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Patently Insane for Patents: A Judge-by-Judge Analysis of the Federal Circuit's Post-Alice Patentable Subject Matter Eligibility of Abstract Ideas Jurisprudence

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Cover Page Footnote

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Patently Insane for Patents: A Judge-by-Judge Analysis of the Federal Circuit's Post-*Alice* Patentable Subject Matter Eligibility of Abstract Ideas Jurisprudence

*By Matthew B. Hershkowitz**

*The Information Age exposed the U.S. patent system to patentable subject matter that it had never considered before. In particular, software tested the courts' understanding of patentable subject matter under section 101 of title 35 of the U.S. Code. The Supreme Court grappled with this issue in its *Alice Corp. v. CLS Bank International* decision, which greatly affected the patentability of software. However, the Supreme Court did not define the precise contours of patentable subject matter in *Alice*, and as a result, the Federal Circuit has wrestled with its meaning ever since. This Note discusses the approaches Federal Circuit judges apply to determine whether a patent claims patentable subject matter. It begins by providing background regarding patents, patent litigation, the Supreme Court's patentable subject matter cases prior to *Alice*, and then the *Alice* decision and its effect. It then examines the Federal Circuit's post-*Alice* decisions implementing the two-step test *Alice* applied. The test first asks whether the claimed invention is directed to an abstract idea and*

* Managing Editor, *Fordham Intellectual Property, Media & Entertainment Law Journal*, Volume XXVIII; J.D. Candidate, Fordham University School of Law, 2018; B.S. Mechanical Engineering, Lehigh University, 2014. I would like to thank Professor Janet Freilich for her guidance and feedback through developing this Note, and the *IPLJ* Editorial Board and staff for their hard work throughout the editorial process, especially E. Alex Kirk and Jillian Roffer.

then, if it is, whether the claimed invention contains an inventive concept. Federal Circuit judges have considered different aspects of the claimed invention in making these two determinations. As such, this Note analyzes the Federal Circuit judges' decisions and discerns trends in their approaches. Relying on these patterns, this Note next suggests to litigators how to better argue the patentability of software before the Federal Circuit. Furthermore, this Note posits that the Federal Circuit judges who implement different consistent approaches in essence ask the same question, and that the judges who do not implement a consistent approach will likely fall in line with the judges who apply consistent approaches. Finally, this Note predicts that the Federal Circuit will continue to expand the definition of patentable subject matter under Alice.

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INTRODUCTION

The rise of the Information Age¹ created uncertainty for the patentability of software. As technology changed, the courts adapted their approaches to evaluating patents and, more specifically, how they determine whether patents claim patent-eligible subject matter.² The Supreme Court announced the *Alice Corp. v. CLS Bank International* decision in 2014 and the Court of Appeals for the Federal Circuit (“Federal Circuit”) has since wrestled with the decision.³ The *Alice* decision applied a two-step analysis to determine whether a patent claims patentable subject matter, asking (1) whether the claims are directed to an abstract idea,⁴ and (2) if they are so directed, whether they contain an inventive concept.⁵

The *Alice* decision “upended”⁶ patent law and resulted in a “legendary” invalidation rate of asserted patents.⁷ The post-*Alice* uncertainty caused many in the legal field to try to decipher how

¹ The information age is “the modern age regarded as a time in which information has become a commodity that is quickly and widely disseminated and easily available especially through the use of computer technology.” *Information Age*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/Information%20Age> (last visited June 12, 2017) [<https://perma.cc/N4LG-EDBW>].

² See *infra* Sections I.C–E.

³ 134 S. Ct. 2347 (2014). See *infra* Sections I.D–E, II.B.

⁴ See *Alice*, 134 S. Ct. at 2355 (“First, we determine whether the claims at issue are directed to one of the patent-ineligible concepts [i.e., abstract ideas].”). The Supreme Court has held a variety of claimed inventions invalid as claiming patent-ineligible subject matter. See, e.g., *Bilski v. Kappos*, 130 S. Ct. 3218, 3222 (2010) (holding a patent claiming a financial hedging process invalid as claiming an abstract idea); *Parker v. Flook*, 437 U.S. 584, 594 (1978) (invalidating a patent claiming a mathematical formula without an inventive concept); *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972) (invalidating a patent claiming a mathematical algorithm as only applied to digital computers); *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 120 (1853) (holding a claim to any machinery using electromagnetism to mark or print characters, signs, or letters at any distance as void).

⁵ See *Alice*, 134 S. Ct. at 2355.

⁶ Rajit Kapur et al., *Certain Uncertainty: The Future of Computer Software Patents*, LEXOLOGY (Oct. 15, 2015), <http://www.lexology.com/library/detail.aspx?g=115145b7-dd58-4aea-9f87-e1679cb56b24> [<https://perma.cc/768L-GQAT>].

⁷ Lewis E. Hudnell, *The Wonderland of Patent Ineligibility as Litigation Defense*, LAW360 (June 5, 2015), <https://www.law360.com/articles/662143/the-wonderland-of-patent-ineligibility-as-litigation-defense> [<https://perma.cc/6SAV-ZMJM>].

courts analyze whether a patent claims patentable subject matter, but often to no avail.⁸ Moreover, scholars have posited different tests for determining whether a patent claims patentable subject matter, or have argued how the courts should apply the *Alice* test.⁹ While scholars often consider the Federal Circuit as a whole and suggest what the court *should* do, this Note examines how *each* Federal Circuit judge approaches deciding patentable subject matter eligibility post-*Alice*.¹⁰ The trends identified through this examination will enable litigators to more persuasively argue for or against patentability before Federal Circuit judges.¹¹

This Note discerns consistent methodologies in executing the *Alice* inquiry for four Federal Circuit judges.¹² These judges reliably ask the same questions within their cases when determining whether the claimed invention is directed to an abstract idea, and searching for an inventive concept.¹³ This Note then reviews the approaches of six Federal Circuit judges who implement different inquiries or factors in the decisions they have authored.¹⁴ However, for these judges, as this Note highlights, some trends exist under either *Alice* step one or step two.¹⁵ Understanding the Federal Circuit judges' approaches to the *Alice* inquiry will empower litigators to craft more persuasive arguments by tailoring their arguments accordingly.¹⁶

Part I of this Note provides an understanding of the basics of patent law,¹⁷ patent litigation,¹⁸ and the Federal Circuit,¹⁹ and then

⁸ See Ryan Davis, *Patent Eligibility Confusion Reigns Post-Alice, Experts Say*, LAW360 (Mar. 26, 2015), <https://www.law360.com/articles/636273/patent-eligibility-confusion-reigns-post-alice-experts-say> [<https://perma.cc/Q374-7UTC>].

⁹ See *infra* note 139.

¹⁰ See *infra* Section II.B.

¹¹ See *infra* Section III.A.

¹² See *infra* Section II.B.1.

¹³ See *infra* Section II.B.1.

¹⁴ See *infra* Section II.B.2.

¹⁵ See *infra* Section II.B.2.

¹⁶ See *infra* Section III.A.

¹⁷ See *infra* Section I.A.

¹⁸ See *infra* Section I.B.

¹⁹ See *infra* Section I.B.

focuses on the relevant Supreme Court decisions.²⁰ More specifically, it reviews the Supreme Court's patentable subject matter decisions during the Information Age,²¹ and concludes with an explanation of the *Alice* decision²² and its impact on patent law.²³ Part II analyzes the Federal Circuit's implementation of the *Alice* decision.²⁴ In particular, it attempts to decipher and identify how each judge approaches deciding patentable subject matter issues.²⁵ Finally, Part III provides advice to litigators on how to more persuasively argue patentable subject matter eligibility before the Federal Circuit,²⁶ and then posits predictions about where the Federal Circuit judges' and, more generally, the Federal Circuit's views on patentable subject matter are heading.²⁷

I. THE BASICS OF PATENT LAW, A PRIMER ON PATENT LITIGATION, AND THE SUPREME COURT'S RELEVANT PATENTABLE SUBJECT MATTER ELIGIBILITY JURISPRUDENCE

This Part provides background on patent law, patent litigation, and the Supreme Court's patentable subject matter decisions. Section I.A explains the patent law basics: what is a patent, why the government grants patents, how an inventor secures a patent, and what are the requirements to obtain a patent. Section I.B then discusses patent litigation and the Federal Circuit. Next, Section I.C reviews the Supreme Court's cases deciding patentable subject matter eligibility. Finally, Section I.D focuses on the *Alice* decision, while Section I.E illuminates the challenges created by, and the effects of, that decision.

²⁰ See *infra* Section I.C.

²¹ See *infra* Section I.C.

²² See *infra* Section I.D.

²³ See *infra* Section I.E.

²⁴ See *infra* Section II.B.

²⁵ See *infra* Section II.B.

²⁶ See *infra* Section III.A.

²⁷ See *infra* Section III.B.

A. Foundation of Patents and Patentable Subject Matter

The first patent was granted in 1790 for a process of making potash, an ingredient in fertilizer.²⁸ To date, the U.S. Patent and Trademark Office (“USPTO”) has granted more than nine million patents.²⁹ In today’s modern economy, patents are an integral part of a company’s success and value.³⁰

A patent is a property right granted under the Constitution to an inventor for a limited time³¹ that grants the inventor “‘the right to exclude others from making, using, offering for sale, or selling’ the invention in the United States or ‘importing’ the invention into the United States.”³² The patent’s term continues for twenty years from the date the patent application was filed or, under certain circumstances, from the filing date of a previously filed related application.³³ Patents come in three varieties: utility patents, plant patents, and design patents.³⁴

²⁸ See Press Release, U.S. Patent & Trademark Office, First U.S. Patent Issued Today in 1790 (July 31, 2001), <https://www.uspto.gov/about-us/news-updates/first-us-patent-issued-today-1790> [<https://perma.cc/XQN4-GS7E>].

²⁹ See U.S. Patent No. 9,554,210 (filed June 25, 2015). The patent number, which indexes the patents issued, is over 9,500,000.

³⁰ See *Reasons for Patenting Your Inventions*, WORLD INTELL. PROP. ORG., http://www.wipo.int/sme/en/ip_business/importance/reasons.htm [<https://perma.cc/CP4N-L4DZ>] (last visited July 27, 2017) (listing reasons why patents are important to companies).

³¹ See U.S. CONST. art. I, § 8, cl. 8 (“To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .”).

³² *What Are Patents, Trademarks, Servicemarks, and Copyrights?*, Section of *General Information Concerning Patents*, U.S. PATENT & TRADEMARK OFFICE (Oct. 2015), <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> [<https://perma.cc/3UVX-9LHS>] [hereinafter *What are Patents?*] (quoting 35 U.S.C. § 154(a)(1) (2012)).

³³ See 35 U.S.C. § 154(a)(2); see also *What are Patents?*, *supra* note 32.

³⁴ See *What Are Patents?*, *supra* note 32. The USPTO may grant a utility patent “to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof.” *Id.* For the purposes of this Note, only utility patents are considered and all references to “patent” refer to utility patents.

The exclusive right a patent provides incentivizes inventors to create and disclose inventions.³⁵ When the patent term expires, the invention enters the public domain, eliminating the inventor's exclusive right, and allows society to freely use the invention, which in turn benefits society by permitting further invention.³⁶ Without patent protection, the inventor would be less incentivized to invent and would resist disclosing the invention because the inventor would fear someone stealing it.³⁷

To obtain a patent, the inventor or assignee³⁸ must file an application with the USPTO.³⁹ A patent application contains several parts, but only the specification and claims are relevant to this Note. "The specification is a written description of the invention and of the manner and process of making and using the invention that concludes with the claims to the invention."⁴⁰ The claims "particularly point out and distinctly claim the subject matter that the [inventor or inventors] regard[] as the invention."⁴¹ The USPTO examines the application to determine whether it satisfies the requirements under title 35 of the U.S. Code.⁴² The

³⁵ See J. Jonas Anderson, *Secret Inventions*, 26 BERKELEY TECH. L.J. 917, 931 (2011) ("Scholars recognize that the patent system benefits society not merely because of the increased disclosure that results from patenting, but also (and primarily) because of the incentive to invent that the patent system creates.").

³⁶ See Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 541 (2009).

³⁷ See David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 196–97 (2009) (providing that patents are a public good and without patent protection, they would be underproduced).

³⁸ An assignee is "[a] type of patent owner, who has had ownership transferred to her from a previous owner such as the inventor." *Glossary*, U.S. PATENT & TRADEMARK OFFICE, <https://web.archive.org/web/20170627184309/https://www.uspto.gov/patents-maintaining-patent/patent-litigation/glossary> [<https://perma.cc/76EZ-H98Q>] (last visited June 12, 2017) [hereinafter *Glossary*].

³⁹ See *What are Patents?*, *supra* note 32.

⁴⁰ *Specification*, Section of *Nonprovisional (Utility) Patent Application Filing Guide*, U.S. PATENT & TRADEMARK OFFICE (Jan. 2014), <https://www.uspto.gov/patents-getting-started/patent-basics/types-patent-applications/nonprovisional-utility-patent#heading-1> [<https://perma.cc/WR9G-VQ7X>].

⁴¹ *Id.*

⁴² See *Patent Laws*, Section of *General Information Concerning Patents*, U.S. PATENT & TRADEMARK OFFICE (Oct. 2015), <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> [<https://perma.cc/3UVX-9LHS>].

Manual for Patent Examining Procedure explains the examination process.⁴³ Specifically, the USPTO will decide whether the invention complies with sections 101, 102, 103, and 112 of title 35.⁴⁴ If the USPTO finds the application satisfactory, it grants the applicant a patent, contingent on the payment of fees.⁴⁵

Each provision under title 35 poses at least one requirement for the invention. Briefly stated, section 101, the subject of this Note, requires that the patent claims patentable subject matter.⁴⁶ Section 102 requires that the invention is new,⁴⁷ and section 103 demands that the invention is sufficiently different from the prior art,⁴⁸ such that the invention would not be obvious to a person having ordinary skill in the art⁴⁹ to which the invention pertains.⁵⁰ Finally, section 112 focuses on the application's sufficiency, requiring the specification contain an adequate written description.⁵¹ The specification must demonstrate that the inventor was in possession of the invention at the time of the application, that the information disclosed in the specification enables a person having ordinary skill in the art to make and use the invention, and that the

⁴³ See U.S. PATENT & TRADEMARK OFFICE, *MANUAL FOR PATENT EXAMINING PROCEDURE* (9th ed., rev. 07.2015, Nov. 2015).

⁴⁴ See *id.* § 2103.

⁴⁵ See *Allowance and Issue of Patent*, Section of *General Information Concerning Patents*, U.S. PATENT & TRADEMARK OFFICE (Oct. 2015), <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> [<https://perma.cc/3UVX-9LHS>].

⁴⁶ See 35 U.S.C. § 101 (2012).

⁴⁷ See *id.* § 102.

⁴⁸ See *id.* § 103. "Prior art consists of the references (books, articles, web pages and other information) that are publicly available before the date that the application was filed." *Glossary*, *supra* note 38.

⁴⁹ See 35 U.S.C. § 103. "The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention." U.S. PATENT & TRADEMARK OFFICE, *supra* note 43, § 2141.03.I.

⁵⁰ See 35 U.S.C. § 103; see also *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007); *Novelty and Non-Obviousness, Conditions for Obtaining a Patent*, Section of *General Information Concerning Patents*, U.S. PATENT & TRADEMARK OFFICE (Oct. 2015), <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> [<https://perma.cc/3UVX-9LHS>].

⁵¹ See 35 U.S.C. § 112 (2012); see also U.S. PATENT & TRADEMARK OFFICE, *supra* note 43, § 2103.

specification discloses the best mode of performing the invention.⁵²

Section 101 defines patentable subject matter. It 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[e], subject to the conditions and requirements of this title.”⁵³ Section 101 provides four express categories that can receive patent protection: process, machine, manufacture, or composition of matter.⁵⁴ A process is “an act, or a series of acts or steps.”⁵⁵ A machine is “a concrete thing, consisting of parts, or of certain devices and combination of devices,” which includes “every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result.”⁵⁶ In *Diamond v. Chakrabarty*, the Supreme Court defined manufacture as “the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery.”⁵⁷ The Court also defined a composition of matter in *Chakrabarty* as “all compositions of two or more substances and . . . all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids.”⁵⁸ Since Thomas Jefferson’s draft of the 1793 Patent Act, section 101 has undergone little revision.⁵⁹ Notably, Jefferson’s view that “ingenuity should receive a liberal encouragement” remains intact.⁶⁰ Furthermore, when Congress

⁵² See U.S. PATENT & TRADEMARK OFFICE, *supra* note 43, § 2103.

⁵³ 35 U.S.C. § 101 (2012); U.S. PATENT & TRADEMARK OFFICE, *supra* note 43, § 2103.

⁵⁴ See 35 U.S.C. § 101; U.S. PATENT & TRADEMARK OFFICE, *supra* note 43, § 2103.

⁵⁵ U.S. PATENT & TRADEMARK OFFICE, *supra* note 43, § 2106.I.i.

⁵⁶ *Id.* § 2106.I.ii (citations omitted).

⁵⁷ 447 U.S. 303, 308 (1980) (quoting *Am. Fruit Growers v. Brogdex Co.*, 283 U.S. 1, 11 (1931)).

⁵⁸ *Id.* (alteration in original) (quoting *Shell Dev. Co. v. Watson*, 149 F. Supp. 279, 280 (D.D.C. 1957)).

⁵⁹ See *id.* at 309 (explaining that the only amendment made to the Act was to replace “art” in Jefferson’s version with “process”).

⁶⁰ *Id.* at 308–09 (quoting 5 WRITINGS OF THOMAS JEFFERSON 75–76 (Washington ed. 1871)).

considered the 1952 Patent Act, it intended patentable subject matter to “include anything under the sun that is made by man.”⁶¹

However, the breadth of patent protection is not unlimited. The courts have created judicial exceptions to patentable subject matter that exclude natural phenomena, laws of nature, and abstract ideas from patentability.⁶² These exceptions are not new, and in fact have existed for over 150 years.⁶³ They protect against preemption of the “basic tools of scientific and technological work” because it would “impede innovation more than it would tend to promote it,” thereby thwarting the primary object of the patent laws.⁶⁴ However, the Supreme Court has avoided precisely defining an abstract idea.⁶⁵

With technology moving towards software innovation and away from mechanical inventions, the judicial exceptions have impacted more inventions. For example, in the Industrial Age,⁶⁶

⁶¹ *Id.* at 309 (quoting S. Rep. No. 82-1979, at 5 (1952); H.R. Rep. No. 82-1923, at 6 (1952)).

⁶² *See id.*; *see also* *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012)).

⁶³ *See, e.g.*, *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 112–20 (1853); *Le Roy v. Tatham*, 55 U.S. (14 How.) 156, 174–75 (1852).

⁶⁴ *See Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Mayo Collaborative Servs.*, 132 S. Ct. at 1293). For example, Einstein could not have patented his theory of special relativity and Newton could not have patented the law of gravity because they both are laws of nature. *See Chakrabarty*, 447 U.S. at 309. Moreover, a gene is not patentable because it is a natural phenomenon. *See Ass’n for Molecular Pathology*, 133 S. Ct. at 2120.

⁶⁵ *See Alice*, 134 S. Ct. at 2357; *see also* *Diamond v. Diehr*, 450 U.S. 175, 219 (1981) (Stevens, J., dissenting) (“[T]he cases considering the patentability of program-related inventions do not establish rules that enable a conscientious patent lawyer to determine with a fair degree of accuracy which, if any, program-related inventions will be patentable.”). Because of the unpredictability of exactly determining whether software technology is patentable, this Note attempts to bring some predictability to the court’s determination by examining how each judge makes such determination.

⁶⁶ *Industrial Age*, ENG. OXFORD LIVING DICTIONARIES, https://en.oxforddictionaries.com/definition/industrial_age [<https://perma.cc/5R4W-R889>] (last visited June 12, 2017) (defining the Industrial Age as “[a]n era marked by widespread industrialization; specifically . . . the period in the history of the developed world from the start of the Industrial Revolution, in the late [eighteenth] cent[ury], to the information age, in the late [twentieth] cent[ury]”).

patents claiming inventions not either tied to a machine or apparatus, or transforming an article into another state or thing, were rarely granted.⁶⁷ In the Information Age, now, the abstract idea judicial exception has severely impacted software patents because software, although implemented on a machine, is not itself a machine.⁶⁸ Moreover, software itself does not transform some physical substance from one form to another.⁶⁹ However, the Court opined in *Bilski v. Kappos* that this does not mean that software is unpatentable.⁷⁰

As the Information Age approached, the “computer industry . . . experienced rapid growth.”⁷¹ The advent of the Internet accelerated technological advancement.⁷² In 1995, less than one percent of the world’s population used the Internet, whereas today, around forty percent use it.⁷³ Computers and the Internet are now an integral part of people’s lives. People share on social media,⁷⁴ shop,⁷⁵ bank,⁷⁶ and even find new love interests⁷⁷ online. The transition from the tangible inventions of the Industrial Age to the Information Age’s intangible, process inventions challenged the courts to rethink whether such inventions satisfy the

⁶⁷ See *Bilski v. Kappos*, 130 S. Ct. 3218, 3227 (2010).

⁶⁸ See *Software*, BLACK’S LAW DICTIONARY (10th ed. 2014) (providing that software is instructions that run on a computer which permits it to accept information, translate it, and then output other information).

⁶⁹ See *id.* (defining software as instructions implemented on a computer that translates and then outputs data, not as something that transforms a physical substance).

⁷⁰ See *Bilski*, 130 S. Ct. at 3227.

⁷¹ See David C. Tunick, *Has the Computer Changed the Law?*, 13 J. MARSHALL J. COMPUTER & INFO. L. 43, 43 (1994).

⁷² See *Internet Users*, INTERNET LIVE STATS, <http://www.internetlivestats.com/internet-users/> [<https://perma.cc/SUM7-6YND>] (last visited Mar. 1, 2017).

⁷³ See *id.*

⁷⁴ See generally, e.g., FACEBOOK, <http://www.facebook.com> [<https://perma.cc/54FG-UNMW>] (last visited Mar. 1, 2017) (hosting virtual space for users to “post” and “share” various media and personal information).

⁷⁵ See generally, e.g., AMAZON.COM, <http://www.amazon.com> [<https://perma.cc/U7C7-9BEW>] (last visited Mar. 1, 2017) (providing various products for online purchase).

⁷⁶ See generally, e.g., TD BANK, <http://www.tdbank.com> [<https://perma.cc/V5MV-2X7H>] (last visited Mar. 1, 2017) (providing online banking services).

⁷⁷ See generally, e.g., MATCH, <http://www.match.com> [<https://perma.cc/759Y-6SMG>] (last visited Mar. 1, 2017) (acting as an online dating resource).

patentable subject matter requirement.⁷⁸ The Supreme Court has wrestled with this patentable subject matter issue for more than 150 years.⁷⁹ However, before delving into the Supreme Court's precedent, it is necessary to better understand the court system as it pertains to patent infringement lawsuits.

B. Patent Litigation and the Court of Appeals for the Federal Circuit

The Federal Circuit was formed in 1982 and has nationwide appellate jurisdiction in various subject areas, including patent law.⁸⁰ The following example best illustrates the Federal Circuit's role in patent litigation. Imagine that one behemoth cellular telephone manufacturer, Apple, Inc., believes that another gigantic cellular telephone manufacturer, Samsung Electronics, is infringing one of its patents. Apple will file a lawsuit in one of the U.S. District Courts⁸¹ alleging that Samsung infringed Apple's patent claiming a process implemented on a cellular telephone. Samsung, in response, will likely claim as one of its defenses that Apple's patent is invalid because it claims patent-ineligible subject matter—this Note's focus.

After the district court litigation, either or both parties may appeal the decision.⁸² The Federal Circuit will hear the appeal, regardless of which district court decided the case, because the subject matter is patent law.⁸³ A randomly selected panel comprising of three Federal Circuit judges will decide the appeal,⁸⁴ and one of the judges will author an opinion for the panel.⁸⁵ After the Federal Circuit decision, Apple and/or Samsung may request a

⁷⁸ See *Bilski v. Kappos*, 130 S. Ct. 3218, 3227 (2010).

⁷⁹ See *infra* Section I.C.

⁸⁰ *Court Jurisdiction*, U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/the-court/court-jurisdiction> [<https://perma.cc/76MA-HTK2>] (last visited Sept. 12, 2017).

⁸¹ The federal courts have exclusive jurisdiction over patent cases. See 28 U.S.C. § 1338 (2012).

⁸² See FED. R. APP. P. 3.

⁸³ See *Court Jurisdiction*, *supra* note 80.

⁸⁴ *Id.*

⁸⁵ *Id.* If there is disagreement between the judges, the disagreeing judge will write a dissenting opinion.

rehearing with the panel,⁸⁶ request an en banc rehearing,⁸⁷ or petition for certiorari to the Supreme Court of the United States.⁸⁸

C. The Supreme Court Case Law Determining Patentable Subject Matter Eligibility

The Supreme Court has decided several cases regarding patentable subject matter eligibility, and grappled with patentable subject matter early on in the 1853 *O'Reilly v. Morse* case.⁸⁹ However, the first Supreme Court case addressing the patentability of abstract ideas during the Information Age was *Gottschalk v. Benson*, which reviewed the validity of a mathematical algorithm⁹⁰ converting binary-coded decimal⁹¹ numerals into pure binary numerals,⁹² and ultimately held it ineligible.⁹³ In deciding that the patent did not claim patentable subject matter, the Court noted that the claim was broad, thereby preempting both known and unknown uses of the process, and that either a generic computer or a human could implement the algorithm.⁹⁴

⁸⁶ See FED. R. APP. P. 40.

⁸⁷ See FED. R. APP. P. 35. A rehearing en banc means that a panel consisting of “all eligible and participating active judges, and any senior judge of the court who sat on the panel that decided the case originally” will rehear the case. See *Appellate Procedure Guide*, U.S. COURT OF APPEALS FOR THE FOURTH CIRCUIT, (July 2017), https://www.ca4.uscourts.gov/AppellateProcedureGuide/Decision__Post-Decision/APG-rehearingandrehearingenbanc.html [<https://perma.cc/7LCZ-LX7S>].

⁸⁸ See *Court Jurisdiction*, *supra* note 80.

⁸⁹ See 56 U.S. (15 How.) 62, 112–20 (1853).

⁹⁰ An algorithm is a “procedure for solving a given type of mathematical problem[.]” *Gottschalk v. Benson*, 409 U.S. 63, 65 (1972).

⁹¹ See *id.* at 66–67 (“The [Binary-coded decimal] system using decimal numerals replaces the character for each component decimal digit in the decimal numeral with the corresponding four-digit binary numeral[.]”).

⁹² “The pure binary system of positional notation uses two symbols as digits—[zero] and [one], placed in a numerical sequence with values based on consecutively ascending powers of [two]. In pure binary notation, what would be the tens position is the twos position; what would be hundreds position is in the fours position; what would be the thousands position is the eights. Any decimal number from [zero] to [ten] can be represented in the binary system with four digits or positions” *Id.* at 66.

⁹³ See *id.* at 71–73.

⁹⁴ See *id.* at 67–68.

The Supreme Court elaborated on the patentability of abstract ideas six years later in *Parker v. Flook*,⁹⁵ a case regarding a mathematical formula applied to a catalytic conversion process.⁹⁶ There, the patent claimed three steps: (1) measure one of several variables, (2) apply an algorithm to calculate a new limit value, and (3) adjust an alarm limit to the new value.⁹⁷ The Court held that the addition of conventional, post-solution activity—namely, measuring the variable and adjusting the limit—was insufficient to convey patentability, and therefore, held that the patent claimed patent-ineligible subject matter.⁹⁸

Three years later, the Supreme Court considered whether a patent claiming a process using a mathematical formula, the Arrhenius equation,⁹⁹ employed on a programmed computer claimed patent-eligible subject matter, and concluded in the affirmative.¹⁰⁰ In *Diamond v. Diehr*,¹⁰¹ the patent claimed a process to cure rubber.¹⁰² A computer constantly measured the temperature inside a mold containing a rubber piece needing curing via a temperature probe, and then inputted the data into the Arrhenius equation, which outputted a time for curing.¹⁰³ When the calculated curing time equaled the actual time the rubber piece had

⁹⁵ See 437 U.S. 584, 585 (1978) (noting that “the only novel feature of the method is a mathematical formula”).

⁹⁶ See *id.* at 585. The catalytic conversion process converts “heavy hydrocarbons, chemicals or fuels to light hydrocarbons, chemical or fuels,” the results are “less toxic, less corrosive, more usable and more environmentally friendly,” and it is used in vehicles to convert exhaust gas from the engine into less toxic pollutants. See *Catalytic Conversion*, CORROSIONPEDIA, <https://www.corrosionpedia.com/definition/1685/catalytic-conversion> [<https://perma.cc/389H-5PME>] (last visited Mar. 2, 2017).

⁹⁷ See *Parker*, 437 U.S. at 585.

⁹⁸ *Id.* at 586, 594.

⁹⁹ The Arrhenius equation is a mathematical expression that embodies temperature’s effect on the rate of a chemical reaction. See *Arrhenius Equation*, ENCYCLOPÆDIA BRITANNICA, <https://www.britannica.com/science/Arrhenius-equation> [<https://perma.cc/G5PA-CQG4>] (last updated Nov. 13, 2008).

¹⁰⁰ See *Diamond v. Diehr*, 450 U.S. 175, 177, 193 (1981).

¹⁰¹ 450 U.S. 175.

¹⁰² *Id.* at 177–78.

¹⁰³ *Id.* at 178–79.

spent in the mold, the mold opened, thereby permitting removal of the rubber piece.¹⁰⁴

First, the Court noted that, like *Gottschalk* and *Flook*, the Arrhenius equation was an abstract idea.¹⁰⁵ However, in contrast to *Gottschalk* and *Flook*, the application of the abstract idea did not preempt the use of the equation outside of its application to the rubber curing process, because the process' other steps placed meaningful limits on the claim's breadth.¹⁰⁶ Second, the Court recognized that the process transformed something into another state, namely, it changed the rubber's properties and shape.¹⁰⁷ Therefore, the Court concluded that the patent did not claim the mathematical formula itself, but a new and useful application of the formula.¹⁰⁸

The Supreme Court did not weigh in on the eligibility of abstract ideas again until *Bilski v. Kappos* nearly thirty years later.¹⁰⁹ In *Bilski*, the question was whether a patent claiming the hedging process, a financial practice, claimed patentable subject matter.¹¹⁰ To determine whether the patent claimed patentable subject matter, the Court first compared the hedging concept to *Gottschalk*, *Flook*, and *Diehr*, and held that hedging was similar to the abstract ideas in *Gottschalk* and *Flook*—in that patenting hedging would “pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea.”¹¹¹ The Court then rejected *Bilski*'s argument that it did not preempt the entire field because it was limited to the energy industry, finding that such limitation was insufficient to convey patent eligibility.¹¹²

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 186.

¹⁰⁶ *Id.* at 187.

¹⁰⁷ *Id.* at 192–93.

¹⁰⁸ *Id.* at 191.

¹⁰⁹ *See generally* *Bilski v. Kappos*, 130 S. Ct. 3218 (2010) (holding a patent claiming a financial hedging process invalid as claiming an abstract idea).

¹¹⁰ *Id.* at 3223. A hedge is “an investment to reduce the risk of adverse price movements in an asset,” which normally “consists of taking an offsetting position in a related security” *Hedge*, INVESTOPEDIA, <http://www.investopedia.com/terms/h/hedge.asp> [<https://perma.cc/3QWN-5AAE>] (last visited Mar. 23, 2017).

¹¹¹ *Bilski*, 130 S. Ct. at 3230–31 (citations omitted).

¹¹² *See id.*

Therefore, the Court held, *Bilski*'s patent did not claim patentable subject matter.¹¹³

D. *Alice Corp. v. CLS Bank International*

The Supreme Court most recently opined how to determine patentable subject matter eligibility in the *Alice* decision.¹¹⁴ *Alice* was the assignee of several patents relating to managing financial risk.¹¹⁵ The patent at issue focused on a “computer-implemented scheme for mitigating ‘settlement risk’ (i.e., the risk that only one party to a financial transaction will pay what it owes) by using a third-party intermediary.”¹¹⁶ Specifically, the patent claimed a method whereby a computer created shadow accounts reflecting the parties’ actual balances at “‘exchange institutions’ (e.g., banks),” and would then only let transactions proceed if the parties held sufficient funds in those accounts to satisfy their respective obligations.¹¹⁷ *CLS Bank* filed suit seeking a declaratory judgment that *Alice*'s patent claims were “invalid, unenforceable, or not infringed.”¹¹⁸ The district court held the claims invalid, but a divided panel of the Court of Appeals for the Federal Circuit reversed.¹¹⁹ However, the Federal Circuit granted a rehearing en banc, vacated the panel decision, and affirmed the district court decision.¹²⁰ On certiorari, the Supreme Court then addressed whether *Alice*'s invention constituted patent-eligible subject matter, and in doing so, applied the two-step analysis implemented in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*,

¹¹³ *See id.* The Court concluded, contrary to the Federal Circuit's decision, that the machine-or-transformation test was not the *sole* test for subject matter patentability because to hold so would violate statutory interpretation principles. *Id.* at 3227. The Court, however, noted that the machine-or-transformation test is still “a useful and important clue, an investigative tool,” for determining whether an invention is eligible for patent protection. *Id.*

¹¹⁴ *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014).

¹¹⁵ *Id.* at 2352.

¹¹⁶ *Id.* at 2351–52 (emphasis omitted).

¹¹⁷ *Id.* at 2352.

¹¹⁸ *Id.* at 2353.

¹¹⁹ *Id.*

¹²⁰ *Id.*

to determine whether Alice’s patent claimed an abstract idea, and therefore claimed patent ineligible subject matter.¹²¹

The first step of the *Alice* analysis is to “determine whether the claims at issue are directed to . . . patent-ineligible concepts.”¹²² If the claims are so directed, then the analysis proceeds to step two.¹²³ However, if they are not, the patent claims patent-eligible subject matter.¹²⁴ Next, in step two, the court must examine each claim at issue to “determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.”¹²⁵ The inventive concept requirement ensures that the abstract idea includes something more and is not merely a “drafting effort designed to monopolize the [abstract idea].”¹²⁶

In *Alice*, under step one, the Court examined its jurisprudence on patentable subject matter, specifically *Gottschalk*, *Flook*, and *Bilski*, and concluded that Alice’s claims were directed to intermediated settlement.¹²⁷ Then, the Court concluded that intermediated settlement was a “fundamental economic practice long prevalent in our system of commerce,” like hedging in *Bilski*, and therefore the claims were directed to an abstract idea.¹²⁸

Under step two, the *Alice* court first dispensed with the notion that implementation on a computer could provide an inventive concept, citing *Gottschalk* and *Flook*.¹²⁹ The Court also distinguished the instant case from *Diamond v. Diehr*, in that the invention in *Diehr* was found patentable not because of the computer, as Alice claimed here, but because the claimed process

¹²¹ *See id.* at 2355–60 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012)).

¹²² *Id.* at 2355.

¹²³ *See id.*

¹²⁴ *See id.*

¹²⁵ *Id.* at 2357 (quoting *Mayo Collaborative Servs.*, 132 S. Ct. at 1294, 1298). What qualifies as an inventive concept is not clear, but how to best argue that a claimed invention contains an inventive concept is one topic of this Note. *Id.*

¹²⁶ *Id.* (alteration in original) (quoting *Mayo Collaborative Servs.*, 132 S. Ct. at 1291).

¹²⁷ *Id.*

¹²⁸ *Id.* at 2356 (quoting *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010)).

¹²⁹ *Id.* at 2357–58.

“improved an existing technological process.”¹³⁰ Finally, the steps claimed in Alice’s patent,¹³¹ taken both individually and as an ordered combination, were all “well-understood, routine, conventional activit[ies]” previously known to the industry.”¹³² In conclusion, the Court noted that neither a generic computer nor merely applying the abstract idea is sufficient to transform the concept into a patent-eligible invention, and therefore, combining the two—as Alice did by employing the abstract idea of intermediated settlement on a computer—was likewise insufficient.¹³³ Thus, the Court held that Alice’s patent claimed patent-ineligible subject matter, and was therefore invalid.¹³⁴

Notably, the *Alice* court avoided “delimit[ing] the precise contours of the ‘abstract ideas’ category,” instead leaving it open to the lower courts to refine.¹³⁵ Similarly, the Court did not define precisely what constitutes an “inventive concept,” only that it is something “significantly more” than a patent on the abstract idea itself.¹³⁶ Both open questions have created uncertainty in patent

¹³⁰ *Id.* at 2358 (discussing *Diamond v. Diehr*, 450 U.S. 175 (1981)).

¹³¹ *See id.* at 2359 (“The representative method claim in this case recites the following steps: (1) ‘creating’ shadow records for each counterparty to a transaction; (2) ‘obtaining’ start-of-day balances based on the parties’ real-world accounts at exchange institutions; (3) ‘adjusting’ the shadow records as transactions are entered, allowing only those transactions for which the parties have sufficient resources; and (4) issuing irrevocable end-of-day instructions to the exchange institutions to carry out the permitted transactions.”).

¹³² *Id.* (alteration in original) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1294 (2012)).

¹³³ *See id.*

¹³⁴ *See id.* at 2360.

¹³⁵ *Id.* at 2357.

¹³⁶ *See id.* at 2355.

litigation,¹³⁷ and some scholars have opined on the proper tests to resolve these ambiguities.¹³⁸

E. The Effects of the Alice Decision

The *Alice* decision has had a profound effect on patent litigation. For example, many defendants have successfully invalidated patents asserted against them relying on the decision.¹³⁹ A patent is presumed valid¹⁴⁰ and the challenger must provide “clear and convincing evidence” of the patent’s invalidity to overcome that presumption.¹⁴¹ Despite this presumption, post-*Alice* courts have invalidated patents at a “legendary rate.”¹⁴² Through June 6, 2016, approximately two years after the *Alice* decision, seventy percent of motions in federal courts claiming patent invalidity as a defense succeeded.¹⁴³ Furthermore, as compared to the four years prior to the *Alice* decision, district courts have

¹³⁷ See, e.g., Kapur et al., *supra* note 6 (opining that since the *Alice* decision came down one year ago, “the world of computer software patents has been upended”); *Uncertainty Looms Over Software Patents*, WHITEFORD, TAYLOR & PRESTON LLP (June 17, 2015), <http://www.wtplaw.com/documents/2015/06/uncertainty-looms-over-software-patents> [<https://perma.cc/2BV9-DVXJ>] (explaining that the USPTO has struggled for “clarity and consistency in establishing patent eligibility for software related patents” and that “technological innovation hangs in limbo, as patents for software related inventions are being deemed ineligible at an excessive rate”).

¹³⁸ See, e.g., Richard S. Gruner, *Intangible Inventions: Patentable Subject Matter for an Information Age*, 35 LOY. L.A. L. REV. 355, 451–53 (2002) (arguing that patentable subject matter should have the following four features: (1) “[a]n innovation filling a user need with identifiable value”; (2) “[t]he innovation fills a need that is shared by more than a few potential users”; (3) “[t]he innovation meets the need through [sic] regular operations that produce consistent results”; and (4) “[t]he innovation and the results it achieves can be described clearly and distinctly, permitting effective evaluation of the innovation”); Michael Risch, *Everything is Patentable*, 75 TENN. L. REV. 591, 591 (2008) (arguing that “any invention that satisfies the Patent Act’s requirements of category, utility, novelty, nonobviousness, and specification is patentable”).

¹³⁹ See Robert R. Sachs, *Two Years After Alice: A Survey of the Impact of a Minor Case (Part 1)*, FENWICK & WEST: BILSKIBLOG (June 16, 2016), http://www.bilskiblog.com/blog/2016/06/two-years-after-alice-a-survey-of-the-impact-of-a-minor-case.html#_ftn14 [<https://perma.cc/A9UU-6KQH>].

¹⁴⁰ 35 U.S.C. § 282(a) (2012).

¹⁴¹ *Microsoft Corp. v. i4i Ltd.*, 131 S. Ct. 2238, 2242 (2011).

¹⁴² Hudnell, *supra* note 7.

¹⁴³ See Sachs, *supra* note 139.

decided over four times as many patentable subject matter invalidity defenses in the two years since the decision.¹⁴⁴

Because the *Alice* decision is very recent¹⁴⁵ and invalidity challenges have become such a prevalent defense in patent litigation,¹⁴⁶ it is vital to understand how Federal Circuit judges contemplate patentable subject matter eligibility to craft the best strategies to argue for or against patentability. This Note examines each Federal Circuit judge's approach to determining patent eligibility,¹⁴⁷ and then recommends ways to better persuade those judges¹⁴⁸ to enable litigators to more convincingly argue the patentable subject matter issue.

II. THE STUDY'S PARAMETERS AND THE FEDERAL CIRCUIT JUDGES' METHODOLOGIES

This Part defines the parameters and limitations of this Note, and then examines the Federal Circuit's patentable subject matter jurisprudence. More specifically, Section II.A explains how this Note selected the cases included in this study of the Federal Circuit's patentable subject matter case law, and then discloses the limitations of the study. Section II.B reviews the cases included in the study, judge-by-judge, and identifies trends in the judges' approaches to determining whether a patent claims patentable subject matter.

¹⁴⁴ *Id.*

¹⁴⁵ *Alice* was decided less than four years ago from the date when this Note was being written. See *Alice Corp. v. CLS Bank Int'l, Inc.*, 134 S. Ct. 2347 (2014).

¹⁴⁶ See Kenneth Adamo, Comment in *Where Do We Stand One Year After Alice*, LAW360 (June 17, 2016, 8:27 PM), <https://www.law360.com/articles/668773> [<https://perma.cc/ETQ2-Z9BS>] (quoting Kenneth Adamo, Partner at Kirkland & Ellis LLP, saying that the *Alice* decision has become as prominent of a "defensive tool of choice" as the USPTO's new inter partes review proceeding, and that the invalidity challenge will continue to be a quick and effective tool).

¹⁴⁷ See *infra* Section II.B.

¹⁴⁸ See *infra* Section III.A.

A. *Case Selection, Analysis Methodology, and Limitations on the Study of the Federal Circuit's Patentable Subject Matter Jurisprudence*

To select cases, the Author of this Note first conducted a thorough and tailored search. The Author sought out all Federal Circuit cases that cited to section 101, limiting the search to decisions after *Alice Corp. v. CLS Bank International, Inc.* through April 2017. Finally, the Author reviewed each case and selected those that evaluated whether the invention was directed to an abstract idea. However, this Note excludes from the study any cases where the judge was not a Federal Circuit Judge (e.g., a judge who sat by designation¹⁴⁹ upon the Federal Circuit), where the decision was written *per curiam*,¹⁵⁰ or when the judge had authored only one decision.

After the selection of cases, the Author then turned to analyzing those selected. The Author groups cases together according to the authoring judge and analyzes each case's reasoning to determine what factors the judge relied upon in executing each *Alice* step. For example, under the first *Alice* step, some judges looked at the claimed invention's long history,¹⁵¹ while others noted its similarity to precedent.¹⁵² Moreover, in the *Alice* step-two analysis, some judges evaluated whether the claimed steps and equipment were generic or conventional,¹⁵³ while others focused the claimed invention's potential to preempt

¹⁴⁹ See 28 U.S.C. § 292(a) (1982) (“The chief judge of a circuit may designate and assign one or more district judges within the circuit to sit upon the court of appeals or a division thereof whenever the business of that court so requires.”).

¹⁵⁰ See generally FED. CIR. R. OF P. 36 (governing a “judgment of Affirmance Without Opinion”); *Glossary*, U.S. COURTS FOR THE NINTH CIRCUIT, <http://www.ca9.uscourts.gov/content/glossary.php> [<https://perma.cc/RX8J-LK5J>] (last visited June 24, 2017) (“Latin, meaning ‘for the court.’ In appellate courts, often refers to an unsigned opinion.”); Rachel Hughey, *How to Get to Federal Circuit Rule 36*, LAW360 (July 29, 2015, 10:19 AM), <https://www.law360.com/articles/684264/how-to-get-to-federal-circuit-rule-36> [<https://perma.cc/UW6Y-VPYY>] (providing a more in-depth discussion of Federal Circuit Rule 36).

¹⁵¹ See, e.g., *infra* Sections II.B.1.a–b.

¹⁵² See, e.g., *infra* Sections II.B.1.c–d.

¹⁵³ See, e.g., *infra* Section II.B.1.b.

basic scientific tools.¹⁵⁴ Often, a judge relied on multiple factors.¹⁵⁵ For each judge, this Note details their reasoning, and then reviews the cases' reasoning for trends. This analysis results in discernable trends for some judges and vague outlines for others. However, the analysis is limited by the available body of law.

The small body of law available imposed some limitations on this study. First, *Alice* was decided less than three years before the most recent case this Note analyzes was decided, which means the judges have not decided many cases under it, relatively speaking.¹⁵⁶ While some judges have decided several cases, others have decided only a couple, and still others have decided one or no decisions.¹⁵⁷ Furthermore, because the judges have had limited opportunities to decide this issue, they may not have fully solidified their approaches and may change them in the future.¹⁵⁸ However, this Note defines trends in Federal Circuit judges' approaches thus far. Second, other variables likely influence the judges' approaches, such as the technology involved. Therefore, an attorney arguing before the Federal Circuit on this issue must also consider how the judges have previously reasoned in cases involving the same technology and not solely rely on the judges' general approaches described herein.

B. The Judges' Approaches

Based on the results of the aforementioned analysis, this Note then grouped the judges into two groups: judges who employ a consistent methodology and judges who are developing their methodology. Consistent judges have written multiple decisions and their reasoning throughout those decisions is similar. Judges developing their methodologies, on the other hand, have written multiple decisions, but the factors considered in their reasoning in those cases did not agree.

¹⁵⁴ See, e.g., *infra* Section II.B.1.a.

¹⁵⁵ See *infra* Section II.B.

¹⁵⁶ The *Alice* decision was announced on June 19, 2014. See *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014).

¹⁵⁷ This Note cannot discern trends for judges who authored one or no decisions, and therefore, this Note does not discuss the decisions written by these judges.

¹⁵⁸ See *infra* Section II.B.2.

1. Judges Employing Consistent Approaches

This Note argues that some Federal Circuit judges have developed consistent methodologies to determine whether a patent claimed patentable subject matter. For example, despite the relatively limited number of cases the Federal Circuit has decided regarding an abstract idea's subject matter eligibility, four Federal Circuit judges—Raymond T. Chen, Richard G. Taranto, Todd M. Hughes, and Kara F. Stoll—have decided multiple cases by consistently applying their own approach.

a. Judge Raymond T. Chen

i. Judge Chen's Decisions

Judge Chen¹⁵⁹ has written decisions in four cases on this topic and has developed a consistent methodology.¹⁶⁰ As will be seen, under step one, Judge Chen asks whether the claimed process has been long-prevalent. Then, under step two, he asks whether the steps and components are conventional or generic, and occasionally whether the claim's scope is sufficiently narrowed.

Judge Chen first decided *DDR Holdings, L.L.C. v. Hotels.com, L.P.*¹⁶¹ There, the Federal Circuit considered whether a patent claiming a “system [that] generates and directs [a website] visitor to a composite web page that displays product information from [a] third-party merchant, but retains the host website's ‘look and feel’” claimed patentable subject matter.¹⁶² Under *Alice* step one, Judge Chen noted that the claimed invention was not a mathematical algorithm or a long-prevalent commercial practice.¹⁶³ Judge Chen's step-one analysis here asked both whether the practice has

¹⁵⁹ Judge Chen was appointed to the Court of Appeals for the Federal Circuit in 2013 by President Barack Obama and, prior to his appointment, Judge Chen was the Deputy General Counsel for Intellectual Property Law, and Solicitor at the USPTO from 2008 to 2013. *Raymond T. Chen*, U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/raymond-t-chen> [<https://perma.cc/67T7-94HU>] (last visited June 24, 2017).

¹⁶⁰ See *infra* Sections II.B.1.a.i–ii.

¹⁶¹ 773 F.3d 1245 (Fed. Cir. 2014).

¹⁶² *Id.* at 1248–49.

¹⁶³ *Id.* at 1257.

been long prevalent, and indirectly compared it to Supreme Court precedent in *Gottschalk* and *Bilski*.¹⁶⁴ As Judge Chen developed his methodology, as demonstrated below, he focused his *Alice* step-one inquiry on whether the practice is long prevalent.

Ultimately in *DDR*, Judge Chen commented that discerning whether a claim is directed to an abstract idea is very difficult.¹⁶⁵ Judge Chen then deferred to *Alice* step two because, regardless of how the abstract idea was described, under *Alice* step two, he could identify an inventive concept.¹⁶⁶

Under *Alice* step two, Judge Chen found that the claimed steps were unconventional, explaining that conventionally when an advertisement is displayed on a website, and a website visitor clicks the advertisement, he or she leaves the original website and is transported to a third party's website.¹⁶⁷ On the other hand, *DDR*'s claimed steps transported the website visitor to a hybrid webpage with the look and feel of the original website, but still allowed the visitor to access the third-party website's content, thereby minimizing the number of visitors lost to other websites.¹⁶⁸ Next, Judge Chen explained that the claimed invention did not preempt every application of increasing sales by making websites appear similar—only a “specific way” to create a composite website to solve a problem particular to the internet.¹⁶⁹ Thus, Judge Chen held that the patent contained an inventive concept, and was not invalid.¹⁷⁰

A few weeks later, Judge Chen decided another case challenging a patent as claiming patent-ineligible subject matter in *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, National Association*.¹⁷¹ The challenged claimed invention was a method of scanning, recognizing, and storing specific data from

¹⁶⁴ *See id.*

¹⁶⁵ *See id.* at 1255, 1257.

¹⁶⁶ *See id.* at 1257.

¹⁶⁷ *See id.*

¹⁶⁸ *See id.* at 1257–58.

¹⁶⁹ *Id.* at 1259.

¹⁷⁰ *Id.*

¹⁷¹ *See* 776 F.3d 1343 (Fed. Cir. 2014).

hard copy documents.¹⁷² Judge Chen agreed with the district court decision that process was “undisputedly” well-known.¹⁷³ Indeed, people had always performed those functions.¹⁷⁴ Therefore, Judge Chen concluded that the claimed invention was directed to an abstract idea.¹⁷⁵

Under step two, Judge Chen found that the claimed invention did not contain an inventive concept.¹⁷⁶ First, Content Extraction conceded that scanning the documents was well-known at the time it filed the patent.¹⁷⁷ Second, Judge Chen rejected Content Extraction’s argument that their application was limited to a technological environment, countering that precedent had held such an imposed limitation “insufficient to save a claim in this context.”¹⁷⁸ Thus, Judge Chen held that the claimed invention did not contain an inventive concept, and therefore the patent was invalid.¹⁷⁹

Judge Chen next faced this issue in *BASCOM Global Internet Services v. AT&T Mobility, Corp.*,¹⁸⁰ where the court considered whether a patent claiming a process “provid[ing] individually customizable filtering at [a] remote ISP server” claimed patent-eligible subject matter.¹⁸¹ Judge Chen agreed with the district court

¹⁷² *See id.* at 1345.

¹⁷³ *Id.* at 1347.

¹⁷⁴ *See id.* (pointing out that “banks ha[d], for some time, reviewed checks, recognized relevant data such as the amount, account number, and identity of account holder, and stored that information in their records”).

¹⁷⁵ *See id.* at 1347–48.

¹⁷⁶ *See id.* at 1348.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

¹⁷⁹ *See id.* at 1347–48, 1351.

¹⁸⁰ *See* 827 F.3d 1341 (Fed. Cir. 2016).

¹⁸¹ *Id.* at 1344. In the “filtering content” process:

[T]he ISP server receives a request to access a website, associates the request with a particular user, and identifies the requested website. The filtering tool then applies the filtering mechanism associated with the particular user to the requested website to determine whether the user associated with that request is allowed access to the website. The filtering tool returns either the content of the website to the user, or a message to the user indicating that the request was denied.

Id. at 1345.

that “filtering content [was] an abstract idea because it [was] a longstanding, well-known method of organizing human behavior”¹⁸² He also noted that filtering content was similar to other inventions that the Federal Circuit found directed to an abstract idea.¹⁸³ Then, Judge Chen commented on how challenging it is to discern what an invention is directed to and deferred to *Alice* step two for considering the specific claim limitations.¹⁸⁴

Under step two, he found an inventive concept because the steps’ order was unconventional.¹⁸⁵ Judge Chen agreed with the district court that none of the steps alone constituted an inventive concept, but disagreed with the district court that the steps as an ordered combination did not contain an inventive concept.¹⁸⁶ He found that, because BASCOM’s invention filtered at a remote location as opposed to a central location, and therefore in different order than the conventional process, the claimed invention contained an inventive concept.¹⁸⁷ He also noted that the claims did not preempt any way of filtering internet content, but instead, recited “a specific, discrete implementation” of the abstract idea,¹⁸⁸ and upheld the patent.¹⁸⁹

Finally, the most recent decision Judge Chen authored on this topic was *Synopsis, Inc. v. Mentor Graphics Corp.*¹⁹⁰ There, the patent claimed a type of “logic circuit design process.”¹⁹¹ Judge Chen concluded that the design process was a mental process, i.e., something that humans do.¹⁹² Therefore, he held that the claimed invention was directed to an abstract idea.¹⁹³ In his *Alice* step-two analysis, he found that the steps were directed to a mental process

¹⁸² *Id.* at 1348.

¹⁸³ *Id.*

¹⁸⁴ *Id.* at 1349.

¹⁸⁵ *See id.* at 1350.

¹⁸⁶ *See id.* at 1349–50.

¹⁸⁷ *See id.* at 1350.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* at 1352.

¹⁹⁰ 839 F.3d 1138 (Fed. Cir. 2016).

¹⁹¹ *Id.* at 1139.

¹⁹² *See id.* at 1139.

¹⁹³ *Id.* at 1151.

and did not “introduce a technical advance or improvement.”¹⁹⁴ Therefore, he held that the claimed invention did not contain an inventive concept and that the patent was invalid.¹⁹⁵

ii. Summary of Judge Chen’s Approach

In the above review of Judge Chen’s decisions, Judge Chen consistently approached the question of whether a patent claimed patent-eligible subject matter. In the *Alice* step-one analysis, he inquired whether the claimed invention was a long-prevalent practice.¹⁹⁶ Under *Alice* step two, he inquired whether the claimed invention’s steps were conventional, and occasionally whether the claim’s scope was sufficiently limited.¹⁹⁷

b. Judge Richard G. Taranto

i. Judge Taranto’s Decisions

Judge Taranto¹⁹⁸ takes the same approach as Judge Chen, and has written two decisions on patentable subject matter.¹⁹⁹ Judge Taranto’s first post-*Alice* decision was *buySAFE, Inc. v. Google, Inc.*, where the court considered whether a patent claiming “methods and machine-readable media encoded to perform steps for guaranteeing a party’s performance of its online transaction” claimed patentable subject matter.²⁰⁰ Judge Taranto concluded that the process created a contractual relationship, which was “beyond question of ancient lineage,” and held that the claimed invention was directed to an abstract idea.²⁰¹

¹⁹⁴ *Id.* at 1152.

¹⁹⁵ *Id.*

¹⁹⁶ *See supra* Section II.B.1.a.i.

¹⁹⁷ *See supra* Section II.B.1.a.i.

¹⁹⁸ Judge Taranto was appointed to the Court of Appeals for the Federal Circuit in 2013 by President Barack Obama and, prior to his appointment, he practiced law at Farr & Taranto. *Richard G. Taranto*, U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/richard-g-taranto> [https://perma.cc/9VTV-CFKF] (last visited June 24, 2017).

¹⁹⁹ *See Elec. Power Grp., L.L.C. v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014).

²⁰⁰ *buySAFE*, 765 F.3d at 1351.

²⁰¹ *Id.* at 1355.

Under step two of *Alice*, Judge Taranto noted that the steps were generic, including the claimed computer.²⁰² Then, he rejected that limiting the claimed invention’s application to online transactions was sufficient to save the claim because precedent specifically denied that assertion.²⁰³ Therefore, he held the patent invalid.²⁰⁴

Nearly two years later, Judge Taranto wrote another decision deciding whether a patent claimed an abstract idea. In *Electric Power Group, L.L.C. v. Alstom S.A.*, the court considered whether a patent claiming systems and methods for monitoring electric power grids by collecting data, analyzing it, and displaying the results claimed patentable subject matter.²⁰⁵ Judge Taranto concluded that the claimed invention was a mental process, which the Federal Circuit has held to be an abstract idea.²⁰⁶ Thus, Judge Taranto held the claimed invention directed to an abstract idea.²⁰⁷

Under step two, Judge Taranto noted that “limiting the claim[] to the particular technological environment” did not transform the abstract idea into a patent-eligible application of the abstract idea.²⁰⁸ Next, he concluded that the steps were ordinary because the claimed invention was no different from the mental process and did not recite anything innovative.²⁰⁹ Therefore, Judge Taranto concluded that the claimed invention would preempt every application of the abstract idea and was not a specific application of the abstract idea.²¹⁰ Thus, he held the patent invalid.²¹¹

²⁰² *See id.*

²⁰³ *See id.*

²⁰⁴ *See id.*

²⁰⁵ *See Elec. Power Grp., L.L.C. v. Alstom S.A.*, 830 F.3d 1350, 1351 (Fed. Cir. 2016).

²⁰⁶ *See id.* at 1353–54.

²⁰⁷ *See id.* at 1354.

²⁰⁸ *Id.*

²⁰⁹ *Id.* at 1355 (explaining that the claimed invention failed to provide an “inventive set of components or methods . . . that would generate new data” to “invoke any assertedly inventive programming” to involve an unconventional ordering of steps, or to use any unconventional equipment).

²¹⁰ *See id.* at 1355–56.

²¹¹ *See id.* at 1356.

ii. Summary of Judge Taranto's Approach

In summary, while Judge Taranto has written only two decisions on the matter, his approach was relatively defined. Under the first step of *Alice*, Judge Taranto asked whether the claimed invention was a long-prevalent practice.²¹² In his step-two analysis, he asked whether the claimed steps were conventional and the claimed components were generic, and occasionally whether the claimed invention's scope was sufficiently narrow.²¹³

c. Judge Todd M. Hughes

i. Judge Hughes' Decisions

Judge Hughes²¹⁴ takes a different approach than Judges Chen and Taranto. Instead of asking whether the invention was a long-standing practice under *Alice* step one, Judge Hughes compares the instant invention to the Supreme Court's and the Federal Circuit's precedents. Under *Alice* step two, Judge Hughes examines whether the claimed steps are conventional and the claimed components are generic.

Judge Hughes has written five decisions deciding patentable subject matter eligibility.²¹⁵ The first post-*Alice* decision he wrote on this topic was *Planet Bingo, LLC v. VKGS LLC*, a non-precedential²¹⁶ decision.²¹⁷ There, the court considered whether a

²¹² See *id.* at 1353–54; *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014).

²¹³ See *Elec. Power Grp.*, 830 F.3d at 1355; *buySAFE*, 765 F.3d at 1354.

²¹⁴ Judge Hughes was appointed to the Court of Appeals for the Federal Circuit in 2013 by President Barack Obama and, prior to his appointment, he was the Deputy Director of the Commercial Litigation Branch of the Civil Division of the U.S. Department of Justice. *Todd M. Hughes*, U.S. COURT OF APPEALS FOR FED. THE CIRCUIT, <http://www.cafc.uscourts.gov/judges/todd-m-hughes> [https://perma.cc/GE5K-PNSD] (last visited June 24, 2017).

²¹⁵ See *TDE Petroleum Data Sols., Inc. v. AKM Enter., Inc.*, 657 Fed. App'x 991 (Fed. Cir. 2016); *In re TLI Commc'ns LLC*, 823 F.3d 607 (Fed. Cir. 2016); *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2015); *Planet Bingo, LLC v. VKGS LLC*, No. 2013-1663 (Fed. Cir. Aug. 26, 2014).

²¹⁶ Although this case as well as others later discussed are non-precedential, they are still indicative of the author's approach to deciding patentable subject matter eligibility decisions.

patent claiming a computer-aided management of bingo games claimed patentable subject matter.²¹⁸ Judge Hughes first noted that the patents simply computerized a mental process.²¹⁹ Next, Judge Hughes compared the claims at issue with those found ineligible in *Bilski* and *Alice*, concluding that they were analogous, and held the claimed invention directed to an abstract idea.²²⁰ Turning to Judge Hughes' *Alice* step-two analysis, he noted that the claim recited a generic computer and the computer's function was purely conventional.²²¹ Therefore, he held the patent invalid.²²²

While Judge Hughes relied on both mental process and comparing to precedent in *Planet Bingo* under his *Alice* step-one analysis, his ultimate approach focuses more on precedential comparison, as he did in *OIP Technologies, Inc. v. Amazon.com, Inc.*²²³ In *OIP Technologies*, the Federal Circuit analyzed a patent claiming "a method of price optimization in an e-commerce environment."²²⁴ Judge Hughes found the claimed invention similar to the "fundamental economic concepts" in the Supreme Court's and Federal Circuit's jurisprudence.²²⁵ Therefore, Judge Hughes held the claimed invention was directed to an abstract idea.²²⁶

Under his step-two analysis, Judge Hughes focused on whether the claimed invention's steps or computer were conventional, concluding that they were.²²⁷ He explained that the steps the

²¹⁷ *Planet Bingo*, slip op. at 1.

²¹⁸ *See id.* slip op. at 2.

²¹⁹ *See id.* slip op. at 3–4.

²²⁰ *See id.* slip op. at 5 (discussing *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010) and *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2356–57 (2014)).

²²¹ *See id.* slip op. at 6.

²²² *See id.* slip op. at 6–7.

²²³ *See* 788 F.3d 1359 (Fed. Cir. 2015).

²²⁴ *Id.* at 1360.

²²⁵ *Id.* at 1362–63. Specifically, Judge Hughes cited to *Alice Corp. v. CLS Bank International*, 134 S. Ct. 2347, 2357 (2014), *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010), *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, National Association*, 776 F.3d 1343, 1347 (Fed. Cir. 2014), *Ultramercial, Inc. v. Hulu, L.L.C.*, 772 F.3d 709, 715 (Fed. Cir. 2014), and *Accenture Global Services, GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1346 (Fed. Cir. 2013). *Id.*

²²⁶ *See OIP Techs.*, 788 F.3d at 1362–63.

²²⁷ *Id.* at 1364.

computer executed were “well-understood, routine, conventional activit[ies] previously known to the industry.”²²⁸ He also noted that the claims’ scopes were “exceptionally broad” and implementing them on a computer minimally limited their scopes.²²⁹ Thus, Judge Hughes held the patent did not contain an inventive concept and was therefore invalid.²³⁰

Next, Judge Hughes wrote the first decision finding a claimed software invention *not* directed to an abstract idea in *Enfish, L.L.C. v. Microsoft, Corp.*²³¹ The claimed invention was a “self-referential” database.²³² Judge Hughes distinguished the claimed invention from precedent, finding that the instant claims focused on improving the computer’s functionality.²³³ He further explained that the claims were “specifically directed to a *self-referential* table for a computer database.”²³⁴ Accordingly, Judge Hughes held that the claimed invention was not invalid because it was not directed to an abstract idea.²³⁵

Five days later, Judge Hughes again authored a decision concerning patentable subject matter eligibility. *In re TLI Communications LLC* examined a patent claiming “a method and system for taking, transmitting, and organizing digital images.”²³⁶

²²⁸ *Id.* at 1363 (alteration in original) (quoting *Alice*, 134 S. Ct. at 2359).

²²⁹ *Id.*

²³⁰ *See id.* at 1364.

²³¹ *See* 822 F.3d 1327, 1336 (Fed. Cir. 2016).

²³² *Id.* at 1330. The patents at issue:

[A]re directed to an innovative logical model for a computer database. A logical model is a model of data for a computer database explaining how the various elements of information are related to one another. A logical model generally results in the creation of particular tables of data, but it does not describe how the bits and bytes of those tables are arranged in physical memory devices. Contrary to conventional logical models, the patented logical model includes all data entities in a single table, with column definitions provided by rows in that same table. The patents describe this as the ‘self-referential’ property of the database.

Id.

²³³ *See id.* at 1336.

²³⁴ *Id.* at 1337 (emphasis in original).

²³⁵ *See id.* at 1339. Note that because Judge Hughes found that the claimed invention was not directed to an abstract idea, he did not reach the second step of *Alice*. *See id.*

²³⁶ 823 F.3d 607, 609 (Fed. Cir. 2016).

Judge Hughes first distinguished the claimed invention from the invention in *Enfish*, concluding that the claimed invention was directed to using “conventional or generic technology in a . . . well-known environment.”²³⁷ Judge Hughes then distinguished the instant invention from the invention in *Diamond v. Diehr* because the claimed invention was “not directed to . . . sol[ving a] . . . technological problem.”²³⁸ Finally, Judge Hughes analogized the instant invention to other precedent, finding them similar,²³⁹ and concluded that TLI’s claimed invention was directed to an abstract idea.²⁴⁰ Under step two, Judge Hughes examined each component to determine whether the component itself or its function was an inventive concept and concluded that the functions and components were conventional.²⁴¹ Therefore, he held the patent invalid.²⁴²

The most recent decision Judge Hughes authored, *TDE Petroleum Data Solutions, Inc. v. AKM Enterprises*,²⁴³ followed the same approach as his previous decisions. In *TDE Petroleum Data Solutions*, the Federal Circuit determined whether a patent claiming “processing sensor data on an oil well drill” claimed patentable subject matter.²⁴⁴ Judge Hughes compared the instant invention to the invention in *Electric Power Group*, and held that precedent clearly supported that the data collection and processing claim were directed to an abstract idea.²⁴⁵ In his search for an inventive concept under *Alice* step two, Judge Hughes found that there was nothing in the steps themselves or in their ordered

²³⁷ *Id.* at 612.

²³⁸ *Id.* at 613 (referencing *Diamond v. Diehr*, 450 U.S. 175 (1981)).

²³⁹ *Id.* (analogizing the instant invention specifically to the abstract idea inventions in *Bilski v. Kappos*, 130 S. Ct. 3218 (2010), *Intellectual Ventures I L.L.C. v. Capital One Bank (USA)*, 792 F.3d 1363 (Fed. Cir. 2015), *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015), and *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, National Association*, 776 F.3d 1343 (Fed. Cir. 2014)).

²⁴⁰ *See id.*

²⁴¹ *Id.* at 613–15.

²⁴² *Id.* at 615.

²⁴³ 657 Fed. App’x 991 (Fed. Cir. 2016).

²⁴⁴ *Id.* at 992.

²⁴⁵ *Id.* at 993 (citing *Elec. Power Grp., L.L.C v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)).

combination that constituted an inventive concept, and that the claimed component's functions were conventional.²⁴⁶ He therefore held the patent invalid.²⁴⁷

ii. Summary of Judge Hughes' Approach

In sum, Judge Hughes' approach is identifiable from his five decisions. First, under step one, Judge Hughes compared the invention at hand to the Supreme Court's and Federal Circuit's precedent to determine whether the claimed invention was directed to an abstract idea.²⁴⁸ Then, under step two, he asked whether the claimed invention's components were generic and whether the steps were conventional.²⁴⁹

d. Judge Kara F. Stoll

i. Judge Stoll's Decisions

Judge Stoll takes a similar approach as Judge Hughes. Judge Stoll²⁵⁰ has authored two decisions determining whether a patent claiming software claimed patent eligible subject matter.²⁵¹ In her first authored decision, *In re Smith*, the Federal Circuit considered whether a patent claiming "a wagering game utilizing real or virtual standard playing cards" claimed patentable subject matter.²⁵² Judge Stoll analogized the claimed invention to the invention in *Alice*, concluding that a wagering game was essentially a "fundamental economic practice"²⁵³ because the players effectively exchanged and resolved financial obligations

²⁴⁶ *Id.* at 993.

²⁴⁷ *Id.* at 994.

²⁴⁸ *See supra* Section II.B.1.c.i.

²⁴⁹ *See supra* Section II.B.1.c.i.

²⁵⁰ Judge Stoll was appointed to the Court of Appeals for the Federal Circuit in 2014 by President Barack Obama and, prior to her appointment, she practiced law at Finnegan, Henderson, Farabow, Garrett & Dunner. *See Kara Fernandez Stoll, Circuit Judge*, COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/kara-farnandez-stoll-circuit-judge> [<https://perma.cc/TS4K-RMAN>] (last visited June 24, 2017).

²⁵¹ *See FairWarning IP, L.L.C. v. Iatric Sys.*, 839 F.3d 1089 (Fed. Cir. 2016); *In re Smith*, 815 F.3d 816 (Fed. Cir. 2016).

²⁵² *In re Smith*, 815 F.3d at 817.

²⁵³ *Id.* at 818 (quoting *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2356 (2014)).

through the game.²⁵⁴ She then compared it to other precedent, finding the claimed invention to be similar to claims held to be directed to abstract ideas, and consequently held the claimed invention directed to an abstract idea.²⁵⁵ Next, in her search for an inventive concept, Judge Stoll explained that shuffling physical playing cards did not, as Smith argued, supply an inventive concept because it was a conventional activity.²⁵⁶ Therefore, she held that the patent claimed patent-ineligible subject matter.²⁵⁷

Judge Stoll next authored a decision in *FairWarning IP, L.L.C. v. Iatric Systems, Inc.* where the Federal Circuit decided whether a patent claiming “ways to detect fraud and misuse by identifying unusual patterns in users’ access of sensitive data” claimed patent eligible subject matter.²⁵⁸ Judge Stoll first compared the claimed invention to the Federal Circuit’s precedent, concluding that the claimed invention was essentially a combination of three precedents, all of which were found to be directed to abstract ideas in *Electric Power Group*.²⁵⁹ Next, Judge Stoll distinguished the instant case from *McRO, Inc. v. Bandai Namco Games America, Inc.*,²⁶⁰ concluding that FairWarning’s invention implemented an old practice, whereas *McRo*’s invention applied a new practice.²⁶¹ Similarly, Judge Stoll distinguished FairWarning’s invention from the *Enfish* invention, pointing out that FairWarning’s invention was not directed to improving a computer’s functioning as was the case with *Enfish*’s invention.²⁶² Judge Stoll thus held that the claimed invention was directed to an abstract idea.²⁶³

²⁵⁴ *See id.* at 818–19.

²⁵⁵ *See id.* at 819 (comparing the instant invention to *Bilski v. Kappos*, 130 S. Ct. 3218, 3230–21 (2010), *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2015), and *Planet Bingo, LLC v. VKGS LLC*, 576 Fed. App’x 1005 (Fed. Cir. 2014)).

²⁵⁶ *See id.*

²⁵⁷ *See id.* at 819–20.

²⁵⁸ 839 F.3d 1089, 1091–92 (Fed. Cir. 2016).

²⁵⁹ *Id.* at 1093–94 (citing *Elec. Power Grp., L.L.C. v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)).

²⁶⁰ 837 F.3d 1299 (Fed. Cir. 2016).

²⁶¹ *See FairWarning IP*, 839 F.3d at 1094–95.

²⁶² *See id.* at 1095 (citing *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1336–37 (Fed. Cir. 2016)).

²⁶³ *See id.*

Judge Stoll then conducted a thorough search for an inventive concept under *Alice* step two. First, Judge Stoll rejected FairWarning’s argument that the use of a user interface and microprocessor conveyed an inventive concept because precedent had categorized both of those components as generic computer elements that did not convey inventive concepts.²⁶⁴ Next, Judge Stoll rejected another FairWarning argument that the claimed invention’s ability to combine various data sources and formats conveyed an inventive concept, once again relying on precedent, and therefore the functionality did not provide an inventive concept.²⁶⁵ Finally, Judge Stoll distinguished FairWarning’s claimed invention from the invention in *DDR*, concluding that it did not solve a problem unique to computer technology and that limiting the application to computers did not provide an inventive concept.²⁶⁶ Thus, Judge Stoll held the patent invalid.²⁶⁷

ii. Summary of Judge Stoll’s Approach

To summarize Judge Stoll’s methodology, she compared the claimed invention to the Supreme Court’s and Federal Circuit’s precedent when deciding whether it was directed to an abstract idea.²⁶⁸ Then, in her search for an inventive concept under step two, she evaluated whether the claimed steps were conventional and the components were generic.²⁶⁹

e. Summary of Consistent Judges

In conclusion, these four judges had consistent methodologies to determine whether a patent claims patent-eligible subject matter. Under the first step of the *Alice* test, there were two approaches. Judges Chen and Taranto asked whether the invention was a long-

²⁶⁴ See *id.* at 1096.

²⁶⁵ See *id.* at 1096–97. The precedent provided that “merely selecting information, by content or source, for collection, analysis, and [announcement] does nothing significant to differentiate a process from ordinary mental processes.” *Id.* at 1097 (alteration in original) (quoting *Elec. Power Grp., L.L.C. v. Alstom S.A.*, 830 F.3d 1350, 1355).

²⁶⁶ See *id.* at 1096–97.

²⁶⁷ See *id.* at 1098.

²⁶⁸ See *id.* at 1093–95; *In re Smith*, 815 F.3d 816, 818–19 (Fed. Cir. 2016).

²⁶⁹ See *FairWarning IP*, 839 F.3d at 1095–97; *In re Smith*, 815 F.3d at 819.

prevalent practice, while Judges Hughes and Stoll compared the instant claimed invention to the Supreme Court's and Federal Circuit's precedents. For the second step of the *Alice* test, however, all four judges followed a similar methodology: asking whether the claimed steps were unconventional or the components were not generic. The only exception to this general guideline was that Judges Chen and Taranto also occasionally examined whether the claimed scope was sufficiently limited under *Alice* step two.

2. Judges Developing Their Methodologies

While Judges Chen, Taranto, Hughes and Stoll have decided several cases and have defined a methodology for determining whether a patent claims patentable subject matter, others have not precisely outlined their approaches yet. In this Part, this Note examines decisions by Judges Plager, Reyna, Bryson, Prost, Lourie, and Newman to identify trends within their approaches despite their varying approaches within those decisions.

a. Judge S. Jay Plager

i. Judge Plager's Decisions

Judge Plager²⁷⁰ first wrote a decision concerning patentable subject matter in *Versata Development Group, Inc. v. SAP America, Inc.*, where the court considered whether patents claiming a “WHO/WHAT” pricing method claimed patentable subject matter.²⁷¹ Judge Plager compared Versata's claimed inventions to precedent, finding them similar to the inventions held directed to abstract ideas in *Alice* and *Bilski*, and ultimately concluded that Versata's claimed inventions are directed to the abstract idea of price determination.²⁷² He also noted that a patent on price determination would preempt a foundational idea, and that

²⁷⁰ Judge Plager was appointed to the Court of Appeals for the Federal Circuit in 1989 by President George H. W. Bush and, prior to his appointment, he served in the Executive Office of the President. *S. Jay Plager*, COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/s-jay-plager-circuit-judge> [<https://perma.cc/5NGC-5L93>] (last visited June 24, 2017).

²⁷¹ See 793 F.3d 1306, 1311–13 (Fed. Cir. 2015).

²⁷² See *id.* at 1333.

Federal Circuit precedent had held similar claims directed to abstract ideas.²⁷³ Thus he held the claimed invention directed to an abstract idea.²⁷⁴

Moving to step two, Judge Plager examined the claimed inventions and concluded that when taken either individually or as an ordered combination, the claims recited only conventional steps.²⁷⁵ He further explained that Versata's invention was similar to other cases in which the Federal Circuit found that the inventions lacked an inventive concept,²⁷⁶ and was distinguishable from *DDR*.²⁷⁷ Judge Plager therefore held the patent invalid.²⁷⁸

Judge Plager's second case concerning patentable subject matter eligibility was *Amdocs (Israel.) Ltd. v. Openet Telecom, Inc.*, where the court decided the validity of several related patents claiming essentially the same system allowing "network service providers to account for and bill for internet protocol ('IP') network communications."²⁷⁹ Judge Plager did not delve into whether the claims were directed to an abstract idea because he opined that even if he were to agree with the district court's determination that the inventions were so directed, the patent claims still contained an inventive concept, and therefore claimed patentable subject matter.²⁸⁰ Judge Plager found an inventive concept in that the claimed inventions allowed de-centralized processing of information, whereas the conventional process claimed centralized processing.²⁸¹ Therefore, even though the

²⁷³ See *id.* at 1333–34.

²⁷⁴ See *id.* at 1333.

²⁷⁵ See *id.* at 1334.

²⁷⁶ See *id.* Specifically, Judge Plager found the claimed invention similar to those held directed to an abstract idea in *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, National Association*, 776 F.3d 1343 (Fed. Cir. 2014), *Ultramercial, Inc. v. Hulu, L.L.C.*, 772 F.3d 709 (Fed. Cir. 2014), *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014), *Bancorp Services, L.L.C. v. Sun Life Insurance Co. of Canada*, 687 F.3d 1266 (Fed. Cir. 2012), and *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011).

²⁷⁷ See *Versata*, 793 F.3d at 1334.

²⁷⁸ See *id.* at 1336.

²⁷⁹ 841 F.3d 1288, 1291–93 (Fed. Cir. 2016).

²⁸⁰ See *id.* at 1300.

²⁸¹ See *id.* at 1300–01.

components were generic, they operated unconventionally to improve a computer's functionality.²⁸² He then distinguished the instant case from *Content Extraction, In re TLI Communications*, and *DigiTech Image Technologies, L.L.C. v. Electronics for Imaging, Inc.*,²⁸³ but found it similar to *DDR* and *BASCOM*.²⁸⁴ For those reasons, and similar reasons for the other patents, the judge held the patents not invalid.²⁸⁵

ii. Summary of Judge Plager's Approach

In summary, because Judge Plager did not need to address the first step of the *Alice* test in *Amdocs*,²⁸⁶ only one data point exists for the judge's approach to determining whether a claimed invention is directed to an abstract idea. Therefore, this Note cannot define Judge Plager's *Alice* step-one methodology. However, Judge Plager consistently analyzed the claimed invention under *Alice* step two in both his decisions; he asked first whether the steps were unconventional and the components were generic, and then compared the instant case to precedent.²⁸⁷

b. Judge Jimmie V. Reyna

i. Judge Reyna's Decisions

Judge Reyna²⁸⁸ has authored four decisions deciding whether a patent claims patentable subject matter. His first decision, *McRO, Inc. v. Bandai Namco Games America, Inc.*, held a patent claiming "automating part of a preexisting 3-D animation method" not

²⁸² *See id.*

²⁸³ 758 F.3d 1344 (Fed. Cir. 2014).

²⁸⁴ *Amdocs*, 841 F.3d at 1300–02.

²⁸⁵ *See id.* at 1302, 1304–06.

²⁸⁶ *See id.* at 1300.

²⁸⁷ *See id.* at 1300–02; *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1334 (Fed. Cir. 2015).

²⁸⁸ Judge Reyna was appointed to the Court of Appeals for the Federal Circuit in 2011 by President Barack Obama and was an international trade attorney at Williams Mullen prior to his appointment. *Jimmie V. Reyna*, U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.ca9.uscourts.gov/judges/jimmie-v-reyna-circuit-judge> [<https://perma.cc/BB74-KF8W>] (last visited June 24, 2017).

invalid under *Alice* step one.²⁸⁹ Judge Reyna noted that the claimed invention used a specific set of rules and that it allowed computers to produce more realistic and accurate animations that previously only humans could create.²⁹⁰ Therefore, Judge Reyna concluded that McRO's claimed invention was not directed to an abstract idea and the patent was not invalid.²⁹¹

Judge Reyna next authored the *Apple, Inc. v. Ameranth, Inc.* opinion and held the claims, both independent and dependent, invalid.²⁹² The court analyzed patents claiming one menu that has "categories and items, and software that can generate a second menu from that first menu by allowing categories and items to be selected."²⁹³ Under *Alice* step one, Judge Reyna found that the claimed invention claimed the idea of creating a second menu, not a specific way of programming or designing the software to create the second menu.²⁹⁴ He also distinguished Ameranth's invention from *Enfish*.²⁹⁵ Thus, he held the patent claims directed to an abstract idea.²⁹⁶ Under step two, Judge Reyna concluded that all four of the features Ameranth identified as unconventional were "insignificant post-solution activities that do not support the invention having an 'inventive concept.'"²⁹⁷ Therefore, he held these claims invalid.²⁹⁸ Judge Reyna applied the same methodology to the dependent claims and likewise held those invalid.²⁹⁹

In a non-precedential decision, Judge Reyna again confronted the patentable subject matter eligibility issue in *Clarilogic, Inc. v. FormFree Holdings Corp.*, where the court decided whether a

²⁸⁹ 837 F.3d 1299, 1303, 1316 (Fed. Cir. 2016).

²⁹⁰ *See id.* at 1313.

²⁹¹ *See id.* at 1316.

²⁹² *See* 842 F.3d 1229, 1245 (Fed. Cir. 2016).

²⁹³ *Id.* at 1234.

²⁹⁴ *See id.* at 1241.

²⁹⁵ *See id.* (citing *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016)).

²⁹⁶ *See id.*

²⁹⁷ *Id.* at 1242 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012)).

²⁹⁸ *See id.*

²⁹⁹ *See id.* at 1243–45.

patent claiming “a method for electronically certifying a potential borrower’s financial account data and providing a credit report” claimed patentable subject matter.³⁰⁰ Under *Alice* step one, Judge Reyna found the instant case analogous to the claim directed to an abstract idea in *Electric Power Group*, and therefore concluded that the claimed invention was also directed to an abstract idea.³⁰¹ In his *Alice* step-two analysis, Judge Reyna first distinguished the instant case from *Diehr* because the instant case did not, as FormFree claimed, transform something into something else.³⁰² Judge Reyna then analogized the claimed invention to the invention found to lack an inventive concept in *Electric Power Group*, and thus concluded that FormFree’s invention likewise lacked an inventive concept.³⁰³ Thus, the patent was invalid.³⁰⁴

Judge Reyna’s most recent authored decision was *RecogniCorp, L.L.C. v. Nintendo Co.*, where the court considered the validity of a patent claiming a “method and apparatus for building a composite facial image using constituent parts.”³⁰⁵ In determining whether the claimed invention was directed to an abstract idea, Judge Reyna first noted that the method was “an abstract concept long utilized to transmit information.”³⁰⁶ Next, he distinguished the instant case from *Diehr* and *Enfish*, and analogized RecogniCorp’s invention to the *Digitech* invention, which was held directed to an abstract idea.³⁰⁷ Thus, he held the claimed invention directed to an abstract idea.³⁰⁸ Under step two, Judge Reyna found that adding a mathematical equation to change data to another form did not provide an inventive concept.³⁰⁹ Furthermore, Judge Reyna continued, there was no particularized application, both because the claim did not require a computer, and

³⁰⁰ No. 2016-1781, slip op. at 2 (Fed. Cir. Mar. 15, 2017).

³⁰¹ *See id.* slip op. at 6–7 (citation omitted).

³⁰² *See id.* slip op. at 7–8 (citing *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)).

³⁰³ *See id.* slip op. at 8 (citing *Elec. Power Grp., L.L.C. v. Alstom S.A.*, 830 F.3d 1350, 1353–56 (Fed. Cir. 2016)).

³⁰⁴ *See id.*

³⁰⁵ 855 F.3d 1322, 1324 (Fed. Cir. 2017).

³⁰⁶ *Id.* at 1326.

³⁰⁷ *See id.* at 1326–27.

³⁰⁸ *See id.* at 1326.

³⁰⁹ *See id.* at 1328.

a person could verbally perform it.³¹⁰ Therefore, Judge Reyna concluded that the claimed invention lacked an inventive concept, and held the patent invalid.³¹¹

ii. Summary of Judge Reyna's Approach

In sum, Judge Reyna's approach to determining whether a patent claimed patentable subject matter was not consistent throughout the decisions. In one case, under *Alice* step one, Judge Reyna looked at whether the patent claimed a result as opposed to a way of achieving that result,³¹² but in other cases he looked at whether the practice was long prevalent³¹³ or compared the instant case to Federal Circuit precedent.³¹⁴ Judge Reyna was somewhat consistent in his step-two analysis, but not entirely. In one case, he examined whether the claimed components and steps were conventional or generic.³¹⁵ In another case, Judge Reyna compared the case at hand to precedent.³¹⁶ In yet another case, Judge Reyna decided that the addition of a mathematical formula did not convey an inventive concept and that the invention did not require a computer for a human to perform the claimed process.³¹⁷ Therefore, while there are some discernable trends, Judge Reyna's approach was not the same in every decision.

c. Judge William C. Bryson

i. Judge Bryson's Decisions

Judge Bryson³¹⁸ authored two related decisions in *Affinity Labs of Texas, L.L.C. v. DIRECTV, L.L.C.*³¹⁹ and *Affinity Labs of Texas,*

³¹⁰ *See id.*

³¹¹ *See id.*

³¹² *See Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016).

³¹³ *See RecogniCorp*, 855 F.3d at 1326; *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016).

³¹⁴ *See Clarilogic, Inc. v. FormFree Holdings Corp.*, No. 2016-1781, slip op. at 6-7 (Fed. Cir. Mar. 15, 2017).

³¹⁵ *See Apple*, 842 F.3d at 1242.

³¹⁶ *See Clarilogic*, slip op. at 8.

³¹⁷ *See RecogniCorp*, 855 F.3d at 1328.

³¹⁸ Judge Bryson was appointed by President Bill Clinton in 1994, and was with the U.S. Department of Justice prior to his appointment. *William C. Bryson, Circuit Judge*,

*L.L.C. v. Amazon.com Inc.*³²⁰ In *DIRECTV*, the court considered whether a patent claiming a system and method for “streaming regional broadcast signals to cellular telephones located outside the region served by the regional broadcaster” claimed patent-eligible subject matter.³²¹ Judge Bryson held the claimed invention directed to the abstract idea of “providing out-of-region access to regional broadcast content,” because it was a long-prevalent practice and the claims did not specify a specific way of accomplishing the result, only the result itself.³²² Furthermore, he explained that limiting the application to cellular phones did not sufficiently limit the claim scope.³²³ Finally, he noted that Affinity’s claimed invention was similar to the inventions in *In re TLI Communications* and *Ulramercial*, and distinguishable from those in *DDR* and *Enfish*.³²⁴ Thus, he held the patent claim directed to an abstract idea.³²⁵ Under step two, Judge Bryson held that the claimed invention did not contain an inventive concept because the components were conventional and the cellular phones’ functions were generic.³²⁶ He also noted the similarities between the instant case and *Ulramercial*, *Mortgage Grader*, and *Intellectual Ventures*, and distinguished the instant case from *BASCOM*.³²⁷ Thus, he held the patent invalid.³²⁸

Affinity Labs of Texas, L.L.C. v. Amazon.com Inc. focused on whether a patent claiming “‘a method for targeted advertising’ in which an advertisement is selected for delivery to the user of a portable device based on at least one piece of demographic information about the user” claimed patent-eligible subject

U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.ca9c.uscourts.gov/judges/william-c-bryson-circuit-judge> [<https://perma.cc/A4UM-BY53>] (last visited June 26, 2017).

³¹⁹ 838 F.3d 1253 (Fed. Cir. 2016).

³²⁰ 838 F.3d 1266 (Fed. Cir. 2016).

³²¹ *DIRECTV*, 838 F.3d at 1255.

³²² *Id.* at 1258.

³²³ *See id.* at 1258–59.

³²⁴ *See id.* at 1260–62.

³²⁵ *See id.* at 1258.

³²⁶ *See id.* at 1262–63.

³²⁷ *See id.* at 1263–65.

³²⁸ *See id.* at 1265.

matter.³²⁹ To determine whether the claimed invention was directed to an abstract idea, Judge Bryson first compared the instant invention to the inventions in *Ultramercial* and *In re TLI Communications*, finding them to be similar.³³⁰ He next rejected Affinity’s contention that wireless streaming of media was not conventional on the application’s filing date, explaining that the patent does not claim a specific mechanism for wirelessly streaming media, only the function of wirelessly streaming media.³³¹ Judge Bryson then distinguished the instant case from *Enfish*, finding that the claimed invention merely added conventional components to well-known business practices.³³² Thus, he held the patent claim directed to an abstract idea.³³³ Under *Alice* step two, Judge Bryson noted that the features in the claims were described and claimed generically, i.e., not specifically enough to demonstrate that the claimed invention provided a “concrete solution” to a problem.³³⁴ Thus, he held that the patent failed to contain an inventive concept and the patent was invalid.³³⁵

ii. Summary of Judge Bryson’s Approach

This Note cannot precisely delineate Judge Bryson’s approach from these two cases because his approach was not entirely consistent in both decisions, despite the two cases being related. However, notably, under both *Alice* test steps, Judge Bryson compared the instant case to precedent.³³⁶ However, under step one, he also looked at whether it was a long prevalent practice,³³⁷ whether the patent claimed a result or a way to achieve the

³²⁹ 838 F.3d 1266, 1267 (Fed. Cir. 2016) (quoting U.S. Patent No. 8,688,085 (filed Apr. 1, 2013)).

³³⁰ *See id.* at 1269.

³³¹ *See id.*

³³² *See id.* at 1270 (quoting *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1338 (Fed. Cir. 2016)).

³³³ *See id.* at 1271.

³³⁴ *Id.*

³³⁵ *See id.* at 1272.

³³⁶ *See Affinity Labs of Tex., L.L.C. v. DIRECTV, L.L.C.*, 838 F.3d 1253, 1260–62 (Fed. Cir. 2016); *Amazon.com*, 838 F.3d at 1269–71.

³³⁷ *See DIRECTV*, 838 F.3d at 1258; *Amazon*, 838 F.3d at 1270.

result,³³⁸ and whether the claims sufficiently limited the patent's preemptive effect.³³⁹ Under *Alice* step two, he also followed the same approach as other judges in asking whether the claimed steps and the components included therein were generic or conventional.³⁴⁰ However, under step two, Judge Bryson also compared the instant case to precedent in *DIRECTV*.³⁴¹ Therefore, although Judge Bryson consistently considered certain factors, the exact factors were not consistent in each of his decisions.

d. Judge Sharon Prost

i. Judge Prost's Decisions

Judge Prost³⁴² has written four decisions regarding patentable subject matter. Two of the decisions are non-precedential, and the other two are related proceedings. Judge Prost's first authored decision was in *Tranxition, Inc. v. Lenovo (United States) Inc.*, a non-precedential decision where the Federal Circuit decided whether a patent claiming an automatically migrating configuration setting from an old computer to a new computer claimed patentable subject matter.³⁴³ Under *Alice* step one, it was undisputed that migration of configuration setting was an abstract idea.³⁴⁴ Under step two, Judge Prost noted that humans could perform the task the patent claimed, and that the steps—taken individually or as an ordered combination—failed to provide an inventive concept, because they merely recited a generic computer

³³⁸ See *DIRECTV*, 838 F.3d at 1258; *Amazon*, 838 F.3d at 1269.

³³⁹ See *DIRECTV*, 838 F.3d at 1258–59.

³⁴⁰ See *id.* at 1262–63; *Amazon*, 838 F.3d at 1271.

³⁴¹ See *DIRECTV*, 838 F.3d at 1263–65.

³⁴² Judge Prost was appointed to Chief Judge of the Court of Appeals for the Federal Circuit in 2001 by President George W. Bush and served as Minority Chief Counsel, Deputy Chief Counsel, and Chief Counsel of the Committee on the Judiciary, U.S. Senate prior to her appointment. *Sharon Prost, Chief Judge*, U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/sharon-prost-chief-judge> [<https://perma.cc/ZLJ2-WA6A>] (last visited June 26, 2017).

³⁴³ See Nos. 2015-1907, 2015-1941, 2015-1958, slip op. at 2 (Fed. Cir. Nov. 16, 2016).

³⁴⁴ *Id.* slip op. at 6.

routinely and conventionally performing the abstract idea.³⁴⁵ Thus, she held the patent invalid.³⁴⁶

Her next decision, another non-precedential decision, was *Smartflash L.L.C. v. Apple Inc.*³⁴⁷ There, the court examined a patent claiming systems relating to “a portable data carrier for storing and paying for data and to computer systems for providing access to data to be stored” to determine whether it claimed patentable subject matter.³⁴⁸ Because the claims invoked a computer only to execute the abstract idea, Judge Prost concluded that the claims were directed to an abstract idea.³⁴⁹ Next, Judge Prost searched for an inventive concept, noting that both Supreme Court and Federal Circuit precedent had held similar data-processing inventions to lack an inventive concept because the activity was routine.³⁵⁰ Second, she analogized the instant invention to the invention in *Ultramercial*, and distinguished it from *DDR*.³⁵¹ Lastly, Judge Prost concluded that the “interfaces,” “program stores,” and “processors” were all generic computer components and therefore did not supply an inventive concept.³⁵² Thus, the patent was invalid because it was directed to an abstract idea and lacked an inventive concept.³⁵³

A few weeks after the *Smartflash* decision, Judge Prost released two decisions in related cases: *Intellectual Ventures I L.L.C. v. Erie Indemnity Co.* and *Intellectual Ventures I L.L.C. v. Capital One Financial Corp.* In *Erie Indemnity*, the court considered the validity of U.S. Patent No. 6,510,434 (“‘434 Patent”) and U.S. Patent No. 6,546,002 (“‘002 Patent”).³⁵⁴ The *Capital One Financial* court, on the other hand, evaluated the

³⁴⁵ See *id.* slip op. at 8.

³⁴⁶ See *id.* slip op. at 9.

³⁴⁷ No. 2016-1059 (Fed. Cir. Mar. 1, 2017).

³⁴⁸ *Id.* slip op. at 2–3.

³⁴⁹ See *id.* slip op. at 10.

³⁵⁰ See *id.* slip op. at 11.

³⁵¹ See *id.* slip op. at 12–13.

³⁵² *Id.* slip op. at 14.

³⁵³ See *id.*

³⁵⁴ See *Intellectual Ventures I L.L.C. v. Erie Indem. Co.*, 850 F.3d 1315, 1319 (Fed. Cir. 2017).

validity of U.S. Patent No. 7,984,081 (“‘081 Patent”) and the ‘002 Patent.³⁵⁵

In *Erie Indemnity*, the ‘434 Patent claimed “methods and apparatuses that use an index to locate desired information in a computer database.”³⁵⁶ First, under *Alice* step one, Judge Prost noted that the type of activity claimed has been long prevalent and existed long before computers.³⁵⁷ Next, Judge Prost compared Intellectual Ventures’ claimed invention to those found directed to an abstract idea in *In re TLI Communications, Content Extraction*, and *BASCOM*, finding them to be similar.³⁵⁸ Finally the judge rejected Intellectual Ventures’ argument that, similar to *Enfish*, their invention improved computer functionality and held the claimed invention directed to an abstract idea.³⁵⁹

Judge Prost then searched for an inventive concept under *Alice* step two. The judge first rejected Intellectual Ventures’ argument that using a certain computer language provided an inventive concept.³⁶⁰ She opined that limiting the invention to a specific, well-known computer language was the same as limiting it to a technological environment, which does not provide an inventive concept.³⁶¹ The judge then examined the remaining limitations individually and as an ordered combination, and found them to be “well-understood, routine, [and] conventional activities.”³⁶² Thus, the ‘434 Patent was invalid.³⁶³

Judge Prost then examined the ‘002 Patent, which claimed “systems and methods for accessing a user’s remotely stored data and files,” and ultimately held the ‘002 Patent invalid.³⁶⁴ Judge

³⁵⁵ See *Intellectual Ventures I L.L.C. v. Capital One Fin. Corp.*, 850 F.3d 1332, 1334 (Fed. Cir. 2017).

³⁵⁶ *Erie Indem.*, 850 F.3d at 1325.

³⁵⁷ See *id.* at 1327.

³⁵⁸ See *id.*

³⁵⁹ See *id.* at 1327–28 (citing *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327 (2016)).

³⁶⁰ See *id.* at 1328–29.

³⁶¹ See *id.*

³⁶² *Id.* at 1329 (alteration in original) (quoting *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014)).

³⁶³ See *id.* at 1328.

³⁶⁴ *Id.* at 1329–31.

Prost first noted that remote access and retrieval of user data is an “age-old practice” existing before computers.³⁶⁵ Second, Judge Prost rejected Intellectual Ventures’ argument that the claimed mobile interface solved a problem unique to the field, opining that the mobile interface “does little more than provide a generic technological environment to allow users to access information,” which was insufficient to cause the invention to be non-abstract.³⁶⁶ After concluding that the claimed invention was directed to an abstract idea, Judge Prost moved to determining whether the claimed invention contained an inventive concept.³⁶⁷ Judge Prost concluded that using a mobile interface and pointers to retrieve user information merely implemented the abstract idea on a generic computer.³⁶⁸ Furthermore, because the other components and steps recited in the claimed invention were generic or conventional, Judge Prost held that the claimed invention did not contain an inventive concept, and therefore the patent was invalid.³⁶⁹

In the related case, *Capital One Financial*, the court considered the validity of the ‘081 Patent, which claimed “methods, systems, and apparatuses for dynamically managing eXtensible Markup Language (‘XML’) data.”³⁷⁰ Under *Alice* step one, Judge Prost found the ‘081 Patent’s invention similar to the inventions found directed to an abstract idea in *Content Extraction, Intellectual Ventures I L.L.C. v. Capital One Bank (USA)*,³⁷¹ and *Electric Power Group*.³⁷² As Judge Prost did in *Erie Indemnity*, she rejected Intellectual Ventures’ argument that limiting the application to a certain computer language caused the claimed invention to not be directed to an abstract idea, opining that limiting an application to a technological environment did not transform an abstract idea into

³⁶⁵ *Id.* at 1330.

³⁶⁶ *Id.*

³⁶⁷ *See id.*

³⁶⁸ *See id.* at 1331.

³⁶⁹ *See id.* at 1331–32.

³⁷⁰ *Intellectual Ventures I L.L.C. v. Capital One Fin. Corp.*, 850 F.3d 1332, 1338 (Fed. Cir. 2017).

³⁷¹ *See* 792 F.3d 1363 (Fed. Cir. 2015).

³⁷² *Capital One Fin.*, 850 F.3d at 1340 (citations omitted).

a non-abstract idea.³⁷³ Finally, Judge Prost concluded that despite that the specific structures within the claimed invention provided some particularity, the “underlying concept” was still directed to an abstract idea.³⁷⁴ Thus, Judge Prost turned to *Alice* step two to investigate whether the claimed invention contained an inventive concept.³⁷⁵ The judge examined the steps and components recited in the claims both individually and as an ordered combination, and concluded that they were generic and conventional.³⁷⁶ Thus, Judge Prost held the ‘081 Patent invalid.³⁷⁷

ii. Summary of Judge Prost’s Approach

The four cases Judge Prost authored did not clearly define a methodology she employed to determine whether a patent claimed patentable subject matter. However, this Note recognized some trends. In her first two cases, under *Alice* step one, Judge Prost used her own judgement to determine whether something was abstract, but in *Erie Indemnity* and *Capital One Financial*, she used the approach implemented by Judges Chen and Taranto—asking whether the practice was long prevalent—and also compared the instant claimed invention to precedent.³⁷⁸ Judge Prost was relatively consistent under the second step of *Alice*. In all four of her decisions, she followed the same approach as most other judges this Note addresses: asking whether the components and steps claimed were generic or conventional.³⁷⁹ However, she also implemented other approaches such as comparing the instant

³⁷³ *See id.*

³⁷⁴ *Id.* at 1341.

³⁷⁵ *See id.*

³⁷⁶ *See id.* at 1342.

³⁷⁷ *See id.* Judge Prost cited *Intellectual Ventures I, L.L.C. v. Erie Indemnity Co.*, 850 F.3d 1315, 1329–32 (Fed. Cir. 2017), as holding the ‘002 Patent invalid and therefore held that the ‘002 patent was likewise invalid. *Id.* at 1342–43.

³⁷⁸ *See supra* Section II.B.2.d.i.

³⁷⁹ *See Erie Indem. Co.*, 850 F.3d at 1329; *Capital One Fin.*, 850 F.3d at 1341–42; *Smartflash L.L.C. v. Apple Inc.*, No. 2016-1059, slip op. at 14 (Fed. Cir. Mar. 1, 2017); *Tranxition, Inc. v. Lenovo (United States) Inc.*, Nos. 2015-1907, 2015-1941, 2015-1958, slip op. at 8 (Fed. Cir. Nov. 16, 2016).

case to precedent.³⁸⁰ Therefore, although some trends were recognizable, her approach was not completely defined.

e. Judge Alan D. Lourie

i. Judge Lourie's Decisions

Judge Lourie³⁸¹ authored two decisions determining patentable subject matter eligibility: *Ultramercial, Inc. v. Hulu, L.L.C.* and *Evolutionary Intelligence L.L.C. v. Sprint Nextel Corp.* In *Ultramercial*, Judge Lourie considered whether a patent claiming “a method for distributing copyrighted media products over the Internet where the consumer receives a copyrighted media product at no cost in exchange for viewing an advertisement, and the advertiser pays for the copyrighted content” claimed patentable subject matter.³⁸² Judge Lourie held the claimed invention directed to the abstract idea of “using advertising as an exchange or currency.”³⁸³ He then found no inventive concept because the claims merely recited routinely and conventionally implementing the abstract idea.³⁸⁴ Thus, Judge Lourie held the patent invalid.³⁸⁵

Most recently, in the non-precedential *Evolutionary Intelligence* decision, Judge Lourie evaluated whether a patent claiming “systems and methods for allowing computers to process data that are dynamically modified based upon external-to-the-device information” claimed patentable subject matter.³⁸⁶ In his *Alice* step-one analysis, Judge Lourie compared the case at hand to

³⁸⁰ See *Smartflash*, slip op. at 11–13.

³⁸¹ Judge Lourie was appointed by President George H. W. Bush in 1990 and was Vice President, Corporate Patents and Trademarks, and Associate General Counsel of SmithKline Beecham Corporation prior to his appointment. *Alan D. Lourie, Circuit Judge*, U.S. COURT OF APPEALS FOR THE FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/alan-d-lourie-circuit-judge> [https://perma.cc/9D8T-EX2L] (last visited Sept. 19, 2017).

³⁸² *Ultramercial, Inc. v. Hulu, L.L.C.*, 772 F.3d 709, 712 (Fed. Cir. 2014).

³⁸³ See *id.* at 715.

³⁸⁴ See *id.*

³⁸⁵ See *id.* at 717.

³⁸⁶ *Evolutionary Intelligence L.L.C. v. Sprint Nextel Corp.*, Nos. 2016-1188, 2016-1190, 2016-1191, 2016-1192, 2016-1194, 2016-1195, 2016-1197, 2016-1198, 2016-1199, slip op. at 3 (Fed. Cir. Feb. 17, 2017).

precedent, finding it similar to *Affinity Labs of Texas, L.L.C. v. Amazon.com Inc.* and *Electric Power Group*, which both held similar inventions were directed to an abstract idea, and distinguishable from *Enfish*.³⁸⁷ Therefore, he held the claimed invention was directed to an abstract idea.³⁸⁸ Under the *Alice* step-two inquiry, Judge Lourie noted that Evolutionary Intelligence had conceded that the claimed containers, registers, and gateways “are ‘conventional and routine’ structures,” and further noted that, when taken both individually and as an ordered combination, the elements were conventional.³⁸⁹ Therefore, he held that the claimed invention lacked an inventive concept and the patent was invalid.³⁹⁰

ii. Summary of Judge Lourie’s Approach

Judge Lourie’s two decisions did not demonstrate that he has an exact methodology to determine whether a claim is directed to an abstract idea. In *Ultramercial*, he pointed to a lack of concrete form, while in *Evolutionary Intelligence* he compared the instant case to the Federal Circuit’s precedent.³⁹¹ However, as with many other Federal Circuit judges, Judge Lourie consistently approached the *Alice* step-two inquiry by examining whether the claimed steps and components were conventional or generic.³⁹² Therefore, although no consistent approach for Judge Lourie for step one was apparent, he did consistently approach *Alice* step two.

³⁸⁷ See *id.* slip op. at 4 (comparing the instant case to *Affinity Labs of Tex., L.L.C. v. Amazon.com Inc.*, 838 F.3d 1266, 1271 (Fed. Cir. 2016), *Elec. Power Grp., L.L.C. v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016), and *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016)).

³⁸⁸ See *id.*

³⁸⁹ *Id.* (quoting *Evolutionary Intelligence L.L.C. v. Sprint Nextel Corp.*, 137 F. Supp. 3d 1157, 1166 (N.D. Cal. 2015)).

³⁹⁰ See *id.*

³⁹¹ Compare *Ultramercial, Inc. v. Hulu, L.L.C.*, 772 F.3d 709, 715 (Fed. Cir. 2014), with *Evolutionary Intelligence*, slip op. at 4.

³⁹² See *Evolutionary Intelligence*, slip op. at 4; *Ultramercial*, 772 F.3d at 715.

f. Judge Pauline Newman

i. Judge Newman's Decisions

Judge Newman³⁹³ has authored two decisions, one of which was non-precedential. Judge Newman first decided *Internet Patents Corp. v. Active Network, Inc.*,³⁹⁴ which considered whether a patent claiming “the use of a conventional web browser Back and Forward navigational functionalities without data loss in an online application consisting of dynamically generated web pages” claimed patentable subject matter.³⁹⁵ Judge Newman first held that the claimed invention was directed to an abstract idea because Internet Patent Corp. provided in the specification that the “most important aspect” of the invention was that it maintained the state of the prior page when a user changed pages.³⁹⁶ Judge Newman categorized this aspect as a result, rather than specific steps to accomplish a result, and therefore the claimed invention was directed to an abstract idea.³⁹⁷ Under step two, because Internet Patents Corp. admitted in its specification that the Back and Forward functionality was conventional and the specification described it as “well-known” and “common,” Judge Newman did not find an inventive concept, and therefore held the patent invalid.³⁹⁸

Next, Judge Newman decided *Trading Technologies International, Inc. v. CQG, Inc.*, a non-precedential decision where the court considered whether a patent claiming a method and system for electronically trading financial instruments, such as stocks and bonds, claimed patentable subject matter.³⁹⁹ Under

³⁹³ Judge Newman was appointed by President Ronald Regan in 1984, and was Special Advisor to the U.S. Delegation to the Diplomatic Conference on the revision of the Paris Convention for the protection of Industrial property prior to her appointment. *Pauline Newman, Circuit Judge*, U.S. COURT OF APPEALS FOR FED. CIRCUIT, <http://www.cafc.uscourts.gov/judges/pauline-newman-circuit-judge> [<https://perma.cc/DYU8-SGC5>] (last visited Nov. 20, 2017).

³⁹⁴ 790 F.3d 1343 (Fed. Cir. 2015).

³⁹⁵ *Id.* at 1344.

³⁹⁶ *Id.* at 1348.

³⁹⁷ *See id.*

³⁹⁸ *See id.*

³⁹⁹ *See* No. 2016-1616, slip op. at 3 (Fed. Cir. Jan. 18, 2017).

Alice step one, Judge Newman affirmed the district court's reasoning and concluded that, like the *Enfish* invention, the instant claim was directed to improving computers' functionality.⁴⁰⁰ Because Judge Newman held that the claimed invention was not directed to an abstract idea, the court did not reach *Alice* step two, and the court held the patent not invalid.⁴⁰¹

ii. Summary of Judge Newman's Approach

Judge Newman's approach was not clear from these two decisions for two reasons. First, she did not take a similar approach under *Alice* step one in the two cases.⁴⁰² Second, because Judge Newman held the patent in *Trading Technologies* was not directed to an abstract idea, she did not reach the second step of the *Alice* test.⁴⁰³ Therefore, there was only one data point on her approach under that step, which this Note was therefore unable to draw a conclusion from.

III. LITIGATION STRATEGY AND PREDICTIONS REGARDING THE FEDERAL CIRCUIT'S DIRECTION

A. Litigator's Strategy for Briefs and Arguments

Part of a litigator's attractiveness to a client is not only his or her knowledge of the law, but also his or her ability to persuasively advocate for the client. A litigator should know the arguments that judges have previously found to be the most persuasive to increase the prospects for successful litigation. In this Part, this Note outlines how a litigator should argue the patentable subject matter issue in light of the foregoing analysis discerning the judges' methodologies.

The first step is to recognize who the judges are and which arguments they have previously found persuasive or not

⁴⁰⁰ See *id.* slip op. at 8–9 (citing *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1336, 1339 (2016)).

⁴⁰¹ See *id.* slip op. at 9.

⁴⁰² See *supra* Section II.B.2.f.i.

⁴⁰³ See *Trading Techs. Int'l*, slip op. at 9.

persuasive. For example, if the panel includes Judges Chen and Taranto, the litigator should argue differently than if the panel includes Hughes and Stoll. If the panel consists of judges whose methodologies are not as defined as Judges Chen, Taranto, Hughes, and Stoll, a litigator should look to the judge's decisions as analyzed above, and then also consider other factors such as the technology claimed. That way, a litigator may identify the more specific approach of that panel for a specific technology.

1. *Alice* Step One

Litigators can increase their chances of obtaining their desired outcome by arguing points the empaneled judges have historically found persuasive. Some Federal Circuit judges ask whether the claimed invention has been a long prevalent practice, such as Judges Chen and Taranto.⁴⁰⁴ Therefore, to argue more persuasively before these judges, a litigator must convince the judge that the practice is either new or long prevalent, depending on the side the litigator represents.

How does a litigator persuade the judge that the practice claimed in the patent is not a long prevalent practice? The pre-eminent example is *DDR*. The *DDR* court found that the claimed invention addressed a new problem: visitors to a website leaving the website via a hyperlink to purchase a product on another website, and thereby reducing the original website's visitor traffic.⁴⁰⁵ The practice was not long prevalent because the internet was relatively new and the practice could not have existed beforehand.⁴⁰⁶ Therefore, if a litigator seeks to convince the judges that it is not a long prevalent practice, he or she may argue that the practice is new because the problem it solves did not previously exist.⁴⁰⁷

Furthermore, a litigator may argue that a practice has not been long prevalent by differentiating the instant invention from similar,

⁴⁰⁴ See *supra* Sections II.B.1.a–b.

⁴⁰⁵ See *DDR Holdings, L.L.C. v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014).

⁴⁰⁶ See *id.*

⁴⁰⁷ See *id.*

long prevalent practices. The litigator could, for example, point out that, like in *DDR*, the invention is for a completely new platform or that the process is different than the long prevalent practice.⁴⁰⁸

Conversely, a litigator who endeavors to invalidate the patent as claiming patent-ineligible subject matter could argue that the problem has existed for a long time, and that changing the platform in which the problem exists does not change the problem itself. For example, in *DDR*, the dissent argued that the analogous long prevalent practice was a kiosk within a larger store, and therefore, the practice of keeping someone in the store while purchasing something from someone else was long prevalent.⁴⁰⁹ However, the majority rejected this argument as not analogous, because when someone walks up to a kiosk in a store they are not instantly transported to a different location, as occurs when a website visitor clicks on a hyperlink.⁴¹⁰ For a litigator to successfully argue this point, he or she must identify the same practice, not a similar practice, and show that it has been previously performed for a long time. For instance, Judge Chen identified the data acquisition and analysis process in *Content Extraction* as long prevalent because humans have always collected and analyzed data in that way.⁴¹¹

Other judges, such as Judges Hughes and Stoll, primarily compared the instant invention to the Supreme Court's and Federal Circuit's precedent.⁴¹² For these judges, the litigator should focus on arguing just that: whether the instant case is similar or different from precedent. If a litigator is arguing before a panel including these two judges, the litigator should argue that the invention at issue is similar to or different from precedent, especially the Supreme Court's precedent in *Bilski*, *Diehr*, and *Alice*. For example, Judge Hughes analogized the claimed invention in *Planet*

⁴⁰⁸ *See id.*

⁴⁰⁹ *See id.* at 1258.

⁴¹⁰ *See id.*

⁴¹¹ *See Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014).

⁴¹² *See supra* Sections II.B.1.c–d.

Bingo to the inventions in *Alice* and *Bilski*.⁴¹³ A prudent litigator arguing against invalidity could also analogize the Federal Circuit's precedent in *Enfish* or *DDR*, while litigators seeking to prove invalidity could distinguish those inventions.

2. *Alice* Step Two

The Federal Circuit judges have taken similar approaches to determining whether the claimed invention contains an inventive concept under the second step of the *Alice* test.⁴¹⁴ The question is: what is different in the claimed invention as compared to the abstract idea? To put it another way, if you remove the abstract idea from the claimed invention, is there something left that would constitute patent-eligible subject matter? The Federal Circuit judges' decisions that this Note examined ask whether the process claimed in the patent, including the components described therein, is conventional.⁴¹⁵ Therefore, litigators proving that the patent is not invalid should argue that there is something different either in the steps themselves or the order of the steps from the conventional practice. For example, the *BASCOM* court held that filtering at a remote and centralized location, as opposed to at the users' location, constituted an inventive concept because the filtering was done out of order as compared to the conventional process.⁴¹⁶ Litigators could focus on the uniqueness of the invention and explain what is different about the step itself or the order of the steps from the abstract idea.

In addition to the claimed steps themselves, the Federal Circuit judges also look at the components described in the steps.⁴¹⁷ If the components, such as computers, interfaces, etc., are special or different in some way, an inventive concept may therein lie. Litigators could therefore not only look at the steps, but also the

⁴¹³ See *Planet Bingo, LLC v. VKGS LLC*, No. 2013-1663, slip op. at 5 (Fed. Cir. Aug. 26, 2014) (discussing *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010) and *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2356–57 (2014)).

⁴¹⁴ See *supra* Section II.B.

⁴¹⁵ See *supra* Section II.B.

⁴¹⁶ See *BASCOM Internet Servs. v. AT&T Mobility L.L.C.*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

⁴¹⁷ See *supra* Section II.B.

computers and other components included in those steps. If there is something unique about those components, the litigator could emphasize it in his or her brief arguing against invalidity.

Litigators may also persuade judges through policy arguments.⁴¹⁸ Litigators seeking to prove that the patent is not invalid could argue that the claims are narrowed enough such that the patent would not preempt the basic tools of scientific work. For example, in *BASCOM*, Judge Chen noted that the patent claimed only a single method of filtering content, not the general idea of filtering content.⁴¹⁹ However, the litigators should avoid arguing that the invention's application is limited to a technological environment by the patentee. The court is not receptive to this argument, having found that a patent holder artificially limiting the application to a certain technological environment is insufficient to convey an inventive concept.⁴²⁰

On the contrary, litigators seeking to prove invalidity for claiming patent-ineligible subject matter could argue that the claimed invention is the same as the abstract idea and any deviations the claimed invention might contain from the abstract idea are insignificant. For example, in *BASCOM* the litigator seeking to invalidate the patent could argue that the order of the steps does not matter because it is still the abstract idea of filtering internet content. Further, the litigators could argue that the components described in the steps are generic. For example, the litigator could argue that a claimed computer that the patent holder

⁴¹⁸ See, e.g., *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010)) (invalidating a patent because, inter alia, it would preempt "basic tools of scientific and technological work" and "impede innovation more than it would tend to promote it," thereby thwarting the primary object of patent law" (quoting *Ass'n of Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013))); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012); *BASCOM*, 827 F.3d at 1350 (finding an inventive concept because, inter alia, the invention would not preempt every way of filtering content, only a single specific way).

⁴¹⁹ See *BASCOM*, 827 F.3d at 1350.

⁴²⁰ See, e.g., *Intellectual Ventures I L.L.C. v. Erie Indem. Co.*, 850 F.3d 1315, 1330 (Fed. Cir. 2017); *Content Extraction & Transmission L.L.C. v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014).

contends is unique is merely a generic computer or that it is an industry standard computer.

Furthermore, the litigator seeking invalidation could argue that a patent on this invention would preempt the basic tools of scientific work, therefore hindering scientific progress and thwarting the patent system's constitutional purpose. For instance, the litigator could show that the invention is not limited to an embodiment and could be executed through various mediums, such as a computer or telephone.

Knowing the judges' methodology in determining whether a patent claims patent-eligible subject matter empowers attorneys whether they are arguing for or against patentability to more persuasively argue before the Federal Circuit. Depending on the panel's make up, litigators can now tune their arguments to those judges. For example, if the panel includes Judges Chen and Taranto, the litigators could debate whether the practice has been long prevalent under the first step of the *Alice* test. On the contrary, if the panel includes Judges Hughes and Stoll, the litigators could instead compare the instant invention to precedent. Under the second step of the *Alice* inquiry, the judges share a similar approach, but some judges may be slightly different. For example, Judge Chen occasionally asks whether the claims are sufficiently limited in addition to inquiring whether the steps, taken both individually and as an ordered combination, and the components recited therein are conventional or generic.⁴²¹ Thus, through the analysis above, litigators will more persuasively argue before the Court of Appeals for the Federal Circuit.

B. Where Is the Federal Circuit Going?

1. The Federal Circuit Judges' Directions

The Federal Circuit judges have not had too many opportunities to decide cases regarding patentable subject matter. A few judges have authored multiple decisions and developed a concrete methodology to deciding them. On the other hand, several

⁴²¹ See *supra* Section II.B.1.a.

judges on the Federal Circuit have written one or zero decisions on the topic. In the long term, all the Federal Circuit judges will author decisions and begin to develop their approach. But, what will that approach be?

The judges are most divided on deciding whether the claimed invention is directed to an abstract idea under the first step of the *Alice* inquiry.⁴²² However, the two prevailing methodologies—asking whether the claimed invention is a long prevalent practice and comparing the claimed invention to precedent—result in the same outcome.⁴²³ The purpose of noting the difference is to more persuasively argue to the judges who employ one methodology or the other. For example, while examining a patent claiming a hedging process, a judge asking whether a practice has been long prevalent will note that hedging is a long prevalent practice and will accordingly hold the patent directed to an abstract idea. A judge comparing the patent claiming a hedging process will look to the Supreme Court's precedent in *Bilski* and find that, like the patent in *Bilski* claiming hedging, the patent is directed to an abstract idea. But, the Supreme Court in *Bilski* held the hedging process directed to an abstract idea because it was a long prevalent practice.⁴²⁴ Therefore, either way, the Federal Circuit is asking the same question in either a more or less direct fashion.

Under the second step of the *Alice* test the judges who have decided upon a methodology have been relatively consistent with each other. Indeed, the decisions by judges who have written only a few decisions, but have not fully defined their methodology, implement the same approach as the judges who have a more defined method: asking whether the claimed components and steps taken individually or as an ordered combination are conventional or generic. However, other judges do consider other factors.⁴²⁵ Yet, those other factors are simply other ways to ask the same question: whether the patent, if found not invalid, will preempt the basic tools of scientific progress. Therefore, at most, there are two

⁴²² See generally *supra* Section II.B.

⁴²³ See generally *supra* Section II.B.

⁴²⁴ See *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010).

⁴²⁵ See *supra* Section II.B.2.

questions to consider under the second step of *Alice*: (1) whether the components and steps are conventional or generic, and (2) whether the patent will preempt the tools of scientific development. The judges who are still developing their approach or have not written any decisions will likely follow suit and ask at least the first of these inquiries, and possibly the second, because it gets to the heart of patent law: promoting scientific progress.

2. The Federal Circuit's Direction

Besides the judges' approaches, substantively, where is the Federal Circuit heading regarding patentable subject matter? The Federal Circuit is expanding its definition of patentable subject matter to stay current with rapidly advancing technology.⁴²⁶ While, as noted by the Court in *Bilski*, the Court previously would likely have found software and business method inventions unpatentable, the court is adjusting to new technology.⁴²⁷ Indeed, the *Alice* decision made it more difficult to obtain a software patent, because it eliminated the patentee's ability to patent general ideas embodied in software on a computer, and instead required the patentee to focus on the specific application of those ideas. Furthermore, this effect is not harmful overall because patents claiming ideas would stymie scientific progress.⁴²⁸ The *Alice* decision did not remove all possibility of a software patent, but instead created a two-step test that attempts to eliminate patents claiming ideas, while allowing specific applications of those ideas to obtain patent protection.⁴²⁹

The Federal Circuit's jurisprudence likewise demonstrates this expansion. In *DDR* the Federal Circuit held a function on a website was not invalid because the practice and problem solved were

⁴²⁶ See, e.g., *Bilski*, 130 S. Ct. at 3229.

⁴²⁷ See *id.*

⁴²⁸ See *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293 (2012)) (invalidating a patent claiming a judicial exception because it would "impede innovation more than it would tend to promote it," thereby thwarting the primary object of patent law").

⁴²⁹ See *id.* at 2355–57.

unique to the internet and not long-prevalent.⁴³⁰ In essence, the *DDR* court began the process of allowing software patents when the court had previously invalidated any such patents.⁴³¹ Then, *Enfish* expanded the category of patentable subject matter to include computer programs that improve the functioning of computers.⁴³² In other words, patents that improve computer functions, not just solve a new problem, are found not invalid.⁴³³ Moreover, in *BASCOM*, the court expanded what is patentable to include conventional or generic pieces if they are ordered in an unconventional way.⁴³⁴ Thus, the court added computer components to steps that were organized in a different way than the abstract idea to the acceptable software patents, once again enlarging the realm of patentable software.⁴³⁵ In sum, the Federal Circuit is finding new ways within the bounds imposed by the *Alice* test to find patentable subject matter and will likely continue to do so. As the *Alice* court stated, the precise contours of an abstract idea are not defined.⁴³⁶ Therefore, the Federal Circuit has leeway to define the judicial exception through its case law.

CONCLUSION

Since the *Alice* decision, patentable subject matter eligibility has generated much uncertainty among attorneys and resulted in mass invalidation of patents.⁴³⁷ Consequently, many scholars have tried to identify how the court makes such decisions as well as posit theories as to how the court should make those decisions.⁴³⁸ However, through a different approach, this Note identifies trends within the Federal Circuit judges' decisions to alleviate some of

⁴³⁰ See *DDR Holdings, L.L.C. v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014).

⁴³¹ See *id.*

⁴³² See *Enfish, L.L.C. v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

⁴³³ See *id.*

⁴³⁴ See *BASCOM Glob. Internet Servs. v. AT&T Mobility L.L.C.*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

⁴³⁵ See *id.*

⁴³⁶ See *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2357 (2014).

⁴³⁷ See *supra* Section I.E.

⁴³⁸ See *supra* note 138.

that uncertainty.⁴³⁹ This Note has shown how four judges have a consistent approach to deciding these cases⁴⁴⁰ and how trends are identifiable in several other judges' decisions.⁴⁴¹ With this knowledge, litigators can better persuade the Federal Circuit either to invalidate or not invalidate a patent.⁴⁴² Furthermore, the individual judges' approaches shed light on where the Federal Circuit is headed as a whole.⁴⁴³

⁴³⁹ *See supra* Section II.B.

⁴⁴⁰ *See supra* Section II.B.1.

⁴⁴¹ *See supra* Section II.B.2.

⁴⁴² *See supra* Section III.A.

⁴⁴³ *See supra* Section III.B.

APPENDIX: SUMMARIZING TABLES

Appendix A: Consistent Federal Circuit Judges Summary Table

Judge	<i>Alice</i> Step One Factors	<i>Alice</i> Step Two Factors
Judge Raymond T. Chen Judge Richard G. Taranto	Whether the claimed invention has been long prevalent.	(1) Whether the claimed steps are conventional and components are generic. (2) Whether the claims are sufficiently limited as to not preempt the basic tools of scientific progress.
Judge Todd M. Hughes Judge Kara F. Stoll	Compares the claimed invention to precedent.	Whether the claimed steps are conventional and components are generic.

*Appendix B: Federal Circuit Judges Developing Methodologies
Summary Table*

Judge:	<i>Alice</i> Step One Factors:	<i>Alice</i> Step Two Factors:
Judge S. Jay Plager	Only one decision, therefore, there is no trend.	(1) Whether the claimed steps are conventional and components claimed are generic. (2) Compares the instant claimed invention to precedent.
Judge Jimmie V. Reyna	No distinct trend, but has considered in varying combinations: (1) Whether the steps are conventional and components claimed are generic. (2) Compares the instant claimed invention to precedent. (3) Whether a human could perform the claimed process without a computer.	No distinct trend, but has considered in varying combinations: (1) Whether the claimed invention is a way to achieve a result or the result itself. (2) Whether the claimed invention has been long prevalent. (3) Compares the instant claimed invention to precedent.
Judge William C. Bryson	Consistently compares the instant claimed invention to precedent, but has also considered in varying combinations: (1) Whether the claimed invention has been long prevalent. (2) Whether the claimed invention is a way to achieve a result or the result itself.	Consistently considers whether the claimed steps are conventional and components are generic, but also compares the instant claimed invention to precedent.

	(3) Whether the claims are sufficiently limited as to not preempt the basic tools of scientific progress.	
Judge Sharon Prost	<p>No distinct trend, but regularly:</p> <p>(1) Relies on her own judgment.</p> <p>(2) Asks whether the claimed invention was long prevalent.</p> <p>(3) Compares the instant claimed invention to precedent.</p>	Consistently considers whether the claimed steps are conventional and components are generic, but also occasionally compares the instant claimed invention to precedent.
Judge Alan D. Lourie	<p>No distinct trend, but regularly:</p> <p>(1) Considers whether the claimed invention has a concrete form.</p> <p>(2) Compares the instant claimed invention to precedent.</p>	Constantly considers whether the claimed steps are conventional and components are generic.
Judge Pauline Newman	<p>No distinct trend, but regularly:</p> <p>(1) Considers whether the claimed invention is a way to achieve a result or the result itself.</p> <p>(2) Compares the instant claimed invention to precedent.</p>	Only one decision, therefore, there is no distinct trend.