interface claims found eligible for “contain[ing] precise language delimiting the type of data to be displayed and how to display it, thus improving upon conventional user interfaces to increase the efficiency of using mobile devices”).
- 8 See, e.g., *Classen Immunotherapies, Inc. v. Biogen IDEC* (Fed. Cir. 2011, [2006-1634, -1649](#)); see also *Vanda Pharmaceuticals v. West-Ward Pharmaceuticals* (Fed. Cir. 2018, [2016-2707, -2708](#)).
- 9 MPEP 2106.05(b) summarizes certain primary criteria for evaluating claims’ integration of a machine or “apparatus”, including its “particularity or generality” (where a specifically identified machine that relies on a judicial exception is more likely to be sufficient, such as a certain type of antenna and conductor system dependent on “standing wave phenonoma” or a Fourdrinier machine dependent on gravity; but a general-purpose computer is not); whether the machine is “integral” to the performance of the claims, as opposed to merely serving as “an object on which the method operates”; and the extent to which the use of the machine meaningfully limits the claim(s).
- 10 See also MPEP 2106.5(e) (Aug. 2017), available at https://www.uspto.gov/web/offices/pac/mpep/s2106.html#ch2100_d29a1b_13d61_1a8.

“Abstract Idea” Categories and Supporting Caselaw from January 2019 USPTO Section 101 Guidance

The table below shows the three categories of patent subject matter listed by the USPTO that always constitute “abstract ideas”, the cases cited as supporting authority for these categories, and a brief description of each case’s holding. For the summarized holdings, the quoted language is from the original cases, and surrounding characterizations are taken directly from the USPTO’s footnotes (modified for formatting).

a) “Mathematical Concepts – mathematical relationships, mathematical formulas or equations, mathematical calculations”

Case	Relevant Holding(s) as Cited by USPTO
<i>Bilski v. Kappos</i> (S. Ct. 2010)	“The concept of hedging...reduced to a mathematical formula...is an unpatentable abstract idea”.
<i>Diamond v. Diehr</i> (S. Ct. 1981)	“A mathematical formula as such is not accorded the protection of our patent laws” (citing <i>Gottschalk v. Benson</i> (S. Ct. 1972)).
<i>Parker v. Flook</i> (S. Ct. 1978)	“[T]he discovery of [a mathematical formula] cannot support a patent unless there is some other inventive concept in its application.”
<i>Gottschalk v. Benson</i> (S. Ct. 1972)	Concluding that permitting a patent on the claimed invention “would wholly pre-empt [a] mathematical formula and in practical effect would be a patent on the algorithm itself”.
<i>Mackay Radio & Telegraph v. Radio Corp. of America</i> (S. Ct. 1939)	“[A] scientific truth, or the mathematical expression of it, is not patentable invention”.
<i>SAP America v. InvestPic</i> (Fed. Cir. 2018, 2017-2081)	Claims related to a “series of mathematical calculations based on selected information” are directed to abstract ideas.
<i>Digitech Image Technologies v. Electronics for Imaging</i> (Fed. Cir. 2014, 2013-1600)	Holding that claims to a “process of organizing information through mathematical correlations” are directed to an abstract idea.
<i>Bancorp Services v. Sun Life Assurance Company of Canada</i> (Fed. Cir. 2012, 2011-1467)	Identifying the concept of “managing a stable value protected life insurance policy by performing calculations and manipulating the results” as an abstract idea.

b) "Certain methods of organizing human activity – fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions)"

Case	Relevant Holding(s) as Cited by USPTO
<i>Alice v. CLS Bank</i> (S. Ct. 2014)	Concluding that use of a third party to mediate settlement risk is a "fundamental economic practice" and thus an abstract idea; and Describing the concept of risk hedging identified as an abstract idea in <i>Bilski v. Kappos</i> (S. Ct. 2010) as "a method of organizing human activity".
<i>Bilski v. Kappos</i> (S. Ct. 2010)	Concluding that hedging is a "fundamental economic practice" and therefore an abstract idea.
<i>Bancorp Services v. Sun Life Assurance Company of Canada</i> (Fed. Cir. 2012, 2011-1467)	Concluding that "managing a stable value protected life insurance policy by performing calculations and manipulating the results" is an abstract idea.
<i>Inventor Holdings v. Bed Bath & Beyond</i> (Fed. Cir. 2017, 2016-2442)	Holding that concept of "local processing of payments for remotely purchased goods" is a "fundamental economic practice, which <i>Alice</i> made clear is, without more, outside the patent system".
<i>OIP Technologies., Inc. v. Amazon.com, Inc.</i> , (Fed. Cir. 2015, 2012-1696)	Concluding that claimed concept of "offer-based price optimization" is an abstract idea "similar to other 'fundamental economic concepts' found to be abstract ideas by the Supreme Court and this court".
<i>buySAFE, v. Google</i> (Fed. Cir. 2014, 2013-1575)	Holding that concept of "creating a contractual relationship—a 'transaction performance guaranty'" is an abstract idea.
<i>In re: Comiskey</i> , (Fed. Cir. 2009)	Claims directed to "resolving a legal dispute between two parties by the decision of a human arbitrator" are patent ineligible.
<i>Ultramercial v. Hulu</i> (Fed. Cir. 2014, 2010-1544)	Holding that claim "describ[ing] only the abstract idea of showing an advertisement before delivering free content" is ineligible.
<i>In re: Ferguson</i> , (Fed. Cir. 2009)	Holding methods "directed to organizing business or legal relationships in the structuring of a sales force (or marketing company)" to be ineligible.

Credit Acceptance v. Westlake Services (Fed. Cir. 2017, [2016-2001](#))

“The Board determined that the claims are directed to the abstract idea of ‘processing an application for financing a purchase.’...We agree”.

Interval Licensing v. AOL, (Fed. Cir. 2018, [2016-2502](#))

Concluding that “[s]tanding alone, the act of providing someone an additional set of information without disrupting the ongoing provision of an initial set of information is an abstract idea”; and

Observing that the district court “pointed to the nontechnical human activity of passing a note to a person who is in the middle of a meeting or conversation as further illustrating the basic, longstanding practice that is the focus of the [patent-ineligible] claimed invention”.

Voter Verified v. Election Systems & Software (Fed. Cir. 2018, [2017-1930](#))

Finding the concept of “voting, verifying the vote, and submitting the vote for tabulation”, a “fundamental activity” that humans have performed for hundreds of years, to be an abstract idea.

In re: Smith (Fed. Cir. 2016, 2015-1664)

Concluding that “[a]pplicants’ claims, directed to rules for conducting a wagering game” are abstract.

c) "Mental processes":
 "concepts performed in the human mind..."

USPTO Explanatory Notes:

- "If a claim...covers performance in the mind but for the recitation of generic computer components, then it is still in the mental processes category unless the claim cannot practically be performed in the mind."
- The "performance of a claim limitation using generic computer components does not necessarily preclude the claim limitation from being in the mathematical concepts grouping [(Benson)]...or the certain methods of organizing human activity grouping [(Alice)]".

Case	Relevant Holding(s) as Cited by USPTO
<i>Intellectual Ventures v. Symantec</i> (Fed. Cir. 2016, 2015-1769)	"[W]ith the exception of generic computer-implemented steps, there is nothing in the claims themselves that foreclose them from being performed by a human, mentally or with pen and paper."
<i>Mortgage Grader v. First Choice Loan Services</i> (Fed. Cir. 2016, 2015-1415)	Holding that computer-implemented method for "anonymous loan shopping" was an abstract idea because it could be "performed by humans without a computer".
<i>Versata Development Group v. SAP America</i> (Fed. Cir. 2015, 2014-1194)	"Courts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person's mind."
<i>CyberSource v. Retail Decisions</i> (Fed. Cir. 2011)	Holding that the incidental use of "computer" or "computer readable medium" does not make a claim otherwise directed to process that "can be performed in the human mind, or by a human using a pen and paper" patent eligible); and Distinguishing <i>Research Corp. Technologies v. Microsoft</i> (Fed. Cir. 2010), and <i>SiRF Technology v. International Trade Commission</i> (Fed. Cir. 2010), as directed to inventions that "could not, as a practical matter, be performed entirely in a human's mind".

"...(including an observation, evaluation, judgment, opinion".

Case	Relevant Holding(s) as Cited by USPTO
<i>Mayo Collaborative Services v. Prometheus Laboratories</i> (S. Ct. 2012) and <i>Parker v. Flook</i> (S. Ct. 1978)	"[M]ental processes[] and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work'" (both quoting <i>Gottschalk v. Benson</i> (S. Ct. 1972)).

<i>Gottschalk v. Benson</i> (S. Ct. 1972)	Noting that the claimed “conversion of [binary-coded decimal] numerals to pure binary numerals can be done mentally”; <i>i.e.</i> , “as a person would do it by head and hand”.
<i>Synopsys v. Mentor Graphics</i> (Fed. Cir. 2016, 2015-1599)	Holding that claims to the mental process of “translating a functional description of a logic circuit into a hardware component description of the logic circuit” are directed to an abstract idea, because the claims “read on an individual performing the claimed steps mentally or with pencil and paper”.
<i>Mortgage Grader v. First Choice Loan Services</i> (Fed. Cir. 2016, 2015-1415)	Concluding that concept of “anonymous loan shopping” is an abstract idea because it could be “performed by humans without a computer”.
<i>Versata Development Group v. SAP America</i> (Fed. Cir. 2015, 2014-1194)	“Courts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person’s mind”.
<i>In re: BRCA1 & BRCA2-Based Hereditary Cancer Test Patent Litigation</i> (Fed. Cir. 2014, 2014-1361)	Concluding that concept of “comparing BRCA sequences and determining the existence of alterations” is an “abstract mental process”.
<i>In re Brown</i> (Fed. Cir. 2016, 2015-1852) (non-precedential)	Claim limitations “encompass the mere idea of applying different known hair styles to balance one’s head. Identifying head shape and applying hair designs accordingly is an abstract idea capable, as the Board notes, of being performed entirely in one’s mind”.

Data and Methodology

RPX continuously strives to improve the accuracy and scope of its data and may make minor changes to the methodology and underlying data used in future analyses and reports. In addition, certain aspects of our methodology—such as the treatment of severances and consolidations, updates to entity data, and the identification of transactions based on recorded assignments—may result in slight changes to our data as time passes.

General Methodologies

NPE Definition

For the purposes of this report, the following are considered NPEs:

- Patent assertion entities (PAEs): entities believed to earn revenue predominantly through asserting patents
- Universities and research institutions
- Individual inventors
- Non-competing entities (NCEs): operating companies asserting patents outside their areas of products or services

NPE Identification

RPX identifies NPEs through a manual review process performed by experienced employees with sophisticated knowledge of the patent industry.

The process includes searching for evidence of operating or patent monetization activities on the Internet, including company websites; reviewing complaints, including allegations regarding products and/or services purportedly sold by the patent owner; consideration of the outside counsel employed by the entity (in particular, assessing whether that counsel has a history of representing NPEs); and reviewing public filings, including state incorporation records, USPTO assignment data, corporate disclosure statements filed in litigation, and securities filings.

While there are elements of subjectivity in this approach, we believe that the process is robust based on feedback from other patent professionals.

NPE Roll-Up

RPX's proprietary litigation database rolls up certain related NPEs to a single NPE entity. The company manually identifies these relationships by regularly reviewing public records, including state incorporation filings, corporate disclosures, and patent assignment data. As a result, all litigation filed by subsidiaries of a given NPE are attributed to its ultimate parent, both in RPX's litigation database and in this report.

Corporate Families

RPX has developed a proprietary database of corporate families. All entities in a corporate family are generally treated as a single unique entity. To the extent that multiple members of a corporate family are defendants in a lawsuit, RPX counts those entities as a single defendant. Corporate families may also change over time. For example, M&A activity may result in the consolidation of entities.

Cases

"Cases filed" refers to filed actions. A single case filed may include multiple defendants. The date for a case filed is the date that it was originally filed.

The date for determining total defendants added and unique defendants added is the date that a defendant was added to a case. This date may differ from the date the case was originally filed. For example, defendants added in amended complaints may be shown as having been added on a different date than the case's original filing date.

Litigation Campaigns

A "litigation campaign" is a group of cases (including district court, PTAB, ITC, Federal Circuit, and Chinese patent litigation) involving the same ultimate parent plaintiffs and one or more patents from the same family.

"Campaigns filed" refers to unique campaigns.

"Defendants added" counts new litigation by the total number of campaign-defendant pairings. Defendants are counted as added both through original and amended complaints, and transfers and litigation in multiple districts (with the same parties and patents) are not over-counted.

Market Sector Classifications

RPX has created a proprietary list of market sectors. The company manually categorizes each case filed into a market sector based on a review of the accused products, defendants, and asserted patents.

Declaratory Judgment Actions

Declaratory judgment actions are excluded unless otherwise expressly noted.

Section 101 and Alice

RPX's *Alice* data comprises a human-reviewed set of *Alice* orders separated by patent, culled from a raw database of cases automatically identified as citing to the Supreme Court's *Alice* ruling. The dataset includes district court orders addressing *Alice* challenges on the merits (excluding, for example, denials due to the need for claim construction, since those denials amount to a holding that the court needs additional information regarding what is claimed in the patent before it can address an *Alice* challenge). The dataset does not include orders on eligibility challenges asserting that patents are invalid as directed to natural law.

PTAB Proceedings

RPX's data on America Invents Act review proceedings includes all *inter partes* reviews, Covered Business Method reviews, and post-grant reviews made available through the Patent Trial and Appeal Board's End to End (E2E) system. E2E case data is supplemented with human-reviewed RPX metadata.

Marketplace Dataset

The patent pricing data in this report is limited to RPX's experience in the open market. RPX believes that as one of the largest patent buyers in the world, it is offered the vast majority of portfolios in the open market. However, RPX may not be offered a limited number of portfolios on the open market, and those portfolios are not reflected in the analyses in this report.

Marketplace Data Exclusions

This report excludes portfolios offered through certain auctions due to historically low transaction rates for those auctions. RPX believes that excluding those auctions provides better insight into offered portfolios that have a reasonable chance of transacting. However, this report may not provide as much insight into patent auctions with low historical transaction rates.

Portfolio

“Portfolio” refers to a distinct patent portfolio offered to RPX. A portfolio may contain one or more patents. A group of patents is considered one portfolio when marketed together to RPX.

Specific patents may be offered to RPX as part of different portfolios at different times. Accordingly, some patents may be counted multiple times as part of more than one portfolio.

Patents

For the purposes of this report, “patents” refers to US issued patents unless otherwise noted.

Portfolio Execution and Recorded Dates

A portfolio’s execution/recorded date is the earliest execution/recorded date of a transacted patent in the portfolio.

Transactions

RPX considers a portfolio to have transacted if at least one patent from the portfolio transacted with a recorded execution date after RPX was offered the portfolio; and the transaction was to a third party (*i.e.*, not a transfer between members of the same corporate family).

RPX considers a patent to have transacted 1) if the patent transacted with a recorded execution date after RPX was offered the patent; and 2) the transaction was to a third party (*i.e.*, not a transfer between members of the same corporate family).

USPTO Assignment Data Limitations

Assignments recorded with the USPTO are sometimes not reflected in publicly available assignment data for a significant amount of time after recordation. As a result, RPX’s transaction data is limited to recorded patent assignments that are reflected in the USPTO’s public assignment dataset.

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