PATENT FILE

Big data and *Alice v CLS*: predicting what's next


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In the aftermath of the *Alice* decision, big data software innovators may begin to look at trade secret protection when assessing IP rights for their proprietary inventions. Robins, Kaplan, Miller & Ciresi's **Andrea Gothing** and **Angela Muñoz-Kaphing** explain

Big data has become big business and technology companies of all sizes have entered the race to carve out patent protection for big data innovations. Contenders include everyone from software giant IBM-with hundreds of big data patent applications filed in the last two years – to start-ups trying to leverage single-filing inventions. But some big data patents may be in trouble – especially after the Supreme Court of the US' decision in *Alice Corp v CLS Bank International*.[1]

The term big data generally describes the growing volume, complexity, and variety of data processing – and data insights – enabled by current parallel processing capabilities. The problem? Many of those insights are driven by software and software-based algorithms – step-by-step procedures for processing, manipulating, analysing, and protecting big data. After *Alice* – which requires "an inventive concept" beyond computer implementation of an abstract idea, some software-related patents will not survive judicial review.

To increase the odds of surviving a section 101 patentability challenge, big data patent holders will need to understand *Alice* and, at the very least, be able to explain why their technology has that inventive "enough" concept which *Alice* demands for achieving and maintaining software patentability.

Big data and software

The term big data can encompass everything from huge data sets to real time analytics, data management, and data mining. These semantic differences do not mask big data's true importance; big data lets organisations extract a whole new level of data-driven insights, value, and actionable strategies.

But that extraction relies heavily on software and proprietary algorithms along every "V" in the big data formula of volume, velocity, and variety. As data volume continues to increase at an unprecedented rate, scalable data storage innovations will be required. Data variety covers the multiple types of data and data source and includes everything from traditional structured data that resides in a fixed field within a record or file, to unstructured data from sources like videos, social media, and RSS from sources within and outside an organisation. Collecting all those kinds of data in one place and then making that data work together similarly requires ongoing innovation. So does incorporating the now constant stream of data moving around the world as well as accounting for and analysing bad, uncertain, or unreliable data.

In addition, big data systems that include or rely upon, private or protected personal information will require ways to anonymise or aggregate the data to prevent violation of privacy and other consumer protection laws. Insight gains may also require additional innovations to represent, transmit, and/or access the data. Software-based solutions will inevitably serve as the innovation that answers many of these big data demands.

Software patentability after *Alice v CLS*

In *Alice v CLS*, the fundamental question of software's patentability seemed to hang in the balance. There, the patent holder sought protection for a computer-implemented process that lessens settlement risk for financial instrument trades. After a deeply divided *en banc* Federal Circuit issued a seven-opinion *per curiam* decision rejecting the patent holder's claims, the Supreme Court of the US granted *certiorari*.

In its decision, the unanimous *Alice* court unequivocally rejected the validity of the patent claims at issue. To do so, the court turned to the framework for assessing the patentability of potentially abstract ideas it established in cases like *Association for Molecular Pathology v Myriad Genetics, Inc* and *Bilski v Kappos*.[2] The court noted that concerns about preemption motivated its restrictions on the patentability of laws of nature, natural phenomena, and abstract ideas.

Citing *Mayo Collaborative Services v Prometheus Laboratories, Inc,* the court said,

> "First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, '[w]hat else is there in the claims before us?' To answer that question, we consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application. We have described step two of this analysis as a search for an 'inventive concept" – ie, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself'."[3]

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Under this analysis, the court found the claimed invention lacked an inventive concept – the something more – needed to bestow patentability. The court further concluded that the claims were drawn to the abstract idea of intermediated settlement, and the use of a computer in a "particular technological environment" was not enough to transform the otherwise unpatentable abstract idea into something patentable.

The court also cited, with approval, *Gottschalk v Benson* and its treatment of the patentability of computer-based algorithms. *Benson* said,

> "The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself."[4]

While the claims at issue in *Benson* were directed towards a simple algorithm and were not tied to any particular use or machine, the court's emphasis on *Benson* gives pause, given big data's heavy use of algorithms. But as one commentator has aptly noted, by saying in effect that algorithms are species of abstract ideas, the court "misrepresents the nature of algorithms (which simply do not grow on trees)", meaning "an entire shelf full of discredited cases on the metaphysics of what is and is not an algorithm must now be dusted off."[5] Big data patent battles could be one place that dusting off occurs.

Protecting big data after *Alice*

After *Alice*, while software appears to remain patentable (this issue was not directly addressed in *Alice*), just what kinds and classes of software remain patent-eligible is sure to be the subject of significant future litigation. Certainly, some classes of software now look unlikely for patent protection: especially those that do nothing more than take a pre-existing general business process and apply a computer to it. But complex software and/or hardware solutions to analyse, manipulate or store big data may be less vulnerable to the kind of attack that cost *Alice* its patent. And at the very least, courts will be confronted again with the question of what is and is not an algorithm.

What is clear, is that big data patent holders will face challenges if their patent rights primarily rely on computer execution of routine algorithms and nothing more. For example, patent claims that recite well known data processing algorithms, including linear algebra and basic statistic methods, are vulnerable to attack under an *Alice*-approved reading of *Benson*.

What, then, will be enough to make big data patentable? At least one source of guidance comes from *Diamond v Diehr*[6] – another case cited with approval by the *Alice* court. *Diehr* involved a computer-implemented process for curing rubber. The invention used a well-known mathematical equation combined with a device that recorded constant temperature measurements inside the rubber mould to provide precise, real time recalculations of remaining cure time. According to the court in *Alice*, the invention in *Diehr* was patentable because it "transformed the process into an inventive application of the formula".[7] Similarly, when big data software solutions act to improve existing technological processes and solve current technological problems (for example, reformatting data from disparate sources, creating new data sets for easier storage, or reconfiguring data into different display sets), it is the extent of the solution that is affected that will have the greatest impact on patentability under *Alice*'s reading of *Diehr*.

And, in fact, just how much big data software actively "does something" may help create the argument needed to establish the requisite inventive concept "sufficient" or "enough" to establish patentable subject matter. According to one commentator, when it comes to computers and uses of mathematical algorithms, "'enough' means action and demonstrating function beyond merely informing".[8]

The good news for big data may come from its very complexity. Processing, analysing, manipulating, and storing big data is not simply a matter of, for example, converting binary coded decimals in to binary numbers – as in *Benson*. Big data involves complex methods and systems for quickly analysing and storing mass quantities of structured, semi-structured, and unstructured data. Organisations seeking to patent their big data methods and systems will need to adequately capture this complexity to survive future judicial review under *Alice*. The bad news? That very complexity will make big data patent disputes expert-intense and thus expensive. Parties will not only have to continue to battle out patentable subject matter issues, they will have to address other patent validity standards, like what constitutes ordinary skill of the art when it comes to big data.

Trade secrets

Given this environment, big data software innovators may begin to look at trade secret protection when assessing IP protections for their proprietary inventions. On the up side, trade secret law protects a wide range of processes, formulas, and can include keeping confidential revolutionary or new algorithms, data structures, or methods for delivering content benefits. Trade secret laws differ from state to state, but generally offer protections against employee or competitor misappropriation. Better yet, trade secret damages have not yet been subject to the same scrutiny that patent awards have recently received.

But notably, trade secret law does not preclude reverse engineering – nor does it protect its holder from later allegations of infringement in a patent proceeding. Trade secret laws also require that the holder take active steps to keep the information secret and be able to demonstrate those steps when a dispute occurs. As a result, deciding between patent and trade secret protection for big data software innovations will depend on the specifics of the software involved and the IP owners appetite for risk.

Summary

Alice v CLS lets some software patent holders live to fight another day. While the question of software patentability remains, for those whose software innovations cover big data, patentability will likely turn on the nature of the algorithm, whether it is tied to a particular use or machine, and whether it improves on storage, processing, protection, and manipulation of big data. And for those who worry their software might not do enough, trade secret rather than patent protection may be their best choice.

Footnotes

1. *Alice Corp v CLS Bank Intl*, No 13–298, 2014 WL 2765283 (US 19 June 2014).
2. *Association for Molecular Pathology v Myriad Genetics, Inc*; 569 US ___, ___ (2013); *Bilski v Kappos*, 561 US 593 (2010).
3. *Alice Corp v CLS Bank Intl*, supra, citing, *Mayo Collaborative Services v Prometheus Laboratories, Inc,* 566 US ___ (2012) (internal citations omitted).
4. *Gottschalk v Benson*, 409 US 63, 71-72 (1972).
5. Rob Merges, Symposium: Go ask Alice – what can you patent after *Alice v CLS Bank*? *SCOTUS blog* (20 June 2014), http://www.scotusblog.com/2014/06/symposium-go-ask-alice-what-can-you-patent-after-alice-v-cls-bank/
6. *Diamond v Diehr,* 450 US 175, 187 (1981).
7. *Alice Corp v CLS Bank Intl, supra.*
8. Emily Michiko Morris, Alice, Artifice and Action – and Ultramercial, *Patently-O* (8 July 2014) http://patentlyo.com/patent/2014/07/artifice-action-ultramercial.html; *See also* Emily Michiko Morris, What is Technology? V *20 Boston University Journal of Science & Technology Law* (Winter 2014).