

Appeal No. 2019-1164

**IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

UBER TECHNOLOGIES, INC.,

Appellant,

v.

X ONE, INC.,

Appellee.

**Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in No. IPR2017-01255.**

APPELLEE'S PETITION FOR REHEARING EN BANC

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June 18, 2020

CERTIFICATE OF INTEREST

Counsel for Appellee X One, Inc., certifies the following (use “None” if applicable; use extra sheets if necessary):

1. The full name of every party represented by me is:

X One, Inc.

2. Name of the real party in interest (please only include any real party in interest NOT identified in Question 3) represented by me is:

None

3. Parent corporations and publicly held companies that own 10% or more of the stock of the party:

None

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this Court (and who have not or will not enter an appearance in this case) are:

None

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this Court’s decision in the pending appeal. *See* Fed. Cir. R. 47.4(a)(5), 14.5(b).

X One, Inc. v. Uber Technologies, Inc.,
No. 5:16-cv-06050-LHK (N.D. Cal.)

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STATEMENT OF COUNSEL

Based on my professional judgment, this appeal involves questions of exceptional importance: (1) when 35 U.S.C. § 103 dictates that obviousness assess whether “the differences between the claimed invention and the prior art are such that the claimed invention *as a whole* would have been obvious,” whether it was appropriate for the panel to “reverse the Board’s determination as to the *obviousness of the limitation* ‘software . . . to transmit the map with plotted locations to the first individual’” (emphasis added); and (2) in considering a design choice, whether it was appropriate for the panel to make a finding of fact that there were “only two possible methods” when Uber’s expert stated “there are several design choices” and Uber’s counsel stated “so there’s several ways,” and which was contradicted by the Board’s finding that Uber’s design choice argument “represents impermissible hindsight” and “represent[s] a proposed wholesale modification to” the prior art.

/s/ Doris Johnson Hines
Doris Johnson Hines
Counsel for Appellee

PRELIMINARY STATEMENT

The panel reversed the Board's conclusion that the challenged claims of X One's U.S. Patent No. 8,798,593 are not obvious under 35 U.S.C. § 103. D.I. 47 (Op.); Appx1-36. Even though section 103 mandates assessing obviousness as to "the claimed invention as a whole," the panel considered whether a claim limitation on its own was obvious. Op. 14. ("we reverse the Board's determination as to the obviousness of the *limitation* "software . . . to transmit the map with plotted locations" (emphasis added)); *see also* Op. 2, 10, 12.

Under this flawed legal framework, the panel found as a fact as to the "software . . . to transmit" limitation that the "record reflects only two possible methods," Op. 9, a finding it repeated throughout its opinion. *See id.* Op. 10 ("the only two identified, predictable solutions"); Op. 11 ("two predictable choices"); Op. 12 ("two known, finite, predictable, solutions"); Op. 12 ("two known, finite, predictable solutions"); Op. 13 ("two known, finite, predictable solutions"); Op. 14 ("a simple design choice between the two").

This "fact," however, was contradicted by Uber's expert, Appx1068, ¶ 87 ("there are several design choices"), and its counsel, Appx3104 ("so there's several ways"); *see also* IPR2017-01255, Record of Oral Hearing at 9:3-6 ("it can really be done several different ways" (Appx3102)). It was also contradicted by the Board, which stated that Uber's design choice argument "represents impermissible

hindsight,” Appx22, and “represent[s] a proposed wholesale modification to” the prior art Okubo reference, Appx23. That new and improper appellate fact was the basis of the panel’s conclusion that the “software . . . to transmit” claim limitation was obvious. Op. 13 (“a simple design choice between the two, and therefore [one of ordinary skill in the art] would have been motivated to combine the teachings of Okubo and [the prior art reference] Konishi to achieve the limitation”). After finding for the first time the “fact” of “only two possible methods,” the panel improperly shifted the burden to X One to disprove it. Op. 9-10.

STATEMENT OF RELEVANT FACTS

The ’593 patent discloses and claims methods for mobile device users to share and track user’s locations. Appx37. X One developed this tracking technology years before the iPhone or mobile applications became commonplace, and the ’593 patent teaches specific solutions to technological problems—e.g., sharing location information between wireless devices without overtaxing system resources and protecting individual privacy concerns—by sending users maps with plotted locations representing members of a group. Appx119-121, 12:20-15:13. The advances claimed in the ’593 patent are today ubiquitous. At the time of invention, however, available technologies did not enable sharing maps and location information between multiple authenticated users.

Recognizing this, the Board determined that Uber improperly relied on hindsight and failed to prove the challenged claims were obvious. Appx22-23. The Board's Final Written Decision rejected all grounds in Uber's petition, including those relying on Okubo and Konishi. *Id.*; *see* Appx1-36. The Board found "the evidence does not support that Konishi's alternative teachings would have been a design choice for Okubo—instead, the use of Konishi's teachings in this regard would represent a wholesale modification to Okubo." Appx23.

The panel reversed the Board's decision. Op. 1-14. In doing so, the panel assessed the obviousness of the "software . . . to transmit" claim limitation on its own, instead of considering "the claimed invention as a whole," as required by 35 U.S.C. § 103. *See* Op. 2, 10, 12, 14. In considering the "software . . . to transmit" limitation outside the context of the rest of the claimed invention, the panel also found a new fact, namely that there were "only two possible methods of achieving" the "software . . . to transmit" limitation. Op. 9; *see also* Op. 10-13. The panel did so even though Uber's expert and its counsel both said there were "several." *E.g.*, Appx1068-1069, ¶ 87; Appx3104. This new and contradictory fact weaved through the opinion was the basis for the panel's conclusion. Op. 10 ("the only two identified, predictable solutions"); Op. 11 ("two predictable choices"); Op. 12 ("two known, finite, predictable, solutions"); Op. 12 ("two known, finite, predictable solutions"); Op. 13 ("two known, finite, predictable solutions"); Op. 14

(“[A] person of ordinary skill in the art would have faced a simple design choice between the two, and therefore would have been motivated to combine the teachings of Okubo and Konishi to achieve the limitation.”). The panel thus reversed the Board’s nonobviousness determination and remanded. Op. 14.

ARGUMENT IN SUPPORT OF REHEARING EN BANC

I. The Panel Legally Erred in Assessing the Obviousness of a Claim Limitation Because the Statute Requires Consideration of the “Invention as a Whole”

A fatal legal flaw in the panel’s analysis was its failure to consider the invention “as a whole” in assessing obviousness, as mandated by 35 U.S.C. § 103. Throughout its opinion, the panel considered the obviousness of the “software . . . to transmit” limitation. Op. 2 (“we reverse the Board’s non-obviousness determination as to this *limitation*”); Op. 10 (“we hold that the Board erred when it determined that a person of ordinary skill in the art would not have been motivated to combine the teachings of Okubo with Konishi’s server-side plotting to render obvious the *limitation*”); Op. 12 (“renders obvious the challenged *limitation*”) (emphases added). The panel was clear that its analysis was focused on the obviousness of limitations. After finding the “software . . . to transmit” limitation obvious, the panel remanded for the Board to consider the remaining limitations. Op. 14 (“We therefore remand for the Board to evaluate in the first instance the

remaining limitations of the claims challenged in grounds 1 and 2 of Uber’s petition.”).

As contrasted by the analysis of the panel, 35 U.S.C. § 103 unambiguously requires consideration of the claimed invention “as a whole.” The Supreme Court’s seminal decision in *Graham v. John Deere Co.*, makes clear that the obviousness analysis must focus on the invention “as a whole,” not individual claim elements:

Section 103 . . . refers to the difference between the subject matter sought to be patented and the prior art, meaning what was known before as described in section 102. If this difference is such that the subject matter as a whole would have been obvious at the time to a person skilled in the art, then the subject matter cannot be patented.

383 U.S. 1, 15 (1966); *cf. Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 344 (1961) (recognizing that “if anything is settled in the patent law, it is that the combination patent covers only the totality of the elements in the claim”); *Leeds & Catlin Co. v. Victor Talking Mach. Co.*, 213 U.S. 301, 318 (1909) (“A combination is a union of elements, which may be partly old and partly new, or wholly old or wholly new. But, whether new or old, the combination is a means—an invention—distinct from them.”).

This proposition should be sacrosanct. It is of paramount importance because courts have long recognized that “[i]nventions typically are new combinations of existing principles or features.” *Princeton Biochems., Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332, 1337 (Fed. Cir. 2005) (*citing Envt’l.*

Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that “virtually all [inventions] are combinations of old elements”). The “‘as a whole’ instruction in title 35 prevents evaluation of the invention part by part.” *Princeton*, 411 F.3d at 1337.

Without this important requirement, an obviousness assessment might successfully break an invention into its component parts, then find a prior art reference corresponding to each component. This line of reasoning would import hindsight into the obviousness determination by using the invention as a roadmap to find its prior art components. Further, this improper method would discount the value of combining various existing features or principles in a new way to achieve a new result—often the essence of invention.

Id. (citations omitted).

That is exactly what the panel did here—it evaluated the “software . . . to transmit” limitation of the claims for obviousness instead of considering this aspect of the claims in the context of the invention “as a whole.” *See id.*; *In re Kahn*, 441 F.3d 977, 987 (Fed. Cir. 2006) (“mere identification in the prior art of each element is insufficient to defeat the patentability of the combined subject matter as a whole”). Finding the “software . . . to transmit” limitation present in Konishi, the panel substituted the teaching of Okubo with that of Konishi and concluded the *limitation* was obvious. *See* Op. 9-13. This faulty legal reasoning has long been rejected because it imports hindsight into the obviousness determination. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A factfinder should be aware, of

course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.”). That was even highlighted here where the Board correctly branded and rejected Uber’s argument as hindsight. Appx22 (“We find that this argument represents impermissible hindsight.”).

This Court has upheld the long-standing requirement that a patent challenger—even when considering two known references—“identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *PersonalWeb Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 991-92 (Fed. Cir. 2017) (quoting *KSR*, 550 U.S. at 418-19); *id.* at 993-94 (“[T]hat reasoning seems to say no more than that a skilled artisan, once presented with the two references, would have understood that they *could be* combined. And that is not enough . . .”). “[M]erely stating that a [modification of] an element is a design choice does not make it obvious.” *Polaris Indus. v. Artic Cat, Inc.*, 882 F.3d 1056, 1069 n.4. (Fed. Cir. 2018) (citation omitted).

Judge Giles Rich, one of the authors of the 1952 Patent Act, explaining section 103, stated

what must have been obvious is “*the subject matter as a whole*.” That, of course, is the invention as defined by each patent claim. If, for example, a combination is claimed, § 103 requires that to invalidate the claim, it must be shown that the *combination* was obvious, not merely its components.

Giles S. Rich, *Laying the Ghost of the “Invention” Requirement*, 1APLA Q.J. 26, 34 (1972). Judge Rich explained that section 103 “was a clear *directive* to the courts to think that way.” *Id.*; *see also Gen. Foods Corp. v. Studiengesellschaft Kohle mbH*, 972 F.2d 1272, 1274 (Fed. Cir. 1992) (Rich, J.) (“it follows that each claim is an *entity* which must be considered *as a whole*” (emphasis original)). This Court in banc should heed the directive of section 103, correct the panel’s flawed analysis (finding limitations obvious), and prevent its reasoning from infecting this Court’s jurisprudence and completely undermining the statute.

II. The Panel Engaged in Impermissible Fact-Finding

Within its flawed legal framework, the panel improperly found facts. Indeed, the linchpin to reversing the Board’s nonobviousness holding was the panel’s own factual determination that “The record reflects only two possible methods of achieving [location sharing]: server-side plotting and terminal-side plotting.” Op. 9 (emphasis added). This determination ignores this Court’s caution that “the appellate function [is] limited to deciding the issues raised on appeal by the parties, deciding these issues only on the basis of the record made below, and as requiring appropriate deference be applied to the review of fact findings.” *Apple Inc. v. Samsung Elecs. Co. Ltd.*, 839 F.3d at 1034, 1039 (Fed. Cir. 2016); *see also Amadeo v. Zant*, 486 U.S. 214, 228 (1988) (criticizing “impermissible appellate factfinding”).

The Board never made such a fact-finding based on the record before it. *See generally* Appx1-36. Uber’s petition said nothing about Konishi being a “design choice” for implementing Okubo—it did not use this term nor did Uber cite *KSR* to suggest this theory. *See* Appx15 (“Petitioner contends in its Reply and at the oral hearing that it is . . . offering Konishi’s teachings as an implementation detail” (citing Appx2748-53; Appx3094); *see generally* Appx160-162; *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (reiterating “requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds’”).

Nor did Uber contend, much less prove, that “only two possible methods” exist; its own expert, Dr. Bartone, stated:

One of ordinary skill in the art at the time of the invention would have understood that there are several design choices, for example to have the map already stored on the mobile devices or to transmit the map to the mobile device.

Appx1068-1069, ¶ 87. While Dr. Bartone by way of “example” describes two alternatives, he never stated that there were only two. *Id.* “Several” does not mean only two.¹ Uber’s counsel was consistent below, never contending that there were

¹ *See Merriam-Webster’s Collegiate Dictionary* 1140 (11th ed. 2007) (definition of **several**: “more than two but fewer than many”); *American Heritage College Dictionary* 1248 (3d ed. 1997) (definition of **several**: “of a number more than two or three but not many”); *The World Book Dictionary* vol. II, 1908 (2d ed. 1986) (definition of **several**: “being more than two or three but not many”).

only two options. Appx3104 (“so there’s several ways”); *see also* IPR2017-01255, Record of Oral Hearing at 9:3-6 (“it can really be done several different ways.” (Appx3102)). The panel’s findings, therefore, that “[t]he record reflects only two possible methods,” Op. 9 (emphasis added), is a new factual determination. *See* Op. 10 (“the only two identified, predictable solutions”); Op. 11 (“two predictable choices”); (“two known, finite, predictable, solutions”); Op. 13 (“two known, finite, predictable solutions”); Op. 13 (“a simple design choice between the two”). The panel should not have made this finding for the first time on appeal and it was expressly contradicted by the record evidence. *Atl. Thermoplastics Co. v. Faytex Corp.*, 5 F.3d 1477, 1479 (Fed. Cir. 1993) (“Fact-finding by the appellate court is simply not permitted.”).

That fact-finding was important; indeed it was the linchpin of the panel’s conclusion that “a person of ordinary skill would have faced a simple design choice between the two, and therefore would have been motivated to combine the teachings of Okubo and Konishi to achieve the limitation.” Op. 13. This Court in banc should vacate the panel’s inappropriate and flawed fact-finding.

III. The Panel Improperly Shifted the Burden onto Patent Owner

Thereafter, the panel impermissibly shifted the burden onto X One to *disprove* its appellate fact-finding. *See* Op. 9-10. According to the panel, its finding of “only two possible methods” for transmitting a map and plotting locations (*id.*),

was supported by: (1) the absence of X One identifying alternatives in the record—
 “The parties have identified only these two methods of transmitting information to
 a mobile device” *see* Op. 9 (citing Blue Br. 32; Red Br. 28; Appx2751-52;
 Appx2278-93);² and (2) the ’593 patent not hinging novelty on distinguishing
 these options. Op. 9 (“the alleged novelty of the ’593 patent is not related to” the
 differences between the two options).

This proposition should have remained Uber’s burden to prove. 35 U.S.C.
 § 316(e) (“the petitioner shall have the burden of proving a proposition of
 unpatentability”). Uber did not do so by actual evidence. Instead, the panel
 improperly required X One “to rebut the position of the petitioner . . . to prove the
 nonobviousness of the claimed invention.” *In re Magnum Oil Tools Int’l, Ltd.*, 829
 F.3d 1364, 1380-81 (Fed. Cir. 2016); Op. 9-10.

Congress established that “no burden shifts from the patent challenger to the
 patentee” in *inter partes* reviews. *Id.* Thus, Uber always bore “the burden of

² The citations show merely that the two approaches existed, not that they were the
 “only two possible” Op. 9. As explained above, Dr. Bartone opined that there
 are “several design choices” in his declaration. *See* Op. 9 (citing Blue Br. 32 (citing
 Appx1068-1069, ¶ 87)). And Uber’s conclusory and untimely portion of its
 Petitioner Reply, also cited by the panel, is *not* evidence nor does it actually ever
 say there are *only* two possible design choices. *See* Op. 9 (citing Appx2751-2752).
 Further, pointing to X One’s Patent Owner Response to ostensibly show a lack of
 identification of alternate means (especially after the Board found that Uber
 omitted the argument from its Petition, *see* Appx15) only highlights the problem of
 burden shifting. *See* Op. 9 (citing Appx2278-2293).

producing evidence to support a conclusion of unpatentability under §102 or §103,” not the other way. *Id.* at 1375-76.³ Uber and its expert recognized that “several” options existed even while focusing on just two. *See supra* § II. X One was entitled to rely on those admissions and the panel was wrong to find the opposite as a matter of fact. *See Op.* 9-10. The panel also erred in requiring X One to rebut the fact it found (when Uber and its expert already had) to preclude reversal of the Board and a claim limitation found obvious. This Court in banc should vacate the panel’s improper burden shifting.

CONCLUSION

The Court should grant rehearing in banc.

³ In the last several years, voices have called for in banc review to finally and formally end burden shifting in the obviousness analysis. *See, e.g., Merck Sharp & Dohme Corp. v. Hospira, Inc.*, 874 F.3d 724, 731-35 (Fed. Cir. 2017) (Newman, J., dissenting) (“It is time to remedy our inconsistent treatment of the procedures and burdens in applying the evidentiary factors of obviousness. . . . The Court in *Graham* resolved prior inconsistencies and established what was seen as a wiser standard of obviousness. The Court established the factual premises and fixed the placement of the burdens. It is time to restore this salutary rigor.”); *Intercont’l Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1353-57 (Reyna, J., dissenting) (“For too long, this court has turned a blind eye to what I consider to be a grave concern: the application of a prima facie test that necessarily achieves a legal determination of obviousness prior to full and fair consideration of evidence of objective indicia of non-obviousness.”). This case presents such an opportunity.

Date: June 18, 2020

Respectfully submitted,

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ADDENDUM

United States Court of Appeals
for the Federal Circuit

UBER TECHNOLOGIES, INC.,
Appellant

v.

X ONE, INC.,
Appellee

2019-1164

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2017-
01255.

Decided: May 5, 2020

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Before PROST, *Chief Judge*, DYK and WALLACH,
Circuit Judges.

PROST, *Chief Judge*.

Uber Technologies, Inc. (“Uber”) appeals from a final written decision of the Patent Trial and Appeal Board (“Board”) finding claims 1, 2, 5, 6, 9, and 19 of U.S. Patent No. 8,798,593 (“the ’593 patent”) not unpatentable as obvious. *Uber Techs., Inc. v. X One, Inc.*, No. IPR2017-01255, Paper No. 41 (PTAB Oct. 12, 2018) (“*Final Written Decision*”). The Board’s conclusion was based on its determination that the asserted prior art does not render obvious the limitation “software . . . to transmit the map with plotted locations to the first individual.” Because the Board’s decision incorrectly applied the relevant legal principles, we reverse the Board’s non-obviousness determination as to this limitation, and remand for the Board to analyze the remaining limitations of the challenged claims in the first instance.

I

X One, Inc. (“X One”) owns the ’593 patent, which is generally directed towards exchanging location information between mobile devices. The ’593 patent describes a “Buddy Watch application” that allows a mobile device user to add other mobile device users to her “Buddy List.” ’593 patent Abstract, col. 2 ll. 51–66. The user can share her location with her Buddies through the application and then press a “Mapit” button to see the locations of all of her buddies displayed on a map. *Id.* at col. 6 ll. 29–38, col. 9 ll. 39–57. Alternatively, a user may set up “instant buddies” on a temporary basis. *Id.* at col. 1 ll. 63–67; *see id.* at col. 3 ll. 20–25. For example, a stranded motorist may wish to be instant buddies with the driver of a tow truck, allowing each phone to “show the location of the other phone on its moving map. This allows the tow truck driver to find

the user tow truck customer and the user customer to know where the tow truck driver is.” *Id.* at col. 15 ll. 26–38. The purported novelty of the ’593 patent lies in this “two way position information sharing,” *id.* at col. 1 ll. 30–31, the creation of such location sharing “groups,” *id.* at col. 1 ll. 62–63, and “temporary location sharing” that “automatically expires,” *id.* at col. 1 ll. 63–66.

Claim 1, which is representative for the purposes of this appeal, recites:

1. An apparatus, comprising:

a server;

a database representing an account for a first individual, the account having an associated buddy list that identifies multiple users; and

software responsive to a request from the first individual to obtain a map, to obtain a last known position for multiple users identified by the buddy list, and to plot the last known location of at least two of the multiple users on the map, and *to transmit the map with plotted locations to the first individual;*

where the software is to request and store position information associated with cell phones of plural ones of the multiple users and where the software is to permit the first individual to change geography represented by the map and to transmit to the first individual a map representing the changed geography with plotted position of at least one of the multiple users, each in a manner not requiring concurrent voice communications; and

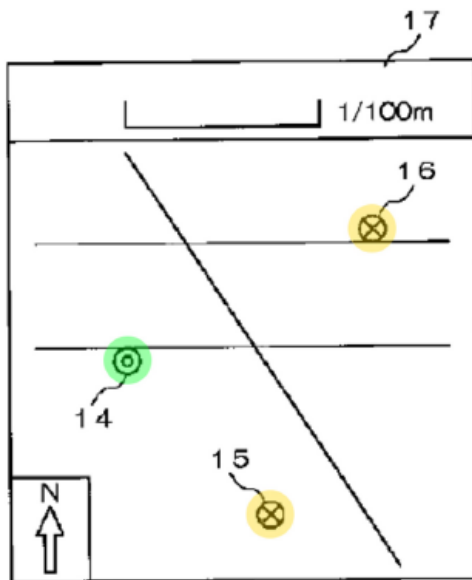
wherein the software to obtain the map is to obtain the map in a manner having a default geographic resolution.

Id. at claim 1 (emphasis added).

Uber filed a petition for inter partes review asserting that claims 1, 2, 5, 9, and 19 of the '593 patent were obvious in view of Japanese Unexamined Patent Application Publication No. 2002-10321 ("Okubo") in combination with Japanese Unexamined Patent Application Publication No. 2002-352388 ("Konishi"). In a second ground, Uber also asserted that claims 1, 2, 5, 6, and 9 were obvious in view of Okubo, Konishi, and U.S. Patent No. 6,636,803 ("Hartz").¹

Like the '593 patent, these pieces of prior art generally describe transmitting location information between mobile devices, including embodiments that can be used to show the locations of friends or vehicles. For example, Okubo describes a two-way "mobile terminal position information communication system" which "enable[s] acquisition of the position information for group members belonging to the same group." J.A. 1142 (English translation of Okubo). Mobile device users can form "groups" which allow each group member to see the locations of all other group members, and themselves, plotted on a map. J.A. 1142–43. Figure 3 depicts an exemplary plotted map that a user may see, showing the user's own location (14, annotated in green) as well as the locations of other group members (15 and 16, annotated in yellow):

¹ Uber's petition included two additional grounds of obviousness based on Japanese Unexamined Patent Application Publication No. 2002-199433 ("Makoto"), alone or in combination with Hartz. However, Uber has elected not to appeal the Board's decision with respect to those grounds. Appellant's Br. 18 n.3.



Appellant's Br. 10 (annotating Okubo Fig. 3, J.A. 1145); see J.A. 1142, 1144.

Konishi discloses a “vehicle allocation system” in which a “customer” can reserve a vehicle using their “mobile telephone set.” J.A. 1214–16. When “a customer searches for available vehicles” (i.e., taxis for hire), the system plots “the current positions of the customer and available vehicles” on a map and “transmits the map to an information terminal of the customer.” J.A. 1214. Once the customer reserves a vehicle, the user’s map also shows the location of that reserved vehicle, in addition to the locations of the user and other available vehicles. J.A. 1214–15.

The Board instituted review but concluded in its final written decision that Uber had failed to demonstrate that independent claim 1 was unpatentable as obvious. The Board concluded that the combination of Okubo and Konishi failed to render obvious the claim limitation “software . . . to transmit the map with plotted locations to the first individual.” *Final Written Decision*, at 24. Because this limitation is also present in independent claim 19, and because all other challenged claims depend from independent

claim 1, the Board found all challenged claims not unpatentable. The Board reached the same conclusion with respect to the second obviousness ground consisting of Okubo, Konishi, and Hartz, as Uber did not rely on Hartz for any teachings related to this limitation. *Id.* Accordingly, the Board did not analyze the remaining limitations of claims 1 or 19, nor did it analyze the challenged dependent claims.

Uber timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

II

“We review the Board’s factual findings for substantial evidence and review its legal conclusions de novo.” *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1280 (Fed. Cir. 2015). The Board’s ultimate determination on obviousness is a legal determination that we review de novo, although we review any underlying factual findings for substantial evidence. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015).

The parties’ dispute arises from the claim limitation “software responsive to a request from the first individual to obtain a map, to obtain a last known position for multiple users identified by the buddy list, and to plot the last known location of at least two of the multiple users on the map, *and to transmit the map with plotted locations to the first individual.*” ’593 patent claim 1 (emphasis added). This limitation requires a server to first plot certain known locations on a map, and then, only after plotting, to “transmit the map with plotted locations” to a user’s mobile device. It is undisputed that Konishi discloses such “server-side” plotting. Appellant’s Br. 2; Appellee’s Br. 19.

Okubo, in contrast, does *not* expressly disclose server-side plotting. Rather, as the Board found, Okubo discloses “terminal-side” plotting, wherein the user’s mobile device first receives a map and only then, on the mobile device,

are the locations of other users plotted on the map. *Final Written Decision*, at 22.

In its final written decision, the Board concluded that the combination of Okubo's system and Konishi's server-side plotting does not render obvious the server-side plotting limitation of claim 1 because such a combination "represents impermissible hindsight," or would be a "wholesale modification to Okubo." *Id.* at 23. The Board also concluded that, because Okubo "sufficiently teaches the implementation of plotting the locations of group members on a map on its mobile terminal," it was "not persuaded by [Uber's] assertions that one of ordinary skill would seek out a design choice for combination with Okubo." *Id.*

On appeal, Uber argues that these conclusions were legal error. It argues that the Board misapplied the law of obviousness under *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), because server-side plotting and terminal-side plotting were both well-known design choices in the prior art, and therefore it would have been obvious to substitute one for another. It also argues that the Board committed legal error by refusing to consider Okubo in combination with other prior art on the basis that Okubo was "successful" in and of itself.

A

The Supreme Court has "set forth an expansive and flexible approach" to "the question of obviousness" under 35 U.S.C. § 103. *KSR*, 550 U.S. at 415. The Court's discussion of design choices and predictable variations is instructive here.

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a

technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417. Moreover,

[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

Id. at 421.

As explained by Uber’s expert, and repeated in its petition, Okubo, Konishi, and the ’593 patent all attempt to solve the same problem—“helping one user view and track the location of other users.” J.A. 161, 1061. The ’593 patent itself identifies this same design need as existing in the field of mobile location tracking at the time of its invention. “One of the needs business, families, and individuals have is the need to know where their employees, children and friends are.” ’593 patent col. 1 ll. 27–29. According to Uber’s expert, Okubo “states that it addresses the problem of ‘enable[ing] recognition of the mutual current positions of multiple mobile terminals,” J.A. 1061 (quoting Okubo at Abstract), and Konishi addresses “the problem of enabling the recognition of the mutual current positions of multiple terminals in the context of a user ordering a taxi service, letting the user see and track the location of multiple taxi vehicles.” J.A. 1061 (citing Konishi at Abstract). Likewise, as the ’593 patent notes, “[i]t is useful to be able to share locations among multiple cell phones” and to “have a map

display on cell phones which are picture enabled and to plot the locations on the map of persons in a group.” ’593 patent col. 2 ll. 3–15.

The record reflects only two possible methods of achieving this: server-side plotting and terminal-side plotting. Both were undisputedly known in the prior art. As the Board found, Konishi expressly discloses server-side plotting and Okubo discloses terminal-side plotting. *Final Written Decision*, at 15–16; see J.A. 1144. And as Uber argues, a person of ordinary skill in the art would have recognized server-side plotting and terminal-side plotting as the two available methods for displaying a map with plotted locations. J.A. 2751–52; see J.A. 1068–69.² The parties have identified only these two methods of transmitting location information to a mobile device. See Appellant’s Br. 32; Appellee’s Br. 28; J.A. 2751–52; J.A. 2278–93. Accordingly, server-side plotting and terminal-side plotting represent “a finite number of identified, predictable solutions” to a design need that existed at the relevant time, which a person of ordinary skill in the art “ha[d] good reason to pursue.” *KSR*, 550 U.S. at 421.

Importantly, the alleged novelty of the ’593 patent is not related to the differences between server-side or terminal-side plotting. ’593 patent col. 1 ll. 30–31 (identifying purported novelty as “two way position information sharing”). The specification of the ’593 patent is entirely silent on how

² Uber argued before the Board that Okubo teaches displaying a map on the user’s device, but is silent on whether plotting occurs server-side or terminal-side. The Board disagreed and found that Okubo discloses terminal-side plotting. While Uber disagrees with that finding, it argues that the Board’s legal conclusion of non-obviousness cannot stand even if we credit its findings related to Okubo, as Konishi teaches the claimed server-side plotting. Appellant’s Br. 27 n.5. As discussed above, we agree.

to transmit user locations and maps from a server to a user's mobile device, suggesting that a person of ordinary skill in the art was more than capable of selecting between the known methods of accomplishing this. The '593 patent confirms that its invention, including any necessary plotting, "utilizes existing platforms and infrastructure" and does not "require development of new cell phone or PDA technology, nor do[es it] require development of new cellular communication infrastructure." *Id.* at col. 2 ll. 44–50.

Accordingly, we hold that the Board erred when it determined that a person of ordinary skill in the art would not have been motivated to combine the teachings of Okubo with Konishi's server-side plotting to render obvious the limitation "software . . . to transmit the map with plotted locations to the first individual." This combination does not represent "impermissible hindsight" or "wholesale modification," as the Board found. *Final Written Decision*, at 22. Rather, because Okubo's terminal-side plotting and Konishi's server-side plotting were both well known in the art, and were the only two identified, predictable solutions for transmitting a map and plotting locations, it would have been obvious to substitute server-side plotting for terminal-side plotting in a combination of Okubo and Konishi. *See KSR*, 550 U.S. at 421. The combination of Okubo with Konishi's known server-side plotting is obvious because it would have been a "predictable variation" of Okubo's system as written, using a technique that was known to one of ordinary skill in the art. *Id.* at 417.

Our prior decision in *CRFD Research, Inc. v. Matal*, 876 F.3d 1330 (Fed. Cir. 2017), reinforces this conclusion. In that case, the claim in question required "transmitting a session history . . . *after* said session is discontinued." *Id.* at 1334 (emphasis added). The petitioner argued that this was one of only two possible solutions: either the session history was transmitted *after* the session is discontinued, or was transmitted *before* the session is discontinued, and a person of ordinary skill would have understood that prior

art systems could perform either. *Id.* at 1346. As here, the Board in *CRFD* found that while the claim required one solution (transmitting after discontinuation), a prior art reference taught only the other solution (transmitting before discontinuation). *Id.* at 1344–45. The Board concluded that the petitioner had “failed to provide a sufficient reason for why” a person of ordinary skill would be motivated to modify the prior art to implement the second solution. *Id.* at 1345 (internal quotation marks and citation omitted). We reversed, explaining that “a person of ordinary skill would have two predictable choices for when the [prior art] would transmit browser information, providing a person of ordinary skill with a simple design choice” between the two options. *Id.* at 1347 (citing *KSR*, 550 U.S. at 421).

The same is true here. The difference between server-side plotting and terminal-side plotting amounts to a design choice between whether to plot locations *before* transmitting location information (server-side plotting) or *after* transmitting location information (terminal-side plotting). A person of ordinary skill would therefore have two predictable choices for when to perform plotting, providing them with a simple design choice as to whether to plot server-side or terminal-side. *Id.* Because a person of ordinary skill “has good reasons to pursue the known options within his or her technical grasp,” § 103 bars the patentability of such obvious variations. *KSR*, 550 U.S. at 417, 421; *see also ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1367 (Fed. Cir. 2016) (explaining that where an “ordinary artisan would . . . be left with two design choices . . . [e]ach of these two design choices is an obvious combination”); *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010) (holding that a motivation to combine and a reasonable expectation of success exist when “it is simply a matter of common sense” to combine known elements of the prior art to solve a known problem).

X One attempts to distinguish *CRFD* on the ground that the patent owner in that case “admitted that design choices were ‘equally likely’” while, here, the “proposed alteration would result in a ‘wholesale modification’ of Okubo.” Appellee’s Br. 38 (quoting *Final Written Decision*, at 23). We find this argument circular. The Board’s conclusion that the proposed combination would be a “wholesale modification” of Okubo was based on failure to recognize that, under *KSR*, server-side and terminal-side plotting are two known, finite, predictable, solutions for solving the same problem. Conclusions based on that legal error cannot undermine our correct application of *KSR* and *CRFD*. Even if the two proposed solutions would have required different implementation, that does not negate the fact that server-side and terminal-side plotting are two known, finite, predictable solutions for solving the same problem which, consistent with precedent, renders obvious the challenged limitation.

We are also not persuaded by X One’s technical arguments attempting to distinguish the systems of Okubo and Konishi. X One argues that Okubo uses a “low-data-rate differential GPS (DGPS) system” while Konishi uses a “cellular” network. Appellee’s Br. 2. As an initial matter, X One wrongly asserts that the Board agreed with or adopted these factual contentions. It did not. The Board merely included this argument in its recitation of X One’s contentions. J.A. 18. It is not clear from the record that Okubo is necessarily limited to DGPS systems, as X One contends. For example, Uber’s expert testified that the “mobile terminals” used in Okubo “could be cell phones.” J.A. 1070. And X One’s expert testified that DGPS systems were not ordinarily capable of “two-way communication,” despite X One’s contention that Okubo disclosed a two-way communication system. J.A. 2915.

Ultimately, however, it does not matter whether Okubo teaches cellular transmission or merely DGPS transmission, because Konishi undisputedly discloses a cellular

network. “[I]t is not necessary that [two pieces of prior art] be physically combinable to render obvious” the asserted patent. *Allied Erecting and Dismantling Co., Inc. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (quoting *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983)). Rather, the question is “whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole.” *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (noting that whether one prior art reference can be incorporated into another is “basically irrelevant.”) In evaluating the combination of Okubo and Konishi, the prior art undisputedly discloses cellular networks. The precise breadth of Okubo’s teachings on their own, whatever it may be, does not alter our conclusion that, viewing the prior art as a whole, server-side plotting and terminal-side plotting were two known, finite, predictable solutions for achieving the transmission of maps and plotted locations, including by cellular networks.

Accordingly, we find that the Board erred in determining that the combination of Okubo and Konishi does not render obvious the limitation “software . . . to transmit the map with plotted locations to the first individual.” Because terminal-side plotting (as described in Okubo) and server-side plotting (as described in Konishi and claimed in the ’593 patent) would have been two of a finite number of known, predictable solutions at the time of the invention of the ’593 patent, a person of ordinary skill would have faced a simple design choice between the two, and therefore would have been motivated to combine the teachings of Okubo and Konishi to achieve the limitation.

B

Because we conclude that the limitation is obvious for the reasons discussed above, we do not reach Uber’s alternative argument that the Board erred by failing to consider Okubo in light of other prior art because it was “successful” on its own.

III

For the reasons stated above, we reverse the Board's determination as to the obviousness of the limitation "software . . . to transmit the map with plotted locations to the first individual" in view of Okubo and Konishi. We therefore remand for the Board to evaluate in the first instance the remaining limitations of the claims challenged in grounds 1 and 2 of Uber's petition.

REVERSED AND REMANDED

COSTS

The parties shall bear their own costs.

CERTIFICATE OF COMPLIANCE

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Date: June 18, 2020

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