

# ARTICLES

## PATENTOGRAPHY

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*Many critics have noted that patent litigation's institutional structure is riddled with shortcomings that lead to unjust and inefficient outcomes and decrease public faith in the legal system. This Article relies on theory and empirical data to propose that the patent litigation system can be improved by harnessing patentography—the geography of patent disputes. There are three principal concerns with patent litigation's institutional structure: widespread forum shopping in district court patent cases, district courts' typically poor factfinding and lawmaking in these cases, and insufficient deference by the Federal Circuit—the court hearing nearly all patent appeals—to district courts' factual findings. Harnessing patentography by restricting venue in patent litigation to the principal place of business of one of its defendants will help repair each problem. It will clamp down on forum shopping. Contrary to conventional wisdom, it will also improve district courts' patent decisionmaking. As industries tend to cluster stably in discrete geographic areas, my proposed rule will tend to cluster patent cases by technology in particular districts, such as software cases in the Northern District of California and pharmaceutical cases in the District of New Jersey. Clustering together large numbers of an industry's patent cases in a limited number of district courts will develop those courts' proficiencies in patent law and in the underlying industry-specific facts critical to sound legal determinations. Under my proposal, this clustering will occur in districts in which judges and juries already tend to have background industry knowledge, given the associated industry cluster. An empirical review of patent cases filed in district courts in 2005 confirms that harnessing patentography as I propose would intensify patent litigation clusters. Finally, improving district courts' decisionmaking ought to encourage the Federal Circuit to defer more appropriately to district courts' factual findings.*

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## INTRODUCTION

For years, commentators and legislators have criticized the structure and quality of patent litigation. They have three principal complaints. First, they demonstrate that plaintiffs frequently engage in forum shopping in choosing a district court, selecting the district that provides the best strategic advantages to their case. A recent target of this critique is the Eastern District of Texas, which handled nearly thirteen percent of all patent cases in 2008, the highest proportion in the country,<sup>1</sup> in large part due to the perception that it is friendly to patent holders.<sup>2</sup> Forum shopping can be harmful to the legal system by distorting the substantive law, by showcasing the inequities of granting plaintiffs an often outcome-determinative choice among many district courts, and by causing numerous economic inefficiencies, including inconveniences to the parties. This problem has so caught Congress's attention that fixing it has been a mainstay of many of its recent attempts at patent reform.<sup>3</sup>

Second, critics maintain that the district courts are not doing a good job of handling patent litigation. In recent years, the United States Court of Appeals for the Federal Circuit—the appellate court

<sup>1</sup> *The Eastern District of Texas—No Longer the Venue of Choice?*, METROPOLITAN CORP. COUNS., Feb. 2009, at 23, 23 [hereinafter *Eastern District of Texas*].

<sup>2</sup> Julie Creswell, *So Small a Town, So Many Patent Suits*, N.Y. TIMES, Sept. 24, 2006, at B1.

<sup>3</sup> See *infra* notes 263–67 and accompanying text.

with exclusive jurisdiction over almost all patent appeals<sup>4</sup>—has frequently reversed district court decisions. The Federal Circuit reverses district courts twenty-two percent of the time,<sup>5</sup> a noteworthy figure because the reversal rate for all civil litigation in the federal courts is just over eighteen percent.<sup>6</sup> Federal Circuit reversal rates are even higher for certain critical issues, like claim construction, for which the appellate court reverses district courts almost forty percent of the time.<sup>7</sup> Critics suggest that generalist district court judges lack a grasp both of patent law's intricacies, given how rarely they judge patent cases, and of the technical facts affecting the law's application, as they typically are not experts in patented technologies. Politicians and academics alike have suggested different solutions, including creating specialized patent trial courts, possibly with expert judges, and training some judges in the most patent-heavy district courts in patent law.<sup>8</sup> There are downsides to these solutions, however, including the possibilities of tunnel vision and bias for a specialist court.

Beyond the critiques of district courts' limited factfinding ability, some critics find a (possibly related) third problem in the structure of patent litigation. They argue that the Federal Circuit does not defer frequently enough to the district courts' factual findings and instead, on appeal, reviews their findings *de novo*—either expressly or while claiming review under a more deferential standard—a task for which the Federal Circuit is not well suited. These critics think that the district courts proficiently evaluate and find facts under at least some circumstances. As such, they conclude that district courts' factual findings ought to be given more credence, particularly given that factual findings are a substantial component of judicial determinations in patent law.

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<sup>4</sup> 28 U.S.C. § 1295(a)(1) (2006). For cases in which a patent issue arises only in a counterclaim, the Federal Circuit does not have appellate jurisdiction; rather, the regional circuit court associated with the district court that heard the case takes the appeal. *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 829–32 (2002).

<sup>5</sup> Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 397 (2000).

<sup>6</sup> Kevin M. Clermont & Theodore Eisenberg, *Plaintiphobia in the Appellate Courts: Civil Rights Really Do Differ from Negotiable Instruments*, 2002 U. ILL. L. REV. 947, 952 tbl.1 (presenting statistics for all civil appeals from 1988 through 1997); *see also* Ted M. Sichelman, *Myths of (Un)Certainty at the Federal Circuit*, 43 LOY. L.A. L. REV. (forthcoming 2010) (manuscript at 7), available at [http://papers.ssrn.com/papers.cfm?abstract\\_id=1547392](http://papers.ssrn.com/papers.cfm?abstract_id=1547392) (reviewing data on reversal rates).

<sup>7</sup> Michael Saunders, Note, *A Survey of Post-Phillips Claim Construction Cases*, 22 BERKELEY TECH. L.J. 215, 236 (2007). Claim construction is the act of interpreting the claims of a patent to determine what is protected. *Id.* at 216.

<sup>8</sup> *See infra* note 173 and accompanying text.

In this Article, I suggest that these three key concerns can all be addressed in substantial part by taking account of patentography—the geography of patent disputes. I propose making patent venue proper only in the district in which the principal place of business of any of a case’s defendants is located, with a safety valve to avoid due process concerns, which might occur in a minute number of cases. Recent congressional bills constraining patent venue take an advisable step in this direction by making the defendant’s principal place of business one of the major categories of venue possibilities, but their rules are inadvisably permissive.<sup>9</sup> Moreover, congressional reformers seem not to appreciate just how efficacious thoughtful venue constraints might be in improving patent litigation beyond merely clamping down on forum shopping.

In addition to nearly eliminating forum shopping, constraining venue as I propose would improve district courts’ decisionmaking and encourage the Federal Circuit to defer more appropriately to district courts’ factual findings. I argue that these two effects stem from how patent cases would be distributed under my proposal. Although Kimberly Moore (now a judge on the Federal Circuit) and Rochelle Dreyfuss contend that restricting venue choices would too widely disperse patent suits among the nation’s district courts,<sup>10</sup> I argue that the opposite would occur because of the clustered nature of patentography. Constricting venue as I propose will tend to group patent cases involving particular technologies or industries in a limited number of districts. Industries tend to cluster around particular geographic centers, such as the pharmaceutical industry in New Jersey and the software industry in Silicon Valley and the Boston and Seattle areas.<sup>11</sup> Consequently, restricting patent venue to the principal place of business of a defendant will lead to a concentration of an industry’s patent suits in the districts where that industry’s firms are densest. Under my proposed venue rules, pharmaceutical suits will likely cluster in the District of New Jersey, and software patent suits will likely group themselves in the Northern District of California, the District of Massachusetts, and the Western District of Washington.

When this clustering occurs, a handful of district courts will adjudicate many patent cases in particular technologies or industries. The resulting proficiency gains will help those courts serve both as skilled

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<sup>9</sup> See *infra* notes 263–67 and accompanying text.

<sup>10</sup> Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. REV. 889, 934 (2001); Rochelle Cooper Dreyfuss, *In Search of Institutional Identity: The Federal Circuit Comes of Age*, 23 BERKELEY TECH. L.J. 787, 805 (2008).

<sup>11</sup> See *infra* notes 215–17 and accompanying text.

factfinders in developing case records and as patent laboratories for tailoring patent law to promote innovation in their particular clustered technologies or industries. In this light, I suggest that arguments to create specialized trial courts for patent law are generally misguided. Patent law needs more accurate, efficient, and thoughtful judicial resolution of controversies not through a set of district courts handling only patent cases, but via generalist district courts that naturally hear clusters of patent cases involving one industry or group of technologies, developing a proficiency in the industry-specific issues that commonly arise. Moreover, local judges' and juries' elevated familiarity with a district's leading industries would produce better reasoned decisions than would their counterparts in arbitrary locations. As such, my proposal builds on joint work by Dan Burk and Mark Lemley, which suggests that courts can and do tailor patent law to particular technologies or industries, with the aim of providing appropriate incentives to innovate under the particular circumstances of that industry.<sup>12</sup>

Were this clustering effect to obtain, the Federal Circuit, as the exclusive court of appeals for nearly all patent litigation, would then have the advantage of these collected, well-reasoned opinions when reviewing and setting the appropriate patent rules for each industry or technology. Given an improvement in the quality of district court opinions, the Federal Circuit then ought to feel more comfortable granting greater deference to the district courts' many factual findings and could focus its energies on appellate lawmaking, its intended role.

To support this proposal, I evaluate empirical data of all utility patent litigation filed in 2005 to compare existing technology-specific clusters of patent suits in the district courts with a simulation of how these suits would hypothetically have clustered under my proposed venue rule.<sup>13</sup> Relying on these comparisons, I demonstrate that more

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<sup>12</sup> See DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009) [hereinafter BURK & LEMLEY, *PATENT CRISIS*] (arguing for "flexible, industry-focused patent system"); Dan L. Burk & Mark A. Lemley, *Biotechnology's Uncertainty Principle*, 54 CASE W. RES. L. REV. 691, 722–38 (2004) (proposing biotechnology-specific patent rules to promote innovation); Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575 (2003) [hereinafter Burk & Lemley, *Policy Levers*] (discussing how innovation proceeds differently in varying industries and how patent law ought to be fine-tuned for each); Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1158–85 (2002) (suggesting that courts tend to apply patent law in varying ways to different industries). For a discussion of the understudied role of district courts in this tailoring, see Jeanne C. Fromer, *District Courts as Patent Laboratories*, 1 U.C. IRVINE L. REV. (forthcoming 2010) (manuscript on file with the *New York University Law Review*).

<sup>13</sup> A utility patent refers to a "patent granted for one of the following types of inventions: a process, a machine, a manufacture, or a composition of matter (such as a new

robust and natural technology-specific clusters would form under my proposal.

Relying on theory and the data, I argue that my proposed rule is preferable to the status quo. The simulation's clusters would form naturally without allowing plaintiffs to shop for the most strategically advantageous forum. These natural clusters would also occur in optimal locations. Because a district's judges and juries are drawn from the vicinity of the region's natural industry clusters, they will tend to know more about the cluster of industries nearby and be better situated to evaluate patent scope, validity, infringement, and other issues in the context of what enhances innovation in that industry. These clusters would also be more stable because industry clusters do not often shift geographically in short periods of time, whereas artificial, forum-shopping-based clusters do.<sup>14</sup>

Although this Article is situated in patent law, its reasoning and conclusions extend to other legal fields. For areas of law that share patent law's pertinent characteristics—factual or legal complexities keyed to particular industries—similar venue constraints might be appropriate, the better to take advantage of clustering's salutary effects on accurate adjudication.

Part I describes the current institutional structure of patent litigation, focusing on district court venue rules, the centralized appeals process to the Federal Circuit, and the distribution of power between the district courts and the Federal Circuit. Part II turns to three relevant critiques of this institutional structure, as they relate to the district courts: rampant forum shopping due to permissive venue rules, district courts' generally poor patent decisions due to lack of expertise in both patent law and patented technologies, and a lack of appellate deference to district courts on the many technical facts that inform their legal conclusions, even when the district courts performed their factfinding role well. Part II also evaluates previously suggested solutions to these concerns. Part III proposes a more effective approach to these concerns: tightening venue rules to do away with forum shopping and to turn district courts into skilled factfinders by taking advantage of patentography, thus grouping patent suits in just those districts where technologies or industries are naturally clustered. Part III also presents empirical data from all utility patent litigation filed in district courts in 2005 and compares that data set with a simulation of the

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chemical).” BLACK’S LAW DICTIONARY 1236 (9th ed. 2009). Because I am focusing on the patent system generally and utility patents are the most common type of patent issued, restricting my empirical study to them will not affect the outcome in any meaningful way. See *infra* note 268.

<sup>14</sup> See *infra* notes 227–35 and accompanying text.

same cases' distribution under my proposed rule. Taken together, theory and the empirical data suggest that the benefits of constraining venue to accomplish the natural clustering of patent cases far outweigh its drawbacks.

## I

### THE INSTITUTIONAL STRUCTURE OF PATENT LITIGATION

The principal goal of the American patent system is to stimulate innovation, as manifested in the Constitution's articulation of Congress's power "To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . writings and discoveries."<sup>15</sup> Stimulation occurs by rewarding inventors with a time-limited exclusive patent right for taking two steps they typically would not otherwise take: to invent in the first instance<sup>16</sup> and to reveal information to the public about these inventions, thereby enabling other innovators to build on earlier insights.<sup>17</sup> The government will grant a utility patent for an invention only if it is novel,<sup>18</sup> nonobvious "at the time the invention was made to a person having ordinary skill in the art,"<sup>19</sup> and "useful."<sup>20</sup> The Patent Act also requires disclosure of certain content within the patent by calling for a "written description," "enable[ment]," and "best mode."<sup>21</sup> The written-description requirement ensures that the inventor is in possession of the claimed invention.<sup>22</sup> To enable the invention, the patent applicant must demonstrate in the specification to "any person skilled in the [relevant] art [how] . . . to make and use the [invention]"<sup>23</sup> without "undue experimentation."<sup>24</sup> Also, the patent applicant must set out "the best mode contemplated by the inventor of carrying out his invention."<sup>25</sup> The best mode requirement is met so long as the

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<sup>15</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>16</sup> See Burk & Lemley, *Policy Levers*, *supra* note 12, at 1581–82 (noting research and development costs of innovation).

<sup>17</sup> *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 481 (1974).

<sup>18</sup> 35 U.S.C. § 102 (2006).

<sup>19</sup> *Id.* § 103(a).

<sup>20</sup> *Id.* § 101. For the traditional basis for these requirements and a psychological understanding of them, see Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 Nw. U. L. REV. (forthcoming 2010), available at [http://papers.ssrn.com/papers.cfm?abstract\\_id=1575843](http://papers.ssrn.com/papers.cfm?abstract_id=1575843).

<sup>21</sup> 35 U.S.C. § 112. See generally Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539 (2009) (describing these requirements and arguing that they do not suffice for useful and clear disclosures).

<sup>22</sup> *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991).

<sup>23</sup> 35 U.S.C. § 112.

<sup>24</sup> *Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352, 1360 (Fed. Cir. 2007).

<sup>25</sup> 35 U.S.C. § 112.

patent document objectively discloses the best mode that the inventor subjectively conceived by the time the inventor filed the patent application.<sup>26</sup>

Patents are granted after successfully undergoing examination by the Patent and Trademark Office (PTO), an administrative agency within the Department of Commerce,<sup>27</sup> to ascertain that an invention meets the patentability conditions and that the description in the patent application satisfies the disclosure requirements.<sup>28</sup> The patent's scope is defined principally by its claims, which "particularly point[ ] out and distinctly claim[ ] the subject matter which the applicant regards as his invention."<sup>29</sup> The patent right permits the patentee to exclude others from practicing the invention claimed in the patent for a term of typically twenty years from the date the patent application was filed.<sup>30</sup>

With this primer on substantive patent law, I turn to the institutional structure of patent litigation, focusing on both district courts and the Federal Circuit. Section A sets out the venue rules in the district courts. Section B discusses the Federal Circuit, the centralized and specialized appeals court for almost all patent litigation. Section C then describes the interaction between the district courts and the Federal Circuit by laying out the standards under which the Federal Circuit reviews patent decisions by the district courts.

### A. *Venue Rules in District Courts*

Patent litigation is generally distinct from other federal causes of action, in that there is but one choice—the Federal Circuit—for almost all appeals from whichever district court a litigant chose as the court in the first instance.<sup>31</sup> However, given patent law's permissive venue rules, a patent plaintiff may frequently choose to initiate a lawsuit in virtually any federal district court.

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<sup>26</sup> See *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 963 (Fed. Cir. 2001) (discussing two-pronged best mode test).

<sup>27</sup> U.S. Patent & Trademark Office, *The USPTO: Who We Are*, <http://www.uspto.gov/about/index.jsp> (last modified July 31, 2010).

<sup>28</sup> 35 U.S.C. § 131 ("The Director shall cause an examination to be made of the application and the alleged new invention; and if on such an examination it appears that the applicant is entitled to a patent under the law, the Director shall issue a patent therefore.").

<sup>29</sup> *Id.* § 112.

<sup>30</sup> *Id.* § 154(a)(2).

<sup>31</sup> See *infra* notes 59–61 and accompanying text.

In the American patent system, the power to adjudicate patent disputes is vested exclusively in the federal courts.<sup>32</sup> Venue rules dictate which of these courts can entertain particular patent cases, assuming personal jurisdiction over the defendants also exists in that court. Venue rules typically seek to ensure a convenient forum for litigation, particularly for the defendant, who has been haled into court,<sup>33</sup> but these rules differ depending on the type of patent suit and status of the defendant.

Since 1897, there has been a specific venue rule for direct patent infringement suits,<sup>34</sup> owing to judicial confusion as to whether the provision for general venue governed patent cases.<sup>35</sup> In 1789, Congress adopted a venue statute that covered all types of litigation, including patent suits, which provided that civil suits could be brought against a person only in the district of which he was an inhabitant or in which he was found at the time the writ was served.<sup>36</sup> By 1887, Congress amended this permissive venue rule to permit civil actions only in the district in which the defendant was an inhabitant, except that diversity cases could proceed in either the plaintiff's or defendant's district of residence.<sup>37</sup> However, the Supreme Court held this new provision inapplicable to patent suits against a foreign corporation<sup>38</sup> and intimated that patent infringement suits were not regulated by the 1887 provision governing cases of concurrent jurisdiction.<sup>39</sup> This decision threw the federal courts into doubt as to whether the 1887 rule applied to any patent infringement suits.<sup>40</sup> Many courts found the 1887 rule inapplicable and fell back on the old permissive rule from

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<sup>32</sup> 28 U.S.C. § 1338(a) (2006) ("The [federal] district courts shall have original [and exclusive] jurisdiction of any civil action arising under any Act of Congress relating to patents . . .").

<sup>33</sup> 14D CHARLES ALAN WRIGHT, ARTHUR R. MILLER & EDWARD H. COOPER, FEDERAL PRACTICE AND PROCEDURE § 3801, at 2–6 (3d ed. 2007).

<sup>34</sup> See Act of Mar. 3, 1897, ch. 395, 29 Stat. 695.

<sup>35</sup> For a detailed history of patent venue and an argument that it ought to be narrower than general venue, see Neal A. Waldrop, *The Patent Venue Statute, 28 U.S.C. 1400(b) Should Not Be Repealed*, 4 APLA Q.J. 32 (1976).

<sup>36</sup> Judiciary Act of Sept. 24, 1789, ch. 20, § 11, 1 Stat. 73, 79; see also *Stonite Prods. Co. v. Melvin Lloyd Co.*, 315 U.S. 561, 563–65 (1942) (recounting pre-1897 history of venue rules for patent infringement proceedings).

<sup>37</sup> See Act of Mar. 3, 1887, ch. 373, § 1, 24 Stat. 552, 552–53.

<sup>38</sup> See *In re Hohorst*, 150 U.S. 653, 662 (1893).

<sup>39</sup> In *In re Keasbey & Mattison Co.*, 160 U.S. 221 (1895), the Court distinguished *Hohorst* in part because that case was a "suit for infringement of a patent right . . . and was therefore not affected by general provisions regulating the jurisdiction of the courts of the United States, concurrent with that of the several States." *Id.* at 230. This distinction implies that the concurrent jurisdiction provisions of the 1887 statute did not regulate patent suits, although the Court did not say so outright.

<sup>40</sup> *Stonite*, 315 U.S. at 564.

1789 that venue in patent infringement suits lay wherever a defendant could be found.<sup>41</sup> Wanting to resolve this confusion,<sup>42</sup> limit the application of the 1789 rule, and broaden venue beyond the choices in the 1887 rule,<sup>43</sup> Congress created a separate venue rule for patent infringement suits in 1897.<sup>44</sup>

The current text of the patent venue rule looks similar to the 1897 version. It permits suits for direct patent infringement “in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business.”<sup>45</sup> The Court had previously interpreted this provision narrowly in the case of corporate defendants, holding that a corporation resides only in its state of incorporation.<sup>46</sup> In 1990, the Federal Circuit held that corporate residency ought to be determined more broadly with reference to Congress’s more recent definition of corporate residency for venue generally.<sup>47</sup> According to the general venue provision, a corporation resides “in any judicial district in which it is subject to personal jurisdiction at the time the action is commenced.”<sup>48</sup> When the defendant is corporate, therefore, the inquiries into venue and personal jurisdiction collapse into each other. As personal jurisdiction is typically expansive under states’ long-arm statutes,<sup>49</sup> venue is as well. Because of the expansive interpretation of venue based on the defendant’s residency, venue based on the locations of a defendant’s

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<sup>41</sup> *Id.* at 564–65.

<sup>42</sup> See HOUSE COMM. ON PATENTS, INFRINGEMENT OF LETTERS PATENT, H.R. REP. NO. 54-2905 (2d Sess. 1897) (“This bill seeks to . . . remove the uncertainty which now arises as to [jurisdiction in patent suits] by reason of the conflicting decisions of the various circuit courts.”).

<sup>43</sup> See *id.* (stating that bill “further facilitates the bringing of suits in the place of business of the parties interested”).

<sup>44</sup> Act of Mar. 3, 1897, ch. 395, 29 Stat. 695; see also John A. Laco, Note, *Venue in Patent Infringement Actions: Johnson Gas Fouls the Air*, 25 LOY. L.A. L. REV. 1107, 1107 (1992) (describing enactment of statute “with the express intent that the special patent venue statute stand independent of the general federal venue statute”).

<sup>45</sup> 28 U.S.C. § 1400(b) (2006).

<sup>46</sup> *Fourco Glass Co. v. Transmirra Prods. Corp.*, 353 U.S. 222 (1957).

<sup>47</sup> See *VE Holding Corp. v. Johnson Gas Appliance Co.*, 917 F.2d 1574, 1583 (Fed. Cir. 1990) (“[U]nder amended § 1391(c) as we here apply it, venue in a patent infringement case includes any district where there would be personal jurisdiction over the corporate defendant at the time the action is commenced.”).

<sup>48</sup> 28 U.S.C. § 1391(c).

<sup>49</sup> Thomas A. O’Rourke, *The Modernization of the Patent Venue Statute*, 14 GEO. MASON L. REV. 585, 585 (1992). A long-arm statute is a “statute providing for jurisdiction over a nonresident defendant who has had contacts with the territory where the statute is in effect.” BLACK’S LAW DICTIONARY 1027 (9th ed. 2009). Since the mid-twentieth century, states have enacted long-arm statutes that reach out permissively to confer personal jurisdiction on nonresident defendants, often as far as due process allows. See 4 CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE § 1068 (3d ed. 2002) (discussing development of state long-arm statutes).

alleged acts of infringement or its regular and established place of business has become mostly irrelevant.<sup>50</sup>

Patent actions can also be brought in a declaratory judgment action, in which the plaintiff sues a patentholder seeking a declaration that the plaintiff is not infringing the relevant patent or that the patent is invalid or unenforceable.<sup>51</sup> When a litigant brings this sort of patent action, the general venue provisions for federal question cases govern (instead of the patent venue provision),<sup>52</sup> specifying that venue is proper only in:

(1) a judicial district where any defendant resides, if all defendants reside in the same State, (2) a judicial district in which a substantial part of the events or omissions giving rise to the claim occurred, or a substantial part of property that is the subject of the action is situated, or (3) a judicial district in which any defendant may be found, if there is no district in which the action may otherwise be brought.<sup>53</sup>

As with the patent infringement venue rule, a corporation resides “in any judicial district in which it is subject to personal jurisdiction at the time the action is commenced.”<sup>54</sup>

These general venue rules also apply when the patent dispute covers topics other than infringement, such as inventorship.<sup>55</sup> Patent suits against a foreign defendant are also governed by a general venue provision allowing the defendant to be sued in any district.<sup>56</sup>

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<sup>50</sup> 14D WRIGHT, MILLER & COOPER, *supra* note 33, § 3823, at 479–82. This requirement had been read narrowly to require a fixed physical facility of the defendant’s in the district. *See, e.g.*, Dual Mfg. & Eng’g, Inc. v. Burriss Indus., Inc., 531 F.2d 1382, 1386–88 (7th Cir. 1976) (discussing cases interpreting fixed physical facility requirement). The Federal Circuit has more recently read the requirement broadly to ask merely “whether the corporate defendant does its business in that district through a permanent and continuous presence there and not . . . whether it has a fixed physical presence.” *In re Cordis Corp.*, 769 F.2d 733, 737 (Fed. Cir. 1985).

<sup>51</sup> *See, e.g.*, MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118, 120–21 (2007) (presenting declaratory judgment action in patent licensing context).

<sup>52</sup> *E.g.*, A.P.T., Inc. v. Quad Envtl. Techs. Corp., 698 F. Supp. 718, 723 (N.D. Ill. 1998).

<sup>53</sup> 28 U.S.C. § 1391(b).

<sup>54</sup> *Id.* § 1391(c).

<sup>55</sup> *See, e.g.*, Norkol/Fibercore, Inc. v. Gubb, 279 F. Supp. 2d 993, 999 (E.D. Wis. 2003). Inventorship concerns who should be listed as an inventor on a patent. There is a private right of action to challenge inventorship once a patent issues. *Larson v. Correct Craft, Inc.*, 569 F.3d 1319, 1324–25 (Fed. Cir. 2009) (citing 35 U.S.C. § 256 (2006)).

<sup>56</sup> 28 U.S.C. § 1391(d); *see also* Brunette Mach. Works, Ltd. v. Kockum Indus., Inc., 406 U.S. 706, 714 (1972) (noting codification in 28 U.S.C. § 1391(d) of judicial rule that “the general venue laws do not control in a suit against an alien defendant, nor does the special patent venue law”). When a foreign defendant is a patentee and has failed to designate properly on whom to serve process in the United States, “the United States District Court for the District of Columbia shall have jurisdiction.” 35 U.S.C. § 293. Because, in that case, jurisdiction is only proper in one court, it follows that venue lies only in that court.

These different rules share a permissive approach to venue in lawsuits against corporate defendants, the most common type of defendant in patent litigation.<sup>57</sup> Because of the broad geographic scope of most defendants' businesses, those rules give rise to venue in many of the ninety-four federal judicial districts.<sup>58</sup>

### B. *The Federal Circuit as Specialized Patent Court*

Although plaintiffs can usually bring patent claims in any district court, almost all patent appeals go before the Federal Circuit today. Before 1982, appeals from a district court's patent decisions went to the associated regional circuit court. Congress then created the Federal Circuit and gave it exclusive jurisdiction over both appeals from litigation in which jurisdiction arises under the patent laws and appeals from PTO decisions on patentability.<sup>59</sup> With limited exception,<sup>60</sup> the Federal Circuit is the only intermediate appellate court reviewing district court decisions in patent cases, although it also hears other types of cases, such as government contract disputes.<sup>61</sup> After review in the Federal Circuit, discretionary review lies in the Supreme Court.<sup>62</sup>

Patent law's technical complexity was a principal reason for the Federal Circuit's creation.<sup>63</sup> Patent law frequently seems remote and unusually technical to lawyers specializing in other areas, in large part because its legal determinations typically require deep understanding of the technology or industry at issue in any particular patent.<sup>64</sup>

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<sup>57</sup> See John R. Thomas, *Claim Re-Construction: The Doctrine of Equivalents in the Post-Markman Era*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 781, 798 (2005) (noting "common scenario" of "large corporate defendants being sued by individuals or small firms").

<sup>58</sup> See Moore, *supra* note 10, at 925 ("[P]laintiffs have limitless venue options . . ."). Of course, venue might be transferred to another permissible venue if a court agrees that doing so is "[f]or the convenience of parties and witnesses [or] in the interest of justice." 28 U.S.C. § 1404(a).

<sup>59</sup> Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, § 124, 96 Stat. 25, 36 (codified as amended at 28 U.S.C. § 1291); § 127, 96 Stat. at 37 (codified as amended at 28 U.S.C. § 1295).

<sup>60</sup> See *supra* note 4 (describing exception).

<sup>61</sup> See 28 U.S.C. § 1295(a)(2)–(3), (10).

<sup>62</sup> *Id.* § 1254.

<sup>63</sup> *E.g.*, *Court of Appeals for the Federal Circuit: Hearings on H.R. 2405 Before the Subcomm. on Courts, Civil Liberties, and the Admin. of Justice of the H. Comm. on the Judiciary*, 97th Cong. 42–43 (1981) (statement of Hon. Howard T. Markey, C.J., U.S. Court of Customs and Patent Appeals) ("[I]f I am doing brain surgery every day, day in and day out, chances are very good that I will do your brain surgery much quicker, or a number of them, than someone who does brain surgery once every couple of years.")

<sup>64</sup> See *Parke-Davis & Co. v. H.K. Mulford Co.*, 189 F. 95, 115 (C.C.S.D.N.Y. 1911) (Hand, J.) ("I cannot stop without calling attention to the extraordinary condition of the [patent] law which makes it possible for a man without any knowledge of even the rudiments of chemistry to pass upon such questions as these."). Legal subjects may be complex

Whether ascertaining the meaning of patent claims defining an invention,<sup>65</sup> determining an invention's novelty compared to the state of the prior art,<sup>66</sup> or assessing the sufficiency of a patent disclosure's enablement of other inventors in the relevant technological area to make or use the described invention,<sup>67</sup> nonspecialists, including judges hearing patent cases, often find engaging with patent law perplexing. Before the creation of the Federal Circuit, proponents of a unified court for patent appeals argued that having expert judges preside over patent cases would bring greater accuracy, focus, and legitimacy to bear on patent decisions. Further, a separate patent court would free up resources in overtaxed courts of appeals which would be released from spending disproportionate energies on patent appeals.<sup>68</sup>

Another motivation for the Federal Circuit's creation was the desire to do away with inconsistent patent rules in different regional circuits.<sup>69</sup> As just one example, some regional circuits allowed patent licensees to challenge patent validity without terminating their licenses first, while others did not.<sup>70</sup> It is therefore not surprising that before the creation of the Federal Circuit, as Rochelle Dreyfuss wrote, "a patent was twice as likely to be held valid and infringed in the Fifth Circuit than in the Seventh Circuit, and almost four times more likely to be enforced in the Seventh Circuit than in the Second Circuit."<sup>71</sup>

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because of either the difficulty of the underlying law or the technical nature of the facts. Richard L. Revesz, *Specialized Courts and the Administrative Lawmaking System*, 138 U. PA. L. REV. 1111, 1117 (1990). Patent law is regarded as complex for both reasons. See *id.* at 1117-18 (quoting Judge Friendly's argument in favor of specialized patent trial court because of technical nature of facts in patent cases).

<sup>65</sup> 35 U.S.C. § 112 para. 2 (2006) ("The [patent] shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.").

<sup>66</sup> *Id.* § 102 (describing patent law's requirement that invention be novel).

<sup>67</sup> *Id.* § 112 para. 1 ("The [patent] shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same . . .").

<sup>68</sup> Lawrence Baum, *Specializing the Federal Courts: Neutral Reforms or Efforts To Shape Judicial Policy?*, 74 JUDICATURE 217, 223 (1991); Harold H. Bruff, *Specialized Courts in Administrative Law*, 43 ADMIN. L. REV. 329, 330 (1991); Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 1-2, 7 (1989). There are two dimensions in which courts might be specialized: the degree to which certain types of cases tend to dominate a court's docket and the degree to which certain types of cases tend to be concentrated in just one court. Baum, *supra*, at 218. The Federal Circuit's specialization is of the latter type.

<sup>69</sup> Dreyfuss, *supra* note 68, at 6-7; see also Baum, *supra* note 68, at 223 (discussing "inconsistent legal rules in patent law"); Bruff, *supra* note 68, at 331 (noting that Federal Circuit may reduce intercourt conflicts).

<sup>70</sup> Dreyfuss, *supra* note 68, at 7 n.41.

<sup>71</sup> *Id.* at 7.

Consequently, forum shopping pervaded patent litigation.<sup>72</sup> Proponents of a specialized appeals court thought that inconsistent patent rules led to confusion in an area where national uniformity was paramount; an efficient and stable business environment requires coherent, predictable adjudication concerning patents and innovation.<sup>73</sup> Given that the Supreme Court could not resolve each and every circuit split on patent law, many thought it better to channel all patent appeals to one court, which would establish uniformity in patent law.<sup>74</sup> Moreover, with patent decisions diffused throughout the regional circuits rather than concentrated in one appeals court, Congress was less able to “monitor and adjust patent law.”<sup>75</sup>

Since the Federal Circuit’s establishment, some scholars have noted improved precision and uniformity in patent law, as intended.<sup>76</sup> As to whether the Federal Circuit’s application of expertise in patent law has led to more accurate and just results, the patent academe’s

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<sup>72</sup> *Id.*

<sup>73</sup> *Id.*; see also Ellen R. Jordan, *Specialized Courts: A Choice?*, 76 Nw. U. L. REV. 745, 765 (1981) (“Specialized courts appear to work best in areas where there is wide agreement and consensus on the basic policies to be implemented, thus making uniformity and predictability uncontroversial and desirable goals.”); Revesz, *supra* note 64, at 1116–20 (suggesting that uniformity, coherence of statutory scheme, and more correct decisions are reasons to create specialized court).

<sup>74</sup> See Dreyfuss, *supra* note 68, at 2 (noting that concentrating appeals in one court reduces incoherence in law, whereas adding new layers of appeal has potential to increase it). Lawrence Baum also suggests another impetus for the Federal Circuit’s creation: Patent lawyers wanted to see an appeals court that was less hostile to strong patents than the regional circuit courts had been. Baum, *supra* note 68, at 223. A pro-patent Federal Circuit was likely, according to these lawyers, as it would be composed in part of judges of the Court of Customs and Patent Appeals, which had been favorable to patents. *Id.*

<sup>75</sup> Bruff, *supra* note 68, at 334. Congress might want to step in to change or refine patent law in response to judicial decisions when it observes courts—either correctly or incorrectly—interpreting patent law in ways that do not advance innovation.

<sup>76</sup> See, e.g., Dreyfuss, *supra* note 68, at 8–11 (observing that Federal Circuit consistently reached same result under similar factual circumstances in areas such as nonobviousness). Uniformity and quality are distinct concepts, in that there could be uniform but bad rules or there could be a number of desirable, but inconsistent, approaches. See Craig Allen Nard & John F. Duffy, *Rethinking Patent Law’s Uniformity Principle*, 101 Nw. U. L. REV. 1619, 1620 (2007) (noting that, after initially welcoming uniformity provided by Federal Circuit, patent scholars began critically evaluating substance of its new rules).

It should be noted that there are some areas, like the appropriate methodology for construing the meaning of a patent’s claims, over which the Federal Circuit’s judges disagree, leading to divergent approaches in important doctrinal areas. Compare *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) (highlighting legal inquiries involved in claim construction), with *id.* at 1330–35 (Mayer, J., dissenting) (emphasizing factual nature of claim construction inquiry). See generally R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding?: An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1125–70 (2004) (reporting results of empirical study suggesting that Federal Circuit alternates between two approaches to claim construction: procedural and holistic).

verdict is mixed. Some scholars think that aspects of the Federal Circuit's jurisprudence are technically nuanced and properly advance the goals of encouraging technological innovation. For example, Rochelle Dreyfuss praises the Federal Circuit's consideration of secondary factors—such as the patent's meeting of a long-felt need or an invention's commercial success—in assessing whether an invention is nonobvious,<sup>77</sup> a requirement of patentability.<sup>78</sup> On the other hand, some evidence indicates that the Federal Circuit's jurisprudence has not been entirely successful. The Supreme Court has felt the need in recent years to review several patent cases on important issues, such as nonobviousness and the standard for granting injunctive relief,<sup>79</sup> and has admonished the Federal Circuit for stifling the goals of innovation by applying patent law in rigid ways.<sup>80</sup>

Whatever one's view of the Federal Circuit's successes, there are potential downsides to establishing a specialized court like the Federal Circuit. Critics bemoan the loss of the generalist perspective, noting that a broader perspective and exposure to a wider range of legal problems may facilitate judicial insight.<sup>81</sup> Moreover, scholars fear “tunnel vision,” in that doctrines developed by specialist courts will not cohere with the broader legal fabric with which specialists need not struggle.<sup>82</sup> Indeed, in the contexts of injunctive relief and jurisdiction over declaratory judgment actions, two recent Supreme Court patent decisions reversed the Federal Circuit for improperly treating non-patent-specific legal issues differently in the context of patent law.<sup>83</sup>

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<sup>77</sup> Dreyfuss, *supra* note 68, at 14–17; *see also* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1310 (Fed. Cir. 2009) (setting out standard for nonobviousness of patented invention).

<sup>78</sup> 35 U.S.C. § 103 (2006).

<sup>79</sup> *See* KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007) (reversing Federal Circuit's application of nonobviousness test); eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006) (reversing Federal Circuit and applying standard test for granting permanent injunctive relief); Adam Mossoff, *Exclusion and Exclusive Use in Patent Law*, 22 HARV. J.L. & TECH. 321, 322–23 (2009) (noting “the Court's recent string of reversals of the Federal Circuit”).

<sup>80</sup> *E.g.*, KSR, 550 U.S. at 415 (characterizing Federal Circuit's approach as “rigid” and prevailing Supreme Court standard as “expansive and flexible”). *See generally* John M. Golden, *The Supreme Court as “Prime Percolator”: A Prescription for Appellate Review of Questions in Patent Law*, 56 UCLA L. REV. 657 (2009) (arguing that Supreme Court should intervene in Federal Circuit jurisprudence to stimulate renewed consideration of old doctrines, not to serve as final arbiter of patent law).

<sup>81</sup> *See, e.g.*, Bruff, *supra* note 68, at 331; Dreyfuss, *supra* note 68, at 25.

<sup>82</sup> *See, e.g.*, Edward K. Cheng, *The Myth of the Generalist Judge*, 61 STAN. L. REV. 519, 552–53 (2008); Dreyfuss, *supra* note 68, at 3.

<sup>83</sup> *See* MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118, 126–37 (2007) (declaratory judgment actions); *eBay*, 547 U.S. at 391–94 (injunctive relief).

Scholars also worry about bias within a specialized court. First, a president may choose judicial nominees for their views on the specialization area—something he may be less able to do for a generalist court.<sup>84</sup> As such, these nominees' views might be out of step with the current law in the area and lead them to prejudge cases unfairly. Second, a specialized court might “hide [its] biases behind impenetrable specialized jargon” when “faced with difficult policy choices intermingled with complicated technical issues.”<sup>85</sup> Or a specialized court might be too friendly with repeat players before the court, in which case it might judge them too leniently.<sup>86</sup>

In light of these criticisms of the specialized nature of the Federal Circuit, commentators have diverged in their assessment of the court's performance. One view is that too many Federal Circuit decisions are decidedly pro-patent.<sup>87</sup> Another view is that the Federal Circuit has a reasonable mix of pro-patentee rules—such as its low thresholds for adequate disclosure—and anti-patentee rules—such as its restrictive view of the doctrine of equivalents.<sup>88</sup> Harold Bruff argues that the Federal Circuit's bird's-eye view of patent cases makes it less likely to favor one interest in patent cases over any other, be it that of the government, inventors, or competitors.<sup>89</sup> Moreover, many industries care about patent law and litigate cases, so the Federal Circuit is thought by some not to be prone to industry capture.<sup>90</sup> The Federal Circuit's jurisdiction over multiple classes of cases—such as government contract disputes<sup>91</sup>—diminishes concerns that its decisions will be made in too much of a vacuum.<sup>92</sup> Finally, well-heeled lawyers and

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<sup>84</sup> See Dreyfuss, *supra* note 68, at 3 (noting concern about “ideological appointments”).

<sup>85</sup> *Id.*

<sup>86</sup> *Id.* Critics also note the lack of prestige that can be associated with specialized courts, as the United States tends to value generalist judges, a preference which harms the respect such courts obtain and the qualifications of the people willing to join as judges. Bruff, *supra* note 68, at 331. *But cf.* Cheng, *supra* note 82, at 533–40 (pointing out that many judges tend to specialize de facto on generalist courts of appeals).

<sup>87</sup> See Dreyfuss, *supra* note 68, at 25–28 (discussing criticisms of Federal Circuit as pro-patentee court).

<sup>88</sup> See *id.* at 28 (contending that Federal Circuit is not as biased toward patentees as critics argue). “The doctrine of equivalents allows [a] patentee to claim those insubstantial alterations that were not captured in drafting the original patent claim but which could be created through trivial changes,” *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 733 (2002), so long as they do not intrude on the prior art, *Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1361 (Fed. Cir. 2007).

<sup>89</sup> See Bruff, *supra* note 68, at 339 (“[T]he nature of a court's docket should expose the judges to both sides of pertinent controversies . . .”).

<sup>90</sup> See, e.g., Dreyfuss, *supra* note 68, at 29 (arguing that “the [Federal Circuit] is a fairly balanced court” that is not very likely to fall captive to special interest groups).

<sup>91</sup> See *supra* note 61 and accompanying text.

<sup>92</sup> *Cf.* Bruff, *supra* note 68, at 341 (describing risk of capture in court for single industry or agency).

clients represent all sides of each patent dispute, providing further protection against bias and capture.<sup>93</sup>

In sum, Congress created the Federal Circuit to take advantage of specialized courts' upsides—uniformity and expertise applied to produce accuracy—while minimizing their downsides—bias, capture, and tunnel vision. The messy reality is that the Federal Circuit has achieved some benefits of specialization but has also suffered some of its disadvantages.

### *C. Power Allocation Between the District Courts and the Federal Circuit*

In light of the Federal Circuit's appellate jurisdiction over nearly all patent decisions, this Section describes the distribution of power between district courts and the Federal Circuit. In particular, I focus on the level of deference accorded to district court determinations: The more deference is accorded to the district courts on certain issues, the more powerful the district courts are in deciding patent cases in general.<sup>94</sup> I refer to both judge and jury as the district court, given that either might make a relevant determination in a patent case.<sup>95</sup>

The degree of deference accorded to district court determinations depends on whether the determinations are labeled as factual or legal. The Supreme Court has ruled that the Federal Circuit, like the other federal courts of appeals, must review factual findings in bench trials deferentially for clear error.<sup>96</sup> Moreover, appellate courts may not overturn a jury's factfinding so long as supported by substantial evidence.<sup>97</sup> By contrast, the the appellate courts review legal findings de novo.<sup>98</sup>

The Supreme Court and the Federal Circuit have labeled the following major patent determinations as questions of law, although these issues typically are based on underlying factual assessments: the literal meaning of patent claims, or claim construction;<sup>99</sup> an inven-

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<sup>93</sup> Dreyfuss, *supra* note 68, at 29–30.

<sup>94</sup> Although it would seem to make the district courts stronger vis-à-vis the Federal Circuit, I do not explore herein the implications of the Federal Circuit's holding that, unlike the regional circuits, it has no supervisory power over district courts. *In re Innotron Diagnostics*, 800 F.2d 1077, 1082 (Fed. Cir. 1986).

<sup>95</sup> One study shows that litigants demand a jury in seventy-eight percent of terminated patent cases between 1999 and 2000. Kimberly A. Moore, *Jury Demands: Who's Asking?*, 17 BERKELEY TECH. L.J. 847, 855 (2002).

<sup>96</sup> *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809 (1986) (per curiam) (citing FED. R. CIV. P. 52(a)).

<sup>97</sup> *E.g.*, *i4i Ltd. P'ship v. Microsoft Corp.*, 589 F.3d 1246, 1265 (Fed. Cir. 2009).

<sup>98</sup> *E.g.*, *Bayer Schering Pharma AG v. Barr Labs., Inc.*, 575 F.3d 1341, 1346 (Fed. Cir. 2009).

<sup>99</sup> *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1455–56 (Fed. Cir. 1998).

tion's nonobviousness;<sup>100</sup> what constitutes patentable subject matter;<sup>101</sup> and the patent's enablement of experts in the art to make or use the invention.<sup>102</sup> These courts have, conversely, considered the following to be factual questions: the ultimate question of patent infringement in the face of claim construction and the doctrine of equivalents;<sup>103</sup> the patentability requirements that an invention be useful<sup>104</sup> and novel;<sup>105</sup> and the adequacy of a patent's written description<sup>106</sup> and disclosure of the best mode of carrying out the invention.<sup>107</sup> Because of the difference in standards of review, the Federal Circuit is a more powerful actor than district courts in patent litigation in the former areas, while the converse is true in the latter areas. However, deeming claim construction to be a legal issue tips the balance of power decidedly in the Federal Circuit's favor. Claim construction is essential to deciding almost all of the questions in a patent suit, so judges and juries often have little discretion once a particular construction has been accorded to a patent's claims.<sup>108</sup>

This Part's descriptions of the institutional structure of patent litigation provide a basis for evaluating the structure's efficacy, to which I now turn.

## II

### CRITIQUES OF THE INSTITUTIONAL STRUCTURE

Although the Federal Circuit was designed to uniformly handle nearly all patent appeals, district courts remain vital components in creating a sound body of patent law. First, the district court is almost always the only court to play a role in the over 2600 patent cases filed annually,<sup>109</sup> as almost ninety percent of patent cases are settled in the district court.<sup>110</sup> Of the small remainder that are adjudicated on the

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<sup>100</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

<sup>101</sup> *In re Comiskey*, 554 F.3d 967, 975 (Fed. Cir. 2009).

<sup>102</sup> *In re '318 Patent Infringement Litig.*, 583 F.3d 1317, 1323 (Fed. Cir. 2009).

<sup>103</sup> *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520–21 (Fed. Cir. 1995) (en banc).

<sup>104</sup> *In re Fisher*, 421 F.3d 1365, 1369 (Fed. Cir. 2005).

<sup>105</sup> *In re Skvorecz*, 580 F.3d 1262, 1266 (Fed. Cir. 2009).

<sup>106</sup> *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1369 (Fed. Cir. 2009).

<sup>107</sup> *N. Telecom Ltd. v. Samsung Elecs. Co.*, 215 F.3d 1281, 1286 (Fed. Cir. 2000).

<sup>108</sup> See John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 STAN. L. REV. 955, 977–78 (2007) (showing that district courts tend to resolve question of patent infringement based on claim construction); see also *infra* notes 180–85 and accompanying text.

<sup>109</sup> According to the Stanford Intellectual Property Litigation Clearinghouse, 2634 district court patent cases were filed in 2009. Lex Machina, <http://www.lexmachina.com> (last visited Sept. 21, 2010).

<sup>110</sup> District Court Disposition Modes: Patent Cases—FY 2008, [http://www.patstats.org/2008fy\\_Patent\\_Case\\_Disposition\\_Modes.doc](http://www.patstats.org/2008fy_Patent_Case_Disposition_Modes.doc) (last visited Sept. 12, 2010). A small per-

merits,<sup>111</sup> approximately half are appealed to the Federal Circuit,<sup>112</sup> leaving the district courts as the final arbiters on patent law in the other half. Second, even when the Federal Circuit reviews a district court's patent decision, it typically does not review all of the issues decided by the district court. For those that it does review, the Federal Circuit, at least in theory, must heavily defer to the district courts' factual findings.<sup>113</sup> Because the facts of a case strongly influence the legal outcome in patent law, the district court's factual findings can significantly affect the Federal Circuit's legal decisions. Third, if the district courts are deciding patent cases poorly—or merely unevenly—because of their technical complexity, the Federal Circuit becomes hard-pressed to direct its resources efficiently toward creating an effective body of patent law, as it must focus on correcting errors with which other courts of appeals—facing records developed by judges equipped to prepare them—need not grapple. Fourth, on nonpatent issues, the importance of district court choice is elevated, as regional circuit law applies and local rules affect strategies.<sup>114</sup>

Given how critical district courts are to creating a sound body of patent law, I concentrate in this Part on three criticisms of the institutional structure of patent litigation relating to the district courts' role: first, the widespread forum shopping that takes place in district court patent litigation; second, the poor decisionmaking seen in many district courts on issues of fact and law needed to resolve patent cases; and third, the insufficient deference conferred by the Federal Circuit on those district court factual determinations that are indeed sound.

### A. *Widespread Forum Shopping in the District Courts*

As discussed above, one of the major reasons for the creation of the Federal Circuit was to create a uniform body of patent law to replace the inconsistent pronouncements coming out of the regional circuits. At the time, it was thought that the creation of the Federal Circuit would end plaintiffs' ability to engage in widespread forum shopping.<sup>115</sup>

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centage of cases also terminate in the district court through want of prosecution or the defendant's default. *Id.*

<sup>111</sup> *Id.* (reporting 11.7% of cases as adjudicated).

<sup>112</sup> Paul R. Michel, *The Court of Appeals for the Federal Circuit Must Evolve To Meet the Challenges Ahead*, 48 AM. U. L. REV. 1177, 1193 (1999).

<sup>113</sup> See *supra* notes 96–97 and accompanying text.

<sup>114</sup> See, e.g., *Massey v. Del Labs., Inc.*, 118 F.3d 1568, 1572 (Fed. Cir. 1997) (noting that regional circuit law is applied to procedural questions not unique to patent law).

<sup>115</sup> See *supra* notes 69–75 and accompanying text (discussing reasons for Federal Circuit's creation).

In empirical studies, Kimberly Moore has shown that patent litigants have continued to forum shop even after the creation of the Federal Circuit because plaintiffs still care very much about which district court hears their case.<sup>116</sup> Due to permissive patent venue rules for corporate defendants, plaintiffs frequently have their choice of many, if not all, of the ninety-four federal judicial districts in which one can file suit.<sup>117</sup> Moore's long-range study of patent cases shows "that patent cases are not dispersed evenly throughout the ninety-four judicial districts nor dispersed according to the relative size of the court's civil docket generally, but rather consolidated in a few select jurisdictions."<sup>118</sup> She finds that the top ten district courts for patent cases filed between 2000 and 2006 had 47% of all patent cases, but only 29% of all civil cases during that same time.<sup>119</sup> Moore argues that these districts' higher rates of patent litigation cannot be explained fully by the number of patents granted in those districts; local patent litigation is not the source of the discrepancy.<sup>120</sup>

Instead, Moore attributes this forum shopping to procedural and substantive differences between judicial districts,<sup>121</sup> presumably leading plaintiffs to prefer particular districts because of the stronger possibility of winning their case. In fact, she shows that of the top ten district courts, six of them have above average win rates for plaintiffs

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<sup>116</sup> See KIMBERLY A. MOORE, PAUL R. MICHEL & TIMOTHY R. HOLBROOK, *PATENT LITIGATION AND STRATEGY* 93–101 (3d ed. 2008); Moore, *supra* note 10, at 892. Patentholders also have the choice of bringing an action for injunctive relief before the International Trade Commission (ITC) if they can allege patent infringement based on the importation of foreign goods. 19 U.S.C. § 1337 (2006). Why patentholders choose the ITC over the federal district courts is outside the scope of this Article, although there is an empirical literature on the topic. See generally Colleen V. Chien, *Patently Protectionist?: An Empirical Analysis of Patent Cases at the International Trade Commission*, 50 WM. & MARY L. REV. 63 (2008) (showing, for example, that ITC plaintiffs are more likely to win than district court plaintiffs); David L. Schwartz, *Courting Specialization: An Empirical Study of Claim Construction Comparing Patent Litigation Before Federal District Courts and the International Trade Commission*, 50 WM. & MARY L. REV. 1699 (2009) (finding that ITC judges do not outperform district court judges in claim construction, at least in regard to Federal Circuit reversal rates).

<sup>117</sup> Moore, *supra* note 10, at 892, 896–97; see also *supra* Part I.A (describing venue rules for patent litigation).

<sup>118</sup> Moore, *supra* note 10, at 892.

<sup>119</sup> See MOORE, MICHEL & HOLBROOK, *supra* note 116, at 93, 94 tbl.1 (listing as top ten districts Central District of California, Northern District of California, Northern District of Illinois, District of Delaware, Southern District of New York, District of New Jersey, District of Minnesota, District of Massachusetts, Eastern District of Pennsylvania, and Eastern District of Michigan). During this time, the top five districts had 36% of all patent litigation, but only 15.8% of all civil cases. *Id.*

<sup>120</sup> Moore, *supra* note 10, at 903–07, 905 tbl.2 (showing that high rate of patents granted in district might explain prevalence of patent cases in California from 1995–1999 but not high rate of cases in Virginia or Delaware).

<sup>121</sup> *Id.* at 907.

in patent cases.<sup>122</sup> She lists some of the other reasons why a plaintiff might choose one forum over another:

[T]he knowledge, background, and experience of the judges; the judges' previous experience with high technology or patent matters; the characteristics, predispositions, and biases of potential jurors; the attorney's familiarity with the district and the judges in the district; the local rules of the district court; the practices of the judges in the district regarding whether they conduct [claim construction] hearings; at what point in the litigation the claims will be construed; the type of evidence the judges will consider in construing the claims; the court's docket and its speed in resolving cases; the reputation of the parties in the district; and, of course, traditional factors, such as the convenience for the parties, witnesses and attorneys.<sup>123</sup>

Moore's research on forum shopping is underscored by observable differences in case outcomes based on who the plaintiff is and where that plaintiff files. For example, Moore shows that the accused infringer is more likely to win when it files suit in a declaratory judgment action—and thus gets to choose the forum—than when it is sued as a defendant in an action for patent infringement; likewise, a patentholder is more likely to win when it chooses the forum by filing suit in an infringement action than when it is sued as a defendant in a declaratory judgment action.<sup>124</sup> Moore shows that these results cannot be explained by the strength of declaratory judgment seekers' cases because her statistics were based solely on cases that went to trial, indicating that they were not such strong cases as to be likely candidates for settlement.<sup>125</sup> Similarly, selection biases in favor of certain district courts are observable. I find that of all cases involving utility patents filed in 2005, only 4.05% of those filed in the notoriously patentee-friendly Eastern District of Texas were declaratory judgment suits brought against the patentee, as compared with 15.49% of the patent suits filed in all other judicial districts.

There are three principal concerns with permitting vast forum shopping. First, to the extent that win rates differ across districts—and the general evidence is that they do<sup>126</sup>—patent law's substantive poli-

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<sup>122</sup> MOORE, MICHEL & HOLBROOK, *supra* note 116, at 100 & tbl.8.

<sup>123</sup> Moore, *supra* note 10, at 899–900. *See generally* Mark A. Lemley, Where To File Your Patent Case (unpublished manuscript), available at [http://papers.ssrn.com/papers.cfm?abstract\\_id=1597919](http://papers.ssrn.com/papers.cfm?abstract_id=1597919) (examining which of these factors are most salient to plaintiffs and presenting empirical data on different district courts' performances on these factors, thereby suggesting which district courts plaintiffs might prefer).

<sup>124</sup> Moore, *supra* note 10, at 920–21, 921 fig.4.

<sup>125</sup> *Id.* at 922–23.

<sup>126</sup> *Id.* at 916–23 (presenting empirical results indicating substantive differences in patent litigation based on chosen venue); *see also* Kevin M. Clermont & Theodore

cies suffer, as does the fair and accurate resolution of disputes. After all, if a patent case is decided by the outcome of a transfer motion and not the underlying substantive law, the normative force of all of patent law suffers significantly. Second, the legal system appears unjust and manipulable when the outcomes vary significantly between jurisdictions, and plaintiffs merely need to choose a jurisdiction to affect the outcome.<sup>127</sup> Third, forum shopping can be economically inefficient because it can waste resources when litigants fight over the appropriate forum or when one litigant is severely inconvenienced by a remote forum choice.<sup>128</sup> Relatedly, the fact that outcomes vary depending on forum choice, coupled with plaintiffs' wide choice of fora, creates an atmosphere of *ex ante* legal uncertainty in which entities are unsure of what the law will require of them.<sup>129</sup> Finally, transfer to arguably fairer judicial districts does not happen often enough to mitigate these effects.<sup>130</sup>

Concerns about forum shopping have been mitigated somewhat by the creation of the Federal Circuit, as that court's case law governs all district court decisions on patent law and almost any patent law decision is appealable to that court. Thus, the funneling of nearly all district court cases to the Federal Circuit ought to smooth out at least some of the differences between district courts. However, the Federal Circuit has not been as successful at smoothing out these differences in reality. First, only about five percent of district court patent cases are appealed to the Federal Circuit.<sup>131</sup> Second, district courts' factual determinations receive some deference from the Federal Circuit and can significantly affect legal outcomes. Therefore, this smoothing effect does not come close to undoing the harm caused by widespread forum shopping.

Admittedly, as Moore's data describe, forum shopping has some positive effects. For one thing, it seems that *de facto* specialized trial

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Eisenberg, *Exorcising the Evil of Forum-Shopping*, 80 CORNELL L. REV. 1507 (1995) ("Venue is worth fighting over because outcome often turns on forum.").

<sup>127</sup> Moore, *supra* note 10, at 924.

<sup>128</sup> *See id.* at 924–26.

<sup>129</sup> *See id.* at 927–28.

<sup>130</sup> *See id.* at 897–98 (noting infrequency of transfer motions). Transfer can happen in three ways: The district court in which a case was filed may approve a transfer motion, 28 U.S.C. § 1404 (2006); another court, such as the judicial panel on multidistrict litigation, may do the same, *id.* § 1407; or an appellate court may issue a writ of mandamus, 16 CHARLES ALAN WRIGHT, ARTHUR R. MILLER & EDWARD H. COOPER, FEDERAL PRACTICE AND PROCEDURE § 3935.4 (2d ed. 1996). When district courts are truly plaintiff-friendly, transfer motions are unlikely to be granted.

<sup>131</sup> *See supra* notes 109–12 and accompanying text (noting that approximately 90% of district court cases are settled, and only about half of remainder are appealed to Federal Circuit).

courts have emerged in patent law by virtue of a handful of district courts seeing so many patent cases.<sup>132</sup> As I explore in the following Section, specialized trial courts can better shape patent law through their development of expertise. Moreover, some of the reasons for picking one forum over another may have beneficial effects in a patent suit. For example, Moore cites the Northern District of California as advantageous for patent litigation: It is one of the few districts with local procedural rules for patent cases,<sup>133</sup> and juries might be better versed in high technology given that the district contains Silicon Valley.<sup>134</sup> These attributes of the Northern District of California suggest that a patent plaintiff picking that court might get a more accurate and efficient outcome. Additionally, choosing a district that handles patent cases quickly might be desirable because the parties to the suit will incur lower costs in quickly concluded actions.<sup>135</sup> Despite frequent observation that the Eastern District of Texas is a haven for plaintiff wins in patent infringement cases,<sup>136</sup> Xuan-Thao Nguyen suggests a number of outcome-neutral reasons that patent plaintiffs might choose it as their litigation forum, including knowledgeable and welcoming judges, the judges' appearance of fairness and reasonableness, its local rules for patent cases, its customer-oriented approach, and an unbiased jury.<sup>137</sup> Regardless of whether litigants are choosing the Eastern District of Texas solely for Nguyen's outcome-neutral reasons (and there is good reason to suspect that they are not<sup>138</sup>), Nguyen's factors might buttress their forum choice. In that sense, reasons for forum shopping that might seem unjustly strategic might be accompanied by beneficial reasons as well.<sup>139</sup>

Commentators critical of forum shopping in patent litigation suggest two ways to clamp down on it. First, a specialized patent trial

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<sup>132</sup> Moore, *supra* note 10, at 925.

<sup>133</sup> *Id.* at 900 n.48.

<sup>134</sup> *Id.* at 900–01.

<sup>135</sup> *See id.* at 908.

<sup>136</sup> *See, e.g.*, Donald R. Dunner, *A Retrospective of the Federal Circuit's First 25 Years*, 17 FED. CIR. B.J. 127, 130 (2007) (noting that Eastern District of Texas is perceived as pro-patentee); Yan Leychikis, *Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation*, 9 YALE J.L. & TECH. 193, 210–15 (2007) (arguing that juries in Eastern District of Texas are plaintiff friendly).

<sup>137</sup> Xuan-Thao Nguyen, *Justice Scalia's "Renegade Jurisdiction": Lessons for Patent Law Reform*, 83 TUL. L. REV. 111, 136–43 (2008).

<sup>138</sup> *See infra* note 246 and accompanying text (showing that, in disproportion to other districts, almost no declaratory judgment suits for patent noninfringement are filed in Eastern District of Texas, which suggests perception of pro-patentee bias).

<sup>139</sup> Forum shopping also places district courts in competition with one another. So long as this competition fosters a race to the top, forum shopping might cause district courts to develop useful rules to attract litigation.

court might be created, giving plaintiffs no choice but to file their patent cases there.<sup>140</sup> This system would eliminate economic inefficiencies that arise from fighting over a forum and would not seem as unjust as the current system.<sup>141</sup> Moreover, a specialized trial court would likely create more uniform law, thereby decreasing legal uncertainty.<sup>142</sup> As I elaborate further in the next Section, it could also develop more nuanced expertise in patent law, resulting in more accurate and efficient legal decisions.<sup>143</sup> Of course, along with specialized patent trial courts come concerns about outcome bias and tunnel vision nearly identical to those about the Federal Circuit discussed above.<sup>144</sup>

Another possibility is to restrict venue choices. Moore suggests that if venue were restricted to a defendant's residence or state of incorporation, plaintiffs could not shop for the most strategically advantageous forum, and litigation would be more convenient for the defendant who has been haled into court involuntarily.<sup>145</sup> Venue tightening would thus eliminate the injustice, economic inefficiencies, and legal uncertainty currently permitted. The most direct way to restrict venue choices is through legislation, but courts can also create implicit limitations by expansively exercising their power to transfer cases. In fact, the Federal Circuit has recently granted the normally elusive writ of mandamus four times to transfer cases out of the most notoriously forum-shopped district, the Eastern District of Texas.<sup>146</sup>

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<sup>140</sup> See, e.g., Moore, *supra* note 10, at 932–34 (arguing for specialized court, but noting that Congress is unlikely to act soon).

<sup>141</sup> See *id.* at 924–25 (discussing inefficiencies and perceived injustice of forum shopping).

<sup>142</sup> *Id.*

<sup>143</sup> *Id.* at 932–33.

<sup>144</sup> See *supra* notes 81–86 and accompanying text. There is an additional concern about the potential for a loss of prestige for judges serving on a specialized court. See *supra* note 86.

<sup>145</sup> Moore, *supra* note 10, at 934.

<sup>146</sup> See *In re Nintendo Co.*, 589 F.3d 1194, 1201 (Fed. Cir. 2009) (granting writ); *In re Hoffman-La Roche, Inc.*, 587 F.3d 1333, 1335 (Fed. Cir. 2009) (same); *In re Genentech, Inc.*, 566 F.3d 1338, 1349 (Fed. Cir. 2009) (same); *In re TS Tech USA Corp.*, 551 F.3d 1315, 1323 (Fed. Cir. 2008) (same). Because transfer is a nonpatent issue, the Federal Circuit applies regional circuit law when considering a request for transfer. *Nintendo*, 589 F.3d at 1197. Fifth Circuit case law thus enables the granting of a writ of mandamus, *In re Volkswagen of Am., Inc.*, 545 F.3d 304 (5th Cir. 2008) (en banc), although many other circuits do not grant venue transfers as liberally. See Benjamin P. Freedland & James D. Peterson, *Motions To Transfer After In re Genentech: The Effect of Federal Circuit Writs of Mandamus on Western District Litigation*, GODFREY & KAHN (Mar. 2010), <http://www.gklaw.com/resources/documents/IPUpdate031810.pdf> (suggesting that Seventh Circuit would not grant transfer as readily as Fifth Circuit).

However, some commentators, including Moore, disfavor tightening venue.<sup>147</sup> In particular, Moore thinks it would undermine the de facto specialized patent trial courts that forum shopping has engendered.<sup>148</sup> In Part III, I show, however, that exactly the opposite effect would obtain from tightening venue owing to patentography. This effect thereby counsels in favor of restricted venue choices.

In sum, despite the Federal Circuit's creation, which occurred in part to eliminate forum shopping for strategic advantage, forum shopping remains alive and well for patent cases in the district courts. The problem is not as bad as it was before the Federal Circuit, which has smoothed out some of the harmful effects of forum shopping. Yet many of the downsides of forum shopping remain, given the importance of district courts to patent litigation outcomes.

### B. *Poor Decisionmaking in the District Courts*

Critics also express another concern with patent litigation in the district courts—that our generalist district courts are poorly structured to adjudicate patent cases. First, district courts, principally composed of non-technically trained judges, are not well equipped to ascertain and understand the often technical facts involved in patent litigation, be they about software, pharmaceuticals, or some other technology.<sup>149</sup> This failure leads to inaccurate or poorly reasoned patent decisions, as the district courts rely on mistaken facts or an incomplete picture in reaching legal decisions.<sup>150</sup> Second, because district court judges tend to be inexperienced in patent law, critics argue that they have a poor grasp of patent law's many intricacies.<sup>151</sup> Pointedly, as Craig Nard observes, although patent law is grounded in statute, “much like the Sherman Act, [it] is a common law enabling statute, leaving ample room for courts to fill in the interstices or to create doctrine emanating solely from Article III's province.”<sup>152</sup> Understanding patent

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<sup>147</sup> Moore, *supra* note 10, at 934; *see also* Dreyfuss, *supra* note 10, at 805 (reviewing and adopting Moore's views).

<sup>148</sup> Moore, *supra* note 10, at 934.

<sup>149</sup> *See* Arti K. Rai, *Specialized Trial Courts: Concentrating Expertise on Fact*, 17 BERKELEY TECH. L.J. 877, 891–95 (2002) (discussing challenges and potential solutions for trial courts facing technical evidence).

<sup>150</sup> *See id.* (describing dangers of factual errors).

<sup>151</sup> *See, e.g.*, Steve Seidenberg, *Patent Rocket Docket: Patent Holders Choose the International Trade Commission for Fast, Powerful Results*, 93 A.B.A. J., Jan. 2007, at 38, 38 (noting that unlike ITC judges, district court judges lack expertise in patent claim construction).

<sup>152</sup> Craig Allen Nard, *Legal Forms and the Common Law of Patents*, 90 B.U. L. REV. 51, 53 (2010).

law requires a full-bodied knowledge of many Federal Circuit and other patent decisions, something many district court judges lack.

As to the first concern about factfinding, factual inquiries are essential to proper decisionmaking in patent law. This importance remains even assuming the Supreme Court and Federal Circuit have correctly labeled several critical patent issues as legal rather than factual.<sup>153</sup> As described above, numerous issues in patent cases are considered factual, including the ultimate question of patent infringement and many issues related to a patent's validity—principally an invention's utility and novelty.<sup>154</sup> Even when patent issues are labeled as legal, courts have acknowledged the intertwined nature of law and fact in patent determinations. For example, the Supreme Court has said that the legal determination of nonobviousness

lends itself to several basic factual inquiries. Under [the statute], the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.<sup>155</sup>

The Supreme Court has also emphasized the fact-like aspects of perhaps the most important inquiry in patent law, claim construction, by calling it “an issue fall[ing] somewhere between a pristine legal standard and a simple historical fact,”<sup>156</sup> dependent in part on credibility determinations in relation to the patent document.<sup>157</sup>

Arti Rai goes one step further, arguing that

the complexity of patent law lies . . . in the scientific fact-finding required to apply those legal principles properly. Indeed, difficult questions of scientific fact are likely to arise more routinely in patent law than in virtually any other field of law. Moreover, facts are often central to the ultimate disposition of patent cases. Not only is the question of infringement a complicated factual inquiry,

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<sup>153</sup> See *infra* Part II.C.

<sup>154</sup> See *supra* Part I.C.

<sup>155</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

<sup>156</sup> *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388 (1996) (internal quotation marks omitted).

<sup>157</sup> *Id.* at 389–90.

but various other key inquiries, such as those into patent scope and patent validity, are also dominated by complex facts.<sup>158</sup>

For these reasons, precision in factual determinations and even knowing which factual questions must be answered are essential to sound legal determinations. District courts unfamiliar with the technical intricacies of the software, pharmaceuticals, mechanical devices, electronics, and other industries in which patents frequently are sought might struggle and fall short in the most important aspects of their work<sup>159</sup>: factfinding at a bench trial,<sup>160</sup> applying the law appropriately to the facts,<sup>161</sup> and deciding on the admissibility of evidence in a jury trial<sup>162</sup> (to say nothing of a lay jury's incompetence in factfinding in these areas<sup>163</sup>).

Legal determinations might not be any easier, particularly for judges who rarely see patent cases.<sup>164</sup> Patent law is intricate and frequently isolated from other areas of the law, making it likely that district court judges will not be sufficiently familiar with it to apply it fluently.<sup>165</sup> Critics point to the Federal Circuit's high reversal rate of district courts' patent decisions on both legal and factual determinations as a crucial piece of evidence that the district courts are not adju-

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<sup>158</sup> Rai, *supra* note 149, at 878; *accord* Revesz, *supra* note 64, at 1117 (noting that non-specialized courts may not make correct decisions due to technical complexity of facts in patent cases).

<sup>159</sup> See HENRY J. FRIENDLY, *FEDERAL JURISDICTION: A GENERAL VIEW* 156–57 (1973) (“[T]he courts must also deal today with a great number of patents in the higher reaches of electronics, chemistry, biochemistry, pharmacology, optics, harmonics and nuclear physics, which are quite beyond the ability of the usual judge to understand without the expenditure of an inordinate amount of educational effort by counsel and of attempted self-education by the judge . . .”).

<sup>160</sup> See Bruff, *supra* note 68, at 334 (criticizing fact that “many complicated fact issues . . . are decided in the generalized district courts”); David L. Schwartz, *Practice Makes Perfect?: An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223, 260–61 (2008) (“The issues in a typical patent case may be so complex that legal minds without a background in science cannot appropriately resolve them.”).

<sup>161</sup> See Dreyfuss, *supra* note 68, at 74 (“[W]hen the law is clear but difficult to apply to complex factual situations, the place to specialize is at the trial.”).

<sup>162</sup> See Rai, *supra* note 149, at 890 (describing Judge Kozinski's critique of *Daubert's* requirement that judges make determinations as to what constitutes “good science”).

<sup>163</sup> See *id.* at 895 (“[J]uries are highly suspect as finders of scientific fact . . .”). For an exploration of the jury's role in patent cases, see generally Fromer, *supra* note 12, at 7–8.

<sup>164</sup> See Arti K. Rai, *Engaging Facts and Policy: A Multi-institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1097–98 (2003) (arguing that generalist courts that see few patent cases are “uncomfortable dealing with the intricacies of patent litigation”).

<sup>165</sup> See *id.* at 1097 (“[G]eneralist trial judges also have significant limitations. The infrequent nature of patent litigation makes it unlikely that the typical district judge will see more than a few patent cases over the course of her tenure.”).

dicating patent cases well.<sup>166</sup> David Schwartz points out that the reversal rates on claim construction remain high for district court judges even as they become more experienced in it, possibly indicating that judges do not learn from Federal Circuit review of their decisions.<sup>167</sup> As Schwartz recognizes, this conclusion assumes that the Federal Circuit is reaching the right answer—a suspect assumption because the Federal Circuit may not be well placed to review certain issues decided by the district courts.<sup>168</sup> Some think these concerns are less pertinent for those district courts that frequently hear patent cases, as they ought to feel more at ease with the particulars of patent law and perhaps with the technical facts relevant to legal conclusions as well.<sup>169</sup>

Rochelle Dreyfuss suggests that the Federal Circuit has molded its legal rules to fit the problem of district courts' lack of expertise.<sup>170</sup> She hypothesizes that the Federal Circuit has crafted rigid or formalistic analytical approaches to many patent issues, such as claim construction and nonobviousness, because it cannot scrutinize every substantive outcome.<sup>171</sup> According to Dreyfuss, this focus on district courts' analytical approaches obfuscates the substantive policies patent law ought to promote and harms the quality of legal development in this area.<sup>172</sup>

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<sup>166</sup> See Jeff Becker, Comment, *On Creating Specialized Patent District Courts: Why H.R. 34 Does Not Go Far Enough To Address Reversal Rates in District Courts*, 61 SMU L. REV. 1607, 1608 (2008) (discussing congressional bill aimed at “reduc[ing] the outrageous number” of Federal Circuit reversals by “creating more expertise and experience among district court judges”). Some empirical work finds a 22% reversal rate for district courts' patent decisions. Moore, *supra* note 5, at 397. This number has been found to be significantly higher for certain patent issues, such as claim construction. See *supra* text accompanying notes 6–7.

<sup>167</sup> Schwartz, *supra* note 160, at 225–26.

<sup>168</sup> It might be that the Federal Circuit does not have the same factfinding capabilities as a district court, which are fundamental to claim construction and other patent law issues. See *infra* notes 199–200; see also Schwartz, *supra* note 116, at 1732 (noting that administrative law judges have more factfinding experience than Federal Circuit). Alternatively, district courts may use different information and processes than the Federal Circuit to reach their conclusions. Jeffrey A. Lefstin, *Claim Construction, Appeal, and the Predictability of Interpretive Regimes*, 61 U. MIAMI L. REV. 1033, 1050 (2007).

<sup>169</sup> Cf. Dreyfuss, *supra* note 10, at 805 (“If patent litigation were concentrated in a limited number of district courts, each court could acquire a degree of expertise in patent matters without sacrificing its generalist perspective.”).

<sup>170</sup> *Id.* at 802–04.

<sup>171</sup> *Id.* at 802–03; cf. Rai, *supra* note 164, at 1037 (criticizing Federal Circuit's “adoption of bright-line rules that are insensitive both to technological fact and to related issues of innovation policy”).

<sup>172</sup> Dreyfuss, *supra* note 10, at 803; accord Timothy R. Holbrook, *Substantive Versus Process-Based Formalism in Claim Construction*, 9 LEWIS & CLARK L. REV. 123, 133 (2005) (noting also that Federal Circuit doctrine is “more suspect” to Supreme Court because of its focus on formulaic rules); John R. Thomas, *Formalism at the Federal Circuit*,

In response to these concerns, some legislators and scholars have proposed specialized patent district courts or specialized judges in existing courts, in the mold of the Federal Circuit.<sup>173</sup> Others dispute any pressing need for specialized patent district courts, arguing that such tribunals already exist de facto by virtue of the fact that ten district courts already handle almost half of the country's patent litigation.<sup>174</sup> However, these current hubs for patent litigation do not have a lower reversal rate before the Federal Circuit than other district courts, which may suggest that specialized district courts would not increase the quality of patent decisions.<sup>175</sup>

Creating specialized patent trial courts raises concerns reminiscent of the critiques some have asserted against the Federal Circuit.<sup>176</sup> Pertinently, a specialized trial court hearing only patent cases might develop tunnel vision and adopt legal frameworks outside of mainstream legal thought. This concern acquires special force when layering a specialized trial court below a specialized appellate court, a structure which raises the specter of a highly divergent body of law with no external checks save action by Congress or the Supreme Court, which are both infrequent actors in this field. To the extent that systemic biases may pervade specialized courts, the reinforcing effects of specialized trial and appellate courts is particularly worrisome.<sup>177</sup>

These concerns recede in schemes to place judges specialized in patent law or expert in underlying patented technologies on district courts or to train district court judges who hear disproportionate numbers of patent cases, as has been proposed in some recent patent reform attempts.<sup>178</sup> Tunnel vision and systemic biases are less signifi-

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52 AM. U. L. REV. 771 (2003) (casting "wary eye" on Federal Circuit's bright-line approach).

<sup>173</sup> See, e.g., Establishing a Pilot Program in Certain District Courts, H.R. 34, 110th Cong. § 1 (2007) (permitting judges in certain larger districts with many patent cases to opt in or out of patent cases, to secure specialized training related to patent law and technologies, and to hire technically proficient law clerks); FRIENDLY, *supra* note 159, at 156–61 (urging creation of specialized court populated with judges expert in various patented technologies); Becker, *supra* note 166, at 1626–27 (recommending specialized patent judges for those districts busiest with patent litigation); Donna M. Gitter, *Should the United States Designate Specialist Patent Trial Judges?*, 10 COLUM. SCI. & TECH. L. REV. 169, 173 (2009) (urging designation of specialized patent trial judges in district courts).

<sup>174</sup> See, e.g., Thomas Chen, Note, *Patent Claim Construction: An Appeal for Chevron Deference*, 94 VA. L. REV. 1165, 1207–08 (2008).

<sup>175</sup> *Id.* at 1208.

<sup>176</sup> See *supra* notes 81–86 and accompanying text.

<sup>177</sup> Finally, diminished prestige potentially associated with a specialized court might mean that the court's judicial candidates may not be as credentialed as other courts' candidates.

<sup>178</sup> See *supra* note 173. In fact, these schemes can work beneficially in tandem with this Article's proposal.

cant concerns when the relevant judges remain part of a generalist district court hearing a wide range of cases.<sup>179</sup>

In sum, critics propose specialized patent trial courts of varied forms to improve district court decisionmaking in patent cases with regard to both factual and legal matters. That said, these proposals raise concerns, particularly due to the layering of two specialized courts.

### C. *Insufficient Appellate Deference to the District Courts*

An additional critique leveled against the institutional structure of patent litigation concerns the allocation of power between district courts and the Federal Circuit. Academic critics maintain that the Federal Circuit does not defer frequently enough to the district courts. These critics put forth various arguments in support of increased deference, including that district courts are not poor patent law decisionmakers, that only some are poor patent law decisionmakers, and that changes ought to be made to improve district court decisionmaking and thus facilitate greater deference.

In this vein, Arti Rai suggests that the Federal Circuit has mistakenly labeled certain critical factual determinations as questions of law, giving itself the opportunity to review them *de novo*.<sup>180</sup> This criticism is primarily aimed at claim construction. Federal Circuit Judge Plager has called claim construction the most important issue in patent litigation, as its result often dictates the outcomes on infringement, novelty, nonobviousness, enablement, and other key patent issues.<sup>181</sup> Although claim construction might simply seem to be about figuring out what the words in a patent document mean—making it seem like statutory interpretation, a clear question of law—it is more realistically about discerning meaning from the point of view of a person having ordinary skill in the relevant art at the time of invention,<sup>182</sup> which is largely a factual undertaking. A district court construing claims might need to review testimony by scientific and industry experts and documentary evidence about the relevant technology,

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<sup>179</sup> The same is true of potential loss of prestige.

<sup>180</sup> Rai, *supra* note 149, at 879; *cf.* Chen, *supra* note 174, at 1167 (proposing that “*Chevron* deference is the proper appellate standard of review for patent claim construction,” given indeterminacy in claim language and inefficiency of *de novo* review).

<sup>181</sup> See S. Jay Plager, *Challenges for Intellectual Property Law in the Twenty-First Century: Indeterminacy and Other Problems*, 2001 U. ILL. L. REV. 69, 71 (noting importance of claim construction).

<sup>182</sup> See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 986 (Fed. Cir. 1995) (en banc).

industry, and invention.<sup>183</sup> This inquiry is comprised of traditional factfinding tasks: evaluating credibility, constructing who the person having ordinary skill in the art was and what they would have thought when the invention was made, and making sense of the industry, technology, and invention.<sup>184</sup> This critique is so salient that six Federal Circuit judges themselves recently suggested that the labeling of claim construction as a question of law ought to be revisited.<sup>185</sup>

Similar arguments have been directed at other prominent patent determinations labeled as legal questions, such as nonobviousness and enablement. Although the Federal Circuit claims it defers to district court factfinding on these issues, Rai sees such announcements as “mere lip service” to the standard of review, accompanied by searching appellate inquiry.<sup>186</sup> Rai posits that issues like nonobviousness and enablement are essentially factual. Indeed, the Supreme Court has recognized the large number of factual inquiries underpinning nonobviousness.<sup>187</sup> Similarly, enablement determinations turn largely on assessing the level of skill in the relevant art, which is then used to determine whether sufficient information was disclosed in a patent to enable the making or use of the invention by such experts.<sup>188</sup> As evidence that the Federal Circuit is engaging in unduly searching review, Rai points to various Federal Circuit cases on nonobviousness

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<sup>183</sup> Lauren Maida, Note, *Patent Claim Construction: It's Not a Pure Matter of Law, So Why Isn't the Federal Circuit Giving the District Courts the Deference They Deserve?*, 30 CARDOZO L. REV. 1773, 1795–1801 (2009) (arguing that district courts may be better suited for claim construction when factual inquiries are involved).

<sup>184</sup> See Dreyfuss, *supra* note 10, at 802 (describing factfinding in patent cases).

<sup>185</sup> The issue of de novo review of claim construction was a key point of contention in the denial of rehearing en banc in *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 469 F.3d 1039 (Fed. Cir. 2006). See *id.* at 1040 (Michel, J., dissenting) (“I have come to believe that reconsideration [of our rule of de novo review for claim construction] is appropriate and revision may be advisable.”); *id.* at 1044 (Rader, J., dissenting) (“I urge this court to accord deference to the factual components of the lower court’s claim construction.”); *id.* at 1045 (Gajarsa, Linn, and Dyk, JJ., concurring) (“In an appropriate case we would be willing to reconsider limited aspects of [our approach to claim construction].”); *id.* at 1045–46 (Moore, J., dissenting) (“I believe this court should have taken this case en banc to reconsider its position on deference to district court claim construction . . .”).

Following the Supreme Court’s holding in *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), that claim construction is not a jury question because it is not analogous to any jury question at the United States’s founding, the Federal Circuit leaped to the conclusion that the *Markman* rule requires that claim construction be a purely legal question. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454–56 (Fed. Cir. 1998). That leap of logic was unwarranted, as something could be both a nonjury and factual question. See *Cybor*, 138 F.3d at 1473 (Rader, J., dissenting) (noting that Supreme Court’s decision in *Markman* focused on jury element, not on whether question was legal or factual).

<sup>186</sup> Rai, *supra* note 149, at 885–86.

<sup>187</sup> See *supra* note 155 and accompanying text.

<sup>188</sup> *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993).

and enablement, in which the appellate court surreptitiously substituted its own factual findings for the district court's.<sup>189</sup>

Some critics wonder whether the Federal Circuit's labeling of some questions as legal—while thoroughly reviewing other, ostensibly factual questions—might be a “power grab.”<sup>190</sup> Others suggest a less nefarious explanation stemming from the critiques of the institutional structure of patent law: Labeling pure factual determinations as legal questions might help the Federal Circuit keep patent law uniform in the face of extensive forum shopping and wide variations in patent law in the district courts.<sup>191</sup> Such labeling also might help protect ill-equipped district courts from their own errors in patent law.<sup>192</sup> Usually, appellate courts defer to district courts' factual findings because the district courts know cases' facts better and are in a superior position to judge testimonial credibility.<sup>193</sup> However, in patent law, when the Federal Circuit's judges are greater patent experts than the district court's, the Federal Circuit might seem to be in a better position to review technological facts and credibility, such that deference on key issues might be unwise.<sup>194</sup>

Rochelle Dreyfuss thinks that specialized patent courts at the trial—rather than the appellate—level would have eased this complication:

[T]he superior fact finding capability of the special court would have been fully exploited and the assumptions underlying the normal standards of review maintained. As a trial court, the patent court would also have had the first opportunity to expound upon novel legal questions. The regional circuits would have retained authority to review these decisions, and they would have been posi-

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<sup>189</sup> Rai, *supra* note 149, at 885–87 (citing *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 762–65 (Fed. Cir. 1988), and *N. Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 933 (Fed. Cir. 1990)).

<sup>190</sup> Peter Zura, *Looking for Fire Amidst the Smoke—Is the Federal Circuit Really Exceeding Its Appellate Authority in Patent Infringement Cases?*, 12 U. BALT. INTELL. PROP. L.J. 1, 22 (2003).

<sup>191</sup> See, e.g., Dreyfuss, *supra* note 68, at 49–50 (arguing that clearly erroneous standard of review for factual determinations “interferes with the [Federal Circuit's] ability to bring uniformity to patent law”).

<sup>192</sup> See *id.* at 47–48 (noting that Federal Circuit is at least as well prepared as trial court to establish facts in patent cases because trial judges are generalists while appellate judges have expertise in technical factual areas).

<sup>193</sup> *Id.*

<sup>194</sup> *Id.*; see also Rochelle Cooper Dreyfuss, *The Federal Circuit: A Continuing Experiment in Specialization*, 54 CASE W. RES. L. REV. 769, 797–98 (2004) (describing Federal Circuit's encroachment on factual questions); Rai, *supra* note 149, at 879 (empathizing with Federal Circuit's attempt to conduct more searching review).

tioned to prevent parochialism, correct bias, and keep the law in line with doctrinal developments in related fields.<sup>195</sup>

Dreyfuss makes the general observation that a specialized trial court makes sense “[w]hen the law is clear but difficult to apply to complex factual situations.”<sup>196</sup> By contrast, a specialized appellate court is prudent, according to Dreyfuss, “[w]hen the facts are clear but the law is complex, or in need of judicial elaboration.”<sup>197</sup> Because patent law has both factual and legal complexities,<sup>198</sup> proficiency—if not expertise—in it makes sense at both the trial and appellate levels.

In any event, the Federal Circuit’s usurpation of factfinding is not ideal. For one thing, the Federal Circuit typically sees only a cold record, usually as abridged by the litigants’ lawyers. It neither evaluates witness testimony in the first instance, nor sees all of the evidence—testimonial and documentary—that comes before the district court; it evaluates a storyline presented by the district court and counsel rather than an unrefined factual mass from which to mold its own version of events.<sup>199</sup> As Arti Rai emphasizes, the Federal Circuit—like other courts of appeals—ought not to be finding facts, as it is not a trial court.<sup>200</sup>

The labeling of fact as law also distorts the accuracy of patent law’s development. A “domino effect” of inaccuracy can result from having the Federal Circuit review *de novo* factually dense matters like claim construction.<sup>201</sup> Litigants learning what a patent claim means on appeal cannot easily rewind and redo their trial to introduce the evidence they just learned would have been relevant to determinations of infringement and other issues on which the claim construction relies.<sup>202</sup>

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<sup>195</sup> Dreyfuss, *supra* note 68, at 73–74.

<sup>196</sup> *Id.* at 74.

<sup>197</sup> *Id.*

<sup>198</sup> See *supra* text accompanying notes 149–69.

<sup>199</sup> See Schwartz, *supra* note 160, at 264 (“In contrast to the ‘cold’ appellate record, district court judges often hear live or video testimony, have better access to the evidence, and are in a better position to judge credibility issues.”).

<sup>200</sup> See Rai, *supra* note 149, at 879 (“[T]here are sound institutional reasons for the conventional division of labor that gives trial courts primary responsibility for questions of fact . . .”). Moreover, while Federal Circuit judges might know patent law very well, they are not as expert in the technical facts at issue in patent cases. A minority of the Federal Circuit’s active judges have technical backgrounds. *Id.* Even those who do cannot be expected to have any depth of understanding of scientific or technical areas beyond their training. *Id.*

<sup>201</sup> *Id.* at 884–85.

<sup>202</sup> See *id.* (“Even though infringement is, under the Federal Circuit’s own jurisprudence, a factual issue, the Federal Circuit is often reluctant to remand for a new trial on infringement.”).

This Part's three critiques of the institutional challenges of patent litigation illustrate the problems of district courts under the current structure. First, there is widespread forum shopping by patent plaintiffs in the country's district courts. While some of this forum shopping might be about choosing the best district court for patent law's development, a substantial amount is concerned with opting for the best district court for the plaintiff's possibilities of a win. Such a system suggests injustice, economic inefficiency, and legal uncertainty. Second, many district courts hear patent cases infrequently enough that these courts are not sufficiently exposed to technologies and industries to understand the facts and law accurately, nor are they experienced enough in patent law to work through its intricacies properly. Finally, while the Federal Circuit might be usurping the district courts' role as factfinder to compensate for the district courts' failings, the Federal Circuit is not a good factfinder, given its institutional limitations as an appellate court.

If patent litigation is to be improved, it is critical to focus on the structure of litigation in the district courts. The next Part takes up that task.

### III

#### HARNESSING PATENTOGRAPHY

In this Part, I propose that the three critiques just analyzed could be addressed in substantial part by tightening venue rules to require plaintiffs to bring suit in the principal place of business of any of the defendants. Adopting this narrower venue provision would substantially reduce forum shopping. It also would tend to cluster technology- and industry-specific patent cases in those districts that already have clusters of businesses engaging in a technology or industry. Constricted venue would therefore allow these district courts to serve as skillful factfinders and specialized patent laboratories for the technologies and industries that are clustered in their respective districts, an outcome that would advance the accurate tailoring of patent law to the various technologies and industries it protects. This mobilization would have the effect of improving both district court factfinding and lawmaking in patent cases. Given that constricted venue would tend to eliminate forum shopping and improve district court decision-making, the Federal Circuit ought to grant more deference to district courts' factual findings, leading to a more appropriate allocation of power between the district courts and the Federal Circuit.

### A. *Proposal and Theory*

Forum shopping for strategic advantage is a problem in patent cases. The two possible solutions are to constrict venue possibilities in the district courts or to create specialized patent trial courts. Kimberly Moore and Rochelle Dreyfuss resist the former solution on the ground that it would disrupt the de facto specialized patent trial courts that have arisen under the current state of widespread forum shopping. Patent litigation, they argue, would then be dispersed too widely among the ninety-four district courts for any court to develop sufficient proficiency in patent law.<sup>203</sup> Supporters of the latter solution reason that specialized patent trial courts would solve the problem of poor decisionmaking and could also help reallocate factfinding power back to the district courts and away from the Federal Circuit.<sup>204</sup>

I argue that Moore's and Dreyfuss's opposition to restricting venue is misplaced and that specialized patent trial courts are not an optimal solution for the development of sound patent law in the district courts. Instead, I suggest a more restricted variation on recent congressional proposals for constricting venue.<sup>205</sup> I propose that it is preferable to constrain venue to require suit in the district of the principal place of business of any of the defendants<sup>206</sup> (with a safety valve available in a limited set of cases to avoid due process concerns, as described below<sup>207</sup>). When all of the possible defendants have their principal place of business in a foreign country, I suggest the plaintiff can choose the district in which to file suit.<sup>208</sup> Restricting venue will clamp down on widespread forum shopping, and, contrary to Moore's and Dreyfuss's views, it will promote better decisionmaking in the dis-

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<sup>203</sup> Dreyfuss, *supra* note 10, at 805; Moore, *supra* note 10, at 934.

<sup>204</sup> Rai, *supra* note 164, at 1097–1101. See generally John B. Pegram, *Should There Be a U.S. Trial Court with a Specialization in Patent Litigation?*, 82 J. PAT. & TRADEMARK OFF. SOC'Y 765 (2000) (discussing a model for specialized courts).

<sup>205</sup> See *infra* notes 263–67 and accompanying text.

<sup>206</sup> The Supreme Court recently ruled that for the purpose of diversity jurisdiction, the principal place of business of a corporation is its “nerve center,” that is, “where a corporation’s officers direct, control, and coordinate the corporation’s activities.” *Hertz Corp. v. Friend*, 130 S. Ct. 1181, 1192 (2010). For individual defendants, constrained venue ought to be based on their residence.

<sup>207</sup> See *infra* notes 254–55 and accompanying text.

<sup>208</sup> This aspect is similar to the current general venue provision for foreign defendants. See *supra* note 56 and accompanying text. An alternative proposal is to require suit in the principal place of business of a domestic plaintiff. This would ensure that patent venue rules do not promote forum shopping for either foreign or domestic defendants. Cf. Kimberly A. Moore, *Xenophobia in American Courts*, 97 Nw. U. L. REV. 1497, 1504 (2003) (demonstrating “a substantial disparity in domestic and foreign party success in jury trials” in patent cases). Moreover, it would nudge these cases into beneficial technology clusters of patent litigation. See *infra* notes 249–50 and accompanying text (noting that plaintiffs and defendants are often competitors within same industry).

strict courts by tending to aggregate technology- and industry-specific patent cases in those districts that already have clusters of businesses engaging in a technology or industry. Only then would it make sense for the Federal Circuit to defer to the district courts' factfinding.

Specialized patent trial courts hearing cases involving disparate industries and technologies would not be as helpful as their advocates suggest. As Arti Rai points out, "Congress has chosen to make the requirements of patentability fact-specific and the language of the statute open to policy-oriented interpretation by the judiciary."<sup>209</sup> Consequently, patent law should account for the very different characteristics that industries and technologies can have, such as the cost and speed of imitation, the importance of first-mover advantages, the availability of incentives to innovate other than patent, the degree of positive externalities, and the importance of cumulative innovation.<sup>210</sup> Because of differences in innovation patterns across industries, a patent suit over software has little in common with one over biotechnology, automotive technology, pharmaceutical drugs, or mechanical devices. For these reasons, grouping together, say, five hundred patent cases from a variety of industries and technologies in one court will not give the court five hundred chances to improve iteratively its approach to patent law. Because the technologies and industries governed by patent law are heterogeneous, development of optimal patent rules will best be furthered by judges seeing a smaller number of cases with similar technologies or industries.<sup>211</sup>

Patent law will benefit from the specialization of district courts by industry for two reasons. First, given their proximity to a case's facts and witnesses, district courts' relative strength lies in their development of factual records, be they about the details of an individual dispute or about the state of the industry and technology at hand. By channeling most pharmaceutical patent cases into one district court, software products patent cases into another, and so forth, this approach would allow those district courts to develop ever better understandings of the different industries in which patenting occurs. Armed with this knowledge, district courts will be able to shape more accurate records, and those records will in turn lead to the develop-

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<sup>209</sup> Rai, *supra* note 164, at 1037–38.

<sup>210</sup> BURK & LEMLEY, *PATENT CRISIS*, *supra* note 12, at 42–47; *see also* Nancy Olson, Comment, *Does Practice Make Perfect?: An Examination of Congress's Proposed District Court Patent Pilot Program*, 55 UCLA L. REV. 745, 762 (2008) ("[S]ubstantive specialization . . . will be difficult to achieve in practice, as patent cases will rarely ever be exactly the same. While the underlying patent law is the same, the technologies vary widely.").

<sup>211</sup> The Federal Circuit, as an appellate court, is in a different position because it must take a bird's-eye view with regard to questions of law that apply across technologies and industries.

ment of a more coherent body of patent law.<sup>212</sup> On appeal, the Federal Circuit will, on average, be more able to trust district courts' well-developed determinations of technologically complicated facts in reviewing legal conclusions.<sup>213</sup> Second, with accurately found and appropriately focused facts in hand, these district courts will do a better job at determining how patent law ought to apply to particular industries or technologies in light of advancing innovation in that field. The Federal Circuit will then be able to review more legally robust patent decisions.<sup>214</sup> The different district courts will thus serve as patent laboratories from which the Federal Circuit could build an accurate and uniform, but technology-specific, patent law.

To create technology-specific clusters simply and effectively, Congress need only tighten up the venue provisions to allow suit in the district where any of the defendants has its principal place of business. As a vast economics literature suggests, even in this global and networked economy, interconnected industries tend to cluster geographically.<sup>215</sup> For example, many software companies are located in Silicon Valley, along Route 128 in the Boston area, or around Seattle, and many pharmaceutical companies are in New Jersey. According to Michael Porter, clustering is helpful to an industry's growth because it "(a) increas[es] the current (static) productivity of constituent firms or industries, (b) increas[es] the capacity of cluster participants for innovation and productivity growth, and (c) stimulat[es] new business for-

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<sup>212</sup> Cf. Hee-Dong Yang & Youngjin Yoo, *It's All About Attitude: Revisiting the Technology Acceptance Model*, 38 DECISION SUPPORT SYS. 19, 20 (2004) (suggesting that greater exposure to, and thus knowledge of, technology encourages acceptance of that technology).

<sup>213</sup> Cf. Press Release, LegalMetric, LegalMetric Finds Judges' Experience Does Not Help in Patent Cases (Aug. 22, 2006), available at <http://www.eworldwire.com/pdf/15326.pdf> (highlighting study showing that Federal Circuit is less likely to reverse patent decisions by judges with experience in science or technology).

<sup>214</sup> There could be horizontal benefits as well, in that district courts could more comfortably turn to one another's decisions for guidance, to the extent that those decisions will be applicable across industry clusters.

<sup>215</sup> See generally THE ECONOMIC GEOGRAPHY OF INNOVATION (Karen R. Polenske ed., 2007) (tracing theme of "how technology, innovation, and alternative means of transferring knowledge are changing spatial relationships among firms"); MICHAEL E. PORTER, THE COMPETITIVE ADVANTAGE OF NATIONS 148-59 (1998) ("The phenomenon of industry clustering is so pervasive that it appears to be a central feature of advanced national economies."); Michael E. Porter, *Location, Competition, and Economic Development: Local Clusters in a Global Economy*, 14 ECON. DEV. Q. 15 (2000) [hereinafter Porter, *Economic Development*] ("Clusters . . . are a striking feature of virtually every national, regional, state, and even metropolitan economy, especially in more advanced nations."). Economists are convinced that industries will continue to cluster geographically even as the Internet enables transactions from diverse physical locations. Edward E. Leamer & Michael Storper, *The Economic Geography of the Internet Age*, 32 J. INT'L BUS. STUD. 641, 643 (2001).

mation that supports innovation and expands the cluster.”<sup>216</sup> These advantages often stem from spillovers across interconnected firms and institutions, such as accessibility of industry-specific labor, making complementary products, perception of new consumer needs, or trade among local firms.<sup>217</sup>

When patent disputes arise, having the case adjudicated by a district court at the principal place of business of a defendant will tend to cluster patent litigation by technology or industry. There will likely be, say, much litigation about software patents centered in the Northern District of California, the District of Massachusetts, and the Western District of Washington and about pharmaceutical patents in the District of New Jersey. These technology- and industry-specific case clusters will drive continuous improvement in shaping patent rules by the district courts that develop expertise in that technological and industrial area. Such district court decisions—whether in a full-blown patent trial or in the management of settlement negotiations—would therefore be better reasoned and would have a more solid and trustworthy factual foundation.

Rather than implement industry- or technology-specific patent litigation in arbitrary locations (as with specialized patent trial courts), it is advisable to match up regional district courts with the industry clusters already in their areas. Not only might adjudication be economically more efficient, in that at least one of the parties will be local, but district court judges and juries will tend to do a better job than their counterparts in arbitrary locations. District court judges must reside in their district, except for judges in the District of the District of Columbia, the Southern District of New York, and the Eastern District of New York, who may reside within twenty miles of their district.<sup>218</sup> Moreover, to serve on a federal jury in a particular district, a person must have resided in the district for at least one year before service.<sup>219</sup> The combined effect of requiring district court judges and juries to hail from their district (or very close by, in the exceptions listed) is that they will tend, on average, to have a more robust understanding—both technically and economically—of a clustered industry or technology than judges and jurors in other places.<sup>220</sup>

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<sup>216</sup> Porter, *Economic Development*, *supra* note 215, at 21.

<sup>217</sup> See *id.* at 21–25 (discussing collateral benefits that accrue from concentration of firms).

<sup>218</sup> 28 U.S.C. § 134(b) (2006).

<sup>219</sup> *Id.* § 1865(b)(1).

<sup>220</sup> Potential jurors with too much familiarity with a technology or industry, of course, might be struck from the jury for being partial. *Cf.* *Malone v. Vasquez*, 138 F.3d 711, 720 & n.13 (8th Cir. 1998) (holding that prosecutor’s “experience [that] it was not a good idea to

These judges and juries work in that area, have neighbors or family working in that area, or read more stories about that area in the local newspaper.<sup>221</sup> Those who hear a particular patent case on a clustered industry or technology will thus be better equipped to understand the industry's or technology's complexities.<sup>222</sup> They will be more likely to reach correct factual conclusions and to reason well about the effects of different potential patent rules on innovation in that industry or technology. Clustering patent cases by natural geographic industry groups will also make it easier to find knowledgeable court-appointed experts to assist in patent cases because experts will be numerous in the cluster region.

Such clustering would also help district courts resolve legal issues. A district court's handling of numerous patent cases for a particular technology or industry ought to develop that court's expertise in handling the intricacies of patent law and applications of fact to law in technology- or industry-specific ways. Moreover, the local patent bar will pay frequent visits to district courts with clusters,<sup>223</sup> and their refined expertise ought to facilitate better legal development.

Once certain district courts start hearing a sufficient number of patent cases, they could also take structural steps to improve case handling and litigant satisfaction. One key step would be to implement local patent rules to handle patent cases expeditiously and predictably. Already, some district courts have adopted such rules, including the Northern District of Illinois, the Eastern District of Texas, the Central and Northern Districts of California, and the District of New Jersey.<sup>224</sup> Such rules appeal to litigants, indicating that the adoption of such rules would probably be well received.<sup>225</sup> In fact, the Federal

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have jurors who were familiar with the area of a crime" was sufficient, race-neutral reason for peremptory strike).

<sup>221</sup> Cf. Cheng, *supra* note 82, at 547 (noting that judges on D.C. Circuit tend to specialize along subtle lines related to particular industries in which they have experience).

<sup>222</sup> Of course, a particular judge or juror might not be particularly knowledgeable about the relevant technology (say, a juror hailing from the wine region of Napa Valley in a software patent case in the Northern District of California), but the assumption that local jurors will have more expertise in that area's industries ought to hold on average.

<sup>223</sup> Cf. Creswell, *supra* note 2, at 1 (depicting rise of patent bar in Marshall, Texas, to accommodate then-increasing number of patent filings in Eastern District of Texas).

<sup>224</sup> See Becky Thorson, *Intellectual Property Law*, FED. LAW., Nov./Dec. 2009, at 4, 5 (citing local patent rules).

<sup>225</sup> See *supra* notes 123, 137, and accompanying text (citing local rules as one consideration for plaintiffs in selecting forum). For a recent article arguing that local patent rules help facilitate bottom-up patent reform, see Xuan-Thao Nguyen, *Dynamic Federalism and Patent Law Reform*, 85 IND. L.J. 449 (2010).

Circuit grants a high degree of deference to such rules,<sup>226</sup> suggesting its support for these rules.

The stability of natural industry clusters also makes them more appealing as a foundation for a venue rule than the artificial clusters that form due to changing forum-shopping trends. Industry clusters—such as the computer industry in Silicon Valley and the pharmaceutical industry in New Jersey—tend to be relatively stable, lasting on the order of many decades, if not longer.<sup>227</sup> By contrast, many of the artificial clusters in patent litigation, such as the Eastern District of Virginia, have waxed and waned over a decade or less.<sup>228</sup> From 1995 to 1999, the Eastern District of Virginia was the eighth most popular court for patent litigation, but it fell to the twenty-second most popular district from 2000 to 2006.<sup>229</sup> The Eastern District of Texas has taken the opposite path, rising from the forty-fourth most popular district court from 1995 to 1999 to the fourteenth most popular one from 2000 to 2006.<sup>230</sup> Now, however, the Eastern District of Texas might be on the decline as an artificial cluster,<sup>231</sup> while the Western District of Wisconsin is an up-and-comer.<sup>232</sup> These artificial clusters appear and disappear quickly because the qualities that make them popular can swiftly convert them into undesirable fora. For one thing, the many artificial clusters selected for having a speedy “rocket docket” become clogged once they become popular, slowing down decisionmaking.<sup>233</sup> For another, when too many patent cases having little or no connection to a forum are filed in an artificial cluster, that court often starts transferring out ever greater numbers of them.<sup>234</sup> Whatever profi-

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<sup>226</sup> See *O2 Micro Int'l Ltd. v. Monolithic Power Sys., Inc.*, 467 F.3d 1355, 1366–67 (Fed. Cir. 2006) (“Decisions enforcing local rules in patent cases will be affirmed unless clearly unreasonable, arbitrary, or fanciful; based on erroneous conclusions of law; clearly erroneous; or unsupported by any evidence . . .”).

<sup>227</sup> See *Cluster Profiles Project*, HARVARD BUSINESS SCHOOL INSTITUTE FOR STRATEGY AND COMPETITIVENESS, <http://data.isc.hbs.edu/cp/index.jsp> (last visited Sept. 12, 2010) (presenting data on various technology clusters, including life span of cluster).

<sup>228</sup> Sidney A. Rosenzweig, Progress & Freedom Found., *Patent Venue Reform: Congress Takes Two Steps Back*, PROGRESS ON POINT, Feb. 2009, at 1, 9–10, available at <http://www.pff.org/issues-pubs/pops/2009/pop16.4patentvenue.pdf>.

<sup>229</sup> MOORE, MICHEL & HOLBROOK, *supra* note 116, at 94 tbl.1.

<sup>230</sup> *Id.*

<sup>231</sup> Michael Simons, David Lawrence & Marwan Elrakabawy, *Patent Litigation Venue*, TEX. LAWYER, Dec. 21, 2009, available at [http://www.akingump.com/files/Publication/5863f425-9c2d-4a66-9562-633b1255278d/Presentation/PublicationAttachment/f244d8df-355b-4f5f-8864-e96e37780050/Simons Texas Lawyer 2009.pdf](http://www.akingump.com/files/Publication/5863f425-9c2d-4a66-9562-633b1255278d/Presentation/PublicationAttachment/f244d8df-355b-4f5f-8864-e96e37780050/Simons%20Texas%20Lawyer%202009.pdf).

<sup>232</sup> Gina Carter, “*Rocket Docket*” *Speeds Patent Infringement Suits*, WIS. TECH. NEWS (Mar. 14, 2007), <http://wistechnology.com/articles/3771>.

<sup>233</sup> Leychkis, *supra* note 136, at 210.

<sup>234</sup> Moore, *supra* note 10, at 915–16 & n.84 (highlighting Eastern District of Virginia’s increased willingness to transfer out patent cases); see also *supra* note 146 and accompa-

ciency develops in artificial clusters is for naught as clusters quickly shift, whereas the stability of natural clusters would help judges develop and maintain industry-specific proficiency in patent law.<sup>235</sup>

Better reasoned and grounded district court patent decisions will help the Federal Circuit with its review, both for those aspects reviewed deferentially for clear error and for those reviewed *de novo*. Stronger district court decisions are obviously helpful for those aspects that are reviewed with deference. As these aspects are often hard to reverse on appeal, patent law will benefit from robust district court decisions. The factual elements also help shape the contours of patent rules, and it is thus important that such factual matters be properly understood and conveyed to the appellate court. Even with *de novo* review, the Federal Circuit will benefit from stronger district court decisions. Although the Federal Circuit can reject or accept these aspects of district courts' decisions as it wishes, it is increasingly likely to adopt the district court's ruling and reasoning as those rulings become more persuasive. Relatedly, when there are multiple clusters for a particular industry—as is likely for software in districts like the Northern District of California, the Western District of Washington, and the District of Massachusetts—the Federal Circuit might be presented with different vantage points on that industry depending on the originating district. The Federal Circuit can rely on these different data points to build its understanding of the complex factual issues in that industry and formulate optimal legal rules. Providing persuasively reasoned district court decisions, then, will help the Federal Circuit do its job more efficiently.

Furthermore, a move toward more sophisticated district courts might persuade the Federal Circuit to defer more readily to the truly factual questions that the district courts address in the first instance—such as claim construction, nonobviousness, and enablement, which all turn in large part on the factual views of a person having ordinary skill in the art—instead of labeling them legal questions.<sup>236</sup> Surely, some loss in uniformity might result from allocating more power to

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nying text (noting that Federal Circuit has recently been ordering transfers from Eastern District of Texas more frequently).

<sup>235</sup> On the other hand, some technological areas will die off over long periods of time or become less popular and be supplanted by others. As geographic industry or technology clusters evolve, so too will district court patent litigation clusters under my proposed venue rule. This flexibility is useful, as it avoids the solidification of certain districts as strictly patent litigation districts. Some proposals for specialized patent trial courts lack this salutary effect.

<sup>236</sup> See *supra* Part II.C; cf. Rai, *supra* note 164, at 1041 (“If greater fact-finding and policy application expertise were vested at the administrative and trial court levels, the role of appellate review within the patent system could substantially be reconceived.”).

the various district courts and away from the Federal Circuit.<sup>237</sup> But this reallocation would merely reflect the deeply factual nature of some important patent issues. Moreover, it would avoid the “domino effect” that occurs in the current system: The Federal Circuit finds error in the district court’s claim construction, a construction on which the district court trial on infringement relied. The Federal Circuit then decides to adjudicate the patent infringement issue without the evidence the litigants would have put forth at trial had they known how the Federal Circuit would eventually interpret the relevant patent claims.<sup>238</sup>

My proposal should also encourage the Federal Circuit to move away from its current approach of articulating formalistic rules designed to help district courts inexperienced in patent factfinding and lawmaking.<sup>239</sup> Instead, the Federal Circuit could focus on crafting more flexible rules or standards tailored to the varied industries seeking patents.<sup>240</sup>

Strengthening the district courts’ patent decisions would also help address Craig Nard and John Duffy’s concern that the Federal Circuit—practically the only intermediate appellate voice in patent law—is “producing an isolated and sterile jurisprudence that is increasingly disconnected from the technological communities affected by patent law.”<sup>241</sup> Giving the district courts stronger and more defensible voices in the process of patent litigation ought to give them courage to question entrenched Federal Circuit rules or to make a case for distinguishing them. Emboldening the district courts might thus counteract some of the immense power given to the Federal Circuit under the current institutional structure, and thus provide a check against misguided appellate decisions.<sup>242</sup>

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<sup>237</sup> See Dreyfuss, *supra* note 194, at 784 (noting that procedures interfering with district courts also drive uniformity).

<sup>238</sup> See Rai, *supra* note 149, at 884–85 (describing this domino effect).

<sup>239</sup> See Peter Lee, *Patent Law and the Two Cultures*, 120 *YALE L.J.* (forthcoming 2010) (manuscript at 18) (describing formalistic practices of Federal Circuit), available at [http://papers.ssrn.com/papers.cfm?abstract\\_id=1500050](http://papers.ssrn.com/papers.cfm?abstract_id=1500050).

<sup>240</sup> Even if my proposal does not encourage the Federal Circuit to recharacterize as factual a number of issues currently labeled as legal, the district courts would provide better decisions to the Federal Circuit for review, both in the sense of factual precision and legal insight. Alternatively, Congress might amend the patent laws to include more appropriate standards of review to require the Federal Circuit to recharacterize a number of issues as factual. See Fromer, *supra* note 12, at 13 (noting importance of deference).

<sup>241</sup> Nard & Duffy, *supra* note 76, at 1620–21.

<sup>242</sup> Cf. Amanda Frost, *Overvaluing Uniformity*, 94 *V.A. L. REV.* 1567, 1570–71 (2008) (questioning intrinsic value of uniformity in judicial interpretation of federal law); Nard & Duffy, *supra* note 76, at 1630 (suggesting that more appellate voices in patent law would create competition for quality patent decisions).

Natural clustering, as proposed here, would alleviate the tunnel vision that can plague specialist courts. District court judges, who would hear certain types of patent cases more frequently under the clustering proposal, would still adjudicate other types of litigation and other types of patent cases. As such, they would be exposed to a wide variety of cases, maximizing the perspective they could bring to bear on all of their decisions.<sup>243</sup> Tunnel vision, by contrast, is an even more significant concern for specialized patent trial courts in light of the Federal Circuit's specialization in patent law at the appellate level. This compounding of specialization would be "likely [to] produce law that is substantially out of the mainstream."<sup>244</sup>

Some might argue that my proposal risks systemic bias or capture in the district courts. For instance, if the district courts in the Northern District of California were to see many software patent cases between local defendants and varying groups of plaintiffs, those courts might come to identify with, or be captured by, the interests of local defendants in software patent cases. If such bias proliferated, it might render individual decisions suspect and prejudice the law in one direction or another.

This problem, however, is less severe than it might seem. Any such bias falls in line with venue generally, which tends to focus on defendants and their convenience; for one thing, venue based on a plaintiff's residence was eliminated as a general venue possibility in 1990.<sup>245</sup> Moreover, to the extent there is bias, it already exists in the other direction—toward plaintiffs—under the current structure. In the 2130 utility patent cases filed in 2005, I find that district courts see a disproportionate number of cases—47.32%—in which the plaintiff, but not the defendant, has its principal place of business in the district.<sup>246</sup> Even more pointedly, in this same sample, only 4.05% of the

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<sup>243</sup> Dreyfuss, *supra* note 10, at 805; *see also* Cheng, *supra* note 82, at 552–54 (theorizing that de facto opinion specialization in courts of appeals escapes problem of tunnel vision because "judges continue to handle diversified dockets"); Dreyfuss, *supra* note 194, at 798–99 (suggesting designation of one district court per regional circuit to handle all patent litigation to develop expertise).

<sup>244</sup> Dreyfuss, *supra* note 10, at 804; *accord* Rai, *supra* note 149, at 880 ("[G]iven that we already have a specialized appellate court for patents, creating a trial court that focused specifically on patents might unduly sacrifice breadth of vision on the altar of expertise."). Harnessing patentography also avoids the potential problem of a loss of prestige for specialized courts, as courts with litigation clusters are not fully specialized but merely have more patent cases of the same type. *Cf.* Cheng, *supra* note 82, at 554 (arguing that prestige concern does not affect de facto opinion specialization in courts of appeals).

<sup>245</sup> Judicial Improvements Act of 1990, Pub. L. No. 101-650, § 311, 104 Stat. 5089, 5114 (codified as amended at 28 U.S.C. § 1391 (2006)); *see supra* text accompanying note 33 (describing defendants' convenience as major purpose of venue statutes).

<sup>246</sup> By contrast, in 9.43% of cases, the plaintiff and defendant both have their principal place of business in the district of suit; in 15.77% of cases, the defendant but not the plain-

patent suits filed in the notoriously patentee-friendly Eastern District of Texas are declaratory judgment suits brought by the potential infringer against the patentee, as compared with 15.49% of patent suits filed in all other judicial districts. These data suggest that there is a strong bias—or the appearance of one—toward patentholders (typically plaintiffs in patent suits) in the Eastern District of Texas. Therefore, a shift to requiring suit in the principal place of business of a defendant would merely shift existing structural biases away from the plaintiff to the defendant.

Furthermore, a variety of defendants exist, which should diminish bias. Just with regard to patent infringement, sometimes the defendants are accused infringers (when the action is for patent infringement) and sometimes they are patentholders (in an action for declaratory judgment of noninfringement). Moreover, there are many different archetypes of patent suits: competitors fighting over core technology, competitors in dispute over non-core technology, large companies against startup companies, licensing companies against large companies, licensing companies against startup companies, repeat suits by serial patent litigants, pharmaceutical companies against one another, and pharmaceutical companies against generic pharmaceutical manufacturers.<sup>247</sup> Each of these types of suits raises different considerations,<sup>248</sup> which suggests that a diversity of these archetypes in any district—even one experiencing a technology-specific cluster—will mitigate systemic bias. Furthermore, it is thought that a substantial majority of patent cases are between parties working in the same industry,<sup>249</sup> a fact which, if true, would make it harder for

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tiff has its principal place of business in the district of suit; and in 27.48% of cases, neither the plaintiff nor the defendant has its principal place of business in the district of suit. Moreover, in this sample, there is incomplete diversity: In 12.77% of cases, at least one plaintiff and one defendant have the same district as their principal place of business.

<sup>247</sup> See PETER S. MENELL, LYNN H. PASAHOW, JAMES POOLEY & MATTHEW D. POWERS, *PATENT CASE MANAGEMENT JUDICIAL GUIDE* 2-45 tbl.2.7 (2009) (categorizing patent case types). See generally Colleen V. Chien, *Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the Litigation of High-Tech Patents*, 87 N.C. L. REV. 1571 (2009) (presenting empirical study of high-technology patent lawsuits to reveal proportion of various patent litigation archetypes).

<sup>248</sup> See MENELL, PASAHOW, POOLEY & POWERS, *supra* note 247, at 2-45 tbl.2.7 (discussing common settlement issues for different patent case archetypes). For example, pharmaceutical companies are unlikely to settle unless they can maintain some form of exclusivity, *id.* at 2-47, while competitors in litigation over non-core technology are likely to settle early on in litigation, *id.* at 2-45.

<sup>249</sup> See James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 12 (2005) (“We conjecture that the majority of patents held by large firms and a significant fraction of patents held by small firms are used within the industries that the firms occupy. If true, then exclusion and licensing of competitors is the dominant source of patent value.”).

district court judges to rule against plaintiffs by crafting industry-specific, defendant-friendly rules.<sup>250</sup>

If this concern nonetheless remains sufficiently substantial, one might prefer a slightly less restrictive venue rule that allows suit in the principal place of business of any party, either plaintiff or defendant. Such a rule, in theory, would allow for some cases to have local plaintiffs, some to have local defendants, and some to have both, thus minimizing bias. Allowing plaintiffs to choose their own principal place of business as the location for suit, however, would allow many to circumvent the tightened venue rules and shop for a strategically advantageous forum. For example, a non-practicing patentholding entity (sometimes pejoratively called a “patent troll”) could establish its principal place of business in the Eastern District of Texas, or anywhere else it might want to bring infringement suits. This situation is distinct from one in which practicing entities choose their principal place of business for reasons apart from forum shopping alone.

Merely constraining venue in generalist district courts also weakens concern about bias in the appointments process (a drawback to any specialized court system). Even if an entire industry cluster has common interests differing from other concerned actors, it is far from clear that those other actors would get squeezed out of the political discussions leading to the nomination and confirmation of judges. Moreover, because the judges would be put on a generalist court hearing many types of cases—including criminal, corporate, and immigration matters—there would be a multitude of voices seeking to be heard on appointments well beyond those with a stake in patent law. As Edward Cheng explains in the context of the informal specialization that occurs in the generalist courts of appeals, risk of bias and capture can be limited “by avoiding formal and exclusive concentrations of cases.”<sup>251</sup>

Another concern is that a venue rule based on patentography can be inconvenient to plaintiffs. Based on a survey of all utility patent litigation filed in 2005, 56.75% of plaintiffs sue in their home district court, perhaps in part for convenience. Under my proposal, some

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<sup>250</sup> Moreover, even though the Federal Circuit should review cases under a more deferential standard, it might still detect and reverse biased decisions by triangulating between different district court decisions. Such triangulation would be particularly effective when an industry clusters in several different geographic areas because such clustering should lead to multiple semispecialized district courts. That said, on this metric, specialized trial courts might do better because they could be structured to see the full range of cases and not a possibly biased geographic sliver. Specialized courts, however, are prone to the perhaps more troubling bias of tunnel vision, especially as compounded by their appellate review by another specialized court.

<sup>251</sup> Cheng, *supra* note 82, at 552.

plaintiffs at the margins might be deterred from pursuing their suits because of the additional costs of litigating farther away. There are three countervailing points. First, reversing a rule to give the defendant—the unwilling party to the suit—convenience at the expense of the party that chose the suit might be welcomed. Second, a significant portion of cases are local for both plaintiff and defendant. In just under ten percent of cases in the 2005 sample, both plaintiff and defendant had their principal places of business in the district of suit.<sup>252</sup> Third, as Rochelle Dreyfuss notes, the parties to patent lawsuits are typically well-funded commercial entities,<sup>253</sup> for whom this added cost does not present a significant barrier.

Nonetheless, in what is probably a mere handful of cases, the worry about inconvenience lingers, sounding in concern for due process. Consider a hypothetical patent infringement suit by an individual software developer in Maine against Microsoft, located in Redmond, Washington.<sup>254</sup> Pursuant to a rule restricting venue to a defendant's principal place of business, this developer would have to bring suit across the country in the Western District of Washington. Prosecuting this lawsuit in the distant Western District of Washington would almost certainly be more expensive than doing so in the local District of Maine. If the costs are prohibitive, this individual patentholder might choose not to bring suit, even if her chances of winning are high. Therefore, a constrained venue rule might very well leave this patentholder, for all intents and purposes, without any redress for the wrong of patent infringement. In this sense, a very constrained venue rule might run afoul of due process values, including a right to a “body of law that empowers individuals to seek redress against persons who have wronged them.”<sup>255</sup> Out of concern for such plaintiffs, my proposed venue rule contains a safety valve permitting judges, in extreme cases that raise due process concerns, to permit a case to be transferred from the remote location to the convenient location for the plaintiff. Note that this move will not tend to upset clustering effects

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<sup>252</sup> See *supra* note 246 (noting specific percentage as 9.43%).

<sup>253</sup> See Dreyfuss, *supra* note 68, at 71 (discussing well-heeled nature of litigants in relation to travel costs for argument at Federal Circuit in Washington, D.C.). That said, district court travel is typically more intensive, especially for fact-heavy trials, than the travel required for a brief oral argument before the Federal Circuit.

<sup>254</sup> Microsoft Corporation, Fast Facts About Microsoft, [http://www.microsoft.com/presspass/Inside\\_ms.mspx](http://www.microsoft.com/presspass/Inside_ms.mspx) (last visited Sept. 12, 2010).

<sup>255</sup> John C.P. Goldberg, *The Constitutional Status of Tort Law: Due Process and the Right to a Law for the Redress of Wrongs*, 115 YALE L.J. 524, 529 (2005) (positing that right to due process “should be judicially enforced by establishing meaningful but capacious limits on the ways in which, and the reasons for which, legislatures may undertake plaintiff-unfriendly tort reform”).

for two reasons: first, the safety valve ought to be employed only very infrequently, and second, these plaintiffs are often located in industry or technology clusters as well.

A third concern with my proposal is that a major imbalance would exist among the country's district courts. Despite the existence of some technology-specific clusters, a substantial number of district courts would continue to hear minute numbers of patent cases on a particular technology. For the reasons discussed above, these courts would then be poorly positioned to issue sound patent decisions. One might suggest that specialized patent trial courts would do better in this respect because they would hear all patent cases and would not leave some as experienced decision-makers and others in the dark. To the extent this imbalance would occur, one response might be to use the existing clusters to establish a soft form of specialized patent trial courts. Under such a scheme, one might require suit in the venue required under my proposal if that venue is one of the top ten courts for that technology over the past five years. If not, the plaintiff must choose one of those ten courts. In this way, all patent cases on a particular technology would be channeled to one of the top ten courts in the area. This solution, though, would require the law to make technology-based distinctions, which can be difficult.<sup>256</sup> Additionally, it would overlook those cases in unclustered districts where the local district court is particularly well placed to hear the case, such as a case about a gambling software patent that would otherwise be heard in the unclustered District of Nevada.

A fourth concern is that some district courts might become overwhelmed by the increased numbers of patent cases they would see. Given that Congress periodically increases the number of judges in a district in response to docket pressures,<sup>257</sup> one might expect that Congress would adjust the courts for notable increases. Similarly, the Judicial Conference could increase the number of magistrate judges per burdened district to assist in speedier and more effective case resolutions.<sup>258</sup>

A fifth concern is strategic gaming. For one thing, a clever plaintiff located in, say, the Northern District of Georgia, suing for

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<sup>256</sup> See Sam Stake, *In re Comiskey and E-Commerce Patentability*, 90 J. PAT. & TRADE-MARK OFF. SOC'Y 148, 158 & n.34 (2008) (noting "the difficulty of distinguishing between fields of technology").

<sup>257</sup> See 13 CHARLES ALAN WRIGHT, ARTHUR R. MILLER, EDWARD H. COOPER & RICHARD D. FREER, *FEDERAL PRACTICE AND PROCEDURE* § 3505 (3d ed. 2008) (citing 28 U.S.C. § 133(a) (2006)) (describing increase in number of federal district judgeships in 2002).

<sup>258</sup> See *id.* (citing 28 U.S.C. § 631(a)).

infringement of a software patent against a single accused infringer located in the Northern District of California might add a supplier or customer of the accused infringer located in the Eastern District of Texas as a defendant to suit, so as to sue in the allegedly patentee-friendly Eastern District of Texas. Even if the court were to permit the joinder,<sup>259</sup> this situation is precisely the sort in which the case ought to be transferred to a more proper forum<sup>260</sup>—in this example, the Northern District of California.

In theory, moreover, a company might choose to locate its principal place of business in a district with favorable substantive rules to increase the chance that it will be able to defend patent litigation successfully. But this scenario is unlikely: When there is already at least one industry cluster for that company, there are many other reasons—demonstrated by the clustering literature—why the company would locate in one of those industry clusters rather than go to a district with lower industry concentration.<sup>261</sup> Even in the improbable case that my rule fosters “pockets of piracy”—clusters of companies likely to be patent defendants in favorable districts—the Federal Circuit ought to negate resulting biases by engaging in searching review of cases from these clusters together with those from more traditional clusters in order to realign the proper substantive rules.<sup>262</sup>

Congress’s many recent proposals for patent venue reform pursue the admirable goal of reining in forum shopping. Yet my approach is preferable, not in small part because it is cognizant of how constraining venue can make concomitant improvements in district court decisionmaking and the allocation of power between the district courts and the Federal Circuit. A 2006 Senate bill would have

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<sup>259</sup> To join an additional defendant, a plaintiff merely needs some factual basis common to all parties and an arguable common transaction or occurrence to support joinder. 7 CHARLES ALAN WRIGHT, ARTHUR R. MILLER & MARY KAY KANE, *FEDERAL PRACTICE AND PROCEDURE* § 1653 (3d ed. 2001) (citing *FED. R. CIV. P.* 20).

<sup>260</sup> See 28 U.S.C. § 1404(a) (“For the convenience of parties and witnesses, in the interest of justice, a district court may transfer any civil action to any other district or division where it might have been brought.”).

<sup>261</sup> See *supra* notes 215–17 and accompanying text.

<sup>262</sup> In the more likely case that patent pirates still want to locate themselves in existing industry clusters, they might choose to situate themselves just outside of the cluster’s associated district. For instance, given the intense industry cluster of pharmaceutical companies in the District of New Jersey, generic drug companies might want to set up in the nearby Eastern District of Pennsylvania. In this way, they could take advantage of geographic industry clustering but open themselves up for suit only outside the patent litigation cluster. In these instances, the Federal Circuit similarly ought to negate any resulting biases. Thus, the Federal Circuit would compare the arguments of generic drug companies in the Eastern District of Pennsylvania and nongeneric pharmaceutical companies in the District of New Jersey to suss out the relative contributions of each to innovation and then craft an appropriate legal rule that binds both districts.

restricted venue in patent cases to a judicial district where either party to the litigation has its principal place of business or is incorporated or where the defendant has allegedly committed infringement and has a regular place of business.<sup>263</sup> By allowing suit in a defendant's state of incorporation, the bill sacrificed the benefit of clustering suits by industry. This provision would have merely created a megacluster of patent cases in the District of Delaware, as most companies incorporate there even though few are located there.<sup>264</sup> Such an approach would not provide the advantages of technology-specific clustering in the locations of industry clusters. Moreover, opening up venue to places where a defendant has a regular place of business when alleged infringement has happened there seems too permissive because the many corporate defendants operating nationwide might thereby be sued in most of the country's district courts, as is currently the case. Similarly flawed is a 2005 House of Representatives proposal that would have limited venue principally to the defendant's residence or where the defendant has allegedly committed infringement and has a regular place of business.<sup>265</sup> Another House bill, from 2006, would have set a much lower threshold for transferring cases out of a district with little connection to the patent suit.<sup>266</sup> As compared with an *ex ante* rule, this rule, without further venue constraints, would have enabled plaintiffs to choose venue permissively and then forced the parties to spend money on uncertain fights over transfers out of improper venues. Other congressional proposals would help improve current district court handling of patent litigation, most pertinently by giving district court judges better training in patent law.<sup>267</sup> My proposal to

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<sup>263</sup> Patent Reform Act of 2006, S. 3818, 109th Cong. § 8(a) (2006).

<sup>264</sup> Todd J. Zywicki, *Is Forum Shopping Corrupting America's Bankruptcy Courts?*, 94 GEO. L.J. 1141, 1157 (2006) (reviewing LYNN M. LOPUCKI, *COURTING FAILURE: HOW COMPETITION FOR BIG CASES IS CORRUPTING THE BANKRUPTCY COURTS* (2005)).

<sup>265</sup> H.R. 2795, 109th Cong. § 9 (as offered by Rep. Smith as an amendment in the nature of a substitute, June 8, 2005), available at <http://www.jonesday.com/files/upload/AmendedSmithBill.pdf> (uploaded July 26, 2005); see also *Amendment in the Nature of a Substitute to H.R. 2795, the "Patent Act of 2005": Hearing Before the Subcomm. on Courts, the Internet and Intellectual Prop. of the H. Comm. on the Judiciary*, 109th Cong. 35 (2005) (testimony of Prof. John R. Thomas) (describing competing venue provisions, including provision cited above). The provision was added to a draft of the legislation after the amendment's introduction but before hearings on the bill. *Id.* at 9 (testimony of Philip S. Johnson) (noting continuing work on venue portion of bill). The bill ultimately died in committee. Library of Congress, *Bill Summary & Status—109th Congress (2005–2006)—H.R. 2795* (2005), <http://thomas.loc.gov/cgi-bin/bdquery/z?d109:HR02795:@@X>.

<sup>266</sup> Patents Depend on Quality Act of 2006, H.R. 5096, 109th Cong. § 7 (2006).

<sup>267</sup> Establishing a Pilot Program in Certain District Courts, H.R. 34, 110th Cong. § 1(f) (2007). That same legislation also proposed a scheme to appoint patent-versed district court judges to patent cases. See Gitter, *supra* note 173, at 173. Scholars also suggest other ways to improve the capability of district courts to handle patent cases, such as nominating

harness patentography could work in conjunction with such proposals to improve district courts' handling of patent cases further.

With this theoretical analysis laid out, I now turn to empirical data on the current clustering in the district courts and a simulation of the clustering that would occur under my proposal.

### *B. Empirical Study and Simulation of Clustering*

This Section analyzes all cases filed in the country's district courts in 2005 with at least one utility patent claim made by a plaintiff, such as patent infringement, declaratory judgment for patent noninfringement, and inventorship.<sup>268</sup> These data approximate how well the district courts could serve as industry- and technology-specific patent laboratories. In total, 2130 cases fit these criteria. I investigated whether technology-specific clusters formed in these cases and simulated what would have happened had these cases been filed under my proposed venue rule. To do so, I collected the following information from the Stanford Intellectual Property Litigation Clearinghouse for each case<sup>269</sup>: (1) the district in which the case was filed; (2) the district to which the case was transferred, if any; (3) the utility patents at issue in the case; and (4) for each party, its principal place of business, if the party was corporate, or the party's residence, if the plaintiff was an individual.<sup>270</sup> In measuring the actual data, I count as the relevant district court the court to which a case was transferred, if any, and if the case was not transferred, the district in which the case was filed.

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judges or appointing magistrates with patent or technical expertise in patent-heavy district courts. See Edward V. Di Lello, Note, *Fighting Fire with Firefighters: A Proposal for Expert Judges at the Trial Level*, 93 COLUM. L. REV. 473 (1993) (supporting appointment of magistrates with technical expertise).

<sup>268</sup> Using this set of cases will not preclude this proposal's relevance to the whole of patent law, given that the vast majority of patents are utility patents (as opposed to design patents). Kristen Osenga, *Entrance Ramps, Tolls, and Express Lanes—Proposals for Decreasing Traffic Congestion in the Patent Office*, 33 FLA. ST. U. L. REV. 119, 153 (2005).

<sup>269</sup> The Stanford Intellectual Property Litigation Clearinghouse was "designed to make IP litigation more transparent" by "offer[ing] the most comprehensive source of data available on more than 100,000 intellectual property cases." *Stanford IP Litigation Clearinghouse*, STANFORD LAW SCHOOL, <http://www.law.stanford.edu/program/centers/iplc/> (last visited Sept. 12, 2010). In cases in which there was no electronic filing of the relevant documents, I acquired this information instead through a copy of the most recent complaint from the court in which it was filed.

<sup>270</sup> When the Clearinghouse does not contain information about a corporate party's principal place of business, I got that information instead from third-party company profile databases, such as Hoover's or Business Week, from the corporate party's own website, or from information in the patent at issue in the case if the party was the patentholder. Because the cases are from 2005 and most of these supplementary sources of data were current as of 2009, it is possible in a very small number of cases that the company changed its principal place of business, rendering the recorded principal place of business incorrect for 2005.

To determine whether technology-specific clusters formed under the current permissive venue rules and also whether they would form under more restrictive venue rules, as I described in the previous Section, I supplement the collected data with two categories of information: first, district location, and second, technology category of the patented invention. For the district-location information, I converted each party's principal place of business into the judicial district in which it was located.

To get the technology category of each litigated patent, I classified each such patent in three ways.<sup>271</sup> First, I used the main patent class identified in each patent.<sup>272</sup> The PTO uses over 400 patent classes (such as “[p]erfume compositions,” “[a]musement devices,” and “[d]ata processing: artificial intelligence”) to classify patents for examination.<sup>273</sup> Because this abundance of classes might make generalization difficult, I also classified each patent's technology at two higher levels of abstraction using categories developed by the National Bureau of Economic Research (NBER): as one of thirty-seven midlevel technological categories (such as “Electrical Lighting,”

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<sup>271</sup> I use technology classifications rather than industry classifications. Cf. John R. Allison, Mark A. Lemley & Joshua Walker, *Extreme Value or Trolls on Top?: The Characteristics of the Most-Litigated Patents*, 158 U. PA. L. REV. 1, 17 (2009) (noting that industry and technology can “diverge—a software invention may be used in any number of industries, some traditionally considered computer-related but others entirely divorced from it, such as automobiles or bioinformatics”). Nonetheless, there is typically a good deal of overlap between technologies and industries. Moreover, given that industries tend to cluster, if the technological classes demonstrate clustering in a district corresponding to the district's clustered industries, the technology-to-industry mapping will be fruitful for indicating cluster districts. See *supra* notes 215–17 and accompanying text (describing clustering).

<sup>272</sup> U.S. PATENT & TRADEMARK OFFICE, *U.S. Classes by Number with Title*, <http://www.uspto.gov/web/patents/classification/selectnumwithtitle.htm> (last modified July 27, 2010). The PTO continuously revises its classifications. To keep the classes consistent, even though the relevant patents were filed and granted at different times, I used normalized class data for each patent from the National Bureau of Economic Research (NBER) Patent Data Project. See Bronwyn H. Hall, Adam B. Jaffe & Manuel Trajtenberg, *The NBER Patent Citations Data File: Lessons, Insights and Methodological Tools* 12–13, 41–42 (Nat'l Bureau of Econ. Research, Working Paper No. 8498, 2001) (describing data); *Patent Data Project Description*, [https://sites.google.com/site/patentdataprotect/Home/downloads/patn-data-description/classification\\_06.xls?attredirects=0](https://sites.google.com/site/patentdataprotect/Home/downloads/patn-data-description/classification_06.xls?attredirects=0) (last visited Sept. 12, 2010).

<sup>273</sup> Jeanne C. Fromer, *supra* note 21, at 547 (2009). In previous empirical work, John Allison and Mark Lemley classified patents manually into fourteen categories because they found some suspect classifications under the PTO's system. John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 87–90 (2002). Although I see problems in relying on the PTO's classification scheme to help the public find all patents relevant to an area, Fromer, *supra* note 21, at 585–87, I use it because it is more easily replicable than manual classification and it provides a rough count of the technology covered by the patent claims, even if the classification is occasionally mistaken.

“Genetics,” and “Information Storage”)<sup>274</sup> and one of six top-level technological categories (such as “Drugs & Medical” and “Computers & Communications”).<sup>275</sup>

To see how cases would be distributed under my proposed rule, I simulated<sup>276</sup> the distribution of cases under a venue rule requiring suit to be filed in the principal place of business of one of the defendants.<sup>277</sup> Not knowing which forum a plaintiff would pick when there are multiple choices (multiple defendants, with at least two located in different districts), I rely in part on probabilities correlated to how many defendants are in each judicial district. As an example, imagine a case with five defendants—one headquartered in the Southern District of New York and four headquartered in the Northern District of California—with suit actually having been brought in the Eastern District of Texas. I have no information on which of the two possible choices—Southern District of New York and Northern District of California—the plaintiff would have chosen under my proposed venue rule. Probabilistically, there is a 20% chance that the suit would have been brought in New York and an 80% chance that it would have been brought in the Northern District of California. For that case, the Southern District of New York would have a venue value of 0.2 and the Northern District of California a venue value of 0.8. Suppose instead, though, that the suit in this case had actually been brought in the Southern District of New York. Because the actual district choice matches one of the possible choices under the constrained venue rule, I assume that the plaintiff would still have chosen that district under my proposed rules. I therefore assign that district (here, the Southern District of New York) a venue value of one and all others (here, the Northern District of California) a value of zero.

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<sup>274</sup> The thirty-seven categories are: Agriculture, Food, Textiles; Agriculture, Husbandry, Food; Amusement Devices; Apparel & Textile; Coating Chemical; Communications; Computer Hardware & Software; Computer Peripherals; Drugs; Earth Working & Wells; Electrical Devices; Electronic Business Methods & Software; Electrical Lighting; Furniture, House Fixtures; Gas; Genetics; Heating; Information Storage; Materials Processing & Handling; Measuring & Testing; Metal Working; Miscellaneous—Chemical; Miscellaneous—Drugs & Medical; Miscellaneous—Electrical & Electronic; Miscellaneous—Mechanical; Miscellaneous—Others; Motors, Engines & Parts; Nuclear & X-Rays; Optics; Organic Compounds; Pipes & Joints; Power Systems; Receptacles; Resins; Semiconductor Devices; Surgery & Medical Instruments; and Transportation. See *Patent Data Project Description*, *supra* note 272.

<sup>275</sup> The six categories are Chemical, Computers & Communications, Drugs & Medical, Electrical & Electronic, Mechanical, and Others. *Id.*

<sup>276</sup> By “simulate,” I mean only to suggest that I redistributed the cases hypothetically under my proposed rule.

<sup>277</sup> Although not reported, the results are similar for a venue rule requiring suit in the principal place of business of any of the parties.

When there is at least one domestic defendant or party, I ignore all foreign parties in my simulation calculations. When all of the relevant parties for the venue rule have their principal place of business in a foreign country, I count the actual forum chosen in that case as the venue. This choice presumes that when the relevant parties for assessing venue are foreign, venue might be in any district of the plaintiff's choice.

These data reveal that under current permissive venue rules, there is already a good deal of technology-specific clustering of patent litigation happening in the district courts. Moreover, although Kimberly Moore and Rochelle Dreyfuss suggest that constrained venue rules would destroy the patent litigation clusters that exist, I demonstrate that quite the opposite would be the case under my proposed venue rule. Simulation of the hypothetical distribution of patent cases under my proposed restrictive venue rule reveals technology clusters that are as or more intense than the ones that currently exist. Of course, this simulation provides only approximate results: Some plaintiffs might not have brought suit under more constrained venue rules, and I rely in part on probabilities in determining venue. Nonetheless, these approximations are helpful for suggesting the shape of clustering that will occur under my proposal.

My results indicate across nearly all categories (in which there are sufficient numbers of cases) that my proposed rule would lead to clusters that are as or more intense than under current law. Herein, I report a representative set of data on two of the NBER's top-level categories—Computers & Communications and Drugs & Medical—and two of its midlevel categories—Semiconductors and Earth Working & Wells. In the Appendix, I display results for the other three top-level categories (other than the "Others" category).

According to the NBER classifications, in the study sample, there are 579 cases in which at least one of the patents being litigated is for a computer or communications technology. Figure 1 shows these cases by actual district on a geographic heatmap, while Figure 2 shows the simulated distribution of the same cases by district under my restrictive venue rule. Table 1 lists the top ten districts for computer and communication patent cases (under both the actual and hypothetical scenarios) along with the number of cases, the ranking of districts for these cases, and the percentage of total patent cases in each district. The actual distribution shows that there are strong clusters, particularly in the Eastern District of Texas (94 cases), the Northern District of California (64), the Central District of California (47), and the Northern District of Illinois (45). There is a mix of districts in this list: Some are known to be centers of innovation in computers and com-

munications technology—like the Northern District of California—and some are known to host almost no such technology—most pertinently, the Eastern District of Texas, suspected by many to be a popular choice as a plaintiff-friendly haven, particularly for software patentees.<sup>278</sup> By contrast, the hypothetical distribution shows strong clustering effects, although the clusters resulting from forum shopping disappear in this simulation. There are no longer any clusters in the Eastern District of Texas or in the District of Delaware (which had 30 cases under the current rule). In the hypothetical distribution, the clusters are more naturally located in districts hosting substantial swaths of the American software industry: the Northern District of California (98.937), Central District of California (56.798), Northern District of Illinois (39.643), Southern District of New York (32.397), District of New Jersey (28.238), and Western District of Washington (20.075).<sup>279</sup>

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<sup>278</sup> See *supra* notes 1–2 and accompanying text.

<sup>279</sup> On average, each judge in these districts would see a high number of computer and communications patent cases. In 2005, the 14 judges in the Northern District of California would have seen just over 7 cases each, the 27 judges in the Central District of California over 2 cases each, the 22 judges in the Northern District of Illinois almost 2 cases each, the 28 judges in the Southern District of New York over 1 case each, the 17 judges in the District of New Jersey almost 2 cases each, and the 7 judges in the Western District of Washington almost 3 cases each. See also 28 U.S.C. § 133(a) (2006) (allocating number of judges per district). This number underestimates how many cases each judge would hear on average because it does not account for the fact that patent cases are more likely to be brought in certain divisions of a district, meaning the judges in patent-light divisions should probably not be counted in these averages.

FIGURE 1  
ACTUAL COMPUTER & COMMUNICATION CASES BY DISTRICT  
(n = 582)



FIGURE 2  
SIMULATED COMPUTER & COMMUNICATION CASES BY DISTRICT  
(n = 582)



TABLE 1  
DISTRIBUTION OF COMPUTER & COMMUNICATION CASES  
AMONG DISTRICT COURTS

<i>District</i>	<i>Number of Actual Cases</i>	<i>Number of Hypothetical Cases</i>	<i>Actual Ranking</i>	<i>Hypothetical Ranking</i>	<i>Actual Percentage of Computer &amp; Communication Patent Cases</i>	<i>Hypothetical Percentage of Computer &amp; Communication Patent Cases</i>
Eastern District of Texas	94	13.283	1	13	16.2%	2.3%
Northern District of California	64	98.937	2	1	11%	17%
Central District of California	48	57.798	3	2	8.2%	9.9%
Northern District of Illinois	45	39.643	4	3	7.7%	6.8%
Southern District of New York	40	32.397	5	4	6.9%	5.6%
District of Delaware	30	5.1	6	27	5.2%	0.9%
Northern District of Georgia	19	15.987	7	9	3.3%	2.7%
Southern District of Florida	17	15.331	8	11	2.9%	2.6%
Northern District of Texas	16	17.483	9	8	2.7%	3%
District of New Jersey	15	28.238	10	5	2.6%	4.9%
Western District of Texas	15	9.739	10	17	2.6%	1.7%
District of Massachusetts	13	19.274	12	7	2.2%	3.3%
Western District of Washington	11	20.075	13	6	1.9%	3.4%
District of Minnesota	10	15.574	15	10	1.7%	2.7%

According to the NBER classifications, there are 302 cases in the study sample in which at least one of the patents being litigated is for a drug or medical technology. Figure 3 shows these cases by actual district, and Figure 4 shows the simulated distribution of these cases

by district under my restrictive venue rule. Table 2 lists the top ten districts for drug and medical patent cases (under both the actual and hypothetical scenarios) along with the number of cases, the ranking of district for these cases, and the percentage of total patent cases in each district. The actual distribution of drug and medical cases shows strong clusters in the District of Delaware (42), District of New Jersey (35), Southern District of New York (23), and Central District of California (21). As with the computer and communications cases, there is a mix of District types in the list, such as the District of New Jersey, which is home to many pharmaceutical companies and the District of Delaware, which is not, although many pharmaceutical companies might be incorporated there. By contrast, the clusters that form under my hypothetical distribution of cases are strong and natural: most pertinently, the District of New Jersey (42.083), Central District of California (33.906), Southern District of New York (19.167), Southern District of Florida (17.767), and Northern District of California (16.333). No longer do forum-shopped Districts serve as clusters, including the top district under the actual clustering, District of Delaware.

FIGURE 3  
ACTUAL DRUG & MEDICAL CASES BY DISTRICT  
(n = 302)



FIGURE 4  
SIMULATED DRUG & MEDICAL CASES BY DISTRICT  
(n = 302)



TABLE 2  
DISTRIBUTION OF DRUG & MEDICAL CASES  
AMONG DISTRICT COURTS

<i>District</i>	<i>Number of Actual Cases</i>	<i>Number of Hypothetical Cases</i>	<i>Actual Ranking</i>	<i>Hypothetical Ranking</i>	<i>Actual Percentage of Drug &amp; Medical Patent Cases</i>	<i>Hypothetical Percentage of Drug &amp; Medical Patent Cases</i>
District of Delaware	42	3.5	1	20	13.9%	1.2%
District of New Jersey	35	42.083	2	1	11.6%	13.9%
Southern District of New York	23	19.167	3	3	7.6%	6.3%
Central District of California	21	33.906	4	2	7%	11.2%
Northern District of California	16	16.333	5	5	5.3%	5.4%
Southern District of Florida	13	17.767	6	4	4.3%	5.9%
Northern District of Illinois	11	8.583	7	10	3.6%	2.8%
District of Minnesota	10	5.458	8	16	3.3%	1.8%
Eastern District of Texas	9	1	9	44	3%	0.3%
District of Massachusetts	7	11.5	10	7	2.3%	3.8%
Southern District of California	6	10.333	11	8	2%	3.4%
Western District of Michigan	4	9	15	9	1.3%	3%
Eastern District of Pennsylvania	2	14.367	29	6	0.7%	4.8%

As the data herein and the Appendix show, there are already technology clusters occurring in litigation when viewed at the highest categorical level of abstraction. Moreover, the simulation results suggest that intense and natural technology clusters would also occur under more constrained venue rules.

Moving down to the middle level of abstraction—the NBER’s 37 midlevel categories—there are also technology-specific clusters, both under the current regime and in the simulation. The data show mild clustering with the actual distribution of cases and more intense clustering under the simulation; the clusters occur for every category in which there are at least 50 cases and for many that have fewer cases. Figures 5 and 7 respectively show illustrations of some of these actual clusters, for semiconductor device patents (37 cases in total) and earth working and wells patents (33 cases in total), respectively. Figure 5 indicates actual clustering in the Northern District of California, with 11 cases, and the Eastern District of Texas, with 8. Figure 7 shows actual clustering in the Southern District of Texas, with 7 cases, the Eastern District of Texas, with 4, and the Eastern District of Louisiana, with 3. Figures 6 and 8, by contrast, respectively show more intense hypothetical clusters for these same technologies under my proposed rule. Figure 6 indicates intense clustering in the Northern District of California—center to the semiconductor industry—with 18.55 cases. Figure 8 shows extremely dense clustering in the Southern District of Texas, with 14 cases, which ought to be unsurprising given the concentrated presence of the oil industry there.

More completely, Tables 6 and 7 in the Appendix list the substantial number of actual and simulated clusters by district, defining a cluster for these purposes as those districts with more than 9.5 cases in any particular category. Just as at the highest categorical level of abstraction, there are already technology clusters occurring in litigation when viewed at a midlevel category of abstraction. Moreover, the simulation results suggest that intense natural technology clusters would occur under more constrained venue rules.

FIGURE 5  
ACTUAL SEMICONDUCTOR DEVICE CASES BY DISTRICT  
(n = 37)



FIGURE 6  
SIMULATED SEMICONDUCTOR DEVICE CASES BY DISTRICT  
(n = 37)



FIGURE 7  
ACTUAL EARTH WORKING & WELLS CASES BY DISTRICT  
(n = 33)



FIGURE 8  
SIMULATED EARTH WORKING & WELLS CASES BY DISTRICT  
(n = 33)



Evidence of actual and simulated technology clusters is helpful in assessing the institutional structure of patent litigation in the district courts. For one thing, although it has gone unappreciated, it is clear that significant technology-specific clusters are occurring right now

under the current venue rules. As such, these results refine Kimberly Moore's conclusion that patent litigation overall tends to cluster in particular districts by showing that these clusters are more specifically based on categories of patented technologies.

Contrary to what the conventional wisdom has predicted, the simulation of my proposed constrained venue rule also shows significant—and frequently more intense—technology-specific clusters. Although there is some overlap in the actual and simulated clusters, many of the most intense actual—but artificial—clusters disappear under the simulation. These differences indicate that there is significant technology-specific forum shopping under the current permissive venue rules. A move to my proposed venue rules requiring suit in the principal place of business of one of the defendants would preserve technology-specific litigation clusters, merely shifting them to their more natural, stable homes or intensifying them where they already exist.

As theorized in the previous Section, the natural clusters facilitated by my proposed venue rule will have four key advantages over the actual clusters forming under the current venue rules. First, they will arise without forum shopping's frequent injustice, economic inefficiencies, and legal uncertainties. Second, they will materialize in those districts whose judges, juries, and other legal actors will, on average, tend to know more about the underlying technologies and industry conditions. Third, they likely will be more stable in their duration. With greater background knowledge and having seen more technology-specific cases, these district courts will be better able to find the facts relevant to particular patent litigation accurately and comprehensively and then apply these facts appropriately to patent law. Although beyond the scope of this study, testing the effect of patentography on district court decisionmaking may provide a fruitful line of further inquiry. Finally, the Federal Circuit, as a result of my proposal, should appropriately feel more comfortable deferring to these district courts' factual findings, be persuaded by district courts' legal conclusions, and move away from inappropriately formalistic legal rules.<sup>280</sup>

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<sup>280</sup> Because this study is skeptical that the Federal Circuit is giving sufficient deference to district court decisions, I have not used Federal Circuit reversal rates to measure whether the Federal Circuit thinks district courts with natural clusters are outperforming district courts with artificial clusters.

## CONCLUSION

This Article has argued that Congress ought to account for patentography by constraining venue rules to require suit in the principal place of business of one of the defendants. Harnessing patentography in this way will ease a number of the significant concerns critics currently have with patent litigation's institutional structure and thus the quality of its outcomes. Critics focus on three principal issues: widespread forum shopping, which leads to injustice, economic inefficiencies, and legal uncertainty; poor district court decisionmaking on the technical facts and intricate legal matters in patent cases; and insufficient appellate deference by the Federal Circuit to district courts on factual matters.

Constraining venue rules will directly cut down on forum shopping. More surprisingly, my proposed venue constraints will also tend to improve district court legal and factual decisionmaking in patent cases. This Article's theoretical arguments and empirical simulations together indicate that these improvements will occur because of the intense and natural technology-specific clusters of patent cases that would tend to form under constrained venue rules. Despite scholarly consensus that constrained venue rules would disperse patent cases among the country's ninety-four judicial districts, my proposed venue constraints would do just the opposite by taking advantage of the many geographic industry clusters that pervade the United States. Under my proposal, patent litigation involving particular industries—such as software or pharmaceuticals—will tend to cluster in those judicial districts in which those industries already cluster, such as the Northern District of California for software and the District of New Jersey for pharmaceuticals. As such, district courts could develop proficiency in those technological areas for which they have industrial clusters. Moreover, these districts are particularly well placed to decide the factual and legal matters in these types of patent litigation. Because the district court judges and juries hail from the local area, they will, on average, have a greater depth of knowledge of the technological and industrial factors that will help decide the case accurately and thoughtfully. These clusters are relatively stable in duration compared to the rapid turnovers in popularity for many of the current artificial clusters, a characteristic which would enhance district court proficiency in patent litigation.

The geographic advantage of natural clustering provides an important reason why restricting venue is preferable to specialized patent trial courts: Specialized patent trial courts would probably not be located in one of the geographic areas associated with the litigation

of a particular patented technology. In addition, these courts could not practically be staffed with judges sufficiently knowledgeable in all of the many technologies that arise in patent litigation, undermining a major reason for specialized patent trial courts. Therefore, judges and juries of specialized courts lack many advantages of district courts with natural clusters. Moreover, specialized courts are problematic because they raise concerns of tunnel vision decisionmaking outside of the legal mainstream and of biases based on the judges' likely inflated views of their own expertise. These risks are compounded by the fact that specialized trial court decisions would be reviewed by the Federal Circuit, which some allege is plagued by similar concerns of tunnel vision and biases. If these concerns are correct, the appellate court might not be very helpful to correcting these shortcomings in specialized trial courts. Primarily for these reasons, constraining venue is a preferable approach to improving district court decisionmaking.

By situating patent cases in those districts predisposed to make well-informed patent decisions and by fostering expertise in patent law, constrained venue rules ought to improve the quality of district court decisionmaking in patent cases. Improving the district courts as decisionmakers, in turn, ought to make the Federal Circuit feel more comfortable deferring, when appropriate, to district courts' resolutions of factual matters and accepting these courts' legal analysis of the facts under patent law.

As such, a simple change to patent law's venue requirements based on patentography ought to lead to a cascading three-part improvement in patent litigation.

While applied to patent law in this Article, my proposal might also apply to a number of other legal contexts. Some areas of law, such as bankruptcy, securities law, and environmental law, share patent law's pertinent characteristics of factual or legal complexities specific to particular industries or geographical areas. In such fields, it might make sense to take advantage of industry clustering or geographical disparities to constrain venue in order to concentrate district court cases by industry or geography into clustered districts.<sup>281</sup> A full treatment of this issue is beyond the scope of this Article, although I will briefly sketch out some relevant considerations for deciding whether to utilize bankruptcy, securitography, and the like.

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<sup>281</sup> Cf. LYNN M. LOPUCKI, *COURTING FAILURE: HOW COMPETITION FOR BIG CASES IS CORRUPTING THE BANKRUPTCY COURTS* 253 (2005) (criticizing harmful effects of widespread forum shopping in bankruptcy cases and suggesting permanently located specialized courts as solution).

Generalizing from this Article's study of patentography, a substantive area of the law is likely a good candidate for district court clustering via venue restriction when four conditions are met.

First, the legal area ought to be complex, factually and perhaps legally as well. If the substantive area is simple, there is little worry that district courts misjudge cases in that area, no matter the backgrounds of the courts' judges and juries and no matter how many cases the courts see in the area.

Second, there should be important differences between districts owing to geography. In essence, geographic variation should underpin some tendency that is relevant to the legal doctrine. As discussed in this Article, in patent law, the geographic clustering of industries creates an opportunity for industry-specific lawmaking. Alternatively, geographic differences—perhaps owing to climate dissimilarities in ways that might be important in environmental law—might distinguish different districts.

Third, the law's factual or legal complexities ought to be keyed to the relevant geographies or industries in which cases arise. That is, geographic variation based on considerations such as location, climate, or industry might warrant different results in particular cases. Such is precisely the scenario with patent law, in which a robust understanding of the particulars of the industry and technology involved in a case is essential to a proper legal conclusion. It might be possible, for example, that environmental law is similar in this respect on the basis that legal results ought to vary based on the pertinent climate in a district or its clustered industries. Or perhaps the outcomes in securities litigation, bankruptcy, or contract cases ought to turn on the district's clustered industries. In these legal areas, district courts could use their background knowledge in the area relevant to that district to decide cases. By contrast, if the differences between districts are of no legal import, clustering cases by districts would be futile.

Finally, to warrant a restriction of venue rules similar to those proposed for patent law, there should not already be natural and stable clusters of cases beneficially keyed to particular districts. Litigation clusters might sometimes arise on their own. And they might arise in optimal locations: the districts whose relevant characteristics make it likely that the judges and juries of the district court have useful background knowledge to help decide cases. For example, in admiralty law, litigation clusters naturally in the Eastern District of Louisiana, the Southern District of Texas, and the Southern District of New York because of those districts' proximity to key navigable

waterways.<sup>282</sup> Judges and juries in those districts might plausibly have, on average, better background knowledge about the sea and the shipping industry. Restricting venue in a legal area like admiralty might, then, not be worthwhile because the law's intervention is not necessary to create beneficial and stable case clusters.

One additional factor might counsel in favor of restricted venue rules: that there be enough cases in the substantive area of the law to cluster in each district. Without enough cases to cluster, the district courts would not be able to build their proficiency in the facts or law relevant to deciding the area's cases much beyond their extant background knowledge.

This generalized analysis is by no means complete. Rather, it is intended to strike up a conversation well beyond the confines of patent law as to whether other substantive areas of the law could benefit from "-ographication." Although patent law is unique in several respects, given the complexities of modern law and pertinent geographic differences between judicial districts, the -ography principles applied to patent law in this Article likely have broader application.

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<sup>282</sup> George J. Koelzer, *Should We Trust Judges with Admiralty Cases?*, 34 J. MAR. L. & COM. 159, 159–60 (2003).

APPENDIX

FIGURE 9  
ACTUAL MECHANICAL CASES BY DISTRICT  
(n = 350)



FIGURE 10  
SIMULATED MECHANICAL CASES BY DISTRICT  
(n = 350)



TABLE 3  
DISTRIBUTION OF MECHANICAL CASES  
AMONG DISTRICT COURTS

<i>District</i>	<i>Number of Actual Cases</i>	<i>Number of Hypothetical Cases</i>	<i>Actual Ranking</i>	<i>Hypothetical Ranking</i>	<i>Actual Percentage of Mechanical Patent Cases</i>	<i>Hypothetical Percentage of Mechanical Patent Cases</i>
Central District of California	26	34.369	1	1	7.4%	9.8%
Northern District of Illinois	19	14.367	2	4	5.4%	4.1%
Eastern District of Michigan	15	15.833	3	2	4.3%	4.5%
Western District of North Carolina	15	3	3	30	4.3%	0.9%
District of Oregon	14	4.25	5	26	4%	1.2%
District of Minnesota	13	8	6	14	3.7%	2.3%
Southern District of California	13	8.556	6	13	3.7%	2.4%
Middle District of Florida	12	5.5	8	20	3.4%	1.6%
Southern District of New York	12	10.5	8	9	3.4%	3%
Eastern District of Texas	11	2.111	10	36	3.1%	0.6%
District of Massachusetts	10	11.667	11	6	2.9%	3.3%
Southern District of Florida	9	11.111	13	8	2.6%	3.2%
Northern District of California	8	11.222	15	7	2.3%	3.2%
Northern District of Georgia	6	9.833	19	10	1.7%	2.8%
Northern District of Ohio	6	13.125	19	5	1.7%	3.75%
District of New Jersey	5	15.083	23	3	1.4%	4.3%

FIGURE 11  
ACTUAL ELECTRICAL & ELECTRONIC CASES BY DISTRICT  
(n = 275)



FIGURE 12  
SIMULATED ELECTRICAL & ELECTRONIC CASES BY DISTRICT  
(n = 275)

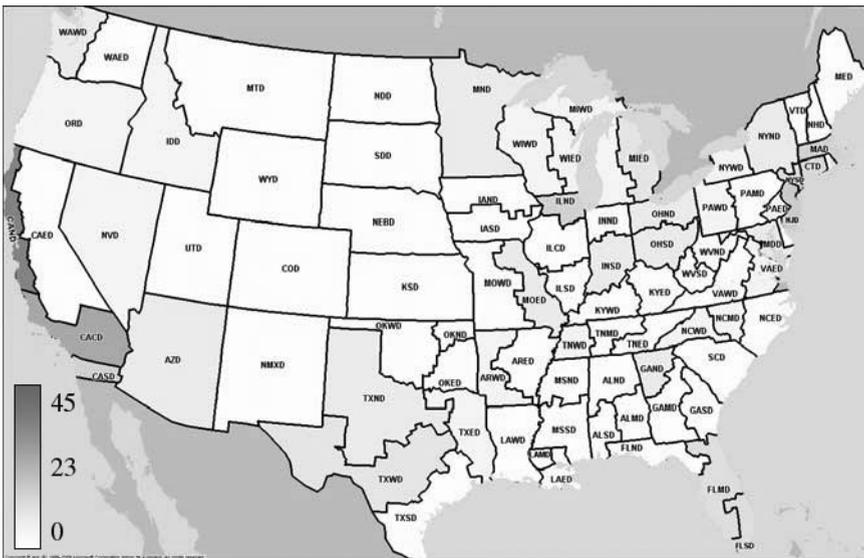


TABLE 4  
DISTRIBUTION OF ELECTRICAL & ELECTRONIC CASES  
AMONG DISTRICT COURTS

<i>District</i>	<i>Number of Actual Cases</i>	<i>Number of Hypothetical Cases</i>	<i>Actual Ranking</i>	<i>Hypothetical Ranking</i>	<i>Actual Percentage of Electrical &amp; Electronic Patent Cases</i>	<i>Hypothetical Percentage of Electrical &amp; Electronic Patent Cases</i>
Central District of California	43	26.034	1	2	15.6%	9.5%
Eastern District of Texas	26	2	2	33	9.5%	0.7%
Northern District of California	22	37.153	3	1	8%	13.5%
District of Delaware	19	1	4	41	6.9%	0.4%
Northern District of Illinois	15	12.718	5	5	5.5%	4.6%
Southern District of New York	14	9.068	6	10	5.1%	3.3%
Northern District of Texas	10	5.035	7	15	3.6%	1.8%
Eastern District of New York	9	10.703	8	7	3.3%	3.9%
District of Massachusetts	8	12.833	9	4	2.9%	4.7%
Western District of Texas	8	6.7	9	12	2.9%	2.4%
Southern District of California	6	11.643	12	6	2.2%	4.2%
Middle District of Florida	5	9.5	15	9	1.8%	3.5%
District of New Jersey	4	13.946	17	3	1.5%	5.1%
District of Connecticut	2	10.25	25	8	0.7%	3.7%

FIGURE 13  
ACTUAL CHEMICAL CASES BY DISTRICT  
(n = 156)



FIGURE 14  
SIMULATED CHEMICAL CASES BY DISTRICT  
(n = 156)



TABLE 5  
DISTRIBUTION OF CHEMICAL CASES  
AMONG DISTRICT COURTS

<i>District</i>	<i>Number of Actual Cases</i>	<i>Number of Hypothetical Cases</i>	<i>Actual Ranking</i>	<i>Hypothetical Ranking</i>	<i>Actual Percentage of Chemical Patent Cases</i>	<i>Hypothetical Percentage of Chemical Patent Cases</i>
District of Minnesota	11	6	1	6	7.1%	3.8%
Central District of California	11	17.533	1	1	7.1%	11.2%
District of Delaware	9	1	3	34	5.8%	0.6%
District of New Jersey	8	12.5	4	2	5.1%	8%
Eastern District of Texas	8	0	4	54	5.1%	0%
Northern District of Illinois	8	9.5	4	3	5.1%	6.1%
District of Utah	7	2.25	7	16	4.5%	1.4%
Northern District of Georgia	6	5.667	8	7	3.8%	3.6%
Middle District of Florida	6	1.167	8	33	3.8%	0.7%
Northern District of Ohio	5	8.167	10	4	3.2%	5.2%

TABLE 6  
ACTUAL CLUSTERS ( $n \geq 9.5$ ) IN THE DISTRICT COURTS

<i>District</i>	<i>Clusters (n ≥ 9.5)</i>
District of Massachusetts	Communications (10) Computers & Communications (13) Mechanical (10)
Eastern District of New York	Communications (10) Computers & Communications (13)
Southern District of New York	Communications (23) Computer Hardware & Software (18) Computers & Communications (40) Data Processing: Financial, Business Practice (11) Drug, Bio-affecting & Body Treating Compositions (11) Drugs (20) Drugs & Medical (23) Electrical & Electronic (14) Electronic Business Methods & Software (12) Facsimile & Static Presentation Processing (13) Mechanical (12)
District of Delaware	Computer Hardware & Software (14) Computers & Communications (30) Drug, Bio-affecting & Body Treating Compositions (17) Drugs (35) Drugs & Medical (42) Electrical & Electronic (19)
District of New Jersey	Communications (10) Computer Hardware & Software (11) Computers & Communications (15) Drug, Bio-affecting & Body Treating Compositions (24) Drugs (31) Drugs & Medical (35)
Western District of North Carolina	Mechanical (15) Registers (11)
Northern District of Texas	Computers & Communications (16) Electrical & Electronic (10) Mechanical (10)
Eastern District of Texas	Communications (28) Computer Hardware & Software (28) Computer Peripherals (12) Computers & Communications (94) Data Processing: Financial, Business Practice (24) Electrical & Electronic (26) Electronic Business Methods & Software (28) Information Storage (13) Mechanical (11) Multicomputer Data Transferring (11) Multiplex Communications (14)
Southern District of Texas	Furniture, House Fixtures (10)
Western District of Texas	Computers & Communications (15)
Eastern District of Michigan	Mechanical (15)

TABLE 6 CONTINUED  
 ACTUAL CLUSTERS ( $n \geq 9.5$ ) IN THE DISTRICT COURTS

<i>District</i>	<i>Clusters (<math>n \geq 9.5</math>)</i>
Northern District of Illinois	Communications (11) Computer Hardware & Software (15) Computers & Communications (45) Data Processing: Financial, Business Practice (16) Drugs & Medical (11) Electrical & Electronic (15) Electronic Business Methods & Software (17) Mechanical (19)
District of Minnesota	Chemical (11) Computers & Communications (10) Drugs & Medical (10) Mechanical (13)
Northern District of California	Communications (14) Computer Hardware & Software (29) Computer Input & Output (10) Computer Peripherals (14) Computers & Communications (64) Drugs & Medical (16) Electrical & Electronic (22) Information Storage (14) Semiconductor Devices (11)
Central District of California	Amusement Devices (10) Chemical (11) Communications (17) Computer Hardware & Software (18) Computers & Communications (48) Drugs & Medical (21) Electrical & Electronic (43) Electrical Lighting (23) Furniture, House Fixtures (11) Illumination (18) Information Storage (15) Materials Processing & Handling (10) Mechanical (26) Receptacles (10)
Southern District of California	Computers & Communications (10) Mechanical (13)
Western District of Washington	Computers & Communications (11)
District of Oregon	Mechanical (14)
Middle District of Florida	Computers & Communications (10) Mechanical (12)
Southern District of Florida	Computer Graphic Processing & Selective Visual Display Systems (13) Computer Peripherals (13) Computers & Communications (17) Drugs & Medical (13)
Northern District of Georgia	Communications (11) Computers & Communications (19)

TABLE 7  
SIMULATED CLUSTERS ( $n \geq 9.5$ ) IN THE DISTRICT COURTS

<i>District</i>	<i>Clusters (n ≥ 9.5)</i>
District of Massachusetts	Communications (10.091) Computers & Communications (19.274) Drugs & Medical (11.5) Electrical & Electronic (12.833) Mechanical (11.667)
District of Connecticut	Electrical & Electronic (10.25)
Eastern District of New York	Computers & Communications (12.386) Electrical & Electronic (10.703)
Southern District of New York	Computer Hardware & Software (12.067) Computers & Communications (32.397) Data Processing: Financial, Business Practice (10.5) Drug, Bio-affecting & Body Treating Compositions (13) Drugs (18.167) Drugs & Medical (19.167) Electronic Business Methods & Software (12.2) Facsimile & Static Presentation Processing (13) Mechanical (10.5)
District of New Jersey	Chemical (12.5) Communications (10.89) Computers & Communications (28.238) Drug, Bio-affecting & Body Treating Compositions (26.5) Drugs (35.25) Drugs & Medical (42.083) Electrical & Electronic (13.946) Mechanical (15.083)
Eastern District of Pennsylvania	Drugs (11.333) Drugs & Medical (14.367)
Northern District of Texas	Communications (10.596) Computers & Communications (17.483)
Eastern District of Texas	Computers & Communications (13.283)
Southern District of Texas	Computers & Communications (10.544) Earth Working & Wells (14)
Western District of Texas	Computers & Communications (9.739)
Eastern District of Michigan	Computers & Communications (9.633) Mechanical (15.833)
Northern District of Ohio	Mechanical (13.125)
Northern District of Illinois	Chemical (9.5) Computer Hardware & Software (13.767) Computers & Communications (39.643) Data Processing: Financial, Business Practice (16.167) Electrical & Electronic (12.718) Electronic Business Methods & Software (16.167) Mechanical (14.367)

TABLE 7 CONTINUED  
SIMULATED CLUSTERS ( $n \geq 9.5$ ) IN THE DISTRICT COURTS

<i>District</i>	<i>Clusters (n ≥ 9.5)</i>
Western District of Wisconsin	Mechanical (9.5)
District of Minnesota	Computer Hardware & Software (10.05) Computers & Communications (15.574)
Northern District of California	Active Solid-State Devices (13.05) Communications (22.65) Computer Hardware & Software (45.317) Computer Input & Output (14.555) Computer Memory (11.5) Computer Peripherals (22.277) Computer Support (10.2) Computers & Communications (98.937) Drugs & Medical (16.333) Electrical & Electronic (37.153) Information Storage (30.333) Mechanical (11.222) Multicomputer Data Transferring (12.933) Semiconductor Devices (18.55) Static Information Storage & Retrieval (10.833)
Central District of California	Apparel & Textile (10.333) Chemical (17.533) Communications (20.617) Computer Hardware & Software (15.417) Computer Peripherals (15.864) Computers & Communications (57.798) Drugs (16.006) Drugs & Medical (33.906) Electrical & Electronic (26.034) Furniture, House Fixtures (16.929) Information Storage (11.083) Mechanical (34.369) Receptacles (12.5) Surgery & Medical Institutions (12.567)
Southern District of California	Computers & Communications (14.813) Electrical & Electronic (11.643) Materials Processing & Handling (10.333)
Western District of Washington	Computers & Communications (20.075)
District of Utah	Computers & Communications (10.5)
Middle District of Florida	Electrical & Electronic (9.5)
Southern District of Florida	Computers & Communications (15.331) Drugs (11.1) Drugs & Medical (17.767) Mechanical (11.111)
Northern District of Georgia	Computers & Communications (15.987) Mechanical (9.833)