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1 J.D., South Texas College of Law - Houston, December 2017; B.S. Industrial Engineering, Texas A&M University, May 2013. The author thanks Professor Ted L. Field for his support during this research project. The author also thanks his wife, Courtnie D. Ellis, for her encouragement and support during this process. The author welcomes comments via email at cam.t.ellis@gmail.com.
I. INTRODUCTION

The Court of Appeals for the Federal Circuit (the Federal Circuit) holds sole appellate jurisdiction over patent law appeals in this United States. Due to this sole jurisdiction, there is no potential for split decisions between circuits as it relates to patent law decisions, because the Federal Circuit holds final decision-making ability for most patent-related issues. Federal district courts are subject to the doctrines of the Federal Circuit, and since the establishment of the Federal Circuit, there has been a larger amount of pro-patent decisions by district courts on the issue of patent validity than in the time prior to the Federal Circuit’s existence. However, there is no evidence to show that this pro-

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patent perspective is applicable to the district court or Patent Trial and Appeal Board decisions on patentability requirement issues that are appealed to the Federal Circuit relating to 35 U.S.C. §§ 101, 102, 103, and 112.

Patent law is a difficult subject to understand, much less master. Not only is the environment for patent law ever-changing, but also the nuances of patent law are intricate, in addition to the patents themselves covering innovative technologies that judges are unlikely to have an understanding of. While some judges for the Federal Circuit do have some patent or technology background, it is not uncommon that more than one judge sitting on a case will lack scientific or technological training and training in patent law. Because technology and science are somewhat foreign to some, maybe most, Federal Circuit judges, decision-making on patentability issues is probably more instinctive than calculated.

Although there have been studies completed on the judicial hyperactivity for patent cases of the Federal Circuit and its judges, the study described in this article focuses solely on judicial hyperactivity and reversal rates for patentability issues under 35 U.S.C. §§ 101, 102, 103, and 112. The author is unaware of any previous empirical research devoted to the Federal Circuit’s judicial hyperactivity and reversal rates on the specific patentability issues under 35 U.S.C. §§ 101, 102, 103, and 112. The purpose of this study is to determine whether judicial hyperactivity is widespread in rulings on these issues.

The study described in this article presents an empirical study of whether the judges of the Federal Circuit engage in judicial hyperactivity on patentability issues by using reversal rates and

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6 See Blonder-Tongue Labs, Inc. v. Univ. of Ill. Found., 402 U.S. 313, 331 (1971) (“[P]atent litigation can present issues so complex that legal minds, without appropriate grounding in science and technology, may have difficulty in reaching decision.”).
8 Id. at 796.
9 Joseph L. Smith, Patterns and Consequences of Judicial Reversals: Theoretical Considerations and Data from a District Court, 27 Just. Sys. J. 28, 29 (2006). “Reversal . . . is an important tool available to appellate courts for controlling the law and guiding lower courts.” An appellate court uses reversal “to signal that the lower court has made an error and to guide all courts within
subsequent analyses from these reversal rates for specific patentability issues and specific judges.

The results of this study revealed that, during the time period for this study, the Federal Circuit and its judges exhibited a wide array of judicial hyperactivity as it relates to patentability issues under 35 U.S.C. §§ 101, 102, 103, and 112. Due to the fact that the Federal Circuit includes judges with varying degrees of judicial hyperactivity, the Federal Circuit seems to be “well positioned to evolve patent law as appropriate under ever-changing technological and economic circumstances while at the same time providing sufficient predictability and stability.” Therefore, the Federal Circuit indeed exhibits a beneficial range of judicial hyperactivity as it pertains to patentability issues.

Additionally, the results of this study tend to conclude that there is not a substantial effect on the Federal Circuit’s rulings on patentability issues when the appeal comes from a specific originating tribunal category. This study shows that while there are some notable discrepancies between an originating tribunal and the reversal rates for specific patentability issues, but that the average reversal rates for the originating tribunal categories are relatively similar, excluding the Court of Federal Claims due to sample size. This result tends to show that the type of tribunal from which the appeal to the Federal Circuit originates does not significantly affect the reversal rate for specific patentability issues overall.

This article describes this empirical study in detail. Part II begins by providing background information relating to the patentability requirements and a brief description of the concept of judicial hyperactivity. Part III details the methodology used in conducting the study described in this article. Part IV analyzes the results of this study. And finally, Part V discusses some implications of these results.

II. PATENTABILITY REQUIREMENTS AND JUDICIAL HYPERACTIVITY

This Part provides background information on patentability requirements under 35 U.S.C. §§ 101, 102, 103, and 112, as well as the concept of judicial hyperactivity. Part II.A. describes the jurisdiction of the appellate court toward more uniform legal decisions.”

patentability requirements, and Part II.B defines and discusses the concept of judicial hyperactivity as used in this article.

A. Patentability Requirements

The Constitution of the United States gives Congress the power to enact laws relating to patents, in Article I, section 8, which reads, “Congress shall have power . . . 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.” Under this power Congress has shaped and morphed the U.S. patent system from time to time by enacting various laws, including a general revision that was enacted in 1952 and codified in Title 35 of the United States Code (U.S.C.). Additionally, Congress enacted the American Inventors Protection Act of 1999 (AIPA), which further revised the patent laws. Most recently, in 2011, President Obama signed into law the Leahy-Smith America Invents Act (AIA), which, most notably, converted the U.S. patent system from “first to invent” to a system of “first inventor to file,” while also making significant changes to the patentability requirements under §§ 102 and 103.

The U.S. patent laws specify the general field of subject matter that can be patented and various requirements to receive a patent on an invention. This study will explore whether judicial hyperactivity is present within the Federal Circuit in regards to the four patentability requirements listed below, individually, and as a collective.

1. 35 U.S.C. § 101 Patentability Requirement – Subject Matter

Under 35 U.S.C. § 101, any person who “invents or discovers any

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12 OLIVER MILLS, BIOTECHNOLOGICAL INVENTIONS: MORAL RESTRAINTS AND PATENT LAW 43 (REV. ED. 2005).
13 RICHARD E. ROWE, CHANGING THE WORLD ONE INVENTION AT A TIME 140 (2010).
15 See id. (indicating that the AIA directly impacted both the novelty and obviousness requirements, which are codified under U.S.C. §§ 102 and 103, respectively).
new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."17 The word "process" is defined as a process, act, or method in developing a product or invention.18 The term "machine" is essentially any apparatus or device made to perform a particular function.19 The term "manufacture" refers to articles that are made, such as a widget.20 The term "composition of matter" is defined as a combination of substances as a result of chemical or mechanical mixtures.21 Essentially, these are the four areas of subject matter that an inventor can claim an invention under with some limitations. These limitations include concepts surrounding laws of nature, natural phenomena, and abstract ideas, absent an inventive concept, which is defined as something significantly more than a patent on an ineligible concept itself.22

Should an inventor’s subject matter be deemed ineligible under § 101, then a rejection of the patent application, or vacating of a granted patent claim, will result.23 Should a patent application satisfy the threshold test of § 101, it will then be subject to the following three patentability requirements to result in a patent grant.24

This study will review the Federal Circuit’s rulings on the matter of the § 101 patentability requirement individually, and whether there is evidence of judicial hyperactivity as it pertains to the § 101 patentability requirement.

2. 35 U.S.C. § 102 Patentability Requirement – Novelty

35 U.S.C. § 102 differs slightly between the 1952 Patent Act (Pre-AIA) and the AIA versions. While the AIA continues to set forth the scope of what prior art will prevent the grant of a patent, an important modification between the two is the revision of what qualifies as prior art.25 Specifically, § 102(a)(1) of the AIA provides that a person is not entitled to a patent if the claimed invention

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18 JANICE M. MUELLER, PATENT LAW 455 (5th ed. 2016).
19 Id. at 456.
20 Id.
21 Id.
22 Alice Corp. v. CLS Bank Int’l, 134 S. Ct. 2347, 2355 (2014).
23 MUELLER, supra note 18, at 453–54.
24 Id.
was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention. While § 102(a)(2) provides that a person is not entitled to a patent if the claimed invention was described in a patent issued under 35 U.S.C. 151, or in an application for patent published or deemed published under 35 U.S.C. 122(b), in which the patent or application, as the case may be, names another inventor, and was effectively filed before the effective filing date of the claimed invention.

As noted previously, the AIA modified much more than the definition of prior art in § 102 by changing the patent system from a “first to invent” system to a “first inventor to file” system. Specifically, the Pre-AIA version specified the importance of date of conception, date of invention, and “the reasonable diligence of [an inventor] who was first to conceive and last to reduce to practice” to determine the earlier inventor. While the AIA prevents a patent if the claimed invention was described in a patent or application for patent listing another inventor “effectively filed before the effective filing date of the claimed invention,” and removed the importance any importance to date of conception, date of invention, and reasonable diligence.

The modifications to the § 102 patentability requirement under the AIA from Pre-AIA do not apply to any patent application filed before March 16, 2013. Therefore, any application filed prior to this date is governed by the Pre-AIA version of § 102.

Despite the differences in the language employed, this section is commonly referred to as the novelty requirement for patentability. Novelty is “patent-speak” for the bedrock principle that to be patented, an invention must be new (as well as nonobvious and useful). This requirement does come with various exceptions based on grace periods for disclosures. If one

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27 Id. at § 102(a)(2).
32 MUELLER, supra note 18, at 229.
33 35 U.S.C.A. § 102, supra note 26, at (b).
of the novelty requirements under § 102 are met (i.e. public use, on sale, available to public, or disclosure in previous patent application), the claimed invention will be deemed to have been anticipated by the prior art applied, and therefore will not be patentable.34

This study will review the Federal Circuit’s rulings on the matter of the § 102 patentability requirement individually, and whether there is evidence of judicial hyperactivity as it pertains to the § 102 patentability requirement.


Much like § 102, the Pre-AIA version was modified by the AIA, and follows the same application timeframe for applicability.35 The AIA removed the second and third sections of the Pre-AIA version that discussed biotechnological processes and applicability of subject matter owned by the applicant as prior art.36 35 U.S.C. § 103 discloses the patentability requirement known as non-obviousness, where a patent for a claimed invention:

may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.37

This language indicates that non-obviousness is an additional condition to patentability, “even if the invention is not anticipated under . . . § 102.”38 The ultimate question of whether a claimed invention is non-obvious will be analyzed using the factors established in Graham v. John Deere Co. of Kansas City.39 The factors used to determine whether a claimed invention will be deemed obvious, and thereby unpatentable, are: (1) scope and content of the prior art, (2) differences between the prior art and claimed invention, (3) level of ordinary skill in the art, and (4)

34 MUeller, supra note 18, at 229.
36 Id.
38 MUeller, supra note 18, at 354.
This study will review the Federal Circuit’s rulings on the matter of the § 103 patentability requirement individually, and whether there is evidence of judicial hyperactivity as it pertains to the § 103 patentability requirement.


35 U.S.C. § 112 requires that the specification of a patent application shall contain

- a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

Rejections of claimed inventions under § 112 spawn when an inventor has inadequately described the claimed invention in the specification required. As provided in the language above, there are three requirements to § 112 for patentability: (1) enablement, (2) best mode, and (3) written description of the invention.

First, the enablement requirement refers to the requirement that the specification clearly describe how to make and use the claimed invention. Second, the best mode requirement is meant to hinder inventors from retaining the best mode of the claimed invention and specifying the second best application for the claimed invention. Third, to satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.

40 *Id.* at 17.


42 See *id.* (requiring that inventors provide descriptions for their inventions that satisfy § 112).

43 *Id.*


46 Moba, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1319 (Fed. Cir.)
This study will review the Federal Circuit’s rulings on the matter of the § 112 patentability requirement individually, and whether there is evidence of judicial hyperactivity as it pertains to the § 112 patentability requirement.

B. Judicial Hyperactivity

The term, “judicial hyperactivity,” as coined by William C. Rooklidge and Matthew F. Weil, is defined as a concept in which a judge improperly “elevate[s] his or her judgment above that of another constitutionally significant actor (e.g., Congress, the President, [or] other Article III courts),” where this improper behavior is not necessarily driven by politics or ideology.

Judicial hyperactivity of a judge is determined by analyzing whether a judge is more of a “judicial entrepreneur” or more of a “judicial minimalist.” A judicial entrepreneur may “take a definite lead in innovating in the law—even at the risk of being overruled.” In contrast to a judicial entrepreneur, a judge who lies on the judicial-minimalist end of the continuum will tend to agree with the principle of minimalistic opinion drafting on issues to regulate the application of a specific decision to only the facts at hand.

A judicial entrepreneur, who seeks to innovate and develop unique legal concepts, is likely to “elevate[s] his or her judgment above that of” a district court judge—thus behaving in a judicially hyperactive manner. In contrast, a judicial minimalist is not likely to do so—thus behaving in a non-judicially-hyperactive manner.

III. METHODOLOGY

This Part describes the methodology used in gathering and analyzing the data for the empirical study described in this article.

47 See Field, supra note 10, at 636.
50 See Rooklidge & Weil, supra note 48, at 726–727 (contrasting judicial hyperactivity with politicized judicial activism).
51 Field, supra note 10, at 638.
52 Id.
53 Id at 639.
54 Id.
Part III.A below describes the assumptions made for and process of data gathering, and Part III.B describes the assumptions made and procedures for the analysis performed on the data gathered.

A. Data Gathering

The data for this analysis was gathered by inputting all 2016 case data into a Microsoft Excel database based on assumptions made for gathering an applicable dataset for this study. The data gathered in this study include the originating tribunal from where the appeal to the Federal Circuit came, all judges for the case, patent class designation as denoted on the patent application or grant, and all issues ruled on by the Federal Circuit, among other parameters that were not be analyzed for this study.

The data reviewed for this study, which were those cases that withstood the assumptions developed for this study, resulted in 327 cases that presented 640 separate issues from 16 categories that were broken down into major and minor issues.

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55 Assumptions made for data gathering were as follows: Cases were not recorded if: patent application or grant was not available or accessible to collect patent class designation; no procedural history was available for summary affirmance cases to review and record Patent Trial and Appeal Board rulings on issues; and cases did not contain issues directed at patent law.

56 Data collected include: citation, if case was reported in Federal Reporter, originating tribunal, USPTO patent class designation, USPTO class description, month and year decided, if summary affirmance, if on petition for rehearing en banc, if en banc decision, if per curiam, writing judge, concurring judge(s), dissenting judge(s), issues related to patent law, standard of review for each ruling, and disposition of each ruling. See infra note 58 for list of issue data breakdown.

57 See supra note 55 for the assumptions.

58 Issues gathered are as follows: § 101 – Ineligible/Unpatentable Subject Matter Material – Abstract Idea/Covered Business Method; § 102 – Anticipation; § 103 – Obviousness; § 112 – Indefinite/Written Description; Claim Construction/Interpretation; Doctrine of Equivalents; Enhanced Damages – Denial; Exceptional Case – Attorney Fees (Denial); Inequitable Conduct; Infringement – Direct/Indirect/Induced/Contributory/Willful Misconduct; Inventorship – Assignment, Laches, Assignor Estoppel; Jurisdiction – Venue/State Law at District Court/Lack of Jurisdiction; Lack of Standing; Non-Infringement; Prosecution History Estoppel; Petition for Rehearing En Banc – Denied; Petition for Rehearing En Banc – Granted; Writ of Mandamus – Denied; Writ of Mandamus – Granted. Two category groups for minor issues as follows: Other - Collateral/Equitable Estoppel, Dismissal of Experts/Counsel, Order to Compel Patent-Agent Communications, Secondary Evidence, Patent Exhaustion, Patent Term Adjustment, Actual Notice Requirement, Amended Claim – Expired, Taxable Costs, On-Going Royalty – Post-Verdict Sale, Same-Day Continuation, Preliminary Injunction, Defamation, Unjust Enrichment, Unenforceable Contract – Fraud, Constructive Trust, Breach of Contract, Discovery Violations/Order, IPR Nonappealable, Joinder, Misapprehension,
Still, this dataset was further condensed based on additional assumptions to mitigate matters that were not applicable issues to be analyzed for this study, such as petitions for rehearing *en banc*,\(^{59}\) *en banc* decisions,\(^{60}\) summary affirmances,\(^{61}\) and *per curiam* decisions.\(^{62}\) Once condensed, the dataset to be reviewed contained 208 cases that presented 386 separate issues from the 16 categories collected. However, this study is focused on the patentability requirements under 35 U.S.C. §§ 101, 102, 103, and 112. Therefore, the dataset was further condensed by removing 12 of the 16 issue categories to focus on the four patentability categories (§§ 101, 102, 103, and 112).\(^{63}\) This resulted in 144 cases.

Unfair Competition; and Other – Motion to Dismiss/Lift Stay/Amend/Compel Arbitration/Vacatur/New Trial/Forum Non Conveniens/Strike.

\(^{59}\) The Federal Circuit ruled on five petitions for rehearing *en banc*, denying four and granting one. These cases were excluded from this study.

\(^{60}\) The Federal Circuit issued two *en banc* decisions during the period studied: *Medicines Company v. Hospira, Inc.*, 827 F.3d 1363 (Fed. Cir. 2016) and *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 831 F.3d 1369 (Fed. Cir. 2016). These cases were excluded from this study.

\(^{61}\) F ED. CIR. R. 36. This rule permits the Federal Circuit to affirm a decision of a lower court without a written opinion. According to the rule, summary affirmances are limited to situations where “an opinion would have no precedential value” and one of the following is present:

- (a) the judgment, decision, or order of the trial court appealed from is based on findings that are not clearly erroneous;
- (b) the evidence supporting the jury’s verdict is sufficient;
- (c) the record supports summary judgment, directed verdict, or judgment on the pleadings;
- (d) the decision of an administrative agency warrants affirmation under the standard of review in the statute authorizing the petition for review; or
- (e) a judgment or decision has been entered without an error of law.

_id._ See also Anthony C. Tridico et al., *PTAB Affirmance at the Federal Circuit*, CIPA J. (2015) (discussing the tendencies of the Federal Circuit to affirm decisions of the Patent Trial and Appeal Board). These cases were collected, but were not analyzed because the data gathered spawned from PTAB rulings and assumed that Federal Circuit judges affirmed all issues present in the PTAB ruling. These 95 cases were chosen to be removed from this study to focus solely on written decisions on patentability issues.

\(^{62}\) These cases were collected, but these 114 cases were excluded from this study to focus on decisions with three judge panels rather than *per curiam*.

\(^{63}\) Data captured, but not included in final dataset analysis on patentability requirements: Writ of Mandamus, Petition for Rehearing *en banc*, Infringement, Non-Infringement, Doctrine of Equivalents, Prosecution History Estoppel, Claim Construction/Interpretation, Other - Collateral/Equitable Estoppel, Dismissal of Experts/Counsel, Order to Compel Patent-Agent Communications, Secondary Evidence, Patent Exhaustion, Patent Term Adjustment, Actual Notice Requirement, Amended Claim - Expired, Taxable Costs, On-Going Royalty - Post-Verdict Sale, Same-Day Continuation, Preliminary Injunction, Defamation, Unjust Enrichment, Unenforceable Contract – Fraud, Constructive Trust,
that presented 167 separate patentability issues from the four patentability requirements under 35 U.S.C. §§ 101, 102, 103, and 112.

For each of these issues, it was determined whether each judge sitting for the particular case affirmed, reversed/remanded, vacated/remanded, or dismissed the lower court on that particular issue. Major issues were examined separately, but where a case discussed a minor issue, this minor issue was grouped into a category with other minor issues to be collected as one major issue.64

In the instance that a single case presented multiple rulings on the same category of issue, such as two rulings on separate patents for § 101 patentability within the same case, and the court affirmed or reversed/remanded both issues, then it was recorded as a single occurrence under that issue; but if the court affirmed one and reversed/remanded the other, then the case was replicated in the dataset to indicate the differing rulings on the separate § 101 patentability issues for that particular case.

All decisions by judges who participated in cases during the time period studied were recorded. These judges included active judges, judges with senior status, and judges from district courts sitting by designation.65

Breach of Contract, Discovery Violations/Order, IPR Nonappealable, Joinder, Misapprehension, Unfair Competition; Other – Motion to Dismiss/Lift Stay/Amend/Compel Arbitration/Vacatur/New Trial/Forum Non Conveniens/Strike.


65 The following judges participated in these decisions: William C. Bryson; Raymond T. Chen; Raymond C. Clevenger III; Timothy B. Dyk; Todd M. Hughes; Richard Linn; Alan D. Lourie; Haldane R. Mayer; Kimberly A. Moore; Pauline Newman; Kathleen M. O’Malley; S. Jay Plager; Sharon Prost; Jimmy V. Reyna; Alvin A. Schall; Kara F. Stoll; Richard G. Taranto; and Evan J. Wallach. Additionally, also participating in the decisions studied and sitting on the Federal Circuit by designation was Leonard Stark (District of Delaware), but due to not ruling on at least five cases on patentability issues within the period studied, his rulings were not part of the analysis.
B. Data Analysis

The data for this study was collected and analyzed within a Microsoft Excel database by utilizing pivot tables to filter the appropriate data for analysis. The first step was to apply the assumptions listed in the previous section to remove inapplicable data.66 This step was completed by creating a pivot table for the master table in the database and selecting the appropriate row/column indicators to filter the data per the assumptions listed.

Once the inapplicable data was removed from the analysis, the next step was to tally the raw case data for each issue category. The data points for each of the four patentability categories were placed in separate spreadsheets with separate pivot charts to segregate the four issues and provide a uniform procedure for analysis by having each spreadsheet operate the exact same, but with only the cases applicable to that particular issue.

After the cases had been separated into the four respective spreadsheets, the next step was to apply the appropriate row/column indicators for the pivot table to develop the tables necessary for this study.

First, a table was developed to specify the count of cases and issues for the respective issue category by selecting the citation of the cases listed in the particular issue category spreadsheet to be the row label and the disposition on the particular patentability issue to be the column label. This allowed for the case and issue counts for the particular issue to be captured by showing the total and disposition-specific totals for that issue. Next, the writing judge, concurring judge(s), and dissenting judge, if applicable, were applied as an additional column label to indicate a particular judge’s disposition on that particular patentability issue in all applicable cases. This again showed the total count of cases and issues by disposition, but with an additional layer that showed the counts of each judge for that particular patentability issue.

The above steps were recreated for the four patentability issue spreadsheets to produce the same data for each issue. Finally, a table was created that grouped the results for all four patentability issues. Once this table was created, the data was analyzed to produce: 1) judge-specific reversal rates in all cases irrespective of patentability issue; 2) judge-specific reversal rates per patentability issue; 3) average court reversal rate irrespective of patentability issue; and 4) average court reversal rate per

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66 See supra notes 55, 59–62 for assumptions and inapplicable data.
In addition to the analyses stated above, a table denoting the number of reversed/remanded, vacated/remanded, or dismissed cases per patentability issue were captured with a breakdown of the originating tribunal to investigate any trends on where these remands and dismissals spawn. This table indicates the patentability requirement, as well as the counts for remand and dismissal dispositions, and denotes the originating tribunal by “District Court,” “Patent Tr. & App. Bd.,” and “Fed. Claims” for the three options of where the appeals for the cases in this dataset originated. Additionally, the count of total cases heard by the three separate tribunal options were noted in the table to determine reversal rates for issues appealed from the three tribunal options as a whole and per patentability issue.

IV. RESULTS

This Part describes the results of the empirical study, which begins with the reversal rates for both individual judges and the court as a whole in Part IV.A and Part IV.B, respectively, and continues in Part IV.C with the reversal rates for the various patentability issues according to the three originating tribunal categories.

A. Reversal Rates – Judge-Specific

This sub-part discusses the results of the empirical study relating to the judge-specific reversal rates both irrespective of and according to specific patentability issues. Table 1 below summarizes the judge-specific reversal rates for each judge for each patentability requirement issue and that judge’s overall reversal rate for all patentability issues ruled on during the time period of this study.
Table 1 – Judge-Specific Reversal Rate – All Patentability Issues

<table>
<thead>
<tr>
<th>Judge</th>
<th>§ 101 - Reversal Rate</th>
<th>§ 102 - Reversal Rate</th>
<th>§ 103 - Reversal Rate</th>
<th>§ 112 - Reversal Rate</th>
<th>Overall Reversal Rate</th>
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<tr>
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</tr>
<tr>
<td>Schall</td>
<td>50.00%</td>
<td>50.00%</td>
<td>33.33%</td>
<td>0.00%</td>
<td>44.44%</td>
</tr>
<tr>
<td>Stoll</td>
<td>28.57%</td>
<td>50.00%</td>
<td>25.00%</td>
<td>0.00%</td>
<td>32.26%</td>
</tr>
<tr>
<td>Taranto</td>
<td>40.00%</td>
<td>50.00%</td>
<td>35.29%</td>
<td>100.00%</td>
<td>42.86%</td>
</tr>
<tr>
<td>Wallach</td>
<td>0.00%</td>
<td>66.67%</td>
<td>44.44%</td>
<td>33.33%</td>
<td>42.86%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>37.20%</strong></td>
<td><strong>49.30%</strong></td>
<td><strong>37.23%</strong></td>
<td><strong>43.37%</strong></td>
<td><strong>41.45%</strong></td>
</tr>
</tbody>
</table>
1. Judge-Specific Reversal Rates Irrespective of Patentability Issue

Figure 1 below summarizes the overall reversal rates provided in Table 1 for each judge who participated in rulings during the time period of the study, irrespective of patentability issues.

The results of this study indicate an average overall reversal rate among the judges who participated in Federal Circuit rulings, irrespective of patentability issue, of 41.45%. The overall reversal rates ranged from a low of 22.22% for Judge Bryson to a high of 76.92% for Judge Clevenger.

2. Judge-Specific Reversal Rates per Patentability Issue

Figure 2 below shows the reversal rates for individual judges on § 101 patentability requirement issues. The average reversal rate for § 101 patentability issues was 37.20%. The reversal rates for individual judges ranged from a low of 0.00% for Judges Bryson and Lourie, to a high of 100.00% for Judge Newman. It is noted that Judges Clevenger and Linn did not participate in an applicable ruling for a § 101 patentability requirement issue, and therefore were not included in the analysis for § 101 reversal rates.
Figure 3 below shows the reversal rates for individual judges on § 102 patentability requirement issues. The average reversal rate for § 102 patentability issues was 49.30%. The reversal rates for individual judges ranged from a low of 20.00% for Judge Lourie, to a high of 100.00% for Judge Clevenger.
Figure 4 below shows the reversal rates for individual judges on § 103 patentability requirement issues. The average reversal rate for § 103 patentability issues was 37.23%. The reversal rates for individual judges ranged from a low of 0.00% for Judges Plager, to a high of 100.00% for Judge Linn.

![Figure 4 – Judge-Specific Reversal Rate – § 103](image)

Figure 5 below shows the reversal rates for individual judges on § 112 patentability requirement issues. The average reversal rate for § 112 patentability issues was 43.37%. The reversal rates for individual judges ranged from a low of 0.00% for Judges Mayer, O’Malley, and Stoll, to a high of 100.00% for Judges Bryson, Clevenger, and Taranto. It is noted that Judges Linn, Plager and Schall did not participate in an applicable ruling for a § 112 patentability requirement issue, and therefore were not included in the analysis for § 112 reversal rates.

![Figure 5 – Judge-Specific Reversal Rate – § 112](image)
Figure 5 – Judge-Specific Reversal Rate – § 112

Figure 6 below shows the combined results for the four patentability issues for judge-specific reversal rates for the four patentability requirements issues, as well as the overall reversal rate for individual judges, as they relate to the average overall reversal rate for all judges who participated in Federal Circuit rulings during the time period of this study.
B. Reversal Rates – Court of Appeals for the Federal Circuit

1. Average Court Reversal Rate Irrespective of Patentability Issue

Table 2 below provides a detailed breakdown of the cases heard by the Federal Circuit for each of the four patentability requirement issues investigated in this study, as well as the reversal rate per issue and average reversal rate among the four patentability requirements. Irrespective of the judges who heard a particular case, the overall reversal rate for all patentability
requirement cases heard by the Federal Circuit was gathered by dividing the total count of remanded issues (66) from the total count of patentability requirement issues (167) presented to the Federal Circuit. The overall reversal rate for the court irrespective of the issues was determined to be 39.52%, which falls in line with the average among the four issues of 39.73% taken as the average among the reversal rates for the four patentability issues during the period of this study.

Table 2 – Case/Issue Count and Reversal Rate per Patentability Issue

<table>
<thead>
<tr>
<th>Patentability Issue</th>
<th>Total Cases</th>
<th>Total Issues</th>
<th>Total Issues Remanded</th>
<th>Reversal Rate - Per Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>§ 101</td>
<td>21</td>
<td>23</td>
<td>9</td>
<td>39.13%</td>
</tr>
<tr>
<td>§ 102</td>
<td>40</td>
<td>44</td>
<td>20</td>
<td>45.45%</td>
</tr>
<tr>
<td>§ 103</td>
<td>65</td>
<td>76</td>
<td>28</td>
<td>36.84%</td>
</tr>
<tr>
<td>§ 112</td>
<td>18</td>
<td>24</td>
<td>9</td>
<td>37.50%</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>167</td>
<td>66</td>
<td>Average 39.73%</td>
</tr>
</tbody>
</table>

2. Average Court Reversal Rate per Patentability Issue

Figure 7 below provides a closer look at the reversal rate per patentability issue. The average reversal rate for all patentability issues was 39.73%. The reversal rates per patentability issue ranged from a low of 36.84% for § 103 patentability issues, to a high of 45.45% for § 102 patentability issues.
Figure 7 – Overall Reversal Rate per Patentability Issue

C. Reversal Rates – Originating Tribunal

Table 3 below details the count of cases, issues, and remanded issues for the three originating tribunal categories for this study.

Table 3 – Originating Tribunal – Case/Issue Count and Reversal Rate

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>§ 101</td>
<td>17</td>
<td>4</td>
<td>0</td>
<td>21</td>
<td>18</td>
<td>5</td>
<td>0</td>
<td>23</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>§ 102</td>
<td>12</td>
<td>28</td>
<td>0</td>
<td>40</td>
<td>13</td>
<td>31</td>
<td>0</td>
<td>44</td>
<td>7</td>
<td>13</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>§ 103</td>
<td>14</td>
<td>50</td>
<td>1</td>
<td>65</td>
<td>16</td>
<td>59</td>
<td>1</td>
<td>76</td>
<td>3</td>
<td>24</td>
<td>1</td>
<td>28</td>
</tr>
<tr>
<td>§ 112</td>
<td>13</td>
<td>4</td>
<td>1</td>
<td>18</td>
<td>17</td>
<td>6</td>
<td>1</td>
<td>24</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>86</td>
<td>2</td>
<td>144</td>
<td>64</td>
<td>101</td>
<td>2</td>
<td>167</td>
<td>23</td>
<td>41</td>
<td>2</td>
<td>66</td>
</tr>
</tbody>
</table>
Table 4 below shows the reversal rates for each of the three originating tribunals. The average reversal rate for issues that originated from a district court was 36.69%, with a low of 18.75% for § 103 issues and a high of 53.85% from § 102 issues. The average reversal rate for issues that originated from the Patent Trial and Appeal Board was 38.99%, with a low of 33.33% for § 112 issues and a high of 41.94% from § 102 issues. Lastly, the average reversal rate for issues that originated from Court of Federal Claims was 100.00% for the only two issues that were presented to the Federal Circuit.

<table>
<thead>
<tr>
<th>Patentability Issue</th>
<th>Reversal Rate - Per Issue</th>
<th>Reversal Rate - District Court</th>
<th>Reversal Rate - Patent Tr. &amp; App. Bd.</th>
<th>Reversal Rate - Fed. Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>§ 101</td>
<td>39.13%</td>
<td>38.89%</td>
<td>40.00%</td>
<td>-</td>
</tr>
<tr>
<td>§ 102</td>
<td>45.45%</td>
<td>53.85%</td>
<td>41.94%</td>
<td>-</td>
</tr>
<tr>
<td>§ 103</td>
<td>36.84%</td>
<td>18.75%</td>
<td>40.68%</td>
<td>100.00%</td>
</tr>
<tr>
<td>§ 112</td>
<td>37.50%</td>
<td>35.29%</td>
<td>33.33%</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>39.73%</strong></td>
<td><strong>36.69%</strong></td>
<td><strong>38.99%</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

Figure 8 below provides a graphic of the reversal rates for each originating tribunal per patentability issue in comparison to the overall reversal rate per patentability issue presented to the Federal Circuit.
Figure 8 – Originating Tribunal – Reversal Rate per Patentability Issue

V. IMPLICATIONS OF THE RESULTS

This Part discusses the implications of the results of this study on the Federal Circuit’s rulings on patentability issues relating to 35 U.S.C. §§ 101, 102, 103, and 112. Part V.A begins by discussing the implication that the judges of the Federal Circuit exhibit a large disparity in reversal rates when it comes to the separate patentability issues independently, but exhibit a healthy range of judicial hyperactivity when it comes to judge-specific overall reversal rates, irrespective of the patentability issue at question. Next, Part V.B discusses the correlation between the originating tribunal and whether this provides an effect on the Federal Circuit’s overall reversal rate.
A. Federal Circuit Judges Exhibit A Large Disparity In Reversal Rates When It Comes To Patentability Issues Independently, But Exhibit A Healthy Range Of Judicial Hyperactivity When It Comes To Judge-Specific Overall Reversal Rates Irrespective Of The Patentability Issue

The data analyzed for this study show that the Federal Circuit judges exhibit a large disparity in reversal rates when patentability issues were analyzed independently. However, when the overall reversal rates for each judge were determined irrespective of the patentability issue in question, the judge-specific overall reversal rates tend to show a healthy range of judicial hyperactivity.

For the time period of this study, the results tend to show that the Federal Circuit is comprised of a beneficial variety of judges who exhibit varying degrees of hyperactivity. In the analyses for patentability issue directed reversal rates for individual judges, this is clearly evident with the wide range of reversal rates among the judges. This composition of judges may be ideal in terms judicial hyperactivity. This is due to the likelihood that a court with “too few judicially hyperactive judges might be less effective than one with a greater number of judicially hyperactive judges.”

To specify, a court with too few judicially hyperactive judge will likely lack innovative characteristics needed for the changing environment of patent law, and a court with too many judicially hyperactive judges will likely be less effective by failing to fulfill one of the central purposes of the Federal Circuit: to “yield a clearer, more coherent, more predictable legal infrastructure for the patent system” and developing a lack of predictability for rulings on patentability issues.

67 Field, supra note 10, at 677.
68 See, e.g., Sean B. Seymore, Atypical Inventions, 86(5) Notre Dame L. Rev. 2057, 2058 (2011) (“Patent law is one of the most dynamic areas of the law because it must respond as the nature of the invention landscape changes to reflect advances in science and technology.”); see also Teri-Lynn A. Evans, The Effect of the Supreme Court’s Decision in KSR on the System of Patent Litigation, 40 Rutgers L.J. 669, 674 (2009) (“Patent law is a constantly evolving system of jurisprudence because it is based on the demands of the ever-changing technological community . . . ”).
69 Wagner & Petherbridge, supra note 3, at 1108.
B. The Type Of Tribunal From Which the Appeal to the Federal Circuit Originates Does Not Substantially Affect the Reversal Rate For Patentability Issues

The results of this study tend to conclude that there is not a substantial effect on the Federal Circuit’s rulings on patentability issues when the appeal comes from a specific originating tribunal category. This study shows that while there are some notable discrepancies between an originating tribunal and the reversal rates for specific patentability issues (most notably, the reversal rates for § 103 patentability issues have a large disparity between when the district court and Patent Trial and Appeal Board is the originating tribunal), the average reversal rates for the originating tribunal categories are relatively similar to each other and the average reversal rate among the Federal Circuit judges, excluding the Court of Federal Claims’ 100% reversal rate for the two cases heard from that originating tribunal. This result tends to show that the type of tribunal from which the appeal to the Federal Circuit originates does not significantly affect the reversal rate for patentability issues overall.

VI. CONCLUSION

The results of this study revealed that during the time period for this study the Federal Circuit and its judges exhibited a wide array of judicial hyperactivity as it relates to patentability issues under 35 U.S.C. §§ 101, 102, 103, and 112. Because the Federal Circuit includes judges with varying degrees of judicial hyperactivity, the Court seems to be “well-positioned to evolve patent law as appropriate under ever-changing technological and economic circumstances while at the same time providing sufficient predictability and stability.” Therefore, it is alleged that the Federal Circuit indeed exhibits a beneficial range of judicial hyperactivity as it pertains to patentability issues.

Additionally, the results of this study tend to conclude that there is not a substantial effect on the Federal Circuit’s rulings on patentability issues when the appeal comes from a specific originating tribunal category. This study shows that while there are some notable discrepancies between an originating tribunal and the reversal rates for specific patentability issues, the average

70 See supra Tables 3–4, Figure 8 for reversal rates organized by originating tribunal.
71 Field, supra note 10, at 685.
reversal rates for the originating tribunal categories are relatively similar, excluding the Court of Federal Claims due to sample size. This result tends to show that the type of tribunal from which the appeal to the Federal Circuit originates does not significantly affect the reversal rate for specific patentability issues overall.