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District Courts as Patent Laboratories

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District Courts as Patent Laboratories

Jeanne C. Fromer*

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INTRODUCTION

Patent litigation is a complex system wherein patent law is refined through interactions among the judicial system’s constituent components—principally, the litigants, district courts, United States Court of Appeals for the Federal Circuit (Federal Circuit), Supreme Court, Patent and Trademark Office (PTO), and Congress’s patent laws.¹ Typically, litigants pore over existing laws—both congressional statutes and judicial opinions—to determine whether to file, defend, or settle a patent suit in a district court. The district court rules on the litigants’ claims. When prompted by a losing litigant, the Federal Circuit—the appellate court designated to hear nearly all appeals of patent cases²—reviews the district court’s decision. Finally, the Supreme Court might entertain further review if it is

* Associate Professor, Fordham Law School. I thank Arnaud Ajdler, Dan Burk, T.J. Chiang, Colleen Chien, Kevin Collins, Daniel Crane, Susan Crawford, Dennis Crouch, John Duffy, Rebecca Eisenberg, Eric Goldman, Hugh Hansen, Bert Huang, Sonia Katyal, Peter Lee, Mark Lemley, Tyler Ochoa, Joel Reidenberg, Michael Risch, David Schwartz, Ted Sichelman, and Joshua Walker, and audiences at Santa Clara, University of California, Irvine, and University of Michigan law schools for knowledgeable comments and suggestions.

1. Cf. Glenn Harlan Reynolds, *Chaos and the Court*, 91 COLUM. L. REV. 110, 113–15 (1991) (applying chaos theory to the Supreme Court’s jurisprudence and suggesting that even though the Court’s decisions seem random and unpredictable, ordered patterns are nonetheless present).

2. 28 U.S.C. § 1295(a)(1) (2006); *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 829 (2002) (carving out a limited exception for cases in which the patent issue arises only in a counterclaim).

convinced that the case is sufficiently worthy. This interaction is not unidirectional. For example, the Supreme Court and the Federal Circuit, in articulating rules of patent law in its decisions, are or ought to be attentive to making it straightforward for the district courts to apply these rules properly.³ Making sure that patent law develops appropriately in the courts requires attention to each of the principal components of the litigation system and their interactions with one another.

In their recent book *The Patent Crisis and How the Courts Can Solve It*,⁴ Dan Burk and Mark Lemley suggest that courts should and do tailor patent law to particular technologies or industries, with the aim of providing appropriate incentives to innovate under the specific circumstances. As Part I describes, their book understandably focuses on the Federal Circuit's key role in this tailoring. In this Article, I seek to enhance their contributions by arguing that federal district courts—which receive less attention in their book—are also particularly crucial for the development and application of technology- and industry-specific patent rules. Although district courts' current handling of patent litigation underperforms in many respects, I argue elsewhere that these flaws can be ameliorated by taking advantage of patentography—the geography of patent disputes—to eliminate forum shopping and cluster patent cases by industry or technology in those districts where the particular industry or technology is already geographically clustered.⁵ In Part II, I review this other work and build on it to suggest possible improvements to the district courts' practices and relationships that might be fostered between the district courts and the Federal Circuit. These courts—two of the most important components in the development of patent law—could interact in advantageously symbiotic ways to tailor patent law to the particular needs of a technology or industry. In doing so, I discuss how the limitations and advantages of district courts and the Federal Circuit might each, respectively, be minimized and enhanced by treating the district courts as the Federal Circuit's patent laboratories.

I. THE FEDERAL CIRCUIT'S SUPERVISORY ROLE IN PATENT LAW

Dan Burk and Mark Lemley make three persuasive points in their book: that

3. See Rochelle Cooper Dreyfuss, *In Search of Institutional Identity: The Federal Circuit Comes of Age*, 23 BERKELEY TECH. L.J. 787, 805 (2008) (hypothesizing that the Federal Circuit might have molded its legal rules to fit the district courts' lack of expertise in patent law); Peter Lee, *Patent Law and the Two Cultures*, 120 YALE L.J. 2, 7 (2010) (hypothesizing the same). Moreover, if the Federal Circuit fears intervention by the Supreme Court, it might act preemptively to accede to the Supreme Court's perceived demands. Andrew S. Brown, *Amgen v. HMR: A Case for Deference in Claim Construction*, 20 HARV. J.L. & TECH. 479, 496 n.152 (2007).

4. DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009).

5. Jeanne C. Fromer, *Patentography*, 85 N.Y.U. L. REV. 1444 (2010).

the flexible patent laws ought to be applied in technology-specific ways,⁶ that the courts are the best (current) institution to do this refinement,⁷ and that the Federal Circuit is already devising some technology-specific patent rules.⁸ Burk and Lemley provide example after example of how varied technologies and industries protectable by patent law operate in diverse ways and thus need different forms of patent incentive to stimulate innovation in those areas. For instance, robust patent protection is more important for industries with vast research and development expenditures, like pharmaceuticals and semiconductors, so that they can recoup their investments, than for those industries spending less, like software.⁹ As another example, commercially available inventions that are self-disclosing, like some software and mechanical devices, are more in need of patent protection as they are more easily appropriable than are inventions that can be shielded, such as some process inventions.¹⁰

While some might say that evidence of the technology or industry specificity of innovation indicates that Congress or the Patent and Trademark Office (PTO) ought to provide tailored patent rules for different technologies or industries, Burk and Lemley argue against that position. They assert that patent statutes tailored by Congress for different industries would create difficult problems of discerning the industry to which different inventions belong.¹¹ A profusion of statutes would also be costly to write and would become outdated quickly, given the rapid pace of technology and industry shifts.¹² Moreover, tailored statutes could easily fall prey to special-interest lobbying, rather than serve the general public interest.¹³ In Burk and Lemley's view, giving the PTO—the agency responsible principally for patent issuance—the authority to tailor patent law would not fare much better for similar reasons: concerns about special-interest lobbying and the shortsightedness of an agency currently handling only limited aspects of the patent system rather than infringement, licenses, and other disputes.¹⁴

By contrast, Burk and Lemley argue that courts are best suited to tailor patent law, mostly because the antagonistic litigation process occurs in particular factual contexts, giving judges good information to make the best decisions about advancing innovation.¹⁵ They highlight a number of ways that the Federal Circuit

6. BURK & LEMLEY, *supra* note 4, at 39–92.

7. *Id.* at 95–107.

8. *Id.* at 109–30.

9. *Id.* at 39–41.

10. *Id.* at 42.

11. *Id.* at 97–98.

12. *Id.* at 98–99.

13. *Id.* at 99–100.

14. *Id.* at 106–07.

15. *Id.* at 104–05. Craig Nard additionally suggests that patent law throughout American history has been dominated by the common law, rather than congressional action. Craig Allen Nard, *Legal Forms and the Common Law of Patents*, 90 B.U.L. REV. 51 (2010).

has already developed technology-specific patent rules to stimulate innovation properly for different technologies. For example, the Federal Circuit applies the patentability criterion of utility¹⁶ more strictly for biotechnology inventions than those in other areas out of fear that biotechnologists will seek broad patents too early in the research process, thereby cutting off important downstream research.¹⁷ As another illustration, how frequently inventions are found to be nonobvious—another patentability criterion¹⁸—depends in part on the industry in which an invention is created, given that it is measured by the degree of skill a person having ordinary skill in the art has.¹⁹ Burk and Lemley also suggest a number of areas in which the courts might create more technology-specific policy levers,²⁰ such as with regard to consideration of the cost of innovation in determining an invention's nonobviousness.²¹

While Burk and Lemley convincingly argue that courts ought to be developing industry- and technology-specific patent rules to optimize innovation in its varying forms, their focus is almost entirely on one court: the Federal Circuit.²² The Federal Circuit is, properly, a central judicial institution in any story about patent litigation (or patent law, for that matter). Before 1982, appeals from a district court's patent decisions would go to its associated regional circuit court. Congress changed that by creating the Federal Circuit.²³ Since 1982, appeals from decisions in cases in which jurisdiction arises under the patent laws lie exclusively in the Federal Circuit,²⁴ as do appeals from PTO decisions on patentability.²⁵ In practice, then, with few exceptions,²⁶ the Federal Circuit is the only intermediate appellate court reviewing district court decisions in patent cases. Moreover, because the Supreme Court reviews relatively few patent cases²⁷ and Congress rarely revises the patent laws other than to codify judicial decisions,²⁸ in practice,

16. 35 U.S.C. § 101 (2006).

17. BURK & LEMLEY, *supra* note 4, at 110–12 (citing cases).

18. 35 U.S.C. § 103 (2006).

19. BURK & LEMLEY, *supra* note 4, at 114–17 (citing cases).

20. *Id.* at 131–65.

21. *Id.* at 131–33.

22. *But see id.* at 137–40 (describing how district courts are working toward a rule of making the availability of injunctive relief dependent on the number of non-practicing entities in the relevant industry). Pointedly, there are twenty-seven entries in the index related to the Federal Circuit, not to mention many more on particular Federal Circuit cases, *id.* at 213, but none on district courts, *id.* at 212.

23. Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (codified as amended in scattered sections of 28 U.S.C.).

24. 28 U.S.C. § 1295(a)(1) (2006).

25. *Id.*

26. *Supra* note 2.

27. The small percentage of patent decisions reviewed by the Supreme Court holds even taking into account a recent upsurge in the Supreme Court's review of patent decisions. *See* Xuan-Thao Nguyen, *Dynamic Federalism and Patent Law Reform*, 85 IND. L.J. 449, 452 (2010).

28. Nard, *supra* note 15, at 53.

the Federal Circuit is usually the last word on patent law.

Given its importance in patent law, Burk and Lemley's focus on the Federal Circuit is understandable. The Federal Circuit was, in fact, created so that it would become the dominant judicial authority on patent law in two principal ways. One impetus to centralizing all appeals in cases arising under the patent laws in the Federal Circuit was to develop expertise in patent law's complexities, thereby improving the law's accuracy.²⁹ The second was to make patent law uniform throughout the nation by having only one intermediate appellate court deciding patent cases.³⁰ That said, as Part II demonstrates, any theory of technology and industry specificity in patent law should contemplate the role of district courts and the relationships between those courts and the Federal Circuit.

II. DISTRICT COURTS AS THE FEDERAL CIRCUIT'S PATENT LABORATORIES

Burk and Lemley's almost exclusive focus on the Federal Circuit neglects the vital role the district courts—in which most patent cases originate³¹ and terminate³²—ought to have in patent litigation. After demonstrating in Section A the district courts' pivotal role in patent law, Section B highlights the district courts' shortcomings in handling patent cases. Section C concludes with a discussion of how district courts might improve in this regard and how the district courts and the Federal Circuit might work together symbiotically—each doing what it institutionally does best—to advance patent law. If the district courts can be sufficiently bettered so as to serve as patent laboratories for the Federal Circuit, patent law's refinement in the courts ought to be much improved.

A. District Courts' Centrality to Patent Law

Despite being marginalized, the district courts have a vital role to play in the judicial development of patent law for at least three reasons. First, the district court is almost always the only court to play a role in the over 2,600 patent cases filed annually.³³ Almost ninety percent of patent cases are settled in the district

29. Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 14–20 (1989).

30. *Id.* at 8–14.

31. Federal Circuit patent cases can also originate in the PTO's Board of Patent Appeals and Interferences, which can “review adverse decisions of [patent] examiners upon applications for patents and . . . determine priority and patentability of invention in interferences,” 35 U.S.C. § 6(b); *id.* § 141 (permitting appeal to the Federal Circuit), or the United States International Trade Commission, 28 U.S.C. § 1295(a)(6) (2006).

32. PATSTATS.ORG, *District Court Disposition Modes Patent Cases FY-2008*, http://www.patstats.org/2008fy_Patent_Case_Disposition_Modes.doc (last visited Apr. 29, 2010); *infra* text accompanying note 34.

33. 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).

court.³⁴ Of the small remaining number that are adjudicated on the merits,³⁵ only about half are appealed to the Federal Circuit,³⁶ 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.³⁷ Moreover, for those that it does review, the Federal Circuit, at least in theory,³⁸ must heavily defer to the district courts' factual findings, whether made by a judge in a bench trial³⁸ or a jury in a jury trial.³⁹ Because these factual determinations can strongly influence the contours of legal determinations in patent law, the district court's factual findings can have a substantial impact on the Federal Circuit's legal decisions. Third, if the district courts are doing a poor—or even an inconsistent—job at deciding patent cases, the Federal Circuit becomes hard-pressed to direct its resources efficiently to make good patent law.⁴⁰

These reasons underscore how important the district courts are to any robust judicial development of technology or industry specificity in patent law, as proposed by Burk and Lemley. For one thing, given that most district courts are the only judicial actor involved in nearly all patent cases, these courts have a critical role in ruling on the merits and guiding parties toward settlement. To perform these tasks properly, the district courts must succeed in three areas: (1) ascertaining the relevant facts in a particular case; (2) deciding whether patent law as already worked out—by statute or judicial construction of the statute—already governs the case's facts; and (3) if not, gauging what rule should govern these facts. Each of these steps taken by the district courts is important to a sensible development of patent law's technology or industry specificity. Germane to a particular patent case are many types of facts: those concerning the case itself; the parties' industry (or industries), such as pharmaceutical, software, automotive, or retail; and the technology at issue in the relevant patent, such as biotechnology, software, or mechanical devices. To come to a proper legal conclusion, district

34. PATSTATS.ORG, *supra* note 32.

35. *Id.*

36. 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).

37. *E.g.*, *Funai Elec. Co., Ltd. v. Daewoo Elecs. Co.*, 616 F.3d 1357, 1370 (Fed. Cir. 2010); *Geo. M. Martin Co. v. Alliance Mach. Sys. Int'l*, 618 F.3d 1294, 1303 (Fed. Cir. 2010); *Ring Plus, Inc. v. Cingular Wireless Corp.*, 614 F.3d 1354, 1364 (Fed. Cir. 2010); *King Pharm., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1273 n.1 (Fed. Cir. 2010).

38. *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 809–11 (1986) (*per curiam*) (holding that the Federal Circuit, like the other federal courts of appeal, must review factual findings in bench trials deferentially for clear error) (citing FED. R. CIV. P. 52(a)).

39. *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 849 (Fed. Cir. 2010) (ruling that jury verdicts—always on factual issues—will be upheld so long as supported by substantial evidence), *aff'd*, 131 S. Ct. 2238 (2011).

40. Additionally, but less relevant here, on nonpatent issues, the choice of district court is elevated in importance, as regional circuit law applies and local rules can affect strategies. *See Massey v. Del Labs, Inc.*, 118 F.3d 1568, 1572 (Fed. Cir. 1997).

courts must both correctly determine these facts and also focus their judicial spotlight on the most relevant of them. Most pertinently, district courts must gain sufficient understanding of the technology and industry at issue in any particular case to determine whether and how existing law governs that case, and if not, which of the plausible readings of patent law—should there be more than one—best promotes innovation for the specific technology and industry at issue in the case.

Even in the relatively infrequent case that an appeal is taken to the Federal Circuit, the district courts are important to patent law's technology and industry specificity. That is, although the Federal Circuit will be crafting the law in a case, perhaps to apply particularly to the technology or industry at hand, the district court's factual findings on that technology or industry ought to be receiving great deference. In effect, the district courts must act as the Federal Circuit's eyes and ears—developing facts, determining testimonial credibility, and placing a case's facts in the context of a larger legal and economic picture in the first instance. Finally, in their decisions, district courts can act as patent laboratories, using their developed factual record to experiment with and develop industry- and technology-specific patent rules, which the Federal Circuit could then evaluate on appeal.

Given that the district courts must therefore occupy an important place in developing an industry- and technology-specific patent law, I now turn to whether the district courts are currently well-placed to do just that.

B. Current Shortcomings of the District Courts

Despite their centrality in patent litigation, the district courts are currently not well suited to help the judicial system effectuate accurate technology- and industry-specific patent law for at least three structural reasons. First, the factual decision makers in the district courts typically do not have a sufficient understanding of the technological and industry facts necessary to reach good legal decisions in patent law. Second, most district court judges do not have a sufficient understanding of the complexities of patent law to derive optimal legal conclusions from properly found facts. Third, when district court decisions are appealed to the Federal Circuit, the Federal Circuit frequently does not grant sufficient deference to factual matters that have been properly found by mislabeling them as legal issues.⁴¹ In this section, I consider these three concerns in turn.

As discussed in the previous section, critical to any accurate technology- or industry-specificity in patent law is having courts select which factual issues in a

41. There is the additional and significant problem with plaintiff forum shopping in patent cases to find the most favorable district court for its case, often to the detrimental development of patent law, an issue I take up in Fromer, *supra* note 5.

patent case are relevant and determine those facts correctly. Recall that tailoring patent law to a particular technology requires both an understanding of that technology and the industry in which it operates to ascertain how patent law can best advance innovation for that technology or industry.⁴² For example, consider a sample of the many important factual issues that might need to be resolved in a suit over the validity and infringement of a biotechnology patent.⁴³ To determine the patent's scope, the district court must construe the patent's claims from the vantage point of a person having ordinary skill in that field,⁴⁴ requiring an understanding of what it takes for someone to be skilled in biotechnology and to know how that person would comprehend the patent's claims. To ascertain whether infringement ought to be found beyond the patent claims' literal meaning pursuant to the doctrine of equivalents, the fact finder will need to decide whether the alleged infringement operates in the same way as the patented invention.⁴⁵ Whether the patented invention is nonobvious—one of the patentability requirements⁴⁶—and thus valid requires the court to decide whether a person having ordinary skill in biotechnology would have found the invention to be obvious in light of all relevant prior art.⁴⁷ A court might also need to rule on whether the patent holder has disclosed enough information about the invention to satisfy patent law's enablement requirement.⁴⁸ To do so requires an understanding of what people having ordinary skill in biotechnology do not already know and cannot figure out without undue experimentation as to making and using the invention.⁴⁹ That information must be disclosed, and if not, the

42. *Supra* text accompanying notes 9–10.

43. For more on the importance of factual determinations in patent cases, see Fromer, *supra* note 5, and Arti K. Rai, *Specialized Trial Courts: Concentrating Expertise on Fact*, 17 BERKELEY TECH. L.J. 877 (2002).

44. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). The Federal Circuit has deemed this question to be a legal one, *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1455 (Fed. Cir. 1998), although I think the question is predominantly factual. See *infra* text accompanying notes 66–76.

45. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722, 732 (2002) (“The scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described.”).

46. 35 U.S.C. § 103 (2006).

47. Prior art is “[k]nowledge that is publicly known, used by others, or available on the date of invention to a person of ordinary skill in an art, including what would be obvious from that knowledge.” BLACK’S LAW DICTIONARY 119 (8th ed. 2004). As with claim construction, the courts consider nonobviousness to be a legal question with subsidiary factual ones. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

48. 35 U.S.C. § 112 (2006) (“The specification 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, and shall set forth the best mode contemplated by the inventor of carrying out his invention.”).

49. *Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352, 1360 (Fed. Cir. 2007).

patent is invalid.⁵⁰ Moreover, embedded in these questions of claim construction, the doctrines of equivalents, nonobviousness, and enablement provide enough wiggle room for policy choices about whether upholding the particular biotechnology patent—and ones like it—promotes or impedes progress in the technology and industry. Correctly deciding these legal and policy questions requires a sharp and accurate understanding of the relevant technological and industry facts.

In spite of the importance of accurate factual findings in patent cases, there is good reason to believe that the two possible decision makers in patent cases in district courts—judge and jury—are not well equipped to make these critical technology- and industry-specific factual determinations. District court judges are principally not technically trained—and even when they are, it is certainly not in every area in which patents might be granted—making it very hard for them to understand often complex patented technologies and the industries in which they occur.⁵¹ Moreover, they typically do not accrue this proficiency on the bench by repeated exposure to particular industries and technologies because, on average, they tend to handle patent cases relatively infrequently.⁵²

Jurors' factual decision making seems to run into the same problems, as jurors typically do not have backgrounds in technological areas.⁵³ In fact, the concern about juries as factual decision makers in patent cases is greater than it is for district court judges in bench trials. Unlike district court judges, a lay juror is unlikely to have repeated exposure to patent cases as a way to learn more about particular technologies or industries. Empirical research, moreover, suggests that there is cause for concern about juries' factual determinations in patent cases. Kimberly Moore shows that juries are less likely to differentiate among the various legal challenges in a patent case by ruling in favor of the same party on all of its claims significantly more frequently than do judges in bench trials.⁵⁴ Finally, the concern for jury fact-finding is further compounded by the dramatically growing use of juries in patent cases: from 2.5% of all tried patent cases in 1940 to 59% of them from 1997 through 1999.⁵⁵

Apprehensions about district courts' role in patent litigation extend beyond

50. *Roche Palo Alto LLC v. Apotex, Inc.*, 531 F.3d 1372, 1379 n.1 (Fed. Cir. 2008).

51. Rai, *supra* note 43, at 891–95.

52. Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1097 (2003).

53. See Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 370–72 (2000) (describing the critique that jurors do not understand the technologies at issue in patent cases); Richard B. Schmitt, *Juries' Role in Patent Cases Reconsidered*, WALL ST. J., Feb. 18, 1994, at B6.

54. Moore, *supra* note 53, at 403–04 (finding that, for cases involving multiple claims, juries resolve all of those claims in favor of the same party eighty-seven percent of the time, while judges do so just seventy-two percent of the time).

55. *Id.* at 366. That said, a low percentage of filed patent cases—under seven percent—reach a trial. *Id.* at 383.

their inadequacies in fact-finding to their shortcomings in properly deciding legal issues in patent law. District court judges tend to lack backgrounds in patent law⁵⁶ and see patent cases rarely.⁵⁷ As such, district courts are unlikely to have a good grasp of the law's many intricacies.⁵⁸ 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."⁵⁹ Understanding patent law well, then, requires a full-bodied knowledge of many Federal Circuit and other patent decisions, something many district court judges lack. Therefore, even when the facts in a patent case are properly found, there is a sizeable concern that the district court will nonetheless err in its legal conclusions. Given that the district court is more often than not the last court to make a legal ruling in a patent case,⁶⁰ any legal missteps it makes are significant.

Of course, these shortcomings in finding facts and deciding law should not be viewed in isolation. The Federal Circuit reviews some patent cases.⁶¹ As such, it might be seen to be in a position to correct some factual and legal errors made in the district court. However, that is frequently not the case. As for factual findings by district courts, the Federal Circuit is supposed to review them with a strong degree of deference. The Supreme Court has ruled that the Federal Circuit, like the other federal courts of appeal, must review factual findings in bench trials deferentially for clear error.⁶² Relatedly, jury verdicts—always on factual issues—are even harder to overturn on appeal, in that they will be upheld so long as supported by substantial evidence.⁶³ It is particularly hard for the Federal Circuit to reverse juries' factual errors. Juries typically do not articulate their factual findings in any detailed way to ease appellate review. Even when special-verdict forms are used, the questions answered by juries are relatively general, such as, "Did the defendant prove the patent obvious by clear and convincing evidence?"⁶⁴ The Federal Circuit can then do not much more than "presume that the jury resolved the underlying factual disputes in favor of the verdict winner and leave those presumed findings undisturbed if they are supported by substantial evidence."⁶⁵

56. S. Jay Plager, *Challenges for Intellectual Property in the Twenty-First Century: Indeterminacy and Other Problems*, 2001 U. ILL. L. REV. 69, 77–78.

57. *Supra* text accompanying notes 51–52.

58. *E.g.*, Steve Seidenberg, *Patent Rocket Docket*, 93 A.B.A. J. 38, 38 (2007).

59. Nard, *supra* note 15, at 53.

60. *Supra* text accompanying notes 33–36.

61. *Id.*

62. *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 809–11 (1986) (per curiam) (citing FED. R. CIV. P. 52(a)).

63. *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 849 (Fed. Cir. 2010), *aff'd*, 131 S. Ct. 2238 (2011).

64. Moore, *supra* note 53, at 400–01.

65. *Jurgens v. McKasy*, 927 F.2d 1552, 1557 (Fed. Cir. 1991).

That all said, there is evidence that the Federal Circuit has tended in practice to give too little deference to district courts' findings in factual matters in two ways.⁶⁶ First, there is suspicion that the Federal Circuit frequently engages in searching review of district courts' factual findings.⁶⁷ Second, as Arti Rai suggests, the Federal Circuit has mislabeled certain critical factual determinations as questions of law, giving the Federal Circuit the opportunity to review them de novo.⁶⁸ Perhaps most affected in this regard is patent claim construction. Federal Circuit Judge Plager labels claim construction the most important issue in patent litigation, as its result often dictates the outcomes on infringement and validity issues.⁶⁹ Although claim construction might simplistically 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 quintessentially about discerning this meaning from the point of view of a person having ordinary skill in the relevant art at the time of invention,⁷⁰ which is a significant factual undertaking. A district court undertaking claim construction might need to review testimony by scientific and industry experts and documentary evidence about the relevant technology, industry, and invention.⁷¹ This inquiry seems to be directed at discerning facts: evaluating credibility, constructing who the person having ordinary skill in the art is and what that person thought when the invention was made, and making sense of the industry, technology, and invention.⁷² This critique is so salient that six Federal Circuit judges recently suggested that the labeling of claim construction as a question of law ought to be revisited.⁷³ Similar critiques have been aimed at various issues related to a patent's validity, which have been labeled as legal despite having overwhelming factual components.⁷⁴

Any lack of deference by the Federal Circuit to the district courts on the facts that they have found is problematic when the district court has made sensible

66. Fromer, *supra* note 5.

67. Rai, *supra* note 52, at 885–87. An empirical study by Kimberly Moore finds that, from 1993 through 1998, the Federal Circuit affirmed district court judges' factual findings seventy-eight percent of the time and juries' factual findings seventy-eight percent of the time as well. Moore, *supra* note 53, at 397.

68. Rai, *supra* note 43, at 879.

69. Plager, *supra* note 56, at 71.

70. Markman v. Westview Instruments, Inc., 52 F.3d 967, 986 (Fed. Cir. 1995) (en banc).

71. Rai, *supra* note 52, at 1089–90.

72. Dreyfuss, *supra* note 3, at 802.

73. Amgen Inc. v. Hoechst Marion Roussel, Inc., 469 F.3d 1039, 1040 (Fed. Cir. 2006). Following the Supreme Court's holding that claim construction is not a jury question because it was not analogous to any jury question at the United States's founding, Markman v. Westview Instr., Inc., 517 U.S. 370, 376–91 (1996), 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, 1454–46 (Fed. Cir. 1998). This leap of logic was unwarranted, as something can be both a nonjury and factual question. *Cybor*, 138 F.3d at 1473–78 (Rader, J., dissenting).

74. Rai, *supra* note 52, at 885–87 (suggesting as much for the validity requirements of nonobviousness and enablement).

factual findings, particularly given that district courts are generally better situated institutionally to determine facts.⁷⁵ Some, though, point to the critique that district courts are likely to err in finding the facts as justifying searching review by the Federal Circuit, a court that comparatively has a better understanding of the issues in patent cases.⁷⁶

In all, this section demonstrates that the district courts are not currently well suited to promote technology- or industry-specific development in patent law. Even assuming that the Federal Circuit is best situated to develop technology- and industry-specific patent law, as Burk and Lemley seem to suggest in their book, the district courts must play a strong supporting role in this development. Nevertheless, the district courts are currently inadequately equipped to do so. Whether through judge or jury, there is reason to suspect that district courts might not find technology- and industry-specific facts correctly, causing these courts to misapply the Federal Circuit's case law. Moreover, for the reasons set forth above, district courts might not have a sufficiently refined understanding of the Federal Circuit's legal rules and how and whether to apply them in technology- and industry-specific ways. Finally, in the cases in which the district courts have done a good job at sussing out a case's relevant technology- and industry-specific facts, the Federal Circuit might improperly fail to defer to those findings.

Even worse, the district courts—as currently structured—can hinder the Federal Circuit from effectively developing technology- and industry-specific patent rules. The district courts can err in their factual findings in ways that are not easily detected by an appellate court seeing a cold and established record. As such, the Federal Circuit might improperly rely on district courts' factual findings to come to particular legal conclusions, possibly technology- and industry-specific ones. These conclusions may very well be unjustifiable in the face of the actual facts, causing an injustice in the particular case. Moreover, conclusions that are not well supported in fact might have a broader impact by creating opportunities for misapplication in future cases. For example, if the Federal Circuit is under the misimpression—via a district court—that little downstream research is likely in a particular technology, it might more readily give a broader reading to the patent's claims—either literally or via the doctrine of equivalents—than it would have done had it known correctly that downstream research is likely. The impact of erroneous district court actions is further felt: even when the Federal Circuit can detect error in district courts' factual findings and legal conclusions, the Federal Circuit's resources are wasted if error is sufficiently widespread. In these situations, the Federal Circuit's time and energy is siphoned away from focusing on the most complicated issues of patent law and deciding them properly.

75. Edward H. Cooper, *Civil Rule 52(a): Rationing and Rationalizing the Resources of Appellate Review*, 63 NOTRE DAME L. REV. 645, 650–54 (1988).

76. Dreyfuss, *supra* note 29, at 47–50.

Moreover, Rochelle Dreyfuss suggests that the Federal Circuit might have molded its legal rules to fit the district courts' lack of patent expertise, thereby causing harm to patent law.⁷⁷ 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.⁷⁸ According to Dreyfuss, this focus on district courts' analytical approaches obfuscates the substantive policies patent law ought to promote, harming the quality of this area's legal development.⁷⁹ In many ways, formalism is antithetical to any refined technology- and industry-specific patent law.

With this articulation of the district courts' shortcomings, the next section discusses how to improve the system of patent litigation, by fostering a mutually beneficial relationship between the district courts and the Federal Circuit, thereby enhancing the technology- and industry-specific development of patent law.

C. Improving the District Courts

Given that patent litigation is a complex system with the district courts as one of its critical components, it is crucial to improve these courts. Bettering the courts' decision-making capabilities in patent cases and finding ways to harness their institutional strengths vis-à-vis the Federal Circuit is critical to fostering accurate technology- and industry-specific patent rules that foster innovation. This section addresses how a beneficial symbiosis might be fostered between the district courts and the Federal Circuit. This section's suggestions are illustrative of improvements that might be made, rather than exhaustive. These suggestions nonetheless coalesce to focus on turning the district courts into patent laboratories for the Federal Circuit, in the sense that they should carefully collect case, technological, and industry facts in each patent case; strive to apply the most appropriate legal rules to those facts; and serve up these factual and legal determinations to the Federal Circuit for further refinement. In turn, the Federal Circuit ought to defer to the district courts' factual findings so long as they are not clearly erroneous and use its bird's-eye view to refine technology- and industry-specific patent law.

In light of district courts' importance, a first step toward enhancing the quality of patent litigation is to improve the decision making in which those courts engage. In other work, I recommend taking account of patentography—the geography of patent disputes—to improve district courts' factual and legal decision making.⁸⁰ There, I propose making patent suits proper only in the district

77. Dreyfuss, *supra* note 3, at 802–04.

78. *Id.* at 802–03; *accord* Rai, *supra* note 52, at 1037.

79. Dreyfuss, *supra* note 3, at 803. For other critiques of the Federal Circuit's formalism, see Timothy R. Holbrook, *Substantive Versus Process-Based Formalism in Claim Construction*, 9 LEWIS & CLARK L. REV. 123 (2005); John R. Thomas, *Formalism at the Federal Circuit*, 52 AM. U. L. REV. 771 (2003).

80. Fromer, *supra* note 5.

for the principal place of business of any of the defendants in a case (with a safety valve to avoid due process concerns in a minute number of cases).⁸¹ Beyond nearly eliminating forum shopping, so constraining venue should improve district courts' decision making by tending to cluster patent cases of particular technologies or industries in a limited number of districts. Industries tend to cluster around geographic areas, such as the pharmaceutical industry in New Jersey and the software industry in Silicon Valley and the Boston and Seattle areas.⁸² Because of industries' natural geographic clusterings, lawsuits that must be filed in defendants'—industry players'—principal place of business would mean that more industry- or technology-specific patent suits ought to coalesce in districts with relevant industry clusters. Under my proposed venue rules, it would likely entail, for example, clusters of pharmaceutical patents suits in the District of New Jersey and software patent suits in the Northern District of California, the District of Massachusetts, and the Western District of Washington.⁸³ A simulation of the hypothetical distribution of all of the actual utility patent cases filed in 2005 under my proposal confirms such clustering effects for numerous technologies and industries.⁸⁴

When this clustering effect obtains, a handful of district courts would adjudicate many patent cases in particular technologies or industries. The proficiency they would thus develop would help them serve both as skilled fact finders in developing the case record and as patent laboratories for tailoring patent law to promote innovation in their particular clustered technologies or industries.⁸⁵ Moreover, judges, juries, and other legal actors located in an industry or technology cluster are likely to have more background knowledge about that industry or technology than jurors located in arbitrary areas.⁸⁶ This better understanding might, for example, be because they work in that area, have neighbors or family working in that area, read more stories about that area in the local newspaper, or possess tacit knowledge.⁸⁷ It is more useful to harness this typically elevated background knowledge in a district with industry clusters than to locate patent suits in arbitrary locations, such as the current preponderance of software patent cases in the “no bytes’ land” of the Eastern District of Texas and

81. *Id.*

82. *Id.*

83. Court Locator, <http://www.uscourts.gov/courtlinks/> (last visited Mar. 25, 2011) (providing a map of federal district courts).

84. Fromer, *supra* note 5.

85. I argue also that this system is preferable to a set of district courts specializing in patent law, as some have proposed. Rai, *supra* note 43. What patent law needs for more accurate, efficient, and thoughtful judicial resolution of patent cases is not a set of district courts handling only patent cases, but enough district courts that, in addition to seeing their usual host of cases, tend to see enough patent cases of particular industries or technologies. Fromer, *supra* note 5.

86. Fromer, *supra* note 5.

87. *Id.*

pharmaceutical cases in the District of Delaware.⁸⁸

Harnessing patentography would go a long way toward improving district courts' factual and legal determinations. However, it would probably make more marked improvements with regard to bench trials than jury trials. Even with average elevated background knowledge, jurors almost never have the repeated exposure to patent cases that district court judges would. Moreover, even if jurors would have average elevated background knowledge were patent suits to cluster by industry or technology, some number of jurors would still have little to no such background knowledge. There is, therefore, good reason to worry about jurors' abilities to decide the ever-critical facts in a patent case properly.

One way to protect the system of patent litigation from these unknowledgeable jurors would be to mandate that district courts use special-verdict forms in jury trials of patent cases.⁸⁹ A mandated special-verdict form specifying separately the factual issues the jury must determine would have two important benefits. First, it would crisply communicate to the jury each factual issue they must determine, which would foster justifiable findings.⁹⁰ This communication ought to obviate the need for complicated instructions to the jury on the relevant patent law.⁹¹ Second, if each factual issue is sufficiently articulated separately, post-trial and appellate review of the jurors' individual factual conclusions would be eased. Pertinently, a special verdict with sufficiently differentiated issues would permit a reviewing court a (minor) peek inside the black box of jury findings by enabling surgical reversals of jury error rather than wholesale reversals requiring full-blown new trials.⁹²

Assuming these changes would lead to improved fact-finding in the district courts (as well as better tailored legal conclusions), it would be productive to ensure that the Federal Circuit grants high degrees of deference to the district courts' factual findings.⁹³ In that vein, those issues of patent law that have been labeled legal but are principally factual—like claim construction—ought to be relabeled as factual questions. Additionally, those factual issues informing legal issues—like the elements of nonobviousness—should also be granted sufficient deference.

88. *Id.*

89. *See* *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 723–24 (Fed. Cir. 1984) (encouraging the use of special-verdict forms (quoting FED. R. CIV. P. 49(a))). Now, the use of special-verdict forms in these cases is permissive. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1356 (Fed. Cir. 2001).

90. *Structural Rubber Prods.*, 749 F.2d at 724.

91. *R.H. Baker & Co. v. Smith-Blair, Inc.*, 331 F.2d 506, 511 (6th Cir. 1964).

92. *McGinley*, 262 F.3d at 1356.

93. Congress might specify the degree of deference required for the various patent issues. *Cf.* Arti K. Rai, *Allocating Power over Fact-Finding in the Patent System*, 19 BERKELEY TECH. L.J. 907, 919 (2004) (discussing how Congress might mandate the Federal Circuit's deference to the PTO on particular legal questions).

A renewed focus on fact-finding in the district courts and the Federal Circuit's deference to those facts absent clear error might also encourage the filing of *amicus curiae* briefs in patent cases in the district courts. By highlighting key aspects of the technology and industry at issue, these briefs would assist the district courts determining the relevant facts with accuracy.

By using these and other techniques, the district courts' power in finding facts—of each case, the associated patented technology, and the relevant industry—could be maximized. The district courts would thereby serve as patent laboratories for the Federal Circuit, by queuing up relevant facts and doing their best to apply patent law accurately to promote innovation for the relevant technology and industry. The Federal Circuit—with its expertise in the law of patents—would supervise these patent laboratories, by providing guidance and refining patent law.

CONCLUSION

In their book, Dan Burk and Mark Lemley articulate an essential insight about the necessity for technology and industry specificity in patent law, so as to encourage the various types of innovation that happen in different industries and with different technologies. To them, the locus of technology- and industry-specific development of patent law ought to be in the courts. In this regard, they focus almost exclusively on the Federal Circuit. In this Article, I supplement their work by arguing that the district courts ought to be an integral part of their story, given their important role in patent litigation. Although district courts currently underperform in their handling of patent cases, they can be improved so as to turn them into reliable patent laboratories, interacting beneficially with the Federal Circuit to refine and improve patent law in technology- and industry-specific ways.