Alice v CLS Bank: US Business Method and Software Patents Marching towards Oblivion?

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Abstract

In its June 2014 opinion in the Alice patent-eligibility case, the US Supreme Court, once again without dissent, made only an incremental decision. It held the patent at issue to be ineligible for patent protection because it claimed and pre-empted an abstract idea. The Court declined to reach broader issues, however, such as whether all business-method patents should be ineligible or in just what range of circumstances could computer-implemented methods or systems earn valid patents. In resisting demands for broader guidance, the Court disappointed those hoping for an authoritative, definitive resolution of these issues. But the Court’s slow, incremental progress in its rulings must be recognised as a price to be expected for maintaining substantial unanimity in decision in this controversial field. At the same time, it may be recognised as a legitimate concession to Cromwellian uncertainty that one may be mistaken.

In Alice Corp Pty Ltd v CLS Bank International,1 the US Supreme Court once again declined to rule categorically that business methods or software could not be patented, but it further eroded the legal underpinnings for patenting them. All nine Supreme Court Justices agreed that Alice’s patent on a “computer-implemented scheme for mitigating ‘settlement risk’” (i.e., the risk that only one party to a financial transaction will pay what it owes) by using a third-party intermediary2 was invalid because it broadly claimed an abstract idea.3 Three Justices agreed but thought that the patent should be invalidated because it claimed a business method; the other six Justices, however, declined to hold that no business method could ever be patented. Yet the Court’s rationale for invalidating the patent applies with equal force to many or most business-method patents.

It has long been the law in the United States and United Kingdom that a patent cannot be granted on an abstract idea or natural principle, although a creative process or apparatus for implementing an idea or natural principle can, at least in principle, be patented.4 The problem has always been how to distinguish the one from the other, and what legal tests or standards should be used to do so. A “clue” to determining whether a patent impermissibly claims an idea or permissibly claims an implementation of an idea has been whether particular machinery or apparatus required to practise the patent limits the scope of the patent’s claims to substantially less than all practical implementations of the underlying idea.5 Many 19th and early 20th century precedents supported requiring patentees to limit their claims in that way, in order to keep the patents from sweeping up so much of the underlying idea and its applications that room was not left for others to invent.6 But the US Supreme Court has refused to let this be more than a “clue” to patent eligibility. When the Federal Circuit tried to make that

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3 Alice 134 S. Ct. 2347, 2351–2352 (2014). Alice was the fourth of four consecutive decisions on patent eligibility since 2010 in which the Supreme Court maintained essential uniformity of decision that the Court’s main judgment of patent ineligibility was correct. The other three were Bilski v Kappos 561 U.S. 593, 130 S. Ct. 3218 (2010), Mayo Collaborative Services v Prometheus Labs Inc 566 U.S. __, 132 S. Ct. 1289 (2012), and Association for Molecular Pathology v Myriad Genetics Inc 569 U.S. __, 133 S. Ct. 2107 (2013). These cases are discussed in greater detail below (see section “Recent Supreme Court case law”).

4 Neilson v Harford 151 E.R. 1266, (1841) 8 M. & W. 806; O’Reily v Morse 56 U.S. (15 How.) 62 (1853). See also Le Roy v Tatham, 55 U.S. (14 How.) 156, 174–175 (1852) (“It is admitted that a principle is not patentable. A principle, in the abstract, is a fundamental truth, an original cause; a motive; these cannot be patented, as no one can claim to either of them an exclusive right.”); Hornbower v Bourbon 101 E.R. 1285 (1799) 8 Term. Rep. 95 KB (dicta: the Statute of Monopolies, 21 Jac. 1, c.3, x.6, which authorised the grant of patents to those who brought “new manufactures” into the realm, was not intended to apply to “a more principle”—a philosophical principle is not a manufacture, much less a new manufacture).

5 Bilski v Kappos 561 U.S. 593, __, 130 S. Ct. 3218, 3226–3227 (2010) (quoting Gottschalk v Benson 409 U.S. 63, 70 (1972))). This test provides only a clue. It is over-inclusive, for even a machine implementation can be patent ineligible. See, for example, the discussion of machines for making a punishment fit the crime and for exercising cats in Richard H. Stern, “Being Within the Useful Arts as a Further Constitutional Requirement for US Patent Eligibility” (2009) E.I.P.R., 11–12. The test is also under-inclusive, for some inventions may not fit within it. A possible example might be the use of canaries in coal mines to detect the presence of noxious gases (“coal damp” or “fire damp”), an important invention in making mining safer (for miners, not for canaries). A number of Neolithic inventions (a possible example is pressure flaking of stone tools) do not fit within the test. Nonetheless, most or nearly all inventions that have been litigated before the Supreme Court fall within the test. See Gottschalk v Benson 409 U.S. 63, 71 (1972) (stating that the Court’s “prior precedents” satisfied the machine or transformation test, but leaving open the possibility that inventions in future cases might not do so).

6 Neilson’s heated air blast furnace patent was upheld on the basis that it patented an apparatus rather than a principle. The Exchequer found his patent to be one on an application of the underlying principle—on an apparatus that made it possible to exploit the principle. Neilson v Harford 151 E.R. 1266, (1841) 8 M. & W. 806, Web. Pat. Cases 255 (Exch. 1841). Part of Morse’s telegraph patent was invalidated because it was not so limited, while another part was upheld because it was limited to telegraphy as practised with an inventive “repeater” apparatus that Morse had devised. O’Reily v Morse 56 U.S. (15 How.) 62 (1853). The Supreme Court’s opinion in Gottschalk v Benson 409 U.S. 63 (1972) contains an enumeration of such patents.
the sole test of patent eligibility, in the *Bilski* case, the Supreme Court overturned that decision, refusing to endorse a "bright-line" rule. A recurrent question since the *Benson* case has been whether, and in what circumstances, a claim limitation that an invention is to be performed by using a programmed general-purpose digital computer was sufficient to avoid the rule against patenting abstract ideas.

Computer-implementation and “the piano roll blues”

For a time, the US Court of Appeals for the Federal Circuit, the intermediate appellate court for patent appeals, insisted that any computer-implemented claimed invention is automatically patent eligible. This was on the theory that a newly programmed digital computer is a "new" machine and therefore within the statutory categories of patentable subject matter. The patent applicant made this legal argument in *Gottschalk v Benson*, the first computer program case to reach the US Supreme Court. The Government then responded that this amounted, absurdly, to asserting that putting a new piano roll into an existing player piano transformed the old player piano into a new player piano. That gave rise to the derisive term "the piano roll blues" for the argument for per se patent eligibility of newly programmed computers. The piano roll blues argument was not successful in sustaining Benson's claim to a computer-implemented process to conversion of binary-coded-decimal-numbers to binary-coded numbers.

The piano roll blues argument never persuaded the Supreme Court, but it was revived sporadically in the Federal Circuit during the Supreme Court's long silence on patent matters after 1982 when intermediate appeals in patent cases were transferred away from the dozen-odd regional circuit courts of appeals and into the Federal Circuit. It became dominant in the Federal Circuit in the mid-1990s with the court’s decision in the *Alappat* case, and featured in one of the Federal Circuit opinions in the *Alice* case. A few panel decisions of the Federal Circuit in recent years, however, held that mere use of a generic computer to add speed or efficiency to the performance of a method based on an otherwise abstract idea does not confer patent eligibility. It would be fair to say that by the time of the *Alice* decision the Federal Circuit was evenly divided on whether to keep playing the piano roll blues.

The claimed invention in the *Alice* case

The patent at issue uses a computer system as an intermediary between two parties to an agreement. The intermediary computer system creates account ledgers (called "shadow" credit and debit records) that mirror the account balances of the parties at their respective banks. The intermediary constantly updates the shadow records as transactions occur, in order to allow only those transactions for which the shadow records indicate that parties still have "sufficient resources to satisfy their mutual obligations". At the end of each day, the intermediary instructs the relevant banks to carry out permissible transactions in accordance with the updated shadow records. This mitigates the risk that only one party will perform the agreed-upon exchange while the other defaults. The arrangement is thus akin to a computerised escrow or "hold" on a checking account.

The patent claims are of three types: (1) the method just described, as carried out with a computer system; (2) a computer system "configured" to carry out the method; and (3) a computer-readable medium containing computer program code for performing the method. The software and hardware used to implement the claimed invention are conventional and routine.

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The term “generic computer” has been used to describe a conventionally programmed general-purpose digital computer.

*See, e.g., In re Alappat 33 F. 3d 1526, 1544 (Fed. Cir. 1994) (en banc) (“We have held that [programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.”). In re Bernhard 417 F. 2d 1395, 1400 (CCPA 1969) (so holding). Since 1790 the US patent statute has authorised patents to be issued on new and useful machines. See Patent Act of 1790, Ch. 7, I Stat. 109. The current statutory provision authorising machine patents is 35 USC §101. The provision in the Statute of Monopolies, 21 Jac. 1, c.3, s.6 (1623), which authorised the grant of patents to those who brought “new manufactures” into the realm, has consistently been interpreted to include machines as manufactures. See, e.g., *Horlbrger v Boulevard* 101 E.R. 1285 (1799) & Term. Rep. 95 (K.B. 1799) (upholding validity of patent to James Watt on steam engine as manufacture within Statute of Monopolies).

*Gottschalk v Benson, 409 U.S. 63 (1972).*


One of the claims in *Benson* required a computer implementation but nonetheless the Court held it patent ineligible, a point on which the Alice Court remarked. *Alice* 134 S. Ct. 2347, 2357 (2014).

*In re Alappat 33 F. 3d 1526, 1544-1545 (Fed. Cir. 1994) (en banc) (endorsement doctrine). Accord *WMS Gaming, Inc v International Game Technology* 184 F. 3d 1339, 1348 (Fed. Cir. 1999); *Aristocrat Technologies Australia Pty Ltd v International Game Technology* 521 F. 3d 1328, 1333 (Fed. Cir. 2008).

*The claim in *CLS Bank Int’l v Alice Corp 717 F. 3d 1269, 1302 (Fed. Cir. 2013) (opinion of Rader, J, concurring).* The term "generic computer" has been used to describe a conventionally programmed general-purpose digital computer.

*See, e.g., Bancorp Serv. LLC v Sun Life Assurance Co 687 F. 3d 1206, 1278 (Fed. Cir. 2012) ("To salvage an otherwise patent-ineligible process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not."); Deonpoint, Inc v Huber, 674 F. 3d 1315, 1333 (Fed. Cir. 2012) (claims to a method of applying for credit did not satisfy §101 merely because the claims contained a limitation requiring the invention to be "computer aided"); *Fort Prop. Inc v American Master Lease LLC* 671 F. 3d 1317, 1322-1324 (Fed. Cir. 2012) ("the claimed method of aggregating property, making it subject to an agreement, and then issuing ownership interests to multiple parties consists entirely of mental processes and abstract intellectual concepts; "using a computer" does not "impose meaningful limits on the claim's scope"); *CLS Bank v Alice Corp 717 F. 3d 1269, 1286 (2013) (en banc), with *717 F. 3d 1269, 1302.*

*Alice* actually had four patents that it claimed CLS infringed, but the distinctions among them are immaterial for purposes of legal analysis.
The Federal Circuit’s judgment in the Alice case

By the time of the Alice case, the decisions of the Federal Circuit were sufficiently inconsistent, and that court so badly fragmented over the issue of patent eligibility of computer implementations, that the court decided to consider the following question in a hearing en banc:

“What test should the court adopt to determine whether a computer-implemented invention is a patent ineligible abstract idea; and when, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea?”

The en banc hearing in the Federal Circuit resulted in an equally divided court on the validity of the system claims of Alice’s patent, and highly fragmented analyses rejecting the method and media claims.18 Half the court accepted the piano roll blues argument and found Alice’s system patent eligible. The other half of the court recognized that the system claims described a machine—a computer—but rejected the piano roll blues argument that this was sufficient to confer patent eligibility:

“A particular computer system, composed of wires, plastic, and silicon, is no doubt a tangible machine. But that is not the question. The question we must consider is whether a patent claim that ostensibly describes such a system on its face represents something more than an abstract idea in legal substance ... [M]erely adding existing computer technology to abstract ideas ... does not as a matter of substance convert an abstract idea into a machine ... Abstract methods do not become patent-eligible machines by being clothed in computer language.”19

That brought the case to the Supreme Court.20

In the end, neither the Federal Circuit nor the Supreme Court gave a definitive answer to the important question that the Federal Circuit posed for en banc consideration. Nevertheless, the Supreme Court was able unanimously to suggest some outer boundaries beyond which patents could not be had on computer-implemented abstract ideas. To the extent that the Supreme Court’s opinion lays down guidelines determining the patent eligibility of business-method patents, the guidelines do so only indirectly, for a majority of the Court refused to address the patent eligibility of business methods as such. Yet, because of their typical abstractness, and because of the legal analysis that the Court prescribed for implementations of abstract ideas, business-method patents now seem like lemmings marching in the thousands towards oblivion. That is not equally so for all software patents, of which business-method patents are a major subset. The Court left some room for non-business-method software patents.

Recent Supreme Court case law—the background of Alice

In the several years preceding the Alice decision, the Supreme Court decided three cases in which the issue was whether a claimed invention was patent eligible. In Bilski, the Court held that a method for hedging commodity prices was ineligible.21 A five-justice majority held that the claimed method was ineligible because it was an abstract idea, and declined to rule that business methods were all ineligible. The other four justices agreed that Bilski’s claimed method was an abstract idea,22 but they would have grounded ineligibility on the claimed method’s being a business method, a category of subject matter they considered wholly outside the US patent system.23 The Bilski Court offered scant guidance on how to determine whether a patent claim covered an abstract idea or was “too abstract.”24 On the other hand, while there was sharp disagreement over what was the best ground on which to decide the case, and a very narrow judgment, no justice disagreed that Bilski sought impermissibly to patent an abstract idea.

Next, in Mayo, the Court invalidated a patent on a medical diagnostic test claimed so broadly that it “preemptively” covered the underlying natural principle or law of nature on which the test was based.25 In contrast to the Bilski opinion, Mayo more ambiguously attempted to harmonise the whole body of law in the field—from Neilson v Harford26 and O’Reilly v Morse27 in the 19th century through Benson,28 Flook29 and Diehr30 in the late 20th century to the present.31 In a key passage in the Mayo opinion, the Court explained:

17 CLS Bank v Alice Corp 717 F. 3d 1269, 1293 (2013) (en banc).
18 CLS Bank v Alice Corp 717 F. 3d 1269 (2013) (en banc). A majority of the Federal Circuit held the method claims patent ineligible, but did not agree on the reasons to do so. The court was equally divided on whether the system claims were patent eligible.
20 Alice v CLS Bank 573 U.S. ___, 134 S. Ct. 2347 (2014). The Supreme Court held all claims invalid.
22 “[A]ll members of the Court agreed” that the patent at issue in Bilski claimed an “abstract idea”. Bilski v Kappos 561 U.S. 593, 699 (2010)
24 The author commented, “In the wake of Bilski the Federal Circuit, the district courts, the patent office, the patent bar, and the bar’s business advisors are left in confusion and doubt over the patent eligibility of business methods, computer software and gene technology. When are they and when aren’t they abstract ideas? ... Instead of bringing clarity to this field of law, as had been widely hoped on the basis of much wishful thinking, Bilski promises only a vast amount of further litigation. It is just a damp squib.” See Stern, “Bilski: A ‘Flipped’ Vote” [2011] E.I.P.R. 115, 121.
25 Mayo v Prometheus Labs 560 U.S. ___, 132 S. Ct. 1289 (2012). The decision was unanimous with no separate opinions.
26 Nelsan v Hartford 151 E.R. 1266 (1841) 8 M. & W. 806.
27 O’Reilly v Morse, 56 U.S. (15 How.) 62 (1853).
28 Gottschalk v Benson 409 U.S. 63 (1972).
"[A] process that focuses upon the use of a natural law [must] also contain other elements or a combination of elements, sometimes referred to as an "inventive concept," sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself." 32
In other words, the implementation could not be trivial or conventional—it had to be sufficiently creative that it added something of substance to the natural law.

The reason why this was so was that an insubstantial, uncreative addition to the natural law would be ineffectual to limit the patent from pre-empting the natural law; it would effectively leave the patent one on the natural law, or its use, in itself. In the *Myriad* case, for example, once one knew the correlation between blood level of the metabolite and its medical significance, the claimed assay implementing that natural principle was trivially different from a mere restatement of the principle itself. The patent therefore effectively claimed the underlying principle.

At the time, some thought this rule was meant to apply only to patents involving a law of nature, and not to abstract-idea and software patents as well. Yet, the case from which *Mayo* took that principle was *Flook*, which declared the rule in denying patent eligibility to an implementation of a mathematical algorithm. 33 The algorithm in that case provided a method of smoothing observed data points to establish the contour of an underlying trend in the data (specifically, in order to detect a runaway condition in a chemical reaction). Even assuming the novelty and innovativeness of the algorithm, however, the implementation in *Flook* was conventional or routine and therefore the claim was patent ineligible. 34 That *Mayo* took this legal principle from the *Flook* case should have telegraphed that the rule was one of general applicability to patent-eligibility cases. *Alice* confirmed that message.

32 Mayo 132 S. Ct. 1289, 1294 (2012) (citing Flook 437 U.S. 584, 594 (1978)). The Court held the patent invalid because the limitations in its claims added "nothing specific to the laws of nature other than what is well-understood, routine, conventional activity, previously engaged in by those in the field": Mayo 132 S. Ct. 1289, 1299 (2012).
33 Flook in turn took the doctrine from Funk 333 U.S. 127 (1948), a case about a natural phenomenon involving different species of nitrogen-fixing bacteria—presence or absence of a mutual inhibition effect. In that case the patent covered an utterly trivial implementation of the non-inhibition natural phenomenon: the inventor provided a package containing only species of bacteria that failed to inhibit one another. Arguably, *Flook* first articulated explicitly for the Supreme Court what Funk only elliptically declared. Funk had said that "there is no invention here" in placing the different species of inhibitive bacteria in a single package once it is known that they do not inhibit one another. Funk 333 U.S. 127, 130 (1948). The opinion implied, but arguably did not state in so many words, the converse: if it is to earn a patent the claimed application of the natural principle must be inventive in adding something of inventive significance to the natural principle. On the other hand, it is also arguable that this was there for those willing to perceive it. In *Flook* and earlier cases, the Government argued in patent appeals to the Supreme Court that *Flook* and other cases following it stood for this proposition. For example, in *Armour Pharmaceutical Co v Richardson-Merrell* 396 F. 2d 70 (3d Cir. 1968), the court explained *Flook* in these terms: "Our reading of the Supreme Court's opinion in *Flook* leads us to conclude that the test of patentability of a natural phenomenon is as follows: Would an artisan, knowing the newly discovered natural phenomenon require more than ordinary skill to discover the process by which to apply that phenomenon as the patentee had done? ... Assuming arguendo that [the patentee discovered the underlying natural principle] his application of that newly discovered principle would itself have to be inventive in order to sustain [the patent at issue]." *Armour* 396 F. 2d 70, 74 (1968).
34 An argument could be made also that this concept follows logically from opinions in the *Flook* case, in which Baron Alderson remarked that "the principle must be considered as having had an anterior existence before the patent". Baron Parke elaborated on this in delivering the judgment of the court: "We think the case must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it by a mechanical apparatus ... and his invention then consists in the apparatus used to implement the principle. If the invention consists in the apparatus, it logically follows that the apparatus used to implement the principle must itself have been inventive. Baron Parke did not say that, however, and Neilson's apparatus seems, in hindsight, quite trivial. Regardless of which decision deserves the honour of first enunciating the legal principle, it is clear that *Mayo* and *Alice* now make it a definite feature of the law of patent eligibility.

Flook did not dispute the Patent Office findings that the only point of novelty (i.e. clear that *Mayo* and *Alice* now make it a definite feature of the law of patent eligibility.

35 A year after *Mayo*, the Court decided the *Myriad* case. Here, the issue was whether what was said to be a "product of nature" could be patented. The narrow holding was that DNA was not subject to patenting but cDNA was. DNA is isolated from its underlying natural material by such conventional and trivial means, once a gene's location on the chromosome is learned, that it is effectively a natural product, even though not found in nature in its isolated form. But cDNA, which is DNA minus sections of useless material called "introns", must be derived by seemingly more complex means; it is deemed not a product already found in nature. The point of more general interest in the case, however, was that the Court equated laws of nature, natural phenomena and abstract ideas to the products of nature at issue—so that the same legal rule applied to the patent eligibility of all of them—even though the opinion slurs over this point without explanation. 36 Still, this is another hint of what became in the *Alice* case (or already was) an explicit unification of patent-eligibility law for laws of nature, abstract ideas and principles. A central, unifying feature of the legal analysis in *Myriad*, as in *Mayo*, was that conventional or trivial expedients earned no weight in a patent-eligibility analysis.

The *Alice* decision

In interpreting §101, which defines what kinds of thing may be patented, the *Alice* Court began:

"[W]e must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more, thereby transforming them into a patent-eligible invention." 37

The former pre-empt others from exploiting the building blocks; the latter do not.

36 Association for Molecular Pathology v *Myriad Genetics* Inc 569 U.S. ___ (2013). There was no dissent. Justice Scalia, however, declined to join in the portions of the opinion discussing molecular biology, although he otherwise joined the opinion.
37 Alice 134 S. Ct. 2347, 2354 (2014).
**The Mayo framework**

The Court looked back to *Mayo* for "a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts". The Court sought a single, unifying legal analysis for determining "whether the claims at issue are directed to one of those patent-ineligible concepts" and found it in *Mayo*. The first step was to determine whether the claim seemed prima facie to fit into one of these patent-ineligible categories. If so, the Court continued, we must then, as a second step:

"[C]onsider 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." 38

To do that, it is necessary to:

"[S]earch for an 'inventive concept'—i.e., 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'". 39

In applying this methodology to the case before it, the Court identified the underlying abstract idea as that of intermediate settlement. Alice denied that intermediate settlement was an abstract idea. It argued that the rule against patenting abstract ideas applied only to eternal verities—"preexisting, fundamental truths" that "exist in principle apart from any human action". 40 The Court made short shrift of that, pointing to the risk hedging in *Bilski* that the Court had found to be a patent-ineligible abstract idea. Hedging is simply "a method of organizing human activity, not a 'truth' about the natural world 'that has always existed'". The Court insisted, and so too is intermediate settlement. Just as hedging was properly deemed an abstract idea, intermediate settlement is an abstract idea and therefore patent ineligible. 41

The Court refused to try to describe the exact boundaries of abstract ideas. It was enough that intermediate settlement was as abstract as hedging: "[W]e need not labor to delimit the precise contours of the 'abstract idea' concept in this case."

**Does a computer add enough?**

The Court then turned to whether Alice had added something to the abstract idea that would "transform that abstract idea into a patent-eligible invention". 42 Adopting the framework that *Mayo* used, the Court asked what Alice had added. Apparently, it added nothing to the idea of intermediate settlement but the further idea of using a computer to do the necessary bookkeeping. That brought the Court to the crux of the case. Did just the use of a computer suffice to establish patent eligibility?

The Court recalled that in *Benson*, one of the claims called for use of a computer to execute the algorithm. That was insufficient:

"But the computer implementation did not supply the necessary inventive concept; the process could be 'carried out in existing computers long in use.' We accordingly held that simply implementing a mathematical principle on a physical machine, namely a computer, is not a patentable application of that principle." 43

The Court found *Flook* to be to the same effect. There a computer implemented the idea, but the implementation "was purely conventional". 44 In *Diehr*, the computer-implemented process was held patent eligible, but not because a computer was used. Rather, it was the novel use of thermocouples inside the rubber mould to provide temperature measurements that the computer used to calculate cure time, that "transformed the process into an inventive application of the formula". 45 Moreover, "the claims in *Diehr* were patent eligible because they improved an existing technological process, not because they were implemented on a computer". 46

In sum, the cases from *Benson* to the present "demonstrate that the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention". 47 Putting a limitation to a computer-implementation, without more, into an idea

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38 Alice 134 S. Ct. 2347, 2355 (2014)
39 Alice 134 S. Ct. 2347, 2355 (2014) (quoting *Mayo*).
40 Alice 134 S. Ct. 2347, 2356 (2014). Alice had tried to rely on language in the *Flook* opinion, 437 U.S. 584, 593, n.15 (1978), in which the Court had described scientific principles such as Newton's inverse square gravitational law F = m·a as a relationship that "always existed—even before Newton announced his celebrated law".
41 Alice 134 S. Ct. 2347, 2356–2357 (2014). The Court's response was not to argue over whether so-called eternal verities really were eternal, but instead simply to deny that all abstract ideas were eternal verities—pointing to Bilski's hedging device as an example of an abstract idea that was not an eternal verity, but just a method of organizing human activity. This is typical of the *Alice* opinion (and the writing of its author, Thomas J) in refusing to engage in development of theoretical infrastructure for the judgment or Socratic exploration of hypothetical cases to test the limits or soundness of the legal ruling. This approach has two notable effects: first, it avoids unforeseen and unintended consequences; second, it provides only limited guidance to lower courts in subsequent cases.
42 Alice 134 S. Ct. 2347, 2357 (2014). This refusal to speak more broadly exasperated many observers. See, e.g., Wired, "Alice in Patentland is a comic about patent law"; http://www.wired.co.uk/news/archive/2014-06/30/alice-in-patentland [Accessed July 23, 2014] ("bullshitted at the messy, challenging issues surrounding software"; "not a particularly useful" decision about patenting software; cartoonist wagging finger at Thomas J for saying "we need not labor to delimit ..." and replying "yes you do!").
43 Alice 134 S. Ct. 2347, 2357 (2014)
44 Alice 134 S. Ct. 2347, 2357 (2014).
45 Alice 134 S. Ct. 2347, 2358 (2014)
46 Alice 134 S. Ct. 2347, 2358 (2014).
47 Alice 134 S. Ct. 2347, 2358 (2014). Yet, improving an industrial process cannot, by itself, be enough to sustain a non-inventive application of an abstract idea. In *Flook*, the claimed invention was an improvement to a petrochemical cracking process, but as a non-inventive application of the smoothing algorithm it was patent ineligible.
48 Alice 134 S. Ct. 2347, 2358 (2014). By the terms "generic computer" and "generic computer implementation" the Court refers to conventionally programming a conventional general-purpose digital computer. A desktop PC is an example of a generic computer in this sense.
claim amounts merely to saying—"apply the abstract idea on a computer", and that cannot impart patent eligibility. It just piles one zero on to another zero, and $0 + 0 = 0$.

**Conventional computerisation does not avoid pre-emption**

By the same token, the Court explained, this conclusion fits right in with the concern about preemption "that undergirds our § 101 jurisprudence". It does so for two reasons. First, since use of computers to make the carrying out of tasks cheaper, faster, and more accurate and reliable is ubiquitous in modern business and industrial society, a generic computer limitation is no limitation at all in a practical sense. Thus, in the Benson case, the Court dismissed the computer limitation in one claim as without practical significance, because the claimed algorithm:

"... 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 ... and in practical effect would be a patent on the algorithm itself."51

Second, again because of the ubiquity of computers, a legal rule that allowed wholly generic computer implementations to evade the rule against patenting ideas would provide a facile blueprint for patent drafters to monopolise abstract ideas.52 As the Court explained:

"[A]n applicant could claim any principle of the physical or social sciences by reciting a computer system configured to implement the relevant concept. Such a result would make the determination of patent eligibility depend simply on the draftsman's art, thereby eviscerating the rule that laws of nature, natural phenomena, and abstract ideas are not patentable."53

Applying these legal principles to Alice's method, the Court found every step of the claims at issue to be "purely conventional". The functions and instructions were "well-understood, routine, conventional [and] previously known to the industry", just as they were in the Mayo case.54 Examining the steps separately or in combination, the result was the same: "a generic computer perform[s] generic computer functions".55 The Court noted what Alice's claims did not do, thus suggesting what might pass muster in another case:

"The method claims do not, for example, purport to improve the functioning of the computer itself. There is no specific or limiting recitation of ... improved computer technology ... Nor do they effect an improvement in any other technology or technical field."56

The system claims and media claims fared no better. They too recited generic computer components configured to implement the same abstract idea of intermediated settlement. They too, therefore, added "nothing of substance to the underlying abstract idea" and accordingly "they too are patent ineligible under § 101".57 The Court summarily dismissed the piano roll blues argument:

"As to its system claims, petitioner emphasizes that those claims recite specific hardware configured to perform specific computerized functions. But what petitioner characterizes as specific hardware ... is purely functional and generic. Nearly every computer will include [such equipment]. As a result, none of the hardware recited by the system claims offers a meaningful limitation beyond generally linking the use of the [method] to a particular technological environment, that is, implementation via computers.

Put another way, the system claims are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea."58

**The concurring opinion**

Justice Sotomayor, joined by Justices Ginsburg and Breyer, agreed that Alice simply claimed a patent-ineligible abstract idea and therefore these justices concurred in the main opinion. They would have preferred, however, to rest the judgment on other grounds. These were that no suggestion existed in the English case law preceding and contemporaneous with the adoption...
of the American patent system “that processes for organizing human activity were or ever had been patentable”. 59

What the Supreme Court did and did not hold

The opinion is rather narrow, in that it makes no effort to answer in detail the ambitious (and important) question that the Federal Circuit posed to itself for en banc consideration:

“[W]hen, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea?”

The Court considered Alice’s patent to be “squarely within the realm of ‘abstract ideas’ as we have used that term” in such cases as Bilski. Accordingly, “we need not labor to delimit the precise contours of the ‘abstract ideas’ category in this case”. 60

The Court does suggest some factors, however, that help resolve some cases involving computer-implementation of an otherwise abstract idea, law of nature, or method oforganising human activity (as in a business-method patent).

The unified field theory

The Alice opinion confirms that the patent-eligibility analysis of Mayo for laws of nature and natural phenomena is also to be used for determining patent eligibility of claims involving abstract ideas and methods

of organising human activity. 61 A single legal theory unifies the several exceptions to patentability based on the nature of the claimed subject matter.

The nutshell

Using a computer to implement an abstract idea, law of nature or way to organise human activity in a trivial or purely conventional manner will not confer patent eligibility. But using a computer to improve a manufacturing process or other technological process in an inventive way may well confer patent eligibility, despite the existence of an underlying abstract idea or principle. Two elements of that statement beg for amplification.

First, what processes other than manufacturing processes are “technological” is unclear. 62 The Constitution 63 and traditional portions of the patent statute do not define or even use the term “technological”. 64 The recent patent code amendments of the America Invents Act do use the term in a new section providing for post-issuance review of “covered business methods”, but the use of the term in that new, specialised part of the statute is not instructive for purposes of cases such as Alice and Bilski. 65 The Constitution does use the term “useful arts”, but does not define it; nonetheless, the term has some historical background, and there is some

59 Alice 134 S. Ct. 2347, 2360 (2014) (quoting opinion of Dyk, concurring in In re Bilski 545 F. 3d 943, 972 (Fed. Cir. 2008)). This was the same basis as that for Justice Stevens’s opinion in four justices in Bilski.

60 Alice 134 S. Ct. 2347, 2357 (2014).

61 Additionally, as a purely formal matter, the Court emphasised that it would not interpret §101 any differently for method or apparatus claims or permit patent eligibility to depend on the patent draftsmen’s art. This may signify that the piano roll blues has played its last riffs. “[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” Alice 134 S. Ct. 2347, 2358 (2014). See also the same page (explaining that stating an abstract idea while adding that it should be implemented with a computer is “not enough for patent eligibility”).

62 Based on the questioning at the oral argument for the united field theory’s contribution and what constitutes a computer to implement an abstract idea, law of nature or way to organise human activity (as in a business-method patent).

63 There are problems with the word “technological” besides lack of procedural text defining it. It is uncertain, for example, whether technology must be based on science. For whatever it is worth, τέχνη, techne, means ”art, skill, or cunning of hand”. See H G Liddell et al., A Greek-English Lexicon (Oxford University Press, abridged edn, 1980). That does not imply any underlying scientific theory. English-language dictionaries are not helpful: Dr Johnson did not address technology in his 1755 dictionary, and Noah Webster in his 1828 dictionary simply termed it a description of the arts. If “unscientific” technology is considered admissible, which is probably so, technology goes back to Neolithic times or earlier; and it includes such things as flint arrowheads and spears, as well as techniques for making them. The first two US patents involved the manufacture of pottery by boiling wood ash and the manufacture of candles. They were purely empirical—not based on what we would now consider scientific theory. Difficulties with determining whether a claimed invention displays a “technical contribution” and what constitutes “a technical solution to a technical problem”, for purposes of deciding whether claimed subject matter is patentable subject matter as that term is used in the UK and under the EPC, are beyond the scope of this article. For some of those difficulties, see, e.g., Aeriel Ltd & Teles Holding Ltd [2006] EWA Civ 1371, [2007] 1 All E.R. 225; Axion Clinica Ltd v Comptroller General of Patents, Designs and Trade Marks [2008] EWHC 85 (Pat); [2008] 2 All E.R. 742.

64 In 2011, the America Invents Act (AIA), Pub. L. No. 112-29, 125 Stat. 284 (2011), changed the US patent system’s “first to invent” patent priority system to a “first to file” system and established several post-issuance review proceedings. One of the latter was a transitional provision (operative up to 2020), AIA §18, for a post-grant proceeding for review of the validity of covered business-method patents. AIA §18(0(1)) gives this meaning: “The term ‘covered business-method patent’ means a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions” The AIA does not specify what a patent for a technological invention is, but the Office has promulgated a rather opaque and recusive rule defining technological inventions: “In determining whether a patent is for a technological invention solely for purposes of the Transitional Program... the following will be considered on a case-by-case basis: whether the claimed subject matter is as a whole recites a technological feature that is novel and nonobvious with respect to the prior art; and resolves a technical problem using a technical solution.” See 37 CFR §42.301(b). As might be expected, “technological feature”, “technical problem” and “technical solution” are left undefined. The Office has promulgated some “guides”, however, describing what is not a technological invention, but presumably that is also only for purposes of AIA §18. The guides say use of known technology is excluded, and prior art structures that produce a “normal, expected, or predictable result” when combined are also excluded. AIA Trial Practice Guide, 77 Fed. Reg. 48756, 48764 (August 14, 2012). These guides appear to represent only the opinions of the staff of the Office and do not have the force of positive law. In addition, the AIA itself does not purport to declare what is patent eligible. That is left to pre-existing law. AIA §18 only provides a proceeding in which an administrative agency can adjudicate that issue, in the first instance, subject to judicial review. It therefore does not advance the substantive inquiry as to what kinds of thing are patent eligible and how that issue relates to technology and computer implementation.
uncertain relationship between technology and the useful arts. It is to be hoped that the courts will develop a principled basis for defining "technological" processes—something better than "I know it when I see it." The Alice opinion leaves that task to future litigation.

Second, what is an inventive concept or inventive way? It is likely that an inventive way is one that involves greater creativity than that of a person of ordinary skill in the art. The requirement that something "significantly more" must be added to an abstract idea to confer patent eligibility probably means the same thing as implementing the idea in an inventive way. But the Court says little or nothing about what is "significantly more" other than that it must be merely "generic computer implementation."

In Flook, the Court said:

"Even though a phenomenon of nature or mathematical formula may be well known, an inventive application of the principle may be patented. Conversely, the discovery of such a phenomenon cannot support a patent unless there is some other inventive concept in its application." This passage suggests that the application must embody an inventive step, which seems to require that the application not be obvious. But the obviousness relevant to a §101 inquiry might differ from that relevant to a §103 inquiry. Arguably, different policies are at stake. In the long run, however, courts (particularly trial courts) are likely to assimilate the concepts of "not generic," "significantly more" and "inventive concept" to one another, leading to a single standard—that of inventive step or nonobviousness. But that remains to be resolved by future litigation.

**Business methods**

The Court once again refused, as it did in Bilski, to hold business methods categorically patent ineligible. But considering the nature of most financial or other business devices (such as, for example, hedging or mitigating settlement risk by using an intermediary, in the Bilski and Alice cases), most business methods will fail to pass muster under the Flook-Mayo-Alice rationale. That is because their computer implementation is ordinarily conventional or even trivial. Rarely do business-method patents disclose an advance in programming technique. Often or usually they involve routine computerisation of a previously known business expedient (as in the Bilski and Alice cases), producing only expectable benefits.

In its recent business-method cases, Bilski and Alice, the Supreme Court defined the abstract ideas of the patents in suit at a high level of abstraction and generality. That made it easy to find the idea old and long in common use. In principle, establishing that is unnecessary for the analysis. For the legal theory purports to cover E=mc^2 (highly novel, initially not in common use) as well as hedging and escrow (very old, long in common use). Yet, to characterise the rest of the prospective patent monopoly as public domain long in common use but now under a threat of enclosure does tend to tilt the equities. In any event, operating

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66 See generally Richard L. Stern, "Being Within the Useful Arts as a Further Constitutional Requirement for US Patent Eligibility" [2009] E.I.P.R. 6. The concurring opinions of Justice Stevens in Bilski and Justice Sotomayor in Alice take the position that the US patent laws do not extend patent protection to business methods, but they do not rely on any specific statutory or constitutional language to support that conclusion. Similarly, Judge Dyk’s concurring opinion in In re Bilski 545 F. 3d 943, 972 (2008) does not rely on any specific statutory or constitutional language. Justice Stevens’s and Judge Dyk’s opinions do rely, however, on actual practice in the period following the adoption of the Constitution and to some extent on literary usage. Judge Mayer’s dissenting Federal Circuit opinion in In re Bilski, however, did argue that patenting business methods was unconstitutional. 545 F. 3d 943, 1001 (2008) ("Therefore, by mandating that patents advance the useful arts, ‘[t]he Constitution explicitly limited patentability to … the process today called technological innovation.").

67 See Jacobellis v Ohio 378 U.S. 184, 197 (1964) ("But I know it when I see it.") (Stewart J concurring).

68 The Alice opinion builds on Mayo to say, for example: "We have described step two of this analysis as a search for an ‘inventive concept’—i.e., an element or combination of elements that is ‘sufficient to ensure that the patent in question amounts to significantly more than a patent upon the [ineligible concept] itself.’" Alice 134 S. Ct. 2347, 2355. That passage suggests that there is no space between (1) an inventive application or concept, and (2) the conception and devising of the end product or process. But even where the two conceptions overlap, there is at least a difference in emphasis. At the very least, Mayo and Flook teach that the unobvious aspect of the claimed device, for purposes of §101, must lie in the means by which the underlying idea is implemented rather than in the idea itself, unrelated to its implementation: that is part of §103. Moreover, the idea as such is not obvious—indeed, it is the product of genius—earns no weight under §101 in determining whether a patent shall issue. E=mc^2 would earn no patent. Mayo v Prometheus Labs 566 U.S. __, 132 S. Ct. 1299, 1293 (2012) (Einstein could not patent his celebrated law that E=mc^2; nor could Newton have patented the law of gravity.). Nor could Dante patent terza rima nor could Hopkins patent sprung rhythm—that is not what patents are for. They serve a different purpose and policy.

69 In Dow v Johnathan 425 U.S. 219 (1976), the first business-method case to reach the Supreme Court, the Court held the underlying idea obvious to a person of ordinary skill in the art, in light of the prior art, and did not reach the Government’s main argument that the claimed invention was patent ineligible under Benson and earlier cases such as Flook and its progeny. The Government’s argument, in Geonnalos v. Judgment, was: "Even when an idea is unobvious its implementation must be unobvious, as well, to justify the grant of a patent monopoly … The patent laws require that not only must there be the application of the idea to a new and useful end (embodied in a specific, tangible product or process), but the conception and devising of the end product or process must display the inventive faculty. The means or mode of implementing the idea must extend beyond the routine, conventional, or obvious applications of the idea that follow once the idea is known."

70 In Bilski, the Court explained, "Hedging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class. Bilski v Kappos 561 U.S. 953, 611 (2010). In Alice, the Court said, "Like the risk hedging in Bilski, the concept of intermediated settlement is a fundamental economic practice long prevalent in our system of commerce." Alice 134 S. Ct. 2347, 2356 (2014) (internal quotation marks omitted).
analytically at a high level of abstraction makes it easier to find an underlying abstract idea—which is the first step in the analysis Alice prescribes.15 Some might say that this is as if one said the idea (or plot) of Romeo and Juliet is that a boy and girl love one another but encounter personal difficulties because of their parents’ mutual dislike.16 That doubtless overstates the case, but it is inevitable that some subjectivity colours the analysis, as well as some result orientation. By the same token, defining the underlying idea at a highly specific level would shrink the scope of the abstract-idea doctrine to negligible proportions. There is no way to fix on a golden mean. The proof of the pudding is only in the eating. What are the consequences of the Court’s approach?

One consequence, as already remarked, is that many business methods will be deemed insignificantly different from their underlying abstract ideas. Another consequence is to tilt the doctrinal evolution of patent-eligibility law away from any focus on what is in the useful arts, as the Constitution uses that term. Because the Alice Court has made it easier to find an underlying abstract idea, it has become largely unnecessary to develop a doctrine that business methods are categorically excluded from the patent system because they are not within the useful arts. In large part, the abstract-idea doctrine has made a useful arts-based doctrine superfluous, since the abstract-idea doctrine now suffices to cover the same ground—indeed, to eliminate many or most business-method patents.

Nevertheless, there are unusual cases, outliers, in which, despite the intuitive categorical inappropriateness of any patent, the abstract-idea doctrine is ineffective to curb a bizarre patent. For example, the machine implementation may not necessarily be trivial or conventional. Or if conventional, the implementation may clearly be a new use. The machine for exercising cats and the notional machine for making a punishment fit the crime may illustrate the point.75 No such case has yet come to the Court.76

15 The more general and abstract the underlying idea that a court finds, the more ground the idea covers and thus the more pre-existing practices that it sweeps up. It might be thought that strategic considerations would lead an accused infringer to argue that the idea was more specific, so that the implementation and idea would be conceptually closer together, in order to arrive at the conclusion that they were so close that nothing of substance had been added to the idea. But that would be unsound, for the doctrine of abstract ideas already dictates that limitations to a particular technological environment or to a particular field of use are to be disregarded. Alice 134 S. Ct. 2347, 2358, 2360 (2014); Bilski 561 U.S. 593, 619–621 (2010). To the extent that limitations on an abstract idea can be dismissed as mere field-of-use or technological-environment limitations, the argument that there is no pre-emption problem because many alternative ways, say, to hedge or create an escrow exist will be unsuccessful. Accordingly, the preferred strategy for accused infringers is to ratchet up the level of abstraction.

16 See Nichols v Universal Pictures Corp 45 F. 2d 119, 121–122 (2d Cir. 1930) (copyright case). Clearly parallel policy considerations underlie the idea-expression analysis of copyright law and the idea-implementation analysis of patent law.

17 See the discussion of these machines in Richard H. Stern, "Being Within the Useful Arts as a Further Constitutional Requirement for US Patent Eligibility" [2009] E.I.P.R. 6, 11–12. Such claimed inventions, the author argued, are not within the useful arts and do not promote the progress of useful arts. The cat exercise machine is US patent 6,701,872. Kafka describes the machine for making the punishment fit the crime in In the Penal Colony. These inventions may not be abstract-ideas or the machines may be sufficiently “particular”—as particular, say, as Morse’s “repeater” apparatus, which sufficed for the patent eligibility of that part of his patent.

18 Supreme Court Justice Story, acting as a trial judge when riding circuit, opined in obiter dicta that “a new invention to poison people, or to promote debauchery, or to facilitate private assassination, is not a patentable invention”. Lowell v Lewis 15 F. Cas. 1018, 1019 (C.C.D. Mass. 1817). This was said to be a requirement of “utility”, but clearly the utility or unprofitability perceived here is constructive. It is based on considerations of public policy, just as is the abstract-idea rule. For example, persons skilled in the relevant arts, such as the Borgias, would have found each of Justice Story’s notional inventions useful—in the ordinary common sense usage of the term (as contrasted with a legal term of art).

No case testing Justice Story’s dicta has ever reached the Supreme Court, although a few “immoral” inventions have reached lower courts. See, e.g., Juicy Whip, Inc v Orange Bang Inc 185 F. 3d 1364 (Fed. Cir. 1999) (patent on machine to deceive customers into believing they were getting fresh orange juice from a display tank although they were actually being given a syrup and water mixture from a hidden tank—held enforceable); Brewer v Liechtenstein 278 F. 512 (7th Cir. 1922) (invalidating patent for gambling device on the grounds that it was contrary to public policy); Richard v Du Bois 103 F. 868, 873 (2d Cir. 1908) (invalidating patent on device for making cheaper tobacco appear to be of superior quality).

19 On June 30, 2014, the last day of the October 2013 term, about a week after the Alice decision, the Court disposed of two certiorari petitions that had been held for the Alice decision. In one case, the Federal Circuit had upheld the patent eligibility of a scheme for compensating internet users for viewing advertising material by allowing them to view copyrighted media products (films, books, songs), where the advertiser paid the royalty due for viewing the media products. The Federal Circuit had said that the scheme required elaborate programming, although the programming was not said to be unconventional, and certainly not inventive. The facts otherwise seemed similar to those in Alice. The Supreme Court vacated the judgment and remanded the case to the Federal Circuit for reconsideration in the light of the Alice decision.
In the second case, the Federal Circuit had held patent ineligible a scheme for generating tasks to be performed in an insurance organization, which required a computer system to update a database upon occurrence of an insurance-related event. The Federal Circuit decided the second case under a methodology very similar to that prescribed in the Alice opinion—generally following the Mayo paradigm. Significantly, the Federal Circuit had in said in this second case that "simply implementing an abstract concept on a computer, without meaningful limitations to that concept, does not transform a patent-ineligible claim into a patent-eligible one".9 The Supreme Court denied certiorari, leaving the judgment of patent-ineligibility undisturbed.

Apparently, the Supreme Court is unimpressed by a claim that a computer program is complex, unless it also displays an inventive step. That is likely to be a difficult criterion to satisfy. Probably, a claim (as made in the first of these two cases) that the scheme and the computer program make available new functions that were previously unavailable will not succeed in conferring patent eligibility if, as is likely, the added functionality will either be found to be what computers conventionally do or else be attributed to the supposedly abstract idea and not to the otherwise routine programming that implemented provision of the asserted functionality.

**Software**

One of the dissenting opinions from the Federal Circuit in the Alice case had predicted that the decision, if affirmed, would be "the death of hundreds of thousands of business method, financial system, and software patents".8 This prediction alarmed many stakeholders in such patents. But the Alice Court avoided any pronouncements on software in general, apart from calling the computer programming for Bilski's hedging patent and Alice's settlement risk mitigation patent conventional and routine, and therefore ineligible for patenting.9

During oral argument, Justice Sotomayor repeatedly asked: "Why do we need to reach … software patents at all in this case?", "What's the necessity for us to announce a general rule with respect to software? There is no software being patented in this case", and "Do you think we have to reach the patentability of software to answer this case?". The opinion of the Court reflects that caution, which calmed the fears of many of the restless natives.8 To the extent that there is a division of opinion about Alice, it appears to reflect a difference in interest between stakeholders. Those owning business-method patents, many of whom do not operate businesses other than asserting and licensing patents, are disturbed and disappointed. Those whose major interest is selling products and services (typically, electronic or internet-based) and who are concerned about being sued by the first group are sanguine.8

The Flook-Mayo-Alice rule would not seem to threaten the patent eligibility of those software patents that are not mere routine computerisations of pre-existing business or financial expenditures. By implication at least, the Alice opinion leaves room for patents on software that improves technological and industrial processes.8 Software on the internal functioning of computers would also appear patentable.6 Although the opinion did not say so, probably

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78 Accenture Global Services, GmbH v Guidewire Software Inc '728 F. 3d 1336 (Fed. Cir. 2013).

79 Accenture 728 F. 3d 1336, 1345 (2013).

80 The Federal Circuit had based its patent-eligibility determination in Ultramercial on the grounds that the complexity of the program, strongly insisted upon by the patentee but disputed by the accused infringer, provided something significantly more than just the abstract idea underlying the scheme. Ultramercial 722 F. 3d 1335, 1356 (2013) (the patentee provided "complex computer programming"). Alice, too, claimed that its computer program provided new functions previously unavailable—automatically creating shadow accounts, adjusting them in a particular way, balancing accounts in real time across time zones, and then issuing instructions to operate in accordance with the shadow balances. The Supreme Court responded that these functions were all routine: "(All) of these computer functions are well-understood, routine, conventional activities previously known to the industry. In short, each step does no more than require a generic computer to perform generic computer functions." Alice 134 S. Ct. 2347, 2359 (2014) (internal quotation marks and citations omitted).

81 CLS Bank v Alice Corp 717 F. 3d 1329, 1313 (2013) (Moore J dissenting) ("And let's be clear: if all of these claims, including the system claims, are not patent-eligible, this case is the death of hundreds of thousands of patents, including all business method, financial system, and software patents as well as many computer implemented and telecommunications patents."). During oral argument before the Supreme Court, Alice's counsel insisted that if the Court held software to be patent ineligible "unless the software somehow actually improves the computer … this would inherently declare and in one fell swoop hundreds of thousands of patents invalid, and the consequences of that seem to me to be utterly unknown.

After the Supreme Court's Alice decision, a few similar dire predictions appeared in the trade press. See, e.g., Vox, "The Supreme Court just restricted software patents" (July 1, 2014), http://www.vox.com/2014/6/19/58245367/thoughts-on-the-supreme-courts-software-patent-ruling [Accessed July 23, 2014] ("The ruling is bad news for software patents"); "The Supreme Court has struck a blow against patents on software." That now appears to be a minority position in the software industry, however. See fn.83.

82 During oral argument, Alice's counsel conceded that the necessary software, which was not disclosed in the patent, was "rendered possible by the generic computer", was "published possible by the computer", and "would be fairly easy to implement.

83 Many in the industry acclaimed the ruling. See, e.g., "Software patents survive US Supreme Court test" (June 19, 2014), Financial Times, http://www.ft.com/intl/cms/s/0/07744658-f01f-11e3-b8e3-00144feabdc0.html#axzz37D93jgfin [...]

84 On the other hand, the Intellectual Property Owners Association, a trade association of patent owners, urged the Court to uphold any patent involving abstract ideas so long as "it describes specific, practical application of the (underlying) idea", and in addition "to fully appreciate the critical necessity of patent eligibility for computer-implemented inventions" and not to "warp[] decades of settled expectations". The American Intellectual Property Law Association, a trade association of patent lawyers, urged the Court to rule that claims to a general purpose computer to perform mathematical calculations does pass muster under Section 101 for the cogent reasons expressed in Alice Corp. 134 S. Ct. 2347, 2359 (2014).

85 In criticizing Bilski's claims, the Court said, "The method claims do not, for example, purport to improve the functioning of the computer itself." Alice 134 S. Ct. 2347, 2359 (2014).

86 This is reflected in the demographics of the amici curiae filing briefs in Alice. Google, for example, figured prominently among those supporting a ruling of patent-ineligibility of business methods. Its amicus curiae brief had a section captioned "Does the time have come to put an end to the computer patenting paradigm?". In the same vein, Red Hat, a principal supplier of open-source software to computer users, Red Hat, a principal source of software patents has resulted in new risks that discourage innovation. On the other hand, the Intellectual Property Owners Association, a trade association of patent owners, warned the Court to uphold any patent involving abstract ideas so long as "it describes specific, practical application of the (underlying) idea", and in addition "to fully appreciate the critical necessity of patent eligibility for computer-implemented inventions" and not to "warp[] decades of settled expectations". The American Intellectual Property Law Association, a trade association of patent lawyers, urged the Court to rule that claims to a general purpose computer to perform mathematical calculations does pass muster under Section 101 for the cogent reasons expressed in Alice Corp. 134 S. Ct. 2347, 2359 (2014).
patents on software for encryption or data compression, if not deemed simply mathematics, would be left patent eligible. Such a device is not "a method of organizing human activity", which the entire Court deprecated in regard to patent eligibility.77 The Alice opinion made a point of adding, though, "There is no dispute that... many computer-implemented claims are" patent eligible.88 The Court offered no specifics, however. This issue too must therefore await further litigation and further incremental clarification.

**Aftermath**

In its first patent-eligibility decision after Alice, on July 11, 2014, the Federal Circuit invalidated a patent on processing digital graphics data.89 The court stated that the patent "claims an abstract idea because it describes a process of organizing information through mathematical correlations and is not tied to a specific structure or machine". The claimed method steps were generating two sets of data that described colour information for a digital image, and then combining the two data sets according to an algorithm. The court stated that the "claim thus recites an ineligible abstract process of gathering and combining data" by using "mathematical algorithms to manipulate existing information to generate additional information", and that "is not patent eligible". The proper legal principle, the court said, is: "A claim may be eligible if it includes additional inventive features such that the claim scope does not solely capture the abstract idea."

The opinion was quite terse, but it indicated that the Court is attempting to follow the instruction of the Alice judgment.90

**Conclusion**

The Alice decision is incremental. It confirmed the line of decisions since Bilski, but did not go substantively beyond them. Its application of the rationale of Mayo to computer-implemented business methods should not have been surprising; it should have been expected. Beyond that, the fact that Alice provides no detailed guidance on when computer implementation is effective to confer patent eligibility is also no surprise, although it has disappointed many who had hoped, first in Bilski and then in Alice, for clear, categorical statements.91 Indeed, Mayo whetted their appetites and stirred their aspirations. Now, some commentators deplore the Court’s series of narrow rulings and fear that they will never see a clear ruling on software or business methods from the Court. They fear that the Court will just keep on issuing narrow rulings on case-specific bases, out of anxiety lest a broad, informative statement from the Court have unintended, negative economic consequences or dash settled investor expectations or even stifle innovation.92

Several responses to that are appropriate. First, the narrow opinions are the expectable price of unanimity in a nine-member tribunal. The costs of uncertainty over specific case patterns may well be outweighed by greater sensed legitimacy and precedential stability—the benefits of stare decisis.93

Second, there is an observable trend line. Using an appropriate algorithm (pace Flook) to smooth the data points, one can discern a clear trend line in the cases from the 1970s to 2014, based on which it appears that few if any present business-method patents will survive an abstract-idea analysis.

As for dashing settled business expectations, building business expectations on legal theories that run counter to a long-term trend of Supreme Court decisions does not create a vested interest. It is absurd to subordinate the public interest in order to bail out those who adopt unrealistic and misguided investment strategies.

Finally, it is sensible to make narrow, incremental rulings as to software patent eligibility, because at present we are not so well informed that we can speak with confidence in very broad terms. Which, if any, software patents are consistent with both encouraging software progress and avoiding its pre-emption remains to be seen. We may feel assured that software patents, and certainly all business-method patents, are a plague that ought to be extirpated, but we should remember Cromwell’s entreaty to "think it possible that you may be mistaken."94 Therefore, recourse to the laboratory of case-by-case development is a prudent expedient.

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88 Alice 134 S. Ct. 2347, 2359 (2014).
90 DigiTech 2014 WL 3377201 at *4 (emphasis added).
91 This contravenes with earlier Federal Circuit resistance to the Supreme Court’s rulings on patent eligibility. In the Ultramercial case, for example, the Supreme Court had vacated an earlier judgment of patent eligibility with directions to reconsider in the light of Mayo. Ultramercial 657 F.3d 1325 (Fed. Cir. 2011), vacated sub nom. WildTangent Inc v Ultramercial LLC 132 S. Ct. 2431 (2012). The Federal Circuit then reaffirmed its prior decision, which the Court recently vacated with decisions to reconsider in light of Alice. See text following fn.77. In another patent-eligibility case, the Supreme Court vacated and remanded for reconsideration, in light of Flook, In re Bergy 563 F.2d 1031 (CCPA 1977), vacated sub nom. Parker v Bergy 438 U.S. 932 (1978). The court (the predecessor to the Federal Circuit) then reaffirmed its prior judgment and stated: “To conclude on the light Flook sheds on these cases, very simply, for the reasons we have stated, we find none.” In re Bergy 596 F.2d 952, 966 (CCPA 1979). The Federal Circuit as presently constituted (there have been substantial changes in court membership), however, now appears prepared not to overrule the Supreme Court on patent eligibility.
93 That such fears caused a “flip” in the Bilski case and turned Justice Steven’s five-justice majority opinion condemning all business-method patents into a four-justice separate opinion disagreeing with the majority’s rationale is suggested in Stern, "Bilski: A Flipped 'Vote'" [2011] E.I.P.R. 115.
94 Among the benefits of uncertainty is the likelihood that a unanimous judgment will be overturned. Past limits to patent eligibility have zig-zagged. Compare Parker v Flook, 437 U.S. 584 (1978) with Diamond v Chisso 450 U.S. 175 (1981). In contrast, the four decisions from Bilski to Mayo to Myriad to Alice have run a steady course.