SOFTWARE PATENT LAW UPDATE

WHAT IS SOFTWARE?

Software is a fuzzy concept, a generic term that includes all kinds of lists or sequences of instructions, written in code or readable language. Computing systems, mobile devices, and networks are assemblies of hardware – processors, databases, communications links, etc. – controlled by executable code that operates on encoded data to achieve a specific purpose, whether it be local, as in a single component of a system, product, or network, or global, as in the desired overall result.

SOURCES OF APPLICABLE LAW

Prior to 2014 the principle restrictions on obtaining a patent on a software or a computer implemented invention for a machine or a process were the statutory requirements of Title 35 of the U.S. Code and related case law decisions decided in the Court of Appeals for the Federal Circuit (CAFC, or, informally, the "Federal Circuit").

The relevant sections of Title 35 are §101, §102, §103 and §112. Section 101 states that a patent may be obtained for a process, machine, article of manufacture or composition of matter that has utility. These are the basic "eligibility" categories of inventions that can be patented. It is implicit in these categories that an invention is a concrete thing. But this characterization has been stretched by the advent of advances in the computer arts and the digitization of information.

These basic categories of eligible inventions are subject to several Judicial Exceptions established by the case law. If an invention is directed to an abstract idea, a law of nature, or a natural phenomenon it is deemed not eligible for patenting. Examples of an abstract idea are software algorithms, mathematical formulas, and methods that can be carried out using mental steps, pencil and paper. We'll examine these Judicial Exceptions a bit later.

Section 102 requires an invention to be novel, that is, new and original. Section 103 requires that an invention cannot have been obvious to a person of skill in the same field of art as the claimed invention. Section 112 imposes requirements on the written description and the claims of the application for patent.

In 2014 the U. S. Supreme Court decided the case *Alice Corporation v. CLS bank International, Inc.*, 573 U. S. 208 (2014), following the lead of *Mayo Collaborative Services v. Prometheus Labs, Inc.*, 566 U. S. 66 (2012), and imposed additional requirements on patenting software-based inventions that are deemed to fall within any of the exceptions to the Section 101 statutory requirements. This decision changed patent law dramatically.

PATENT OFFICE GUIDELINES FOR ELIGIBILITY

Following the *Alice* decision the U. S. Patent & Trademark Office issued Guidelines for the patent examiners to use in examining applications for patent. These guidelines required the examiner to apply a "Subject Matter Eligibility Test for Products and Processes" to a patent claim being examined to determine if it qualified for patenting under Title 35, Section 101 of the statute.

The Subject Matter Test begins by asking the examiner to "establish the broadest reasonable interpretation of the claim as a whole" to identify the subject matter of the claimed invention. In other words: What subject matter is the claim "directed to?"

Next, the examiner determines whether the claim falls within a statutory category, that is, whether it describes a process, a machine, an article of manufacture, or a composition of matter. If so, the claim is **eligible** under Section 101 and the eligibility inquiry ends. If not, the examiner asks the following questions as applicable:

(1) Is the claim directed to a Judicial Exception: a law of nature, a natural phenomenon, or an abstract idea?

If NO . . . the claim is **eligible** for patenting under Section 101.
If YES . . . proceed to question #2.

(2) Does the claim recite additional elements or steps that amount to **significantly more** than the Judicial Exception?

If YES . . . the claim is **eligible** for patenting under Section 101.
If NO . . . the claim is not eligible.

Let's pause for a moment to clarify the Judicial exceptions. An example of a law of nature is the law of gravity. DNA is a natural phenomenon. Abstract ideas, however, are more difficult to identify. One rational approach proposed (though not yet written into rules) by the Director of the Patent Office classifies abstract ideas in three ways: mathematical concepts such as formulas and calculations; methods of organizing human interactions such as business activities; and mental processes such as evaluating, or forming an observation or opinion.

The reason an abstract concept or idea cannot be patented is that a single idea might be applied to solving a variety of problems, to *preempt* all solutions to those problems, even though the circumstance that led to the invention concerned one specific problem. The U. S. Patent laws award a patent to an inventor for a limited period in exchange for disclosing the invention to the public. A patent may not be granted to extend to the inventor the right to exclude or preempt all possible uses for an idea that was patented only for a particular application of the abstract idea.

WHAT FEATURE CHARACTERIZES ELIGIBLE SUBJECT MATTER FOR A PATENT?

A claim for subject matter that is considered as an abstract idea can still be eligible *IF* it embodies an "Inventive Concept." An example of an inventive concept, or inventive step, is an invention that provides a technological solution to a technological problem, that is: the claim includes "something more" than a generic computer running conventional kinds of software.

The "something more" must not only be novel and not obvious, but also limited to a specific application of the abstract idea or concept that limits the application of that abstract idea to the particular problem. The something more is thus a solution that specifically recites how the solution works – e.g., what particular steps are involved in the algorithm that solves the particular technical problem.

Since the *Alice* decision a number of issued patents have been challenged that in retrospect should allegedly never have been granted. The Guidelines mentioned above, as applied by both the Patent Office Examiners and the Federal Courts, have resulted in invalidating the majority of patents that were reviewed. In addition, applications for patents that a patent examiner, applying the "Broadest Reasonable

Interpretation" rule, are routinely rejected because they lack the requisite "something more."

Most of the patents involved in these invalidations or rejections involve computer implemented solutions to problems encountered by businesses that rely on networks, computers, mobile devices, portable computers, and software applications to conduct their operations. Patents or patent applications directed to computerized services devised to facilitate methods of doing business – such as financial transactions, marketing, advertising, managing relationships and the like – are especially vulnerable to invalidation or rejection.

So what is an inventor to do? How can an inventor devise an inventive solution to a problem that will pass muster under the current regime of patent examination and challenges in court? Let's look at some recent case law decisions to see how the courts distinguish eligible inventions from ineligible ones.

EXAMPLES OF INELIGIBLE INVENTIONS

(A) In *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016), the Court reviewed U. S. Patent No. 8,401,710, for a real-time system for monitoring an electric power grid comprised of a plurality of control areas, i.e., multiple utilities involved in generating, transmitting and distributing electricity across multiple business systems, companies and control systems.

The patent was found ineligible because its claims are directed to the abstract idea of monitoring and analyzing data from different sources without an inventive step. The patent claims lacked something more such as identifying a particular inventive technology for performing the monitoring. In short, the claims were found to be nothing more than a list of functions without any recitation of specific processes for performing them.

(B) In *Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044 (Fed. Cir. 2017), the Court reviewed U. S. Patent No. 6,950,807, for a system and method for generating a financing package for a customer desiring to purchase a product (such as a vehicle) from a dealer inventory according to the customer's application for a loan.

The patent claims, directed to a "fundamental economic practice," a particular type of abstract idea defined in the *Alice* case, were found to lack an inventive concept." The court further noted that prior cases "made clear that mere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology." Other examples of fundamental economic practices are concepts of "hedging" a financial transaction or of "intermediated settlement."

(C) In *Apple, Inc. v. Amaranth, Inc.*, 842 F.3d 1229 (Fed. Cir. 2016), the Court reviewed U. S. Patent No. 6,384,850, for a computerized restaurant menu and order entry system and method using small, wireless, digital devices. The method uses software for generating, from a first, master menu, a second menu specifying a customer order that is then sent to a remote location.

The Court found that the patent claims "do not transform the claimed abstract idea into a patent eligible application of the abstract idea" [and are understood as merely] adding conventional computer components to well-known business practices." Further, the "claimed invention solved no technical problem using a technical solution" nor were the claims "directed to a specific improvement in how computers operated." The Court also noted that the Applicant's Specification described "the hardware elements of the invention are 'typical' and the software programming needed as 'commonly known.'"

EXAMPLES OF ELIGIBLE INVENTIONS

(D) In *Finjan, Inc. v. Blue Coat Systems, Inc*. 879 F.3d 1299 (Fed Cir. 2018), the Court reviewed U. S. Patent No. 6,154,844 for a "behavior-based" system and method for recognizing a hostile downloadable app by scanning the app for viruses, generating a security profile that identifies suspicious code in the app, and linking the security profile to the app before a web server makes the app available to web clients.

The court held that, while virus screening and performing the virus screening before downloading the app are well-known abstract ideas in the prior art, the claimed method "attaches the virus scan results to the downloadable in the form of a newly generated file: a 'security profile' that identifies suspicious code in the

received downloadable." The security profile contains details of the potentially hostile code. This feature was held to be an improvement in computer functionality.

(E) In *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.* 841 F.3d 1288 (Fed. Cir. 2016), the Court reviewed U. S. Patent No. 6,836,797 for a method of solving a persistent billing problem in network accounting of processing massive amounts of data from multiple disparate services. The invention devised a distributed architecture to generate a single record reflecting the multiple services [that are carried out over a network] by identifying the multiple services; collecting data describing the services; and generating a single record, including the collected data, wherein the single record identifies each of the services.

The court held that, while the claims are directed to the abstract idea of "generating a single record reflecting multiple services," it found that the steps of the claimed process provide an "inventive concept" because it recites an unconventional technological solution, narrowly drawn to withstand preemption concerns, to a technological problem.

(F) In *Data Engine Technologies LLC v. Google LLC*, recently decided in October, 2018 (Fed. Cir. 2018), the Court reviewed U. S. Patent No. 5, 590,259 for a system and methods for an improved spreadsheet interface. This invention solved the problem of configuring a spreadsheet in three-dimensional space as a set of notebook pages, each page bearing a tab for identifying individual ones of the pages of the spreadsheet having multiple pages.

The court found the claims to be sufficiently narrow and specific, and that they solved a known technical problem – the complexity of commands a user must master to use prior art multiple-page spreadsheets. Moreover, the technological solution that solved this technical problem was explained in detail in the patent.

HYPOTHETICAL EXAMPLES

In a **first hypothetical**, a solution is proposed for the problem of treatment of a schizophrenia patient with a drug called iloperidone, in a patient who has a lower "activity" of a CYP2D6 gene, which encodes an enzyme for metabolizing drugs. The problem with iloperidone is that it can cause prolongation of the QT interval of the patient's electrocardiogram in certain patients – a serious matter.

The proposed solution is recited in a claim for a method for treating a schizophrenia patient with iloperidone by determining whether the patient is a CYP2D6 poor metabolizer, by: (A) obtaining a biological sample from the patient; (B) performing a genotyping assay to determine if the patient has a CYP2D6 poor metabolizer genotype; (C) if poor, administer less than 12 mg/day of iloperidone; and, (D) if the patient does not have a CYP2D6 poor metabolizer, administer the iloperidone between 12 mg/day and 24 mg/day.

Is this solution (invention) eligible, even though it is directed to the use of a natural-occurring phenomenon – the CYP2D6 gene? Yes, because the claim is directed to a specific method of treatment, for specific patients, using a specific compound at a specific dose, to achieve a specific outcome. This claim is drafted so it does not pre-empt any other uses of this gene. See *Vanda Pharmaceuticals, Inc. v. West-Ward Pharmaceuticals, Int'l Ltd*., 887 F.3d 1117 (Fed. Cir. 2019).

In a **second hypothetical**, a solution is proposed for the problem of navigating several layers of menus in small screen devices such as mobile phones to access a desired application or data.

The proposed solution is recited in a claim for an apparatus having a display screen configured to display a menu listing one or more apps and also configured to display an application summary that can be *reached directly* from the menu; wherein the application summary lists data offered within the one or more apps, each of the data being selectable to launch the respective app, and enable the selected data to be seen within the respective app, wherein the application summary is displayed while the one or more apps are in *an unlaunched state*.

To analyze this claim, in effect, the invention overlays the application summary (like a second menu) over the menu listing the one or more apps, which permits navigating the app without the loss of the menu.

Is this solution (invention) eligible for patenting? Yes, because the asserted claim is directed to an improved navigating interface for computing devices, through a particular manner of summarizing and presenting information in electronic devices, which clearly improves the functioning of computing devices, even those that have small screens. See *Core Wireless Licensing S.A.R.L. v. L.G. Electronics, Inc*., 880 F.3d. 1356 (Fed. Cir. 2019).

SOME TAKE AWAYS

The eligibility of inventions for patenting is an evolving area of the patent laws and regulations. Efforts are underway in both the U. S. Patent and Trademark Office and the U. S. Congress to clarify the statutes, regulations, and rules that define what is eligible for patenting, and the terms used to define it.

The genesis of any invention is usually an idea, itself an abstraction, that leads to some implementation of that initial idea. In today's world, inventors often turn to computer technologies to perform functions formerly carried out by machines.

Processes formerly carried out by humans performing sequences of operations using tools or machines or communications equipment are now defined in terms of information that represents those functions and processes. That same information is reduced to encoded data so that it can be processed by computers and databases that communicate over wireless links in networks of transmitters and receivers coupled to computing systems. And all of those devices are controlled by software programming – itself the embodiment of an abstract idea.

Returning to the recent cases discussed above, while they do not represent any kind of bright line rule, they do suggest several characteristics of inventions that may be eligible for patenting.

First, if an invention embodies an abstract idea such as (A) the process for controlling a complex machine, (B) an on-line process for exchanging data about transactions between trusted entities, (C) an automatic system that links a variety of players having disparate data processing systems, or (D) a virtual robot application on a smart mobile device that accompanies the user, ready to assist with navigating one's daily routines, then it must consist of a combination of features beyond routine conventional computer operations performed on generic hardware or hardware systems under software control.

For example, the invention must, to a new and useful purpose: (a) change the way the computing device operates; (b) change the way the system or the system architecture is organized; or (c) change the form of a part of the device or system or network.

Second, *the claims* of the application for patent must recite what it is that is significantly more, such that the invention is distinguished from the known prior art, and how the inventive process or machine or system operates to achieve its useful end or purpose.

For example, even if the invention recites a functional improvement in a computer system or its software such as an unconventional configuration that is sufficient to provide the "something more" stated in the Guidelines established by the PTO, then the basic concept may no longer be considered abstract, and the invention eligible under Section 101.

Third, *the written description and drawings* of the application for patent must explain (a) what the invention is; (b) what problem is solved by the invention and why it is a significant problem, or, in some cases, a new problem; (c) how the invention solves this problem; and (d) why the solution is an advance in the state of the art, i.e., a departure from the ways this problem was previously solved.

Finally, if the invention is embodied in software – computer code that is executed by a processing device – *the executable code* must be described, preferably in a flow chart that outlines the distinctive essential steps of the encoded process.

A NEW DEVELOPMENT

On January 4, 2019, the U. S. Patent & Trademark Office released a new document containing revised guidelines for determining subject matter eligibility entitled "2019 Revised Patent Subject matter Eligibility Guidance."

This document, which substantially follows suggestions of the Director of the U. A. Patent & Trademark Office, Mr, Andrei Iiancu, revises and clarifies the procedures for determining whether a claim is directed to a Judicial Exception, by asking: (A) is the claim within an abstract idea such as (i) a mathematical concept; (ii) a method of organizing human activity' or (iii) a mental process?

If so, (B) is the claim that is directed to a Judicial Exception integrated into a practical application? If so, then the claim is eligible; but if not, then one must further ask whether the claim recites an inventive step? If so, the claim is eligible.

But, (C) if the claim is directed to a judicial exception and is not integrated into a practical application, then the claim is not eligible for patenting.

IN CLOSING . . .

The bottom line: Speak to a patent lawyer about evaluating the invention. Consider how important the invention is to the success of your business. Think about why you want to protect the invention by obtaining a patent.

For example, holding a patent that covers an important competitive advantage may justify the expense of obtaining a patent. Some patent owners decide to license the invention to others in return for income from royalties. Other businesses develop and accumulate patents to establish a defensive position against challenges from competitors. Whatever the reason, a patent or a patent portfolio is an asset of the business.

Also to be considered is that there may be other ways to protect the invention, such as keeping it a trade secret. In any case, if original code has been created, the author has a copyright in the work, which should be registered with the Library of Congress.

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