Comment on Docket No.: PTO-P-2021-0032
Patent Eligibility Jurisprudence Study
By the Intellectual Property Committee of the Business Law Section of the Florida Bar

I. Introduction

The following comments are presented in response to the Request for Information from the United States Patent and Trademark Office (USPTO) Docket No: PTO-P-2021-0032, on the current state of patent eligibility jurisprudence in the United States, and how the current jurisprudence has impacted investment and innovation, particularly in critical technologies like quantum computing, artificial intelligence, precision medicine, diagnostic methods, and pharmaceutical treatments.

II. Identification and Interest in the U.S. Patent System

The authors of this comment are members of the Intellectual Property Committee of the Florida Bar. The Intellectual Property Committee is a substantive law committee of the Business Law Section of the Florida Bar. The Business Law Section of the Florida Bar is an organization within the Florida Bar.[1] As a result, the authors of this Comment identify as category (3) entities that represent inventors or patent owners. (e.g. law firms).

III. Background

The critical event, as it relates to computer implemented inventions, was the 2014, U.S. Supreme Court case of *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) ("*Alice Corp*") which held "abstract idea[s], just like the algorithms" are patent ineligible subject matter. Any "algorithm implemented on a general-purpose digital computer" was found to be patent ineligible subject matter. Unfortunately, the Court could not identify nor explain the contours of what was an "abstract idea."

The only exceptions to the *Alice Corp* ineligible subject matter rule, per the Court, are: "as an ordered combination which transform[s] the nature of the claim into a patent-eligible application" or to "improve the functioning of the computer itself" or to "effect an improvement in any other technology or technical field," that is, an improvement in a non-computer-related field. For example, a computer program assisting a jet pilot to track an object with the pilot's heads-up display was deemed patent eligible subject matter by the Court of Appeals for the Federal Circuit. *Thales Visionix Inc. v. United States*, 850 F.3d 1343 (Fed. Cir. 2017). The physical interrelationship of the computer program with the heads-up display was an improvement to the non-computer-related technical field of piloting a jet.

[1] These comments are submitted on behalf of the Section only, and do not express the position of The Florida Bar. However, the Board of Governors of the Florida Bar has been notified of this filing.

IV. Patent Prosecution- Inconsistent Application of "What is an Abstract Idea"

The following Observations and Experiences reflect the common experiences of members of the Intellectual Property Committee of the Business Law Section of the Florida Bar who draft and prosecute computer related patents in the USPTO.

From 2012 through 2017, a member of the Intellectual Property Committee successfully obtained several computer related patents which used geo-tracking a mobile worker's cell phone to (a) track, account for and bill the mobile worker's time (for example, an AC repair man engaged to repair a homeowner's AC unit); (b) track the movement of a mobile worker to, for example, the home needing the AC repair, and if the worker could not arrive at the appointed time, send a text message to the homeowner; and (c) enforce time management rules on mobile workers. See U.S. Patent Nos. 9,740,999; 8,971,853; 9,123,005; and 8,977,236.

However, when this member filed a patent in 2017 which used geo-tracking of a nurse's cell phone to assure that the nurse would arrive on time at the hospital for shift work that she or he earlier selected via the computer program (and if not, then certain alerts would be triggered to replace the nurse with another qualified nurse, or cancel the temporary staffing request), the USPTO continuously refuses over the next four (4) years (representing six (6) responses (valued at over $21,000) arguing patent eligible subject matter), to confirm that this geo-tracked shift worker computer system was eligible subject matter. The Examiner in this matter continues to state that since "a human can do the same thing" as the computer system, the system is not patent eligible subject matter. Of course, geo-tracking cannot be done by a human.

There is no good reason why the 2012-2017 mobile workers tracking systems were deemed to be patent eligible subject matter and yet a comparable and more complex, healthcare on-time shift-worker scheduler is not patent eligible subject matter. The healthcare worker scheduler is more complex because, with the replacement command, the system (i) locates another several qualified nurses in its database; (ii) texts those qualified nurses; (iii) at least one new nurse responds to "grab the shiftwork" notice; (iv) and notifies the hospital manager of the replacement nurse. This member is on the ninth (9^{th}) responsive reply arguing eligible subject matter to the USPTO in this pending application.

For another healthcare client in 2018 and 2020, this member drafted computer-related patents for a highly secure method for the acquisition, processing and production of health care data and service records implemented in a cloud computing network. See U.S. Patent Nos. 10089438 and 10665335. In these applications, the USPTO never raised a Section 101, patent ineligible subject matter rejection.

However, in an application filed in 2019 for the same healthcare client, the USPTO rejected, as being not patent eligible subject matter, a Patient-Centric Eco-System with Automated Workflow and Facility Manager for Improved Delivery of Medical Services. The computer-based

Eco-System tracks patients as they move from various medical rooms in a facility while simultaneously and autonomously capturing the subject patient during pre-op, treatment, and post-op by video, still imagery, and audio (voice commands segment data acquisition). The Eco-System then generates and displays time-stamped video and still images of the patient's pre-op, treatment, and post-op (an end-to-end presentation typically used for medical training purposes). The Eco-System is orders of magnitude more complex, applying orders of magnitude more hardware and data processing volumes of data than the issued '438 and '335 patents.

The USPTO also struggles with application with application of Section 101 given the lack of clarity on this law, thus all stakeholders would benefit from clarifying legislation on this important body of law.

The inconsistent application of patent eligibility jurisprudence as evidenced in the Observations and Experiences above has increased the cost and uncertainty for inventors seeking to obtain patent protection for their artificial intelligence or computer-related inventions and has caused other clients to completely abandon their efforts to obtain patent protection, despite significant investment, after failing to overcome a Section 101 rejection after multiple attempts.

From an economic standpoint, computer program patent applications cost about $10,000 to $12,000 to file, and during 2000 to 2016, clients would typically spend an additional $8,000 for post-filing processing. Now, although the applications cost about $10,000 to $12,000 to file, post-filing processing costs are about $20,000 WITHOUT clear guidance from the USPTO and the Federal Circuit as to the boundaries of Section 101. Hence, clients have no way of predicting success in any implementation of computer processing in any technical field.

V. Patent Litigation

From a litigation counseling perspective, the inconsistency in treatments by different examiners within the USPTO and inconsistency in application of the law by different panels of the Federal Circuit, combined with lack of clarity from the SCOTUS, place us as advisors to inventors and patent owners in a quandary when advising clients as to the validity of certain patents and the likelihood of success of any infringement actions or invalidity claims. This lack of certainty is anathema to business decision-making and creates frustration and trepidation by technology companies and investors, hurting U.S. innovation. From this perspective, whether the clarification comes by broadening the patent eligible subject matter or narrowing it, is not as important as is *clarifying it* and making the application of the rules more uniform. That would create a better environment for inventors to invent in and investors to invest in -- and for us legal practitioners to provide meaningful advice.

Substantively speaking, claiming patent eligibility merely because a computer is used as a storage or faster processing vehicle for applying laws of nature or typical business steps, should in my views still be rejected. As a result, the *Alice Corp* decision has benefited some clients by

allowing them to successfully defend against infringement by invalidating certain computer related patents that fail to "improve the functioning of the computer itself" or to "effect an improvement in any other technology or technical field" and therefore should never have been granted. But especially in this age of AI innovation and use of technology for things like sending coded instructions to RNA in human cells, a brush that is too broad will jeopardize the incentive for scientists and programmers to continue to advance the arts and sciences, which would be detrimental to society.

As litigators, we look to Court opinions for clarity as to the application of the law to a set of facts and, thereafter, to similar facts. When the courts' decisions are ambiguous, or worse, contradictory, we are forced down the rabbit hole that the fictional Alice encountered, and are left to operate with our legal senses impaired. Going to "Ask *Alice*" (the SCOTUS version) is of no help. Legislation can help resolve this challenge and, frankly, is overdue.

VI. Federal Circuit's Recent Enlargement of Ineligible Patent Subject Matter

In 2019, the Court of Appeals for the Federal Circuit (the "Federal Circuit") ruled that a method of manufacturing a drive shaft (for example, in an automobile) was patent ineligible subject matter because the claims required "tuning at least one [drive shaft] liner to attenuate at least two types of vibration transmitted through the shaft member." *American Axle & Mfg., Inc. v. Neapco Holdings LLC* (Fed. Cir. 2020). Dissenting Judge Moore complained that the Federal Circuit as "deeply divided" on this eligibility issue. The case is on appeal to the Supreme Court. The tuned drive shaft applied a law of nature, in this case Hooke's Law, to be employed in the manufacture of a drive shaft.

What is most disturbing is that in 1981, the Supreme Court in *Diamond v Diehr*, 450 U.S. 175 (1981), held that a manufacturing process wherein rubber was cured in a mold, using the Arrhenius equation to calculate when to open the mold, was patent eligible subject matter. The Court stated "an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection." *Id* at 187. The holding in *American Axle* is diametrically opposed to the holding in *Diamond v Diehr.*

In 2021, the Federal Circuit again broadened the scope of patent ineligible subject matter in *Yu v. Apple* 2020-1760 (Fed. Cir. June 11, 2021). Yu claimed an improved digital camera with "first and [] second image sensor[s] closely positioned with respect to a common plane," two lenses in from of each sensor, analog-to-digital converting circuitry, and a digital image processor "producing a resultant digital image from said first digital image enhanced with said second digital image." The Federal Circuit found that the processor, enhancing the two digital images, was too abstract and hence the entire invention was ineligible subject matter.

Clearly, the Federal Circuit's expansion of what is patent eligible subject matter has no moorings to any hardware recited in the patent claims. The courts and the USPTO are ignoring the

Supreme Court's limitation in *Alice Corp.* that an invention for "an improvement in any other technology or technical field," other than solely a computer program is patent eligible subject matter.

VII. Global Patent Marketplace

While the U.S. continues to struggle with how to clearly and consistently define patent eligibility under Section 101, China has taken measures to increase certainty in negotiating its patent system.

Earlier this year, Reuters reported that China was the biggest source of applications for international patents in the world in 2020 for the second consecutive year and extended its lead over the United States.

According to information provided by the World Intellectual Property Organization ("WIPO"), the number of utility patent filings in China increased over 4 fold from 2010 through 2019, from 308,326 to over 1,327,847 applications. Further, the number of those applications filed by entities outside of China increased nearly 6 fold over the same time period, from a little over 15,000 to nearly 85,000 applications. The overall number of patents issued in China over this time period also increased over 3.5 times, from about 140,000 patents issued in 2010 to over 490,000 patents issued in 2019. With regard to patents issued based on applications originating outside of China, the increase is nearly 8 fold, from just over 5,000 patents issued in 2010 to nearly 40,000 patents issued in 2019 to foreign entities.

Over the same time period in the United States, the number of utility patent application filings in the U.S. increased less than 20%, from 433,140 in 2010 to 521,145 patent applications filed in 2019. Of those, in a similar fashion, the number of applications originating outside of the U.S. also rose less than 20%, from about 191,000 applications to about 236,000 applications. While the total number of applications filed in the U.S. from entities abroad was still more than double those filed in China in 2019, if the trends continue, and there is no reason to expect that they will not, at least for the immediate future, it may not be long before there are more utility patent applications filed in China from entities outside of China than those being filed in the United States by entities outside of the U.S.

With regard to utility patents issued, in 2010 the U.S. issued just over 300,000 utility patents. That number increased about 60% to nearly 500,000 utility patents issued in the United States in 2019. Of those, less than 30% of the patents were issued to entities abroad in 2010 increasing to nearly 50% in 2019.

More recently, China has twice amended its Guidelines for Patent Examination so as to provide more certainty and accessibility to its patent system. In November 2019, the Guidelines were amended to clarify that certain human stem cells were patent eligible. Specifically, stem cells obtained from a human embryo which is within 14 days of fertilization and has not gone through

in vivo development and methods for preparing the same are without question patent-eligible in China. The patentability of human stem cells in the U.S. still remains somewhat questionable under Section 101.

In February 2020, China again amended its Guidelines for Patent Examination. Recognizing that "patent applications relating to artificial intelligence, 'Internet +', big data and block chain usually contain intellectual activities such as algorithms or business rules and methods. This Section intends to address the particularity of examining these kinds of applications based on the Patent Law and its Implementing Regulations." Section 6. New Section 6 further provides that although "an abstract algorithm or pure business rules and methods" are not patent-eligible, the Guidelines were amended to clarify that "[i]f a claim contains technical feature, in addition to algorithm or business rules and methods feature, the claim viewed as a whole is not a rule and method for intellectual activities, and will not be excluded from patent eligibility based on Article 25.1(2)." Section 6.1.1.

This is a stark contrast to the uncertainty which currently pervades the U.S. Patent system due to an unwieldy 2-part test that is inconsistently applied by Patent Examiners, who routinely issue claim rejections under Section 101, PTAB, and the Courts in determining whether subject matter is or is not patentable under Section 101.

The writing appears to be on the wall. Simply stated, if the U.S. does not resolve the uncertainties with regard to subject matter patentability, U.S. and non-U.S. entities will likely increase the number of patent filings in other jurisdictions. It would seem to follow that it would then only be a matter of time before those entities seek to locate their research and development personnel and facilities to jurisdictions in which its inventive rights can be protected.

VIII. Calls for Congressional Action- Legislative Solution

In *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 890 F.3d 1354 (Fed. Cir. 2018), Federal Circuit Judges Lourie and Newman, in a concurring opinion, stated "The law needs clarification by higher authority, perhaps by Congress, to work its way out of what so many in the innovation field consider are § 101 problems. ... The Supreme Court put a gloss on this provision by excluding laws of nature, natural phenomena, and abstract ideas". This call for Congressional action has been ignored to the detriment of computer-related innovation in the United States.

As per the USPTO guidelines, if a claim, "sets forth" or "describes" a judicially recognized exception, but also recites additional elements that amount to "significantly more", the claim recites patent eligible subject matter.

As discussed in the foregoing sections, these terms are all ambiguous and introduce a great deal of uncertainty. In particular, the "significantly more" inquiry is ambiguous and conflates the issue of subject matter eligibility with the issue of patentability pursuant to 35 USC §102 (novelty); 35 USC §103(a) (obviousness) or 35 USC §112 (enablement).