No. _____

IN THE

Supreme Court of the United States

TRADING TECHNOLOGIES INTERNATIONAL, INC.,

Petitioner,

v.

IBG, LLC, et al.,

Respondents.

On Petition for a Writ of Certiorari to the United States Court of Appeals For the Federal Circuit

PETITION FOR WRIT OF CERTIORARI

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QUESTION PRESENTED

In *Alice Corp. Pty. Ltd. v. CLS Bank International*, 573 U.S. 208 (2014), the Court declined once again to define the scope of the "abstract idea" exception to patent eligibility created by this Court. It did, however, assume that claims that "purport to improve the functioning of the computer itself" would be patent eligible. Here, panels of the Federal Circuit held, in conflict with other panel decisions, that computer-implemented inventions providing useful functionality to users, but without improving the basic functions of the computer itself in a manner akin to improved hardware, are directed to abstract ideas and therefore patent ineligible.

Accordingly, the questions presented are:

1. Whether computer-implemented inventions that provide useful user functionality but do not improve the basic functions of the computer itself are categorically ineligible for patent protection.

2. Whether the Court should overrule its precedents recognizing the "abstract idea" exception to patent eligibility under the Patent Act of 1952.

PARTIES TO THE PROCEEDING AND RULE 29.6 STATEMENT

Petitioner Trading Technologies International, Inc., was the appellant below.

Respondents IBG, LLC, and Interactive Brokers, LLC, were appellees below. Respondent United States was an intervenor below concerning an issue not raised in this petition.

Petitioner has no parent corporation, and no publicly held company owns 10 percent or more of its stock.

STATEMENT RELATED PROCEEDINGS

There are no other court proceedings "directly related" to this case within the meaning of Rule 14(b)(iii).

The covered-business-method review proceedings underlying the Federal Circuit decisions subject to this petition were filed in response to a patent-infringement action, *Trading Techs. Int'l, Inc. v. BGC Partners, Inc.*, No. 1:10-cv-00715 (N.D. Ill. filed Feb. 3, 2010). That infringement action also asserted the patents at issue in *Trading Techs. Int'l, Inc. v. IBG LLC*, No. 19-353 (petition filed Sept. 16, 2019), which were then subject to covered-business-method review proceedings and appeal to the Federal Circuit. Trading Technologies' petition in that case, which is pending, presents the same questions for review as this one.

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PETITION FOR WRIT OF CERTIORARI

This petition raises fundamental questions concerning the patent eligibility of computer-implemented inventions and the statutory basis, if any, of the "abstract idea" exception to the Patent Act's broad definition of patentable subject matter that Congress intended to reach "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980). In the Federal Circuit, that judge-made exception has come to swallow the general rule of patentability for useful, innovative tools that aid human endeavor on the arbitrary basis that they are wrought in computer code rather than steel. Yet the Federal Circuit is at war with itself over the exception's contours and application to computer-implemented inventions, with one line of decisions limiting patent eligibility to inventions that improve a computer's "basic functions" in a manner akin to hardware improvements and another line declining to recognize that limitation.

Petitioner Trading Technologies International, Inc. is a casualty of that conflict. It developed an innovative graphical interface known as the "Ladder Tool" that revolutionized professional trading, and it secured patents on its inventions. One Federal Circuit panel rebuffed claims that two of those patents were directed to abstract ideas, on the basis that their claimed inventions "improve[] the accuracy of trader transactions." *Trading Techs. Int'l, Inc. v. CQG, Inc.*, 675 F. App'x 1001, 1006 (Fed. Cir. 2017) [*CQG*]. Yet the decisions below held the opposite: that three other

patents in the same family and similarly directed to improving user functionality were abstract and therefore ineligible, reasoning those patents "focus[] on improving the trader, not the functioning of the computer." Pet.App.5. The decisions below simply declined to address conflicting Federal Circuit authority involving the same patent family or the line of other Federal Circuit decisions adopting and applying that authority's reasoning. *See, e.g.*, *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1009 (2018) (applying *CQG*, *supra*, to uphold eligibility of user-interface patent). The decisions below thereby exemplify the stark divide in Federal Circuit precedent under Section 101, even more so than the decision at issue in *Trading Techs. Int'l, Inc. v. IBG LLC*, No. 19-353 (petition filed Sept. 16, 2019), which presents the same questions for review.

The Federal Circuit's current confusion over the patent eligibility of computer-implemented inventions can be traced to an offhand example from this Court's last decision on the "abstract idea" exception, *Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 573 U.S. 208, 216 (2014). *Alice* observed that the patent claims it considered were abstract and unpatentable because they "do not, for example, purport to improve the functioning of the computer itself." *Id.* at 225. One line of Federal Circuit decisions seized on that example to restrict patent protection for computer-implemented inventions to only those that make "improvements to computer technology just as hardware improvements can." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327,

1335 (Fed. Cir. 2016). All others, its rule holds, are directed to "abstract ideas" and therefore unpatentable.

Yet the mistaken notion that computer-implemented inventions must improve what the Federal Circuit has called the "basic functions" of a computer in order to be eligible for patent protection improperly disregards their use and nature as tools and is, for that reason, at odds with the text and purpose of the Patent Act, as well as this Court's decisions interpreting it. In particular, *Bilski v. Kappos*, 561 U.S. 593, 602 (2010), condemned what was effectively the same categorical bar for patentability that the Federal Circuit has now re-erected.

The Court's review is necessary to correct that error and to resolve an intra-circuit split in authority on this issue. While one line of Federal Circuit decisions holds computer-implemented inventions to be ineligible if they do not make hardware-like improvements to computers' basic functions, another line holds the opposite. A number of decisions have even upheld patent protection for interactive graphical interfaces, in plain and open conflict with the decisions below. The Federal Circuit's jurisprudence on patent eligibility is in complete disarray, what that court's former chief judge called a state of "chaos." The growing pile of conflicting decisions on patent eligibility means that outcomes in many cases are increasingly a function of the random selection of panel members more than the consistent application of law. The consequences of this chaos are only too predictable: legal uncertainty,

reduced investment in innovation, the collapse of patent markets, and enormous damage to the national economy and our international competitiveness.

This is an ideal vehicle for the Court to resolve the Federal Circuit's evident confusion and conflict. It involves a family of patents that have been subject to both of the Federal Circuit's conflicting rules on eligibility. *Compare* Pet.App.5 (holding inventions ineligible for patenting because they "focus[] on improving the trader, not the functioning of the computer"), *with CQG*, 675 F. App'x at 1006 (upholding patent eligibility of related inventions because they "improve[] the accuracy of trader transactions"). It therefore provides a clear opportunity to review the Federal Circuit's inconsistent approaches to patent eligibility, clarify the scope of the "abstract idea" exception, and provide much needed guidance to the lower courts on how to assess the patent eligibility of computer-implemented inventions.

The Court should also use these cases as an opportunity to consider an overriding question that begs for answer: is the judge-made "abstract idea" exception even consistent with the text of the Patent Act of 1952? The Court's decisions have assumed as much, but the text and structure of the statute indicate otherwise. By finally answering that question, the Court could, once and for all, dispose of an unworkable and ill-considered vestige of ancient, obsoleted jurisprudence and put an end to the decades of turmoil as

courts have struggled to apply the inherently undefinable and shapeless "abstract idea" exception to the inventions of the modern age.

OPINIONS BELOW

The Federal Circuit's opinion and decision are unreported and reproduced at Pet.App.1 and Pet.App.6. The decisions and orders of the Patent Trial and Appeal Board are unreported and reproduced at Pet.App.12, Pet.App.66, and Pet.App.150.

JURISDICTION

The judgments of the court of appeals were entered on May 21, 2019, and July 1, 2019. With respect to the first judgment, an application to extend the time to file a petition for a writ of certiorari to October 18, 2019, was granted on August 3, 2019, *see* 19A171; in addition, the Federal Circuit denied a timely petition for rehearing on September 3, 2019, Pet.App.9. With respect to the second judgment, a timely petition for rehearing was denied on September 18, 2019. Pet.App.11. This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

Section 101 of the Patent Act provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor,

> subject to the conditions and requirements of this title.

35 U.S.C. § 101.

Section 100(b) defines "process" to mean "process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." 35 U.S.C. § 100(b).

STATEMENT

A. Statutory Background

The Constitution empowers Congress to "promote the Progress of Science and useful Arts" by securing to "Inventors the exclusive Right to their…Discoveries." U.S. Const., Art. I, § 8, cl. 8. In exercise of that power, Congress enacted the Patent Act of 1952, which confers on those who obtain a patent the right to exclude others from making, selling, or using the patented invention for a specified period of time. 35 U.S.C. § 154(a).

The substantive requirements for a patent are set forth in 35 U.S.C. § 101–103. Sections 102 and 103 require that a claimed invention be novel and non-obvious, such that it actually contributes to the state of knowledge in the relevant scientific or technological field.

By contrast, Section 101 imposes a "threshold test" for patent eligibility by defining the subject matter eligible for a patent. *Bilski*, 561 U.S. at 602. It specifies that a patent can be obtained for "any new and useful process, machine, manufacture, or composition of

matter, or any new and useful improvement thereof." *Id.* § 101. The Act further defines "process" to encompass any "process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." *Id.* § 102(b). Through that broad language, "Congress intended statutory subject matter to include anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citation and quotation marks omitted).

This Court has created three non-statutory exceptions to Section 101's broad subject-matter eligibility: "Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 573 U.S. 208, 216 (2014) (citation and quotation marks omitted). The Court has repeatedly declined to define or "delimit the precise contours of the 'abstract ideas' category." *Id.* at 221. It has, however, warned that courts must "tread carefully in construing this exclusionary principle lest it swallow all of patent law." *Id.* at 217.

In *Alice*, the Court confirmed the two-step framework for distinguishing patents that claim ineligible concepts like abstract ideas from those that claim patent-eligible applications of those concepts. First, the court "determine[s] whether the claims at issue are directed to…patent-ineligible concepts." *Id.* If so, the invention is not patent eligible unless "it contains an 'inventive concept'" sufficient to "'transform' the nature of the claim into a patent-eligible application." *Id.* at 221.

B. Trading Technologies Invents and Patents Useful Graphical Tools for Professional Traders

Petitioner Trading Technologies develops and provides software, infrastructure, and data services for proprietary traders, brokers, money managers, commodity trading advisors, hedge funds, commercial hedgers, and risk managers, among others. At issue in this case are three Trading Technologies patents covering interactive user-interface tools of its trading software.[1]

1. The '768 and '382 Patents' "Ladder Tool"

The '768 and '382 patents are members of a family of patents for an interactive graphical user interface for electronic trading known as the "Ladder Tool" that addresses several problems with pre-existing technology by overcoming prior interfaces' trade-off between speed and accuracy. Conventional trading software often included "order tickets" (Figure 1 below) that required traders to set trade parameters—quantity, price, etc.—manually. Order tickets were accurate, but slow and ungainly, leading to the risk of missed trading opportunities. Pet.App.368, Pet.App.434.

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[1] They are U.S. Patent Nos. 7,685,055 (the "'055 patent"), 7,693,768 (the "'768 patent"), and 7,725,382 (the "'382 patent").

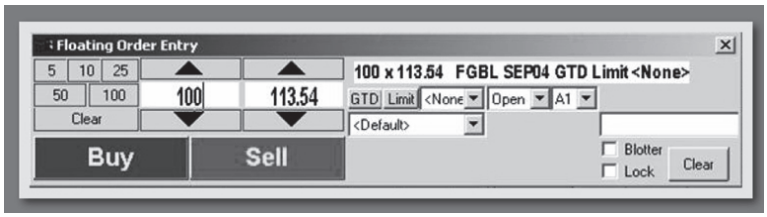
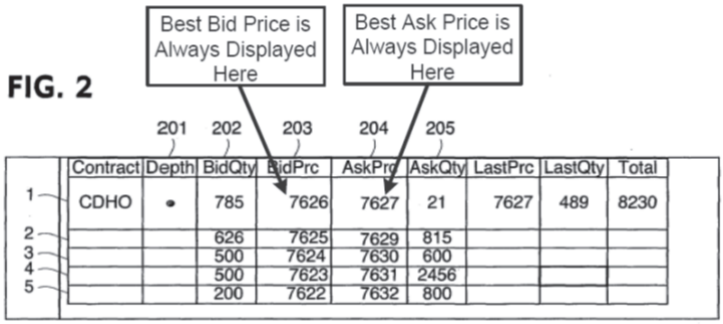


FIG. 1

Another conventional interface was the "market grid" (Figure 2 below). A market grid displays rows of constantly updating market prices, with the best prices in fixed locations, often at the top of a column. Users can simply click on a price to place an order at that price. Although faster than the order-ticket interface, the design of the market grid sacrificed accuracy: with the price-numbers constantly changing, market grid interfaces left users always at risk of clicking just as the prices change and thereby entering orders at unintended prices, even when they click in the intended location. Moreover, the market grid displays a constantly updating jumble of numbers, making it difficult for users to ascertain how the market is moving. Pet.App.367–68.

FIG. 2



CAFC.JA.212.[2]

The Ladder Tool (Figure 3 below), invented by Trading Technologies' Harris Brumfield, is an elegant solution to the problems with conventional interfaces, and it revolutionized trading software and the trading industry. Like the market grid, it allows the user to enter an order with a single action like a mouse-click. Pet.App.371. But that's where the similarities end. Rather than the prices in individual cells changing based on changes in the market, the Ladder Tool provides an order-entry region with fixed locations corresponding to particular price levels along a price axis, where those fixed locations continue to correspond to those price levels even if the market changes. Pet.App.378–79. Because of that, the Ladder Tool ameliorates the problem of users entering orders at unintended prices and so is more accurate than the market grid for entering orders at specific prices. In addition, the arrangement of fixed locations along the price axis facilitates fast and intuitive order entry, which gives traders an edge in active markets. The Ladder Tool also displays and updates indicators along the price axis by moving them relative to the price axis when a new best bid or best ask price is received. As a result, the Ladder Tool provides a valuable real-time visual representation of changes in the market.

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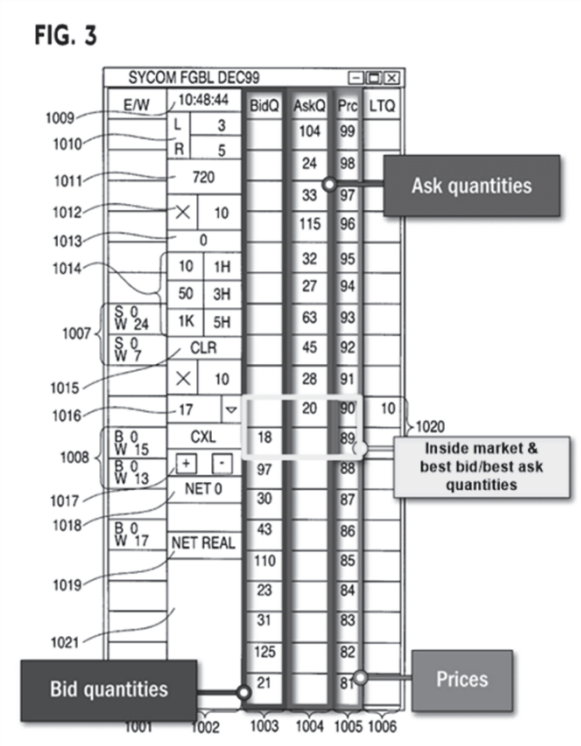
[2] "CAFC.JA" refers the joint appendix in Federal Circuit case no. 18-1489.



Pet.App.360.

The Ladder Tool also makes advances over prior art by integrating traders' already-placed orders (known as "working orders") in the same interface as current market information and order-entry. Conventional interfaces displayed working orders in a separate window, which traders would have to consult and access to keep track of and manage their orders. That prior technology had several drawbacks. First, it was distracting: for example, to cancel a working order, the

user would have to find and access the separate window, find the relevant working order in that window, and then cancel it, all of which took the user's attention off of the current market. Second, to take actions on working orders, multiple steps were typically required, extending the period of distraction. Third, because working orders were in a separate window, there was no indication of the relationship between working orders and current market conditions. *See* Pet.App.286.

The Ladder Tool introduced a new approach to working orders that solved these problems. It displays indicators for working orders along the same price axis as the best bid and best ask indicators at locations on that axis corresponding to orders' prices, and it allows users to cancel orders with a single action like a mouse-click. As a result, users can keep track of working orders without having to divert their attention from current market conditions, they can visualize how their working orders stand relative to current market conditions and movements in the market, and they can quickly and accurately manage their working orders. Pet.App.365–66.

In these ways, the Ladder Tool enhances speed, accuracy, and usability. Implemented in Trading Technologies' successful MD Trader software, it quickly became an essential tool for traders. *See generally* J. Peter Steidlmayer & Steven Hawkins, Steidlmayer on Markets: Trading with Market Profile 206–11 (2d ed. 2003) (describing how the "superior" Ladder Interface

revolutionized trading software and deeming its inventor a "creative genius"); Michael Gorham & Nidhi Singh, Electronic Exchanges: The Global Transformation from Pits to Bits 271–73 (2009); CAFC.JA.278 (describing the invention as a revolutionary "paradigm change" in the trading industry).

The '768 and '382 patents claim important features of the Ladder Tool. Claim 1 of the '768 patent is directed to the combination of the price axis, indicators displayed along and moved relative to the price axis when the best bid and best ask prices change, and an order-entry region designed to receive single-action selections in fixed locations that continue to correspond to particular price levels even at times when the market changes to enter orders, which improves speed and accuracy. Pet.App.388–90. Claim 1 of the '382 patent is directed to the combination of the price axis, indicators displayed along and moved relative to the price axis when the best bid and best ask prices change, an entered order indicator displayed along the axis at a price associated with the order, and receiving a single action command selecting the entered order indicator to cancel the order, which improved speed and accuracy in managing working orders. Pet.App.454–55.

2. The '055 Patent's Improvement on the Original Ladder Tool

The '055 patent is a continuation-in-part of the original Ladder Tool patents, which means that it includes the same disclosure as those patents and additional disclosure directed to further improvements. It

addresses a specific shortcoming of the original Ladder Tool: the possibility that current market information would not appear on the user's screen if it was outside the range of the price axis currently displayed. In other words, higher or lower market prices beyond the displayed range would not be visible and would require the user to manually adjust (e.g., scroll) the visible price axis to see and act on current conditions. When market conditions went out of the visible range, that undermined the Ladder Tool's benefits to visualization, speed, and efficiency. Pet.App.278–79.

The '055 patent claims an invention that solves the problem by providing an automatic repositioning feature that keeps current market indicators from moving off the screen, while maintaining the Ladder Tool's visualization and other features. In particular, it repositions the portion of the price axis that is visible on the screen in response to new market information. In that way, users can always see current market conditions, do not miss seeing shifts in conditions, and do not have to manually reposition the visible range to keep on top of the market and trade based on current market conditions. That benefits users in terms of understanding market conditions and keeping on top of trends, ability to assess future trading opportunities, and efficiency in using the Ladder Tool's other functionality. *See* Pet.App.245–47.

Claim 1 of the '055 patent is directed to the combination of the Ladder Tool and automatically repositioning the price axis so that the best bid and best ask prices displayed at a desired location (e.g., the middle)

in response to receiving a command when the best bid or best ask price as within a designated number of price levels from the top or bottom of the displayed price axis. Pet.App.319–21.

C. Procedural Background

In 2010, Trading Technologies brought an infringement action to enforce the patents at issue here and several others. *See generally Trading Techs. Int'l, Inc. v. BGC Partners, Inc.*, No. 1:10-cv-00715 (N.D. Ill. filed Feb. 3, 2010). Subsequently, Congress enacted the America Invents Act, which established a new post-issuance review proceeding known as "covered-business-method review" to permit administrative challenges to patents that claim a method for performing data processing or other operations used in the practice or management of a financial product or service. *See generally Return Mail, Inc. v. U.S. Postal Service*, 139 S. Ct. 1853, 1860 (2019). The defendants in Trading Technologies' infringement action petitioned for CBM review of its patents, and the Patent Trial and Appeal Board instituted proceedings. Pet.App.13, Pet.App.67, Pet.App.151.

In separate decisions, the Board cancelled the three patents at issue here. Relying on Federal Circuit precedent, it held that the '768 patent's claims were directed to an abstract idea, and therefore patent ineli-

gible, because they were not "directed to an improvement in the functioning of a computer." Pet.App.102.[3] It held the same, on the same basis, with respect to the claims of the '382 patent. Pet.App.184. And it held the same on the '055 patent, on the basis that its claimed invention did not "improve[] the functioning of the computer to solve a problem rooted in computer technology." Pet.App.46.

The Federal Circuit affirmed, in two separate decisions. The "*IBG IV*" decision addressed the '768 and '055 patents. Pet.App.4. Neither, it held, was patent eligible; instead, both were directed to abstract ideas because they "focus[ed] on improving the trader, not the functioning of the computer." Pet.App.5. The decision drew that proposition from an earlier decision affirming cancellation of another Trading Technologies patent on the basis of other Federal Circuit decisions holding computer-implemented inventions to be patent ineligible unless they "improve the functioning of the computer" in a manner akin to improved hardware. *Trading Techs. Int'l, Inc. v. IBG*, 921 F.3d 1378, 1384–85 (Fed. Cir. 2019) [*IBG III*] (discussing, *inter alia*, *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1362 (Fed. Cir. 2018)). The "*IBG V*" decision, meanwhile, summarily affirmed the Board's cancellation of the '382 patent. Pet.App.6.

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[3] It also held certain of the '768 patent's claims to be obvious under Section 103, an issue that the Federal Circuit declined to reach.

REASONS FOR GRANTING THE PETITION

Alice stated, in passing, that the patent claims it considered were abstract and therefore patent-ineligible because they "do not, for example, purport to improve the functioning of the computer itself." 573 U.S. at 225. The Federal Circuit has transformed that offhand example into a rule of decision. That rule arbitrarily excludes from patent eligibility many software-based inventions that are no different in their inventiveness and usefulness to human endeavor than physical tools like improved surgical scalpels and forceps that no one would seriously contend are outside the Patent Act's bounds. But even the Federal Circuit cannot agree on what "improve the functioning of the computer" actually means—that is, whether it refers only to inventions that improve a computer's "basic functions" or also approves inventions that use computers to provide new functionality to users. Its confusion is emblematic of the impossibility of consistently administering the unworkably vague "abstract idea" exception to patentability that this Court has assumed, without basis, carried over to the Patent Act of 1952. The Court should grant review to clarify the application of the exception to computer-implemented inventions, to consider once and for all whether the exception remains viable under the Act, and to limit the damage to innovation and the economy caused by the current disarray in the law of patent subject-matter eligibility.

I. The Court Should Grant Review To Clarify the Patent Eligibility of Computer-Implemented Inventions

Review is warranted to resolve a deep divide among Federal Circuit panels over when computer-implemented inventions are eligible for patents. Taking one side in that intra-circuit split, the decisions below apply a pinched interpretation of Section 101 that denies patent protection to software tools like graphical interfaces that provide valuable functionality and benefits to users no different than physical-realm tools. That interpretation misunderstands this Court's decision in *Alice* and conflicts with the Court's interpretation of Section 101 in cases like *Bilski*. It also seriously undermines the Act's central purpose of fostering innovation. This Court's intervention is required to set the law straight, enforce its precedents, and restore Congress's design in the Patent Act.

A. The Federal Circuit Is Divided on the Eligibility of Computer-Implemented Inventions

The Federal Circuit is hopelessly divided on the patent eligibility of computer-implemented inventions. A series of decisions, including the decisions below, holds that software innovations that provide useful functionality to users and improve on prior art are not patent eligible if they do not improve the "basic functions" of the computer itself in a manner akin to improved computer hardware—that is, improving the computer *as a computer*. By contrast, a separate line of Federal Circuit cases, including the *CQG* decision

upholding the eligibility of related Trading Technologies' patents, hold precisely the opposite: that software innovations providing useful functionality to users are patentable irrespective of whether they speed up or otherwise improve the functioning of the computer as a computer. *See* Hung Bui, *A Common Sense Approach To Implement the Supreme Court's Alice Two-Step Framework To Provide "Certainty" and "Predictability*,*"* 100 J. Pat. & Trademark Off. Soc'y 165, 237 (2018) (discussing conflict in Federal Circuit decisions). The Court's review is required to resolve this split in authority and provide much-needed guidance on the patentability of computer-implemented inventions.

1. The decisions below are the latest in a line of Federal Circuit decisions to treat *Alice*'s example of inventions that "improve the functioning of the computer itself" as the *sine qua non* of patent eligibility for computer-implemented inventions. The Federal Circuit set off on this path in a 2016 decision, *Enfish, LLC v. Microsoft Corp.*, which held non-abstract patents for a new kind of "self-referential" database that differed from prior art in how it stores and associates data points with others. 822 F.3d 1327, 1331–32 (Fed. Cir. 2016). Declining to "read *Alice* to broadly hold that all improvements in computer-related technology are inherently abstract," *Enfish* instead drew the line to permit "claims 'purport[ing] to improve the functioning of the computer itself.'" *Id.* at 1335 (quoting *Alice*, 134 S. Ct. at 2358–59). That standard, it stated, is satisfied by software-based inventions that

make "improvements to computer technology just as hardware improvements can," and, to drive the point home, it cited "a chip architecture" and "an LED display" as typifying the kinds of inventions directed to computer functioning that satisfy the standard. The database claims at issue passed muster, it held, because they were directed to "an improvement to computer technology itself"—specifically, the way a computer stores and retrieves data in memory—as opposed to the mere use of a computer to provide functionality to users. *Id*. at 1336; *see also id*. at 1338 (rejecting argument that "the invention's ability to run on a general-purpose computer dooms the claims" because "the claims here are directed to an improvement in the functioning of a computer").

Enfish's reading of *Alice* has since taken root in the Federal Circuit, at least among some panels, as providing the sole test for patent eligibility of computer-implemented inventions. For example, *Electric Power Group, LLC v. Alstom S.A.* applied *Enfish* to hold abstract a claimed system and methods for performing real-time performance monitoring of an electric power grid that included data-collection, analytic, and display components. 830 F.3d 1350, 1351 (Fed. Cir. 2016). Fatal was that the claims, unlike those in *Enfish*, did not focus on "a specific improvement…in how computers could carry out one of their basic functions." *Id*. at 1354.

Applying the same logic, *BSG Tech LLC v. Buyseasons, Inc*. held abstract claims for a "self-evolving generic index" database that allowed users to

more easily and accurately enter and search for data through the use of hierarchical categories and preset parameters. 899 F.3d 1281, 1283–84 (Fed. Cir. 2018). It was not enough that the claimed invention provided useful functionality that "improves the quality of information added to the database and the organization of information in the database." *Id*. at 1287. Instead, once again, the determining factor was that the invention did not improve the basic functioning of the computer itself. *Id*. at 1288.

That is the standard applied by the decisions below. The *IBG IV* panel specifically declined to assess the functionality that Trading Technologies' claimed interactive interface provides to users, instead considered only whether it improved the basic functioning of the computer itself. Pet.App.5 (reasoning that "the challenged patents focus on improving the trader, not the functioning of the computer") (quotation marks and alteration omitted). And, on that basis, it held them abstract and therefore patent ineligible. *Id*. The *IBG V* panel affirmed a holding to the same effect by the Board. *See* Pet.App.7; Pet.App.184 (discussing *Enfish*, *supra*). In that way, Trading Technologies' patents at issue here became the latest casualties of the Federal Circuit's pinched approach to patentability of computer-implemented inventions.

Many others have suffered the same fate through application of the Federal Circuit's "basic functions" standard. *See RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322 (Fed. Cir. 2017) (holding abstract claims for method for constructing composite facial

images because it worked no "improvement in the functioning of a computer"); *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161 (Fed. Cir. 2018) (holding abstract system for analysis and display of investment information because claims were not "directed to improvements in the way computers and networks carry out their basic functions"); *In re TLI Commc'ns LLC Patent Litigation*, 823 F.3d 607 (Fed. Cir. 2016) (holding abstract method and system for "taking, transmitting, and organizing digital images" because it did not "describe a new telephone, a new server, or a new physical combination of the two"); *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335 (Fed. Cir. 2018) (holding abstract claims for graphical "attention manager" system to avoid distractions while working because it was "not an improvement in how computers and networks carry out their basic functions"); *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364 (Fed. Cir. 2017) (holding abstract claims directed to new transit-fare system because they "are not directed to a new type of bankcard, turnstile, or database" and do not "provide a method for processing data that improves existing technological processes").

2. A conflicting line of Federal Circuit decisions correctly recognizes that the functionality provided to users by computer-implemented inventions provides a basis for patent eligibility, irrespective of whether those inventions improve the computer's basic functions. That includes decisions upholding the patentability of interactive interfaces like those at issue here.

For example, *Data Engine Technologies LLC v. Google LLC* held non-abstract claims for a tab-based interface for navigating three-dimensional spreadsheets. 906 F.3d 999, 1003–04 (Fed. Cir. 2018). Considering the invention as a whole, the court recognized that it provided "a specific solution to then-existing technological problems in computers and prior art electronic spreadsheets"—in particular, "a highly intuitive, user-friendly interface." *Id*. at 1008. That user-facing functionality, the court held, was directed to "an improvement in the functioning of computers" and therefore not abstract, despite that the invention in no way improved the basic functions of the computer. *Id*. at 1009 (quotation marks omitted). Notably, *Data Engine* borrowed its reasoning from a previous Federal Circuit decision upholding the patent eligibility of Trading Technologies patents closely related to the three patents at issue here. *Id*. at 1009 (discussing *Trading Techs. Int'l, Inc. v. CQG, Inc*., 675 F. App'x 1001 (Fed. Cir. 2017)).

Likewise, *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc*., held non-abstract patents claiming interactive interfaces for mobile phones that allowed users to access common data and applications more quickly and easily. 880 F.3d 1356, 1359–60 (Fed. Cir. 2018). The invention, it explained, "improves the efficiency of using the electronic device" and was therefore "directed to an improvement in the functioning of computers, particularly those with small screens." *Id*. at 1363. And so it was patent eligible, again notwith-

standing that the claims did not recite a new electronic device or anything akin to a hardware improvement. *Id*.

Similarly, *DDR Holdings, LLC v. Hotels.com, L.P.*, upheld patents claiming a system for creating "composite" web pages that allows websites to embed content from third-party merchants—for example, displaying product information from the third party while maintaining the original website's "look and feel." 773 F.3d 1245 (Fed. Cir. 2014). That invention, the court explained, "address[es] the problem of retaining website visitors that, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be instantly transported away from a host's website after 'clicking' on an advertisement." *Id*. at 1257. Because the claims at issue "specify how interactions with the Internet are manipulated to yield a desired result," it was not abstract. *Id*. at 1258. *See also Ancora Tech., Inc. v. HTC America, Inc.*, 908 F.3d 1343 (Fed. Cir. 2018) (holding non-abstract method for software-license enforcement based on their functionality addressing the "vulnerability of license-authorization software to hacking"); *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016) (holding non-abstract method for generating "accurate and realistic lip synchronization and facial expressions in animated characters" because it was "directed to a patentable, technological improvement over the existing, manual 3–D animation techniques").

What *Data Engine*, *Core Wireless*, and *DDR* have in common is that they focused the Section 101 inquiry on user functionality—in other words, assessing the software itself as a tool—and not whether the invention improves the computer's "basic functions" in some manner akin to a new chip architecture or LED display. Those decisions, and others like them, plainly conflict with those applying the "basic functions" standard, including the decisions below. This conflict having been sustained for at least three years now, through scores of decisions, the Court's intervention is required to resolve it.

B. The Federal Circuit's "Basic Functions" Standard Conflicts with the Patent Act

Review is also warranted because the decisions below are wrong. The Federal Circuit's "basic functions" standard conflicts with the Patent Act and this Court's decisions on the "abstract idea" exception.

The decisions below apply a categorical bar for patentability of software-based inventions far broader and less tenable than the one condemned in *Bilski*. As the Court explained in *Bilski*, Congress intended the Act to protect "unforeseen inventions" and so any "categorical rule denying patent protection for 'inventions in areas not contemplated by Congress…would frustrate the purposes of the patent law.'" 561 U.S. at 605 (quoting *Chakrabarty*, 447 U.S. at 315). On that basis, *Bilski* overruled the Federal Circuit's holding that Section 101 "categorically excludes business meth-

ods," even while recognizing that few business methods might ultimately clear the bar for patent eligibility. *Id*. at 606, 609.

The Federal Circuit's "basic functions" standard is equally untenable. It serves as a complete, categorical bar denying patent protection to inventions implemented through software that provides only user-focused functionality. When that bar is applied, it denies patent protection to software-implemented inventions that provide useful functionality to users no differently than a physical tool. It is precisely the sort of categorical bar on new classes of "unforeseen inventions" that *Bilski* held to be inconsistent with the Act's text and purpose. *See* Daniel Brean, *Business Methods, Technology, and Discrimination*, 2018 Mich. St. L. Rev. 307, 327 (2018) (observing that the Federal Circuit's "basic functions" standard is "doctrinally problematic" and conflicts with decisions like *Bilski* rejecting "similar bright-line rules").

The decisions below illustrate the absurdity of the "basic functions" standard and its conflict with the Act's broad subject-matter coverage. That standard holds inventions renowned for their innovation, improvements on prior art, and enormous user benefits to be ineligible for patent protection because they provide useful functionality—that is, tools—directly to users, as opposed to improving the "basic functions" of the computer. Tools that enable their users to perform tasks with greater accuracy, speed, and efficiency are, when wrought in metal, archetypal patentable subject matter. There is no basis in the statutory

text to arbitrarily exclude from patentability tools that are identically the product of human ingenuity, and that provide the same kinds of benefits to users, based on the arbitrary distinction that they are programmed in code rather than forged in steel. To do so quite plainly "'would frustrate the purposes of the patent law.'" *Bilski*, 561 U.S. at 605 (quoting *Chakrabarty*, 447 U.S. at 315).

Also relevant is *Bilski*'s rejection of the machine-or-transformation test as the "sole test for deciding whether an invention is a patent-eligible 'process.'" *Id.* at 604. Little different than that test, the Federal Circuit's "basic functions" standard insists that an invention be "tied to a particular machine or apparatus." *Id.* at 600 (quotation marks omitted). That is so because it regards the computer strictly as a machine and requires that a software-implemented invention act on that machine, to improve its operation as a machine. *See, e.g.*, *Enfish*, 822 F.3d at 1335 (requiring that software-implemented inventions make "improvements to computer technology just as hardware improvements can"). But the "basic functions" standard is far more restrictive than the machine-or-transformation test because it holds even software inventions that *do* effect physical transformation—that literally create a visual, interactive interface on a screen—to be outside the bounds of patentability. *See* Pet.App.21; *BSG Tech*, 899 F.3d at 1288. Having already rebuffed one attempt by the Federal Circuit to close the door to patentability for Information Age

technologies, the Court should not allow this second and even more restrictive attempt to stand.

The Federal Circuit's view that *Alice* authorizes its current turn is unsupportable. *Alice* held that the "introduction of a computer into the claims does not alter the analysis" under the "abstract idea" exception. 573 U.S. at 222. In other words, where a claim is directed to an abstract idea, it is not enough to "add[] the words 'apply it with a computer.'" *Id*. at 223. But it did not address inventions that are directed in the first instance to non-abstract subject matter because they are not directed to "fundamental economic practices" or the like but to new and specific useful functionality—in other words, improved tools. *Id*. at 220–21. And even for claims generally directed to abstract subject matter, *Alice* recognized that an "inventive concept" sufficient for patent eligibility may be found if they "effect an improvement in any…technology or technical field." *Id*. at 225. Nothing in *Alice* even suggests that its one example of that standard—claims that "purport to improve the functioning of the computer itself," *id*.—was intended to state any kind of rule, let alone to serve as the sole test for patent eligibility. Indeed, the opinion's identification of the proper, broader standard—"improvement[s] in *any other technology*"—precludes that implication. *Id*. (emphasis added).

Finally, reflecting its fundamental conflict with the Act, the Federal Circuit's "basic functions" standard is at odds with the Court's decision in *Diamond v. Diehr*, 450 U.S. 175 (1981). The invention at issue in

Diehr applied a general-purpose computer to control rubber curing according to a "well-known mathematical equation" and process. *Id*. at 177–79. The computer was not necessary to effect the curing, but was employed to "significantly lessen[] the possibility of 'overcuring' or 'undercuring,'" *id*. at 187—in other words, to improve accuracy and reliability. And that functionality, the Court held, rendered the invention patentable, as a "novel and useful structure." *Id*. at 188 (quoting *Mackay Radio & Telegraph Co. v. Radio of America*, 306 U.S. 86, 94 (1939)). Yet, under the Federal Circuit's "basic functions" standard, the *Diehr* invention would be considered no more than use of a computer "in its ordinary capacity" and therefore ineligible for patent protection. *Enfish*, 822 F.3d at 1336; *see also* Brean, *supra*, at 329 (noting conflict).

The Federal Circuit has badly erred in taking *Alice*'s offhand example about claims that "purport to improve the functioning of the computer itself" as requiring it to refashion the law of patent eligibility to exclude innovative and useful computer-implemented inventions. The Court's review is required to correct that error and provide sorely needed guidance on the scope of the "abstract idea" exception so that it is not allowed to "swallow all of patent law." *Alice*, 573 U.S. at 217

II. The Court Should Grant Review To Reconsider the Viability of the "Abstract Idea" Exception Under the 1952 Act

The Court has never given careful consideration to the question of whether the "abstract idea" exception

is consistent with the Patent Act of 1952. Its sweeping application in recent years was not by design, but by happenstance, the result of an undefined-in-scope and rarely applied judge-made doctrine colliding with an explosion in computer-facilitated innovation. That collision has belatedly revealed the exception's fundamental unworkability and underscored its conflict with the Act and its purposes. Given the evident confusion of the lower courts and the Patent and Trademark Office in attempting to apply the exception, and the increasingly severe consequences of the exception, the Court should reconsider—really, consider in the first instance—the viability of the "abstract idea" exception under the Act.

A. The "abstract idea" exception conflicts with the Act. The Act's predecessors, the Court has recognized, were intended to authorize a "wide scope" of coverage for the fruits of invention, "embod[ying] Jefferson's philosophy that 'ingenuity should receive a liberal encouragement." *Chakrabarty*, 447 U.S. at 308. The 1952 Act went beyond that already "broad language." *Id*. It subsumed the term "art" in a new one, "process," which it defined with remarkable breadth to encompass any "process, art or method," including "a new use of a known process, machine, manufacture, composition of matter, or material." 35 U.S.C. §§ 101, 102(b). The point, apparent from the text itself and confirmed by the legislative history, was to reach "'anything under the sun that is made by man.'" *Id*. at 309 & n.6 (quoting legislative history and testimony by the Act's "principal draftsman," P.J. Federico).

Rather than give effect to the new Act's language and purpose, the Court simply assumed, without comment or analysis, the continued viability of the exception for "abstract ideas" that it had developed under the Act's predecessors. The first decision to do so was *Gottschalk v. Benson*, 409 U.S. 63 (1972), handed down some 20 years after enactment of the 1952 Act. Lacking any discussion of the statutory question, it merely quotes the relevant statutory provisions in a footnote. *Id*. at 64 n.2. Only years later did the Court recognize that the exception's nature is a "question…of statutory interpretation." *Chakrabarty*, 447 U.S. at 307. Yet it has never attempted to reconcile the exception with the text or structure of the Act.

They are irreconcilable. So far as text is concerned, the Act defines patent eligibility even more broadly than its already sweeping predecessors and on its face brooks no exception. Moreover, the "risk of pre-emption" for unduly broad claimed inventions that the Court has identified as the basis for the "abstract idea" exception, *Alice*, 573 U.S. at 216–17, finds no grounding in the text of Section 101, which contains not a single word speaking to that concept.

As a matter of structure, the concerns over excessive claim breadth that the Court has treated as a matter of patent eligibility under Section 101 improperly intrude on the operation of other provisions of the Act. If claimed inventions exceed what is disclosed in the specification or if they are unsupported by an enabling disclosure, then they are subject to rejection under Section 112. 35 U.S.C. § 112. And if they merely

apply a "well-known" concept to a new but obvious context—for example, the sort of "do it on the computer" claims at issue in *Parker v. Flook*, 437 U.S. 584 (1978), *Bilski*, and *Alice*—then they are subject to rejection under Section 103 for obviousness or even Section 102 for lack of novelty. *See generally* Manual of Patent Examining Procedure § 2173.04 (PTO guidance on "undue" claim breadth). By speaking directly on these points, the Act leaves no room for judicial improvisation through Section 101. *See Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1355 (Fed. Cir. 2016) (Newman, J., concurring); *American Axle & Manufacturing, Inc. v. Neapco Holdings LLC*, – F.3d –, 2019 WL 4865832, at *15–16 (Fed. Cir. Oct. 3, 2019) (Moore, J., dissenting) (faulting majority for invaliding claims for lack of enablement, a Section 112 requirement, through application of the "law of nature" exception).

Worse, the Court's "abstract idea" cases have resurrected, in name and substance, the discredited "inventive concept" standard that the 1952 Act was specifically intended to lay to rest by adopting Section 103's objective non-obviousness inquiry. *See Interval Licensing*, 896 F.3d at 1351–53 (Plager, J., concurring in part and dissenting in part) (discussing, *inter alia*, Giles S. Rich, *The Vague Concept of "Invention" as Replaced by Sec. 103 of the 1952 Patent Act*, 46 J. Pat. Off. Soc'y 855 (1964)); *Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC*, 927 F.3d 1333, 1371–73 (Fed. Cir. 2019) (O'Malley, J., dissenting from de-

nial of rehearing en banc) (discussing history and purpose of the 1952 Act). That conflict with Congress's intentions is unavoidable, given that the shapeless "abstract idea" exception inevitably boils down to a court's gut assessment of whether a claimed invention *feels* inventive—the precise subjective inquiry that Congress rejected, for good reason. *See Lyon v. Bausch & Lomb Optical Co.*, 224 F.2d 530, 536 (2d Cir. 1955) (L. Hand, J.) (commending Congress's decision to retire "perhaps the most baffling concept in the whole catalogue of judicial efforts to provide postulates for indefinitely varying occasions"). Yet, no different than the "inventive concept" standard, the judge-made exceptions to patent eligibility are both "sweeping" and "manipulatable" and thereby lead to "result-oriented judicial action." *American Axle*, *supra*, at *17 (Moore, J., dissenting).

Congress spoke directly on these issues in the 1952 Act, and it is not too late for the Court to listen.

B. Consideration of this foundational issue is urgently needed. Recent advances in technology and the nature of invention have revealed the unworkability of the "abstract idea" exception and heightened the need for its reconsideration by the Court. Until recent years, the Court heard only a handful of cases implicating the exception, reflecting its lack of relevance in the Industrial Age. The dawn of the Information Age, with innovation wrought in computer code instead of steel, has dramatically expanded the exception's application, to the point that it has become a matter of

dispute in nearly all cases involving computer technologies, which in turn make up a majority of patent litigation.[4] And that has brought to the fore the exception's fundamental lack of substance.

The meaning of the term "abstract idea" has resisted all attempts to define it. That is not for want of trying. Having experienced the havoc caused in the absence of a clear standard, the Federal Circuit adopted the "machine-or-transformation test," only for this Court to reject it in *Bilski*. 561 U.S. at 604. But the Court specifically refused to provide anything in its place, *id*. at 606, and then refused again to address the exception's scope in *Alice*, 573 U.S. at 221. The exception's scope cannot be meaningfully defined; its lack of substance means that any attempted definition will necessarily "end up using alternative but equally abstract terms." *Amdocs (Israel) Limited v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (2016).

The result is what Federal Circuit Judge Plager called a "definitional morass" that "renders it near impossible to know with any certainty whether the invention is or is not patent eligible." *Interval Licensing*, 896 F.3d at 1348, 1350 (Plager, J., concurring in part and dissenting in part). As a consequence, there is "little consensus among trial judges (or appellate judges for that matter) regarding whether a particu-

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[4] *See* Raymond Millien, *Alice Who? Over Half the U.S. Utility Patents Issued Annually are Software Related!*, May 21, 2017, https://www.ipwatchdog.com/2017/05/21/alice-over-half-u-s-utility-patents-issued-annually-software/id=83367/.

lar case will prove to have a patent with claims directed to an abstract idea, and if so whether there is an 'inventive concept' in the patent to save it." *Id.* at 1354–55. The panel decision below in *IBG IV* illustrates the point in its refusal even to attempt to distinguish other panels' conflicting decisions, including one upholding the eligibility of patents in the same family as the '768 and '382 patents and directed to similar technology. *Compare Trading Techs. Int'l, Inc. v. CQG, Inc.*, 675 F. App'x 1001 (Fed. Cir. 2017); *see also Trading Techs. Int'l, Inc. v. IBG*, 921 F.3d 1084, 1095 (Fed. Cir. 2019) [*IBG II*] (expressly declining to address conflicting decisions on other Trading Technologies patents).

The PTO has likewise observed that applying the "abstract idea" exception "in a consistent manner has proven to be difficult, and has caused uncertainty in this area of the law." U.S. Patent and Trademark Office, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019). Basically no one, it concluded, can "reliably and predictably determine what subject matter is patent-eligible." *Id.* And that is *after* this Court sought to clarify the exception's application in *Bilski* and *Alice*. "The *Alice* Court alleged that the PTO and courts were to tread carefully so as not to 'swallow all of patent law' with the § 101 prohibitions against patenting of abstract ideas…, but this is exactly what is happening." Kevin Madigan & Adam Mossoff, *Turning Gold into Lead: How Patent Eligibility Doctrine Is Undermining U.S. Leadership in Innovation*, 24 Geo. Mason L. Rev. 939,

952 (2017). That is what happened here, where the court below refused to even consider the user-directed functionality of tools in assessing their eligibility for patenting.

In short, the past two decades of experience applying the "abstract idea" exception to computer-implemented technologies demonstrate that is not susceptible to definition or ultimately to consistent judicial administration. Stare decisis—especially for a question that the Court has never directly considered or answered—must yield where, as here, prior decisions were "badly reasoned" and prove "unworkable." *Payne v. Tennessee*, 501 U.S. 808, 827 (1991).

III. The Court's Intervention Is Required To Resolve Important and Recurring Questions and End Harm to Innovation

The Court's review is necessary to resolve what Paul Michel, former Chief Judge of the Federal Circuit, has called the "chaos" of the Federal Circuit's patent-eligibility jurisprudence that is "devastating American business, including high tech…industries."[5] Judge Michel recently observed that, with "22 years on the Federal Circuit and nine years since dealing with patent cases," "I cannot predict in a given case whether eligibility will be found or not found." He asked, "If I can't do it, how can bankers,

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[5] Steve Brachmann, *Judge Paul Michel Presents Supplemental Testimony on PTAB Reforms*, Sept. 19, 2017, https://www.ipwatchdog.com/2017/09/19/judge-paul-michel-presents-supplemental-testimony-ptab-reforms/id=88047/.

venture capitalists, business executives and all the other players in the system make reliable predictions and sensible decisions?"[6] The answer is that they cannot.

Numerous current judges on the Federal Circuit have echoed Judge Michel's concerns. That includes Judge Plager, in the comments quoted above. Likewise, Judge Linn has observed that "the abstract idea exception is almost impossible to apply consistently and coherently" and that the *Alice* standard, such as it is, "is indeterminate and often leads to arbitrary results." *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1377 (Fed. Cir. 2017) (Linn, J., dissenting in part and concurring in part).

Unsurprisingly, Federal Circuit judges are now openly pleading for further guidance. For example, in a recent opinion, Judge Lourie concluded that "the law needs clarification by higher authority" than the Federal Circuit. *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354, 1360 (Fed. Cir. 2018) (Lourie, J., and Newman, J., concurring in the denial of the petition for rehearing en banc); *see also Berkheimer v. HP Inc.*, 890 F.3d 1369, 1376 (Fed. Cir. 2018) (Lourie, J. and Newman, J., concurring in the

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[6] Steve Brachmann & Eileen McDermott, *First Senate Hearing on 101*, June 4, 2019, https://www.ipwatchdog.com/2019/06/04/first-senate-hearing-on-101-underscores-that-theres-more-work-to-be-done/id=110003/.

denial of the petition for rehearing en banc) ("Resolution of patent-eligibility issues requires higher intervention[.]").

The current disarray in the law of patent eligibility is particularly damaging to the kind of software-based innovation that has become the engine of the national economy. According to the Government Accountability Office, over half of the 4,700 post-grant challenges filed between 2012 and 2016 targeted software patents, and a majority of patent cases in the courts involve software patents.[7] The loose state of law has led challengers to raise eligibility in practically every case, with the Federal Circuit "invalidat[ing] ninety percent of the patents which it has reviewed under section 101 after *Alice*." Michael R. Woodward, *Amending Alice: Eliminating the Undue Burden of "Significantly More,"* 81 Alb. L. Rev. 329, 344 (2018). At the PTO, "*Alice* has caused the monthly rate of appeals and abandons to triple, while causing monthly allowances to drop to one-eighth of their pre-*Alice* rates." John Robert Sepúlveda, *The Post-Alice Jurisprudence Pendulum and Its Effects on Patent Eligible Subject Matter*, 35 Touro L. Rev. 897, 915 (2019).

This turmoil has all-too-predictable consequences. According to former PTO Director David Kappos, the uncertain state of the law has acted to "blunt[] the incentivizing purpose of patent protection and deter[]

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[7] Government Accountability Office, *Patent Office Should Define Quality, Reassess Incentives, and Improve Clarity*, June 2016, https://www.gao.gov/assets/680/678113.pdf.

investment across broad categories of industry."[8] In particular, it has caused "a lack of faith in the patent system's ability to protect certain categories of innovation, sapping investment in the very fields that hold the most promise of propelling us toward the exciting discoveries of tomorrow." *Id*. And that goes double for the software industry, where the "uncertainty of patent protection rendered by the *Alice* decision is especially dangerous," given that "intellectual property is sometimes the most valuable asset a company owns." Lidiya Mishchenko, *Alice: Through the Formalist Looking-Glass*, 97 J. Pat. & Trademark Off. Soc'y 214, 216 (2015). Since *Alice*, the once-thriving secondary market for software patents has "dried up" entirely, reflecting the enormous damage being caused by the law's disarray.[9]

All this has left U.S. business at a severe disadvantage, undermining the Nation's competitive posture in international markets. The legal uncertainty occasioned by the Federal Circuit's incoherent jurisprudence on basic questions of eligibility is, according to Judge Michel, "devastating American business, including high tech."[10] The American Bar Association

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[8] David Kappos, *Over-Reliance on Section 101 Puts Innovation at Risk*, May 7, 2015, https://www.law.com/sites/lawcomteam/2015/05/07/over-reliance-on-section-101-threatens-innovation/?slreturn=20190809151553.

[9] Richard Baker, *Where Do We Stand One Year After Alice?*, LAW360 (June 17, 2015), http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice.

[10] *"The Impact of Bad Patents on American Businesses": Hearing Before the Subcommittee on Courts, Intellectual Property, and*

has likewise recognized the threat to innovation "in technologies in which U.S. industry has historically led the world" like computer technology and warned that the current state of uncertainty "potentially places the U.S. in a less advantageous position on patent protection than our leading competitor nations."[11] Leading scholars now question "whether the U.S. is surrendering its long-held position as the world leader in promoting and securing new technological innovation." Madigan & Mossoff, *supra*, at 941. They warn that, absent intervention by this Court or Congress, the United States will be overtaken by other countries "as the forerunners of innovation, especially in the research-intensive sectors of the innovation economy." *Id*.

The post-*Alice* chaos concerning patent eligibility has chased off investment in technological innovation and resulted in a patent system that now actively undermines the progress of science and useful arts. This Court's intervention is necessary to restore Congress's design and purpose in the Patent Act of fostering invention.

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the Internet, Comm. on the Judiciary, 115th Cong., (Sept. 12, 2017 (statement of Judge Paul R. Michel, former Chief Judge of the U.S. Court of Appeals for the Federal Circuit), *available at* https://www.ipwatchdog.com/wp-content/uploads/2017/09/Supplemental-Statement-of-Paul-R-Michel-Sept-12-2017.pdf

[11] American Bar Ass'n, *Comments on Patent Subject Matter Eligibility*, USPTO (Jan. 18, 2017), https://www.uspto.gov/sites/default/files/documents/RT2%20Comments%20ABA-IPL.pdf.

CONCLUSION

The Court should grant the petition.

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