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Software Patents in the United States: Essential Considerations and Important Trends

Edward J. Russavage*

In this article, the author explains that despite the U.S. Supreme Court's Alice *decision and its lingering effects, the current state of software patents in the United States is thriving, and those who ignore opportunities relating to software patents may be left behind, as trends in the direction of the law are changing.*

A common misperception in the software industry is whether aspects of software are patentable in the United States. Although it has been eight years since the U.S. Supreme Court's decision in *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*,[1] it is common to encounter people and even patent professionals who incorrectly assume that software cannot be protected. The present state of software patents in the United States is that they can be protected, and there are steps being taken and trends that will ensure valuable ideas relating to software may be protected in the future.

Background

Many practitioners who work in the software area are familiar with the 2014 *Alice* decision, which excludes any invention characterized as an abstract idea. Historically, *Alice* has resulted in many software patents being scrutinized, abandoned, and invalidated at both the United States Patent and Trademark Office ("USPTO") and in the courts. The *Alice* decision created a new test to determine whether an abstract idea in relation to software could be protected.

In short, the test determines (1) whether the patent claims are directed to an abstract idea and, if they are, (2) whether the claims recite significantly more than the abstract idea.

The *Alice* court did not define what an abstract idea was or what was significantly more, so many lower courts and the USPTO were left to determine the metes and bounds of this test. In response

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to *Alice*, the USPTO issued guidance for examining these types of ideas (referred to as the *Mayo*/*Alice* test).[2] However, even with this guidance and new test, the *Alice* case had the effect of lowering allowance rates for certain types of subject matter (mostly software) and for frustrating applicants and practitioners in obtaining and defending these inventions.

Post-*Alice*

After *Alice* was decided, many patent applications were delayed or abandoned as the USPTO struggled to implement the test over the next several years. For example, in a report from the Office of the Chief Economist in April 2020, it was determined that the likelihood of receiving a first-office action with the rejection for patent-ineligible subject matter increased by 31% within 18 months following the U.S. Supreme Court decision in *Alice* in 33 "*Alice*-affected" technology areas.[3] For these technologies, uncertainty and patent examination measured as a variability in patent subject matter eligibility determinations across examiners in the first action stage of examination increased by 26% in 18 months following the *Alice* decision.

As indicated in the report, it was determined that change in Section 101 rejections was statistically significant and large in magnitude. This increase reflects at least two results of the *Alice* decision. First, expanding the application of the *Alice* standard to other technology areas likely led to more Section 101 rejections.

Second, and more importantly, professionally trained judges, lawyers, and examiners can apply reasonable but different interpretations of the *Alice* standard, and broader views of patent-ineligible subject matter led to an increase in Section 101 rejections.

One conclusion of the report includes that the increase in uncertainty reflects the interpretive latitude in the language of the *Alice* standard. The practical effect of the *Alice* decision was chilling: many technologies, predominately software and business methods, were affected, which resulted in applications becoming delayed, abandoned, and invalidated.

Since the *Alice* decision, several decisions by federal circuit courts of appeals have been decided that assisted practitioners arguing that particular software is patentable. For instance, decisions such as *DDR Holdings*,[4] *Enfish*,[5] *TLI*,[6] *McRO*,[7] and *Bascom*[8]

provided a road map for particular inventions to be protected. Many of these cases turned on the issue of whether there was a technical innovation, and how this technical innovation was described in the patent application. In many cases a successful prosecution strategy by patent prosecutors was highly dependent on how the technical aspects were described within the application, and how the improvements resulted in an improved operation in a computer, as well as the specific art unit assigned to a particular patent application.

Art Unit Differences

For those not in the patent field, art units are small technology-specific groups to which examiners are assigned, and these examiners work to examine patents focused in these areas. As most patent practitioners could agree, the successes based on arguments for software applications depended in large part on how particular examiners in different "art units" applied the *Alice* decision and the following Federal Circuit decisions to their normal caseloads.

Over the next several years, after several of these additional Federal Circuit cases were decided, allowance rates began to improve in many art units, especially those that were based on technology. For instance, allowance rates improved in hardware-based art units as well as other non-business-related art units. Many of these successes led to practitioners looking to stay out of "business methods" art units by crafting patent applications and claims in particular ways to avoid such art units.

Many business method art units continued to have issues, even after these cases were decided. Of the lowest allowance rates, many were in USPTO art unit 3600-related units, which deal with a variety of inventions, including transportation, e-commerce, and national security. Most of the more difficult cases related to methods of doing business, and implementation of business-related ideas on computers. Inventions relating to financial applications, management of business processes, accounting, determining insurance risk, and other abstract idea–related concepts received the most scrutiny. As a result of this uneven standard, database tools surfaced that permitted practitioners to "game" the USPTO system by statistically predicting into which art units certain claimed inventions would be placed. As this uneven application of the new standard

remained, and the reliability of the patent system was at issue, the USPTO needed to respond.

Berkheimer Decision and the USPTO Response

On April 19, 2018, the USPTO released a memorandum[9] to patent examiners regarding changes in examination procedure pertaining to subject matter eligibility in view of the Federal Circuit's *Berkheimer v. HP Inc.* decision.[10] In the decision, the court reversed the finding of ineligibility as the defendant offered no evidence that the claims in fact recited "well understood, routine, and conventional" techniques." The effect of this case was significant, as it shifted the burden to examiners to prove an idea was conventional in the "significantly more" portion of the test. The USPTO memo required examiners to make a factual determination that an element represents well-understood, routine, conventional activity.

USPTO 2019 Guidance

In response, since the *Alice* decision, the USPTO has taken a number of steps to provide additional certainty to the patent process. In January 2019, the USPTO issued Revised Patent Subject Matter Eligibility Guidance,[11] which revised procedures for determining whether a patent claim or application claim is directed to a judicial exception, and accordingly describes when a claim is not "directed to" the judicial exception if it is integrated within a practical application of the exception.

In summary, the guidance defined more particular circumstances in which examiners could find that claims were directed to abstract ideas, and even if they were included, if the claims were directed to a practical application they could be patentable. Also, the guidance provided the number of theoretical examples whereby practitioners could analogize their claims and cite to these examples during prosecution.

As a result of this guidance, it seemed that many long-standing *Alice* rejections were overcome, and some examiners were willing to allow cases more freely.

Recent Data and Direction

In the Director's Blog published by the USPTO on July 25, 2022,[12] the main messages from the USPTO indicate that the law on patent eligibility, like other areas of patent law, needs to be clear, predictable, and consistently applied. The blog confirmed that, since the *Alice* decision, the rejection rate for 101-based rejections skyrocketed, especially for software-related applications. In early 2017, the percentage of first-office actions, including Section 101 rejections for *Alice*-affected technologies, was trending upward.

This report also confirmed that the *Berkheimer* memorandum in April 2018 changed the direction of this trend. Prior to the release of the *Berkheimer* memorandum, examiners had been instructed to conclude that an element (or combination of elements) was a well-understood, routine, conventional activity when the examiner could readily conclude that the element was widely prevalent or in common use in the relevant industry.

As a result of the *Berkheimer* memo, examiners need to prove that an additional element (or combination of elements) is not well understood, routine, or conventional unless the examiner finds, and expressly supports, a rejection in writing with certain evidence. Also, in October 2019 the USPTO provided revised patent subject matter eligibility guidance that provided examples of how patent examiners should evaluate claims for eligibility. As a result, eligibility rate rejections have dropped from approximately 25% in 2018 to about 8% in 2022.

The USPTO is considering additional guidance and accepted comments on guidance relating to Section 101 through October 15, 2022. Further, members from the USPTO have considered and met with many others from foreign patent offices, including those in Europe, Japan, Korea, and China, to get a deeper understanding of how other jurisdictions determine what is patentable.

The U.S. Supreme Court

The Supreme Court has had several opportunities within the last several years to determine clarification for subject matter eligibility. In *American Axle v. Neapco*,[13] the Supreme Court had the opportunity to further define issues relating to the abstract idea question. However, the Supreme Court denied cert and left the

abstract idea issue to be decided by the district court. So, at least for the immediate future, the Supreme Court does not have a case relating to subject matter eligibility. Because of the inaction of the highest court, the interpretation of the *Alice* decision and tests for subject matter eligibility will not be clarified in the short term, and clarification may be left to Congress or further actions by the USPTO with respect to subject matter eligibility.

Actions by Congress

The Patent Eligibility Restoration Act of 2022, introduced August 2, 2022, addresses patent subject matter eligibility by rewriting Section 101. The new Section 101 provides explicit exclusions to patentable subject matter that effectively limit excluded processes to nontechnological economic, financial, business, social, cultural, or artistic processes. Although it is unclear what makes up a technological solution, it appears that eligible subject matter may be expanded.

Also, the new determination of patentable subject matter under Section 101 is independent of other standards relating to novelty and nonobviousness, so it is expected that the lines between what is patentable subject matter and what is not will be clarified. It is appreciated that as a practitioner, the separation of these standards could make prosecution more streamlined and predictable. Indeed, before the *Alice* decision, responding to Section 101 rejections was a simple matter of claim format, which could easily be rectified by minor amendments.

Recent Statistics

One March 2021 article[14] observed that looking at the top 15 software-related U.S.-granted utility patents, there was a 23% increase in the total number of granted patents in 2020 when compared to 2019. The article alleges that "software is eating the world," and it is undeniable based on certain facts and figures relating to jobs, growth, mergers and acquisitions activity, and most importantly, statistics relating to issued U.S. patents. In 2020, 63.2% of issued U.S. utility patents were "software related." Indeed, the statistics would indicate that software patents are alive and well in 2022 and beyond based on current trends.

What Is Patentable in Software?

In short, anything related to technology is a good start for considering patent protection. Generally, if the software in question improves "computer functionality" (i.e., improves computing speeds or reduces the amount of computing resources required), or performs the computing tasks in an unconventional way, then the software may be patentable. Although if there is a technical aspect to some business-related applications, further scrutiny should be done to determine the chances that the idea is patentable. Much of what is patentable depends on how the application and claims are written, and consequently, many practitioners, keeping *Alice* in mind, write applications very carefully.

Notwithstanding the *Alice* decision, some technologies have become more popular, such as the inclusion of artificial intelligence in multiple technology areas,[15] blockchain, digital assets such as cryptocurrencies, non-fungible tokens ("NFTs"), and novel user interfaces, among other technologies that use software.

Conclusion

Despite the *Alice* decision and its lingering effects, the current state of software patents in the United States is thriving, and those who ignore opportunities relating to software patents may be left behind, as trends in the direction of the law are changing.

Notes

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1. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014).
2. The 2014 Interim Guidance on Subject Matter Eligibility (2014 IEG) published on Dec. 16, 2014 (79 Fed. Reg. 74618).
3. https://www.uspto.gov/sites/default/files/documents/OCE-DH_AdjustingtoAlice.pdf.
4. *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014).
5. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016).

6. *TLI Communications LLC v. AV Automotive LLC*, 823 F.3d 607, 613, 118 USPQ2d 1744, 1748 (Fed. Cir. 2016).

7. *McRO, Inc. v. Bandai Namco Games America, Inc. et al.* (Fed. Cir. Sept. 13, 2016).

8. *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*, Fed. Cir. Case 2015-1763 (June 27, 2016).

9. https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF.

10. *Berkheimer v. HP Inc.*, 890 F.3d 1369 (Fed. Cir. 2018).

11. 2019 Revised Patent Subject Matter Eligibility Guidance, https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf.

12. Director's Blog—Providing Clear Guidance on Patent Subject Matter Eligibility https://www.uspto.gov/subscription-center/2022/providing-clear-guidance-patent-subject-matter-eligibility.

13. *American Axle & Manufacturing Inc. v. Neapco Holdings LLC*, U.S. 20-891 (June 2016).

14. https://www.ipwatchdog.com/2021/03/17/seven-years-after-alice-63-2-of-the-u-s-patents-issued-in-2020-were-software-related/id=130978/.

15. https://www.uspto.gov/sites/default/files/documents/OCE-DH-AI.pdf.