

**Before the
United States Patent and Trademark Office
Alexandria, VA 22313**

In re:)	
)	Docket No. PTO-P-2016-0041
Request for Comments on USPTO)	
Subject Matter Eligibility Guidelines)	
)	

COMMENTS OF GOOGLE INC.

January 18, 2017

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INTRODUCTION

Google submits these comments in response to the PTO’s invitation to comment on the office’s subject-matter-eligibility guidelines. We have submitted several rounds of comments on the PTO’s guidelines in the past.¹ We are also responding concurrently to the PTO’s request for comments on the general legal contours of patent subject-matter eligibility, included in the Appendix. We thank the PTO for its continuing efforts to clarify the law in this area and for its invitation of further comment on the guidelines.

As we explain in more detail in our concurrently submitted comments, the developing body of patent-eligibility caselaw represents a sensible approach to weeding out patents that do not claim a meaningful technological advancement, but simply call for the implementation of an abstract idea or business method using known, conventional technology. Courts are converging on a set of well-defined principles for identifying such problematic patents. Those principles limit patent-eligibility to claims that contain “a specific, unconventional *technological* solution . . . to a *technological* problem.” *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1306 (Fed. Cir. 2016) (emphasis added). In other words, the claims must focus on “a specific means or method that improves the relevant technology,” as opposed to “a result or effect” accomplished using “generic processes and machinery.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016); *accord Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016). “[A] claim that merely describes an ‘effect or result dissociated from’ any technical method by which it is accomplished ‘is not directed to patent-eligible subject matter.’” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1244

¹ See Comments of Google Inc. and Twitter, Inc. (July 31, 2014) (“Google 7/31/14 Comments”); Comments of Google Inc. (Mar. 16, 2015) (“Google 3/16/15 Comments”); Comments of Google Inc. (Oct. 28, 2015) (“Google 10/28/15 Comments”).

(Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1348 (Fed. Cir. 2015)); see also *Alice Corp. Pty. Ltd. v. CLS Bank International*, 134 S. Ct. 2347, 2358–59 (2014).

Courts' increasing focus on the technological-problem/solution test is a much-needed course correction. Before the Supreme Court's decision in *Alice*, too many patents were being issued that claimed only abstract concepts or functions performed on a computer or on the Internet. Such patents often claimed a desired result but provided no limiting disclosure of how to achieve that result using advances in computer technology. Applicants were thus obtaining patents based on no meaningful technical contribution, which they could then use to tax real innovators who did the hard work of finding the technical solutions necessary to create a valuable product. Litigation based on those spurious patents targeted software companies of all sizes, diverting their resources away from developing innovative new products. The technological-problem/solution test helps to eliminate those bad patents. It thus promotes innovation in the software industry by rewarding concrete advancements in computer technology, not vague statements of desired results with little information on how those results are achieved.

We encourage the PTO to adjust its patent-eligibility guidelines to better reflect the technological-problem/solution test and other developments in the caselaw. To date the PTO has resisted training its examiners to understand and apply general principles of patent-eligibility. Instead, it has mainly provided them with a growing list of examples of patent claims that courts have held eligible or ineligible for patenting. It has encouraged them to evaluate patent applications by comparing them to those examples, at times even suggesting that an examiner cannot reject a claim without analogizing it to a specific claim previously held invalid by a court.

That analogy-driven approach has led to inconsistency in how applications are evaluated under § 101. Now that patent-eligibility law is gaining maturity, the PTO can do better. It is now possible to go beyond just drawing comparisons to isolated cases and to instruct examiners on the key principles that have guided patent-eligibility determinations across many cases: most importantly, the rule that in order to be patent-eligible, a claim must disclose a specific, unconventional, *technological* solution to a *technological* problem. Providing such principled, thematic, cross-cutting guidance, and lessening examiners' need to sort through an ever-growing haystack of individual examples, will promote consistency in patent-eligibility determinations, which in turn will reduce the need for costly litigation. The PTO should also revise its collection of exemplary fact patterns, many of which have been undermined by more recent court decisions.

I. The PTO should instruct examiners on the requirement that claims contain a technological solution to a technological problem, rather than having them apply § 101 exclusively by analogizing to past cases.

The PTO's approach to training examiners to evaluate patent-eligibility has focused on giving them examples of eligible and ineligible claims. Originally many of the examples were devised by the PTO, but the PTO has increasingly emphasized teaching examiners about actual cases. *See, e.g.*, Memo from R. Bahr, Deputy Comm'r, to Patent Examining Corps re: Formulating a Subject Matter Eligibility Rejection and Evaluating the Applicant's Response to a Subject Matter Eligibility Rejection at 5–6 (May 4, 2016) (“5/4/16 Memo”); *see also* Subject Matter Eligibility Court Decisions (Formerly Appendix 3) (updated July 14, 2016) (listing 55 precedential court decisions addressing patent-eligibility). Recently the PTO instructed examiners that to sustain a rejection based on subject-matter eligibility of a patent drawn to an abstract idea, they must “point to a case in which a similar abstract idea was identified and explain why the abstract idea recited in the claim corresponds to the abstract idea identified in

the case.” 5/4/16 Memo at 6. It cautioned examiners to “ensure that the rejection is reasonably tied to the facts of the [cited] case” and not to “go beyond those concepts that are similar to what the courts have identified as abstract ideas.” *Id.* at 2–3.

The PTO’s insistence that examiners hew closely to the facts of individual patent-eligibility cases does not do justice to the increasing clarity and consistency of the caselaw in this area. To be sure, examiners should be familiar with important judicial decisions that have elucidated the standards for patent-eligibility. But as the number of precedential decisions applying § 101 continues to grow, the PTO’s approach has become impractical and does not promote consistency in examination.

Moreover, examiners rigidly following the PTO’s approach will inevitably be behind the curve, because not every abstract idea will have a ready analog in prior judicial decisions. Consider the claim the Federal Circuit addressed in *Internet Patents*. The claim was directed to the idea of “retaining information in the navigation of online forms.” An examiner confronting that claim for the first time, and evaluating it using the PTO’s current guidance, might have struggled to “point to a case in which a similar abstract idea was identified” and explain why the idea of retaining information in the navigation of online forms “correspond[ed] to the abstract idea identified in the case.” 5/4/16 Memo at 6. Under that approach, different examiners might well have come to different conclusions about whether the claims bore a close enough resemblance to specific claims held eligible or ineligible in prior cases.

The Federal Circuit, by contrast, had no difficulty concluding unanimously that the claim was not directed to patent-eligible subject matter because it contained only a general description of the desired “result or effect,” and not a specific technical means of achieving that result. 790 F.3d at 1348. Other abstract ideas identified in recent Federal Circuit decisions might also have

lacked a clear analog in prior case law, but they were no less abstract for it. *See, e.g., Ameranth*, 842 F.2d at 1240 (“generating menus on a computer”); *Affinity Labs of Tex. v. Amazon.com Inc.*, 838 F.3d 1266, 1269 (Fed. Cir. 2016) (“*Affinity IP*”) (“delivering user-selected media content to portable devices”); *BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348 (Fed. Cir. 2016) (“filtering content on the Internet”); *Tranxition, Inc. v. Lenovo (U.S.) Inc.*, No. 15-1907, 2016 WL 6775967, at *3 (Fed. Cir. Nov. 16, 2016) (non-precedential) (“‘migration’ of computer settings . . . from one computer to another”).

The common thread is that each of those ideas describes an “effect or result dissociated from any [technical] method by which [it] is accomplished.” *Ameranth*, 842 F.3d at 1244 (quoting *Internet Patents*, 790 F.3d at 1348). Many of the patents directed to those ideas were held ineligible under § 101 because they lacked a “specific, unconventional technological solution . . . to a technological problem.” *Amdocs*, 841 F.3d at 1306. Instead, they were “directed to certain functionality” and “merely claim[ed] the resulting systems.” *Ameranth*, 842 F.3d at 1241; *see Affinity II*, 838 F.3d at 1271–72 (rejecting claims that spoke in “largely functional terms” and described key features “generically rather than with the specificity necessary to show how those components provide a concrete solution”).

The claim in *BASCOM* provides a useful contrast. Although it was directed to the abstract idea of filtering Internet content, the Federal Circuit found that it did not claim all means of accomplishing that broad goal. Instead the court upheld the claim that it described as providing a “specific technical solution” to problems with prior-art filtering systems. 827 F.3d at 1351–52; *see Symantec*, 838 F.3d at 1321 (explaining that the claim in *BASCOM* “did not merely move existing content filtering technology from local computers to the Internet” but overcame technical problems associated with making that move).

Training examiners to look for a technological solution to a technological problem, and to reject claims that describe a desired result or effect at a high level of generality, will increase the consistency and predictability of examination outcomes. That, in turn, will reduce the need for costly litigation. And it will provide greater protection both to holders of valid patents on specific technological advancements and to innovators who seek to invent new technical solutions to old problems.

Courts have applied those basic principles—distinguishing between eligible claims that recite a specific technological improvement in computer technology, and ineligible claims that describe a desired result but are not limited to particular technical means of achieving that result—across many cases and at both steps of the *Mayo/Alice* framework. See, e.g., *Affinity Labs of Tex. v. DIRECTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) (“*Affinity I*”) (claims are directed to an abstract idea at step one if they describe a “broad and familiar concept . . . untethered to any specific or concrete way of implementing it”); *Internet Patents*, 790 F.3d at 1348 (claim directed to abstract idea of “retaining information in online forms” lacked an inventive concept at step two because it “contain[ed] no restriction on how th[at] result [was] accomplished”).

Instructing examiners to look for a technological contribution will make examinations more efficient because, if one is present, there is no need to define the idea to which the patent is directed. Because the question of whether the claims recite a technical solution to a technical problem is relevant at both steps, focusing on that question will often eliminate the need to agonize over the precise definition of the abstract idea and provide a more straightforward route to determining a claim’s patent-eligibility.²

² As Google has suggested before, application of the technological-problem/solution test

II. The PTO should review its patent-eligibility examples and bring them into line with recent caselaw.

In addition to refocusing its guidance away from case-by-case comparisons and toward the general principles described above, the PTO should complete a thorough review of the illustrative fact patterns it has provided to examiners. Many of the PTO's examples have been seriously undermined by more recent court decisions. Consider the document "Examples: Abstract Ideas," which the PTO issued on January 27, 2015. The document contains four fact patterns with claims that, according to the PTO, are patent-eligible. Those fact patterns continue to be referenced as Examples 1–4 on the PTO's most recent Index of Eligibility Examples, published on May 4, 2016. Yet many of the examples contain reasoning that is squarely contrary to recent decisions of the Federal Circuit.

Example 1 states that claims relating to a system for isolating and removing computer viruses are not directed to an abstract idea because "isolation and eradication of computer viruses" is "a concept inextricably tied to computer technology and distinct from the types of concepts found by the courts to be abstract." The Federal Circuit, however, has now squarely held that "virus screening" is "a long prevalent practice in the field of computers" that "constitutes an abstract idea." *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1319 (Fed. Cir. 2016). What is more, several other decisions now confirm that an idea can be abstract even if it is "inextricably tied to computer technology." *See, e.g., Ameranth*, 842 F.3d at 1240 ("generating menus on a computer"); *TLI Commc'ns*, 823 F.3d at 611 ("classifying and

can be informed by the definition of "technological invention" in regulations governing the covered business method ("CBM") review program of the America Invents Act. *See* America Invents Act § 18(d)(1), Pub. L. No. 112-29, 125 Stat. 284, 331 (2011) (excluding patents covering a "technological invention" from review). The PTO's CBM regulations define a "technological invention" as one that "solves a technical problem using a technical solution," a definition that is also helpful in the § 101 context. 37 C.F.R. § 42.301(b); *see* Google 7/31/14 Comments at 11.

storing digital images in an organized manner”); *Internet Patents*, 790 F.3d at 1348 (“retaining information in the navigation of online forms”); *Tranxition*, 2016 WL 6775967, at *3 (“‘migration’ of computer settings . . . from one computer to another”).

Similarly, Example 2 states that claims related to a system for creating hybrid web pages (based on the claims upheld in *DDR Holdings*) are not directed to an abstract idea because they are “necessarily rooted in computer technology.” Google has previously pointed out that *DDR Holdings* did *not* conclude that the claims there were not directed to an abstract idea. *See* Google 3/16/15 Comments at 5; *see also* *BASCOM*, 827 F.3d at 1348, 1351 (confirming that the claims in *DDR Holdings* were eligible at step two because they contained a “specific technical solution” to a computer-related problem). And the cases cited above make clear that an idea is not non-abstract just because it is “rooted in computer technology.”³

Example 3 is problematic in a different way. It states that a claim related to a system for processing a grayscale image using a “blue noise mask” is patent-eligible at step two of the *Alice/Mayo* framework. In earlier comments Google disputed that conclusion, arguing that “[i]f the blue noise mask is the inventive concept that renders the application eligible for patent protection, then its inventive characteristics or the specific process by which it is created should be included in the claim limitations.” Google 3/16/15 Comments at 10–11. Subsequent decisions of the Federal Circuit have echoed Google’s analysis. *See, e.g., Internet Patents*, 790 F.3d at 1348 (finding claim ineligible because “[t]he mechanism for maintaining the state is not described [in the claim], although this is stated to be the essential innovation”).

³ A similar error appears in Example 23 in the PTO’s July 2015 Update on Subject Matter Eligibility, which describes a system for relocating obscured textual information in a graphical user interface. The PTO stated that the claims were not directed to an abstract idea because they were “rooted in computer technology.” *See* Google 10/28/15 Comments at 6–7 (explaining that that conclusion is contrary to precedent).

It appears the PTO intends to continue using these examples to provide guidance to examiners. *See* 5/4/16 Memo at 5 (noting that “it would be acceptable for applicants to cite an example in support of an argument for finding eligibility”). If so, then it should review and amend the examples to conform them to the caselaw.

APPENDIX

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INTRODUCTION

Google submits these comments in response to the PTO's invitation to comment generally on the legal contours of patent subject-matter eligibility. Our comments focus primarily on the category of patents drawn to abstract ideas, which pose particular challenges for the software and Internet industries. At the same time, we are submitting more specific comments on the PTO's patent-eligibility guidance, and we have submitted several rounds of such comments in the past.⁴ We thank the PTO for its continuing efforts to clarify the law in this area.

Contrary to what some have claimed, the Supreme Court's decision in *Alice Corp. Pty. Ltd. v. CLS Bank International*, 134 S. Ct. 2347 (2014), did not sound the death knell for all software patents; nor was it a blow to innovation in the software industry. Google still invests heavily in software research and development, and we have continued to build a patent portfolio to protect our engineers' many groundbreaking software inventions. In our experience, *Alice* has not affected truly innovative software patents that represent meaningful advances in computer technology. Decisions by courts and the Patent Office rejecting claims under § 101 have instead focused on patents that claim abstract business methods or generic functions implemented using conventional computer techniques.

Alice represented a vital course correction. Before that decision, too many patents were being issued that claimed only abstract concepts or functions performed on a computer or on the Internet. Such patents often claimed a desired result but provided no limiting disclosure of how to achieve that result using advances in computer technology. Applicants were thus obtaining patents based on no meaningful technical contribution, which they could then use to tax real

⁴ See Comments of Google Inc. and Twitter, Inc. (July 31, 2014); Comments of Google Inc. (Mar. 16, 2015); Comments of Google Inc. (Oct. 28, 2015).

innovators who did the hard work of finding the technical solutions necessary to create a valuable product. Litigation based on those spurious patents targeted software companies of all sizes, diverting their resources away from developing innovative new products. It was important for the Supreme Court to clarify that those “abstract and sweeping” patents, *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 68 (1972)), which foreclose far more innovation than they contribute, were contrary to the basic goals of the patent system as reflected in § 101.

To be sure, *Alice* created initial uncertainty by setting forth a general test for what is not patent-eligible subject matter and leaving lower courts to work out the details of that test by applying it in individual cases. Decisions applying the test have not always been consistent, nor has Google agreed with the outcome in every case. Taken as a whole, however, the body of caselaw that has developed in the two-and-a-half years since *Alice* represents a sensible approach to weeding out vague, low-quality patents—those that do not claim any technological advancement, but simply call for the implementation of an abstract concept or function using conventional technology.

Courts are converging on a set of well-defined principles for identifying those problematic patents. Those principles limit patent-eligibility to claims that contain an unconventional *technological solution* to a *technological problem*. On the other hand, they exclude claims that simply describe a desired result or effect dissociated from any specific, technical means by which it is accomplished. Those are the right questions to ask when evaluating patent-eligibility. The technological-problem/solution test promotes innovation in the software industry by rewarding concrete advancements in computer technology, not vague statements of desired results with little information on how those results are achieved.

We hope and expect that courts will continue to focus on whether claims recite a technological solution to a technological problem. We encourage the PTO to train examiners to apply that test, as we explain in more detail in our concurrently submitted comments on the PTO’s subject-matter-eligibility guidelines. In light of courts’ increasing convergence on the technological-problem/solution test, and the clear prospects of that test to improve predictability and promote the purposes of the patent system, we see no need for action by Congress at this time to address the patent-eligibility of software claims—action that would only risk creating uncertainty and disruption.

I. The caselaw has converged on a rule that to be patent-eligible, a claim must recite a technological solution to a technological problem.

The Supreme Court applied the technological-problem/solution test in *Alice*. The Court explained that the claims at issue there were not patent-eligible because they did not “solve a technological problem” or “improve[] an existing technological process.” 134 S. Ct. at 2358. The claims recited implementing the abstract idea of intermediated settlement on a generic computer, but they did not “improve the functioning of the computer itself” by setting forth a “specific or limiting recitation of . . . improved computer technology,” nor did they “effect an improvement in any other technology or technical field.” *Id.* at 2359 (internal quotation marks omitted).

Following *Alice*, decisions of the Federal Circuit have confirmed that patent-eligible claims are those that recite “a specific, unconventional technological solution . . . to a technological problem.” *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1306 (Fed. Cir. 2016). In other words, the claims must focus on “a specific means or method that improves the relevant technology,” as opposed to “a result or effect” accomplished using “generic processes and machinery.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d

1299, 1314 (Fed. Cir. 2016); *accord Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016). “[A] claim that merely describes an ‘effect or result dissociated from any method by which [it] is accomplished’ is not directed to patent-eligible subject matter.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1244 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1348 (Fed. Cir. 2015)).

Courts have applied those basic principles—distinguishing between eligible claims that recite a specific technological improvement in computer technology, and ineligible claims that describe a desired result but are not limited to particular technical means of achieving that result—across many cases and at both steps of the *Mayo/Alice* framework.

At step one, courts have considered claims to be directed to an abstract idea if they describe a “broad and familiar concept . . . untethered to any specific or concrete way of implementing it.” *Affinity Labs of Tex. v. DIRECTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) (“*Affinity I*”). The Federal Circuit thus held that a claim describing “the function of wirelessly communicating regional broadcast content to an out-of-region recipient, not a particular way of performing that function,” was directed to an abstract idea. *Id.* The Court likewise held that “generating menus on a computer” was an abstract idea because it described “certain functionality” but not a “particular way of programming or designing the software” to perform the desired function. *Ameranth*, 842 F.3d at 1240–41. And it held that the “concept of delivering user-selected media content to portable devices” was an abstract idea because it did “no more than describe a desired function or outcome, without providing any limiting detail.” *Affinity Labs of Tex. v. Amazon.com Inc.*, 838 F.3d 1266, 1269 (Fed. Cir. 2016) (“*Affinity II*”).

Conversely, the Federal Circuit held that a claim that covered the use of a “self-referential” table in a computer database—a specific way of storing data that the patent taught

would provide faster search times and smaller memory requirements—was not directed to an abstract idea but to “an improvement of an existing technology” that represented “a specific improvement in the way computers operate.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336–37 (Fed. Cir. 2016). Likewise, a specific technological process for automatically animating characters was not an abstract idea but a “technological improvement over the existing, manual 3-D animation techniques” that “achieve[d] an improved technological result in conventional industry practice.” *McRO*, 837 F.3d at 1316.

At step two, courts have held that the “inventive concept” that causes a patent to claim significantly more than just an abstract idea cannot be a broad goal, function, or purpose; it must be a specific technological means of accomplishing that goal. For example, the Federal Circuit held that a claim directed to the abstract idea of “retaining information in the navigation of online forms” lacked an inventive concept because it “contain[ed] no restriction on how th[at] result [was] accomplished.” *Internet Patents*, 790 F.3d at 1348. Similarly, the Court rejected a claim that was directed to the abstract idea of screening for computer viruses but did not “describ[e] a particular method of incorporating virus screening into the Internet.” *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1321 (Fed. Cir. 2016). And it struck down claims that were directed to “the abstract idea of classifying and storing digital images in an organized manner” because they provided only “vague, functional descriptions” of the structures and processes for achieving that result. *In re TLI Communications LLC Patent Litigation*, 823 F.3d 607, 615 (Fed. Cir. 2016).

Many other decisions are similar. *See, e.g., Ameranth*, 842 F.3d at 1244 (no inventive concept in limitations that “call[ed] for the desired result” but did not “claim any method for achieving that result”); *Affinity II*, 838 F.3d at 1271–72 (no inventive concept where claims were

“written in largely functional terms” and “features set forth in the claims [were] described and claimed generically rather than with the specificity necessary to show how those components provide a concrete solution”); *Digitech*, 758 F.3d at 1351 (rejecting claim for method of creating device profile in digital-image-processing system that was directed to an abstract “process of organizing information” and was “not tied to a specific structure or machine”); *Loyalty Conversion Sys. Corp. v. Am. Airlines, Inc.*, 66 F. Supp. 3d 829, 838 (E.D. Tex. 2014) (Bryson, J.) (no inventive concept in “purely functional limitation” that failed to “provide[] any detail as to how that function is performed”).

On the other hand, the court has found step two satisfied where a claim was directed to an abstract idea but nonetheless disclosed “a specific, unconventional technological solution . . . to a technological problem.” *Amdocs*, 841 F.3d at 1306. A “distributed system architecture” that reduced network congestion by having usage data processed locally instead of at a central location was sufficient to meet that standard according to the Federal Circuit. *Id.* So was the installation of a content-filtering tool “at a specific location, remote from the end-users, with customizable filtering features specific to each end user,” which was a “technology-based solution” and a “technical improvement” over prior-art ways of filtering content. *BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348–51 (Fed. Cir. 2016). A claim that solved the problem of websites’ losing visitors who clicked on a link “in a particular, technical way by sending the viewer to a hybrid webpage,” with visual elements of the first site and content from the destination site, was also eligible at step two. *Id.* at 1351 (describing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014)) (emphasis added).

The Federal Circuit has acknowledged that it is often hard to tell at which step particular claim limitations should be analyzed. The idea to which a claim is directed can be described at

many “different levels of abstraction.” *Ameranth*, 842 F.3d at 1240. So courts “sometimes incorporate[] claim limitations into [the] articulation of the idea to which a claim is directed” at step one, while at other times they “defer . . . consideration of the specific claim limitations’ narrowing effect for step two.” *BASCOM*, 827 F.3d at 1349; *see Enfish*, 822 F.3d at 1339 (finding claims patent-eligible at step one but noting that in other cases, “analysis of whether there are arguably concrete improvements in the recited computer technology could take place under step two”); *Amdocs*, 841 F.3d at 1300 (bypassing step one and finding claims patent-eligible at step two); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d at 1257 (same).

As the Federal Circuit, district courts, and the Patent Trial and Appeal Board issue more decisions applying the technological-problem/solution test, the line between eligible and ineligible software claims will continue to become clearer and more predictable. And as the PTO provides more consistent guidance to examiners, there should be fewer patents issuing that test the boundaries of § 101. That is the nature of the common-law process on which our legal system is built. *See Al-Bihani v. Obama*, 590 F.3d 866, 881 (Brown, J. concurring) (“The common law process depends on incrementalism and eventual correction, and it is most effective where there are a significant number of cases brought before a large set of courts, which in turn enjoy the luxury of time to work the doctrine supple.”).

II. The technological-problem/solution test promotes the purposes of the patent system by rewarding past innovation while not foreclosing a disproportionate amount of future innovation.

It makes sense that the search for a specific, unconventional, *technological* solution is the touchstone of the patent-eligibility inquiry. After all, the purpose of the patent system is to promote “the useful [a]rts.” U.S. CONST. art. 1, § 8, cl. 8. And as four Justices of the Supreme Court have explained (without contradiction by their colleagues on this point), “useful arts” has traditionally been understood as denoting “the fields that we would now describe as related to

technology or ‘technological arts.’” *Bilski v. Kappos*, 561 U.S. 593, 632–33 (2010) (Stevens, J., concurring in the judgment); *see also Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1255 n.17 (11th Cir. 2014) (in eighteenth-century usage, “‘the useful arts’ meant ‘technology and kindred knowhow’” (quoting David L. Lange & Jefferson Powell, *No Law: Intellectual Property in the Image of an Absolute First Amendment* 36 (2009))); *In re Musgrave*, 431 F.2d 882, 893 (C.C.P.A. 1970) (a process must be “in the technological arts so as to be in consonance with the Constitutional purpose to promote the progress of ‘useful arts’”); Edward C. Walterscheid, *To Promote the Progress of Science and Useful Arts: The Background and Origin of the Intellectual Property Clause of the United States Constitution*, 2 J. INTELL. PROP. L. 1, 52–53 (1994) (Framers substituted “useful arts” for “manufactures” with no change in meaning).

Because the patent system is aimed at promoting the “useful arts,” technological inventions that produce new and useful results are especially likely to be patent-eligible. Such inventions are not rendered ineligible for patent protection merely because, like all inventions, they “can be reduced to underlying principles of nature which, once known, make their implementation obvious.” *Mayo Collaborative Servs. v. Prometheus Labs, Inc.*, 132 S. Ct. 1289, 1304 (2012). By contrast, patents that claim the generic implementation of abstract ideas or non-technological business methods without any technological advancement are inherently suspect. That is because “‘simply implementing [an abstract concept] on a physical machine, namely a computer, is not a patentable application of that principle.’” *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 132 S. Ct. at 1301) (emphasis added). Such claims are a far cry from the technology-focused “useful arts” that patents are supposed to promote.

Limiting patent-eligible subject matter to genuine technological advancements is especially important for computer-related inventions, which in turn are especially important in

our computer-age economy. The software and Internet industries have been beset in recent years by a proliferation of litigation involving patents with extremely broad claims. Judge Bryson has remarked on the increasing number of software- and Internet-related patents that, although “dressed up in the argot of invention, simply describe a problem, announce purely functional steps that purport to solve the problem, and recite standard computer operations to perform some of those steps.” *Loyalty Conversion*, 66 F. Supp. 3d at 845.

Such abstract and sweeping claims are antithetical to the fundamental bargain underlying the patent system. The patent laws must balance rewarding *past* innovation by protecting inventors’ rights in their specific technological solutions with promoting *future* innovation by protecting the public’s right to solve the same problems in better and more efficient ways. That is why those who disclose their inventions in a patent are entitled to exclusive rights commensurate with, but no broader than, their disclosures. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 142 (2001). The balance is disrupted when claims are deemed patent-eligible even though they “represent little more than functional descriptions of objectives, rather than inventive solutions” for achieving those objectives. *Loyalty Conversion*, 66 F. Supp. 3d at 845.

Claims that identify a problem and claim the abstract idea of overcoming it, not a specific way of achieving that goal, preempt particular solutions that the inventors themselves may never have contemplated. Because such claims do not limit themselves to a particular technological structure or procedure, they “claim everything and contribute nothing.” Mark A. Lemley *et al.*, *Life After Bilski*, 63 Stan. L. Rev. 1315, 1338 (2011). Such claims do little or nothing to advance computer technology or the useful arts. On the contrary, they stifle innovation “by improperly tying up the future use” of the claimed concepts and thereby blocking others from undertaking

the truly innovative task of developing and implementing specific applications. *Alice*, 134 S. Ct. at 2354. “[T]he underlying functional concern . . . is a *relative* one: how much future innovation is foreclosed relative to the contribution of the inventor”? *Mayo*, 132 S. Ct. at 1303. A patent that claims an abstract concept or function implemented on a computer, and does not disclose or limit itself to a specific technological means for implementing the concept or function, forecloses far more innovation than it contributes.

Google’s experience with drafting patent applications post-*Alice* confirms the utility of the technological-problem/solution test. We have found that when we draft applications and claims to clearly explain how the invention provides a technical solution to a technical problem, we draft higher-quality applications that meet with more success both at the U.S. PTO and in foreign patent offices. Applications that explain the invention’s technological contribution in detail provide more useful information to the public, and the scope of the resulting claims is clearer. And because Google, like many companies, is building a global patent portfolio, we see it as a positive development that many jurisdictions’ approaches to software-patent eligibility have coalesced around the question of whether the claim recites a technical contribution.

We hope that patent-eligibility caselaw, both at the Federal Circuit and before the Board, will continue to develop with a focus on whether the claims recite a technological solution to a technological problem. The further development of the case law with this focus would make legislation to amend Section 101 of the Patent Act both unnecessary to support innovation and unwise. In addition, we encourage the PTO to instruct examiners to apply the technical problem/technical solution standard to claims in applications, as we explain in more detail in our concurrently submitted comments on the PTO’s subject-matter-eligibility guidelines.