

The Future of 35 U.S.C. § 101

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I. Introduction

The purpose of patents in the United States is to promote innovation and discovery.¹ Patents incentivize investment in technological advancement by rewarding the inventor with the right to exclude others from practicing their invention for a limited time, in return for public disclosure of the invention. However, as the patent community has witnessed firsthand over the past several years, the inconsistent and unpredictable application of patent law does not promote innovation.

If inventors cannot determine with reasonable certainty whether their invention will be eligible for patent protection, they may expend significant time and resources on research, but receive no patent protection and no means of recouping their investment. On the other hand, the inventor may decide not to invest in innovation within a particular technological area because they do not believe they will receive a patent for their efforts. Both situations negatively impact investment decisions, and prevent the public from acquiring potentially valuable information relating to the invention.

A recent string of Supreme Court decisions dealing with the threshold question of patent eligibility under 35 U.S.C. § 101 has significantly increased uncertainty in what previously was thought to be a fairly settled area of law. These cases offered little in the way of clear rules of law for decision-makers to apply to claims in future cases, leading to substantial confusion in subsequent patent eligibility cases.

In response to this line of Supreme Court decisions, there has recently been a push to enact legislation seeking to clarify which subject matter is eligible for patent protection under § 101. However, there are risks associated with this strategy. In addition, the Federal Circuit has recently decided several cases dealing with the issue of patent eligibility that arguably clarify and limit the negative impact of the Supreme Court case law. As such, we argue in this paper that legislative fixes should be put on hold while the Federal Circuit continues to clarify patent eligibility law over the next few years.

Section II of this paper provides background describing the recent Supreme Court decisions and their effect on the patent eligibility landscape. Section III of this paper discusses the Federal Circuit's helpful, clarifying decisions regarding patent eligibility law. Finally, Section IV warns of possible unintended consequences of legislating patent eligibility.

II. Setting the Stage: How We Got Here

This Section provides context for the motivations behind the recent push to enact clarifying patent eligibility legislation. Part A introduces the recent Supreme Court decisions responsible for the confusion surrounding patent eligibility. Part B provides case studies illustrating the confusion in the lower courts brought on by these Supreme Court decisions. Part C discusses the legislation proposed by some in the patent community in response to the

¹ U.S. CONST. art. I, § 8, cl. 8 (“The Congress shall have Power . . . *To promote the Progress of . . . useful Arts*, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries.” (emphasis added)).

Supreme Court decisions, and explains why we recommend waiting for Federal Circuit case law to further develop before pursuing such legislation.

A. The String of Supreme Court Decisions

Historically, the United States has been considered a world leader in providing patent protection for new and emerging technologies. However, due to recent Supreme Court decisions, patent applicants and patent owners now face more uncertainty as to whether their inventions are eligible for patent protection in the United States than in China, the European Union, and other jurisdictions. This is particularly true in the biotechnology and software fields.

The Supreme Court planted the seeds for the current uncertainty in patent eligibility in the 2010 case *Bilski v. Kappos*.² In *Bilski*, the Supreme Court reviewed the Federal Circuit’s “machine-or-transformation test” to determine whether a claimed process is patent-eligible.³ The machine-or-transformation test stated that an invention is a patent eligible “process” only if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.⁴ The Supreme Court held that the machine-or-transformation test is not the test for defining a patent-eligible process, but failed to provide any other test for patent eligibility.⁵ *Bilski* effectively rejected the Federal Circuit’s bright-line rule for patent eligibility without replacing it with more guidance, causing great confusion in the patent field as to which inventions qualify for patent protection.

The uncertainty brought on by *Bilski* grew exponentially in the 2012 Supreme Court case *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*⁶, which involved claims directed to a method for treating autoimmune diseases (e.g., Crohn’s disease) using thiopurine drugs.⁷ The prior art described that it was important for physicians to optimize the dosage to maximize efficacy while minimizing side effects, and in particular to control the level of toxic drug metabolites.⁸ The claimed methods recited quantitative thresholds for drug effectiveness where a level above or below the threshold “indicates a need” to respectively decrease or increase the drug dosage.⁹ The Supreme Court held that these claims were ineligible for patent protection because they merely applied well-understood, routine, conventional activity (i.e., determining threshold levels of metabolites) to underlying natural laws (i.e., the metabolic response to the drug).¹⁰ The Supreme Court reasoned that the claims did not “add enough” to the natural laws to allow the claimed process to qualify as a patent eligible process that applies natural laws.¹¹ The lack of guidance provided in *Mayo* greatly increased in the patent community as to what is required for a claim to add “enough” to become patent-eligible.

² 561 U.S. 593 (2010).

³ *Id.* at 602-604.

⁴ *Id.* at 602.

⁵ *Id.* at 603.

⁶ 132 S.Ct. 1289 (2012).

⁷ *Id.* at 1294-95.

⁸ *Id.* at 1295.

⁹ *Id.* at 1291.

¹⁰ *Id.* at 1298.

¹¹ *Id.* at 1297.

Many outside the biotechnology sector had hoped that the *Mayo* holding would remain quarantined within the biotechnology sector to minimize confusion in other technology areas. However, in 2014 the Supreme Court held in *Alice Corp. v. CLS Bank Int'l*¹² that “*Mayo*’s framework” applied to claims in the financial software field.¹³ The Supreme Court laid out the analytical framework for determining patent eligibility as follows: first, determine whether a law of nature, natural phenomenon, or abstract idea is claimed.¹⁴ If not, the claims are eligible for patent protection.¹⁵ If so, determine whether the claim adds “significantly more” to the law of nature, natural phenomenon, or abstract idea so as to render the claim patent-eligible.¹⁶ True to *Bilski* and *Mayo*, the Supreme Court declined to define either “abstract idea” or “significantly more.”

In the 2013 biotechnology patent eligibility case *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*¹⁷, the Supreme Court seemed to overturn what had been well-settled law when it held that isolated, naturally occurring genes are not eligible for patent protection.¹⁸ Prior to the decision, the U.S. Patent and Trademark Office (USPTO) had permitted claims to isolated genes, naturally occurring or not, as compositions of matter.¹⁹ The Supreme Court’s decision invalidated a large number of patents and patent applications covering naturally occurring genes. Perhaps the most troubling aspect of this opinion is that while the Supreme Court acknowledged that the “reliance interests of patent holders” are implicated by this decision, it did not seriously address this important issue.²⁰

Taken together, these cases produce an unfortunate yet consistent pattern of the Supreme Court declining to provide clear and consistent guidance as to when a claim is patent eligible. Part B of this section examines two pairs of Federal Circuit cases that highlight the confusion caused by the Supreme Court.

B. Initial Confusion at the Lower Courts

Following *Mayo* and *Alice*, uncertainty as to which inventions are eligible for patent protection lingered. A few months after *Alice*, Federal Circuit Judge Alan Lourie wrote, “we do not purport to state that all claims in all software-based patents will necessarily be directed to an abstract idea.”²¹ Meanwhile, Federal Circuit Judge Haldane Mayer has expressed the opinion that “claims directed to software implemented on a generic computer are categorically not eligible for patent.”²² Clearly, the recent Supreme Court decisions caused significant confusion as to the scope of patent eligibility, even among Federal Circuit judges. The following sub-parts highlight this initial confusion in both the biotechnology and software arenas.

¹² 134 S. Ct. 2347

¹³ *Id.* at 2357.

¹⁴ *Id.* at 2355.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ No. 12-398, slip op. (Sup. Ct. Jun 13, 2013).

¹⁸ *Id.* at 1.

¹⁹ *Id.* at 9.

²⁰ *Id.*

²¹ *Ultramercial, Inc. v. Hulu, LLC*, 722 F.3d 709, 715 (Fed. Cir. 2014).

²² *Intellectual Ventures I LLC v. Symantec Corp.*, Nos. 2015-1769, 2015-1770, and 2015-1771, slip op. at 1 (Fed. Cir. Sept. 30, 2016) (J. Mayer, concurring).

1. Confusion for Biotechnology Patents

The Federal Circuit in *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*²³ held claims directed to techniques for detecting the small fraction of paternally inherited cell-free fetal DNA (“cffDNA”) in maternal plasma or serum to determine fetal characteristics, such as gender, were unpatentable.²⁴ The patent at issue took advantage of a discovery that cffDNA existed in maternal plasma and serum, the portion of maternal blood samples that other researchers had previously discarded as medical waste.²⁵ A representative claim is reproduced as follows.

25. A method for performing a prenatal diagnosis on a maternal blood sample, which method comprises
- obtaining a non-cellular fraction of the blood sample
 - amplifying a paternally inherited nucleic acid from the non-cellular fraction
 - and performing nucleic acid analysis on the amplified nucleic acid to detect paternally inherited fetal nucleic acid.²⁶

Just over one year later, the Federal Circuit heard *Rapid Litig. Mgmt. Ltd. v. Cellzdirect, Inc.*²⁷, which involved an invention for an improved process of preserving hepatocytes (a type of liver cell that have a number of attributes useful for testing, diagnostic, and treatment purposes). This process was based on the discovery that some fraction of hepatocytes is capable of surviving multiple freeze-thaw cycles.²⁸ The Federal Circuit held this claim eligible for patent protection because it is directed to a new and useful method of preserving hepatocytes cells rather than a mere “observation” of the ability of hepatocytes to survive multiple freeze-thaw cycles.²⁹ A representative claim is reproduced as follows.

1. A method of producing a desired preparation of multi-cryopreserved hepatocytes, said hepatocytes being capable of being frozen and thawed at least two times, and in which greater than 70% of the hepatocytes of said preparation are viable after the final thaw, said method comprising:
- (A) subjecting hepatocytes that have been frozen and thawed to density gradient fractionation to separate viable hepatocytes from nonviable hepatocytes,
 - (B) recovering the separated viable hepatocytes, and
 - (C) cryopreserving the recovered viable hepatocytes to thereby form said desired preparation of hepatocytes without requiring a density gradient step after thawing the hepatocytes for the second time, wherein the hepatocytes are not plated between the first and second cryopreservations, and wherein greater than 70% of the hepatocytes of said preparation are viable after the final thaw.³⁰

The Federal Circuit attempted to distinguish the claims in *Rapid Litig. Mgmt.* from those in *Ariosa* on the ground that the claims in *Ariosa* merely observed or identified a law of nature.³¹ It is unclear how exactly these claims can be distinguished in a meaningful way for future cases, however, given that the claims in both cases involve applying known laboratory techniques to

²³ Nos. 2014-1139 and 2014 1144, slip op. (Fed. Cir. June 12, 2015).

²⁴ *Id.* at 3.

²⁵ *Id.*

²⁶ *Id.* at 5.

²⁷ No. 2015-1570, slip op. (Fed. Cir. July 5, 2016).

²⁸ *Id.* at 2-4.

²⁹ *Id.* at 10.

³⁰ *Id.* at 4-5.

³¹ *Id.* 9-10.

laws of nature to achieve a result. In *Ariosa*, the claim involved obtaining and amplifying cffDNA in maternal plasma/serum, and in *Rapid Litig. Mgmt.*, the claim involved recovering and cryopreserving hepatocytes that have been frozen and thawed. Even if these cases can be distinguished, doing so likely involves making fairly subjective comparisons between the claims at issue and claims from Supreme Court cases. Such subjectivity is fairly unhelpful for subsequent cases.

2. Confusion for Software Patents

Shortly after *Alice* was decided, the Federal Circuit issued, less than one month apart, two decisions that are difficult to reconcile. The first decision is *Ultramarical, Inc. v. Hulu, LLC*³², which involved a method for distributing copyrighted media products over the Internet where the consumer receives copyrighted content, paid for by the advertiser, in exchange for viewing an advertisement.³³ The Federal Circuit held the claimed method ineligible for patent protection. First, following part one of the *Alice* test, it stated that the claim is directed to the abstract idea of using advertising as an exchange or currency.³⁴ Next, under part two of the *Alice* test, the Federal Circuit found that the claim did not add “significantly more” to the abstract idea because it included only “routine additional steps.”³⁵ A representative claim is reproduced as follows:

1. A method for distribution of products over the Internet via a facilitator, said method comprising the steps of:
 - a first step of receiving, from a content provider, media products that are covered by intellectual property rights protection and are available for purchase, wherein each said media product being comprised of at least one of text data, music data, and video data;
 - a second step of selecting a sponsor message to be associated with the media product, said sponsor message being selected from a plurality of sponsor messages, said second step including accessing an activity log to verify that the total number of times which the sponsor message has been previously presented is less than the number of transaction cycles contracted by the sponsor of the sponsor message;
 - a third step of providing the media product for sale at an Internet website;
 - a fourth step of restricting general public access to said media product;
 - a fifth step of offering to a consumer access to the media product without charge to the consumer on the precondition that the consumer views the sponsor message;
 - a sixth step of receiving from the consumer a request to view the sponsor message, wherein the consumer submits said request in response to being offered access to the media product;
 - a seventh step of, in response to receiving the request from the consumer, facilitating the display of a sponsor message to the consumer;
 - an eighth step of, if the sponsor message is not an interactive message, allowing said consumer access to said media product after said step of facilitating the display of said sponsor message;
 - a ninth step of, if the sponsor message is an interactive message, presenting at least one query to the consumer and allowing said consumer access to said media product after receiving a response to said at least one query;
 - a tenth step of recording the transaction event to the activity log, said tenth step including updating the total number of times the sponsor message has been presented; and

³² 772 F.3d 709 (Fed. Cir. 2014).

³³ *Id.* at 712.

³⁴ *Id.* at 715.

³⁵ *Id.* at 715-16.

an eleventh step of receiving payment from the sponsor of the sponsor message displayed.³⁶

Meanwhile, *DDR Holdings, LLC v. Hotels.com*³⁷ involved claims directed to a system for displaying an advertisement with the host website after a user clicks on a hyperlink associated with the advertisement.³⁸ Unlike in *Ultramercial*, the Federal Circuit concluded that this claim passes muster under step two of *Alice* because it is “necessarily rooted in a computer technology in order to overcome a problem specifically arising in the realm of computer networks.”³⁹ A representative claim is reproduced as follows.

13. An e-commerce outsourcing system comprising:
 - a) a data store including a look and feel description associated with a host web page having a link correlated with a commerce object; and
 - b) a computer processor coupled to the data store and in communication through the Internet with the host web page and programmed, upon receiving an indication that the link has been activated by a visitor computer in Internet communication with the host web page, to serve a composite web page to the visitor computer wit[h] a look and feel based on the look and feel description in the data store and with content based on the commerce object associated wit[h] the link.⁴⁰

Like *Rapid Litig. Mgmt. and Ariosa*, it is difficult to coherently distinguish between *Ultramercial* and *DDR Holdings*. Both claims are directed to similar subject matter (namely, advertising over the Internet). In addition, the claim having significantly more detail (i.e., the claim in *Ultramercial*) was found to be abstract. The Federal Circuit attempted to distinguish the claim in *DDR Holdings* from the claim in *Ultramercial* on the ground that the claim in *DDR Holdings* specifies how interactions with the Internet are manipulated to yield a desired result that overrides a routine and conventional sequence of events.⁴¹ Even if the Federal Court is correct that these cases are distinguishable, the impact of the reasoning of these two cases on subsequent decisions remained unclear.

C. The Future of 35 U.S.C. § 101

As illustrated by Part B above, there exists a need to clarify patent eligibility law. Many in the patent community support clarifying patent eligibility law by amending § 101. However, there are significant risks associated with introducing a bill into Congress. In this paper, we argue that these risks presently outweigh the potential benefits. The process for enacting legislation is long and unpredictable, and any eventual amendment to § 101 will likely be open to interpretation that contradicts its intended purpose. In addition, as explored in greater detail below, there is a possibility that the Supreme Court will “constitutionalize” its recent string of cases in response to such legislation.

We posit that before assuming the risks associated with legislating patent eligibility law, the patent community should await further development in this area at the Federal Circuit.

³⁶ *Id.* at 712.

³⁷ 773 F.3d 1245 (Fed. Cir. 2014).

³⁸ *Id.* at 1248-49.

³⁹ *Id.* at 1257.

⁴⁰ *Id.* at 1249.

⁴¹ *Id.* at 1258.

Recently, the Federal Circuit has shown encouraging signs of issuing clarifying patent eligibility decisions that have reduced the need to legislate patent eligibility law. In our opinion, it may be wise to permit the Federal Circuit to continue to develop patent eligibility case law without involving Congress.

The following sections expand on this argument in greater detail. Section III explores recent Federal Circuit decisions that clarify patent eligibility law. Section IV addresses the relatively high risk of pursuing legislation in light of the relatively low probability of the effectiveness of such a statute.

III. Patent Eligibility at the Federal Circuit and Below

This Section discusses recent Federal Circuit decisions that have increased the predictability of patent eligibility law. Part A describes the Federal Circuit's most recent contributions to the patent eligibility landscape. Part B describes the trickle-down effects of the Federal Circuit's recent push for clarity.

A. Recent Federal Circuit Decisions

Almost two years after *Alice* was decided, the Federal Circuit issued two patent eligibility decisions within one week of each other that clarified the law. The first was *Enfish, LLC v. Microsoft Corp*⁴². The claims in *Enfish* are directed to a logical model for a computer database that explains how the various elements of information are related to one another.⁴³ Unlike conventional logical models, the claimed logical model includes all data entities in a single table, with column definitions provided by rows in that same table.⁴⁴ A representative claim is reproduced as follows.

17. A data storage and retrieval system for a computer memory, comprising:
means for configuring said memory according to a logical table, said logical table including:
 - a plurality of logical rows, each said logical row including an object identification number (OID) to identify each said logical row, each said logical row corresponding to a record of information;
 - a plurality of logical columns intersecting said plurality of logical rows to define a plurality of logical cells, each said logical column including an OID to identify each said logical column; and
 - means for indexing data stored in said table.⁴⁵

The Federal Circuit held that this claim was not directed to an abstract idea under step one of the *Alice* test and, as such, were patent-eligible. The Court reasoned that the claim was directed to an improvement to computer functionality instead of an abstract idea.⁴⁶

⁴² No. 2015-1244, slip op. (Fed. Cir. May 12, 2016).

⁴³ *Id.* at 2-3.

⁴⁴ *Id.* at 3.

⁴⁵ *Id.* at 12.

⁴⁶ *Id.*

The Federal Circuit would soon apply its decision in *Enfish* to *TLI Commc'ns LLC v. AV Automotive, L.L.C.*⁴⁷ The patent at issue related generally to techniques for recording a digital image, communicating the digital image from the recording device to a storage device, and administering the digital image in the storage device.⁴⁸ When a large number of digital images are recorded and are to be archived in a central computer unit, locating the data of an image data file becomes difficult.⁴⁹ The patent purported to solve this problem by manually or automatically assigning “classification data,” such as a date or timestamp, to digital images and storing the digital images based on the classification information.⁵⁰ The representative claim is reproduced as follows:

17. A method for recording and administering digital images, comprising the steps of:
 - recording images using a digital pick up unit in a telephone unit,
 - storing the images recorded by the digital pick up unit in a digital form as digital images,
 - transmitting data including at least the digital images and classification information to a server, wherein said classification information is prescribable by a user of the telephone unit for allocation to the digital images,
 - receiving the data by the server,
 - extracting classification information which characterizes the digital images from the received data, and
 - storing the digital images in the server, said step of storing taking into consideration the classification information.⁵¹

The Federal Circuit, citing *Enfish*, found this claim ineligible for patent protection because it was not directed to a specific improvement to computer functionality.⁵² Instead, the Federal Circuit explained, the claim was “directed to the use of conventional or generic technology in a nascent but well-known environment, without any claim that the invention reflects an inventive solution to any problem presented by combining the two.”⁵³

To briefly summarize, in *Enfish*, the Federal Circuit held that the claim was not directed to an abstract idea because it reflected an improvement to the functionality of the computer itself. In *TLI*, the Federal Circuit held that the claim was directed to an abstract idea because it did not reflect an improvement to computer functionality. As such, these cases provide a fairly repeatable standard (i.e., whether a claim reflects an improvement to computer functionality), which can be applied to subsequent software cases.

While the Federal Circuit has not endorsed the *Enfish* rule as the sole test for determining patent eligibility of computer-implemented inventions, it has continued issuing decisions in this vein. One exemplary case is *McRo, Inc. v. Bandai Namco Games America Inc.*⁵⁴ The claim at issue aimed to automate a 3-D animator's tasks.⁵⁵ More specifically, the claim was directed to a

⁴⁷ Nos. 2015-1372, 2015-1376-79, 2015-1382-85, 2015-1417, 2015-1419, and 2015-1421, slip op. (Fed. Cir. May 17, 2016).

⁴⁸ *Id.* at 3.

⁴⁹ *Id.* at 4.

⁵⁰ *Id.*

⁵¹ *Id.* at 4-5.

⁵² *Id.* at 8.

⁵³ *Id.*

⁵⁴ Nos. 2015-1080-90, 2015-1092-1101, slip op. (Fed. Cir. Sept. 13, 2016).

⁵⁵ *Id.* at 9.

computerized process for lip-syncing animated characters to prerecorded voice streams.⁵⁶ The representative claim is reproduced as follows:

1. A method for automatically animating lip synchronization and facial expression of three-dimensional characters comprising:
 - obtaining a first set of rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence;
 - obtaining a timed data file of phonemes having a plurality of sub-sequences;
 - generating an intermediate stream of output morph weight sets and a plurality of transition parameters between two adjacent morph weight sets by evaluating said plurality of sub-sequences against said first set of rules;
 - generating a final stream of output morph weight sets at a desired frame rate from said intermediate stream of output morph weight sets and said plurality of transition parameters; and
 - applying said final stream of output morph weight sets to a sequence of animated characters to produce lip synchronization and facial expression control of said animated characters.⁵⁷

The Federal Circuit held this claim was patent eligible because it is directed to a technological improvement over the existing, manual 3-D animation techniques.⁵⁸ According to the Federal Circuit, the claim “uses the limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice.”⁵⁹

The Federal Circuit also addressed step two of the *Alice* test in *Bascom Global Internet Servs. v. AT&T Mobility LLC*⁶⁰. The patent at issue in *Bascom* discloses techniques for filtering Internet content.⁶¹ The Federal Circuit held the patent claims to be valid because the particular content filtering described in the patent at issue “is a technical improvement over prior art ways of filtering such content” and, as such, amount to “significantly more” than an abstract idea.⁶² The Court explained that, unlike unreliable or inflexible prior art filters, this particular filter implementation could be adapted to various user preferences while installed remotely in a single location.⁶³ The representative claim is reproduced as follows:

1. A content filtering system for filtering content retrieved from an Internet computer network by individual controlled access network accounts, said filtering system comprising:
 - a local client computer generating network access requests for said individual controlled access network accounts;
 - at least one filtering scheme;
 - a plurality of sets of logical filtering elements; and
 - a remote ISP server coupled to said client computer and said Internet computer network, said ISP server associating each said network account to at least one filtering scheme and at least one set of filtering elements, said ISP server further receiving said network access requests from said client computer and executing said associated filtering scheme utilizing said associated set of logical filtering elements.⁶⁴

⁵⁶ See *id.* at 10.

⁵⁷ *Id.* at 11.

⁵⁸ *Id.* at 27.

⁵⁹ *Id.*

⁶⁰ No. 2015-1763, slip op. (Fed. Cir. June 27, 2016).

⁶¹ *Id.* at 6.

⁶² *Id.* at 14-17.

⁶³ *Id.* at 16.

⁶⁴ *Id.* at 6-7.

This line of decisions has improved the predictability of patent eligibility law. Because of cases like *Enfish* and *Bascom*, practitioners today better understand whether a technical improvement will render a claim patent eligible. As such, the Federal Circuit may prove to clarify patent eligibility law more effectively than legislation. As discussed in Part B of this Section, the trickle-down effects of recent Federal Circuit decisions have been generally positive.

B. Trickle-Down Effects of Recent Federal Circuit Decisions

This Part examines the encouraging trickle-down effects of the recent Federal Circuit decisions described above in Part A. These effects indicate that there is insufficient need to amend § 101 at the present time. First, the response by the USPTO is examined, followed the response by the District Courts and the Patent Trial and Appeals Board (PTAB).

1. USPTO Guidelines

Generally, the USPTO does a good job of providing prompt guidance for its Examiners. On June 25, 2014, the USPTO provided preliminary guidance in view of the Supreme Court decision in *Alice* less than a week after the case was decided.⁶⁵ And on December 16, 2014, the USPTO published a more thorough document for use by the Examining corps to determine subject matter eligibility under *Mayo* and *Alice*.⁶⁶ Unfortunately, the 2014 guidance was not sufficiently clear because the *Mayo* and *Alice* decisions were not sufficiently clear. However, the USPTO issued guidance on the Federal Circuit's *Enfish* and *TLI* decisions on May 19, 2016, just two days after the *TLI* decision published.⁶⁷ And on November 2, 2016, the USPTO provided guidance for *McRo*.⁶⁸

The USPTO has also provided iterative guidance on other Federal Circuit decisions regarding patent eligibility, and will likely continue to publish prompt guidance as patent eligibility case law continues to develop. This may help improve the consistency of patent eligibility law as applied by Examiners. The Federal Circuit has also had a clarifying effect on patent eligibility cases at the District Courts, as discussed in the following sub-part.

2. Newfound Clarity at the District Courts

Clarity in at least some areas of patent eligibility law has spread to the District Courts, which have turned to *Enfish* and subsequent Federal Circuit cases in rendering decisions on subject matter eligibility. For instance, in *Synchronoss Techs., Inc. v. Dropbox Inc.*⁶⁹, the

⁶⁵ Andrew H. Hirshfeld, Deputy Commissioner for Patent Examination Policy, UNITED STATES PATENT AND TRADEMARK OFFICE; Preliminary Examination Instructions in view of the Supreme Court Decision in *Alice Corporation Pty. Ltd. v. CLS Bank International, et al.* (June 25, 2014), available at https://www.uspto.gov/sites/default/files/patents/announce/alice_pec_25jun2014.pdf.

⁶⁶ United States Patent and Trademark Office; 2014 Interim Guidance on Patent Subject Matter Eligibility, 79 Fed. Reg. 74, 618 (Dec. 16, 2014).

⁶⁷ Robert W. Bahr, Deputy Commissioner for Patent Examination Policy, UNITED STATES PATENT AND TRADEMARK OFFICE; Recent Subject Matter Eligibility Decision (*Enfish, LLC v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive, LLC*) (May 19, 2016), available at <http://www.ipwatchdog.com/wp-content/uploads/2016/05/USPTO-Enfish-Memo.pdf>.

⁶⁸ Robert W. Bahr, Deputy Commissioner for Patent Examination Policy, UNITED STATES PATENT AND TRADEMARK OFFICE; Recent Subject Matter Eligibility Decisions (Nov. 2, 2016), available at <https://www.uspto.gov/sites/default/files/documents/McRo-Bascom-Memo.pdf>.

⁶⁹ No. 3:16-CV-00119-HSG (N.D. Cal. Dec. 22, 2016).

Northern District of California denied a motion to dismiss for lack of patent eligible subject matter.⁷⁰ The patent at issue related to synchronizing devices that can couple to a network, such as the Internet.⁷¹ A representative claim is reproduced as follows.

1. A system for synchronizing data between a first system and a second system, comprising:
 - a first sync engine on the first system interfacing with data on the first system to provide difference information in a difference transaction;
 - a data store coupled to the network and in communication with the first and second systems; and
 - a second sync engine on the second system coupled to receive the difference information in the difference transaction from the data store via the network, and interfacing with data on the second system to update said data on the second system with said difference information;wherein each said sync engine comprises a data interface, a copy of a previous state of said data, and a difference transaction generator.⁷²

According to the court, the claims were directed to an improvement in computer functionality, as per *Enfish* and *McRo*.⁷³ Specifically, the claims are directed to improving the manner in which computers synchronize data between devices connected to a network by making that process faster. This reduced the amount of bandwidth and storage space used and enabled synchronization across different data formats without requiring devices to be physically connected.⁷⁴ As such, the Court denied the motion to dismiss for lack of subject matter eligibility.⁷⁵

Meanwhile, in *Va. Innovation Scis. (VIS), Inc. v. Amazon.com, Inc.*⁷⁶, the Eastern District of Virginia found claims ineligible for patent protection based on the Federal Circuit's decision in *TLI*.⁷⁷ The patent at issue related to techniques for sending a video feed from a mobile network to a mobile device. The mobile device sends the video feed to an intermediary device, which converts the signal and displays it (e.g., on a TV).⁷⁸ A representative claim is reproduced below.

23. An apparatus for processing signals to accommodate reproduction by an alternative display terminal, the apparatus comprising:
 - an interface module, which receives a video signal appropriate for displaying video content on a mobile terminal, the video signal being received from a cellular network communication that is sent to the mobile terminal and then received by the interface module;
 - a signal conversion module, in operative communication with the interface module, which processes the video signal to produce a converted signal for use by the alternative display terminal, wherein processing by the signal conversion module includes converting the video signal from a compression format appropriate for the mobile terminal to a display format for the alternative display terminal that is different from the compression format, such that the converted video signal comprises a display format and a power level appropriate for driving the alternative display terminal; and

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Va. Innovation Scis. Inc. v. Amazon.com, Inc.*, Civil No. 1:16-cv-00861 (E.D. Va. Jan. 5, 2017).

⁷⁷ *Id.*

⁷⁸ *Id.*

a device interface module, in operative communication with the signal conversion module, which provides the converted video signal to the alternative display terminal to accommodate displaying the video content by the alternative display terminal.⁷⁹

The District Court held this claim ineligible for patent protection because it, like the claim in *TLI*, does not improve the functionality of a computer itself.⁸⁰ Instead, the Court found that this claim is directed to the more general problem of reproducing a video from a mobile phone on a separate display device.⁸¹

As illustrated by the above exemplary cases, *Enfish* and *TLI* have had a clarifying effect at the District Court level. As discussed in the following sub-part, practitioners have also seen these Federal Circuit cases applied at the PTAB.

3. Newfound Clarity at the PTAB

In *Ex parte Carvalho*⁸², the PTAB overturned a rejection of claims as being directed to patent ineligible subject matter.⁸³ The patent at issue is directed to latency uncertainty reduction in a transceiver system.⁸⁴ The specification purports to solve the prior art problem of deserializer/word aligner latency uncertainty by using a bit slipper.⁸⁵ The PTAB held that, like the claims in *Enfish*, the claims at issue are directed to an improvement in the functioning of a computer (i.e., eliminating word aligner latency delay uncertainty) and not to the addition of general-purpose computer components to a fundamental economic practice or mathematical equation.⁸⁶ A representative claim is reproduced as follows.

1. A transceiver system comprising:
 - a word aligner, wherein each word of a plurality of words aligned by the word aligner has a plurality of bits and the word aligner aligns the plurality of words to a word boundary; and
 - a bit slipper coupled to the word aligner;
 - wherein the bit slipper receives information regarding word alignment from the word aligner, further wherein the bit slipper slips bits in such a way so that total delay due to word alignment by the word aligner and bit slipping by the bit slipper is constant for all phases of a recovered clock signal.⁸⁷

*Informatica Corp. v. Protegrity Corp.*⁸⁸ was a post-*Enfish* final written decision for a Covered Business Method (CBM) review. The patent at issue was directed to techniques for protecting data against unauthorized access.⁸⁹ The PTAB noted that this claim was not directed to a specific improvement to the way computers operate, and instead merely determine whether

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² Appeal 2015-001076, PTAB July 6, 2016

⁸³ *Id.* at 6.

⁸⁴ *Id.* at 5.

⁸⁵ *Id.* at 5-6.

⁸⁶ *Id.* at 6.

⁸⁷ *Id.* at 2.

⁸⁸ CBM2015-00021, Paper 38, (PTAB May 31, 2016).

⁸⁹ *Id.* at 4-5.

access to data should be granted based on whether one or more rules are satisfied.⁹⁰ A representative claim is reproduced as follows.

1. A method for processing of data that is to be protected, comprising:
 - storing the data as encrypted data element values (DV) in records (P) in a first database (O-DB), the first database (O-DB) having a table structure with rows and columns, each row representing a record (P) and each combination of a row and a column representing a data element value (DV), in the first database (O-DB) each data element value (DV) is linked to a corresponding data element type (DT);
 - storing in a second database (IAM-DB) a data element protection catalogue (DPC), which contains each individual data element type (DT) and one or more protection attributes stating processing rules for data element values (DV), which in the first database (O-DB) are linked to the individual data element type (DT);
 - for each user-initiated measure aiming at processing of a given data element value (DV) in the first database (O-DB), initially producing a calling to the data element protection catalogue for collecting the protection attribute/attributes associated with the corresponding data element type, and
 - controlling the user's processing of the given data element value in conformity with the collected protection attribute/attributes.⁹¹

Like the Examining corps and District Courts, the PTAB is also implementing clarifying Federal Circuit decisions such as *Enfish* and *TLI*. Although these entities are not applying patent eligibility law in a perfectly uniform manner, they have been positively impacted by the Federal Circuit's recent decisions clarifying when a claim is eligible for patent protection.

It would be wise should wait and see whether the Federal Circuit can continue this encouraging trend. One possible litmus test is whether the Federal Circuit clarifies patent eligibility law for medical diagnostic patents in the near future (*Enfish* applies to computer-implemented patents). As discussed in Section IV, this option is preferable to legislating patent eligibility law.

IV. Possible Unintended Consequences of Legislating Patent Eligibility Law

This Section addresses the risks associated with legislating patent eligibility law. Part A argues that most patent eligibility legislation will be open to interpretation that contradicts the intent of the statute. Part B contends that any language introduced as a bill is unlikely to pass through Congress unamended. Part C examines the possibility that the Supreme Court may overrule an amendment to § 101 on constitutional grounds.

A. The Process for Enacting a Bill into Law

The process for enacting a bill is long and unpredictable. The most recent major patent reform, the America Invents Act (AIA), took approximately six years to be enacted.⁹² The original form of the AIA was first proposed in 2005, and addressed issues relating to, among

⁹⁰ *Id.* at 24.

⁹¹ *Id.* at 5-6.

⁹² Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIR. BAR J. 435, 438 (2012), available at https://www.uspto.gov/sites/default/files/aia_implementation/guide-to-aia-p1.pdf.

other things, injunctions and willful infringement.⁹³ However, by the time the AIA was enacted in 2011, the courts had already issued rulings clarifying the law on injunctions⁹⁴ and willful infringement⁹⁵.

History may repeat itself if patent eligibility law is legislated. For example, the Federal Circuit may further clarify patent eligibility law to render the legislation extraneous or redundant. In addition, the law that emerges is often unrecognizable from the bill that was originally introduced. This holds especially true for patent law, which is a highly specialized and technical field. For instance, Senator Coons recently acknowledged that the patent community understands the issues surrounding patent eligibility law “far better than most members of Congress.”⁹⁶

Moreover, there does not appear to be the level of industry consensus or political will that would likely be necessary for the successful enactment of amendments to § 101. A legislative campaign will produce significant controversy and is almost certain to fail in the near term. While it may be possible in a longer time frame to build enough consensus for a bill to move forward, it seems likely that this would require significant compromises that would inevitably dilute the legislation’s impact and benefit. Even with such compromises, enactment is far from certain. This creates a risk that the courts will interpret Congress’s failure to enact legislation after considering the issue as an implicit endorsement or ratification of the Supreme Court’s current case law.

Proponents of patent eligibility legislation might argue that the current uncertainty is both untenable and unlikely to improve, pointing to the Supreme Court’s tendency to mitigate attempts by the Federal Circuit to provide “bright-line” patent eligibility guidance (e.g., the Supreme Court in *Bilski* held that the Federal Circuit over-applied the machine-or-transformation test).⁹⁷ However, the rule in *Enfish* derives from the Supreme Court’s opinion in *Alice*, which held that the claims at issue were directed abstract ideas in part because they did not “improve the functioning of the computer itself.”⁹⁸ In addition, the Federal Circuit recently acknowledged, “a search for a single test or definition in the decided cases concerning § 101 from this court, and indeed from the Supreme Court, reveals that at present there is no such single, succinct, usable definition or test.”⁹⁹ So long as the Federal Circuit continues to recognize that there is no single test for patent eligibility, the Supreme Court will likely permit the Federal Circuit to continue to apply *Enfish* and other similar cases in a clear and consistent manner.

B. All Statutory Language is Open to Interpretation

Patent eligibility legislation is unlikely to sufficiently clarify the law because statutory language is inherently open to interpretation. For example, the drafters of the current patent eligibility statute probably did not anticipate the three judicial exceptions for patent eligibility

⁹³ Patent Reform Act of 2005, H.R. 2795, 109th Cong.

⁹⁴ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

⁹⁵ *In re Seagate*, 497 F.3d 1360 (Fed. Cir. 2007) (en banc).

⁹⁶ Chris Coons, *A Few Thoughts on the Supreme Court’s Section 101 Jurisprudence*, IPWATCHDOG, Feb. 8, 2017, available at <http://www.ipwatchdog.com/2017/02/08/thoughts-supreme-courts-section-101-jurisprudence/id=78166/>.

⁹⁷ *Bilski*, 561 U.S. at 603.

⁹⁸ *Alice*, 134 S.Ct at 2359.

⁹⁹ *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, No. 2015-1180, slip op. at 9 (Fed. Cir. Nov. 1, 2016).

because those three exceptions do not appear in the statutory text. The current patent eligibility statute is reproduced as follows.

35 U.S.C. 101 Inventions patentable.

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.¹⁰⁰

Just as the Supreme Court has construed the current statute to include these “implicit exceptions,” an amended § 101 may be interpreted in unpredictable ways. The Intellectual Property Owners Association (IPO) recently proposed amendments to § 101 to clarify the law.¹⁰¹ The language, reproduced below, is marked up to reflect changes to the current statute.

35 U.S.C. 101 Inventions patentable. 101(a) ELIGIBLE SUBJECT MATTER

Whoever invents or discovers, and claims as an invention, any ~~new and~~ useful process, machine, manufacture, ~~or~~ composition of matter, or any ~~new and~~ useful improvement thereto, ~~may obtain~~ shall be entitled to a patent for a claimed invention thereof, subject only to the exceptions, conditions, and requirements ~~of~~ set forth in this Title.

101(b) SOLE EXCEPTION TO SUBJECT MATTER ELIGIBILITY

A claimed invention is ineligible under subsection (a) if and only if the claimed invention as a whole, as understood by a person having ordinary skill in the art to which the claimed invention pertains, exists in nature independently of and prior to any human activity, or exists solely in the human mind.

101(c) SOLE ELIGIBILITY STANDARD

The eligibility of a claimed invention under subsections (a) and (b) shall be determined without regard as to the requirements or conditions of sections 102, 103, and 112 of this Title, the manner in which the claimed invention was made or discovered, or the claimed invention’s inventive concept.¹⁰²

According to the plain language of § 101(b), if a claim does not fall within the “sole exception” to subject matter eligibility, then it is eligible for patent protection.¹⁰³ Thus, according to the IPO, this language replaces the three judicially created exceptions with two statutory exceptions: inventions that (1) exists in nature independently of and prior to any human activity; and (2) exists solely in the human mind.¹⁰⁴ However, these exceptions lack sufficient clarity to provide consistent guidance in subject matter eligibility decisions.

For example, it is unclear whether a decision maker is precluded from finding that the first statutory exception categorically excludes software algorithms. If a decision maker believes that math is discovered (as opposed to created), the decision maker might find that a software algorithm (which this decision maker might equate to math) is ineligible subject matter under this exception. This decision maker might reason that, because software is simply math, and because math exists independently of and prior to any human activity, software falls under the

¹⁰⁰ 35 U.S.C. § 101 (2016).

¹⁰¹ Section 101 Legislation Task Force, INTELLECTUAL PROPERTY OWNERS ASSOCIATION, *Proposed Amendments to Patent Eligible Subject Matter Under 35 U.S.C. § 101* (Feb. 7, 2017), available at http://www.ipo.org/wp-content/uploads/2017/02/20170207_IPO-101-TF-Proposed-Amendments-and-Report.pdf.

¹⁰² *Id.* at 1.

¹⁰³ *Id.*

¹⁰⁴ *Id.* at 29.

first statutory exception. The second statutory exception also has predictability issues. For instance, it is unclear whether a claim would fall under this exception if a single embodiment of the invention could theoretically exist “solely in the human mind.”¹⁰⁵

Further, addressing the patent eligibility of specific technologies is an issue best left to the Federal Circuit, not Congress, because Federal Circuit judges have a technological and patent expertise that most of Congress lacks. However, the first statutory exception is intended to address the “laws of nature” judicial exception, which generally applies to biotechnology patents, and the second statutory exception is intended to address the “abstract idea” judicial exception, which generally applies to software patents.¹⁰⁶ As such, legislation that aims to address the software and biotechnology areas places the patent eligibility of specific technologies in the hands of Congress.

In addition, the Supreme Court is more likely to issue an opinion on a new patent eligibility statute than a Federal Circuit decision on existing patent eligibility law. Whereas the Supreme Court has denied certiorari in every patent eligibility case since *Alice*, amending § 101 presents a case of first impression. Given the Supreme Court’s tendency to confuse the state of patent eligibility law by imposing non-statutory criteria, there is no guarantee that statutory amendments – no matter how clearly drafted – would produce the desired clarity. At the same time, any amendment would make further intervention by the Supreme Court much more likely, making legislation a risky decision.

C. “Constitutionalization” of Supreme Court Decisions

The Supreme Court may “constitutionalize” *Mayo/Alice* (i.e., provide Constitutional support for those cases) in order to invalidate new patent eligibility legislation or to justify interpreting it in a manner contrary to its clear intent. It has been suggested that the Supreme Court has constitutional motivations for the *Mayo* and *Alice* decisions.¹⁰⁷ The Supreme Court has hinted in various decisions that it considers the judicially created exceptions necessary to “promote the progress of... useful Arts.”¹⁰⁸ For instance, it has suggested that without these judicially created exceptions, there would be “considerable danger” that patents would preempt future innovation, and that this “would be at odds with the very point of patents, which exist to promote creation.”¹⁰⁹ In *Mayo*, the Court stated that allowing judicially created exceptions to be patented “might tend to impede innovation more than it would tend to promote it.”¹¹⁰ Justice Stevens has explicitly discussed the Intellectual Property Clause with regard to business method patents.¹¹¹ In addition, Judge Mayer of the Federal Circuit has also suggested that software patents “constricting the essential channels of online communication run afoul of the First Amendment.”¹¹² Legislating § 101 may prompt the Supreme Court to explicitly cite to these

¹⁰⁵ Dennis Crouch, *Eligibility: Explaining the IPO Legislative Proposal*, PATENTLY-O (Feb. 9, 2017), available at <http://patentlyo.com/patent/2017/02/eligibility-explaining-legislative.html>.

¹⁰⁶ *Id.* at 32-33.

¹⁰⁷ See Wesley D. Markham, *How to Explain the “Implicit Exceptions” to Patent-Eligible Subject Matter*, 16 VAND. J. ENT & TECH L. 353, 381-92.

¹⁰⁸ U.S. CONST. art. I, § 8, cl. 8

¹⁰⁹ *Myriad*, 133 S. Ct. at 2116 (internal citations and quotation marks omitted).

¹¹⁰ *Mayo*, 132 S. Ct. at 1293 (internal citations and quotation marks omitted).

¹¹¹ See generally *Bilski*, 561 U.S. (Stevens, J., concurring)

¹¹² *Symantec*, slip op. at 1 (J. Mayer, concurring).

constitutional justifications (e.g., Intellectual Property Clause, First Amendment, etc.) in order to invalidate the legislation. Alternatively, the Supreme Court could defeat the intended effect of the amendments and maintain the current exceptions to eligibility by, for example, construing the constitutional reference to the “useful arts” to require that an eligible invention must represent a practically useful technological advance that is “significantly more” than a mere “idea.”

Proponents of the legislation may argue that such legislation should be pursued even in view of these risks because *Mayo* and *Alice* are already the law. However, constitutionalizing *Mayo* and *Alice* may destroy the Federal Circuit’s progress in clarifying the law (e.g., by overruling *Enfish*). In addition, constitutionalizing *Mayo* and *Alice* would likely make these decisions much more “permanent” in the eyes of the courts and make it much less likely the Federal Circuit would continue improve the case law by applying *Enfish*-like exceptions in its decisions. As such, legislating § 101 could exacerbate current issues of clarity in patent eligibility law.

V. Conclusion

The patent community is in nearly universal agreement that the lack of clarity in patent eligibility law needs to be addressed. It is less clear, however, that seeking statutory amendments is the best method for achieving this. Before pursuing the risky strategy of patent eligibility legislation, the Federal Circuit should be permitted to continue its recent promising trend of providing clear and predictable patent eligibility case law.