The Effects of Section 101's Subject Matter Eligibility Requirement on Fintech Patent Valuation Models

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THE EFFECTS OF SECTION 101’S SUBJECT
MATTER ELIGIBILITY REQUIREMENT ON
FINTECH PATENT VALUATION MODELS

FHERNAM BATIZ

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INTRODUCTION

Financial technology ("Fintech") has revolutionized the way we pay and transfer money, just like the incandescent light bulb disrupted candles in 1882.1 Fintech allows you to pay for goods and services by just tapping your card or phone.2 Fintech also allows you to buy merchandise now and pay later in

   [https://perma.cc/H6K3-HA5Z].
monthly installments and even send money to a friend while vacationing on the beautiful beaches of Puerto Rico. These jaw-dropping innovations have disrupted our previous mundane methods of payment, which in 2021, led to global Fintech investments of $210 billion. Both startups and industry behemoths are trying to capitalize on new Fintech technologies, and patents are the medium of protection.

Whether it’s a startup or an industry behemoth, both need to understand how to determine the value of a patent—a Fintech patent. That is why patent valuation models play a central role in the decision-making process of Fintech technology acquisitions. Patent valuation models aim to determine, with reasonable certainty, what the value of a patent is to the parties involved. Although there exists a plethora of patent valuation models, all models should consider the economic, technical, and legal information to estimate the value of a patent. Certainly, a patent valuation model that does not consider the legal risk of a patent being invalidated, does not accurately depict the value the Fintech patent conveys to the parties involved.

Since the United States Supreme Court decided Alice v. CLS Bank, Fintech patents have been vulnerable to subject matter eligibility challenges under Section 101 of Title 35 of the United States Code. As Fintech innovations heavily rely on software, the vulnerability to subject matter eligibility challenges extends to Fintech patents. And so, when facing a subject matter eligibility challenge, Fintech patents are subject to the Alice/Mayo test. The Alice/Mayo test determines whether a Fintech patent that claims an abstract idea amounts to something more than an abstract idea, and is thus enforceable. Courts have interpreted the Alice/Mayo test in different ways, which does not

8. Id.
9. See id. at 70.
10. “[T]he test [Alice/Mayo test] for determining what constitutes a patent eligible claim continues to evolve and create uncertainty for the hundreds of granted and pending patents.” Nimitz, supra note 7, at 70.
help in assessing with reasonable certainty the legal risk posed by Section 101.\textsuperscript{11} The uncertainty of whether a Fintech patent owner will be able to enforce their patent rights is a problem.\textsuperscript{12}

The legal risks attached to Section 101’s subject matter eligibility challenges need to be considered and distinguished from other legal risks when employing a patent valuation model. Patent valuation models that lump together all legal risks into a bucket without distinguishing between the heightened legal risk of subject matter eligibility challenges and all other legal risks will not accurately depict the Fintech patent’s value.\textsuperscript{13} Recent Federal Circuit cases addressing Fintech patents shed light on how to properly navigate the Section 101 hurdle and how to determine with reasonable certainty the legal risk posed by Section 101 to properly employ patent valuation models.\textsuperscript{14}

The goal of this comment is to shed light on the heightened legal risk that Section 101’s subject matter eligibility challenges pose to Fintech patents and patent valuation models and how recent Federal Circuit cases can provide guidance on how to either reduce the increased legal risk or leverage it. Part II of this comment will provide a background on patent valuation models and the inputs taken into account to assess a particular patent’s value—enough background so that the reader can understand the increased risk that Section 101 poses to patent valuation. Part III will explain Section 101’s subject matter eligibility requirement and how both recent Federal Circuit cases and Patent Trial and Appeals Board (“PTAB”) decisions can provide guidance on how to navigate the Section 101 hurdle. Lastly, Part IV will address how the heightened legal risk posed by Section 101’s subject matter eligibility challenges affects the valuation of Fintech patents as determined by patent valuation models, and how the recent Federal Circuit cases can provide guidance on how to either reduce the increased legal risk or leverage it.

\textsuperscript{11} For an empirical analysis on whether the Alice/Mayo test is ambiguous or not, see Jason Reinecke, \textit{Is the Supreme Court’s Patentable Subject Matter Test Overly Ambiguous? An Empirical Test}, 2019 UTAK L. REV. 581 (2019).

\textsuperscript{12} Nimitz, supra note 7, at 65.

\textsuperscript{13} Köllner’s formula distinguishes between the different types of legal risks and the impact each legal risk has on the patent’s value. See Malte Köllner, \textit{Due Diligence or Discount Monetary Effect of Legal Aspects in Patent Valuation}, 44, LES NOUVELLES 24, 28 (2009).

\textsuperscript{14} See Eric Sophir & Evan Glass, \textit{Web IP Ruling Illustrates Ways To Clear Hurdles To Eligibility}, LAW 360 (Nov. 4, 2022, 3:55 PM EDT).
BACKGROUND

As of 2020, intangible assets accounted for ninety percent of the S&P 500’s total assets.\(^\text{15}\) Patents, as intangible assets, provide immense value to the patent owner.\(^\text{16}\) Patents can be used as collateral for securing funding, they can generate revenue, they can diminish a market entrant’s ability to compete, and they can even recoup monetary value from being worthless.\(^\text{17}\) Because of the plenitude of uses a patent can serve, and their inherent uniqueness, is why valuating a patent is so complex. Patent valuation models were developed to ascertain a patent’s monetary value with reasonable certainty.\(^\text{18}\) Currently, there exist more than 100 quantitative patent valuation methods discussed in literature.\(^\text{19}\) An analysis of all these methods is out of the scope of this comment, but the most common patent valuation models will be discussed. These methods are typically based on economic inputs, but to accurately ascertain the value of a patent, the following three inputs should be considered: (1) economic input, (2) technical inputs, and (3) legal inputs.\(^\text{20}\)

Economic Input

From a financial perspective, when you think of patent valuation models, you think of the economic inputs required to assess the value of the patent. Setting aside technical and legal considerations, the most common patent valuation models are the following three: (1) cost-based valuations, (2) income-based valuations, and (3) market-based valuations.\(^\text{21}\)

Cost-based patent valuation models assess the value of a patent based on the costs incurred during the lifetime of the patent.\(^\text{22}\) The most common cost-based patent valuation models are the historical cost method and the replacement cost method.\(^\text{23}\) The historical cost method splits the costs associated with research and development, patent prosecution, application and


\(^\text{16}\) See Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 1 (2005) (“IBM has avowedly followed a portfolio-focused patenting strategy, which yielded a more than 400% increase in patent-related revenues...


\(^\text{18}\) See Köllner, supra note 13, at 25.

\(^\text{19}\) GASSMAN ET AL., supra note 4, at 63.

\(^\text{20}\) FRIEL, supra note 5, at 257.


\(^\text{22}\) GASSMAN ET AL., supra note 4, at 64.

\(^\text{23}\) Id.
maintenance fees, and even patent litigation, to come up with a patent value—subject to the corporate cost of capital.24 On the other hand, the replacement cost method determines the patent’s value by adding the costs that would be incurred in developing a patent with exactly the same functionalities of the patent being valued.25 The underlying assumption behind cost-based patent valuation models is that the value of the patent comes from the expenses incurred in obtaining and maintaining the patent rights.26

Alternatively, market-oriented patent valuation models assess the value of the patent based on what the market would be willing to pay for a similar patent under similar circumstances.27 There exist three common methods based on market-based patent valuation models: (1) market price on the active market, (2) analogy methods, and (3) equity value methods.28 The method based on the market price on the active market is self-explanatory, in that this method assesses the value of the patent by trying to come up with a value that the market would be willing to pay as of the time the patent is offered for sale (e.g., patent auctions).29 Similarly, analogy methods assess the value of a patent by collecting information on comparable transactions of similarly situated patents—a tough task to perform due to the inherent uniqueness of each patent.30 Equity methods utilize econometrics to assess the patent value by “predict[ing] the excess value of a [company] beyond its book value . . . ”31 Overall, market-based patent valuation models are preferred for sales or licensing negotiations because these models assess a patent’s value based on what the market is willing to pay, but most often the information required to ascertain the monetary value with reasonable certainty is not publicly available.32

In contrast to both cost-based and market-oriented valuations, income-based patent valuation models assess the value of the patent based on the cash flow projections originating from the patent but discounted by an interest rate.33 Income-based patent valuation models rely on the basic concept of discounted

24. For a simplified example of how the corporate cost of capital is used in the historical cost method, see id. For additional information on the cost of capital concept, see also Adam Hayes, Cost of Capital: What It Is, Why It Matters, Formula, and Example, INVESTOPEDIA (May 17, 2023), https://www.investopedia.com/terms/c/costofcapital.asp [https://perma.cc/5TD-P-E6KK].
25. GASSMAN ET AL., supra note 4, at 64.
26. See id.
27. Id. at 66.
28. Id. at 66-67.
29. Id. at 66.
30. Id.
31. Id. at 67.
32. Id. at 68.
33. Id.
cash flows ("DCF"), where the cash flow is attributed to specific lapses of time during the patent’s lifetime and are discounted an interest rate that takes into account the capital costs of the company, possible capital costs of the patent or product, and the risk associated with the patent (e.g., legal risk, technical risk, and economic risk).  

There exist four methods to determine the cash flow projections: (1) direct cash flow, (2) licensing price analogy, (3) additional profit method, and (4) residual value method. Direct cash flow utilizes the cash flow generated by the patented product at a discounted rate to assess the value of the patent. Similarly, the license price analogy assesses the patent’s value by approximating it to the licensing fees of an analogous patent that the patent owner is saving by owning the patent. The additional profit method uses expected future cash flows for the company and compares them to a peer company to estimate the additional cash flow generated by the patent. Lastly, the residual value method assesses the patent’s value by subtracting from the company’s total cash flow the payments received from all other tangible and intangible assets of the company. In summary, income-based patent valuation models use the company’s cash flows to assess the patent’s value.

There exist other patent valuation methods, but in essence, they are a combination of cost, market-oriented, and income-based patent valuation models. Worth mentioning are the following two: 25-percent rule and the Monte Carlo Method. The 25-percent rule—often referred to as the “rule of thumb”—assesses the patent’s value by equating it to twenty-five percent of the licensee’s gross profit from the licensed technology. Similarly poised is the Monte Carlo method, a simulation-based approach that assesses the patent’s value by inputting relevant data into a mathematical model that generates random samples of output results from the mathematical model, which generates a range of monetary values for the patent. Although there

34. *Id.*
35. *Id.* at 69.
36. *Id.*
37. *Id.*
38. *Id.* at 70.
39. *Id.* at 71.
40. *Id.* at 72.
43. Friel suggests that four of Hagelin’s seven different valuation methods—including the Monte Carlo method—for valuating intellectual property are “simply variants of either the 25% model or the comparative model.” Friel, *supra* note 5, at 265.
exist other patent valuation models based on economic inputs, the ones above give the big picture of an economic approach to patent valuation models.

Technical Input

Bringing back the technical and legal inputs, the models above, considering the economic input alone, do not fully paint the patent valuation picture. The technical aspects of the patented invention should be considered because, for example, a patent claiming an active ingredient of a groundbreaking pharmaceutical is undoubtedly more valuable than a patent claiming a method for making such pharmaceutical—regardless of the cost incurred in obtaining the patent or licensing benefits currently received.\textsuperscript{44} There exist patent valuation models that aim to determine a patent’s value solely by using the characteristics of essential patents as a proxy for the lack of public availability of direct transaction data.\textsuperscript{45}

A purely analytical patent valuation model assesses the patent’s value based on the technical characteristics of the patent.\textsuperscript{46} This analytical approach uses the following patent data to assess the patent’s value: the number of citations and references, the citation age and the reference age, and the technological fields of the patent’s references and the technological fields of the patents that have cited the essential patent.\textsuperscript{47} By statistically analyzing this information and normalizing certain values, a mathematical formulation can be used to compute with reasonable certainty a patent’s value by comparing the essential patent’s information with the general patent population and other patents in that specific technological field.\textsuperscript{48} This purely analytical approach, though, does not alone result in a monetary value for the patent.\textsuperscript{49}


\textsuperscript{45} Essential patents are patents that claim a required element of a technical standard (i.e., a standard required by a standard body that “must be met by products operating in the technology.”). \textit{Id.} at 469-472. Kramer explains that, theoretically, essential patents are more valuable than other patents in their respective technological field because “[i]t is technologically infeasible to meet the requirements of a standard and to offer a product that includes the technology addressed by the standard without infringing” the essential patent. \textit{Id.} Because standards are introduced to support impending mass market demands, essential patents have a significant economic nexus that allows them to enjoy a “technologically significant and sound economic market basis.” \textit{Id.}

\textsuperscript{46} \textit{Id.} at 463.

\textsuperscript{47} \textit{Id.} at 474.

\textsuperscript{48} \textit{Id.} at 467.

\textsuperscript{49} \textit{Id.}
Deep-diving into the legal input, some scholars have called the legal considerations as the most overlooked area of patent valuation. They support this contention by noting that once a patent is invalidated, it no longer holds any legal weight and thus no value to the owner or licensees. As such, the legal input is as equally important as the economic and technical inputs of patent valuation. The legal inputs required to value a specific patent are industry-specific, depend on the parties involved, and also depend on how the patent owner or potential buyer will use the patent. The following legal risks should be taken into consideration: status of the patent, ownership of the patent, the probability of invalidity, freedom to operate, scope of the patent, circumvention/breadth, and the capacity to detect the patent’s infringement. In weighing these legal risks, most parties customarily do due diligence. Due diligence could result in either no legal risk, excessive legal risks that will undisputedly reduce the patent’s worth to zero (e.g., the patent has expired due to a patent term miscalculation), or could result in legal uncertainty. It is in the cases where the legal uncertainty remains that legal risk discounts are employed. The equation below helps in picturing how legal risks directly affect a patent’s value.

\[
\text{Patent Value} = (\text{risk-free economic patent value}) \times (1 - \text{legal discount} \times \text{impact})
\]

Three steps should be undertaken to employ the preceding equation. First, you determine the patent value based on one of the economic models above, assuming there exists no legal risk and isolating economic considerations from legal considerations (i.e., “risk-free economic patent value”). Second, you prioritize certain legal risks over others based on the information known to the parties or discoverable through the resources allocated for due diligence (i.e., “legal discount”). Once the legal risks are prioritized based on the parties

50. Friel, supra note 5, at 262.
51. Id. at 264.
52. Id. at 257.
54. Freedom to operate is a term used when “the patent in question is dependent on a third party’s patent.” Id. at 26-27.
55. These legal risks, which can destroy the patent value to zero, should “not be confused with a risk adapted interest rate that takes economic risks into account.” Id. at 25.
56. Id.
57. Id.
58. Id. at 32.
59. Id. at 25.
60. Id. at 25, 31.
involved and the use of the patent, you determine the legal discounts.\textsuperscript{61} The percentage of the legal discount is calculated based on statistical data\textsuperscript{62} and is swayed by the impact on the patent’s value and the degree of certainty that the legal risk discount is accurate (i.e., “impact\textsubscript{n}”).\textsuperscript{63} Legal discounts based on patentability risks—such as obviousness, anticipation, and subject matter eligibility—influence the entire patent’s value.\textsuperscript{64} Relevant to this comment is the legal risk of patentability posed by Section 101’s subject matter eligibility requirement in the Fintech industry.

THE ALICE/MAYO TEST AND ITS APPLICABILITY TO FINTECH PATENTS

Under Alice, approximately 100,000 patents have at least one claim that is likely invalid.\textsuperscript{65} In 2020 alone, the Federal Circuit invalidated twenty-two of the twenty-seven software-related patents on appeal for subject matter eligibility under Section 101.\textsuperscript{66} A Fintech patent owner who is looking to sell or license his or her patent will have to determine with reasonable certainty the legal risk posed by Section 101’s subject matter eligibility challenges. The Fintech patent owner could try to establish a price on the patent’s value by using a cost-based patent valuation model—after all, the models discussed above assess the value of a patent by adding the costs incurred by the patent owner, regardless of the method.

Nevertheless, the buyer will probably bargain for a lower price by utilizing a market-based patent valuation model and arguing that there should be a legal discount based on the heightened legal risks that Section 101’s subject matter eligibility challenges pose to Fintech patents. The reason being, why would a buyer agree to the patent owner’s requested amount or an amount above the patent’s fair market value when there exists a dangerous possibility the buyer will not be able to enforce the patent? A negotiation scenario such as this one

\begin{itemize}
  \item \textsuperscript{61} Id. at 28.
  \item \textsuperscript{62} The patentability discount rate computed by the author was based on statistical data published in the United States Patent and Trademark Office (“USPTO”)’s Annual Report in 2006. \textit{Id.} at 37 n.4. As such, these numbers need to be catered to the latest available statistics to determine the legal discount percentages reasonably.
  \item \textsuperscript{63} \textit{Id.} at 31-32.
  \item \textsuperscript{64} \textit{Id.} at 25.
  \item \textsuperscript{65} “Assuming a 5% invalidity rate and about 2 million patents in force at the time of the Alice decision, we estimate that about 100,000 patents have at least one claim that is likely invalid under Alice.” Ben Dugan, \textit{Mechanizing Alice: Automating the Subject Matter Eligibility Test of Alice v. CLS Bank}, \textit{U. ILL. J.L. TECH. & POL’Y} 33, 78 (2018).
\end{itemize}
exemplifies the effects that Section 101’s subject matter eligibility challenges can have on a Fintech patent’s valuation and the patent valuation model used, which is why the Alice/Mayo test must be understood.

The Alice/Mayo Test

Before delving into how Fintech patent valuation models are affected by Section 101’s subject matter eligibility challenges, Section 101’s requirements must be understood. First, Section 101 requires inventions to fall under one of four categories to be eligible for a patent: process, machine, manufacture, or composition of matter.67 Second, the United States Supreme Court has established that an invention falling into one of these four categories cannot claim a law of nature, natural phenomenon, or an abstract idea—the so called “judicial exceptions.”68 Even if an invention falls into one of these four categories, if it claims one of these judicial exceptions, it will be declared invalid.69 The only way to obtain or enforce a patent for an invention that falls under one of the four categories, but claims a judicial exception, is to pass the Alice/Mayo test.70

The Alice/Mayo test is a two-prong inquiry. The first prong asks whether the invention is an abstract idea. If so, the second prong asks whether the invention contains a sufficiently transformative inventive concept to transform the abstract idea into a patent-eligible application.71 A patent that claims an abstract idea recites a mathematical concept, certain methods of organizing human activity, or mental processes.72 Nevertheless, if the patent shows an inventive concept such that it contains additional elements that amount to more than “well-understood, routine, [and] conventional activities previously known to the industry,” then it is a patentable invention.73 An understanding of how to transform an abstract idea into a patent-eligible application is the key to reducing the heightened legal risk that Section 101’s subject matter eligibility challenges pose to Fintech patents and the valuation of Fintech patents. And

68. Alice Corp., 573 U.S. at 216.
69. Id.
70. Id. at 218.
71. Id. at 221.
72. MPEP-2100 Manual of Patent Examining Procedures 2106.04(a) (“Abstract Ideas”). For examples of claims that do not recite an abstract idea, see MPEP-2100 Manual of Patent Examining Procedures 2106.04(a)(1) (“Examples of Claims That Do Not Recite Abstract Ideas”). The USPTO has issued specific guidelines for addressing subject matter eligibility challenges (e.g., 2019 Revised Patent Subject Matter Eligibility Guidance), but this guidance is now directed to the MPEP.
73. MPEP-2100 Manual of Patent Examining Procedures 2106.05(D) (“Well-Understood, Routine, Conventional Activity”).
this key is embedded in recent Federal Circuit cases and PTAB decisions addressing Section 101’s subject matter eligibility challenges.

Recent Federal Circuit Cases Addressing Subject Matter Eligibility Challenges

A patent that recites a specific improvement and discloses a technical solution to a security problem in networks and computers is not conventional and passes the Alice/Mayo test. In CosmoKey, the patent at issue was for a method for authenticating the identity of a user performing an online transaction that is both low in complexity and high in security. The Federal Circuit reversed the district court’s decision and enforced the ‘903 patent because it passed the second prong of the Alice/Mayo test, despite claiming a judicial exception. The Federal Circuit reasoned that the ‘903 patent recited an inventive concept by “requiring a specific set of ordered steps that go beyond the abstract idea . . . and improving upon the prior art by providing a simple method that yields higher security.”

Similarly, useful improvements to computer networks are patentable regardless of whether the network is comprised of standard computing equipment and also passes the Alice/Mayo test. In Cooperative Entertainment, the patent at issue relates to systems and methods for peer-to-peer (“P2P”) dynamic methods for distributing files. The Federal Circuit reversed the district court’s decision and held that the ‘452 patent plausibly recited an inventive concept as required by the second prong of the Alice/Mayo test. The Federal Circuit explained that the ‘452 patent recited an inventive concept because the claim language, the written description, and the amended complaint described how the particular arrangement of peer nodes or distribution content—as compared to the prior art—improved “the performance of the content delivery network with reductions in costs and improvements in several aspects of system performance.”

On the other hand, a patent that claims a combination of long-standing methods of authentication that yields expected results does not recite an inventive concept and does not pass the Alice/Mayo test. In Universal, the

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75. Id.
76. Id. at 1098.
77. Id. at 1099.
The patent at issue involved a combination of user devices, point-of-sale (“POS”) device, and a universal secure registry to facilitate financial transactions. The Federal Circuit affirmed the district court’s decision because the ‘813 patent did not recite an inventive concept as required by the Alice/Mayo test. The Federal Circuit reasoned that the ‘813 patent did recite an inventive concept because there was nothing in the specification that allowed the court to plausibly infer that the “claimed combination of ... conventional authentication techniques achieves more than the expected sum of the security provided by each technique.”

The inherent uniqueness of each patent and the technological variance in each field complicates the inventive concept analysis of the second prong of the Alice/Mayo test. Nevertheless, these Federal Circuit cases provide guidance on how to reduce the legal risk of subject matter eligibility challenges by showcasing the types of technical improvements that plausibly recite an inventive concept.

A Fintech patent that precisely recites how the invention is a technical improvement over the prior art and recites how the technical improvement is portrayed in the claims will at least present a “plausible recitation of an inventive concept.” In CosmoKey, the Federal Circuit pointed out that the ‘903 patent clearly explained how the invention simplified the authentication over the prior art and yielded higher results. Similarly, in Cooperative Entertainment, the Federal Circuit pointed out that the ‘452 patent described an improvement over the prior art by enhancing the system’s performance and reducing costs, even though the system used standard computing equipment. On the other hand, in Universal, the Federal Circuit held that the ‘813 patent did not improve over the prior art because the evidence did not show an improvement over the expected result from combining long-standing methods of authentication. Despite the fact that the subject matter eligibility analysis is done on a case-by-case basis, the Federal Circuit cases above do suggest that an explicit recitation on the technical improvement in Fintech patents will make it more plausible that the claim recites an inventive concept and passes the Alice/Mayo test.

83. Id. at 1351.
84. Id.
85. Id. at 1353.
86. Sophir & Glass, supra note 14.
88. Universal, 10 F.4th at 1358.
PTAB Decisions Citing These Federal Circuit Decisions

The PTAB has employed this analysis by citing the above Federal Circuit cases on recent appeals to subject matter eligibility rejections by a USPTO examiner. For example, in Ex parte James F. Chen & Linda Fischer, the PTAB affirmed the examiner’s subject matter eligibility rejection because the invention, under the second prong of the Alice/Mayo test, did not recite a “technical solution in networks and computers,” unlike what the patentee claimed by citing CosmoKey.89 Similarly, in Ex parte Hisham I. Salama, the PTAB addressed a patent application on a system that encrypted a financial product’s information as a mobile wallet token and provided the token to load the product into a mobile wallet on a user’s client device via an application.90 The PTAB affirmed the examiner’s subject matter eligibility rejection because the system only encrypted and decrypted data with a generic cryptographic key, achieving the expected results of collecting and examining data to enable authentication—as the patentee did in Universal.91 These two PTAB decisions showcase how CosmoKey, Cooperative Entertainment, and Universal can provide guidance and how an explicit recitation of the technical improvement in software patents (e.g., Fintech patents) will make it more plausible that the claim recites an inventive concept and passes the Alice/Mayo test.

THE LIGHT AT THE END OF THE TUNNEL

Having explained the Alice/Mayo test and how it has been employed by the Federal Circuit and the PTAB, it should be clear how Section 101’s subject matter eligibility challenges pose a heightened legal risk to Fintech patents, which merits special consideration when employing patent valuation models. This heightened legal risk alone can jeopardize the Fintech patent’s valuation and should be distinguished from all other legal risks when employing patent valuation models. Once it is understood how the heightened legal risk directly affects the valuation of Fintech patents and the employment of patent valuation models, then the guidance from the Federal Circuit cases cited in Part III can be employed along with the chosen patent valuation models to obtain a legal discount for the heightened legal risk or at least leverage it.

89. Ex Parte James F. Chen & Linda Fischer, No. APPEAL 2022-004002, 2022 WL 17437014, at *10 (P.T.A.B. Dec. 2, 2022) (the patent in question is not directly related to the Fintech industry, but its analysis is applicable to this discussion.).
91. Universal, 10 F.4th at 1345.
How this Heightened Legal Risk Affects Patent Valuation Models

First, an explanation of how the heightened legal risk posed by subject matter eligibility challenges affects the patent valuation models addressed in Part II is appropriate. Patent valuation models cannot ignore this heightened legal risk that the subject matter eligibility challenges pose to Fintech patents because it can obliterate the Fintech patent’s value. A patent valuation model solely based on economic inputs is, in practice, assuming that the patent is legally risk-free—regardless of whether the model used is cost based, market based, or income based. The resulting valuation will project a fictitious value. Although some models do account for legal risk, for the most part, they are generally oblivious to the increased vulnerability of Fintech patents to subject matter eligibility challenges.

Patent valuation models based solely on technical inputs fare similarly to those that rely solely on economic inputs. A Fintech patent can be an essential patent in the industry. The patent can be cited multiple times compared to non-essential patents and other patents in the same specific field, and as such, is arguably more valuable than its patent peers. But, if the Fintech patent is challenged on subject matter eligibility grounds, and it claims an abstract idea, the Fintech patent must recite an inventive concept to be able to transform the abstract idea into a patent-eligible invention. No matter how high the resulting patent valuation is, it will result in a significant legal discount—if not subsequently invalidated—if the patent owner cannot show that his or her Fintech patent is similarly situated to Fintech patents that have been found by courts to recite an inventive concept.

As for the patent valuation models that substantially account for legal risks—well, let us just say, they deserve more recognition than they get. In industries where patents are mostly granted for articles of manufacture or are

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92. Nimitz, supra note 7, at 65 (“The ‘abstract ideas’ exception, in particular, creates a high barrier of entry for FinTech in the patent system because the judiciary has not clearly defined ‘abstract ideas’ despite multiple opportunities to do so.”).

93. Köllner, supra note 13, at 31 (explaining that certain legal risks, such as patentability challenges, can reduce the patent’s value to zero).

94. Köllner cautions that a “risk adapted interest rate that takes economic risks into account” should not be confused with the “legal risk reduction factor [that is] dealing solely with legal risks,” and instead suggests that the valuation process should incorporate the economic and technical risks to the risk-free economic patent value. Id. at 25.

95. Kramer’s model relies on essential patents as suitable proxies for patent value. He notes that essential patents receive, on average, “more than three times the citations than did the general populations of patent,” and that the number of citations “alone has been shown to be a predictor of patent value.” Kramer, supra note 44, at 473-74, 476.

96. Friel, supra note 5, at 274 (“Given the importance of patent and other IP valuation in a number of significant areas of legal practice (e.g., investment, lending, sales, insolvency, etc.), it is virtually inexplicable that this area has not received much legal attention.”).
design patents, it is more difficult to challenge such patents as invalid under subject matter eligibility grounds.\textsuperscript{97} As a result, the possible grounds for Section 101’s subject matter eligibility challenges are reduced for such patents, along with the legal uncertainty that could result from due diligence. This reduces the impact of the patentability risk calculations for patents on articles of manufacture or design patents, lowering the bargaining power of a potential buyer in obtaining a legal discount. But this is not the case in the Fintech industry. Fintech patents are heavily dependent on software technology, which makes them especially vulnerable to subject matter eligibility challenges.\textsuperscript{98} A buyer interested in buying a Fintech patent will bargain for a legal discount to account for the heightened legal risk that the Fintech patent could be invalidated. As an example, using the formula in Part II, the buyer would argue that the legal discount to account for the risk should be high and the impact factor should be a hundred percent because the legal risk directly impacts any possible value that could be derived from the Fintech patent. The effects of Section 101’s subject matter eligibility challenges are considerable in valuating Fintech patents. The Fintech patent owner’s silver lining lies in his or her ability to show the patent recites an inventive concept that transforms the abstract idea into a patent-eligible invention.

\textit{Mitigating the Heightened Legal Risk of Subject Matter Eligibility Challenges by Using Federal Circuit Guidance and a Patent Valuation Model that Considers All Three Inputs}

The Federal Circuit cases discussed in Part III provide guidance on how to mitigate the heightened legal risk posed by subject matter eligibility challenges, which needs to be factored into the patent valuation model employed. In practice, the way we use this guidance depends on how the patent owner intends to use the patent. If the patent is used to confuse or intimidate competitors, or for reputation purposes, then the impact of the legal risk posed by subject matter eligibility challenges is minimal.\textsuperscript{99} On the flip side, if the patent’s main purpose is to secure a monopoly, strengthen a layer of the defense to block competitors, or even be used as a bargaining tool in cross-licensing deals or for patent

\textsuperscript{97} In 2022, the Supreme Court denied certiorari to review a Federal Circuit case invalidating a patent for an article of manufacture claiming a “law of nature,” even after soliciting an amicus curiae from the Attorney General. This suggests the Court will not address the issue in the near future, which might open the door to subject matter eligibility challenges on patents for articles of manufacture. \textit{See} Am. Axle & Mfg., Inc. v. Neapco Holdings LLC, 142 S. Ct. 2902 (2022).

\textsuperscript{98} Nimitz, \textit{supra} note 7, at 64 (“Because Fintech innovations tend to be computer implemented inventions like mobile applications or online platforms, they are not physical products constructed through human effort like machines, manufactures, or compositions of matter.”).

\textsuperscript{99} Köllner, \textit{supra} note 13, at 31 (explains that the intended use of the patent dictates the legal risks that are of relevance in determining the patent’s value).
transfers or mergers and acquisitions, then the impact of the legal risk posed by Section 101’s subject matter eligibility challenges is high. It is the latter proposition that would greatly benefit from this comment’s analysis.

By comparing the language utilized in Fintech patents that have survived subject matter eligibility challenges, a patent owner can minimize the heightened legal risk posed by subject matter eligibility challenges, or at least leverage it in the bargaining process. This is no easy task, but the Fintech patent owner can support this assessment by looking at the technical inputs of similarly situated patents. The key to mitigating the increased legal risk that subject matter eligibility challenges pose to valuating Fintech patents lies in comparing the patent in question to Fintech patents that have survived subject matter eligibility challenges (i.e., legal input) and backing up the alleged recitation of the inventive concept by utilizing statistical data on similarly situated patents (i.e., technical input). Certainly, a Fintech patent that precisely recites how the invention is a technical improvement over the prior art, explains how the technical improvement is portrayed in the claims, and has been cited by multiple other patents from different technical fields, has a lower legal risk of subject matter eligibility challenges than other Fintech patents. By employing this analysis, the Fintech patent owner can diminish a buyer’s ability to obtain a legal discount or at least leverage it.

Once the patent owner has compared the patent in question to Fintech patents that have survived subject matter eligibility challenges (i.e., legal input) and has supported the alleged recitation of the inventive concept by utilizing statistical data on similarly situated patents (i.e., technical input), the patent owner can proceed to employ any of the patent valuation models with a higher degree of confidence (i.e., economic input).100 Although every case should be taken on a case-by-case basis, this approach was crafted for patents heavily reliant on software technology (e.g. Fintech patents). This approach can help both patent drafters and in-house M&A teams in mitigating the legal risks that Section 101’s subject matter eligibility requirement poses on Fintech patents. Of course, it is impossible to address all circumstances patent owners face—most Fintech patent owners will have more than one patent. The law might have changed by the time the reader reads this comment. Nevertheless, awareness of the legal risk posed by Section 101’s subject matter eligibility challenges and how it affects the valuation of Fintech patents will certainly incentivize the development of new and more efficient solutions. There is light at the end of the tunnel.

100. “[A] robust valuation process should accommodate all three valuation inputs: the economic input, the technical input, and the legal input.” Friel, supra note 5, at 267.
CONCLUSION

With intangible assets accounting for ninety percent of the S&P 500’s total assets in 2020, patents—as part of those intangible assets—play an important role in every company’s valuation.101 Fintech companies, in particular, must understand the legal risks assessed through the employed patent valuation model, since under Alice, approximately 100,000 patents have at least one claim that is likely invalid.102 In 2020 alone, the Federal Circuit invalidated twenty-two of the twenty-seven software-related patents on appeal for subject matter eligibility under Section 101.103 As such, the heightened legal risk posed by Section 101’s subject matter eligibility challenges increases the volatility of a Fintech patent’s valuation.

Patent valuation models need to take into consideration this heightened legal risk to properly assess with reasonable certainty a Fintech patent’s valuation. Whether an industry behemoth is acquiring a startup or not, the financial assessment of the startup will be linked to the patent’s valuation. To mitigate this legal risk, or bargain for a better price, the patent owner can utilize guidance from recent Federal Circuit cases and PTAB decisions. Coupled with technical considerations, patent valuation models will better assess the patent’s valuation, which will enable the patent owner to address the buyer’s concerns, or the buyer in bargaining for a lower price. Either way, the party that becomes intimately familiar with this legal risk and how it affects a Fintech patent’s valuation will have the upper hand during negotiations.

102. Dugan, supra note 65.
103. Rand, supra note 66.