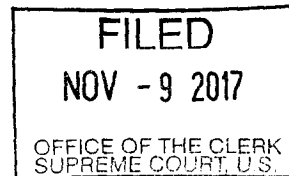


17-697  
No. -



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IN THE  
**Supreme Court of the United States**

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SMARTFLASH LLC AND  
SMARTFLASH TECHNOLOGIES LIMITED,  
*Petitioners,*

v.

APPLE INC.,  
*Respondent.*

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**On Petition for a Writ of Certiorari  
to the United States Court of Appeals  
for the Federal Circuit**

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**PETITION FOR A WRIT OF CERTIORARI**

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November 9, 2017

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### **QUESTION PRESENTED**

Whether patents that claim a specific arrangement of technological elements, claiming apparatuses and specific methods providing a technological solution to the problem of Internet data piracy, are patent eligible under 35 U.S.C. § 101 when they do not preempt alternative technological solutions.

## **PARTIES TO THE PROCEEDINGS**

Petitioners Smartflash LLC and Smartflash Technologies Limited were the plaintiffs and the appellees in the proceedings below.

Respondent Apple Inc. was the defendant and the appellant in the proceedings below.

## **CORPORATE DISCLOSURE STATEMENT**

Pursuant to this Court's Rule 29.6, petitioners Smartflash LLC and Smartflash Technologies Limited state the following:

Smartflash LLC is a wholly owned subsidiary of Smartflash Technologies Limited. The following entities own 10% or more of the shares of Smartflash Technologies Limited: Latitude Investments Limited, Celtic Trust Company Limited, and Eastbrook Business Inc.

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Smartflash LLC and Smartflash Technologies Limited respectfully petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit in this case.

### **OPINIONS BELOW**

The opinion of the court of appeals (App. 1a-15a)<sup>1</sup> is unpublished but reported at 680 F. App'x 977. The relevant orders and judgment of the district court (App. 16a-70a) are not reported.

### **JURISDICTION**

The court of appeals entered its judgment on March 1, 2017. On June 12, 2017, the court of appeals denied a petition for rehearing. App. 71a-72a. On September 6, 2017, Chief Justice Roberts extended the time for filing a petition for certiorari to and including November 9, 2017. App. 77a. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

### **STATUTORY PROVISIONS INVOLVED**

Relevant provisions of the Patent Act are reproduced at App. 73a-76a.

### **INTRODUCTION**

Petitioner Smartflash sued Apple in federal district court, defeated summary judgment motions – including a motion to hold that the patents failed to claim patent eligible subject matter under 35 U.S.C. § 101 – and proceeded to trial. As Smartflash proved, its patents cover devices that Apple uses to sell digital content – music, videos, games, and apps – through its online stores. There was no dispute at trial that designing and implementing a successful online store

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<sup>1</sup> References to “App. \_\_a” are to the appendix bound together with this petition; references to “A\_\_” are to the appendix filed in the Federal Circuit.

is a difficult technological problem. By employing Smartflash’s inventions, Apple’s technology succeeded where many others had failed, yielding unprecedented commercial success. Apple tried to show that other patents (or other prior systems) had anticipated Smartflash’s invention or that prior art rendered the specific arrangement of elements obvious. But the jury and the court rejected those arguments, and Apple did not dispute on appeal that the verdict of validity and infringement was supported by the evidence.

Instead, Apple’s principal argument on appeal was that Smartflash’s inventions were not eligible for patent protection but instead simply claimed an ineligible “abstract idea” without any “inventive concept” sufficient to transform “the claimed abstract idea into a patent-eligible application.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2357 (2014). On its face, that argument seems like it could hardly be in earnest: the parties had just spent months and a multi-day trial disputing whether the specific elements of the concrete system and devices claimed in the patents were (1) anticipated by other patents and commercial systems; (2) obvious in light of that “prior art”; (3) infringed by Apple’s iPhones and other devices. A patent that survives an invalidity challenge in a crowded field does not preempt alternative approaches; nor can such a novel and nonobvious invention coherently be characterized as merely “functional and generic.” *Id.* at 2360. Nevertheless, the Federal Circuit – in an opinion that it considered so routine it did not designate it as precedential – held that each of the claims was not patent eligible at all.

The Federal Circuit’s ruling conflicts with this Court’s precedents because a patent that claims a

novel and nonobvious arrangement of technological elements to solve a technological problem cannot be ineligible under § 101 – whether it is “directed to” an abstract idea or not. Such a patent is neither unduly preemptive nor implemented in a functional and generic way, and it therefore passes the test for eligibility established by *Alice* and by *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012). The Federal Circuit’s view that lack of undue preemption and evidence of concrete advantages over alternative technologies are both insufficient, if not irrelevant, to establish patent eligibility ignores this Court’s precedent.

Furthermore, the error in this case is not isolated: as commentators, patent practitioners, and Federal Circuit judges themselves have recognized, the application of *Alice* by the Federal Circuit has produced destructive uncertainty, as this case illustrates. Smartflash’s solution to a technological problem helped to turn Apple into an \$800 billion company. Smartflash’s innovation is precisely what the patent laws were designed to reward and to encourage. The Federal Circuit’s misapplication of a critical precedent of this Court is a matter that only this Court can correct. It should grant review here to do so.

### STATEMENT OF THE CASE

1. In the late 1990s, inventor Patrick Racz began to seek a solution to problems he recognized with distribution of digital content, especially music. A27384-86. Racz had friends in the recording business, and they were exquisitely aware that Internet-based technology was giving rise to unprecedented data piracy: “[D]igital distribution of copyrighted material threaten[ed] copyright holders as never before.” *Metro-Goldwyn-Mayer Studios Inc. v. Grokster*,

*Ltd.*, 545 U.S. 913, 928 (2005). Even as pirates were using file-sharing sites on the Internet to distribute music illegally, there was “[n]o good way for paying for content over the Internet at that time in a secure way.” A27387. In short, it was “easier to steal music than it was to pay for it.” A27386.

At trial, Racz described the “eureka moment” when he recognized that he could address these problems by combining digital content storage, payment functionality, and usage-control on a single device – something that had never been tried before. Early digital music players had “dumb memory” and no security. A27389. By contrast, Racz recognized that mobile phones had technology that could identify a phone to a service provider and that credit cards had chips that had “authentication data for payment functionality.” *Id.* Racz realized that if a single device combined the ability (1) to download and store content; (2) to download and store associated use rules governing access to the stored content (which can, among other things, protect against unauthorized copying); and (3) to allow user-authentication and payment – “everything in one place on one portable device you can carry with you” – then he “would have the solution for the music industry.” *Id.* See, e.g., A168 (’720 patent, 2:2-3);<sup>2</sup> A27399-400 (invention “gives honest people a simple and easy way to access content and remain honest”).

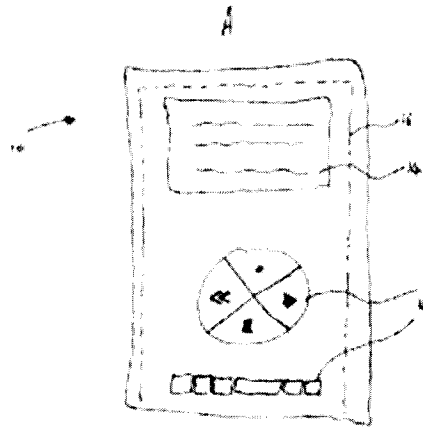
In 1999, Racz prepared a drawing of a media player that could be used with his invention for his Great Britain patent application:

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<sup>2</sup> References to “’720 patent” are to U.S. Patent No. 7,334,720 (reproduced at A149-82).



Figure 1



A25606; *see also* A151 ('720 patent, fig. 1A) (similar).

2. Racz founded two companies to develop his invention, Internet plc and Smartflash Ltd. By early 2000, his companies had 10-20 employees, including co-inventor Hermen Hulst, a former employee at Philips Semiconductors with expertise in encryption and electronic commerce. A27402. A patent application was filed in Great Britain on October 25, 1999 – the application to which the patents-in-suit claim priority. A25590-633 (PX198). Internet plc found “two main partners” in consumer electronics manufacturing – the U.S. electronic design engineering firm Tality and leading French manufacturing firm Gemplus. A27406. The project attracted attention from “all the senior management” of Gemplus, including the chairman, who offered to sit on the board of Racz’s company and to invest \$1 million. *Id.*; *see* A25589 (PX194).

To fund the development, Racz invested \$3 million, including funds earned from a previous venture; substantial additional funds were raised from investors. Using that money, Internet plc worked with Tality to

develop designs for a reader/player device that would use smart cards as the data carrier. A27408; A25574-87 (PX141.002). Internet plc also developed models of a phone version of a device. A27408. Internet plc shared Tality's presentation and the models with Gemplus. A27408-09. Racz later discovered that Gemplus – whose former director helped to design Apple's online stores, as explained below – repeatedly made presentations to third parties claiming the idea and designs for Racz's music player as Gemplus's own. A27412-13, A27417-18.

Smartflash made strides toward commercialization, including agreements with Disney and Paramount, and with Britney Spears – then the world's most popular recording artist – to promote Smartflash in connection with her European tour. A27414-15, A27419. But, starting in late 2001, Smartflash suffered several setbacks. First, after the September 11 attacks, the Britney Spears European tour was canceled. A27416. Second, and more significant, at a point when Smartflash was close to releasing several commercial products, Gemplus – after a management shake-up that led to the ouster of its chairman – cut off its relationship with Smartflash. A27420-22. Without its major technology partner, Smartflash lacked funds to continue operation and never had the chance to manufacture the integrated media player that Racz had invented. A27423-24.

3. Racz was ruined financially and personally devastated by the collapse of his companies. Fortunately, with timely assistance from friends and earnings from a new job, he was able to continue prosecuting his U.S. patent application. A27424-27. The first patent – the '720 patent – issued on February 26, 2008.

Smartflash's patents describe devices, systems, and methods for the convenient and secure distribution of

digital content over the Internet. The patent claims at issue recite a specific way to distribute computer functions within a computer network – that is, a specific network architecture – to enable such secure distribution and access to digital content.<sup>3</sup>

The claimed distribution of computer functions includes three central features that offered advantages over prior-art systems.

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<sup>3</sup> Claim 3 of the '720 patent, from which asserted claim 13 depends, is representative. It claims:

A data access terminal for retrieving data from a data supplier and providing the retrieved data to a data carrier, the terminal comprising:

- a first interface for communicating with the data supplier;
- a data carrier interface for interfacing with the data carrier;

- a program store storing code; and

- a processor coupled to the first interface, the data carrier interface, and the program store for implementing the stored code, the code comprising:

- code to read payment data from the data carrier and to forward the payment data to a payment validation system;

- code to receive payment validation data from the payment validation system;

- code responsive to the payment validation data to retrieve data from the data supplier and to write the retrieved data into the data carrier; and

- code responsive to the payment validation data to receive at least one access rule from the data supplier and to write the at least one access rule into the data carrier, the at least one access rule specifying at least one condition for accessing the retrieved data written into the data carrier, the at least one condition being dependent upon the amount of payment associated with the payment data forwarded to the payment validation system.

A180 ('720 patent, 26:40-67).

*First*, the claims describe storing content data – digital music, videos, games, and apps – and payment data together on the same data carrier or non-volatile memory. That arrangement improves computer functionality in that it enables enhanced convenience for consumers of digital media who do not need to enter payment information manually every time they wish to purchase media content. A169 ('720 patent, 4:26-28). Enhanced convenience was an important aspect of the technical solution to digital piracy, because it makes it more likely that consumers will acquire content legitimately, instead of through illegal copying. A168 ('720 patent, 1:66-2.3). *See Grokster*, 545 U.S. at 964 (Breyer, J., concurring) (“[A]dvances in technology have discouraged unlawful copying by making *lawful* copying (e.g., downloading music with the copyright holder’s permission) cheaper and easier to achieve.”).

*Second*, the claims describe an architecture in which a user device downloads content from a data supplier after payment data are sent to, and payment validation information is received back from, a payment validation system. This novel architecture eliminates the need for content providers to develop their own secure content distribution platforms and allows system providers to offer content from a wide and ever-changing variety of content sources. Content providers, such as music publishers or game designers, can provide their content knowing that payment information has already been validated.

*Third*, the claims recite storing use or access rules on the data carrier or non-volatile memory. Storing such rules in this way prevents illegal copying or other uses in excess of the user’s rights and makes it possible to permit and to control access even when the device is not connected to a network, and allows for

additional authorized access to digital content – for example, viewing a downloaded movie more than once or gaining access to additional levels of a computer game – without having to download the content anew.

4. Smartflash sued Apple for patent infringement. It accused Apple’s iPhone, iPad, and iPod Touch devices of infringing its patents in connection with content purchased through Apple’s iTunes Store and the App Store.

Apple moved for summary judgment, arguing that the asserted patents were ineligible under 35 U.S.C. § 101 as directed to an abstract idea. In a detailed opinion, the magistrate judge recommended that Apple’s motion be denied. App. 70a. Applying step 1 of the test set forth in *Mayo* and *Alice*, the magistrate judge found that Smartflash’s claims were directed to the abstract idea of “conditioning and controlling access to data based on payment.” App. 66a. The magistrate judge reasoned that this general purpose of the claims was “a fundamental building block of the economy in the digital age.” *Id.*

At step 2 of the *Mayo/Alice* test, however, the magistrate judge concluded that the claims “contain meaningful limitations that transform” this abstract idea “into a patent-eligible invention.” *Id.* In particular, they “recite specific ways of using distinct memories, data types, and use rules that amount to significantly more than the underlying abstract idea.” App. 67a. The claims also address “new and unique problems for digital content providers in combatting unauthorized use and reproduction of protected media content” that were “unknown to the pre-Internet era,” thus “improv[ing] the functioning of the computer itself.” App. 67a-68a, 69a (quoting *Alice*, 134 S. Ct. at 2359). Finally, the magistrate judge reasoned that the claims “do not risk preempting all future inventions

related to exchanging access to data for payment on the Internet” because they “recite specific ways of combining system components and method steps beyond the routine use of the Internet.” App. 69a.

The district court adopted the magistrate judge’s findings and recommendations and denied Apple’s motion for summary judgment of ineligibility under § 101. App. 43a-44a.

5. The case proceeded to trial. One of Apple’s central arguments was that Smartflash’s claims were anticipated or rendered obvious by a number of prior art references under 35 U.S.C. § 102 and § 103. For example, Apple and its experts cited to a European patent application for a virtual vending system and a U.S. patent for tracking end-user electronic usage. However, as Smartflash and its expert explained, the prior art did not teach limitations of Smartflash’s patents, such as sending payment validation data to a user’s device or code responsive to payment validation data to retrieve content. *See* 2/23/15 PM Trial Tr. 70:3-7; *see also id.* at 73:8-74:3, 82:11-22, 83:7-17; A11077-148 (DX-APL 23).

Based on that evidence, the jury rejected Apple’s defenses of anticipation and obviousness. A10195. The jury also found that Apple infringed all of the asserted claims and awarded Smartflash a \$532.9 million verdict. A10193, A10196.

6. After trial, Apple moved for judgment as a matter of law on its invalidity defenses under §§ 101, 102, and 103. The district court “decline[d] to reconsider the § 101 issue,” observing that the eligibility issue “ha[d] already received full and fair treatment” before trial. App. 42a.

The district court also denied Apple’s motion for judgment as a matter of law on the anticipation and

obviousness issues. App. 31a-32a. As to the prior art presented at trial, the court held that “Smartflash’s evidence shows that a reasonable jury could find that Apple has not met its burden under the clear and convincing evidence standard” required to prove invalidity. App. 29a. The court granted Apple a new trial on damages and entered judgment on liability, bifurcating the damages retrial. A78-84; App. 39a-40a.

The district court also upheld the jury’s finding that Apple *knowingly* infringed Smartflash’s patents. A111. Augustin Farrugia – senior director of Digital Rights Management technologies at Apple – was a director of research and development at Gemplus when Gemplus was working with Patrick Racz and Internet plc. A28018, A28027. Farrugia left Gemplus directly for Apple, where he worked on FairPlay, software employed in the accused products. A28056. Within a few months of his arrival at Apple, Farrugia had designed improvements to FairPlay that solved content security concerns and that would provide the basis for the expansion of Apple’s digital content store to include videos, books, and apps. A28008-13.

Apple appealed the district court’s denial of judgment as a matter of law on eligibility, indefiniteness, and infringement, but not as to the jury’s factual determinations regarding novelty and nonobviousness. Apple likewise did not contest that the evidence supported the determination that it knowingly infringed.

7. The Federal Circuit reversed and held all asserted claims ineligible under § 101.

At step 1 of the *Mayo/Alice* test, the court of appeals agreed with the district court that the asserted claims are directed to the abstract idea of “conditioning and controlling access to data based on payment.” App. 9a,

14a. It reasoned that the claims “invoke computers merely as tools to execute fundamental economic practices,” such as controlling access to content and receiving payment information. App. 10a.

At step 2 of the test, however, the court of appeals disagreed with the district court and found that the claims do not “recite any ‘inventive concept’ sufficient to “transform the nature of the claim[s]” into a patent-eligible application.” App. 11a (quoting *Alice*, 134 S. Ct. at 2355). The court acknowledged that the claims recite “storing payment data on the data carrier,” “transmitting payment validation data to the data access terminal and having the terminal retrieve the digital content from the data supplier in response,” and “writing on the data carrier ‘access rules’ that are dependent on the amount of payment” – the features Smartflash pointed to at trial to distinguish its patents from the prior art. *Id.* But the court characterized those features as “routine computer activities” that are “insufficient for conferring patent eligibility.” *Id.* “[M]erely storing, transmitting, retrieving, and writing data to implement an abstract idea on a computer,” the court of appeals stated, is insufficient to make the claims patent eligible – even if the specific arrangement of those elements is novel and non-obvious. App. 12a.

The court of appeals also rejected Smartflash’s argument that the claims recite an ordered combination of hardware components that “reflect specific technical choices that provide distinct advantages over alternatives.” App. 13a-14a. According to the court of appeals, “‘provid[ing] a distinct advantage over alternatives’ is not the test for eligibility.” App. 14a (alteration in original).



## **REASONS FOR GRANTING THE PETITION**

The Federal Circuit discarded a verdict of liability in a case involving knowing infringement that had resulted in the (vacated) award of more than a half billion dollars in damages. It did so based on the paradoxical conclusion that a patent claiming a novel and nonobvious arrangement of technological elements – which provided a much-needed solution to the technological problem of Internet data piracy that was bedeviling the recording industry among others – was directed to an “abstract idea” and provided no “inventive concept.”

That conclusion conflicts with this Court’s precedents. The circumstances of this case – which involved a jury verdict supporting a finding of novelty and nonobviousness – make the need for review especially stark. Moreover, the error in the decision on review reflects the Federal Circuit’s improper expansion of the narrow “abstract idea” exception to patent eligibility to reach many patents that claim inventions embodying important and valuable technological innovations, an approach that has provoked concern among jurists and commentators alike. There is no prospect that the Federal Circuit will change its approach until this Court grants review.

### **I. THE FEDERAL CIRCUIT’S TEST FOR ELIGIBILITY OF PATENTS DIRECTED TO “ABSTRACT IDEAS” AND IMPLEMENTED ON COMPUTERS CONFLICTS WITH THIS COURT’S PRECEDENTS**

The Federal Circuit’s decision conflicts with this Court’s precedents governing patent eligibility under 35 U.S.C. § 101 because it ignores the principle that a patent can be held ineligible under *Alice Corp. Pty. Ltd. v. CLS Bank International*, 134 S. Ct. 2347 (2014),

and *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), only if it improperly preempts a law of nature, natural phenomenon, or abstract idea. Claims, like the Smartflash claims, that has been found to be novel and nonobvious over prior art involving the same technological problem cannot meet this test, because they cannot be unduly preemptive.

**A. A Patent That Is Not Unduly Preemptive Is Eligible Under § 101**

1. Section 101 of the Patent Act provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. This Court has recognized three implicit exceptions to the coverage of § 101. “[L]aws of nature, natural phenomena, and abstract ideas’ are not patentable.” *Mayo*, 566 U.S. at 70 (quoting *Diamond v. Diehr*, 450 U.S. 175, 185 (1981)).

As this Court has explained, “the concern that drives this exclusionary principle is one of preemption.” *Alice*, 134 S. Ct. at 2354. “Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.” *Mayo*, 566 U.S. at 71. Allowing “monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.” *Id.*; see also *id.* at 72 (noting that this Court’s precedents “warn us against upholding patents that claim processes that too broadly preempt the use of a natural law”).

“At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent

law.” *Alice*, 134 S. Ct. at 2354. “At some level, ‘all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.’” *Id.* (quoting *Mayo*, 566 U.S. at 71) (ellipsis in original). “Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the ‘building blocks’ of human ingenuity and those that integrate the building blocks into something more.” *Id.* (brackets omitted).

2. In *Mayo*, the Court set forth a two-part framework for drawing that critical distinction. Pursuant to that framework, a court first “determine[s] whether the claims at issue are directed to one of those patent-ineligible concepts.” *Alice*, 134 S. Ct. at 2355. If the claims are “directed to” such ineligible concepts, a court then must “consider the elements of each claim both individually and ‘as an ordered combination’” and determine whether the claims include an “inventive concept” sufficient to “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S. at 78, 79).

The second step of the *Mayo/Alice* inquiry, if it is applied properly, ensures that if a court makes an error at the first step – a risk given the nebulousness of the “directed to” determination, particularly in cases implicating the “‘abstract ideas’ category,” *id.* at 2357 – a useful invention will not be excluded from the coverage of the Patent Act as long as it contains enough specificity to avoid undue preemption. *Alice* itself, which involved a patent directed to a business method (intermediated settlement) that the Court held was an “abstract idea,” illustrates this. The Court began by determining that simply implementing an abstract idea “on a generic computer” does not provide an inventive concept, because “each step” in the method “does no more than require a generic

computer to perform generic computer functions.” *Id.* at 2359. And the system and “computer-readable medium” claims were “no different from the method claim in substance” – they “add[ed] nothing of substance to the underlying abstract idea.” *Id.* at 2360.

By contrast, if the implementation of an abstract idea involves a technological solution to a technological problem, there is no undue preemption and step two of the *Mayo/Alice* test is satisfied. For example, in *Diamond v. Diehr*, the claimed process used a known mathematical equation to determine when to open a mold for curing rubber. As described in this Court’s opinion in *Mayo*, the process comprised the steps of “(1) continuously monitoring the temperature on the inside of the mold, (2) feeding the resulting numbers into a computer, which would use the Arrhenius equation to continuously recalculate the mold-opening time, and (3) configuring the computer so that at the appropriate moment it would signal ‘a device’ to open the press.” *Mayo*, 566 U.S. at 80. Although the mathematical equation itself was not patentable, “the overall process” was eligible “because of the way the additional steps of the process integrated the equation into the process as a whole.” *Id.* Critically, there was no suggestion that “these steps, or at least the combination of those steps, were in context obvious, already in use, or purely conventional.” *Id.* at 81. “And so the patentees did not seek to *pre-empt* the use of [the] equation.” *Id.* (emphasis added, alteration in original). “These other steps . . . transformed the process into an inventive application of the formula.” *Id.*

3. It follows from the foregoing that, in evaluating whether a computer-implemented method satisfies the second step of the *Mayo/Alice* framework, a court must decide whether the patent involves elements

that, taken as an ordered combination, are merely “obvious, already in use, or purely conventional,” *Mayo*, 566 U.S. at 81, that is, claims that are “purely functional and generic,” *Alice*, 134 S. Ct. at 2360.

The step-two inquiry thus echoes the sort of questions that come up in examining the validity of a patent as well. An invention is patentable (as opposed to patent eligible) only if it is (among other things) novel, *see* 35 U.S.C. § 102, and nonobvious, *see id.* § 103. *See Mayo*, 566 U.S. at 90 (“[I]n evaluating the significance of additional steps, the § 101 patent-eligibility inquiry and, say, the § 102 novelty inquiry might sometimes overlap.”). Accordingly, asking whether “claim elements . . . individually [or] in combination” provide an inventive concept involves “considerations analogous to those of §§ 102 and 103 as applied to the particular case.” *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346, 1347 (Fed. Cir. 2015). At the same time, the patent-*eligibility* inquiry is not the same as the *patentability* inquiry. Indeed, for patent eligibility to provide a useful screen in litigation, it often must be applied at the outset, before the parties have developed an extensive factual record. The step-two inquiry thus amounts to asking whether – in light of the language of the claims and a court’s practical experience – the claims are *potentially* novel and nonobvious. Is there enough specificity so that the patent does not merely identify an abstract idea and say “apply it,” *Mayo*, 566 U.S. at 72, or “apply the abstract idea . . . using some unspecified, generic computer,” *Alice*, 134 S. Ct. at 2360?

Once the claims describe a specific system or method that is no longer “unspecified” or “generic,” however, the patent-eligibility inquiry is satisfied and the question becomes whether the implementation of the

idea as claimed is novel and nonobvious. The purpose of the eligibility inquiry is not to short-circuit the novelty or nonobviousness inquiry, but instead to identify those claims that, by purporting to monopolize a “building block” of “human ingenuity,” unduly discourage efforts to implement a particular abstract idea in a better way. Perhaps the inventor in *Alice* was the first individual to think of implementing the idea of intermediated settlement on a computer, but that insight is not enough to warrant giving the inventor that idea as property. On the other hand, had the inventor described a “specific way” to perform intermediated settlement, which (at least potentially) overcame technological barriers, such innovation would be eligible under § 101. *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1259 (Fed. Cir. 2014) (emphasis added); see *Alice*, 134 S. Ct. at 2358 (“[T]he claims in *Diehr* were patent eligible because they improved an existing technological process, not because they were implemented on a computer.”).

**B. The Federal Circuit Has Unduly Expanded the “Abstract Idea” Category by Denying Eligibility to Patents That Embody Technological Innovation**

The Federal Circuit has ignored this Court’s precedents by un-tethering the patent-eligibility inquiry from the question of undue preemption. No case illustrates that better than this one, where the court not only did not question that the patents were not unduly preemptive (a point Apple hardly bothered to argue) but also insisted that the distinct advantages of Smartflash’s method over alternative technologies were *irrelevant* to the question whether the invention was patent eligible.

1. In applying this Court's *Mayo/Alice* framework, the Federal Circuit has repeatedly rejected the argument that undue preemption is necessary to a finding of ineligibility under § 101. Thus, in *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371 (Fed. Cir. 2015), *cert. denied*, 136 S. Ct. 2511 (2016), scientists who discovered cell-free fetal DNA ("cffDNA") – fetal DNA that circulates in the blood stream of pregnant women – obtained a patent on a method of "amplifying" cffDNA, of detecting paternally inherited cffDNA, and of making prenatal diagnoses using the paternal cffDNA. *Id.* at 1373. The Federal Circuit held, at step one of *Mayo/Alice*, that cffDNA is a natural phenomenon. And it held at step two that all of the steps of the patent were "routine" and "conventional" and "specified at a high level of generality" – thus failing "to supply an inventive concept." *Id.* at 1378.

The patent owner had argued that there "are numerous other uses of cffDNA" and that therefore the claims were not unduly preemptive. *Id.* The Federal Circuit acknowledged that "preemption is the basis for the judicial exceptions to patentability," but it rejected the argument that the possibility of alternative uses of the natural phenomenon could "change the conclusion that the claims are directed to patent ineligible subject matter." *Id.* at 1379. Instead, "[w]here a patent's claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot." *Id.*

This statement could be read as a tautology: because correct application of the *Mayo/Alice* framework will eliminate unduly preemptive claims (and find eligible those that are not unduly preemptive), there is no

need to consider the question separately. Furthermore, in *Ariosa*, the claims were indeed unduly preemptive – not only were the claims broad, but they added nothing specific to the natural phenomenon that the inventors had discovered. See *Parker v. Flook*, 437 U.S. 584, 594 (1978) (invention was unpatentable under § 101 “because once [the ineligible mathematical] algorithm is assumed to be within the prior art, the application, considered as a whole, contains no patentable invention”).

But the Federal Circuit has applied the dictum from *Ariosa* in a way that has led it to misapply step two of the *Mayo/Alice* framework, and in particular to disregard the way in which novel and nonobvious combinations of known elements can supply the required “inventive concept.” For example, in *Smart Systems Innovations, LLC v. Chicago Transit Authority*, --- F.3d ---, 2017 WL 4654964 (Fed. Cir. Oct. 18, 2017), the patentee argued that its claimed invention (which involved using credit cards to enter public transit systems) solved technological problems by combining elements in an unconventional way. After listing several elements of the claim (but without discussing the connections or interactions among them), the court dismissed the claims as merely requiring “generic computer implementation.” *Id.* at \*8. The patentee objected that the invention was not merely generic but instead taught a specific way to address a technological problem and – as a result – did not preempt alternative solutions.

The Federal Circuit rejected that argument, quoting the *Ariosa* dictum. But the court’s response to the lack-of-preemption point is incorrect. Assuming that a computer-implemented invention is directed to an



abstract idea, the key question is whether implementation of the abstract idea involves a specific *way* of accomplishing a desired result, rather than a purely conventional application of the abstract idea itself. See *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (explaining the “common-sense distinction between ends sought and particular means of achieving them” and noting that the purpose of the Supreme Court’s test is to determine “whether the claims meet the requirement of an inventive concept *in application*”). If a patent’s ordered combination of technological elements does not preempt alternative ways to implement an abstract idea, it is illogical and incorrect to assert that the patent is conventional and generic.

2. The panel committed the same error in this case. Petitioners’ invention provides for improved purchase and download of proprietary digital content over the Internet and improved storage of and access to that content on user devices. The Federal Circuit held, at step one of *Mayo/Alice*, that the patent was directed to an abstract idea – conditioning and controlling access to data based on payment. App. 9a. Petitioners argued that, even if the patents were properly characterized at that level of generality for purposes of step one, they should be deemed patent eligible at step two because they provided a specific technological solution to a technological problem – a specific *way* to purchase, download, store, and condition access to digital content that addresses the issue of Internet data piracy.

Petitioners pointed out that their patents therefore could not be held ineligible under *Alice*, because they did not simply claim application of the abstract idea in the Internet environment. On the contrary,

as Apple admitted, there was a crowded field of prior art, representing prior inventors' best efforts to enable delivery of music or other digital content over the Internet. Smartflash's approach to the problem was novel and nonobvious – and thus different in a non-trivial way from prior efforts to solve the same technological problem (or, put another way, prior efforts to apply the abstract idea in the Internet environment). And the specific technical choices reflected in the claims provided distinct advantages over alternative approaches to the problem.

The panel did not disagree that the Smartflash inventions represented a meaningful technological advance. Instead, it held that “provid[ing] a distinct advantage over alternatives is not the test for eligibility.” App. 14a (alteration in original). But that statement badly distorts this Court's precedents. By definition, a technological solution to a technological problem that provides advantages over alternative technological solutions cannot be merely conventional and generic. And nothing in *Alice* supports the notion that such claims can be discarded as ineligible – on the contrary, this Court's precedents establish that making this sort of useful technological contribution is just the sort of inventiveness that the patent laws are intended to encourage and reward. *See Alice*, 134 S. Ct. at 2354-55 (explaining that inventions that integrate “building blocks” of “human ingenuity” “into something more” “pose no comparable risk of preemption and *therefore* remain eligible for the monopoly granted under our patent laws”) (emphasis added).

Indeed, in this context, the fact that there was a verdict of validity – a judgment that the patents represent a nonobvious advance over the prior art – necessarily means that the patent is eligible. If a

patent preempted a long-existing abstract idea, it would also preempt prior art in the same field that invokes that abstract idea. A patent that preempts the prior art, however, is invalid as anticipated by that art under 35 U.S.C. § 102. And a patent that adds only trivial or obvious additions to that prior art is invalid as obvious under 35 U.S.C. § 103. Thus, as a matter of logic, a patent cannot be both ineligible for claiming nothing more than the application of a long-existing abstract idea in a conventional way *and* novel and nonobvious over prior art likewise implementing that abstract idea.

3. This Court has recently held that an appeals court must give substantial deference to a fact-finder's subsidiary factual findings underlying a question of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838 (2015) (requiring clear-error review of factual determinations underlying a court's claim-construction determinations). A jury's determination that patents claim a novel and nonobvious improvement over the prior art, therefore, is, at a minimum, owed deference in the court of appeals' consideration of the § 101 issue.

In particular, the factual findings of novelty and nonobviousness bear directly on whether claims include an "inventive concept" under the *Mayo/Alice* framework. In concluding that Smartflash's patents were novel under § 102, the jury concluded that the patents did not claim "knowledge already in the public domain." *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 64-65 (1998). And, in concluding that the patents were nonobvious under § 103, the jury concluded that Smartflash's patents did not "unite[] old elements with no change in their respective functions." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-16 (2007).

The patents, therefore, did not “withdraw[] what already is known into the field of its monopoly and diminish[] the resources available to skillful men.” *Id.* Those determinations of novelty and nonobviousness, therefore, were determinations of inventiveness that speak directly to the concerns underlying the *Mayo/Alice* test: whether claims monopolize “the basic tools of scientific and technological work.” *Mayo*, 566 U.S. at 71; *see also Alice*, 134 S. Ct. at 2354-55 (“patents that claim the ‘building blocks’ of human ingenuity” are ineligible because they “‘would risk disproportionately tying up the use of the underlying’ ideas”) (brackets omitted).

## II. THE QUESTION PRESENTED IS OF EXCEPTIONAL IMPORTANCE

The decision below rendered valueless patent claims that, as the jury found, helped the defendant to build the most valuable company in history. The invention was not valuable because it was the first to suggest selling digital content over the Internet. It was not. The invention was valuable because it teaches a new and nonobvious *way* to sell digital content over the Internet, overcoming technological problems (including insecurity and inconvenience) that had rendered prior efforts less effective. The staggering commercial success of Apple’s online sales of data bears witness to the exceptional value of the Smartflash technology. Taking a step back from doctrinal formulations, it simply cannot be that such an invention is ineligible for patent protection.

1. The guidance this Court provided in *Alice* has left the Federal Circuit in admitted disarray over how to deal with computer-implemented inventions. In opinion after opinion, in opinions for the court and in dissenting opinions alike, the Federal Circuit has

lamented its inability to apply the *Mayo/Alice* framework coherently. In *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288 (Fed. Cir. 2016), *petition for cert. pending*, No. 17-136 (U.S. filed July 24, 2017), the court gave up on attempting to provide a workable definition of “abstract idea” and on attempting to distinguish between steps one and two of the *Mayo/Alice* test. The court stated that “at present there is no . . . single, succinct, usable definition or test” for determining an ineligible abstract idea under § 101. *Id.* at 1294. According to the court, it is too “difficult to fashion a workable definition to be applied to as-yet-unknown cases with as-yet-unknown inventions.” *Id.*

As Judge Linn recently noted in a case under § 101, “the abstract idea exception is almost impossible to apply consistently and coherently.” *Smart Sys. Innovations*, 2017 WL 4654964, at \*11 (Linn, J., dissenting in part and concurring in part). The Federal Circuit’s application of the test “is indeterminate and often leads to arbitrary results.” *Id.* “Despite the number of cases that have faced these questions and attempted to provide practical guidance, great uncertainty yet remains.” *Id.* As Judge Linn emphasized, “the danger of getting the answers to these questions wrong is greatest for some of today’s most important inventions in computing, medical diagnostics, artificial intelligence, the Internet of Things, and robotics, among other things.” *Id.*; *see also BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1353 (Fed. Cir. 2016) (Newman, J., concurring in the result) (“[T]he emphasis on eligibility has led to erratic implementation in the courts.”).

The Federal Circuit’s unpredictable application of its § 101 precedents to particular cases infected the

court's decision in this case. The court limited its comparative analysis to analogizing Smartflash's patents to those in just two other cases: *DDR Holdings* and *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014). App. 12a-13a. The court ignored its other precedents and did not even cite, let alone analyze, the two cases that Smartflash argued were the most relevant: *BASCOM* and *Amdocs*. As the court of appeals has explained, *BASCOM* stands for the proposition that an "inventive distribution of functionality within a network" to address a technological problem is patent eligible. *Electric Power Grp.*, 830 F.3d at 1355. The court confirmed that analysis in *Amdocs*. See 841 F.3d at 1302.

Smartflash's patents claim just such an inventive distribution of functionality within a computer network; the Federal Circuit has never stated otherwise. In analyzing the claims in Smartflash's patents, however, the court of appeals did not even address the novel *distribution* of computer functions, it instead focused on the "routine" nature of the individual functions. See App. 11a-13a. The Federal Circuit's analysis, therefore, was contrary not only to its own precedent in *BASCOM* and *Amdocs*, but also to this Court's clear direction that patent-eligibility analyses must consider the claims "as an ordered combination." *E.g.*, *Alice*, 134 S. Ct. at 2355.

2. Commentators have likewise criticized the Federal Circuit's inability to apply *Alice* in a predictable or coherent fashion. Former Chief Judge Robert Michel recently testified before Congress that "[e]ligibility law under the *Alice/Mayo* regime has become highly uncertain and unpredictable. And results have been as inconsistent as unpredictable." Statement of Judge Paul R. Michel (Ret.) Before the Subcomm. on

Courts, Intellectual Property, and the Internet, “The Impact of Bad Patents on American Businesses” at 3 (July 13, 2017) (“Michel Statement”), <https://judiciary.house.gov/wp-content/uploads/2017/07/Statement-of-Judge-Paul-Michel-House-IP-Subcomm.-7-13-2017.pdf>. Even the Federal Circuit’s more recent cases “do not demarcate the boundary between eligibility and ineligibility in any predictable, meaningful way. We still do not have an acceptable working definition of ‘abstract’ and we likely never will.” Manny Schecter, *Through the Looking Glass: Recent Federal Circuit Decisions Do Not Change the Need for Action on Alice*, IPWatchdog (May 11, 2017), <http://www.ipwatchdog.com/2017/05/11/recent-federal-circuit-decisions-do-not-change-need-action-alice/id=83117/>.

The Federal Circuit has “applied a variety of different, often inconsistent, rationale for finding the inventions at issue to be subject matter eligible” and “has provided a few examples of inventions that qualify as patent eligible subject matter.” *Id.* “In other words, very little clarity, if any at all, has risen from *Alice* in determining what is patentable.” Paxton M. Lewis, *The Conflation of Patent Eligibility and Obviousness: Alice’s Substitution of Section 103*, 2017 Utah L. Rev. OnLaw 13, 26 (2017); *see also* Ebby Abraham, *Amdocs v. Openet: Opening a Software Rift in Alice’s Wonderland*, 29 No. 3 Intell. Prop. & Tech. L.J. 15, 16 (Mar. 2017) (“Possibly an even more fundamental lesson of [the Federal Circuit’s decision in] *Amdocs* is that the only certainty around patent eligibility under *Alice* is its uncertainty.”); Austin Steelman, *Curiouser and Curiouser!*, 98 J. Pat. & Trademark Off. Soc’y 374, 387 (2016) (“Looking at all of the Federal Circuit opinions that have issued since *Alice* shows the abstract idea exception is still a

jumbled combination of . . . four fundamental tests.”); Nadia E. Haghighatian et al., *So What’s Patentable Now? Recent Decisions on Section 101*, 34 Corp. Couns. Rev. 73, 93 (May 2015) (stating that the Federal Circuit “is still experiencing some difficulties analyzing each step [of *Alice*], due to the continued absence of coherent standards for identifying abstract ideas and sufficiently inventive concepts”).

3. The risk that the Federal Circuit’s erroneous application of the *Mayo/Alice* framework is leading to the incorrect invalidation of eligible patents is further reason that review is urgently needed. In the approximately two years after *Alice* was decided, the Federal Circuit decided 96 cases involving claims that a patent covered ineligible subject matter and determined that 88 of those patents were invalid. In the meantime, the Patent and Trademark Office, mindful of the winds blowing from its reviewing court, was asked to initiate 152 “Covered Business Method” reviews (under § 18(a)(1) of the Leahy-Smith America Invents Act) and initiated 129 of them; it decided 92 such cases involving a subject-matter eligibility challenge and in 90 of them it found the patents to be ineligible, a failure rate of 97 percent.<sup>4</sup>

The consequence of this is to significantly undermine the incentives for innovation and investment that the patent laws are intended to provide. Commentators have also described how the lower courts’ implementation of *Alice* has spread far afield of the business-method type patents at issue in *Alice*, reducing incentives to innovate in any area involving software.

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<sup>4</sup> See #AliceStorm: April Update and the Impact of TC Heartland on Patent Eligibility (June 1, 2017), BilskiBlog, available at <http://www.bilskiblog.com/blog/2017/06/alicestorm-april-update-and-the-impact-of-tc-heartland.html> (last visited Nov. 7, 2017).



See Harrison B. Rose, *Exploring Alice’s Wonderland of Patentable Subject Matter*, 2017 U. Ill. J.L. Tech. & Pol’y 275, 285-86 (2017) (noting that the effect of *Alice* “has been widespread, extending to unrelated industries – such as shipping, gaming, and insurance – that employ software in their operations”).

Innovation in the realm of electronic commerce is especially at risk. Commentators recently noted that “[w]e live in an online world of ingenious computer-implemented algorithms, whether we make reservations for a flight, order lunch from the neighborhood deli, or buy a pencil from Amazon.com. Yet the inventors of these algorithms are now largely precluded from patent protection.” Jorge A. Goldstein et al., *The Time Has Come to Amend 35 U.S.C. § 101*, 44 AIPLA Q.J. 171, 190 (2016). One commentator noted that, under the Federal Circuit’s decision in *Internet Patents*, the entire field of “online application software may no longer be patent-eligible.” Ping-Hsun Chen, *Patent Eligibility of Online Application Software After Internet Patents Corp. v. Active Network, Inc.*, 99 J. Pat. & Trademark Off. Soc’y 97, 106 (2017). “Unless the judiciary delineates a clearer framework for enabling meaningful patent protection in areas like biotech and software where America has been a technology leader, the U.S. could rapidly lose competitive edge in these vital industries.” Jason Rantanen, *Section 101 – Pivotal Moment for Clarity on Patent Subject Matter Eligibility*, PatentlyO (Apr. 21, 2016), <https://patentlyo.com/patent/2016/04/section-subject-eligibility.html>.

Judge Michel testified that, in part due to the uncertainty created by the Federal Circuit’s failure coherently to interpret the *Mayo/Alice* framework, “most investors” are convinced “that patents are now too unreliable as to validity, and too difficult

to enforce, with excessive risk, delay and weak remedies.” Michel Statement at 3. “Patent values have plummeted, by as much as 60% according to several studies by economists, based on public sales and licenses.” *Id.* at 2. The U.S. patent system “dropped from its customary first place in the annual Chamber of Commerce global ranking to an embarrassing tenth place, tied with former Soviet Bloc country, Hungary.” *Id.* A former director of the Patent Office stated “that patent officials in other nations have reacted with ‘bemusement’ as the U.S. invalidates patents on Section 101 grounds, while foreign companies that compete with American businesses see a golden opportunity in the reduced patent protection for software and biotechnology.” Ryan Davis, *Kappos Calls For Abolition Of Section 101 Of Patent Act*, Law360 (Apr. 12, 2016), available at <https://www.law360.com/articles/783604/kappos-calls-for-abolition-of-section-101-of-patent-act>.

4. There can thus be little dispute that the Federal Circuit and litigants are in need of further guidance regarding the patent-eligibility analysis for abstract ideas and that failure to provide that guidance puts innovation at risk. Patent holders and litigants should not be left to guess about which Federal Circuit § 101 precedent may apply to a particular patent. “In the area of patents, it is especially important that the law remain stable and clear.” *Bilski v. Kappos*, 561 U.S. 593, 613 (2010) (Stevens, J., concurring in the judgment).

### CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,

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November 9, 2017

