

# Understanding patent eligibility of new technology in the United States

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## Changing standards, new challenges

As entirely new technologies have developed over the past two centuries, US patent law has struggled with questions over whether that type of technology should be protectable by patent grants, and if so, to what extent. Historically, this issue was presented with the development of life-changing technologies like the telegraph and telephones. More recently, the challenge has been presented with the development of computers and software, financial innovation, the Internet and e-commerce applications. We also see these challenges arising in the life sciences with new methods to diagnose and treat diseases, as well as the isolation and mutation of human and animal genes to create new medical treatments. These types of new development have always presented a theoretical strain on the underlying rationale for the US patent system, and today is no exception. This article seeks to provide some guidance on the current state of the law, with its evolving and constantly changing standards, and provide tips and best practices on how to navigate the turbulent waters for determining patent-eligibility.

## Development of the current patent-eligibility debate

In 1998 and 1999, with the advent of the internet, the US Court of Appeals for the Federal Circuit decided *State Street Bank & Trust Co v Signature Fin Grp, Inc*<sup>1</sup> and *AT&T Corp v Excel Communications, Inc.*<sup>2</sup> At this time the world of patent law saw a seismic change that seemed to put most challenges to patent-eligibility to rest. Conventional wisdom among patent practitioners at that time was that, unless the invention did not work or sought to claim some impossibility (like the legendary perpetual motion machine), patent-eligibility under 35 USC §101 was essentially a non-issue. While traditionalists at the US Patent and Trademark Office (USPTO) sought to advance previously discredited patent-eligibility challenges like ‘technological arts’

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## This article

- As entirely new technologies continue to be developed, the US Patent and Trademark Office (USPTO) and the US courts have had to grapple with whether each new class of technology should be classified as patent-eligible subject matter under US patent law.
- Although the patent statutes have traditionally been interpreted to give a broad scope to include as patent-eligible subject matter including ‘anything under the sun that is made by man’, there are three judicial exceptions (sometimes referred to as ‘fundamental principles’): laws of nature, natural phenomena and abstract ideas. Upon the introduction of innovations closely harnessing these fundamental principles, such as computers and biotechnology, US courts have struggled to develop a consistent approach to distinguish patents pre-empting these patent-ineligible fundamental principles from patent-eligible inventive applications using these fundamental principles.
- The US Supreme Court has repeatedly rejected judges’ attempts to create rigid rules to use when evaluating claims which potentially claim a fundamental principle. After the US Supreme Court’s most recent decision in *Mayo v Prometheus*, it is clear that a patent claim may contain a fundamental principle as long as that principle is not pre-empted, but patent-eligibility still remains a complicated issue that must be examined on a case-by-case basis. This article seeks to provide some guidance on the current state of the law, with its evolving and constantly changing standards, and provide tips and best practices on how to navigate the turbulent waters for determining patent-eligibility.

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1 149 F 3d 1368 (Fed Cir 1998).

2 172 F 3d 1352 (Fed Cir 1999).

objections,<sup>3</sup> patent-eligibility under Section 101 did not seem to be a significant barrier to obtaining patent protection (though specific legal bars like claim breadth and clarity under 35 USC §112, novelty under 35 USC §102 and non-obviousness under 35 USC §103 continued to remain the main thresholds of patentability at the USPTO and in the courts).

However, as public scepticism of patents began to grow in the wake of *State Street* and *AT&T*, these seemingly calm waters began to stir. This scepticism took many forms. For example, the press in numerous articles focused on seemingly silly patents,<sup>4</sup> like methods of swinging on a swing<sup>5</sup> or methods of making a crustless peanut butter and jelly sandwich.<sup>6</sup> Distrust in the patent system was also encouraged by news reports on patent owners who were enforcing what many thought were dubious quality patents, like the Amazon.com's 'one click' ordering process<sup>7</sup> and the Y2K 'fix' patent.<sup>8</sup> Even the US Congress took action in 1999 by creating special 'prior user rights' for 'business method patents' to address issues raised by the lack of prior art for patents now deemed patent-eligible in view of *State Street*.<sup>9</sup>

By 2004, although the issue of patent-eligibility seemed well settled in the district and appellate courts, a split developed within the USPTO, which was being faced with an overwhelming number of patent applications, a growing backlog and ever-increasing public scrutiny. First, in the precedential decision of *Ex Parte Lundgren*, the US Board of Patent Appeals and Interferences ('the Board') seemed to sound the death knell in the so-called 'technological arts' rejections under 35

USC §101.<sup>10</sup> However, soon thereafter, in a non-precedential decision, *Ex parte Bilski*, the question of patent-eligibility was rephrased in the form of what was to be characterized as the 'machine-or-transformation' test.<sup>11</sup> After *Ex parte Bilski*, the Board increasingly began to issue decisions challenging the patent-eligibility of patent claims,<sup>12</sup> resulting in these issues being presented to the Federal Circuit.<sup>13</sup> The debate was further fuelled by hints in concurring and dissenting opinions from the US Supreme Court Justices indicating their scepticism of the 'useful, concrete and tangible result' test set forth in *State Street* and 'dubious quality' patents that resulted.<sup>14</sup>

In 2008, the patent-eligibility question faced a show-down at the Federal Circuit, with the full court hearing the issue in *In re Bilski*.<sup>15</sup> By this time, the US Supreme Court had sent a clear message to the Federal Circuit that it was carefully monitoring their jurisprudence, and did not like 'rigid rules' (eg the Federal Circuit requirement for an explicit teaching, suggestion or motivation to combine prior art for obviousness determinations was rejected, as was the Federal Circuit endorsement of automatic injunctions at the end of patent cases).<sup>16</sup> Likewise, US Congress had repeatedly considered efforts to 'reform' patent law legislatively to address seemingly pro-patent sentiments of the Federal Circuit. The number of *amici* submissions (briefs offered to the court by volunteers not party to the case in order to assist the court in making its decision) submitted to the Federal Circuit was overwhelming, and heavily divided, with contrary positions being offered

3 Eg *Ex parte Tedesco*, No 2004-0403, slip op at 9, 21 (BPAI 28 May 2004), rejecting a claim under 35 USC §101 which did not fall within the 'technological arts'.

4 Eg 'Court smacks down Smucker's patent request for peanut butter and jelly' *The Washington Times* 9 April 2005; 'Patently ridiculous: When peanut butter and jelly sandwiches are getting their own patent, the system intended to protect creativity is in need of a major overhaul' *St. Petersburg Times* 24 February 2003; Jeff Hecht 'Boy takes swing at US patents' *New Scientist* 17 April 2002; Sabra Chartrand 'Patents; In Search of the Perfect Swing, Golfers Invent More Devices Than the Players of Any Other Sport' *New York Times* 2 August 1993.

5 On reexamination, all of the issued claims were cancelled: Reexamination Certificate US 6,368,227 C1.

6 On reexamination, all of the issued claims were cancelled: Reexamination Certificate US 6,004,596 C1.

7 US Patent No 5,960,411; *Amazon.com, Inc v Barnes & Noble.com, LLC* 239 F 3d 1343 (Fed Cir 2001).

8 US Patent No 5,806,063; Press Release, US Patent and Trademark Office, No 99-51, 'Patent and Trademark Office Orders Reexamination of Y2K Fix Patent' (21 December 1999).

9 35 USC §273; 145 Cong Rec H6929 (daily edn, 3 August 1999); 145 Cong Rec S14715 (daily edn, 17 November 1999).

10 *Ex parte Lundgren*, 76 USPQ2d 1385, 1388 (BPAI 2005): 'Our determination is that there is currently no judicially recognized separate "technological arts" test to determine patent eligible subject matter under Section 101. We decline to create one. Therefore, it is apparent that the examiner's rejection can not be sustained.' (emphasis added).

11 *Ex Parte Bilski*, No 2002-2257 (BPAI 26 September 2006).

12 Eg *Ex Parte Kelly*, No 2007-2020 (BPAI 27 September 2007); *Ex Parte Rodriguez*, No 2006-3362 (BPAI 21 September 2007); *Ex Parte Kinzhalin*, No 2007-1416 (BPAI 24 October 2007); *Ex Parte Brown*, No 2007-0575 (BPAI 8 November 2007); *Ex Parte Forman*, No 2007-1546 (BPAI 21 December 2007).

13 Eg *In re Nuijten*, 500 F 3d 1346 (Fed Cir 2007); *In re Comiskey*, 499 F 3d 1365 (Fed Cir 2007), amended by 554 F 3d 967 (Fed Cir 2009).

14 *eBay Inc v MercExchange, LLC*, 547 US 388, 397 (2006) (Kennedy J concurring): 'In addition injunctive relief may have different consequences for the burgeoning number of patents over business methods, which were not of much economic and legal significance in earlier times. *The potential vagueness and suspect validity of some of these patents may affect the calculus under the four-factor test.*' (emphasis added); *Lab Corp of Am Holdings v Metabolite Labs, Inc*, 548 US 124, 136 (2006) (Breyer J dissenting): 'Although the decision in *State Street* set forth the "useful, concrete and tangible result" test, *this Court has never made such a statement and, if taken literally, the statement would cover instances where this Court has held the contrary.*' (emphasis added).

15 545 F 3d 943 (Fed Cir 2008) (en banc), *aff'd*, 130 S Ct 3218 (2010).

16 Eg *KSR Int'l Co v Teleflex Inc*, 550 US 398, 419 (2007): 'We begin by rejecting the rigid approach of the Court of Appeals.'; *eBay*, above, note 14, 547 US at 394: 'We hold only that the decision whether to grant or deny injunctive relief rests within the equitable discretion of the district courts, and that such discretion must be exercised consistent with traditional principles of equity, in patent disputes no less than in other cases governed by such standards.'

**Table 1. Tips when Drafting Patent-Eligible Claims. In view of the recent developments in patent-eligibility laws, and the changing contours of the principles governing this issue, we recommend the following best practices to draft patent-eligible claims that can withstand PTO and judicial scrutiny:**

**Tip 1: Include a Computer or Other Machine in the Specification**

Even though *Mayo* has confirmed that the ‘machine-or-transformation’ test is not determinative, it is still a ‘clue’ and a factor to be considered in weighing whether an invention is not abstract.

**Tip 2: Beware of Overly Broad Definitions in the Specification**

Efforts to over-broaden terms like ‘computer readable media’ to include non-tangible media can result in invalid claims.

**Tip 3: Consider Including Other Types of Concrete Structures or Transformations in the Specification**

For inventions involving contracts, include explicit disclosure of ‘written or electronic agreements’.

**Tip 4: Claims Should Not Be Drafted to Cover Software *Per Se***

The US Board of Patent Appeals and Interferences has rejected claims which are directed at software *per se* rather than as a ‘computer readable medium having instructions for causing a computer to execute a method . . .’.

**Tip 5: Tie Steps in a Claimed Process to Particular Structures Which Perform Such Steps**

To avoid being called a ‘general purpose computer’, tie particular steps to particular structures in claims.

**Tip 6: Use Different Types of Claims**

Over the 20 year life of a patent, the law is likely to evolve, so that different forms of claims should be sought.

**Tip 7: Avoid Fancy Forms of Claims**

Justices Kennedy and Breyer have reaffirmed the four statutory classes of patent-eligible subject matter: processes, machines, manufacturers, and compositions of matter. Novel types of claims like ‘paradigms’ have been rejected by the Federal Circuit.

**Tip 8: Try to Show a Transformation**

PTO looks for data to be stored, accessed, processed and output from computer.

**Tip 9: Rely on Historical US Supreme Court Precedent in Arguments Against Section 101 Rejections**

Federal Circuit decisions like *Freedman-Walter-Abele*, *Alappat*, *State Street & AT&T*, *In re Bilski* may come and go, but the US Supreme Court will likely continue to endorse *Benson-Flook-Diehr-Bilski III-Mayo*.

by different representatives of a wide variety of industries, including the financial services, software, internet, and life sciences, as well as academic and professional association submissions.<sup>17</sup>

In a scholarly, well-written but controversial decision, the majority of the Federal Circuit agreed with Chief Judge Michel’s rejection of earlier efforts to establish a bright line test of patent-eligibility, including the so-called *Freeman-Walter-Abele* test,<sup>18</sup> the ‘technological arts’ test<sup>19</sup> and *State Street’s* ‘useful, concrete and tangible results’ test.<sup>20</sup> The majority, under a stated effort to comply with US Supreme Court precedent on patent-eligibility, attempted to draw a bright-line rule on the scope of patent-eligibility using the so-called ‘machine-or-transformation’ test.<sup>21</sup> The Federal Cir-

cuit’s decision, with nine members of the Federal Circuit supporting the majority opinion, nonetheless resulted in four concurring and/or dissenting opinions which evidenced the divided and wide ranging views held by the Judges of the Federal Circuit on this subject.<sup>22</sup>

The issue did not rest with this seemingly authoritative decision of the Federal Circuit. The US Supreme Court granted certiorari, and heard arguments on the patent-eligibility of Messrs Bilski and Warsaw’s claims the following term. While, technically, the majority decision in *Bilski v Kappos*<sup>23</sup> affirmed the Federal Circuit’s decision to find the claims not patent-eligible, the Federal Circuit’s rigid application of the machine-or-transformation test as the ‘sole’ test for patent-eligibility

17 Eg Charles R Macedo ‘*In re Bilski* Roll Call and Score Card’ IP Law360.com (23 April 2008). Available at <http://www.arelaw.com/publications/view/bilski-roll-call/print/> (accessed 10 September 2012).

18 *In re Bilski*, above, n 15, 958–59: ‘*Freeman-Walter-Abele* test is inadequate’.

19 *Ibid*, 960: ‘Technological arts’ test is ‘unclear’ and ‘no such test has ever been explicitly adopted’ by any court.

20 *Ibid*, 959–60: ‘[U]seful, concrete, and tangible result’ test is ‘insufficient’.

21 *Ibid*, 961: ‘[A]n applicant may show that a process claim satisfies §101’ by either: (1) ‘showing that his claim is tied to a particular machine’ or (2) ‘showing that his claim transforms an article’.

22 For a discussion of the details of Judge Michel’s majority opinion, and Judge Newman’s Dissent, Judge Rader’s Dissent, Judge Mayer’s Dissent and Judges Dyk and Linn’s Concurring Opinion, see Charles R Macedo and David A Boag ‘The “Machine-or-Transformation Test” for Processes’ IP Law360.com (30 October 2008). Available at <http://www.arelaw.com/publications/view/machineortransformation/print/> (accessed 10 September 2012).

23 *In re Bilski*, above, note 15, 130 S Ct 3218.

**Table 2. Patent-eligibility factors.**

The PTO, while noting in its latest guidelines that the 'machine-or-transformation test' is not determinative under *Mayo*,<sup>a</sup> has identified the following factors that Examiners should consider as weighing towards patent-eligibility:

- Recitation of a machine or transformation (either express or inherent).
  - Machine or transformation is particular.
  - Machine or transformation meaningfully limits the execution of the steps.
  - Machine implements the claimed steps.
  - The article being transformed is particular.
  - The article undergoes a change in state or thing (eg objectively different function or use).
  - The article being transformed is an object or substance.
- The claim is directed toward applying a law of nature.
  - Law of nature is practically applied.
  - The application of the law of nature meaningfully limits the execution of the steps.
- The claim is more than a mere statement of a concept.
  - The claim describes a particular solution to a problem to be solved.
  - The claim implements a concept in some tangible way.
  - The performance of the steps is observable and verifiable.<sup>b</sup>

The PTO has identified the following factors that Examiners should consider as weighing against patent-eligibility:

- No recitation of a machine or transformation (either express or inherent).
- Insufficient recitation of a machine or transformation.
  - Involvement of machine, or transformation, with the steps is merely nominally, insignificantly or tangentially related to the performance of the steps, eg data gathering, or merely recites a field in which the method is intended to be applied.
  - Machine is generically recited such that it covers any machine capable of performing the claimed step(s).
  - Machine is merely an object on which the method operates.
  - Transformation involves only a change in position or location of article.
  - 'Article' is merely a general concept.
- The claim is not directed to an application of a law of nature.
  - The claim would monopolize a natural force or patent a scientific fact; eg by claiming every mode of producing an effect of that law of nature.
  - Law of nature is applied in a merely subjective determination.
  - Law of nature is merely nominally, insignificantly or tangentially related to the performance of the steps.
- The claim is a mere statement of a general concept.
  - Use of the concept, as expressed in the method, would effectively grant a monopoly over the concept.
  - Both known and unknown uses of the concept are covered, and can be performed through any existing or future-devised machinery, or even without any apparatus.
  - The claim only states a problem to be solved.
  - The general concept is disembodied.
- The mechanism(s) by which the steps are implemented is subjective or imperceptible.

a. Mem from Andrew H Hirshfeld, Assoc Comm'n For Patent Examination Policy, to the Patent Examining Corps (21 March 2012).

b. Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v Kappos*, 75 Fed Reg 43922, 43927 (27 July 2010).

was explicitly rejected. Overall, the majority decision, penned by Justice Kennedy, rejected the application of any categorical exclusion of subject matter, and reaffirmed the patent-eligibility principles as expressed in *Diamond v Diehr*,<sup>24</sup> in *Diehr's* interpretation of *Gottschalk v Benson*<sup>25</sup> and in *Parker v Flook*.<sup>26</sup>

24 450 US 175 (1981).

25 409 US 63 (1972).

## The Federal Circuit's reaction to *Bilski*

After *Bilski* the Federal Circuit was at first slow to address the patent-eligibility issue and sought to avoid the issue when possible. When the Federal Circuit did address the issue, different panels showed different approaches to the patent-eligibility issues. For example,

26 437 US 584 (1978).

panels on which Judge Dyk participated applied a restrictive approach to patent-eligible subject matter, holding that §101 ‘is . . . a threshold test.’<sup>27</sup> While his decisions paid lip service to patent-eligibility principles having a broad scope, he nonetheless applied this threshold as a finer sieve than other panels at the Federal Circuit.<sup>28</sup> While the machine-or-transformation test was considered in these opinions, as directed by the US Supreme Court in *Bilski*, the §101 analysis looked beyond the outcome of that test.<sup>29</sup>

Similarly, Judge Prost’s §101 analysis has adopted a narrower view of patent-eligibility. Her application of the machine-or-transformation test required the use of a machine in a claim to impart ‘meaningful limits on the claim’s scope’ to transform the claim into a patent-eligible practical application of a fundamental principle.<sup>30</sup> Further, in her analysis, the fact that claims are tied to the physical world—via tangible means such as commodities, money or real property—was found to be insufficient to avoid a claim being found as drawn to an abstract idea.<sup>31</sup>

Judge Rader has expressed greater reluctance to use patent-eligibility as to invalidate patent claims: ‘This court [the Federal Circuit] should decline to accept invitations to restrict subject matter eligibility.’<sup>32</sup> In his view, §101 should only be applied as a ‘coarse filter’, such that claims should not be found invalid under §101 unless those claims are so manifestly abstract ‘as to override the broad statutory categories of eligible subject matter and the statutory context that directs primary attention on the patentability criteria of the rest of the Patent Act.’<sup>33</sup> Judge Newman has joined with Judge Rader in expressing this broader view of patent-eligibility.<sup>34</sup>

Judge Plager has argued for judicial restraint in addressing the patent-eligibility issues. He has stated that ‘as a matter of efficient judicial process’, patent-eligibility under §101 should not be considered ‘unless absolutely necessary.’<sup>35</sup> Instead, he is of the opinion that courts should ‘initially address patent invalidity’ under statutory ‘conditions of patentability’ (which, in his view,

do not include §101) rather than ‘foray into the jurisprudential morass of §101.’<sup>36</sup> He suggests that courts avoid the difficulties of §101, which, for example, asks courts to attempt to define an ‘abstract idea’, and instead exercise their inherent power to control the processes of litigation when the case can be decided by more specific statutes, such as Sections 102, 103 and 112.<sup>37</sup>

## The US Supreme Court’s second look after *Bilski*

The judges of the Federal Circuit had a further opportunity for feedback on their §101 standpoints when the US Supreme Court granted certiorari to *Mayo Collaborative Servs v Prometheus Labs, Inc* and delivered yet another criticism of the Federal Circuit’s jurisprudence on patent-eligibility.<sup>38</sup>

In *Mayo* the US Supreme Court set forth its latest pronouncement on patent-eligibility under 35 USC §101. *Mayo* did not suggest that the court intended to alter in any way its controlling analytical framework. Instead, it reiterated the same two-step analysis confirmed by the court in *Bilski* and held that this analysis must be applied to all patent-eligibility inquiries:

- Does the claimed subject matter fall within one of the four statutory categories of patent-eligible subject matter: (i) process, (ii) machine, (iii) manufacture or (iv) composition of matter?
- Is the claimed subject matter directed to one of three so-called ‘fundamental principles,’ ie laws of nature, natural phenomena, or abstract ideas?<sup>39</sup>

*Mayo* maintained that patent-eligibility should be defined under §101’s four categories of statutory subject matter and, importantly, did not overturn the holding in *Diamond v Chakrabarty* that patent-eligibility be broadly construed to ‘include anything under the sun that is made by man.’<sup>40</sup> *Mayo* also continued to limit the

27 *Dealertrack, Inc v Huber*, 674 F 3d 1315, 1330 fn 3 (Fed Cir 2012) (quoting *In re Bilski*, above, note 15, 130 S Ct at 3225).

28 *Dealertrack*, above, note 27, 1333; *Cybersource Corp v Retail Decisions, Inc*, 654 F 3d 1366, 1369 (Fed Cir 2011).

29 *Cybersource*, above, note 28, 1371.

30 *Fort Props, Inc v Am Master Lease LLC*, 671 F 3d 1317, 1322 (Fed Cir 2012), quoting *Cybersource*, above, note 28, 1375.

31 *Fort Props*, above, note 30, 1322.

32 *Classen Immunotherapies, Inc v Biogen Idec*, 659 F 3d 1057, 1074 (Fed Cir 2011) (Rader Ch J additional views).

33 *Ibid*, 1065, quoting *Research Corp Techs, Inc v Microsoft Corp*, 627 F 3d 859, 868 (Fed Cir 2010); *Ultramercial, LLC v Hulu, LLC*, 657 F 3d 1323, 1325–26 (Fed Cir 2011), *cert granted, vacated and remanded*, *WildTangent, Inc v Ultramercial*, 132 S Ct 2431 (2012). The USPTO has taken a similar view in its recent Guidelines: see Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of

*Bilski v Kappos*, 75 Fed Reg 43922, 43926 (27 July 2010): ‘Section 101 is merely a coarse filter and thus a determination of eligibility under §101 is only a threshold question for patentability.’

34 *Classen Immunotherapies*, above, note 32, 1065.

35 *Dealertrack*, above, note 27, 1335 (Plager J concurring-in-part and dissenting-in-part).

36 *Ibid*. See also *MySpace, Inc v Graphon Corp*, 672 F 3d 1250, 1260 (Fed Cir 2012).

37 *MySpace, Inc*, above, note 36, 1259–61.

38 *Mayo Collaborative Servs v Prometheus Labs, Inc*, 132 S Ct 1289, 1305 (2012).

39 *Ibid*, 1293.

40 *Diamond v Chakrabarty*, 447 US 303, 309 (1980). See *Mayo*, above, note 38, 1293.

judicial exceptions of patent-eligible subject matter to the same three ‘fundamental principles’ set forth in its prior precedent: (1) laws of nature; (2) natural phenomena; and (3) abstract ideas.<sup>41</sup>

*Mayo* continues to reject shortcut analyses on patent-eligibility, and specifically rejected the machine-or-transformation test as a dispositive test of patent-eligibility.<sup>42</sup>

As to the second step, which was the primary focus of the *Mayo* court’s analysis, the US Supreme Court again confirmed that, while a claim may not pre-empt a ‘fundamental principle’, it may nonetheless be drawn to an ‘application’ of a fundamental principle.<sup>43</sup> But the difficulty, as the Federal Circuit and the US Supreme Court have repeatedly recognized, is to understand what ‘more’ is necessary ‘to transform an unpatentable [fundamental principle] into a patent-eligible application of such [a fundamental principle]’.<sup>44</sup> *Mayo* recognized that the same guideposts set forth for determining if a claim is directed to an abstract principle, apply with equal force to other categories of ‘fundamental principles’, like ‘laws of nature’ and ‘natural phenomena’.<sup>45</sup>

Accordingly, consistent with its prior precedent, *Mayo* found that certain types of ‘more’ were not enough to transform a patent-ineligible fundamental principle into a patent-eligible application of that principle:

- Simply saying ‘apply it’, without more, is insufficient;<sup>46</sup>
- While still a ‘useful clue’, a fundamental principle merely tied to a machine or transformed in some manner is not necessarily dispositive;<sup>47</sup> and
- The mere inclusion of field-of-use limitations or the addition of token extra-solutional components is inadequate.<sup>48</sup>

Applying these guideposts, *Mayo* found the claims at issue to be patent-ineligible because they covered a fundamental principle (ie a law of nature), and did not add enough ‘more’ to be a practical application of that law of nature.<sup>49</sup>

After *Mayo*, the US Supreme Court granted certiorari, vacated and remanded two of the Federal Circuit’s recent decisions on patent-eligibility.<sup>50</sup> As a result, the US Supreme Court seemed to send two messages to the Federal Circuit. First, the principles that the US Supreme Court has announced with respect to patent-

eligibility of ‘abstract ideas’ are equally applicable to ‘natural phenomena’ and ‘laws of nature’, and vice versa. In this regard, *Bilski*, *Diehr*, *Flook* and *Benson* as well as *Ultramercial* each addressed claims involving ‘abstract ideas’; *Mayo* addressed claims involving ‘laws of nature’; and *Myriad* addressed claims involving ‘natural phenomena’. *Mayo* applied a *Bilski*, *Diehr*, *Flook* and *Benson* line of reasoning, and *Ultramercial* and *Myriad* told the Federal Circuit to apply *Mayo*. Secondly, the US Supreme Court has made it clear that it is paying close attention to the Federal Circuit’s decisions in this area.

### Patent-eligibility standard after *Bilski* and *Mayo*

After the US Supreme Court’s latest pronouncement, the following general principles have been reinforced in analysing the patent-eligibility of US patent claims under 35 USC §101.

Analysis under §101, begins with the statutory language of 35 USC §101, which clearly defines patent-eligible subject matter:

Whoever invents and discovers any new or useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.<sup>51</sup>

Under long-standing US Supreme Court precedent, as recently reaffirmed in *Bilski* and *Mayo*, patent-eligibility is a threshold question that continues to turn on a two-part inquiry:

- does the claimed subject matter fall within one of the four statutory categories of patent-eligible subject matter: (i) process, (ii) machine, (iii) manufacture or (iv) composition of matter (or any improvement thereof); and
- does the claimed subject matter pre-empt one of three so-called ‘fundamental principles’, ie laws of nature, natural phenomena or abstract ideas?<sup>52</sup>

The US Supreme Court commonly provides as an example of a ‘law of nature’ Einstein’s celebrated law that  $E = mc^2$  or Newton’s law of gravity. Similarly, the common examples used of ‘natural phenomena’ include

41 *Mayo*, above, note 38, 1293.

42 *Ibid*, 1303.

43 *Ibid*, 1293–94.

44 *Ibid* (emphasis in original).

45 *Ibid*, 1293–94.

46 *Ibid*, 1294.

47 *Ibid*, 1296.

48 *Ibid*, 1301.

49 *Ibid*, 1294.

50 *Assn for Molecular Pathology v Myriad Genetics*, 132 S Ct 1794 (2012); *WildTangent*, above, note 33, 1059.

51 35 USC §101.

52 See *Mayo*, above, note 38, 1293; *In re Bilski*, above, note 15, 130 S Ct at 3225; *Diehr*, above, note 24, 185, citing *Flook*, above, note 26, 589; *Benson*, above, note 25, 67; *Research Corp*, above, note 33, 868.

‘a new mineral discovered in the earth or a new plant found in the wild’. In *Bilski* the US Supreme Court held that the broad concept of ‘hedging risk’ was an abstract idea. These so-called ‘fundamental principles’<sup>53</sup> are ‘manifestations of . . . nature, free to all men and reserved exclusively to none’.<sup>54</sup>

A claim that merely pre-empts one of these ‘fundamental principles’, even if in the form of a process, machine, manufacture or composition of matter, is not patent-eligible. Thus, in *Benson*, *Flook* and *Bilski*, the claims were found to pre-empt abstract ideas. *Benson* found the claim sought to pre-empt the abstract idea of using an algorithm to convert binary-coded decimal (BCD) numerals to pure binary numerals.<sup>55</sup> *Flook* found the claim sought to pre-empt the abstract idea of using an algorithm to calculate an updated alarm-limit value.<sup>56</sup> *Bilski* found the claim sought to pre-empt the abstract idea of hedging risk.<sup>57</sup> Most recently, in *Mayo*, the US Supreme Court found the claim sought to pre-empt the law of nature relating to a specific correlation used to diagnose and/or treat a disease.<sup>58</sup>

The fact that a claim may contain an algorithm, or reference to a law of nature or natural phenomena, does not preclude the claim from patent-eligibility.<sup>59</sup> As *Mayo* reaffirmed: ‘For all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.’<sup>60</sup> Thus the US Supreme Court has drawn a distinction between a patent claim which claims (or pre-empts) a fundamental principle in the abstract, which is not patent-eligible, and a patent claim directed to a practical application of a fundamental principle, which is patent-eligible.<sup>61</sup>

In drawing this distinction, the US Supreme Court has noted that the difficulty in determining patent-eligibility is discerning what ‘more’ is sufficient to establish that the patent is drawn to a practical application of

the fundamental principle rather than pre-empting the principle itself.<sup>62</sup> Simply saying ‘apply it’, without more, is insufficient.<sup>63</sup> Restricting an abstract idea to one particular field of use is also not enough to make a claim patent-eligible.<sup>64</sup> Likewise, the mere inclusion of token or ‘[p]urely “conventional or obvious”’ extra-solution activity is inadequate.<sup>65</sup> And, while still a ‘useful clue’, a fundamental principle merely tied (albeit meaningfully) to a machine or transformed in some manner is not necessarily dispositive.<sup>66</sup>

In *Bilski* and *Mayo* the US Supreme Court used an approach in which the claim being analysed is compared against previously analysed claims to see if the claim is more like the patent-ineligible claims found in, for example, *Benson*, *Flook* and *Bilski*, or the patent-eligible claim found in *Diehr*.<sup>67</sup> A similar approach has been used by district courts since *Bilski*.<sup>68</sup>

## The debate remains open

There will no doubt continue to be turbulence in the patent-eligibility waters for years to come. It appears, at least for now, that any effort to create a bright-line rule on patent-eligibility will ultimately be rejected by the US Supreme Court, which continues to keep its watchful eye on this issue. Whether vague, subjective value guidelines on patent-eligibility (or other inquiries of patentability) truly advance the US Constitutional goals of ‘promoting progress of the Arts’ is open for debate. But, at least as of today, the debate remains open, and the potential (and risk) associated with patenting Information Age technology and twenty-first century life science advancements remains large and widespread, as does the risk of not seeking patents in such areas.

53 *In re Bilski*, above, note 15, 545 F 3d at 952.

54 *Mayo*, above, note 38, 1293; *In re Bilski*, above, note 15, 130 S Ct at 3225; *Diehr*, above, note 24, 185; *Chakrabarty*, above, note 40, 309; *Funk Bros Seed Co v Kalo Inoculant Co*, 333 US 127, 130 (1948).

55 *Benson*, above, note 25, 72.

56 *Flook*, above, note 26, 594–96.

57 *In re Bilski*, above, note 15, 130 S Ct at 3231.

58 *Mayo*, above, note 38, 1294.

59 *Diehr*, above, note 24, 187 (‘a process is not unpatentable simply because it contains a law of nature or a mathematical algorithm’, quoting *Flook*, above, note 26, 590); *Mayo*, above, note 38, 1293 (quoting *Diehr*).

60 *Mayo*, above, note 38, 1293.

61 Eg *Mayo*, above, note 38, 1293–94: ‘an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection’, quoting *Diehr*, above, note 24, 187; *Bilski*, above, note 15, 130 S Ct at 3230 (quoting *Diehr*, above, note 24, 187); *Le Roy v Tatham*, 63 US 132, 137 (1860): ‘There can be no patent for a principle; but for a principle so far embodied and connected with corporeal substances as to be in a condition to act and to produce effects

in any trade, mystery, or manual occupation, there may be a patent.’ (citation omitted).

62 *Mayo*, above, note 38, 1294.

63 *Ibid* (citing *Benson*, above, note 25, 71–2).

64 *Mayo*, above, note 38, 1301; *Bilski*, above, note 15, 130 S Ct at 3231 (referencing *Flook*).

65 *Mayo*, above, note 38, 1298 (quoting *Flook*, above, note 26, 590); *Bilski*, above, note 15, 130 S Ct at 3230 (citing *Diehr*, above, note 24, 191–92).

66 *Mayo*, above, note 38, 1296.

67 *Bilski*, above, note 15, 130 S Ct at 3231; *Mayo*, above, note 38, 1299–1301.

68 See eg *Island Intellectual Prop LLC v Deutsche Bank AG*, No 09 Civ 2675 (KBF), 2012 US Dist LEXIS 16413, at \*24–29 (SDNY 6 February 2012) (comparing the claims at issue to the claims in *Ultramercial*, *Cybersource* and *Dealertrack*); *SmartGene, Inc v Advanced Biological Labs, SA*, No 08 Civ 00642 (BAH), 2012 US Dist LEXIS 44138, at \*59–63 (DDC 30 March 2012) (comparing the claims to those in *Cybersource* and *Dealertrack*); *Chamberlain Grp, Inc v Lear Corp*, 756 F Supp 2d 938, 969 (ND Ill 2010) (distinguishing the claims at issue from claims preempting an algorithm as in *Benson* and *Flook*).