

United States

The future of software and business method patents

Introduction

In 1787, when the US Constitution was written, there were no cars, aeroplanes, repeating rifles or electricity. There was also no such thing as the Internet, mobile phones, personal digital assistants or nanotechnology. The transistor, the building block for the computer age in which we live, first appeared in 1962, and the techniques for unravelling the mysteries of DNA were developed in the 1960s. Each of these great inventions resulted in the issuance of numerous patents by the US Patent and Trademark Office. Since the adoption of the Constitution, every new invention has been required to satisfy the test established by Congress under Article I of that document.

Article I, Section 8 of the Constitution provides Congress with the power to “promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries”. Under this authority, Congress enacted the governing patent laws, which broadly provide that “[w]hoever 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” (35 USC § 101).

Answering the question of what constitutes a new and useful process, machine, manufacture or composition of matter, or any new and useful improvement, has bedevilled courts for decades. The future of software patents, business method patents and, to a great extent, the entire biotech industry may turn on the outcome of the *Bilski Case*, which was before the Supreme Court at the time of writing. This decision will provide new insight into what constitutes patentable subject matter.

Software and business methods as patentable subject matter

Courts have regularly stated that laws of nature, abstract ideas and natural phenomena, such as mathematical formulae, are not patentable. These fundamental items cannot be claimed by any person and are freely available

to all. But someone still has first to discover what the law of nature is and explain how it works. Others are then able to use these so-called laws to develop new products, systems or solutions that result in useful improvements that benefit humankind.

In recognition of the obvious fact that the computer had fundamentally changed the nature and scope of inventions, the Court of Appeals for the Federal Circuit’s holding in *State Street Bank & Trust Co v Signature Financial Group, Inc* (149 F 3d 1368, 1375 (Fed Cir 1998)) represents one of the most inclusive interpretations of patentable subject matter. The disputed patent covered a data processing system for the administration and accounting of mutual funds. Holding that this system was patentable subject matter, the Federal Circuit noted that business methods are patentable subject matter under Section 101 if they produce “a useful, concrete and tangible result” (*id* at 1373).

In the wake of *State Street Bank*, the number of business method patents increased and courts routinely upheld method patents where they produced a “useful, concrete and tangible result”. As the Federal Circuit noted in *State Street*, “the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a useful, concrete and tangible result” (149 F 3d at 1374). Indeed, the Federal Circuit highlighted the patentability of software systems and business methods when it noted that “*State Street* found patentability in a software system which essentially applied a mathematical algorithm to the implementation of a business method” (*In re Nuijten*, 500 F 3d 1346, 1367 (Fed Cir 2007)). However, the Federal Circuit’s acceptance of what constitutes patentable subject matter changed course sharply in October 2008.

In an *en banc* decision the Federal Circuit reopened the question of what types of method are patentable under Section 101 by holding that to be patentable, a method

must either transform a particular article to a different state or thing or be “tied to a particular machine or apparatus” (*In re Bilski*, 545 F 3d 943, 954 (Fed Cir 2008)). In *Bilski* the disputed claims covered a method of risk hedging for commodities trading, comprising the steps of identifying market participants and initiating a series of transactions. The Federal Circuit affirmed rejection of the claimed method under Section 101 because it “does not involve the transformation of any physical object or substance, or an electronic signal representative of any physical object or substance” (*id* at 964). The court also held that the “useful, concrete and tangible result” inquiry suggested by *State Street Bank* was “inadequate and reaffirm[ed] that the machine-or-transformation test... is the proper test to apply” (*id* at 959-60).

Uncertainty in the wake of *Bilski*

The *Bilski* decision called into question the many software and business method patents granted and upheld under the standards set forth in *State Street Bank*. Indeed, by rigidly applying the *Bilski* machine-or-transformation test, courts have held method patents to be invalid under Section 101. For example, the court in *Cybersource Corp v Retail Decisions, Inc* (2009 US Dist LEXIS 26056 (ND Cal, Mar 27 2009)) held that a patented “method and system for detecting fraud in a credit card transaction between a consumer and a merchant over the internet” was invalid under Section 101 for failure to claim patent-eligible subject matter. The court noted that “[s]imply collecting data into a vague sort of ‘map’ does not amount to a ‘transformation’”, and that the method was not tied to a specific machine because “an unpatentable mental process for collecting data and weighing values does not become patentable by tossing in references to internet commerce” (*id* at *11, 20-23). The court observed that “*Bilski*’s holding suggests a perilous future for most business method patents” (*id* at *32).

A similar fate may await the biotech industry. Using scientific methods to determine the structure of a particular material or human matter can be considered a law of nature. Therefore, learning how to use a particular set of atoms to develop a new or more effective drug, while clearly a useful improvement, may not be patentable subject matter.

What lies ahead

In what many hope will provide some certainty to this ‘perilous’ future for software and business method patents, the Supreme Court granted *certiorari* in the *Bilski Case* in June 2009 and was due to hear oral argument in Autumn 2009. Many predict that the court

will rein in the Federal Circuit and overturn the machine-or-transformation test as overly restrictive. Indeed, even in *Bilski*, the Federal Circuit appears to have invited such reform when it “recognize[d] that the Supreme Court may ultimately decide to alter or perhaps even set aside this test to accommodate emerging technologies” (545 F 3d at 956).

The Supreme Court’s interpretation of what constitutes patentable subject matter has necessarily evolved over time. Reflecting scepticism of the social utility of a patent system that sanctioned legal monopolies, in the mid-20th century the Supreme Court took a narrow view of patentable subject matter. In *Jungersen v Ostby & Barton Co* (335 US 560, 572 (1949)) the court noted its “strong passion” for striking down improperly granted patents and that “the only patent that is valid is one which this Court has not been able to get its hands on” (*id*).

In later years the Supreme Court adopted a broader interpretation of what constitutes patentable subject matter and “more than once cautioned that courts should not read into the patent laws limitations and conditions which the legislature has not expressed” (*Diamond v Diehr*, 450 US 175, 182 (1981), internal quotation and citation omitted). In *Diehr* the Supreme Court noted that Congress intended patent-eligible subject matter to include “anything under the sun that is made by man” (450 US at 182). The *Diehr* court noted that no individual is entitled to a monopoly over a “phenomenon of nature”, but yet “an *application* of a law of nature or mathematical formula... may well be deserving of patent protection” (450 US at 188 and n 11, emphasis added).

Notably, the *Bilski* court left open how the machine-or-transformation test would apply to software claims. In footnote 23 the court specifically “decline[d] to adopt a broad exclusion over software or any other such category of subject matter” and suggested that some software claims might still be patentable. As the *Diehr* decision suggests, software applications and unique algorithms that accomplish a specified task by applying mathematical formulae should be entitled to patent protection.

Software and business method patents qualify as patentable subject matter

Unpatentable laws of nature, natural phenomena and abstract ideas have been described by the Supreme Court as “fundamental truth[s] of the natural world“ (see *Le Roy v Tatham*, 55 US 156, 175 (1852)). Courts can hold these fundamental elements to be unpatentable without casting doubt on the patentability of software applications and business methods. However, the *Bilski* machine-or-

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transformation test does just that by unnecessarily restricting patent protection for new innovations.

Patents embody the property rights that inventors have in their inventions. One of the policy reasons for granting a property right is to encourage innovation and early disclosure of those innovations. Patent laws reward those that conceive of new inventions and then fully disclose those new inventions to the public by giving these inventors a limited monopoly. In the absence of patent protection, inventors would be reluctant to disclose their inventions because they could be freely copied; as a result, commerce would be denied the benefit of the inventions. Thus, robust and flexible patent laws are required to provide protection and incentives to invest time and effort in innovation.

In exchange for this patent protection, the invention must be disclosed with sufficient details such that it can be reproduced by others. The details disclosing inventions provide others with notice of what is claimed in the invention and what remains in the public domain. This disclosure also provides commerce and society with the benefit of the invention. The fact that algorithms, the ingredients of many of today’s inventions, may be less tangible than the components of past inventions does not mean that new technologies such as software applications are not entitled to patent protection. On the contrary, given that software has become the infrastructure of the information-based society, patent protection for such inventions is more important than ever.

An ‘algorithm’ is defined as a “mathematical or logical process consisting of a series of steps, designed to solve a specific type of problem” (*Black’s Law Dictionary* (8th ed 2004)). In today’s information-based society unique algorithms have replaced the pistons and ball bearings of yesterday’s mechanics-based society as the

primary tools necessary to create new inventions.

In some instances these unique algorithms embody the invention as a whole, and provided that the algorithms provide a better way to accomplish a particular task, they should be entitled to patent protection. These algorithms are unlike laws of nature or mathematical formulae because laws of nature and mathematical formulae cannot be improved upon; they are fundamental building blocks that all should be entitled to employ. A combination of algorithms that provides a better way to accomplish a particular task is clearly an improvement that should be entitled to protection without regard to whether it is part of a special machine. And with balanced patent protection and a flexible standard for determining what is patent-eligible subject matter under Section 101, innovators will have the incentive to do just that. This result provides sufficient patent protection for technological advances that play an ever-increasing role in modern commerce to encourage innovation without blocking future progress – a result that benefits us all.

Conclusion

Bilski’s machine-or-transformation test sacrifices patent protection for new innovations that are the result of the modern tools of our society, such as the computer. Just as it made no sense in 1787 to claim that anything built with a hammer and nails or written with a quill pen – the tools of the drafters of the Constitution – was unpatentable, so it must be the case that the use of the modern inventor’s tool, the computer, should not bar patentability. Although the machine-or-transformation test may have been sufficient in yesterday’s mechanics-based society, it fails to account for innovations in today’s information-based society. Indeed, casting

further doubt on *Bilski*'s narrow test, the Supreme Court has already indicated that courts should not "freez[e] process patents to old technologies, leaving no room for the revelations of the new, onrushing technology" (*Gottschalk v Benson*, 409 US 63, 71 (1972)). Rather, patent-eligible subject matter should include new technologies, including software applications that play an ever-increasing role in our lives by being incorporated into everything from mobile phones to the systems that run airports.

To ensure sufficient patent protection for new technologies, the Supreme Court should establish a functional standard that provides consistency, stability and predictability. Furthermore, a flexible standard would be better suited for inventions in today's information-based society where technology advances at a rapid pace. To foster technological advances, a standard is needed that provides a proper balance between the interests in:

- providing incentives for industry to invest time and resources in innovation and for inventors to disclose new inventions; and
- ensuring that patent protection is not so broad as to inhibit future innovation by preventing others from expanding upon a previous invention.

Such a standard can and should be established without casting doubt on the patentability of software applications and business method patents.

An effective standard supported by previous Supreme Court decisions should recognise software applications and business methods as patentable provided that the claimed invention adequately details the application of the algorithm or method and the result achieved so that the specific application or method can be reproduced. This flexible standard reflects the Supreme Court's broad interpretation of patent-eligible subject matter (eg, see *Diamond v Diehr*, 450 US 175, 182 (1981): "[i]t is now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection"). As the Supreme Court recognised over a century ago, "[w]hoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for it" (*Tilghman v Proctor*, 102 US 707, 728 (1881)). These 'certain means' should not be limited to mechanical developments; rather, software applications comprised of unique algorithms or unique business methods can also be the means that achieve the useful result.



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