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Rethinking Patent Law's Uniformity Principle

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RETHINKING PATENT LAW'S UNIFORMITY PRINCIPLE

*Craig Allen Nard** & *John F. Duffy***

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INTRODUCTION

Uniformity has enjoyed veritable talismanic status in our legal system, something "thought to be virtuous in almost every area of the law."¹ Patent

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¹ Michael E. Solimine, *Rethinking Exclusive Federal Jurisdiction*, 52 U. PITT. L. REV. 383, 406 (1991); see also John F. Duffy, *Harmony and Diversity in Global Patent Law*, 17 BERKELEY TECH. L.J. 685, 686 (2002) ("Uniformity of law has an undeniable intellectual appeal."). Indeed, as early as 1816,

law is no exception.² Indeed, of all of the animating forces behind the creation of the Court of Appeals for the Federal Circuit, the desire for uniformity in the application of patent law was foremost.³ The court, recognized as “perhaps the single most significant institutional innovation in the field of intellectual property in the last quarter-century,”⁴ understood uniformity to be its mandate and pursued that end with vigor. In the first decade of its existence, the Federal Circuit earned praise for achieving a desirable degree of uniformity in place of regional circuit precedents perceived to be disjointed and conflicting.⁵ Even today, the court continues to earn praise, when it is praised, for being superior to the system of regional circuits, which produced a widely fractured set of precedents.⁶

Yet uniformity is not a proxy for quality. That a policy is uniformly applied says very little about its soundness or desirability. As the novelty of having a uniform set of circuit precedents for patent law has worn off, commentators have increasingly turned to evaluating the Federal Circuit’s precedents on the merits. The issue is whether Federal Circuit precedent adequately reflects current knowledge regarding the beneficial functions of the patent system in generating technological innovation, the potential problems of patent rights in foreclosing legitimate competition, and the need for predictable rules capable of curtailing litigation costs. The answers thus far have not been encouraging.

The Federal Circuit has been accused of producing an isolated and sterile jurisprudence that is increasingly disconnected from the technological

Justice Story wrote of the “importance, even necessity of *uniformity* of decisions throughout the whole United States.” *Martin v. Hunter’s Lessee*, 14 U.S. (1 Wheat.) 304, 347–48 (1816).

² See John F. Duffy, *The Festo Decision and the Return of the Supreme Court to the Bar of Patents*, 2002 SUP. CT. REV. 273, 287 (“[P]olicy in favor of national uniformity in patent law has . . . ancient roots in the country’s law.”).

³ See S. REP. NO. 97-275, at 5 (1981) (“The creation of the Court of Appeals for the Federal Circuit will produce desirable uniformity in this area of . . . [patent] law.”); H.R. REP. NO. 97-312, at 20–21 (1981) (discussing the existing problems of disuniformity and noting that “some circuit courts are regarded as ‘pro-patent’ and others ‘anti-patent,’ and much time and money is expended in ‘shopping’ for a favorable venue”). Disuniformity was perceived to be so great that Congress at the time believed that “the validity of a patent is too dependent upon geography (i.e., the accident of judicial venue) to make effective business planning possible.” H.R. REP. NO. 97-312, at 22. At least one recent commentator has questioned whether the problems associated with disuniformity were really so great. See Cecil D. Quillen, Jr., *Innovation and the U.S. Patent System*, 1 VA. L. & BUS. REV. 207, 228 (2006) (arguing that forum shopping and outcome variability were not notable problems in the 1970s).

⁴ WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 7 (2003).

⁵ See, e.g., Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 74 (1989) (concluding that “[o]n the whole, the [Federal Circuit] experiment has worked well for patent law, which is now more uniform, easier to apply, and more responsive to national interests”).

⁶ See Rochelle Cooper Dreyfuss, *The Federal Circuit: A Continuing Experiment in Specialization*, 54 CASE W. RES. L. REV. 769, 770 (2004) (“Practitioners appear to be in general agreement that centralizing patent appeals in a single court is a vast improvement over regional adjudication.”).

communities affected by patent law.⁷ The court's precedents have been viewed as "increas[ing] the cost of patent acquisition, augment[ing] the burdens of patent administration, and encourag[ing] free riders—trends that make both the patent system and the process of innovation less attractive alternatives."⁸ Indeed, in 2006, the Solicitor General and the United States Patent and Trademark Office (PTO) represented to the Supreme Court that the Federal Circuit's test of patentability—a centerpiece of the circuit's patent jurisprudence for more than twenty years—is "misguided" and "counterproductive" and has "exact[ed] a heavy cost in the form of unwarranted extension of patent protection. . . ."⁹

In some areas of patent law, the Federal Circuit's precedents have also been faulted for "hav[ing] brought less certainty and predictability to patent enforcement."¹⁰ The court's high rate of reversal of district courts demonstrates that, despite the circuit's uniform national jurisdiction, "the promises of pre-trial predictability and expedient patent litigation seem to remain a tantalizing dream."¹¹ Even commentators who were previously quite positive about the Federal Circuit experiment have acknowledged the "continuing problems perceived in the court's administration" of patent law.¹²

In sum, several commentators and other legal actors are beginning to place blame for a variety of perceived ills squarely on the Federal Circuit. Then-Professor Kimberly Moore, in reviewing the statistical trends for the reversal rates on patent claim construction, perhaps best summed up the current mood by concluding: "The fault, at this point, undoubtedly lies with the Federal Circuit itself."¹³

If fault is to be attributed to the Federal Circuit, it is worthwhile to ask whether the fault is a transient problem of the court's current membership or a more fundamental difficulty in the jurisdictional experiment with cen-

⁷ See, e.g., Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1578 (2003) (asserting that in the software and biotechnology industries, the Federal Circuit fails to realize that the policies in its case law are "precisely backwards"); Dreyfuss, *supra* note 6, at 782 (observing that issues concerning the breadth of patent rights "are being heavily investigated by legal and economic theorists, yet the court does not cite the literature these scholars have generated").

⁸ John R. Thomas, *Formalism at the Federal Circuit*, 52 AM. U. L. REV. 771, 773 (2003).

⁹ Brief for the United States as Amicus Curiae Supporting Petitioner at 10, 16, KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007) (No. 04-1350).

¹⁰ Glynn S. Lunney, Jr., *Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 SUP. CT. ECON. REV. 1, 76 (2004); see also Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 40-41 (2005) (discussing "key areas of expanding uncertainty" in Federal Circuit doctrine, including areas such as claim construction methodology, the doctrine of equivalents, and the written description requirement).

¹¹ Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1100 (2001).

¹² Dreyfuss, *supra* note 6, at 772-86.

¹³ Kimberly A. Moore, *Markman Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 246-47 (2005) ("With judicial claim construction now nearing its adolescence . . . , there should be more predictability. The reversal rate ought to be going down, not up.").

tralization and specialization. Indeed, this issue is particularly pressing because Congress continues to ponder the additional centralization of judicial business in specialized courts.¹⁴

We believe that persistent problems in institutions—ones that continue for years even as the membership in the institution changes—are unlikely to be the fault of the individuals who serve the institution. Moreover, we note that the judges of the Federal Circuit, past and present, have been highly qualified and highly experienced individuals who are at least as able in their high positions as the judges on other circuits. The fault is much more likely to be structural, and it can be traced directly to the Federal Circuit’s exclusive subject matter jurisdiction over patent cases.¹⁵

Laying some blame on the Federal Circuit’s basic jurisdictional structure is not radical. Even the Federal Circuit judges themselves have, on occasion, hinted that the court’s jurisdictional structure has its problems. For example, Chief Judge Michel of the Federal Circuit has suggested that the insularity of the court is related to a closed cycle between the court and the attorneys who practice before it, with the attorneys simply parroting back to the court what the court itself has said in prior cases:

We just keep replicating the old results based on the old precedents, whether they have kept pace with changes in business, changes in technology, or changes of a different sort [W]e just get the Federal Circuit talking to itself, with the brief writer just being the echo of what we wrote in all those prior cases. And then we write some more cases, and the cycle just goes on and on and on.¹⁶

Similarly, Judge Randall Rader of the Federal Circuit has spoken of how the Federal Circuit has “retarded the pace of common law development in some important ways” because the court’s exclusive subject matter jurisdiction leads to “less percolation, less chance for experimentation” of patent law issues.¹⁷

¹⁴ The issue of centralization as a means of achieving uniformity most recently has been raised in the context of immigration law. See Comprehensive Immigration Reform Act of 2006, S. 2611, 109th Cong. § 707(b)(1) (introduced Apr. 7, 2006) (calling for the consolidation of immigration “appeals into an existing circuit court, such as the United States Court of Appeals for the Federal Circuit”). This particular provision has been subjected to a great deal of criticism. See, e.g., Letter from law school deans and legal scholars to Arlen Specter, Chairman, Comm. of the Judiciary (Mar. 14, 2006), available at [http://www.law.yale.edu/documents/pdf/LettertoSenSpecter\(1\).pdf](http://www.law.yale.edu/documents/pdf/LettertoSenSpecter(1).pdf).

¹⁵ See 28 U.S.C. § 1295(a)(1) (2000). We refer to the Federal Circuit jurisdiction over patent appeals as “exclusive” because, as a practical matter, that accurately describes the reality. We recognize that, in some very rare circumstances, it remains possible to have other federal circuits review patent cases.

¹⁶ Hon. Paul R. Michel, Keynote Presentation, Berkeley Center for Law & Technology Conference on Patent System Reform, Mar. 1, 2002 (transcribed by Gerald T. Peters), posted to Internet Patent News Service, patnews@patenting-art.com (Greg Aharonian ed., Aug. 1, 2002) (on file with NW. U. L. REV.).

¹⁷ Randall R. Rader, *The United States Court of Appeals for the Federal Circuit: The Promise and Perils of a Court of Limited Jurisdiction*, 5 MARQ. INTELL. PROP. L. REV. 1, 4 (2001).

The Federal Circuit itself could perhaps ameliorate the problems associated with its exclusive jurisdiction over patent appeals. It might try to counterbalance its insularity by encouraging attorneys to cite and discuss the wealth of empirical and social science research on patent law that has been produced in recent years.¹⁸ The court could also display greater receptiveness to ideas generated by district court judges, particularly those related to the allocation of judicial authority.¹⁹ These solutions, however, would not provide a complete remedy because Congress designed the structure of the court to achieve uniformity. That very structure not only discourages parties from challenging the settled precedents of the court with different perspectives, but also limits the set of available authorities and experience from which the court might seek guidance.

It is time to rethink patent law's uniformity principle. While much attention has been paid to institutional reform at the PTO and district court levels,²⁰ it is the appellate courts that are well positioned to develop policy and advance doctrine through an engaged common law. Patent law's complex mixture of fact and law scenarios coupled with the fluid nature of innovation practices requires a competitive and diverse appellate enforcement model—something the current appellate structure lacks. This proposed shift from a strategy based on uniformity to one that emphasizes diversity, competition, and incremental innovation must be accompanied by a reconfiguration of patent law's institutional design at the appellate level.

We propose that the time is ripe to adopt a polycentric decisionmaking structure that would allow for a diversity of peer appellate voices to be heard.²¹ Specifically, the Federal Circuit and patent law would benefit from exposure to an ongoing, lively jurisprudential debate at the circuit court

¹⁸ See *infra* notes 101–03.

¹⁹ The Federal Circuit has, however, been notably unresponsive to the views of district judges in the one area, claim construction, in which district judges have been most critical of current circuit doctrine. See *infra* note 99.

²⁰ While we are sympathetic to arguments calling for reform at the district court level, and agree that there needs to be reform at the PTO level, these institutional proposals do not fully address patent law at the appellate level, where policymaking is most pronounced. For notable examples of district court reform proposals, see H.R. 5418, 109th Cong. (2006) (proposing to have greater centralization of patent cases at the district court level and to allow district court judges the option to hear more patent cases); Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. REV. 889 (2001) (recommending the creation of specialized patent trial courts and other reforms to reduce current problems with forum shopping for favorable trial courts); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035 (2003) (proposing mechanisms to create greater patent expertise in trial courts and thereby to permit the Federal Circuit to grant more deference to trial court judgments).

²¹ Raaj Sah and Joseph Stiglitz have defined polyarchy “as a system in which there are several (and possibly competing) decision makers who can undertake projects (or ideas) independently of one another.” Raaj Kumar Sah & Joseph E. Stiglitz, *The Architecture of Economic Systems: Hierarchies and Polyarchies*, 76 AM. ECON. REV. 716, 716 (1986). They compare a polyarchy design model to a hierarchy design model, which has “only a few individuals (or only one individual) [that] undertake projects while others provide support in decision making.” *Id.*

level, or what Robert Cover referred to as “jurisdictional redundancy.”²² A decentralized decisionmaking model fosters a strategy focused on incremental innovation and competition, while also providing the additional benefit of “teeing up” cases more clearly for Supreme Court review, an important consideration given the Court’s recent push into patent law.²³

But like centralization, immoderate decentralization has its costs. Therefore, a choice between a centralized and decentralized model cannot and should not be answered with a polar solution. The issue is one of *optimization*. Excessive decentralization almost certainly marked the pre-1982 appellate system, which had twelve regional circuit courts judging infringement cases, plus the Court of Customs and Patent Appeals (CCPA) holding jurisdiction over agency appeals.²⁴ Congress understood that the problems associated with the pre-1982 institutional design were “structural.”²⁵ Too many circuits were able to weigh in on patent doctrine; individual circuit judges saw too few patent cases to develop any commanding expertise in the field; and the many regional jurisdictional lines invited forum shopping and other legal gamesmanship. Unfortunately, the 1982 solution of centralizing appellate jurisdiction in a single intermediate appellate

²² Robert M. Cover, *The Uses of Jurisdictional Redundancy: Interest, Ideology, and Innovation*, 22 WM. & MARY L. REV. 639 (1981). The benefits of diversity were voiced by some members of the patent bar during hearings on the creation of the Federal Circuit. For example, James Geriak, in his testimony before the House subcommittee on the judiciary, stated, “[u]niformity, without more, i.e., without regard to whether the uniformity produces beneficial or detrimental results, is quite plainly not a desirable objective. The diversity fostered in so many different ways by our federal systems has proven itself to be extraordinarily useful and beneficial.” *Court of Appeals for the Federal Circuit: Hearing 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. 85 (1981) (testimony of James W. Geriak) [hereinafter *Hearings*].

²³ Over the five-year period from May 2002 to May 2007, the Court issued opinions in nine patent cases (with one case not decided on the merits), and in those cases, some members of the Supreme Court expressed a desire for a more generalist approach to patent law. See, e.g., *Lab. Corp. of Am. v. Metaboli-te Labs., Inc.*, 126 S. Ct. 2921, 2929 (2006) (Breyer, J., dissenting from decision to dismiss a case as improvidently granted) (“[A] decision from this generalist Court could contribute to the important ongoing debate, among both specialists and generalists, as to whether the patent system, as currently administered and enforced, adequately reflects the ‘careful balance’ that ‘the federal patent laws . . . embod[y].” (quoting *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989))); *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 839 (2002) (Stevens, J., concurring) (“[O]ccasional decisions by courts with broader jurisdiction will provide an antidote to the risk that the specialized court may develop an institutional bias.”). See also Duffy, *supra* note 2, at 297–99 (noting the increased level of Supreme Court interest in patent cases from 1995 to 2002); ROBERT P. MERGES & JOHN F. DUFFY, *PATENT LAW AND POLICY* 1050–51 (4th ed. 2007) (noting the Supreme Court’s continuing interest in patent cases and listing the nine cases decided 2002–2007).

²⁴ The Eleventh Circuit was created just prior to the creation of the Federal Circuit, so as a practical matter the pre-Federal Circuit period had a total of twelve circuits hearing patent cases. Nevertheless, we count the number of pre-Federal Circuit appellate courts with patent jurisdiction as thirteen because (1) that number is theoretically correct, and (2) it is the number that would exist if the Federal Circuit were not created.

²⁵ S. REP. NO. 97-275, at 1 (1981).

court erred in embracing the opposite pole. We argue here for a more moderate course.

We propose that, in addition to the Federal Circuit, at least one extant circuit court should be allowed to hear district court appeals relating to patent law.²⁶ In addition, both the Federal Circuit and United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) should have jurisdiction over appeals from the PTO,²⁷ thereby injecting into the patent system an additional judicial voice with broad expertise in administrative law and regulatory policy.²⁸

We do not want to overstate the salutary effects of a competitive jurisprudential framework, nor suggest that there is empirical support for the advantages of a multi-circuit model vis-à-vis a singular tribunal. We note, however, that there was certainly no empirical support for the creation of the Federal Circuit;²⁹ institutional innovations usually are not accompanied by such conclusive data. Our proposal is based on observations of the institutional design of legal systems and an appreciation of the importance of competition and diversity within these systems. The natural reaction to our proposal is to argue that short-term uniformity will suffer and forum shopping will ensue. Our response to these arguments is set forth below, but for present purposes, suffice it to say that the benefits associated with creating a moderately decentralized framework will most likely outweigh the costs.³⁰ Uniformity is just one of many considerations; others include incremental innovation, experimentation, and a check on inconsistencies and insufficiently articulated rationales.

Part I of this Article explores the strengths and weaknesses of decentralized and centralized decisionmaking. That issue has relevance across a broad array of fields, and it is typically viewed as a matter of optimization

²⁶ We are referring to cases based on district court jurisdiction under 28 U.S.C. § 1338(a) (2000) (“The district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents, plant variety protection, copyrights and trademarks. Such jurisdiction shall be exclusive of the courts of the states in patent, plant variety protection and copyright cases.”). Although our selection of *two* circuits is somewhat arbitrary, we do think it is important to begin the expansion slowly in order to see how the circuit courts and patent players respond.

²⁷ Currently, the Federal Circuit has exclusive appellate jurisdiction for appeals arising from the PTO. See 28 U.S.C. § 1295(a)(4) (2000).

²⁸ See *infra* Part II.D, discussing the D.C. Circuit’s administrative docket.

²⁹ Interestingly, the creation of the Federal Circuit in 1982 was not, to say the least, uniformly endorsed. An American Bar Association (ABA) Report and Recommendation disapproving of the creation of the Federal Circuit was adopted by the ABA House of Delegates in 1980. *Hearings, supra* note 22, at 760 (testimony of Benjamin L. Zelenko). See also *id.* at 69 (testimony of James W. Geriak) (stating it “would be a very, very substantial error for the subcommittee to conclude that all patent lawyers are agreed upon the desirability of the . . . Federal Circuit legislation”); F.M. Scherer, *The Political Economy of Patent Policy Reform in the United States* 20–25 (Dynamics of Insts. & Mkts. in Eur., Working Paper No. 26, Dec. 2006) (discussing opposition to creation of Federal Circuit) (manuscript on file with authors).

³⁰ See *infra* Part II.A–B.

and balance. In Part II, we review some of the relevant history and criticisms of the Federal Circuit and then set forth our proposal for a decentralized institutional architecture for patent law. Part III discusses some of the concerns that would accompany a decentralized model and our proposals to mitigate those concerns.

I. THE GENERAL PROBLEM: UNIFORMITY AND CENTRALIZATION VS. DIVERSITY AND DECENTRALIZATION

The issue we address in this Article—whether the creation of the Federal Circuit has produced an excessive degree of uniformity and concentrated power—is one particular example of a more general question that manifests itself in law, politics, economics, and business. The question is as simple to state as it is difficult to answer: What is the optimal degree of centralization and concentration of power? This issue arises (i) in the design of governmental institutions (e.g., should governmental powers be separated into distinct institutions as in the United States or concentrated as in parliamentary systems?);³¹ (ii) in determining appropriate jurisdictional rules in a federal system (e.g., should the states or the national government have control over a particular matter?);³² (iii) in international law (e.g., to what extent should Europe integrate its markets across the continent?);³³ (iv) in antitrust and competition analysis (e.g., should a particular industrial merger be permitted?);³⁴ (v) in the theory of business organizations (e.g., should economic transactions be integrated into a firm or be subject to the forces of a decentralized market?);³⁵ and even (vi) in theory and policy gov-

³¹ See, e.g., Bruce Ackerman, *The New Separation of Powers*, 113 HARV. L. REV. 633 (2000) (arguing that a consolidated, European-style parliamentary system is superior to the American-style system of separated powers provided that the parliamentary system is constrained by other governmental institutions that enjoy some degree of independence and separation from parliamentary power).

³² See RICHARD A. POSNER, *THE FEDERAL COURTS: CRISIS AND REFORM* 172–81 (1985) (discussing the optimal division of judicial workload between the federal and state courts); Gordon Tullock, *Federalism: Problems of Scale*, 6 PUB. CHOICE 19, 19 (1969) (discussing the “optimal scale of production for [a] governmental service”).

³³ See, e.g., George A. Bermann, *Taking Subsidiarity Seriously: Federalism in the European Community and the United States*, 94 COLUM. L. REV. 332 (1994) (discussing the European Union’s attempt to respect decentralized authority despite its overall mission of maintaining centralized control of the common market).

³⁴ See, e.g., Malcolm B. Coate, *Efficiencies in Merger Analysis: An Institutionalist View*, 13 SUP. CT. ECON. REV. 189 (2005) (applying transaction-cost economics to the study of optimal merger enforcement); Michael L. Katz & Howard A. Shelanski, *Merges and Innovation*, 74 ANTITRUST L. J. 1 (2007) (analyzing the relationship between merger policy and innovation).

³⁵ The classic work is, of course, Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386 (1937). Even within firms, excessive centralization of decisionmaking may be suboptimal. See, e.g., JOHN ROBERTS, *THE MODERN FIRM: ORGANIZATIONAL DESIGN FOR PERFORMANCE AND GROWTH* 55–57 (2004) (noting that, under certain circumstances, a firm may find it optimal to vacillate between centralized and decentralized decisionmaking so as to foster norms of centralization “at some middling level of strength”).

erning research and development (e.g., should R&D be coordinated or uncoordinated?).³⁶

In these areas, we can observe many circumstances in which the additional centralization of power has been positive³⁷ (e.g., the integration of the United States into a common market, and the similar integration of the European market that is ongoing) and many circumstances where it has not worked well (e.g., the centralization of power in autocratic leaders, attempts to cartelize certain markets, and mergers that create potentially unwieldy conglomerates such as AOL-TimeWarner). These diverse areas are relevant here because they yield two important insights. First, across a wide range of institutions, similar arguments are advanced to support centralized or decentralized institutional structures. We survey these arguments in Section A below. Second, in all of these areas, the question of centralization is best viewed as a matter of *optimization*. If complete decentralization (e.g., atomistic competition or anarchy) is not often the correct solution, then neither is complete centralization (e.g., monopoly or autocracy). This second point is detailed in Section B below, and it is crucial for this Article; we believe that supporters of the creation of the Federal Circuit made a key mistake in too easily concluding that if having thirteen appellate courts with jurisdiction over patent appeals created too much inconsistency and diversity, then the correct solution was to centralize all authority into one court.

A. *The Costs and Benefits of (De)Centralization and (Dis)Uniformity*

Decentralized decisionmaking is not necessarily inconsistent with uniformity. For example, the classical model of a perfectly competitive marketplace assumes decentralized decisionmaking by atomistic firms that nevertheless produces a uniform market price because each firm is subject to the same economic forces. Conversely, a centralized institution could be internally inconsistent; and in fact, one of the prominent criticisms of the Federal Circuit is that the court exhibits “panel dependency.”³⁸ Neverthe-

³⁶ Contributions to this literature include: Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J. L. & ECON. 265, 265–66, 278 (1977) (providing efficiency justification for coordinating innovation); John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439 (2004) (providing additional rationale for coordinating innovation); Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 872 (1990) (arguing that while “[i]n principle” coordinated development of innovations could be better than decentralized development, “in practice it generally is not”).

³⁷ See Katz & Shelanski, *supra* note 34, at 2 (“In some instances, innovation may be greater when concentration is greater.”).

³⁸ See, e.g., R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1112 (2004) (finding “that claim construction at the Federal Circuit is panel dependent”). The charge of panel dependency remains a controversial one. See, e.g., Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 12 FED. CIR. B.J. 1, 21 (2003) (reporting an empirical survey that demonstrates a surprisingly “high degree of conformance among voting patterns of the Federal Circuit judges in these claim construction appeals”); Chu, *supra* note 11, at 1079 (examining the “panel-dependency hypothesis” and

less, the concepts of centralization and uniformity are intimately connected in the literature because uniformity is one of the primary arguments typically made in favor of centralization. It was indeed one of the principal justifications for creating the Federal Circuit. We therefore treat uniformity and centralization as related concepts in our discussion below, although we note circumstances in which decentralization does not necessarily produce disuniformity.

It is also important to distinguish between centralization and specialization. Specialized governmental institutions present an interesting set of problems, including most prominently the threat of “capture” by narrow interest groups. Capture theory posits that special interest groups may be able to influence and control a specialized institution (especially, though not necessarily, a centralized one) more easily than a generalized entity.³⁹ Also, governmental institutions with specialized jurisdictions may act to aggrandize the importance of their jurisdiction. Whether the Federal Circuit suffers from either of these problems remains a matter of significant dispute,⁴⁰

showing, through empirical study, that “the identity of the Federal Circuit judge who authors the majority decision does not appear to influence the outcome of the appeal”); John R. Allison & Mark A. Lemley, *How Federal Circuit Judges Vote in Patent Validity Cases*, 27 FLA. ST. U. L. REV. 745, 766 (2000) (finding patent validity outcomes “depended on the facts of the case, and not on the composition of the panel”). Indeed, all courts of appeals are panel dependent to some extent, and it is unclear if the panel dependency at the Federal Circuit is worse than other circuits. See Issac Unah, *The Incidence and Structure of Conflict on the U.S. Court of Appeals for the Federal Circuit*, 23 LAW & POL’Y 69 (2001) (finding internal Federal Circuit conflict comparable to other regional circuit courts in matters of international trade and customs); Gregory M. Stein, *Regulatory Takings and Ripeness in the Federal Courts*, 48 VAND. L. REV. 1, 77 (1995) (asserting that Ninth Circuit law is “extremely panel-dependent” on a particular issue concerning regulatory takings); see also Paul R. Michel, *The Court of Appeals for the Federal Circuit Must Evolve to Meet the Challenges Ahead*, 48 AM. U. L. REV. 1177, 1191 (1999) (stating, “I believe that the complaint regarding panel dependency may be symptomatic of broader ills, such as, ‘indeterminacy’ or ‘unpredictability’” and that “[i]n the areas of public contract, trade, or takings law, similar assertions can be made”). Moreover, as Rochelle Dreyfuss has noted, “some level of inconsistency in outcomes should be tolerated” because the court does not have the benefit of different approaches to patent law generated by other circuit courts; therefore, “[i]f the Federal Circuit is to obtain these advantages in the specialty portion of its docket, then the debate would largely be among the panels of the court, rather than with the regional circuits.” Dreyfuss, *supra* note 6, at 775. One could plausibly infer from Dreyfuss’s observation that a multi-circuit model would lead to less internal inconsistency at the Federal Circuit. This inference is in need of empirical support, but we are comfortable suggesting that it is unlikely that a multi-circuit model will exacerbate internal inconsistency.

³⁹ For example, if a single court handled all matters related to airline regulation, major airlines would be able to concentrate their efforts in lobbying for appointees who would favor their interests and, significantly, other interest groups may not be sufficiently interested in the matter to lobby one way or the other. Yet if airline matters are adjudicated by a court with general jurisdiction, then many interest groups would care and lobby on appointment issues. The competing factions would tend to dilute the power of any single interest to dominate.

⁴⁰ See, e.g., Lawrence Baum, *Judicial Specialization, Litigant Influence, and Substantive Policy: The Court of Customs and Patent Appeals*, 11 LAW & SOC’Y REV. 823 (1977) (arguing that court specialization enhances the likelihood of litigant interest groups affecting substantive policy); William M. Landes & Richard A. Posner, *An Empirical Analysis of the Patent Court*, 71 U. CHI. L. REV. 111, 111–12 (2003) (hypothesizing that a specialized patent court is more likely than a generalist court to take a

and even if the court is subject to those criticisms, review by the Supreme Court may provide a sufficient check. We generally sidestep that debate and focus here on the matter of centralization. Our ultimate recommendation, however, has the effect of adding non-specialist appellate courts into the patent system and may help to check the problems of specialization.⁴¹

The case for decentralization and diversity is typically evaluated by examining at least four distinct factors. For each, a countervailing consideration supports some degree of centralization.

1. Competitive Benefits of Decentralization.—The beneficial effects of competition provide a powerful justification for decentralized decision-making. Competition serves as an important check on poor decisions. In the marketplace, it punishes firms that make poor decisions about product design and price. In the political marketplace, it polices against candidates who adopt stances poorly aligned with the views of voters. And for states and nations, it provides incentives to adopt reasonable laws that will not cause businesses, investment, and individuals to flee the jurisdiction.

Competition is, however, not a panacea because it can lead to wasteful strategic behavior. In the marketplace, such strategic behavior in competition can lead firms to exploit externalities, to seek legislation harmful to competitors through political lobbying, and to engage in negotiating ploys that have no overall social value but that allow the firm to capture a larger part of the benefits created by an agreement. Similar analogues exist in jurisdictional competition; nations can advance their interests by disregarding

strong stance on its subject matter because “interest groups that had a stake in patent policy would be bound to play a larger role in the appointment of the judges of such a court than they would in the case of the generalist federal courts”; and reporting empirical evidence to support the view that the Federal Circuit is “pro-patent” in comparison to the regional circuits it displaced); Richard A. Posner, Speech at American Enterprise Institute (Nov. 19, 2002), reported in Declan McCullagh, *Left Gets Nod from Right on Copyright Law*, CNET NEWS, Nov. 20, 2002, <http://news.com.com/2100-1023-966595.html> (“A specialized court tends to see itself as a booster of its speciality.”). By contrast, Rochelle Dreyfuss has argued that bias at the Federal Circuit “seems unlikely” because a majority of the court’s judges are not former patent attorneys; the court has a diverse docket; and parties that appear before the court “are often well-financed, enjoy the advantages of repeat play, and (because the patent bar is not split along plaintiff/defendant lines) have access to the same representation.” Rochelle Dreyfuss, *Pathological Patenting: The PTO as Cause or Cure*, 104 MICH. L. REV. 1559, 1569 (2006). Moreover, Dreyfuss notes that “[b]ecause knowledge is cumulative, even those who invest in invention do not, in the long run, benefit from laws too protective of patent rights.” *Id.* Additionally, in John Allison and Mark Lemley’s empirical work on Federal Circuit voting patterns in validity cases, they conclude that while judges with prior patent experience wrote 62.9% of the patent validity opinions, there is no “significant difference in the voting patterns of judges with and without patent experience.” Allison & Lemley, *supra* note 38, at 753–54; see also Dreyfuss, *supra* note 5, at 29–30 (arguing that, with respect to its patent jurisprudence, the Federal Circuit may not be “in danger of becoming captive to special interest groups” because the court is a “‘balanced’ specialized court[] that hear[s] cases among evenly matched litigants”); Rai, *supra* note 20, at 1102–15 (discussing issues of bias relating to Federal Circuit).

⁴¹ See *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 539 U.S. 826, 839 (2002) (Stevens, J., concurring) (“[O]ccasional decisions by courts with broader jurisdiction will provide an antidote to the risk that the specialized court may develop an institutional bias.”).

harmful effects on other nations, employing strategic trade policies, and, in the extreme, engaging in warfare.

Both these positive and negative effects of competition apply to the structure of appellate courts. Instead of products marketed at particular prices, judges produce legal results along with opinions and rationales. Although judges are not profit-maximizing corporations, it is reasonable to believe that they seek to maximize their judicial reputation, or the perceived quality of their appellate opinions, which is gauged in the competitive market of opinions.⁴² While this sort of competition can occur even amongst the members of a single court, the rules of appellate courts greatly limit competition among judges. The rule that one panel can establish precedent for the entire court generally decreases the chance that one judge will challenge or rethink a rule set by another panel of judges within the same circuit. Moreover, even if a particular judge were willing to rethink an issue and perhaps to seek en banc hearing on that issue, attorneys appearing before the court may choose not to raise the issue because they estimate, correctly in many cases, the likelihood to be low that the court will rethink its established precedent. The rules of judicial precedent are, after all, designed to constrain judges and litigants and thereby to foster stable and uniform circuit law.⁴³ It is not surprising that such rules achieve their intended effect. But where the entire nation is covered by one circuit (as in the patent field), the rules of circuit precedent also foreclose opportunities for competing rationales and rules.

The bad side—the strategic side—of competition can also be observed in the appellate courts. It occurs not so much among the judges; we do not claim that judges from one circuit ordinarily engage in strategic behavior against their colleagues from other circuits. Rather, the strategic behavior occurs among the litigants. Forum shopping is one example of such competitive but strategic behavior, and historically, that problem was a stated justification for establishing the Federal Circuit.⁴⁴ We are sensitive to this problem, and address it in Part III below.⁴⁵

⁴² See Richard A. Posner, *What Do Judges and Justices Maximize? (The Same Thing Everybody Else Does)*, 3 SUP. CT. ECON. REV. 1 (1993) (suggesting that, among other things, judges seek to maximize judicial reputation and prestige); Frederick Schauer, *Incentives, Reputation, and the Inglorious Determinants of Judicial Behavior*, 68 U. CIN. L. REV. 615 (2000) (arguing that judges are concerned with non-ideological factors such as reputation).

⁴³ See J.D. Heydon, *Limits to the Powers of Ultimate Appellate Courts*, 122 L.Q. REV. 399, 403–05 (2006) (discussing “advantages” of stare decisis); Jonathan R. Macey, *The Internal and External Costs and Benefits of Stare Decisis*, 65 CHI.-KENT L. REV. 93 (1989) (same).

⁴⁴ See H.R. REP. NO. 97-312, at 20–21 (1981) (justifying the creation of a single court of appeals on the grounds that “some circuit courts are regarded as ‘pro-patent’ and others ‘anti-patent,’ and much time and money is expended in ‘shopping’ for a favorable venue”); see also LANDES & POSNER, *supra* note 4, at 334 (providing some evidence to support the view that forum shopping could have been a problem in patent cases prior to the creation of the Federal Circuit).

⁴⁵ See *infra* Part III.A.

2. *Information Gathering and Sharing.*—Economists have long recognized the virtues of decentralized information gathering. Within economics there exists the basic assumption that having multiple information gathering points—multiple private actors operating in markets—allows for the generation of more complete and reliable data. For instance, nearly sixty years ago, Friedrich Hayek wrote of the decentralized nature of knowledge, stating that “[t]he economic problem of society is . . . how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know.”⁴⁶ For Hayek,

[t]he peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality.⁴⁷

Hayek’s insight is that information about social wants and capabilities is naturally dispersed because it involves all of society.⁴⁸ Thus, decentralized decisionmaking can produce a collective judgment that is based on more information than can possibly be collected by a centralized institution.

This same insight provides a justification for dispersing decisionmaking power in other settings. Indeed, even in a centralized political institution like the United States Congress, power is dispersed not only among multiple actors, but also across multiple institutions having different structures (e.g., power is dispersed between the House and Senate, which are

⁴⁶ FRIEDRICH A. HAYEK, *The Use of Knowledge in Society*, in *INDIVIDUALISM AND ECONOMIC ORDER* 77, 77–78 (1949).

⁴⁷ *Id.*

⁴⁸ See Andrew P. Morriss & Susan E. Dudley, *Defining What to Regulate: Silica and the Problem of Regulatory Categorization*, 58 *ADMIN. L. REV.* 269, 281 (2006) (“Hayek’s central point was that decentralized markets focus dispersed information—information that no one individual . . . can obtain—and convey it efficiently to market participants.”); Maxwell L. Stearns, *Appellate Courts Inside and Out*, 101 *MICH. L. REV.* 1764, 1777 (2002) (“One major benefit of generating information as to value in this decentralized and uncoordinated manner is that countless *subjective* valuation measures—reflected in the individual transactions—produce an *objective* valuation that can be tested in the marketplace.”). Randy Barnett writes of the “first-order” knowledge problem that “the distribution of jurisdiction over physical resources should mirror as closely as possible the distribution of access to knowledge in society.” Randy E. Barnett, *The Sound of Silence: Default Rules and Contractual Consent*, 78 *VA. L. REV.* 821, 841–42 (1992). Barnett continues:

If a centralized institution charged with allocating jurisdictions knew what it needed to know to make such allocations, a decentralized jurisdictional strategy would be unnecessary. The most we can hope for is to determine the general characteristics of those who are in the best position to have knowledge of potential resource uses, regardless of whether they in fact always have the best knowledge. In sum, we rely on these general characteristics to establish a presumption of competence in favor of individuals and groups who have access to the personal and local knowledge pertaining to their own situation.

Id. at 842–43.

subject to different electoral processes). Though decentralization has other purposes in the political context, the technique is at least partly justified as a means for improving collective judgments.

Decentralization also has a significant informational drawback. Some decisions are better undertaken with a certain degree of concentrated or specialized information and learning. For such matters, a centralized decisionmaking entity has an advantage over a decentralized one because the necessary information, once assimilated, can be shared throughout the entity and applied repeatedly at low cost. By contrast, sharing information and knowledge among diverse entities may prove more expensive and difficult without centralized coordination. Again, such informational forces can be seen in the marketplace where atomistic firms have an incentive to combine to facilitate the sharing of specialized knowledge and to lower transaction costs. The same incentive effect operates in an institution like Congress where even though decisionmaking power is to some extent dispersed among hundreds of voters, it is also concentrated through an elaborate committee and subcommittee structure along lines of specialization. Information about particular social problems (e.g., intellectual property) is centralized in a few key committees and their staffs.

As with economic and political organizational structures, decentralization in an appellate court structure allows the judicial system to gather information better. Once again, the key feature of a single appellate court with exclusive subject matter jurisdiction, as compared to multiple courts, is that the single court is bound to follow its own precedents without the benefit of sister-circuit jurisprudence. This feature defines what we mean by a single appellate court, but it also tends to reduce the court's ability to continue gathering information and arguments once a precedent is established. Consider, for example, a situation where the first case presenting a particularly difficult issue to an appellate court has poor lawyers representing one side. The appellate court rules against that side and, because the arguments were not well-presented, the court rules fairly broadly. In future cases, lawyers likely will be deterred from arguing that the appellate court should reverse its own precedent because the lawyers know that appellate courts take that step infrequently.⁴⁹ But in a legal system with multiple appellate

⁴⁹ This type of attorney reticence is particularly acute in Federal Circuit practice. See Dreyfuss, *supra* note 40, at 1570 (noting a "repeat-player disadvantage" whereby lawyers appearing before the Federal Circuit are reluctant to reargue issues lest they subject themselves and their clients to the court's criticism); Rai, *supra* note 20, at 1075 (noting that because patent attorneys represent both patent holders and alleged infringers, it is "unlikely" that attorneys will make "sweeping legal and policy arguments that emphasize the problems caused by strong, or numerous, patents"). See generally Oona A. Hathaway, *Path Dependence in the Law: The Course and Pattern of Legal Change in a Common Law System*, 86 IOWA L. REV. 601, 628 (2001) ("Litigants are unlikely to make arguments that stray from existing law . . . because they know that doing so would significantly decrease their likelihood of success . . ."); Frederick Schauer, *Legal Development and the Problem of Systemic Transition*, 13 J. CONTEMP. LEGAL ISSUES 261, 273 (2003) (discussing how "official" training of lawyers lends itself to a path-dependent legal system).

courts, other appellate courts will continue to be presented with arguments on the issue. Litigants feel freer in the Fourth Circuit than in the Ninth Circuit to argue that a Ninth Circuit precedent is wrong.⁵⁰

Moreover, the information problem created by centralization may also lead to different kinds of information being presented by litigants. Where a true circuit split exists (e.g., between the Ninth and Fourth Circuits), litigants in another circuit (say the Seventh) may be more candid in recognizing that the normal range of legal materials does not necessarily resolve the matter because reasonable federal appellate judges have already reached different results. The litigants may therefore be more creative in seeking out new sources of information. They may seek additional historical support for their positions, cite academic articles, or conduct or rely upon empirical studies. They may even attempt to discern the experience that each of the conflicting circuits has had with its rule. Our point here is that the appellate system relies on the argumentations of lawyers, and lawyers' arguments will be directly influenced by the appellate structure and rules of circuit precedent. Apparently narrow-minded judicial opinions may reflect poor appellate argumentation, which may in turn reflect the centralized appellate structure.

Thus, if the appellate decisionmaker is centralized into a single institution, society has a great interest in making sure that the decisionmaker "gets it right." Yet that single decisionmaker is at a disadvantage because even wrong decisions may not be challenged. Placing such a considerable degree of trust in one court has risks, particularly when the court is charged with managing patent law in divergent and sometimes transient technologies.⁵¹

⁵⁰ This advantage holds true without regard to whether judicial "activism" or "restraint" is the proper method of judging, and without regard to whether the appellate issue involves a common-law, judicially created doctrine (e.g., the doctrine of equivalents); a pure question of law (e.g., the meaning of "solely for uses reasonably related to the development and submission of information"); or the interpretation of a doctrine or term that is intensely fact-dependent (e.g., constructing a person having ordinary skill in the art).

⁵¹ As the late Chief Judge Howard Markey noted, "[t]he necessary rarity of Supreme Court review and the absence of peer-court decisions effectively give the [Federal Circuit] the last word in those areas [under its jurisdiction]." Unah, *supra* note 38, at 74–75 (2001) (quoting Chief Judge Markey) (citation omitted). The literature on human fallibility is instructive here. Courts are comprised of individual judges, and judges, like all individuals, are fallible. This notion of fallibility is particularly pronounced in a centralized setting where there are relatively fewer judges to absorb and internalize the relevant data for any given case, technology, and policy framework. As Raaj Sah has noted, because of scarcity of both time and effort, "an individual can typically extract only a part of the decision-relevant information from the limited raw data available." Raaj K. Sah, *Fallibility in Human Organizations and Political Systems*, 5 J. ECON. PERSP. 67, 82 (1991). But individual fallibility is closely related to organizational design in that an organization's architecture affects, to name a few, the nature of the errors made, who sees what data, what evaluative tools are employed, and who communicates with whom. See Sah & Stiglitz, *supra* note 21, at 716 (noting the relevance of the organizational arrangement of individuals to the nature of individual error); see also Sah, *supra*, at 86 ("[T]he nature of the fallibility of an organization, or of any aggregate entity, depends not only on the nature of the fallibility of the individuals who constitute the organization but also on the organization's architecture.").

A centralized model is also problematic when the issue is heavily fact-dependent, if for no other reason than that a centralized court is self-limiting with respect to the number of scenarios it will encounter over a given period of time. Moreover, there are likely to be fewer ideas, and therefore fewer valuable ideas, produced in a centralized setting.⁵² Having multiple decisionmakers on each particular issue will allow for more appellate arguments by a more diverse set of advocates in more diverse factual scenarios, thus providing the appellate system as a whole—though not any one judge or court—with a more complete picture of all the arguments and facts relevant to deciding the particular issue.⁵³ This in turn will generate a greater number of ideas, each with some potential value or merit, than would be generated in a centralized model.

Complete decentralization in the appellate context carries its own informational drawback: Decentralized appellate courts may lack the repeated experience with issues that confers expertise and concentrated knowledge. Prior to 1982, twelve regional circuit courts heard patent infringement appeals, but each circuit heard only a small number. Each judge on a regional circuit would hear even fewer patent cases, and judges could easily escape having to write a patent opinion for many years. Judges who rarely hear patent cases may have precious little understanding of the law in the field; they may be persuaded by clever argumentation to adopt positions that do not make sense within the larger body of law. We are not arguing for the return to such a degree of decentralization, nor do we contest the wisdom of current law and practice that concentrates a significant number (though not all) of administrative appeals in the D.C. Circuit, and that concentrates a significant number (though not all) of corporate law cases in the Delaware State courts. Some concentration is good.

3. *Innovation.*—It is rightly a shibboleth in many diverse areas of human endeavor that decentralization leads to innovation. In the economic marketplace, the innovative ideal is captured by the entrepreneur who begins a company in a garage and reshapes the world with it. Recent history is filled with such examples, including Google, Amazon.com, eBay, and, from a slightly earlier era, Hewlett-Packard, Xerox, Microsoft, and Apple Computer.⁵⁴ And lurking behind those are the hundreds or thousands of entrepreneurial ventures that did not become, or have not yet become, household words. A similar wisdom prevails in political theory, where

⁵² See Sah & Stiglitz, *supra* note 21, at 719.

⁵³ See Sah, *supra* note 51, at 80 (“It seems reasonable to conjecture that the presence of unfamiliarity may induce individual decision-making units to exhibit very high probabilities of rejection of very good projects, and, as a result, a highly hierarchical choice of innovation-oriented projects may hinder innovation.”).

⁵⁴ See Oren Bar-Gill & Gideon Parchomovsky, *A Marketplace for Ideas?*, 84 TEX. L. REV. 395, 406–07 (2005) (pointing to similar “observations [as] evidence of the efficiency of decentralized innovation”).

innovation is believed to be fostered by “laboratories of democracy,”⁵⁵ and even in organizational design, which teaches large institutions to pursue a decentralized structure to foster innovation.⁵⁶ The point here is perhaps even a corollary to the information point made above: Decentralization produces greater information and does so in part by fostering experimentation, trial-and-error, and ultimately successful innovation.

Yet innovation also demands the centralization of a sufficient amount of knowledge to make innovation possible. The Manhattan Project was not a garage operation; the search for new drugs requires extensive concentrated knowledge; and even a famous entrepreneur such as Thomas Edison benefited from the centralization of dozens of fellow researchers in his Menlo Park laboratories. Again, this point can be seen as a corollary to the information point. Effective innovation in a complex field requires at least a baseline of concentrated knowledge.

In the context of appellate courts, more courts can produce—and, importantly, *test*—more innovations. In many areas, the Federal Circuit may have created innovative legal doctrine. The difficulty is that those innovations, and the experience with them, cannot easily be compared to the alternatives because the entire nation is under one jurisdiction. Thus, for example, the Federal Circuit’s *de novo* review standard for district court claim constructions has been criticized by many who argue that experience demonstrates the rule to be a failure. Supporters of the rule argue that differential review would cause too many inconsistencies because patents would be interpreted differently in different district courts. Those arguments could be better evaluated if different rules prevailed in different circuits. Evaluating different approaches is essential to confirming the value of innovations, and thereby fostering greater understanding and progress.

This intuition cannot be taken too far, of course. A dozen, or two dozen, appellate courts could not simultaneously test many different possible innovations. Not only would the diverse courts then possess too little knowledge in the field to innovate effectively (a point made earlier), but also, adding more courts would at some point divide the caseload so much that experience with the different approaches would take years to accumulate.

⁵⁵ See *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting) (“It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”).

⁵⁶ See, e.g., THOMAS W. MALONE, *THE FUTURE OF WORK: HOW THE NEW ORDER OF BUSINESS WILL SHAPE YOUR ORGANIZATION, YOUR MANAGEMENT STYLE, AND YOUR LIFE* 114 (2004) (stating that decentralization “encourages motivation and creativity” and “allows for many minds to work simultaneously on the same problem”); DAVID OSBORNE & TED GAEBLER, *REINVENTING GOVERNMENT: HOW THE ENTREPRENEURIAL SPIRIT IS TRANSFORMING THE PUBLIC SECTOR* 252 (1992).

4. *Economies and Diseconomies of Scale in Governance.*—Management and decisionmaking often exhibit economies of scale. Decisions optimizing the layout and appearance of a particular retail store, for example, easily may apply to other comparable stores. Similarly, governmental rules, whether legislation or judicial decisions, developed for a small state could be applied to a larger state without any additional cost in terms of formulating the rule. Indeed, the extension of a legal regime throughout a broader area reduces costs not only for the governmental body but also for the citizenry, who do not have to learn or comply with multiple sets of rules across a particular geographic area. A common market from Maine to California, or from Greece to Ireland, decreases the costs of complying with governmental regulations.

The countervailing consideration—diseconomies of scale—is typically framed, at least within literature on governmental design, as a matter of promoting localism. Decentralization allows decisionmakers to become more familiar with local conditions and customs.⁵⁷ Even in the federal appellate structure, the regional circuits allow federal judges to become more familiar with the state laws within the circuit. Further, since federal law is frequently intertwined with state law issues, the regional circuit judges are able to apply federal law with greater knowledge and appreciation for the local state rules and norms.

In United States patent law, we do not believe that geographic decentralization serves any important value. While it is at least plausible that nations in radically different stages of development may need different patent systems—perhaps India’s optimal patent law is not identical to that of the United States—it seems to us implausible that Maine and California need different patent systems. Moreover, patent law is so thoroughly federalized, and has been since 1790, that patent appellate courts rarely if ever have to consider local state law issues in applying the Patent Act. Thus, our proposed system will not emphasize geographic decentralization.

The concept of “localism” does, however, have an analogy in the space of patent law: Though few if any have argued for greater *geographic* diversity of patent law within the United States, some scholars have argued for *technological* diversity.⁵⁸ A decentralized appellate system could have its jurisdictional lines drawn to technological classes. Indeed, such technological division of patent cases may decrease the problem of forum shopping. While patent disputes are rarely geographically limited, in that acts of infringement usually occur throughout the whole of the United States, they usually are limited to a particular industry and technological class. Since the PTO assigns a technological class to each patent, the jurisdictional lines

⁵⁷ See MALONE, *supra* note 56, at 114 (“[Decentralization] accommodates flexibility and individualization.”).

⁵⁸ Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155 (2002).

could follow the PTO's classifications, with infringement suits from chemical and genetic patents (classes 422 and 435) directed to one circuit and business methods and software (classes 705 and 700) to another. Such a system would allow modest decisional diversity in related areas without any recognition of formal or de jure technological distinctions in the law.⁵⁹ Although we ultimately do not endorse technological decentralization because we would prefer that each circuit court be confronted with and issue opinions on identical issues, we recognize that a decentralized appellate system opens up this interesting possibility.

B. *Optimizing Appellate Centralization*

As suggested by the discussion in Section A, we believe that the issue of appellate centralization and decentralization cannot and should not be answered with a polar solution. The issue is one of *optimization*. Excessive decentralization almost certainly marked the pre-1982 appellate system, which had twelve regional circuit courts judging infringement cases, plus the CCPA holding jurisdiction over agency appeals. The 1982 solution of centralizing all appellate jurisdiction in a single intermediate appellate court erred in embracing the opposite pole. We argue here for a more moderate course and extol the benefits that can accompany limited decentralization into two or three appellate intermediate institutions that, unlike the other legal and policymaking institutions in the patent system (the Supreme Court, Congress, and the PTO), could serve as true coequal peers for the Federal Circuit.

Our optimizing approach is consistent with canonical approaches to analyzing institutional size and structure in other areas. A good example—one that bridges economic and political theory—can be found in Ronald Coase's famous article, *The Nature of the Firm*.⁶⁰ One of Coase's inspirations for that article was what he saw as the "puzzle" of Russia.⁶¹ Lenin had promised to organize Russia as "one big factory."⁶² Western economists viewed that sort of large-scale centralization as impossible, and yet Coase wondered why it would be impossible given that large-scale factories and firms existed in market economies.⁶³ Coase's solution to the puzzle was his recognition that both centralization, which relies upon management to organize human endeavors, and decentralization, which relies upon competi-

⁵⁹ De jure technological distinctions are prohibited by the TRIPS Agreement, which provides that patent rights shall be "enjoyable without discrimination as to . . . the field of technology." Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), art. 27(1), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 81, 93–94 (1994).

⁶⁰ Coase, *supra* note 35.

⁶¹ Ronald H. Coase, *The Nature of the Firm: Origin*, 4 J. L. ECON. & ORG. 3, 8 (1988).

⁶² *Id.*

⁶³ *Id.*

tion and market price mechanisms to do so, have costs. The size of firms will be determined by a balance of those costs at the margin, with individuals and organizations “constantly experimenting, controlling more or less,” and ultimately establishing an equilibrium.⁶⁴

As Coase’s Russian inspiration demonstrates, the problem of optimizing centralized authority is not limited to the economic sphere. In governmental institutions also, there is constant adjustment and experimentation as political actors work to find the best degree of centralization. Thus, in some areas and with respect to certain issues, authority is nationalized.⁶⁵ In other areas, authority is pushed down into the states.⁶⁶ And even within apparently centralized institutions of national power, such as the U.S. Department of Justice, there are strong elements of decentralization.⁶⁷

One lesson we take from these areas is that complete centralization is rarely if ever the optimal solution. In the sphere of private economic activity, monopoly is rarely the optimal degree of concentration for an industry. Even two competitors in an industry can provide a significant and beneficial check upon each other.⁶⁸ Similarly, in the political arena, centralization of all power into a single institution is usually undesirable, as was the attempt to make all of Russia into a single factory.

Evaluating the optimal degree of centralization always demands some practical judgment about the *scope* of the inquiry—the appropriate metric of centralization. The Federal Circuit is centralized and uniform if the inquiry looks only at intermediate appellate decisions in patent law. If a broader scope is taken—if we were to consider all patent legal and policymaking institutions in the nation—then the Federal Circuit is merely one actor along with Congress, the PTO, the Supreme Court, and, to a much lesser degree, the district courts.

We believe that the issue of appropriate scope can be reduced to an inquiry into whether these other institutions really act as effective competitive checks. Are they really peers? This is the sort of question that is asked in antitrust analysis where a definition of the relevant “market” is needed be-

⁶⁴ Coase, *supra* note 35, at 404.

⁶⁵ See, e.g., No Child Left Behind Act of 2001, Pub. L. No. 107-110, 115 Stat. 1425 (2002) (increasing national supervision and control over state and local education).

⁶⁶ See, e.g., Antiterrorism and Effective Death Penalty Act of 1996 (AEDPA), Pub. L. No. 104-32, § 104, 110 Stat. 1214, 1218 (amending 28 U.S.C. § 2254(d)(1) to forbid federal court habeas corpus review of state court decisions except in limited circumstances).

⁶⁷ See Susan Klein, *Independent-Norm Federalism in Criminal Law*, 90 CAL. L. REV. 1541, 1557–58 (2002) (noting that the ninety-four U.S. Attorney’s Offices throughout the country provide a form of “decentralization federalism” within the Department of Justice because the U.S. Attorneys often have practical independence from central control and strong political ties to their home states).

⁶⁸ The most famous current example is the commercial jet aircraft market, in which just two firms (Boeing and Airbus) dominate the entire world market and yet engage in fierce competition. See, e.g., Thomas A. Piraino, Jr., *A New Approach to the Antitrust Analysis of Mergers*, 83 B.U. L. REV. 785, 821–22 (2003) (discussing the intense competition between Boeing and Airbus and noting that consumers probably benefit from the high degree of concentration in that particular industry).

fore issues of concentration can be addressed. So too in political theory: institutions are considered decentralized if they can impose some practical check upon each other. Thus, even though the Supreme Court is a single centralized appellate court at the apex of the Judiciary, it is subject to checks from the coequal political branches. In evaluating the Supreme Court as an institution, it is appropriate to consider not merely all courts (where the Court has no peer), but all legal and political institutions (where the Court has two).

With respect to the Federal Circuit, we believe that the court has no effective peer or competitor. The district courts are clearly not effective peers. Few of them have sufficient patent sophistication to engage the Federal Circuit on complex issues of patent policy, and moreover, they are plainly subordinate to the Federal Circuit. There are notable instances in which district courts have complained bitterly about Federal Circuit jurisprudence, but ultimately to no avail.⁶⁹

Similarly, we do not believe that Congress is a peer of the Federal Circuit. First, Congress is superior to the court in our legal hierarchy, but more importantly, Congress can intervene (and, we believe, should intervene) only rarely in the development of patent policy. The difficulty of enacting legislation ensures that Congress cannot sit as a general monitor of the small- and medium-sized issues decided weekly by an intermediate appellate court. And even if Congress could be that sort of monitor, the problem of excess centralization would merely be shifted from the Federal Circuit to Congress, and problems of interest-group capture might be exacerbated.

The remaining two institutions—the Supreme Court and the PTO—are more nearly like peer institutions, but not quite. Like the Federal Circuit, the Supreme Court is an appellate court with jurisdiction over patent cases, so it is not accurate to say that all appellate decisionmaking in patent cases is located in the Federal Circuit. In recent years, the Supreme Court has played a significant role in the patent field,⁷⁰ and though it is superior to the Federal Circuit in the judicial hierarchy, the Court has at times tried to impose a check upon the lower court without being too overbearing. For example, in *Warner-Jenkinson Co. v. Hilton-Davis Chemical Co.*, the Court identified a problem but left it to the Federal Circuit to decide “how best to implement procedural improvements to promote certainty, consistency, and reviewability to this area of the law.”⁷¹ Similarly, in the recent *eBay v. MercExchange* case, the Court reversed the Federal Circuit but did so in a way that merely required the lower court to reconcile its jurisprudence with

⁶⁹ Perhaps the most notable example is in the area of claim interpretation, particularly the de novo standard of review adopted by the Federal Circuit. See *infra* note 99.

⁷⁰ See Duffy, *supra* note 2, at 279; see also *supra* note 23.

⁷¹ 520 U.S. 17, 39 n.8 (1997). And with respect to the proper linguistic framework for the doctrine of equivalents, the Court stated that it expected “the Federal Circuit [to] refine the formulation of the test for equivalence in the orderly course of case-by-case determinations, and we leave such refinement to that court’s sound judgment in this area of its special expertise.” *Id.* at 40.

a wider range of decisional law.⁷² These are positive attempts of the Court to “complement” the Federal Circuit without committing the error of over-centralizing patent jurisprudence in a different court.⁷³ Nevertheless, the Supreme Court is at best a very awkward institution to provide a competitive check on the Federal Circuit. The high Court lacks a day-to-day familiarity with patent law doctrine, and because of the Court’s superior position in the judicial hierarchy, any dialogue between the two institutions lacks the equipoise of peer debate.

The PTO is perhaps the best institutional candidate for a peer competitor. Indeed, the Supreme Court itself seems to have recently encouraged the PTO to serve as a check on the court by providing another viewpoint in cases on petitions for certiorari. In the last six terms (2000–2005), the Supreme Court has called for the views of the Solicitor General (CVSG) on fifteen certiorari petitions filed by private parties in Federal Circuit patent cases. These cases accounted for over 16% (fifteen out of ninety-one) of all CVSG orders entered by the Supreme Court during the period even though patent cases occupied less than 3% of the Court’s docket. The response to such a CVSG order invariably is a brief signed by the Solicitor General (SG) and the PTO (and sometimes by other components of the government); and where the SG and the PTO have recommended granting certiorari, the Court has uniformly followed the recommendation. Thus, by issuing a comparatively large number of CVSG orders in patent cases, the Supreme Court appears to be trying to use conflicts between the Federal Circuit and the PTO as a substitute for conflicts among federal circuit courts, which is the normal criteria used by the Court in ruling on certiorari petitions.

Another method by which the PTO engages in policymaking is writing guidelines on substantive patent issues, as the agency did with respect to the utility doctrine⁷⁴ and as it is in the process of doing for patentable subject matter.⁷⁵ But because the PTO lacks a substantive rulemaking power, these guidelines are not entitled to deference under the *Chevron* doctrine,⁷⁶ and

⁷² 126 S. Ct. 1837, 1841 (2006) (“We hold only that the decision whether to grant or deny injunctive relief rests within the equitable discretion of the district courts, and that such discretion must be exercised consistent with traditional principles of equity, in patent disputes no less than in other cases governed by such standards.”).

⁷³ See Duffy, *supra* note 2, at 341–42 (arguing that the Supreme Court can complement the Federal Circuit by “serv[ing] to reconcile the Federal Circuit’s power with the roles of the other institutional actors in the patent system and to provide more historical perspective for the ongoing development of the law”).

⁷⁴ See Utility Examination Guidelines, 66 Fed. Reg. 1092 (Jan. 5, 2001) (setting forth the PTO’s views on the Patent Act’s requirement in 35 U.S.C. § 101 that all patented inventions be “useful”).

⁷⁵ See Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, 1300 Off. Gaz. Pat. Office 142 (Nov. 22, 2005), available at <http://www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm>.

⁷⁶ *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984) (requiring courts to defer to reasonable agency interpretations of ambiguous statutes that the agency administers).

thus do not provide a direct legal constraint on the Federal Circuit's decisional law.⁷⁷ Still, the Federal Circuit has seemed willing to give the PTO guidelines some weight,⁷⁸ and the court must understand that if a decision in a case substantially departed from the agency's guidelines, certiorari would likely be sought by the government or the losing private party. Given the Supreme Court's record in CVSG cases, the Court would likely grant certiorari in such a case because of the split between the Federal Circuit and the PTO.

Nevertheless, we believe that while the PTO imposes some competitive check upon the Federal Circuit, it is poor substitute for a peer appellate court. The PTO's usual interaction with the Federal Circuit is as a party defending its judgments before the court. In this context, the PTO is, as a practical matter, subordinate to the court. This routine relationship may make the PTO hesitant to challenge the Federal Circuit frequently or vigorously.⁷⁹ The PTO guideline-writing process may be a good complement to appellate judging, but is not a perfect substitute.

In the end, the very importance of intermediate appellate judging, and the common-law process normally incident to that judging, leads us to believe that other institutions are simply not effective peer competitors for the Federal Circuit. The development of case law in the common-law fashion requires courts that have some significant, ongoing experience with the relevant field of law and that produce opinions with meaningful precedential force. Currently the Federal Circuit all but monopolizes that position, and as a result, the normal back-and-forth dialogue between peer judicial institutions largely has evaporated from U.S. patent law. Such a polar position is unlikely to be optimal.

⁷⁷ See *Merck v. Kessler*, 80 F.3d 1543, 1549–50 (Fed. Cir. 1996) (holding that the PTO is not entitled to *Chevron* deference in its interpretations of the Patent Act because Congress did not delegate rulemaking power to the agency). In more recent case law, the Supreme Court confirmed that administrative agencies are not entitled to *Chevron*-style deference if, as with the PTO, the agency lacks a substantive rulemaking power and is not authorized to undertake formal administrative adjudications. See *United States v. Mead Corp.*, 533 U.S. 218 (2001). Patent reform legislation sponsored by Senators Orrin Hatch and Patrick Leahy would grant the PTO substantive rulemaking authority. See Patent Reform Act of 2006, S. 3818, 109th Cong. (introduced Aug. 3, 2006).

⁷⁸ See *In re Fisher*, 421 F.3d 1365, 1370 (Fed. Cir. 2005) (citing and agreeing with the PTO's Utility Examination Guidelines).

⁷⁹ Since the creation of the Federal Circuit, the PTO has never sought certiorari to review a Federal Circuit decision on a patent law issue. In the one instance where the agency did seek certiorari to review a Federal Circuit decision, see *Dickinson v. Zurko*, 527 U.S. 150 (1999), the case involved the application of the Administrative Procedure Act. By contrast, in the twenty-year period prior to the creation of the Federal Circuit, the PTO sought certiorari in more than a half-dozen cases.

II. ESTABLISHING A NEW INSTITUTIONAL ARCHITECTURE FOR PATENT LAW

A. *Rethinking the Federal Circuit Experiment*

From the time of its creation in 1982, the Federal Circuit has been viewed as an experiment in judicial specialization.⁸⁰ However, the court is really an experiment both in judicial specialization and in the concentration of intermediate appellate jurisdiction. It is important to distinguish between the two concepts. For example, in 1982 Congress could have relocated all intermediate appellate jurisdiction over patent cases in a single existing circuit court (e.g., the Seventh or Ninth Circuit). Such a change would have created a concentration of patent appeals, but the court in which jurisdiction was concentrated would still be a generalist body because patent cases would occupy only a small fraction of the court's docket.⁸¹ Alternatively, Congress could have created two specialized patent courts of appeals (e.g., one each for the eastern and western halves of the country). Such a system would have resulted in specialization but not complete concentration of appellate jurisdiction.

The legislative history of the Federal Courts Improvement Act of 1982 (the FCIA, which created the Federal Circuit) shows that Congress did consider the problems that excessive specialization could bring. Indeed, the history shows that in an attempt to avoid creating an overly specialized court, Congress included within the jurisdiction of the Federal Circuit appeals involving other areas of the law, including takings cases, government contract cases, trade appeals from the Court of International Trade and the International Trade Commission, and personnel appeals from the Merit Systems Protection Board.⁸²

Congress did not, however, consider the dangers of excessive concentration of jurisdiction in a single intermediate court. The oversight is under-

⁸⁰ See Martin J. Adelman, *The New World of Patents Created by the Court of Appeals for the Federal Circuit*, 20 U. MICH. J.L. REFORM 979, 983 (1987) (“[T]he Federal Circuit . . . is an experiment on the much publicized and often belittled idea of specialty courts.”); Dreyfuss, *supra* note 5, at 3 (describing the Federal Circuit as a “sustained experiment in specialization”).

⁸¹ In 1982, patent cases comprised about 1% of the docket in the courts of appeals. Charles W. Adams, *The Court of Appeals for the Federal Circuit: More Than a National Patent Court*, 49 MO. L. REV. 43, 62 (1984). Thus, if all patent appeals from the thirteen existing circuits were centralized in an existing, averaged-size circuit, that circuit would see its patent docket multiplied by a factor of thirteen. Still, as a percentage of its total cases, patent cases would comprise only about 13% of that circuit's docket (actually slightly less than 13% because the circuit would have a larger number of total cases). The vast bulk of the court's jurisdiction would remain unchanged. Historically, the first significant proposal to create a central patent court, suggested by the ABA in 1900, would have staffed the court with circuit judges temporarily on leave from their regional courts. See Duffy, *supra* note 2, at 292. That proposal attempted to concentrate patent jurisdiction without having specialization.

⁸² 28 U.S.C. § 1295 (2000); see also Adams, *supra* note 81, at 61 (noting that “supporters of the FCIA argued that undue specialization was avoided” because the combination of many heads of jurisdiction made the Federal Circuit “less specialized than its predecessors”).

standable as a matter of history. The FCIA was in part a reaction to a report by the congressionally established Commission on the Revision of the Appellate System (widely known as the Hruska Commission in honor of its chairman, Senator Roman L. Hruska), which had suggested generally that the Supreme Court was becoming increasingly unable to police splits of authority among the regional circuits.⁸³ Nonetheless, because specialized courts had been traditionally disfavored in U.S. legal thought, the Hruska Commission eschewed any recommendation for specialized courts of appeals and instead endorsed the idea of having a general national court of appeals to handle the mundane business of resolving circuit splits on all matters of federal statutory law.⁸⁴ After that proposal generated significant opposition, supporters of judicial reform advanced the more limited measure of creating a national court of appeals for patent law, where the need for national uniformity was seen as “most pressing.”⁸⁵ But by limiting the scope of their proposal, supporters of reform risked generating criticism that the proposed new court would run “afoul of the deeply ingrained American aversion to specialized courts.”⁸⁶ Thus, reformers devoted their efforts to broadening out the Federal Circuit’s jurisdiction sufficiently so that despite its national patent jurisdiction, it would not be viewed as excessively specialized.⁸⁷ The problem of excessive uniformity—or, what is the same thing, excessive centralization—was not considered because the reformers of the era viewed “heighten[ing] uniformity” as “a major objective of the whole [reform] effort.”⁸⁸ Congress was legislating against this background, and it is thus not surprising that the debate on the legislation lacked any compelling sense that absolute uniformity was also fraught with danger.

⁸³ See Adams, *supra* note 81, at 48–50; see also COMM’N ON REVISION OF THE FED. COURT APPELLATE SYS., STRUCTURE AND INTERNAL PROCEDURES: RECOMMENDATIONS FOR CHANGE, 67 F.R.D. 195 (1975) [hereinafter HRUSKA COMMISSION REPORT].

⁸⁴ See HRUSKA COMMISSION REPORT, *supra* note 83, at 234 (concluding that “specialized courts would not be a desirable solution either to the problems of the national law or, as noted elsewhere, to the problems of regional court caseloads”). See also Paul M. Janicke, *To Be or Not to Be: The Long Gestation of the U.S. Court of Appeals for the Federal Circuit (1887–1982)*, 69 ANTITRUST L.J. 645, 652 (2001) (stating that the Hruska Commission “specifically distinguished its proposal from those that urged ‘specialized’ courts” and that the Commission “adopted the thinking of . . . Judge Simon Rifkind’s 1951 article, which argued against specialized courts in general and against a specialized patent appeals court in particular” (citations omitted)).

⁸⁵ Daniel J. Meador, *Origin of the Federal Circuit: A Personal Account*, 41 AM. U. L. REV. 581, 587–88 (1992); see also Janicke, *supra* note 84, at 653–55 (noting that patent practitioners had been the most vocal group in seeking greater national uniformity and that the focus on judicial reform in patent law came in response to the opposition to the Hruska Commission proposal).

⁸⁶ Meador, *supra* note 85, at 588.

⁸⁷ See *id.* at 593 (noting that supporters of the proposed new court tried “to pull the sting from the anticipated charge of specialization” by emphasizing “the long and varied list of legal issues that would come before the new court”); see also *id.* at 602 (noting the need to broaden the new court jurisdiction to “ward[] off charges of specialization”).

⁸⁸ *Id.* at 596.

The problem of overcentralization, while understandably ignored by Congress when it created the Federal Circuit, must be considered in any evaluation of how the Federal Circuit experiment has fared. Ironically, overconcentration may be a much more pernicious problem than overspecialization. A specialized court that remains in competition with other courts may have its biases checked by the influence of the other courts. For example, prior to the creation of the Federal Circuit, the CCPA was a highly specialized court. However, because the regional courts of appeals had jurisdiction over all the same substantive patent law issues, the CCPA was checked in its ability to depart too far from the rulings of the other circuit courts. If the CCPA developed a bias induced by specialization (a frequent charge against specialized bodies), the bias easily would be detected as the specialized court deviated from the rulings of the generalist courts.

By contrast, the problems associated with excessive concentration may be much harder to detect and to remedy. Even if Congress had centralized patent appeals in a fully generalist court such as the Seventh Circuit, still that court would no doubt make some errors. Detecting and remedying those errors, however, would have proven difficult. As discussed above, attorneys are usually hesitant to urge courts to overturn their own precedents, and courts are not usually disposed to entertaining such arguments even when they are made. Moreover, the possibility of review by the Supreme Court would have decreased precisely as it has for the Federal Circuit (or at least, as it *had* for many years): Where petitioners for certiorari cannot point to recent circuit splits, Supreme Court intervention is difficult to obtain.

The problems of overconcentration of jurisdiction are not merely theoretical; we see those problems as the foundations of many of the charges currently being leveled against the Federal Circuit. For example, there is a growing sense among court watchers and patent players that the Federal Circuit has fallen out of rhythm with some of the technological communities its decisions affect because the court has retreated into its own legal formalisms at the expense of gaining a good understanding of industrial and technological needs.⁸⁹ As an appellate body, the court is institutionally removed from technological communities. This constraint, of course, affects all appellate bodies, but it is likely exacerbated by the Federal Circuit's exclusive subject matter jurisdiction. As previously discussed,⁹⁰ centralized institutions are not necessarily the best for gathering information, so the charge that the Federal Circuit is insufficiently cognizant of industrial and technological needs should not be surprising.⁹¹ Still, the connection between institutional struc-

⁸⁹ See Rai, *supra* note 20, at 1037 (arguing that the Federal Circuit "adopt[s] bright-line rules that are insensitive both to technological fact and to related issues of innovation policy").

⁹⁰ See *supra* Part I.A.2.

⁹¹ Sophie Harnay & Alain Marciano, *Judicial Conformity Versus Dissidence: An Economic Analysis of Judicial Precedent*, 23 INT'L REV. L. & ECON. 405, 418 (2004) (noting that insularity can lead to information asymmetries, which can make it difficult "to single out between the different forms of doctrinal stability likely to occur in the judicial market"). Although district courts on occasion reveal their

ture and isolation from industrial and academic perspectives is a subtle one: Where one circuit court has already taken a particular position, an attorney arguing in a different circuit will not be barred by precedent from seeking a contrary result but will nonetheless have a challenging task. In seeking to have the second court diverge from the persuasive authority of the first appellate precedent, the attorney will be driven by necessity to seek support in a broad range of materials, including, possibly, amicus briefs from industry or other interested groups, statistical studies, critical commentary about the other circuit's position, and perhaps even empirical work on experience with the other circuit's rule. Such secondary materials may be the only authority available that supports the alternative position.

Centralized jurisdiction also fosters insularity through the very structure of the bar. Even before the creation of the Federal Circuit, the patent bar was a recognized specialty and a somewhat insular community. The creation of a single specialized court located in one city cannot help but foster an even greater degree of insularity, and such a community is unlikely to push the Federal Circuit beyond established parameters.

In addition to the charge of insularity, the Federal Circuit has been criticized for failing to employ, or failing to employ well, what two commentators have called the "policy levers" of patent law, which is simply another name for the practical ability of courts to consider policy in fashioning a common law of patents within the broad framework of the statute.⁹² This criticism is the easiest to tie to the Federal Circuit's institutional structure because the essence of the criticism is that the circuit has not developed its common law well. But this failing is to be expected because centralization of all patent appeals in one court eliminates the very peer dialogue that provides the traditional heart of the common-law process as it is known in the Anglo-American tradition.⁹³

Eliminating peer appellate courts not only curtails debate among courts, it also debilitates the common-law process in another, more subtle way. Because the common-law process is based on precedent, it is well known to suffer from a general problem known as "path dependency."⁹⁴ The problem is easy to comprehend. Imagine that two cases (*A* and *B*), rais-

preferences, they are understandably locked into precedent lest they be reversed on appeal by the Federal Circuit.

⁹² See Burk & Lemley, *supra* note 7, at 1578 (arguing that Federal Circuit policy in biotechnology and software is "precisely backwards"); Lunney, *supra* note 10, at 79 (criticizing the Federal Circuit's trend toward a "uniform, 'one size fits all' system of patent protection").

⁹³ Empirical work suggests that even within the Federal Circuit, the dialogue among the judges is impoverished. See Dreyfuss, *supra* note 6, at 776 ("The paucity of internal citations . . . gives reason to surmise that the judges are not, in fact, engaged in deliberate experiments with differing approaches.").

⁹⁴ See generally Hathaway, *supra* note 49, at 606 (noting that the common law exhibits "path dependence" because the doctrine of stare decisis "creates an explicitly path-dependant process" in which "[l]ater decisions rely on, and are constrained by, earlier decisions"); Schauer, *supra* note 49, at 273 (discussing how "official" training of lawyers lends itself to a path-dependent legal system).

ing similar legal issues, are working their way through the judicial system. In case *A*, the plaintiff's lawyer is far more clever, careful, thorough, and persuasive than the defendant's; in case *B*, the defendant has the far better advocate. If the appellate court decides case *A* first, it will be more likely to rule for the plaintiff, and then following its precedent, the plaintiff in case *B* will prevail too. Reverse the order in which the court hears the cases—change the court's "path" to *B* first, *A* second—and both cases could come out the opposite way.⁹⁵ A known antidote for path dependency is to have multiple intermediate appellate courts that are *not* obligated to follow each other's precedents, coupled with a Supreme Court that has control over its docket and can therefore wait for issues to "percolate" among those multiple courts before final review is granted.⁹⁶ This judicial structure tends to expose path dependencies by creating circuit splits, and the percolation process provides an opportunity for numerous lawyers working on different cases to develop the best arguments for both sides of an issue. Because of the Federal Circuit's exclusive jurisdiction, this antidote to path dependency is now absent from the judicial development of patent law in the United States.

Though there are alternatives to debate between peer institutions, they are at best highly imperfect substitutes. For example, in a recent opinion dissenting from the denial of en banc rehearing, Judge Newman wrote that the "differences of opinion among the judges of the Federal Circuit" regarding a particular issue in patent law "are, in microcosm, the 'percolation' that scholars feared would be lost by a national court at the circuit level."⁹⁷ It is true that differences between majority and dissenting opinions within a circuit are a form of percolation, but such intracircuit percolation does not escape the constraining force of precedent. In each case, the judges of that circuit are required by *stare decisis* to follow the rules established by prior panel majorities. The judges who have not yet fully formed their opinions on the matter are likely to adhere to circuit precedent. Indeed, the concept of circuit *stare decisis* imposes on circuit judges some obligation to favor the majority over the dissenting opinions from that circuit.⁹⁸ Moreover,

⁹⁵ Maxwell L. Stearns, *Standing Back from the Forest: Justiciability and Social Choice*, 83 CAL. L. REV. 1309, 1359 (1995) ("[S]tare decisis ensures that the order in which legal questions are presented for decision will have an arbitrary, and largely unintended, effect upon the substantive evolution of legal doctrine . . .").

⁹⁶ See Stearns, *supra* note 95, at 1352 (noting that "intra- but not inter-circuit *stare decisis*" helps to ensure multiple paths "from which the Supreme Court can choose the best legal outcomes and analyses").

⁹⁷ *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 375 F.3d 1303, 1305 (Fed. Cir. 2004) (Newman, J., dissenting from denial of rehearing en banc).

⁹⁸ As Professor Macey has noted, *stare decisis* is designed to have judges "avoid . . . rethink[ing] the merits of particular legal doctrine" in every case. Macey, *supra* note 43, at 102. While it is true, as Macey argues, that *stare decisis* generally can promote efficient decisionmaking, he was not addressing the special circumstances of the Federal Circuit, where the ordinary process of intercircuit percolation is not available to check path dependency.

competent attorneys are highly unlikely to base their arguments on *dissenting* opinions from that circuit, and so the intracircuit percolation tends to exclude the participation of the bar in the legal and policy debate.

As another alternative, the Federal Circuit could give more weight to the opinions of district judges and encourage attorneys to cite district court authority (even authority conflicting with Federal Circuit precedent) as persuasive, if not binding, precedent. Though theoretically this approach could mitigate the Federal Circuit's insularity, as a practical matter no such practice has developed. Quite the contrary. Despite calls from the district court bench, the Federal Circuit has adopted an assertive form of judicial power on certain issues when greater respect for the work of the lower courts seems warranted.⁹⁹

The end result is a growing skepticism about the court's ability to experiment successfully, to adapt its jurisprudence to changing scientific norms, and to develop a common law that accurately reflects the patent system's varied role in fostering technological innovation.¹⁰⁰ This constraint becomes more pronounced in light of the court's singularity, and also in light of its

⁹⁹ The most prominent issue in this regard relates to the Federal Circuit's standard of review for claim interpretation. See Kathleen M. O'Malley, Patti Saris & Ronald H. Whyte, *A Panel Discussion: Claim Construction from the Perspective of the District Judge*, 54 CASE W. RES. L. REV. 671, 673 (2004) (O'Malley, J., stating that "[w]ithin the realm of patent law, the [Federal Circuit] has had, in [district court judges'] view, its biggest impact in the claim construction area"); *id.* at 679 (Saris, J., stating that "there should be more deference given to the interpretation of the trial judge who had the opportunity to see, hear, and look at evidence."). The court has adopted a de novo standard when reviewing district court claim constructions, which has led to a relatively high reversal rate. See also Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 11 (2001) (finding that the Federal Circuit reversed 33% of district court claims constructions).

¹⁰⁰ Indeed, patent law is not a one-size-fits-all regime, and as the quotation below implies, one must adopt a nuanced approach to understanding the costs and benefits of patent law:

In some areas, patent rights certainly are economically and socially productive in generating invention, spreading technological knowledge, inducing innovation and commercialization, and providing some degree of order in the development of broad technological prospects. However, in many areas of technology this is not the case. In a number of these, strong broad patent rights entail major economic costs while generating insufficient additional social benefits. And in some strong broad patents are simply counterproductive. One needs to be discriminating and cautious on this front.

Robert Mazzoleni & Richard R. Nelson, *The Benefits and Costs of Strong Patent Protection: A Contribution to the Current Debate*, 27 RES. POL'Y 273, 281 (1998).

Recent empirical work has shown that some industries (e.g., drugs and medical equipment) rely on the patent system more than others, which may rely primarily on trade secrecy (e.g., petroleum) or lead time into the market (e.g., software). And some industries seek patent protection with an eye towards commercialization and generating revenue, while others obtain patents to block competitors from obtaining patent protection or to enhance their bargaining position during cross-licensing negotiations, particularly when a "complex" technology (i.e., a product or process that comprises several patented components) is involved. See, e.g., Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* 24 (Nat'l Bureau of Econ. Research, Working Paper No. 7552, 2000) (finding that some industries rely on the patent system to varying degrees, while others rely mostly on trade secrets, lead time, and complementary technologies); LANDES & POSNER, *supra* note 4, at 312 ("Many highly progressive, research-intensive industries, notably including the computer software industry, do not rely heavily on patents as a method of preventing free riding on inventive activity.").

reluctance to engage the empirical and social science literature on patent law¹⁰¹ as a way to offset its relative institutional disconnectedness from the various technological communities its decisions affect.¹⁰²

¹⁰¹ Much of the scholarship that forms the empirical current has examined the relationship between patent law and the innovation practices of firms in various industries, including research and development decisionmaking and the extent to which divergent industries rely on the patent system or other appropriability mechanisms. See Cohen et al., *supra* note 100, at 24. For scholarship regarding the role of juries in patent cases, see, for example, Kimberly A. Moore, *Judges, Juries, and Patent Cases: An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365 (2000) (illustrating patent holders' success rates in jury and bench trials); for Federal Circuit voting patterns, see, for example, Allison & Lemley, *supra* note 38 (chronicling patent validity decisions); for patent filing, see, for example, John R. Allison & Mark A. Lemley, *The Growing Complexity of the Patent System*, 82 B.U. L. REV. 77 (2002); for litigation trends, see, for example, Jean O. Lanjouw & Mark Schankerman, *Protecting Intellectual Property Rights: Are Small Firms Handicapped?*, 47 J.L. & ECON. 45 (2004) (studying patent litigation and settlements and concluding firms with small patent portfolios are at higher litigation risk), and Josh Lerner, *Patenting in the Shadow of Competitors*, 38 J.L. & ECON. 463 (1995) (analyzing patenting patterns of firms with differing litigation costs); and for patent law's effect on innovation in specific technologies, see, for example, John P. Walsh, Ashish Arora & Wesley Cohen, *Effects of Research Tool Patents and Licensing on Biomedical Innovation*, in PATENTS IN THE KNOWLEDGE-BASED ECONOMY 285 (Wesley M. Cohen & Stephen A. Merrill eds., 2003), and Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1 (2001).

A good deal of the social science work is law and economics oriented, focusing on the important normative issues of proprietary claim scope and patentability standards in the context of innovation policy. See, e.g., Merges & Nelson, *supra* note 36 (concluding that law should favor a competitive environment for improvements rather than one dominated by the pioneer firm); Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSP. 29 (1991) (investigating the "use of patent protection and cooperative agreements to protect incentives for cumulative research"); Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77 (1999). For scholarship regarding patent law's relationship to R&D, see, for example, Ashish Arora, Marco Ceccagnoli & Wesley M. Cohen, *R & D and the Patent Premium* (Nat'l Bureau of Econ. Research, Working Paper No. 9431, 2003). For a nice overview of the empirical literature, see Bronwyn H. Hall, *Business Method Patents, Innovation, and Policy* (Univ. of Cal., Berkeley, Competition Pol'y Ctr., Working Paper No. E03-331, 2003).

¹⁰² See Craig Allen Nard, *Toward a Cautious Approach to Obedience: The Role of Scholarship in Federal Circuit Patent Law Jurisprudence*, 39 HOUS. L. REV. 667, 676-83 (2002) (setting forth empirical research demonstrating that, in their intellectual property cases, the other circuits cite scholarship roughly four times more frequently than does the Federal Circuit in its patent cases). Indeed, this reluctance is reflected in case law and in public comments by some members of the court. For example, the court in *In re Fisher*, 421 F.3d 1365, 1378 (Fed. Cir. 2005), stated that it would not consider amicus arguments as to the "practical implications" of the court's legal doctrine because "[t]hey are public policy considerations which are more appropriately directed to Congress as the legislative branch of government, rather than this court as a judicial body responsible simply for interpreting and applying statutory law." In a speech delivered to practitioners, Judge Alan Lourie remarked that the "gap between the court and academia [is] a bit beside the point," and that the court is "not a debating society having debates with outside groups on what the law should be." Rather, cases are decided "based on what the law is." Hon. Alan Lourie, Keynote Address at the Joint Patent Practice Seminar of the Connecticut, New York, New Jersey, and Philadelphia Intellectual Property Law Association (May 3, 2006), in 72 PAT., TRADEMARK & COPYRIGHT J. (BNA) 41, 41 (May 12, 2006). Similarly, Chief Judge Michel has remarked that any criticism of the court for not citing law review articles is "interesting" because "[w]e have an extensive body of case law, and that and Supreme Court precedent is what we would mainly be citing." Marcia Coyle, *Critics Target Federal Circuit*, NAT'L L.J., Oct. 16, 2006 (quoting Chief Judge Paul R. Michel).

Thus, several factors—the court's institutional position, failure to adapt its common law to changing circumstances, reticence to consider empirical and economic literature, and expansive judicial authority—render the court more susceptible than other circuit courts to inconsistency, error, and insufficiently articulated rationales. The result is a court that suffers from a path-dependent inertia, unable to extricate itself from its institutionalized parochialism.¹⁰³

The principal point of this Article is that the current criticisms of the Federal Circuit and, by extension, our patent system are not only substantive, but also institutional. Without the benefits of competition and diversity, the Federal Circuit is isolated from noteworthy doctrinal proposals and normative prescriptions that would be generated by other circuit courts, and is less likely to be presented with or to entertain ideas articulated by economists, legal scholars, and other judges. And it is at the appellate level where these proposals and prescriptions can make the most pronounced difference.¹⁰⁴ What suffers are incremental innovativeness and adaptiveness, two ingredients that sustain any area of the law.

The solution is an institutional structure that is more atomistic, allowing for multiple courts to experiment with various judicial viewpoints and debate new and existing ideas. We are not suggesting that there is overwhelming

¹⁰³ Chief Judge Michel of the Federal Circuit captured these problems in a speech at the University of California, Berkeley School of Law:

We would probably be the least expert, and the least informed, and the least able to even reason from input—if we had it We just keep replicating the old results based on the old precedents, whether they have kept pace with changes in business, changes in technology, or changes of a different sort [W]e just get the Federal Circuit talking to itself, with the brief writer just being the echo of what we wrote in all those prior cases . . . and when we write some more cases, and the cycle just goes on and on and on. And it certainly lacks the benefit of being tightly wired to the evolving reality.

Michel, *supra* note 16. See also Burk & Lemley, *supra* note 7, at 1578 (“[I]t is possible to read [Federal Circuit] cases as merely following legal precedents from different industries to their logical conclusions.”). See also Hathaway, *supra* note 49, at 605 (noting that the path-dependence theory of the law causes “courts’ early resolutions of legal issues [to] becom[e] locked-in and resistant to chance, . . . lead[ing] to inefficiency when legal rules fail to respond to changing underlying conditions”). See generally PAUL D. CARRINGTON, DANIEL J. MEADOR & MAURICE ROSENBERG, JUSTICE ON APPEAL 168 (1976) (“[A] serious disadvantage [to specialized courts is] the danger that judges so narrowly specialized will become so confined in their perspectives that they will lose sight of the basic values at stake in their decisions and develop strong tendencies toward arcane and intricate legal development which can be followed and understood only by their own bar.”).

¹⁰⁴ See Stearns, *supra* note 48, at 1764 (“[T]he vast bulk of relevant precedents governing most federal court litigation comes not from the Supreme Court, but rather from the United States Courts of Appeals.”). Indeed, one of the recommendations made by The National Academies’ study on patent reform was that in order for the Federal Circuit judges to keep themselves well informed about relevant legal and economic scholarship, the court “should ensure its exposure to a wide variety of expert opinions by encouraging the submission of amicus briefs and by exchanges with other courts.” COMM. ON INTELLECTUAL PROP. RIGHTS IN THE KNOWLEDGE-BASED ECON., THE NAT’L ACADS., A PATENT SYSTEM FOR THE 21ST CENTURY 6, 81 (Stephen A. Merrill, Richard C. Levin & Mark B. Myers eds., 2004).

agreement among policymakers and scholars on most issues,¹⁰⁵ or that the data and analyses underlying these ideas lead to ineluctable conclusions.¹⁰⁶ In fact, our point is that this ongoing debate relating to substantive patent doctrine needs to find an Article III community—an officialdom—that allows for incremental legal innovation within a competing framework.¹⁰⁷ Thus, after nearly twenty-five years of the Federal Circuit experiment, the time is ripe to open up patent law to other regional circuit courts within our federal system. A full-scale return to the pre-Federal Circuit institutional structure would be ill-advised at this point; it would be too dramatic a departure from the current structure and would also probably be an excess of decentralization. Rather, as discussed in Section B below, we propose that, in addition to the Federal Circuit, at least one extant circuit court should be allowed to hear appeals relating to patent law. Multiple courts hearing appeals in patent law is hardly radical; multiple courts hear appeals in copyright, trademark, and every other area of federal law. This system, of course, is not costless, but there would be several resulting benefits. Perhaps ten years ago those benefits would not have been sufficient to justify rethinking the Federal Circuit experiment. The situation in patent law today provides a different scenario.

¹⁰⁵ See Robert W. Hahn, *The Economics of Patent Protection: Policy Implications from the Literature* (AEI-Brookings Joint Ctr. for Regulatory Studies, Oct. 30, 2003) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=467489 (emphasizing that basic policy questions have not been answered).

¹⁰⁶ Indeed, our understanding of patent law's relationship to economic welfare remains incomplete. See, e.g., LANDES & POSNER, *supra* note 4, at 310 ("Although there are powerful economic reasons in favor of creating property rights in inventions, there are also considerable social costs and whether the benefits exceed the costs is impossible to answer with confidence on the basis of present knowledge."); Richard Brunell, *Appropriability in Antitrust: How Much is Enough?*, 69 ANTITRUST L.J. 1, 4 (2001) ("[I]f the vast economics literature on intellectual property conveys one message, it is that the relationship between intellectual property protection and economic welfare is unclear."); Adam Jaffe, *The U.S. Patent System in Transition: Policy Innovation and the Innovation Process* ii (Nat'l Bureau of Econ. Research, Working Paper No. 7280, 1999) ("[D]espite the significance of policy changes and the wide availability of detailed data relating to patenting, robust conclusions regarding the empirical consequences for technological innovation of changes in patent policy are few.").

¹⁰⁷ Some may correctly argue that *Holmes Group v. Vornado Circulation Systems*, 535 U.S. 826 (2002), which opened the door to greater circuit court involvement even if only occasionally (jurisdiction is available only where patent issues are raised solely by counterclaims), has forced the Federal Circuit to be less parochial. See, e.g., *Unitherm Food Sys., Inc. v. Swift Eckrich, Inc.*, 375 F.3d 1341, 1363–64 (Fed. Cir. 2004) (discussing the need for economic evidence, in addition to technological evidence, of substitutability in defining market definition). Even *Illinois Tool Works, Inc. v. Indep. Ink, Inc.*, 396 F.3d 1342 (Fed. Cir. 2005), *vacated and remanded*, 547 U.S. 28 (2006), can be viewed as a desire by the Federal Circuit to "modernize" patent law. (We are grateful to Janice Mueller for this point.) Yet we do not believe that *Holmes Group* has led to any really significant involvement by other circuits in the development of patent common law. Our research indicates that in the first five years after *Holmes Group*, there have been only two regional circuit opinions on patent law issues presented by counterclaim. See *Telecom Technical Servs. v. Rolm Co.*, 388 F.3d 820 (11th Cir. 2004); *Schinzing v. Mid-States Stainless, Inc.*, 415 F.3d 807 (8th Cir. 2005). Moreover, in one of those cases (*Schinzing*), the Eighth Circuit held that it would "adopt the Federal Circuit's precedent on substantive issues of patent law," 415 F.3d at 811, so that the circuit could not provide any check on the Federal Circuit.

B. *The Benefits of Decentralization in Patent Law*

Justice Stevens once remarked that “the existence of differing rules of law in different sections of our great country is not always an intolerable evil.”¹⁰⁸ We would suggest that allowing other circuit courts into the patent law mix is not only tolerable, but desirable.¹⁰⁹ Indeed, there are several advantages. First, instituting a polycentric, competitive appellate structure would allow for a more robust, and arguably efficient, development of the common law.¹¹⁰ Innovation in law, as in technology, is a result, in part, of competition and experimentation; these important features have largely been absent from patent law since 1982.¹¹¹ A competitive, intercircuit model will create positive externalities in the form of new ideas and ap-

¹⁰⁸ John Paul Stevens, *Thoughts on Judicial Restraint*, 66 JUDICATURE 177, 183 (1982).

¹⁰⁹ We are not discounting a role for Congress, but are mindful of the public choice aspects of congressional action, which warn against the potential for rent-seeking that usually accompanies the desire for industry-specific legislation. See Daniel A. Farber & Philip P. Frickey, *The Jurisprudence of Public Choice*, 65 TEX. L. REV. 873 (1987); Jonathan R. Macey, *Promoting Public-Regarding Legislation Through Statutory Interpretation: An Application to Constitutional Theory*, 86 COLUM. L. REV. 223 (1986). We do not want the Patent Code to resemble the Copyright Code. Moreover, it is extremely difficult for legislators to capture in a piece of legislation the evolving nature of technology.

¹¹⁰ Parties in modern patent litigation tend to be corporate stakeholders with a substantial and ongoing interest in precedent. Moreover, these stakeholders may be a patentee-plaintiff today and an alleged infringer tomorrow. As such, one would assume a trend towards efficiency in the development of patent law. See Paul Rubin, *Why is the Common Law Efficient?* 6 J. LEGAL STUD. 51, 55 (1977) (“[E]fficiency occurs because of an evolutionary process, not because of any particular wisdom on the part of judges.”). See generally Paul Rubin, *Common Law and Statute Law*, XI J. LEG. STUD. 205 (1982). But the Federal Circuit’s development of patent law has been anything but efficient, and this is in part due to the court’s exclusive subject matter jurisdiction. As Rochelle Dreyfuss points out, a singular appellate court gives rise to a “repeat-player disadvantage” because “lawyers worry that rearguing issues previously decided injures their capacity to represent their clients effectively,” and thus it is difficult for “experienced lawyers to help the court engage in the kind of reevaluation needed to make good law.” Dreyfuss, *supra* note 40, at 1570; Rai, *supra* note 20, at 1075 (noting that it is unlikely that attorneys will challenge Federal Circuit precedent because they represent both alleged infringers and patentees). Our point is that the institutional framework in which the judge operates is important in terms of efficiency. See Todd J. Zywicki, *The Rise and Fall of Efficiency in the Common Law: A Supply-Side Analysis*, 97 NW. U. L. REV. 1551, 1620 (2003) (“Absent competition among court systems, there is little reason to believe that the common law will evolve toward efficiency.”).

¹¹¹ See POSNER, *supra* note 32, at 163 (“The proposition that federal law ought to be the same everywhere in the country is not persuasive. If uniformity is desirable (as it is), so are diversity and competition.”). Similarly, Samuel Estreicher and John Sexton write:

From the absence of a rule of intercircuit stare decisis . . . we derive a basic premise that disuniformity, at least in the short run, may be tolerable and perhaps beneficial. It may be that such disuniformity was an unintended byproduct of a geographically dispersed, decentralized judicial structure, but it is a feature that has endured, we submit, because the system’s commitment to uniformity is qualified by a policy in favor of intercircuit experimentation.

SAMUEL ESTREICHER & JOHN SEXTON, *REDEFINING THE SUPREME COURT’S ROLE: A THEORY OF MANAGING THE FEDERAL JUDICIAL PROCESS* 48 (1986). Several areas of the law have reportedly benefited from experimentation. See, e.g., Mark C. Weber, *Complex Litigation and the State Courts: Constitutional and Practical Advantages of the State Forum Over the Federal Forum in Mass Tort Cases*, 21 HASTINGS CONST. L.Q. 215, 229 (1994) (“Tort law is a field in which the experimentation has been particularly fruitful.”).

proaches to challenges facing our patent system.¹¹² This point is particularly germane to patent law's relationship to the industries its decisions affect, how these industries innovate, and their varied views of the patent system.¹¹³ A decentralized model is better positioned to shadow, adapt, and respond innovatively to technologies' diverse norms and changing circumstances,¹¹⁴ a role that should come naturally to patent law's institutions.¹¹⁵

¹¹² See Cover, *supra* note 22, at 673 (“[P]roliferation of norm-generating centers . . . makes it more likely that at least one such center will attempt any given, plausible innovation.”); Alicia Juarrero-Roqué, *Fail-Safe Versus Safe-Fail: Suggestions Toward An Evolutionary Model of Justice*, 69 TEX. L. REV. 1745, 1768–69 (1991) (discussing the benefits of judicial redundancy in facilitating legal innovation); see also Duffy, *supra* note 1, at 686 (“[Uniformity] makes the law unresponsive to local variations, eliminates interjurisdictional competition[,] and decreases the possibilities for legal experimentation.”); Robert B. Ahdieh, *Between Dialogue and Decree: International Review of National Courts*, 79 N.Y.U. L. REV. 2029, 2066–67 (“Given the fact that they are engaged in a common enterprise, judges may find the decisions of fellow judges to be a particularly attractive source of new ideas.”); David A. Super, *Are Rights Efficient? Challenging the Managerial Critique of Individual Rights*, 93 CAL. L. REV. 1051, 1067 (2005) (“Different decision makers, bringing differing ideologies and confronting adversaries of differing skills and dispositions, are likely to produce a variety of results.”).

Of course, building on Brandeis's famous metaphor in *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932), much of the federalism scholarship refers to states as “social laboratories,” positioned to experiment with different approaches to common problems, which can be generative. See, e.g., DANIEL J. ELAZAR, *EXPLORING FEDERALISM* 30 (1987); Erwin Chemerinsky, *Federalism Not as Limits, But as Empowerment*, 45 U. KAN. L. REV. 1219, 1234 (1997); Barry Friedman, *Valuing Federalism*, 82 MINN. L. REV. 317, 399 (1997); Michael W. McConnell, *Federalism: Evaluating the Founders' Design*, 54 U. CHI. L. REV. 1484, 1498 (1987).

¹¹³ See Cohen et al., *supra* note 100, at 24 (“We find that the key appropriability mechanism in most industries are secrecy, lead time[,] and complementary capabilities”); LANDES & POSNER, *supra* note 4, at 312 (“Many highly progressive, research-intensive industries, notably including the computer software industry, do not rely heavily on patents as a method of preventing free riding on inventive activity.”); Burk & Lemley, *supra* note 7, at 1577 (“Industries vary in the speed and cost of research and development (R&D), in the ease with which inventions can be imitated by others, in the need for cumulative or inter-operative innovation rather than stand-alone development, and in the extent to which patents cover entire products or merely components of products.”); Clarisa Long, *The Dissonance of Scientific and Legal Norms*, 13 SOC. EPISTEMOLOGY 165, 166 (1999) (“The ability to appropriate the market value of a scientific invention is not the only factor motivating the producers of scientific information. To the extent that the law ignores this fact, it will create dissonance within the scientific community.”).

¹¹⁴ See Tim Wu, *Intellectual Property, Innovation, and Decentralized Decisions*, 92 VA. L. REV. 123, 130–31 (2006) (“In a period of great change or uncertainty, the most fruitful line of inquiry may be difficult to ascertain, making the ability of polyarchies to turn up innovative ideas particularly useful.”); Todd J. Zywicki, *Is Forum Shopping Corrupting America's Bankruptcy Courts?*, 94 GEO. L.J. 1141, 1147 (2006) (“The value of competition is thus in its *process*, where constant innovation and experimentation with new methods of doing things winnows out poor ideas and allows good ideas to emerge. If properly constructed, such a process permits an *inference* that the most efficient solution to the problem will emerge. Competition is thus valuable in situations where the correct or best answer is not known in advance, but rather is discovered through the selection process.”).

¹¹⁵ See Duffy, *supra* note 1, at 692 (“It would be both ironic and unfortunate if a legal system that . . . is designed to foster experimentation in technical areas, were modified to preclude substantial experimentation and further development of its own norms.”).

Second and relatedly, having other circuit courts, which share a common culture, weighing in on a particular doctrinal issue or policy rationale can imbue confidence if a shared solution is independently reached.¹¹⁶ Moreover, a multi-circuit structure will enhance testing of different approaches by providing a particular rule with a stage to prove its efficacy (or not).¹¹⁷ Indeed, in an adjudicatory framework with a “unitary source for norm articulation over a given domain, the costs of error or lack of wisdom in any norm articulation would be suffered throughout the domain.”¹¹⁸ Reaching a common solution sometimes demands allowing an issue to percolate among the circuits. Percolation is an old concept,¹¹⁹ but one that is particularly germane to patent law, which has been developed by a single adjudicative body for almost twenty-five years. Moreover, a failure to reach a common approach or solution after allowing an issue to simmer will act as a signal to the Supreme Court to intervene.¹²⁰ This signaling function

¹¹⁶ See G. ALAN TARR, UNDERSTANDING STATE CONSTITUTIONS 175 (1998) (“When two sets of interpreters reach the same outcome . . . , this increases confidence that the result is rooted in law rather than in will.”); Ahdieh, *supra* note 112, at 2067 (“[D]ecisions of other courts may enhance the confidence of any given court in its pursuit of innovative doctrinal choices.”); Kathleen Patchel, *The New Habeas*, 42 HASTINGS L.J. 939, 1026 (1991) (“[A] structure that allows the interaction of different versions of the truth as a means of developing the concepts that will be deemed ‘true’ seems more acceptable than a system in which only one voice is ever heard.”); Zywicki, *supra* note 110, at 1578 (stating that in a system based on flexible precedent, “[t]he convergence of several independently acting judges on similar conclusions attested to the wisdom and consensus support for the rule, rather than the authority of the rule”). Robert Cover referred to this aspect of redundancy as “confirmatory.” Cover, *supra* note 22, at 674–75; see also POSNER, *supra* note 32, at 163 (“[A] difficult [legal] question is more likely to be answered correctly if it is allowed to engage the attention of different sets of judges deciding factually different cases than if it is answered finally by the first panel to consider it.”).

¹¹⁷ Duffy, *supra* note 1, at 690.

¹¹⁸ Cover, *supra* note 22, at 673; see also Raaj K. Sah & Joseph E. Stiglitz, *The Quality of Managers in Centralized Versus Decentralized Organizations*, 106 Q. J. ECON. 289 (1991). Sah and Stiglitz write:

Our main result is that there is greater variability (over time) in the steady-state quality of managers in a centralized economy. This is because highly capable decision-makers have greater beneficial effects on the managerial choices in a more centralized economy. By the same token, highly incapable managers placed in the same positions have greater deleterious effects. The overall effect of a greater centralization, therefore, is to induce a greater variability in the economy's managerial quality.

Id. at 289–90. A similar point applies to an appellate court structure: A highly centralized structure magnifies the benefits of good rulings and the harms of bad ones.

¹¹⁹ See, e.g., *Butler v. McKellar*, 494 U.S. 407, 430 n.12 (1990) (Brennan, J., dissenting) (arguing that the majority decision “threatens to retard the heretofore robust process by which constitutional principles evolve through repeated interpretation and application by both state and federal courts”); ESTREICHER & SEXTON, *supra* note 111, at 47 (emphasizing “the benefits of percolation in the lower courts to the process of creating sound, nationally binding law”); MICHAEL E. SOLIMINE & JAMES L. WALKER, *RESPECTING STATE COURTS: THE INEVITABILITY OF JUDICIAL FEDERALISM* 57 (1999). *But see* Paul M. Bator, *What is Wrong with the Supreme Court?*, 51 U. PITT. L. REV. 673, 689–91 (1990) (expressing skepticism of the benefits of percolation).

¹²⁰ See SUP. CT. R. 10. See also *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 839 (2002) (Stevens, J., concurring) (“An occasional conflict in decisions may be useful in identifying questions that merit this Court’s attention.”); SOLIMINE & WALKER, *supra* note 119, at 57; Joseph

currently and primarily is generated though en banc review, a process that has been called an “extraordinary burden” for the Federal Circuit.¹²¹ Although some commentators have asserted that the Supreme Court has not necessarily been a force of stability in patent jurisprudence,¹²² the fact remains that the Court is the final arbiter and has in recent years shown a greater proclivity to hear patent cases.¹²³ Given that reality, patent law’s intermediate appellate architecture should be structured to facilitate and assist the Supreme Court in deciding patent cases.

Third, sharing the load will introduce competitive pressure on all the participating circuit courts to express more complete and thoughtful rationales. The complex nature of patent law requires more opportunities (more judicial “at bats” in circuits that do not yet have any binding views) before a particular doctrine becomes fully articulated and settled.¹²⁴

Lastly, excessive reliance on the precedent of one circuit can adversely affect judicial candor, an ethos of openness and recognition. The law places great value on candor;¹²⁵ when candor is lacking, legitimacy is called into

Tanenhaus, Marvin Schick, Matthew Muraskin & Daniel Rosen, *The Supreme Court’s Certiorari Jurisdiction: Cue Theory*, in JUDICIAL DECISION-MAKING 115–16 (G. Schubert ed., 1963); Sidney S. Ulmer, *The Supreme Court’s Certiorari Decisions: Conflict as a Predictive Variable*, 78 AM. POL. SCI. REV. 901, 904–10 (1984) (demonstrating that the presence of conflicting decisions increases the likelihood of the Supreme Court granting certiorari). This sentiment was expressed by Justice Stevens in *Thoughts on Judicial Restraint*:

[E]xperience with conflicting interpretations of federal rules [of law] may help to illuminate an issue before it is finally resolved and thus may play a constructive role in the lawmaking process. The doctrine of judicial restraint teaches us that patience in the judicial resolution of conflicts may sometimes produce the most desirable results.

Stevens, *supra* note 108, at 183.

¹²¹ See *Supreme Court’s Interest in Patent Cases Part of Normal Cycle*, 72 PAT., TRADEMARK & COPYRIGHT J. (BNA) 75, 83 (May 26, 2006) (reporting comments of Seth P. Waxman, former Solicitor General of the United States).

¹²² This may be a result of the Court not taking the “best” cases to address doctrinal irregularities or policy conflicts, arguably because the signaling function from a single court is not as crisp vis-à-vis several circuit courts. The more cases the Court entertains—cases that have been properly “teed up”—the more likely it is to develop greater familiarity with the intricacies of patent policy.

¹²³ See *supra* note 23.

¹²⁴ See Dreyfuss, *supra* note 6, at 775 (“[The Federal Circuit’s patent docket is] extremely complex, which makes it likely that a large number of decisionmaking opportunities are needed to fully express the court’s views.”). See also Moore, *supra* note 20, at 933 (noting the complexity of patent cases).

¹²⁵ As Scott Idleman writes, it has traditionally been held that “candor is an ideal toward which judges should almost always aspire and that any exceptions to this rule are few and far between.” Scott C. Idleman, *A Prudential Theory of Judicial Candor*, 73 TEX. L. REV. 1307, 1309 (1995); see also GUIDO CALABRESI, *A COMMON LAW FOR THE AGE OF STATUTES* 178–81 (1982) (discussing the benefits of judicial candor); Susan Estrich, *The Justice of Candor*, 74 TEX. L. REV. 1227, 1228 (1996) (“It is precisely because of its underlying political nature that the task of judging . . . demands both rigor and candor.”); David L. Shapiro, *In Defense of Judicial Candor*, 100 HARV. L. REV. 731 (1987) (discussing the importance of judicial candor); Nicholas S. Zeppos, *Judicial Candor and Statutory Interpretation*, 78 GEO. L.J. 353, 401–02 (1989) (discussing values associated with judicial candor).

question and cynicism is engendered.¹²⁶ Judges, who have “neither force nor will, but merely judgment,”¹²⁷ must present the basis and rationale for their decisions. One reason is that explication imposes constraints on the judiciary by allowing outsiders to debate the merits and persuasiveness of these unelected officials’ work product. And, as David Shapiro writes, “[i]n the absence of an obligation of candor, this constraint would be greatly diluted.”¹²⁸ Currently, Federal Circuit judges know that an argument dismissed with brief or harsh language may never be litigated again because the attorneys appearing before the circuit rightly may balk at readvancing that argument.¹²⁹ If multiple appellate courts exercised jurisdiction over patent law cases, however, each court may be more hesitant to be dismissive because another circuit may not be, and a dismissive response is unlikely to be persuasive.

Given the intricacy of patent law, the complexity of its relationship to the goal of fostering innovation, and its importance for the knowledge-based economy of the twenty-first century, our nation needs a judicial structure that facilitates greater candor, open debate, and thoughtfulness; and that better engages more judges, members of the bar, commentators, and policymakers in evaluating the soundness of legal doctrine in the area. Peer dialogue between appellate courts is a traditional vehicle for achieving such goals; we should seek its swift return to patent law.

C. Areas of Patent Law that Would Benefit from Intercircuit Competition

There are several examples where peer dialogue would be beneficial in the development of patent law, including claim interpretation, nonobvious-

¹²⁶ See Shapiro, *supra* note 125, at 737 (“[L]ack of candor seldom goes undetected for long, and its detection only serves to increase the level of cynicism about the nature of judging and of judges.”).

¹²⁷ THE FEDERALIST NO. 78, at 99 (Alexander Hamilton) (M. Walter Dunne ed., 1901).

¹²⁸ Shapiro, *supra* note 125, at 737; see also Estrich, *supra* note 125, at 1228 (“If the cases are in conflict, acknowledge it, and be clear about the principle that guides you in one direction or another. It is precisely because of its underlying political nature that the task of judging, of interpreting the Constitution in particular, demands both rigor and candor.”); Robert A. Leflar, *Honest Judicial Opinions*, 74 NW. U. L. REV. 721, 723, 740–41 (1979) (discussing the importance of honesty in judicial opinions).

¹²⁹ A famous example is found in *Allen Engineering Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1356–57 (Fed. Cir. 2002), where the Federal Circuit panel upbraided counsel for even presenting an argument that synergism was required to demonstrate nonobviousness. Even though the counsel’s argument was based directly on the Supreme Court’s then most recent precedent on obviousness, see *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976), the Federal Circuit panel described the argument as mere “obfuscation, deflection and mischaracterization” and stated that counsel was seeking “to cloud rather than clarify the central legal issues and to draw the court’s attention to peripheral matters.” *Bartell*, 299 F.3d at 1356. Such harsh criticism of counsel came during a period when the Federal Circuit was scrupulously refusing to cite or to distinguish the Supreme Court’s most recent precedents concerning nonobviousness. See Brief for Petitioner at 29–32, *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007) (No. 05-1350) (setting forth citation study and academic commentary demonstrating that the Federal Circuit was ignoring the Supreme Court’s *Sakraida* precedent).

ness, and the written description requirement.¹³⁰ Each of these is discussed in turn below.

1. *Claim Interpretation.*—Claim interpretation is one of the most important aspects of patent law. Since the Supreme Court’s 1996 decision in *Markman v. Westview Instruments, Inc.*¹³¹ holding that claim construction is to be conducted by judges, the Federal Circuit has failed to articulate clear rules for interpreting patent claims. Polk Wagner has shown empirically that the court employs two methodological approaches in construing claim language, which Wagner refers to as “holistic” and “procedural.”¹³² The basic difference between the two methods comes down to whether, in interpreting the claims, the judge will (i) rely primarily on the disclosure of the invention as set forth in the patent specification (a “holistic” approach), or (ii) seek the meaning first and foremost from objective definitions, grammatical rules, and general canons of construction (a “procedural” approach).¹³³ One would assume that nearly ten years after the Supreme Court’s decision in *Markman*, the Federal Circuit would have resolved this issue, which is one of the most important in all of patent law.¹³⁴ In a polycentric model, the value and soundness of these interpretative approaches would be put to the test. The competition among circuits would likely give rise to a consensus methodology (which may be an entirely new posture), add resolution to the benefits and

¹³⁰ Others may include remedies, utility, and statutory subject matter. Our point, however, is that all of patent law would benefit from a decentralized judicial structure.

¹³¹ 517 U.S. 370 (1996).

¹³² See The Claim Construction Project, <http://www.claimconstruction.com> (last visited May 13, 2007).

¹³³ Wagner defines the approaches slightly differently. He sees the holistic approach as a “far less-structured analysis, utilizing the array of possible interpretive information in a flexible, case-specific fashion.” The Claim Construction Project: Methodology, <http://www.claimconstruction.com/methodology.html> (last visited May 13, 2007). Under his view, the procedural approach “is characterized by adherence to a relatively strict rules-based hierarchy of interpretive sources, with a particular emphasis on the ordinary meaning of disputed patent claim language.” *Id.* See also Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH. 1, 4 (2000) (identifying two schools of interpretation as “pragmatic textualism” and “hypertextualism”). The extent to which the patent specification is used seems to be a major indicator of the difference in the approaches. While the two approaches may seem roughly analogous to different approaches observed in statutory interpretation, there are significant differences between patent claims and a statute. For example, some jurists object to using legislative reports and other sources of legislative “intent” in the interpretation of a statute because those sources have not passed through the same process as, and are not part of, the statutory text. By contrast, patent claims are “part of ‘a fully integrated written instrument,’ consisting principally of a specification that concludes with the claims.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (internal citations omitted). Thus, the use of a patent’s specification in interpreting its claims is not subject to the same formal objection raised when legislative materials are used in interpreting a statute.

¹³⁴ In *Phillips*, the Federal Circuit sitting en banc had every opportunity to establish clear rules for claim construction but offered little by way of guidance or anything new. 415 F.3d at 1315. The en banc court seemed unable to extricate itself from its precedent, the state of which prompted the court to sit en banc.

shortcomings of existing approaches, or present the Supreme Court with a clearer picture of the claim construction landscape.

An important and related issue is the standard of review to be employed by an appellate court when reviewing district court claim interpretations. The Federal Circuit has designated claim interpretation as a question of law subject to de novo review.¹³⁵ The de novo standard is thought to be necessary for fostering uniformity and certainty, but it has proved to be highly controversial. Some members of the court would grant some deference to the district court's interpretation because they believe claim interpretation is a mixed question of law and fact that fits better with the comparative institutional advantages of the district court judge.¹³⁶ Commentators and district court judges have also come to question the value of de novo review.¹³⁷

The debate over the appropriate standard of review is in need of new voices and more datapoints. If other circuit courts were given significant jurisdiction over patent appeals, the doctrine developed in those courts would provide valuable information. If one or more of the other circuits granted deference to district courts, the different effects of the rules could be ob-

¹³⁵ See *Cybor Corp. v. FAS Techs. Inc.*, 138 F.3d 1448 (Fed. Cir. 1998) (en banc).

¹³⁶ This line of reasoning can be found in Judge Newman's dissent in *Phillips*:

While this court may persist in the delusion that claim construction is a purely legal determination, unaffected by underlying facts, it is plainly not the case. Claim construction is, or should be, made in context: a claim should be interpreted both from the perspective of one of ordinary skill in the art and in view of the state of the art at the time of invention We simply must follow the example of every other appellate court, which, regarding the vast majority of factual questions, reviews the trial court for clear error Therefore, not only is it more efficient for the trial court to construct the record, the trial court is *better*, that is, more accurate, by way of both position and practice, at finding facts than appellate judges.

415 F.3d at 1332–34 (Newman, J., dissenting).

¹³⁷ Judge Patti Saris of the U.S. District Court in Massachusetts views de novo review as a “key legal development” following *Markman*. She expressed her concerns in terms of institutional competence:

According to the literature, over fifty percent of all *Markman* hearings now involve the taking of evidence. Even in those cases where I do not hear evidence, I see terrific demonstratives.

Because I am a visual learner, I understand evidence presented to me better when I receive a tutorial by live or video testimony, rather than by a cold affidavit. This is important because a de novo standard of review by definition is a fresh look by three people on an appellate level who did not have an opportunity to attend the hearing My perspective . . . is that there should be more deference given to the interpretation of the trial judge who had the opportunity to see, hear, and look at evidence.

O'Malley, Saris & Whyte, *supra* note 99, at 679 (Saris, J.). And Judge Marsha J. Pechman of the U.S. District Court for the Western District of Washington stated that given the high reversal rate on claim construction, “you might as well throw darts.” *Federal District Courts Need Experts That are Good ‘Teachers,’ Judges Tell Bar*, 70 PAT., TRADEMARK & COPYRIGHT J. (BNA) 517, 537 (Sept. 14, 2005). See also William F. Lee & Anita K. Krug, *Still Adjusting to Markman: A Prescription for the Timing of Claim Construction Hearings*, 13 HARV. J.L. & TECH. 55, 67 (1999) (“Although, according to the Federal Circuit and the Supreme Court, *Markman* should have ushered in greater uniformity, predictability, and certainty in patent litigation, many believe that the holding has had the opposite effect. This is largely because Federal Circuit review of claim interpretation is de novo.”); Nard, *supra* note 133, at 65–68 (arguing that district courts have superior institutional competence in construing claims and therefore should be afforded deference in appellate review).

served. Perhaps the fears of the current Federal Circuit majority would be realized, and deference would produce numerous conflicting interpretations of the same patent claims. Alternatively, the views of the current minority position could prove true, and the deferential rule would produce much less litigation with a manageable number of inconsistencies. Even if all circuits agreed with the Federal Circuit's *de novo* review standard, that result would also produce information because it would show that a much broader range of appellate judges find convincing the arguments in favor of *de novo* review. In sum, allowing other circuits into the mix would be extremely valuable and would provide support for either camp within the Federal Circuit.

2. *Nonobviousness*.—Another area of patent law that would benefit from greater circuit court involvement is nonobviousness. The nonobviousness requirement, embodied in section 103 of the Patent Code,¹³⁸ lies at the heart of our patent system and in many ways is the most significant obstacle that a patent applicant faces. Indeed, it has been called the “final gatekeeper of the patent system.”¹³⁹

Section 103 provides that a patent cannot issue on subject matter that would have been “obvious” to a hypothetical “person having ordinary skill in the art.”¹⁴⁰ The Supreme Court first interpreted section 103 in its 1966 decision *Graham v. John Deere Co.*,¹⁴¹ which unanimously “conclude[d] that the section was intended merely as a codification of judicial precedents embracing the *Hotchkiss*¹⁴² condition, with congressional directions that inquiries into the obviousness of the subject matter sought to be patented are a prerequisite to patentability.”¹⁴³ In subsequent decisions, the Court unanimously held that section 103 precluded patent protection where a claimed invention consists of “a combination [that] only unites old elements with no change in their respective functions.”¹⁴⁴ That rule, which the Court described as “the test of validity of combination patents” or the “standard[] appropriate for a combination patent,”¹⁴⁵ rested on the commonsense judgment that the mere assembling or rearranging of “old elements with each performing the same function it had been known to perform” was within the

¹³⁸ See 35 U.S.C. § 103 (2000).

¹³⁹ ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 644 (3d ed. 2002).

¹⁴⁰ 35 U.S.C. § 103(a).

¹⁴¹ 383 U.S. 1 (1966).

¹⁴² *Hotchkiss v. Greenwood*, 52 U.S. 248 (1852).

¹⁴³ 383 U.S. at 17.

¹⁴⁴ *Sakraida v. Ag Pro, Inc.*, 425 U.S. 274, 281 (1976) (quoting *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152 (1950)). See also *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 60–61 (1969).

¹⁴⁵ *Anderson's-Black Rock*, 396 U.S. at 60; *Sakraida*, 425 U.S. at 282.

capabilities of a person having ordinary skill in the art or what the Court referred to as the “skillful mechanic.”¹⁴⁶

Soon after its creation, the Federal Circuit departed from the Supreme Court's precedents on obviousness. Despite the unanimous Supreme Court opinions establishing special standards applicable to “combination patents,” the Federal Circuit labeled any “[r]eference to ‘combination’ patents” as “meaningless” and admonished lower courts and litigants that “[i]t but obfuscates the law to posit a non-statutory, judge-created classification labeled ‘combination patents.’”¹⁴⁷ Moreover, the Federal Circuit announced its own test for determining whether subject matter claimed in a patent was obvious. Under that test, any subject matter claimed in a patent would be held nonobvious unless the party challenging the patent was able to prove that some teaching, suggestion, or motivation would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed in the patent. The Federal Circuit case law demanded “rigorous application” of that test.¹⁴⁸

Many commentators noted that the Federal Circuit's test—known as the “teaching-suggestion-motivation” test—was inconsistent with Supreme Court precedent.¹⁴⁹ It was also plainly inconsistent with pre-1982 circuit court precedent, which had, not surprisingly, followed Supreme Court decisions.¹⁵⁰ Yet the Supreme Court did not grant certiorari on an obviousness case for nearly a quarter century after the creation of the Federal Circuit.¹⁵¹

¹⁴⁶ *Sakraida*, 425 U.S. at 282.

¹⁴⁷ *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540 (Fed. Cir. 1983); *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1566 (Fed. Cir. 1983).

¹⁴⁸ *See, e.g., In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999).

¹⁴⁹ *See, e.g., MARTIN J. ADELMAN ET AL., CASES AND MATERIALS ON PATENT LAW* 345 (2d ed. 2003) (“In its early decisions, the Federal Circuit essentially repudiated the holdings of [the Supreme Court decisions] *Anderson's-Black Rock* and *Sakraida*.”); Paul M. Janicke, *The Federal Circuit and Antitrust: To Be or Not to Be: The Long Gestation of the U.S. Court of Appeals for the Federal Circuit (1887–1982)*, 69 ANTITRUST L.J. 645, 661–62 (2002) (“[T]he Federal Circuit has expressly dismantled many of the mechanisms the Supreme Court relied upon when deciding obviousness questions.”); A. Samuel Oddi, *Beyond Obviousness: Invention Protection in the Twentieth Century*, 38 AM. U. L. REV. 1097, 1123 (1989) (noting that the Federal Circuit “essentially has ignored” Supreme Court precedent on obviousness).

¹⁵⁰ The Federal Circuit itself eventually acknowledged the conflict between its decisions and prior circuit case law. *See Allen Engineering Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1356–57 (Fed. Cir. 2002).

¹⁵¹ Certiorari was granted on June 26, 2006, nearly twenty-four years after the creation of the Federal Circuit. *See KSR Int'l Co. v. Teleflex, Inc.*, 126 S. Ct. 2965 (2006). The question presented in *KSR* was:

Whether the Federal Circuit has erred in holding that a claimed invention cannot be held “obvious,” and thus unpatentable under 35 U.S.C. § 103(a), in the absence of some proven “teaching, suggestion, or motivation” that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed.

Petition for Writ of Certiorari in *i, KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007) (No. 04-1350), 2005 WL 835463.

Once the Supreme Court agreed to review the Federal Circuit doctrine, the result was predictable. The Court began its analysis by “by rejecting the rigid approach of the Court of Appeals,” and it also confirmed that nothing had “disturbed this Court’s earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art.”¹⁵² The outcome of the case itself demonstrated the importance of the divergence between Supreme Court and Federal Circuit law: The Federal Circuit had held that the party challenging the patent, KSR, had failed to establish even a *prima facie* case of obviousness,¹⁵³ the Supreme Court held that summary judgment of invalidity was appropriate because “KSR provided convincing evidence that [the alleged invention] was a design step well within the grasp of a person of ordinary skill in the relevant art.”¹⁵⁴

The history of obviousness jurisprudence over the last quarter century provides an excellent example of a doctrinal area in which exclusive jurisdiction of a single court of appeals had unfortunate consequences. In at least three ways, greater circuit involvement would have helped, and would continue to help, the development of nonobviousness doctrine. First, and perhaps most importantly, the Federal Circuit almost certainly would not have taken such a radical step if the court members suspected it would provoke immediate disagreement from other circuits, and thus lead quickly to a grant of certiorari. Rather, the judges would have proceeded more incrementally and perhaps developed a more nuanced doctrine that attempted to incorporate the wisdom of prior Supreme Court decisions. This is not difficult to imagine happening. In *KSR* itself, the Supreme Court acknowledged that the Federal Circuit’s doctrine had begun with a “helpful insight”—that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was independently known in the prior art.”¹⁵⁵ As the Supreme Court noted, that insight was consistent with the Court’s own decision in *United States v. Adams*.¹⁵⁶ The Federal Circuit’s error, according to the Supreme Court, occurred when that helpful insight was transformed into a “rigid and mandatory formula[]” and obviousness analysis was “confined by a formalistic conception of the words teaching, suggestion, and motivation.”¹⁵⁷ But that error is precisely the sort that peer reasoning would have helped prevent, for the error shows that the judges were wrong not in their fundamental approach but in overextending their analysis. The common-law process of peer courts reviewing, checking, confirming, and diverging from the results of each other is par-

¹⁵² *KSR*, 127 S. Ct. at 1739.

¹⁵³ *Teleflex, Inc. v. KSR Int’l Co.*, 119 F. App’x. 282, 289 (Fed. Cir. 2005) (holding that KSR had “failed to make out a *prima facie* case of obviousness”).

¹⁵⁴ *KSR*, 127 S. Ct. at 1746.

¹⁵⁵ *Id.* at 1731.

¹⁵⁶ *Id.* (referring to *United States v. Adams*, 383 U.S. 39, 40 (1966)).

¹⁵⁷ *Id.* at 1731.

ticularly good at curbing incremental, cumulative mistakes. As it was, however, no peer courts were available to check the Federal Circuit as it solidified its doctrine into a formula that the court demanded be rigorously applied.

Second, even if peer circuits did not deter the Federal Circuit from departing from Supreme Court precedent, those circuits could have drawn attention to the departure, and that circuit conflict could have hastened the process of deciding the test's validity. Without other circuits to disagree with the Federal Circuit, the validity of the Federal Circuit's teaching-suggestion-motivation test, which had been established as early as 1983,¹⁵⁸ was not decided until 2007. Thus, it took more than twenty years to determine that the Federal Circuit's formula was invalid, and during that period, patents were granted and were sustained against challenges in infringement cases under an incorrect standard. Indeed, the history of the obviousness doctrine shows that judicial centralization can itself undermine certainty because the absence of everyday checks on the centralized court may produce long-term instabilities in the law.

A third and final point is that the involvement of other circuits could have prevented more than twenty years of intellectual neglect of the obviousness doctrine. During the last twenty years, the suggestion test itself had become an ossified part of the Federal Circuit's jurisprudence. The court used boilerplate citations to the test, rarely if ever providing new policy justifications for the rule or considering new alternatives or adjustments to the test. That doctrinal stagnation shows the weakness of the common-law process at the Federal Circuit, for the suggestion test remained unrefined and unchallenged for decades.

Curiously enough, the benefits of having multiple appellate courts review and refine legal doctrine can be seen even in the decisions of the Federal Circuit in response to the Supreme Court's indication of an interest in reviewing the law of obviousness. In October 2005, the Supreme Court requested the Solicitor General's views on the certiorari petition in *KSR*, and such a step is typically seen as an indication of significant interest by the Court in granting the petition.¹⁵⁹ Thereafter, and especially once the Court

¹⁵⁸ See *In re Sernaker*, 702 F.2d 989, 995–96 (Fed. Cir. 1983) (“[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings.”); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551 (Fed. Cir. 1983) (“In concluding that obviousness was established by the teachings in various pairs of references, the district court lost sight of the principle that there must have been something present in those teachings to suggest to one skilled in the art that the claimed invention before the court would have been obvious.”); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984) (holding that “teachings of [prior art] references can be combined *only* if there is some suggestion or incentive to do so”); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 (Fed. Cir. 1985) (reversing a district court's conclusion of obviousness because the court did not make findings to show that the prior art included “any factual teachings, suggestions or incentives . . . that showed the propriety of [patented] combination”).

¹⁵⁹ See *supra* page 1640.

granted the petition in June 2006, the Federal Circuit decided a series of cases in which the court further explained its teaching-suggestion-motivation doctrine and attempted to reconcile the doctrine with Supreme Court case law.¹⁶⁰ The Federal Circuit appeared to be interested in engaging in an intellectual dialogue with the Supreme Court, the Solicitor General, and the parties on the merits of the doctrine—indeed, the court even seemed to be answering specific criticism leveled at the doctrine in Supreme Court briefs.¹⁶¹

Yet this dialogue was extraordinarily awkward; the comments of at least some of the Justices at oral argument in *KSR* suggested that the Supreme Court believed the Federal Circuit's reconsideration and explanation of its doctrine was coming far too late. As Justice Scalia remarked during the *KSR* oral argument, "in the last year or so, after we granted cert in this case after these decades of thinking about [the nonobviousness doctrine, the Federal Circuit] suddenly decides to polish it up."¹⁶² In its final opinion, the Supreme Court refused to consider the Federal Circuit's more recent interpretations of obviousness, stating that these cases "are not now before us and do not correct the errors of law made by the Court of Appeals in this case."¹⁶³ This history shows that Supreme Court review is a highly imperfect vehicle to foster peer judicial dialogue about competing ideas on a par-

¹⁶⁰ See, e.g., *In re Kahn*, 441 F.3d 977, 986, 988 (Fed. Cir. 2006) (attempting to reconcile the teaching-suggestion-motivation test with Supreme Court precedent and emphasizing that "the 'motivation-suggestion-teaching' test asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims"); *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006) (providing a detailed historical analysis of the Federal Circuit's obviousness jurisprudence, particularly the teaching-suggestion-motivation test, and a discussion of Supreme Court precedent); *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1307–08 (Fed. Cir. 2006) (downplaying the motivation requirement); *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1291 (Fed. Cir. 2006) ("We do not have a rigid test that requires an actual teaching to combine before concluding that one of ordinary skill in the art would know to combine references.").

¹⁶¹ For example, in *Alza*, the Federal Circuit emphasized that it was being "guided by the wisdom of the Supreme Court in striving for 'a practical test of patentability.'" 464 F.3d at 1291 (quoting the Supreme Court's decision in *Graham v. John Deere Co.*, 383 U.S. 1 (1966)); see also *Kahn*, 441 F.3d at 985 (quoting the same passage from *Graham*). That passage from *Graham*—emphasizing the practicality of the Supreme Court's nonobviousness jurisprudence—had been emphasized both in *KSR*'s Petition for Certiorari and in the Solicitor General's amicus brief supporting *KSR* in *KSR*, 127 S. Ct. 1727. See Petition for Writ of Certiorari, *supra* note 151, at 2, 12, 25; Brief for the United States as Amicus Curiae Supporting Petitioner, at *supra* note 9, at 12. Yet prior to the Supreme Court's request for the Solicitor General's views on the *KSR* petition for certiorari, the Federal Circuit had never previously quoted that particular passage. Thus, the Federal Circuit's decisions show that the court was aware of and trying to answer the criticisms being leveled at the doctrine by the government and petitioner in *KSR*.

¹⁶² Transcript of Oral Argument at 53, *KSR*, 127 S. Ct. 1727 (No. 04-1350); see also *id.* (setting forth Justice Breyer's comment suggesting that, in its recent case law, the Federal Circuit "so quickly modified itself" after it had decades to elaborate a standard of obviousness).

¹⁶³ *KSR*, 127 S. Ct. at 1743.

ticular issue. Peer criticism is needed, and the Supreme Court cannot be considered, and does not function like, a peer of the Federal Circuit.¹⁶⁴

The need for peer appellate dialogue to refine obviousness doctrine has not ended with the Supreme Court's decision in *KSR*. Indeed, competition and dialogue among peer circuit courts has at least as much application prospectively in helping to develop the law of obviousness. While the Supreme Court's decision in *KSR* rejects an obviousness analysis that is "confined by a formalistic conception of the words teaching, suggestion, and motivation,"¹⁶⁵ it also leaves open many possibilities for the future development of the law. That openness is to be applauded, for a Supreme Court opinion that purported to find the definitive test of obviousness would be at least as unwelcome as Federal Circuit case law doing the same; indeed, it would be even more unwelcome because it could not be corrected by appeal to a higher court. Thus, obviousness returns to the lower courts with the possibility of common-law development, but unfortunately a well-structured common-law system is not in place for the task.

3. *Written Description.*—The last example relates to the written description requirement, which has traditionally applied to amendments to claims made during the prosecution of an application.¹⁶⁶ This requirement demanded that any change to claim language must have support in the originally filed specification. In this regard, "[t]he function of the description requirement is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed by him."¹⁶⁷

In the early 1990s, however, the Federal Circuit applied the written description requirement to originally filed claims, mostly in the context of biotechnology-related inventions.¹⁶⁸ For instance, in the well-known case of *Regents of the University of California v. Eli Lilly and Co.*,¹⁶⁹ the Federal Circuit invalidated originally filed claims to complementary DNA encoding vertebrate or mammalian insulin because the specification did not describe the structural characteristics of the claimed DNA. In other words, the Federal Circuit held that a specification describing a gene or DNA sequence only in terms of its biological function (e.g., to encode for a known protein) did not

¹⁶⁴ See *supra* notes 70–73 and accompanying text.

¹⁶⁵ *KSR*, 127 S. Ct. at 1731.

¹⁶⁶ As originally conceived, the written description requirement, prior to the development of patent claims in the nineteenth century, served a public notice function and required inventors to articulate the boundaries of their inventions. See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1560–61 (Fed. Cir. 1991).

¹⁶⁷ *In re Wertheim*, 541 F.2d 257, 262 (C.C.P.A. 1976). The filing date is deemed constructive reduction practice, and therefore, proof of date of invention. The date of invention is particularly important in a first-to-invent regime because priority is awarded to the first person to invent. Moreover, proving date of invention is oftentimes important for antedating prior art references.

¹⁶⁸ See *Fiers v. Revel*, 984 F.2d 1164 (Fed. Cir. 1993).

¹⁶⁹ 119 F.3d 1559 (Fed. Cir. 1997).

comply with the written description requirement even as to an original claim directed to the functionally defined DNA sequence.¹⁷⁰ *Lilly* and like-minded cases engendered controversy, both within the Federal Circuit and among commentators, because these cases arguably diverged from a long line of precedent and erected a more demanding disclosure standard for biotechnology-related inventions.¹⁷¹ Our point here is not to enter the debate on the desirability of the written description requirement as articulated by *Lilly*, but merely to suggest that this is an area of patent law that would benefit from additional circuit voices. Is there something special about biotechnology that would warrant a higher or lower written description standard? Is a written description requirement needed in the light of the enablement and definiteness requirements? These sorts of questions need judicial debate prior to final resolution. If multiple circuits arrived at similar written description requirements, that consensus would tend to confirm the Federal Circuit's position. By contrast, a circuit split would show the difficulty of the issue and would likely provoke lawyers, commentators, judges from each circuit, and ultimately the Supreme Court to examine the issue in greater detail and perhaps generate a more refined doctrine, or at least a more thorough explanation for having the doctrine.

D. *The New Institutional Structure*

Determining the optimal number of courts is very difficult, but also not necessary for purposes of this Article, which argues that neither one appellate court, nor thirteen (pre-1982) is optimal. We are confident in suggesting that optimality resides closer to one, and given the importance of moving slowly when embarking upon reform initiatives,¹⁷² two or three is a reasonable number. Therefore, as noted above, in addition to the Federal Circuit, at least one extant circuit court (but no more than three) should comprise the appellate decisionmaking structure in patent law. The ques-

¹⁷⁰ *Id.* at 1568–69.

¹⁷¹ *See, e.g.,* Enzo Biochem, Inc. v. Gen-Probe Inc., 323 F.3d 956, 979–80 (Fed. Cir. 2002) (Rader, J., dissenting from denial to rehear en banc) (asserting that *Lilly* is inconsistent with precedent because “for the first time, this court purported to apply [written description] as a general disclosure doctrine in place of enablement, rather than as a priority doctrine”); LizardTech v. Earth Res. Mapping, Inc., 433 F.3d 1373, 1376 (Fed. Cir. 2006) (Rader, J., dissenting from denial to hear en banc); Burk & Lemley, *supra* note 7, at 1653 (referring to *Lilly* as transforming the written description requirement into a “‘super enablement’ requirement”); Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615 (1998). There is also the question of whether a written description requirement is a relic of a bygone era when claims did not exist. Some have argued that the requirement would not be needed at all if only the enablement requirement of 35 U.S.C. § 112 were properly enforced. *See* Mark D. Janis, *On Courts Herding Cats: Contending With the “Written Description” Requirement (And Other Unruly Patent Disclosure Doctrines)*, 2 WASH. U. J.L. & POL’Y 55, 60–61 (2000).

¹⁷² Edmund Burke is reported to have said, “don’t talk to me of reform, things are bad enough as they are.” *See, e.g.,* Frank H. Easterbrook, *Cyberspace Versus Property Law?*, 4 TEX. REV. L. & POL. 103, 104 (1999).

tion then becomes which circuit court (or courts) should be brought into the patent mix, both with respect to litigation and appeals from the PTO.

1. *The Litigation Context.*—Choosing among existing circuits circuit courts can be informed by several factors. One option is to look to the circuits that have district courts with the busiest patent dockets. According to Kimberly Moore, the five busiest patent dockets from 1995 to 1999 were the Central and Northern Districts of California (Ninth Circuit); the Northern District of Illinois (Seventh Circuit); the Southern District of New York (Second Circuit); the District of Massachusetts (First Circuit); and the District of Delaware (Third Circuit).¹⁷³ An attractive feature of this option is the role district court judges could play in the appellate process. Because the regional circuit courts have been removed from patent law for over two decades, each circuit appellate panel could initially have at least one district court judge sitting by designation. The district court judges could be chosen from one of the district courts within that circuit that hears the greatest number of patent cases. For instance, if a patent case were appealed to the First Circuit, a district court judge from the District of Massachusetts could be included on the appellate panel.

Alternatively, circuit choice could be based on size in terms of the number of judges and the court's workload. The Ninth Circuit has twenty-eight active judgeships and is generally thought to be too large even in its current state. Adding *more* work to that circuit seems as unwise as it is politically infeasible. Thus, despite having two patent-heavy district courts, the Ninth Circuit court is too unwieldy a candidate for hearing some patent cases. The First Circuit, on the other hand, may be too small; it has only six active judgeships. The addition of a significant number of patent cases may be too great of a percentage increase in the court's workload. The Second and Seventh Circuits, which have thirteen and eleven judgeships respectively, may be preferable. These circuits are of average size and also contain two of the nation's largest cities, each which has broad commercial interests and strong legal communities.

A final option would be to share appellate jurisdiction with the D.C. Circuit. The D.C. Circuit has a very complex docket of administrative and regulatory appeals, so adding patent appeals would be less dramatic for D.C. Circuit judges than for other circuit judges. If patent appeals were sent to the D.C. Circuit, an equivalent number of administrative and regulatory appeals could be transferred to the Federal Circuit. Such a swapping of cases would provide the Federal Circuit with a greater range of cases and would make clear that the jurisdiction realignment was not based on any hostility to the Federal Circuit. Finally, the D.C. Circuit is also located in Washington, D.C., which has the effect of maintaining the current geogra-

¹⁷³ See Moore, *supra* note 20, at 903 (identifying the top ten district courts with the largest number of patent cases). The Third Circuit has two district courts in the top ten, the other being the District of New Jersey.

phy of patent appeals. If Congress wanted to authorize a temporary pilot program to test jurisdictional diversity in patent appeals, then authorizing swaps of appeals with the D.C. Circuit would seem to be the most modest and incremental of the options.

2. *The Administrative Context.*—The Federal Circuit has exclusive jurisdiction over appeals from the Board of Patent Appeals and Interferences, the administrative adjudicative body within the PTO.¹⁷⁴ A vast majority of these appeals relate either to interferences or to denied patent applications. Given that the PTO is an administrative agency, one would assume that the Federal Circuit in the past twenty-four years would have applied traditional administrative law principles when reviewing PTO decisions. But the court has been reluctant in this regard,¹⁷⁵ seemingly paying little attention to administrative law doctrines requiring deference to administrative factual findings and to administrative rules.¹⁷⁶ Further, the court has moved clumsily toward its application of the Administrative Procedures Act (APA), a cornerstone of the administrative state.¹⁷⁷

¹⁷⁴ See 28 U.S.C. § 1295(a)(4)(A) (2000).

¹⁷⁵ This lack of attention can be explained in part by the fact that the Federal Circuit is a recent addition to the circuit court family and that the PTO was created one hundred years before the administrative state took hold, thus evolving outside the context of the New Deal and Progressive eras' public-interest rationale. Moreover, patent law historically has resided in the background of the American legal landscape, and it was not until the 1980s that patent law assumed a higher profile.

¹⁷⁶ See *Dickinson v. Zurko*, 527 U.S. 150 (1999) (reversing the Federal Circuit's decision holding that the general standard for administrative findings of fact was inapplicable in reviewing the PTO's decisions in patent cases); *Digital Control, Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1316 (Fed. Cir. 2006) (holding that the judicial standard governing what information must be disclosed by a patent applicant to the PTO was not "supplanted" by the PTO's attempt, through administrative rulemaking, to define a more narrow standard).

¹⁷⁷ In fact, it was not until the late 1990s that the issue of APA applicability was given significant attention, due in large part to the PTO's repeated pleas for greater deference. See *In re Zurko*, 142 F.3d 1447, 1449 (Fed. Cir. 1999) (en banc) ("The Commissioner has campaigned aggressively for this court to review factual findings underlying the board's patentability determinations using the more deferential substantial evidence standard found in section 10(e) of the Administrative Procedure Act (APA) and codified in relevant part at 5 U.S.C. § 706 (1994), but we have not done so."); *In re Kemps*, 97 F.3d 1427, 1431 n.4 (Fed. Cir. 1996) ("Although the PTO has suggested the APA standard of review in a footnote in prior cases, this appears to be the first case in which the PTO has presumptuously assumed this standard for briefing and argument."). Eventually, the Federal Circuit, sitting en banc, unanimously held that the APA does not apply to the PTO. See *Zurko*, 142 F.3d at 1447 (holding factual findings of the PTO are to be reviewed under clearly erroneous standard). The Supreme Court reversed the Federal Circuit and held that the APA does apply, but did not articulate which APA standard—substantial evidence or arbitrary and capricious—governed. See *Zurko*, 527 U.S. 150 (1999). The Federal Circuit subsequently applied the substantial evidence standard of review, see *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000), rather than the arbitrary and capricious standard, which has traditionally been applied by courts to factual findings of agencies with informal rulemaking authority. See KENNETH CULP DAVIS & RICHARD J. PIERCE, JR., 2 ADMINISTRATIVE LAW TREATISE § 11.4, at 200 (1994) ("APA § 706 requires courts to apply the substantial evidence test only to findings adopted through use of formal adjudication or formal rulemaking. It requires courts to apply the arbitrary and capricious test when an agency acts through informal adjudication or informal rulemaking.").

As an Article III body with jurisdiction over agencies, the Federal Circuit's unwillingness to fully engage administrative law principles is troubling. Perhaps more troubling is the court's lackluster performance when it has entered the fray. The court needs to consider further its relationship to the PTO in the context of administrative law. But we are not sanguine that this is going to occur anytime soon, which leads us to conclude that another Article III voice is needed. Specifically, we propose that the Federal Circuit and the D.C. Circuit each have jurisdiction over PTO appeals. The D.C. Circuit is the foremost appellate authority on administrative law,¹⁷⁸ and would thus bring an experienced voice to administrative and regulatory law issues.

III. "PROBLEMS" WITH A MULTICIRCUIT FRAMEWORK

A. *The Forum Shopping Problem*

One of the oft-cited reasons for the creation of the Federal Circuit was negative effects on the patent system due to rampant forum shopping by patent litigants.¹⁷⁹ This argument will likely resurface in light of our proposed institutional redesign. Forum shopping, like its cousin disuniformity, is generally seen as undesirable, leading to inconsistency and unpredictability, which in turn is said to have a stifling effect on technological innovation.

There are several responses to this concern. As an initial matter, we note that some commentators have expressed skepticism of the view that forum shopping was problematic during the 1970s,¹⁸⁰ as well as questioned the severity of outcome variability or national economic decline.¹⁸¹ But we

¹⁷⁸ The D.C. Circuit's docket is well-represented with agency decisions. See John R. Roberts, Jr., *What Makes the D.C. Circuit Different: A Historical View*, 92 VA. L. REV. 375, 389 (2006) ("Whatever combination of letters you can put together, it is likely that jurisdiction to review that agency's decision is vested in the D.C. Circuit. Even when the jurisdiction is concurrent . . . lawyers frequently prefer to litigate in the D.C. Circuit because there is a far more extensive body of administrative law developed there than in other circuits.").

¹⁷⁹ See H.R. REP. NO. 97-312, at 20–22 (1981) ("Patent litigation long has been identified as a problem area, characterized by undue forum-shopping and unsettling inconsistency in adjudications.").

¹⁸⁰ See *Hearings*, *supra* note 22, at 709 (testimony of James W. Geriak) (stating that claims of forum shopping are "seriously exaggerated"); Quillen, *supra* note 3, at 228 (asserting that forum shopping and outcome variability were not problematic during the 1970s).

¹⁸¹ See Richard A. Posner, *Do We Have Too Many Intellectual Property Rights?*, 9 MARQ. INTELL. PROP. L. REV. 173, 184 (2005) ("[Fear of falling behind Japan and Europe] was almost certainly wrong, but it was widespread and one consequence was the creation in the early 1980s of a new court—the U.S. Court of Appeals for the Federal Circuit."). Moreover, technological and economic circumstances today are starkly different than they were in the 1970s, and sluggish innovation was arguably more a result of stagflation, global economic conditions, or other reasons not directly related to patent law. See Scherer, *supra* note 29, at 11–13 (discussing R&D and innovation trends in the United States during the 1970s). The pace and quality of innovation are influenced by several factors. As William A. Wulf, President of the National Academy of Engineering, has stated, innovation requires a "multi-component 'environ-

do not wish to enter this historical debate; rather, we prefer to advance arguments to challenge the assumption that forum shopping is likely to result if our proposal were adopted.

Although forum shopping can be a positive force,¹⁸² we do not dispute its potential negative side. But forum shopping, which occurs quite regularly in modern patent litigation,¹⁸³ is largely a result of the geographic jurisdictional monopolies built into our judicial system. To diminish systematic forum shopping based on perceived favoritism to one's position, we suggest a procedural constraint that would greatly diminish concerns associated with geographic monopoly. Under our proposal, appellate jurisdiction of district court cases would be randomly assigned post-district court filing. That is, the litigants would not know which appellate body of law would apply until after the case was filed; and the appellate jurisdiction would remain applicable even if the patentee, for example, withdrew its complaint and refiled, either in the same district court or in another. Thus, the litigants will file blindly regarding applicable circuit law.¹⁸⁴

Random assignment after filing will mean that firms on the brink of litigation will not know in advance which circuit law will apply to their

ment' that provides an educated workforce, encourages entrepreneurial activity, and protects intellectual property." COMM. ON PROSPERING IN THE GLOBAL ECON. OF THE 21ST CENTURY, THE NAT'L ACADS., RISING ABOVE THE GATHERING STORM: ENERGIZING AND EMPLOYING AMERICA FOR A BRIGHTER FUTURE 182 (2007) (quoting William A. Wulf, Review and Renewal of the Environment for Innovation (2005) (unpublished paper)). This report was published after some scholars and public officials expressed concern about whether the United States can maintain its lead in innovation and technological development. According to the report:

[T]he scientific and technical building blocks critical to our economic leadership are eroding at a time when many other nations are gathering strength Although many people assume that the United States will always be a world leader in science and technology, this may not continue to be the case inasmuch as great minds and ideas exist throughout the world. We fear the abruptness with which a lead in science and technology can be lost—and the difficulty of recovering a lead once lost, if indeed it can be regained at all.

Id. at 3. The report makes several recommendations, including improving K-12 and graduate education in science and mathematics; increasing governmental investment in basic research; and providing an array of incentives for innovation and R&D. A well-functioning patent system, although important, is only one form of incentive. See Arora, Ceccagnoli & Cohen, *supra* note 101, Abstract ("Although patent protection is found to provide a positive premium on average in only a few industries, our results also imply that it stimulates R&D across almost all manufacturing industries, with the magnitude of that effect varying substantially.")

¹⁸² Robert Cover has noted, "[f]orum shoppers and those who oppose them . . . become the carriers that pollinate one system of courts with the information about another system's experience." Cover, *supra* note 22, at 678. See also Zywicki, *supra* note 110, at 1621 (emphasizing the "benefits of forum-shopping" such as forum shopping's role in engendering "experimentation" and "laws conducive to economic efficiency and coordination"). This view fits comfortably with the polycentric, competitive model of only three circuit courts.

¹⁸³ See Moore, *supra* note 20, at 892 ("[C]hoice of forum continues to play a critical role in the outcome of patent litigation.")

¹⁸⁴ This proposal does not address the forum shopping that currently occurs at the district court level. Moore has suggested a change in patent law's venue statutes as a means of combating district court forum shopping. See *id.* at 934–37.

case. It could be argued that such uncertainty may hamper licensing or settlement negotiations. There are several responses. First, we do not believe that circuit law will be wildly different at any given point in time. One strength of the common-law process is that it proceeds incrementally, and in fact, review by other circuits may temper any one circuit's desire to change the law dramatically. Second, in many other areas of federal law, firms on the brink of litigation cannot be sure of the circuit in which the case will be filed. Often jurisdiction and venue will be proper in multiple district courts in multiple circuits.¹⁸⁵ Uncertainty about the applicable circuit law has not thwarted business transactions and settlements in other areas of federal law, including areas closely related to patent, such as copyright and trademark law.

Third, even with the Federal Circuit, there remains significant uncertainty about the law that will be applied in any given case. As previously noted, many lawyers and commentators believe that the Federal Circuit is highly "panel dependent," with the application of the law differing dramatically depending on the judges drawn for a particular panel.¹⁸⁶ While that charge remains controversial, many lawyers *believe* it to be true. Yet that belief has not stopped licensing and settlement. Moreover, the Federal Circuit has changed its law over time, and the Supreme Court also has overturned the Federal Circuit's law several times in the last decade. Patent cases often drag on for many years, so no litigant can be perfectly sure of what the Federal Circuit's law will be when the case eventually reaches appeal. The addition of other circuits is not likely to change significantly the relevant range of uncertainty inherent in patent litigation.

Fourth, even if parties could predict the *law* applicable to their case, they very often do not have anything close to perfect information about the facts of the case. It is in the discovery process where parties gain information about the strengths and weaknesses of the other side's case, and discovery, of course, takes place after filing.

Finally, if uncertainty prior to filing were significant (and we doubt that it would be in many cases), then one side could simply file an action (either for infringement or for a declaratory judgment) and learn which circuit will ultimately hear the appeal. Settlement and licensing negotiations could then proceed prior to any significant litigation or discovery.

Our proposal would also contemplate random assignment of appeals from the PTO to the two or more circuits authorized to review the agency's decisions. It could be argued (and, indeed, in many of the presentations of this Article to various groups, it was argued) that this proposal will leave the agency in a difficult position because it would not know which circuit

¹⁸⁵ Even if the parties knew that the plaintiff would prefer to file in one circuit, that would not provide certainty because in many instances the defendant could bring a declaratory judgment action, which could be filed in the defendant's choice of circuit.

¹⁸⁶ See *supra* note 38.

law to apply during the prosecution of the patent application. For at least two reasons, we are confident that this concern is not valid. First, random circuit assignment is *already* prevalent in administrative practice. In other regulatory areas, an administrative agency will often know in advance that judicial review of its decision could be sought in more than one circuit court but will not know in which circuit review will be sought. Moreover, if an administrative proceeding affects more than one party, each party is entitled to file a petition for judicial review, and those petitions may be filed in different circuits. Multiple petitions filed in multiple circuits is such a common situation that Congress specifically addressed it in 28 U.S.C. § 2112(a)(3), which provides for the several petitions for review to be consolidated and randomly assigned to one of the circuits in which review was sought.¹⁸⁷ Thus, in other administrative areas, an agency frequently will not be certain which circuit court will review its decision.

Second, although we do not think it necessary that patent law be treated differently from other areas of administrative law, there is nevertheless a simple solution if knowledge of the reviewing circuit is seen as especially essential to the patent prosecution practice: At the time of its filing, each patent application could be randomly assigned to a reviewing circuit. As with random assignment of district court cases, the same assignment would have to be maintained if the application were abandoned and then re-filed as a new application, but such gamesmanship would be at least as easy to prevent in the application process as in litigation.

B. The Claim Interpretation Problem

In addition to concerns related to forum shopping, advocates of a strong uniformity principle will argue against a multi-circuit framework by pointing to the possibility of disparate claim constructions. Envision a situation where Patentee sues for infringement against Defendant 1 in District Court A and receives a broad claim construction. Several months later, Patentee sues for infringement against Defendant 2 in District Court B and receives a narrow construction on the same language that was at issue in District Court A. Issue preclusion will not be available to Patentee.¹⁸⁸ Under our random jurisdictional model, the district court decisions may be appealed to different circuits. It is plausible, and perhaps likely, that each

¹⁸⁷ 28 U.S.C. § 2112(a)(3) (2000) provides that where any agency “receives two or more petitions for review of an order,” it shall “notify the judicial panel on multidistrict litigation,” which in turn “shall, by means of random selection, designate one court of appeals, from among the courts of appeals in which petitions for review have been filed . . . and shall issue an order consolidating the petitions for review in that court of appeals.”

¹⁸⁸ Under the doctrine of nonmutual collateral estoppel, a party may be estopped from relitigating an issue that has previously been decided against the party if the party had a full and fair opportunity to litigate the issues in the prior proceeding. See *Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found.*, 402 U.S. 313 (1971). Because Patentee was a party to the prior proceeding but the accused infringer was not, estoppel could apply only against Patentee on issues decided against it.

construction will be affirmed, thus leading to two different interpretations of the same claim language. Defendant 3, subsequently sued by Patentee in District Court C, will no doubt attempt to invoke the doctrine of issue preclusion and ask the judge to adopt the claim interpretation of District Court B.¹⁸⁹ The result is a patent duopoly for Patentee, a broad claim scope against Defendant 1 and a narrower scope against Defendants 2 and 3 (and potentially more defendants, all of whom will seek to take advantage of District Court B's narrow construction).

We do not view this scenario as problematic. First, under the present institutional structure, it is entirely possible for a patentee to be "stuck with" a narrow claim construction against a would-be defendant. For example, Patentee sues Defendant 1 in district court and, instead of receiving a broad construction, is given a narrow construction that is affirmed by the Federal Circuit. Because of the doctrine of issue preclusion, this scenario is likely to play out in a polycentric model if Patentee receives a narrow construction in its initial litigation, as evidenced above; adding more circuit courts, therefore, is of little moment in this regard.

Second, uniformity may be such an overriding objective for some circuit judges that considerable deference may be given to prior non-binding circuit decisions.¹⁹⁰ For instance, Patentee receives a broad construction from District Court A, which is affirmed by the circuit court. In a subsequent litigation, another circuit court, in the interest of uniformity, may be

¹⁸⁹ See *Abbott Labs. v. Dey, L.P.*, 110 F. Supp. 2d 667 (N.D. Ill. 2000) (applying issue preclusion against plaintiff-patentee); *TM Patents, L.P., v. IBM Corp.*, 72 F. Supp. 2d 370 (S.D.N.Y. 1999) (same). But some district courts have refused to apply issue preclusion against plaintiff-patentees based on finality concerns. See, e.g., *Kollmorgen Corp. v. Yaskawa Elec. Corp.*, 147 F. Supp. 2d 464, 468 (W.D. Va. 2002) ("As more than forty percent of all *Markman* Orders are reversed by the Federal Circuit, logic dictates that for these claim constructions to have a preclusive effect, the litigants must first have an opportunity to seek Federal Circuit review."); *Graco Children's Prods., Inc. v. Regalo Int'l, LLC*, 77 F. Supp. 2d 660, 664 (E.D. Pa. 1999) (issue preclusion did not apply to patentee because the court's interpretation of the patent was not essential to the judgment in the previous case). See also Nard, *supra* note 133, at 78–80 (arguing for application of issue preclusion).

¹⁹⁰ If the appeal is heard by the same circuit court that heard the initial litigation against Defendant 1, the circuit court may apply stare decisis as a basis for adopting the prior claim construction. While stare decisis may foster uniformity, it is not without problems. Most notably, it denies Defendant 2 of his day in court, a fundamental tenet of issue preclusion. See *Texas Instruments, Inc. v. Linear Tech. Corp.*, 182 F. Supp. 2d 580, 589–90 (E.D. Tex. 2002) (rejecting applicability of stare decisis in the context of claim construction). We are not aware of any Federal Circuit decision that has employed the doctrine of stare decisis to claim interpretation, despite the Supreme Court's acknowledgement of the doctrine's applicability. See *Markman v. Westview Instruments, Inc.*:

[W]hereas issue preclusion could not be asserted against new and independent infringement defendants even within a given jurisdiction, treating interpretive issues as purely legal will promote . . . intrajudicial certainty through the application of stare decisis on those questions not yet subject to interjurisdictional uniformity under the authority of the single appeals court.

517 U.S. 370, 391 (1996). See also *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1479 (Fed. Cir. 1998) (Newman, J., dissenting) ("The promise of uniformity and finality, flowing from decisions of national effect, is a failed promise if we are not bound by stare decisis in our own claim interpretation.").

persuaded to adopt the prior circuit court's construction.¹⁹¹ Of course, there may not be subsequent litigation if Patentee benefits from a broad claim interpretation in his first enforcement action. Patentee may be able to leverage this scope at the bargaining table and impose a settlement on the subsequent alleged infringer.

Third, as Carl Shapiro has noted, patents are a probabilistic property right, each assuming a certain degree of uncertainty regarding validity and commerciality.¹⁹² A disparate claim construction is a risk associated with patent enforcement.¹⁹³ And lastly, there are administrative responses available to the extent that disuniformity becomes a cause for concern. Under the administrative law doctrine of primary jurisdiction, a district court could "refer" the issue of claim construction to the PTO.¹⁹⁴ The PTO's interpretation would be entitled to judicial deference under standard principles of administrative law, and the interpretation would apply nationwide.

C. Choice of Law and Stare Decisis

Broadening appellate options raises a choice of law issue. The newly involved appellate courts will have the choice of either affirmatively adopting Federal Circuit precedent, which would largely defeat the purpose of our proposal, adopting their own pre-1982 case law, or starting "fresh." We

¹⁹¹ Indeed, it is not uncommon for circuits to look to each other for guidance in matters of statutory construction, common-law approaches, and in numerous other situations.

¹⁹² See Carl Shapiro, *Antitrust Limits to Patent Settlements*, 34 RAND J. ECON. 391, 395 (2003) (stating that "all real patents are *less strong* than the idealized patent grant usually imagined in economic theory" and what a "real patent" provides is not a right to exclude "but rather the more limited 'right to try to exclude'" by suing for patent infringement in court). See also Ian Ayres & Paul Klemperer, *Limiting Patentees' Market Power Without Reducing Innovation Incentives*, 97 MICH. L. REV. 985 (1999) (viewing patents as probabilistic); Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75 (2005) (same).

¹⁹³ Nonetheless, a duopolistic patent—one with a dual claim construction—can still be a powerful tool. Even a narrow scope resulting from the initial action will have some leveraging authority because while issue preclusion may be available to a subsequent alleged infringer, there always remains a degree of uncertainty in litigation. See *Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy: Hearings Before the Fed. Trade Comm'n & Dep't of Justice, Antitrust Div.* 107–12 (July 11, 2002), available at <http://www.ftc.gov/opp/intellect/020711trans.pdf> (statement of Judge T.S. Ellis, III, U.S. District Court for the Eastern District of Virginia) (discussing the "pernicious effect" of the high costs of patent litigation and how these costs deter potential competitors of patentees from entering the market and challenging the validity of patents); see also Joshua D. Sarnoff, *Abolishing the Doctrine of Equivalents and Claiming the Future After Festo*, 19 BERKELEY TECH. L.J. 1157, 1200–01 (2004) ("Even when patents do not convey market power, patentees may exploit uncertainty regarding the scope of patents to deter competition by posing the threat of high-cost infringement litigation. A very large percentage of patents asserted in litigation are found to be invalid. Patentees thus routinely and improperly deter (or impose costly litigation on) their competitors. Litigation risks are increased (and competition is even more strongly deterred) by the threat of punitive treble damage awards and attorneys fees.").

¹⁹⁴ See generally John F. Duffy, *On Improving the Legal Process of Claim Interpretation: Administrative Alternatives*, 2 WASH. U. J.L. & POL'Y 109 (2000) (setting forth in detail the judicial authority for applying primary jurisdiction to claim construction and the implications of such a development).

think each new entrant should begin with a clean slate. Both the Federal Circuit precedents and the pre-1982 precedents would be treated as persuasive but not controlling authority, and thus a panel could diverge from either sets of precedents without a circuit hearing the case en banc.¹⁹⁵ (Supreme Court precedent would, of course, be binding on all circuits.) The expectation is that some Federal Circuit precedent will be confirmed, some questioned, and some rejected, which will lead to experimentation and tested, incremental innovation. As in most other areas of federal law, the Supreme Court will be forced to intervene to settle an issue that has had sufficient time to percolate as inter-circuit conflict.

The strongest argument against this choice of law rule is that it could lead to uncertainty and disruption, especially in the short term. It is true that allowing more circuits to have jurisdiction may, at the margin, increase uncertainty to some degree. As we discuss above in Part III.A, the additional uncertainty has to be considered in the context of the more general uncertainties associated with patent rights, claim construction, panel dependency, possible changes in Federal Circuit precedent, and possible overturning of Federal Circuit precedent by the Supreme Court. We believe that the marginal amount of additional uncertainty, if any, will be relatively small in comparison to that of these other sources. Moreover, if additional uncertainty is created, its costs are likely to be counterbalanced by the benefits of restoring the traditional peer judicial dialogue that characterizes the common-law process.

The short-term consequences of the choice of law rule are more troubling, for it seems to conflict with the traditional common-law value of incremental change. However, our proposal is not intended to be, and should not be viewed as, some sort of quick fix to current controversies in the patent field. The proposal is instead a long-term project seeking a judicial structure that balances the benefits of centralization and decentralization. As previously noted, one benefit of centralization is that it allows decision-makers to develop a sufficient degree of expertise in the relevant subject matter. The patent expertise of the newly involved circuits would be lowest when the courts first began hearing patent cases. It might be unwise for those circuits to bind themselves immediately to a set of circuit precedents that could then be overturned only through the en banc process. A transitional process might be better. During the first few years with their new patent jurisdiction, the circuits might maintain a substantial presumption that Federal Circuit precedent will be followed, with the concomitant rule

¹⁹⁵ Thus, circuit courts vested with new patent jurisdiction should not follow the approach adopted by the Eighth Circuit in *Schinzing v. Mid-States Stainless, Inc.*, 415 F.3d 807 (8th Cir. 2005). After the Supreme Court's decision in *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826 (2002), restored appellate jurisdiction to the regional circuits where patent issues are presented solely by counterclaim, *Schinzing* held that the Eighth Circuit would "adopt the Federal Circuit's precedent on substantive issues of patent law," 415 F.3d at 811, and thus prevented the Eighth Circuit from providing any peer dialogue with the Federal Circuit on matters of patent law and policy.

that a decision merely adhering to Federal Circuit precedent will presumptively *not* create a binding precedent in the new circuit. Thus, during the transition period, panels in a new circuit would have three choices: They could follow Federal Circuit precedent without creating a binding circuit precedent (presumptively favored); depart from Federal Circuit precedent and create binding circuit precedent (presumptively disfavored); or confirm Federal Circuit precedent as a binding precedent for the new circuit (again, presumptively disfavored). The presumption against creating binding circuit precedent would be less onerous as the court gained experience with patent cases, and it would eventually terminate at the end of the transition period. Though this transition rule could be adopted by the newly involved circuits themselves,¹⁹⁶ it could also be written into the legislation conferring the new jurisdiction.

D. A Historical Perspective on Uniformity in Patent Law

When discussing uniformity in our patent system, it is important to distinguish between two types of uniformity: “application-based” and “federalized.” At the heart of application-based uniformity is a centralized decisionmaking authority, such as the Federal Circuit. Federalized uniformity means having a decentralized federal patent system governed by a uniform statutory scheme. This type of uniformity was achieved in the late eighteenth century when Article I, Section 8, Clause 8 was adopted at the Constitutional Convention in Philadelphia and in 1790 when Congress enacted the first patent statute.¹⁹⁷ Federalization was an important component in expanding the market for patents. As Zorina Khan writes, “[j]urisdiction of patent law and litigation was entrusted to the federal courts because of the prevalent concern with fostering interstate commerce and national markets.”¹⁹⁸ More so today than in the eighteenth century, to compromise federalized uniformity—to allow each of the fifty states to enact their own

¹⁹⁶ Rules of circuit precedent and *stare decisis* are judge-made rules subject to adjustment in the traditional common-law process. In instances where a new circuit court has been created by dividing an older circuit, the new court has typically adopted as circuit precedent the decisions of the old circuit as of the date of the split. *See, e.g., Bonner v. City of Pritchard*, 661 F.2d 1206, 1207 (11th Cir. 1981) (en banc) (adopting as binding circuit law, in the first decision of the Eleventh Circuit, all Fifth Circuit decisions rendered prior to October 1, 1981, the date the new circuit court was created). In the past, such judge-made rules have been qualified and adjusted to smooth the transition of jurisdiction. *See, e.g., AmBrit, Inc. v. Kraft, Inc.*, 812 F.2d 1531, 1535–36 n.13 (11th Cir. 1986) (holding that a Fifth Circuit decision rendered twenty-three days *after* the creation of the Eleventh Circuit should nonetheless be afforded “great weight” because it is based entirely on Fifth Circuit precedents coming before the creation of, and thus binding on, the Eleventh Circuit). Our suggested transitional rule is a reasonable one that could be adopted through the common-law process, though it would probably be best if the authorizing statute itself addressed the issue.

¹⁹⁷ *See* Duffy, *supra* note 1, at 691 (“[T]he United States has maintained a uniform, national patent system since 1790.”).

¹⁹⁸ B. ZORINA KHAN, *THE DEMOCRATIZATION OF INVENTION: PATENTS AND COPYRIGHTS IN AMERICAN ECONOMIC DEVELOPMENT, 1790–1920*, at 69–70 (2005).

patent systems—would render the patent system essentially inoperable.¹⁹⁹ In contrast, the federalized system of patent law could be improved by adjusting to balance the desire for uniformity with the need for some diversity of ideas and peer judicial dialogue on those ideas.

CONCLUSION

Consideration of patent law's appellate institutional architecture invokes a more general problem that manifests itself in numerous fields, including law, politics, economics, and business. This problem relates to the difficulty of trying to gauge the respective benefits and shortcomings of, on the one hand, centralization and uniformity and, on the other hand, decentralization and diversity. Patent law, since 1982, has opted for the former. But uniformity has its costs and is only one of several considerations that should guide the institutional design of our patent system. Equally important guiding principles include diversity and competition, both of which have been largely absent from patent law for more than twenty years. The Federal Circuit is an important institution, but it suffers from structural constraints that deprive the court of sister-circuit competition and a mechanism that would allow for incremental and tested innovations in the law. In this Article, we have framed the issue of institutional design as one of optimization, and have argued that reconfiguring patent law's appellate design to include two or three additional circuit courts trends towards optimality more so than the current centralized structure.

¹⁹⁹ Having a federalized, uniform patent system is something we take for granted today as a necessary feature in the national, indeed global, marketplace for innovations. For a discussion of the importance of national uniformity and patent law in the eighteenth century, see Craig Allen Nard & Andrew P. Morriss, *Constitutionalizing Patents: From Venice to Philadelphia*, 2 REV. L. & ECON. 223 (2006). See also Duffy, *supra* note 1, at 691 (“Accepting the value of diversity does not lead to the conclusion that each of the fifty states should administer its own patent system.”).

