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Paper 73
Date: January 20, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PNC BANK N.A.,
Petitioner,

v.

UNITED SERVICES AUTOMOBILE ASSOCIATION,
Patent Owner.

IPR2021-01077
Patent 10,621,559 B1

Before KRISTEN L. DROESCH, TERRENCE W. McMILLIN, and JULIET MITCHELL DIRBA, *Administrative Patent Judges.*

DIRBA, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
Dismissing Petitioner's Motion to Exclude
Dismissing Patent Owner's Motion to Exclude
Denying Patent Owner's Motion to Submit Supplemental Information
35 U.S.C. § 318

On January 24, 2022, we instituted an *inter partes* review of claims 1–18 of U.S. Patent No. 10,621,559 B1 (Ex. 1101, "the '559 patent"). Paper 21 ("Inst. Dec."). Having considered the full record at trial, and for the reasons explained below, we determine that Petitioner has shown that claims 1–18 of the '559 patent are unpatentable. In addition, we dismiss as moot Petitioner's Motion to Exclude (Paper 58) and Patent Owner's Motion to Exclude (Paper 59), and we deny Patent Owner's Motion to Submit Supplemental Information (Paper 70).

I. BACKGROUND

A. History of this Proceeding

On July 21, 2021, PNC Bank N.A. ("Petitioner") filed a Petition requesting *inter partes* review of claims 1–18 of the '559 patent (Paper 4 ("Pet.")), and Petitioner submitted a declaration from Dr. Brian Noble in support (*see* Ex. 1102). During the preliminary proceeding, United Services Automobile Association ("Patent Owner") filed a preliminary response (Paper 11), Petitioner filed a pre-institution reply (Paper 16), and Patent Owner filed a pre-institution sur-reply (Paper 20).[1] On that record, we determined that Petitioner had demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of at least one challenged claim, and we instituted an *inter partes* review of all challenged claims on all asserted grounds. Inst. Dec. 49–50.

During trial, Patent Owner filed a Response (Paper 35, "PO Resp."), Petitioner filed a Reply (Paper 38, "Pet. Reply"), and Patent Owner filed a

[1] Papers 8, 14, and 17 are the confidential, sealed versions of these papers. *See* Inst. Dec. 2 n.1, 48–49.

Sur-reply (Paper 54, "PO Sur-reply"). Petitioner submitted a supplemental declaration from Dr. Noble in support of its Reply (*see* Ex. 1172), and Patent Owner deposed Dr. Noble twice and filed the corresponding transcripts (*see* Ex. 2020; Ex. 2034). Patent Owner did not introduce testimony from its experts in support of its arguments.

However, Patent Owner introduced and relied upon statements made by experts retained by Petitioner in other proceedings. *See* Ex. 2015 (Dr. Noble's declaration from IPR2021-01071); Ex. 2018 (excerpt of Dr. Omid E. Kia's expert report from *PNC I*);[2] Ex. 2030 (different excerpt of Dr. Kia's expert report from *PNC I*); Ex. 2032 (excerpts of Dr. Kia's trial testimony from *PNC I*); Ex. 2033 (excerpts of Mr. David Peterson's deposition testimony from *PNC II*).[3] The parties subsequently agreed to allow Petitioner to introduce Exhibits 1173–1176, which similarly include statements made by Dr. Kia and Mr. Peterson for *PNC I* and *PNC II*, but these papers are not addressed or cited in the merits briefing.[4] *See* Ex. 1178, 26:10–28:8 (transcript of conference call with the Board).

Petitioner and Patent Owner each filed a motion to exclude some of the other party's exhibits. Papers 58, 59. Specifically, Petitioner seeks to

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[2] *PNC I* and *PNC II* refer to related district court litigation between the parties. *See infra* § I.B (Related Matters).

[3] Exhibits 2032 and 2033 are discussed only in Patent Owner's Sur-Reply because we authorized Patent Owner to file these exhibits as supplemental information between the filing of the Reply and the Sur-reply. Paper 45; *see* Paper 40 (Patent Owner's Motion to Submit Supplemental Information); Paper 42 (Petitioner's Opposition). Petitioner did not seek leave to file an additional paper addressing these documents.

[4] Exhibits 1173–1176, however, are referenced in Petitioner's Opposition to Patent Owner's Motion to Submit Supplemental Information. *See* Paper 42.

exclude Exhibits 2002, 2004, 2005, 2008–2013, 2030, 2032, and 2033 (Paper 58), and Patent Owner seeks to exclude Exhibits 1173–1176 (Paper 59). Both of these motions are opposed, and the movants filed replies in support. Papers 61–64. For the reasons explained in Sections III.A and III.B, we dismiss both motions as moot.

An oral hearing was held on October 26, 2022, and a transcript of the hearing is included in the record. Paper 70 ("Tr.").

Finally, after the oral hearing, Patent Owner filed a second motion to submit supplemental information pursuant to 37 C.F.R. § 42.123(b) (Paper 71), and Petitioner opposed (Paper 72). *See* Paper 69 (Order authorizing motion). The information Patent Owner seeks to introduce was not addressed in the parties' merits briefs and was not discussed at the oral hearing. For the reasons explained in Section III.C, we deny that motion.

B. Related Matters

The parties indicate that Patent Owner asserted the '559 patent against Petitioner in *United Services Automobile Association v. PNC Bank N.A.*, Case No. 2:20-cv-00319 (E.D. Tex.) ("*PNC I*"). Pet. 2; Paper 6, 2. The parties state that Patent Owner has also asserted patents against Petitioner in both *United Services Automobile Association v. PNC Bank N.A.*, Case No. 2:21-cv-00110 (E.D. Tex.), which was consolidated with *PNC I*, and *United Services Automobile Association v. PNC Bank, N.A.*, 2:21-cv-00246 (E.D. Tex.) ("*PNC II*"). Pet. 2; Paper 6, 2–3.

Petitioner filed another petition challenging the '559 patent in IPR2021-01076. *See* Pet. 3; Paper 6, 3. The Board denied institution of that proceeding. *PNC Bank N.A. v. United Services Automobile Association*, IPR2021-01076, Paper 21 (PTAB Jan. 24, 2022). This Decision refers to

papers in that proceeding to provide additional context for two aspects of our analysis. *See infra* notes 17, 34.

The parties' mandatory notices also identify other Board proceedings. Pet. 2; Paper 6, 3; Paper 23, 1–2. The proceedings that involve or involved patents related to the '559 patent are listed in the following table:[5]

Challenged Patent	Case No.	Petitioner
U.S. 9,224,136	CBM2019-00027	Wells Fargo Bank, N.A.
	IPR2022-00075	PNC Bank N.A.
U.S. 10,013,681	CBM2019-00028	Wells Fargo Bank, N.A.
	IPR2020-01650	Mitek Systems, Inc.
	IPR2021-01381	PNC Bank N.A.
U.S. 10,482,432	IPR2021-01071	PNC Bank N.A.
	IPR2021-01074	PNC Bank N.A.

Of these, the Board instituted an *inter partes* review in IPR2022-00075 (which is currently pending), and the Board denied institution of the other petitions.

[5] Patent Owner lists only a subset of these proceedings. Paper 6, 3. Petitioner's mandatory notices identify proceedings involving unrelated patents (Paper 23, 1–2), without explaining why any of those may affect or be affected by a decision in this proceeding (*see* 37 C.F.R. § 42.8(b)(2)), so we do not list those proceedings.

C. The Grounds

We instituted trial on the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 10–12	103(a)[6]	Garcia[7], Randle[8], Slater[9]
4, 9, 13, 18	103(a)	Garcia, Randle, Slater, Lev[10]
5, 14	103(a)	Garcia, Randle, Slater, Lev, Watanabe[11]
6, 15	103(a)	Garcia, Randle, Slater, Lev, Watanabe, Aoyama[12]
7, 8, 16, 17	103(a)	Garcia, Randle, Slater, Byrne[13]

[6] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. The challenged patent claims priority to an application filed before March 16, 2013, so we refer to the pre-AIA version of Section 103, but our findings and analysis would be the same under the current version of the statute.

[7] WO 2005/043857 A1, published May 12, 2005 (Ex. 1103). Petitioner relies on a certified translation of this publication, which is included in Exhibit 1103.

[8] US 2006/0106717 A1, published May 18, 2006 (Ex. 1104).

[9] EP 0984410 A1, published Mar. 8, 2000 (Ex. 1105).

[10] US 2006/0164682 A1, published July 27, 2006 (Ex. 1106).

[11] US 7,027,171 B1, issued Apr. 11, 2006 (Ex. 1107).

[12] US 2002/0172516 A1, published Nov. 21, 2002 (Ex. 1108).

[13] US 2006/0249567 A1, filed Feb. 9, 2006, published Nov. 9, 2006 (Ex. 1109).

D. Summary of the '559 Patent

The '559 patent is titled "Systems and Methods for Remote Deposit of Checks." Ex. 1101, code (54). The application leading to this patent was filed on April 11, 2019, claiming priority through a series of continuations to an application filed on October 31, 2006. *Id.* at codes (22), (63).

The Specification explains that there are advantages and disadvantages to using a check to purchase goods or services. *See* Ex. 1101, 1:25–2:31. One disadvantage is that "receiving a check may put certain burdens on the payee, such as the time and effort required to deposit the check," because "depositing a check typically involves going to a local bank branch and physically presenting the check to a bank teller." *Id.* at 2:5–9. To address this, the '559 patent provides a method "for remotely redeeming a negotiable instrument," such as a check, using "a customer-controlled general purpose computer." *Id.* at 2:35–41.

Figure 1 (reproduced below) shows a system in which the described method may be employed. Ex. 1101, Fig. 1, 2:35–41, 3:17–18.

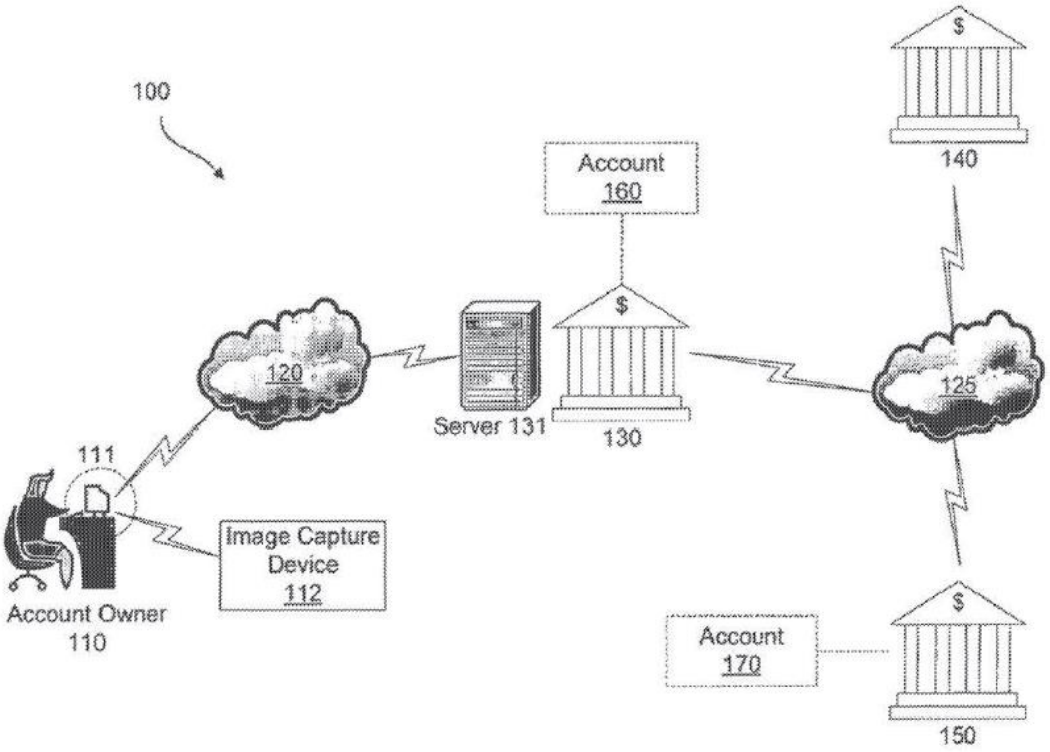


FIGURE 1

As depicted above, Figure 1 illustrates a system 100 that includes account owner 110 (e.g., a bank customer at his private residence) and an associated customer-controlled general purpose computer 111 and image capture device 112, as well as financial institutions 130, 140, and 150 (e.g., banks). *Id.* at 3:49–53, 4:59–64, 5:4–9, 5:26–31.

To deposit a check, account owner 110 converts the check into electronic data by, for example, "scanning the front and/or back of the check using image capture device 112," and then general purpose computer 111 sends that data to financial institution 130. Ex. 1101, 5:60–6:8. After receiving the image, financial institution 130 communicates with other financial institutions (e.g., 140 and 150) to clear the check. *Id.* at 6:11–49. For example, financial institution 130 may create a substitute check using the image provided by account owner 110 and present the substitute check to

an intermediary (financial institution 140), which identifies the paying bank (financial institution 150). *Id.* at 6:21–28. Financial institution 140 then presents the substitute check to financial institution 150, and "[i]f financial institution 150 verifies the check (i.e., agrees to honor the check), financial institution 140 may then settle the check by debiting funds from financial institution 150 and crediting funds to financial institution 130." *Id.* at 6:32–38. Financial institutions 130 and 150 make the appropriate changes in the respective accounts (i.e., accounts 160 and 170). *Id.* at 6:11–13, 6:38–39.

E. Challenged Claims

Petitioner challenges all 18 claims of the '559 patent. Of these, claims 1 and 10 are independent. Claim 1 is illustrative:

> 1. [pre] A computing device for processing a remote deposit of a check, the computing device comprising:
>
> [a] first processing circuitry;
>
> [b] a first memory having stored thereon executable instructions that, when executed by the first processing circuitry, cause the first processing circuitry to perform first operations including:
>
> > [c] receive a digital image depicting at least portions of the check submitted by a user for the remote deposit of the check, the digital image transmitted using a mobile device associated with an image capture device, the digital image being captured by the image capture device;
> >
> > [d] detect an image format of the digital image;
> >
> > [e] determine the digital image is stored in a first image format;
> >
> > [f] convert the digital image into a second image format, wherein an image quality of the first image format is greater than an image quality of the second image format;

[g] apply optical character recognition to the digital image;

[h] determine an amount for the remote deposit of the check based on the optical character recognition applied to the digital image;

[i] compare the determined amount against a customer-entered amount;

[j] optically read a magnetic ink character recognition (MICR) line depicted in the digital image;

[k] determine a routing number from the optically read MICR line;

[l] perform duplicate check detection on the check depicted in the digital image based at least in part on information obtained via the optical character recognition applied to the digital image; and

[m] determine the digital image is suitable for creating a substitute check and sufficient to go forward with the deposit;

[n] second processing circuitry; and

[o] a second memory having stored thereon executable instructions that, when executed by the second processing circuitry, cause the second processing circuitry to perform second operations including:

[p] accepting the digital image for check deposit in place of the check depicted in the digital image.

Ex. 1101, 14:22–65 (references added in brackets).

II. ANALYSIS

A. Legal Standards

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are "such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The legal question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of obviousness or nonobviousness.[14] *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR*, 550 U.S. at 418.

In an *inter partes* review, the petitioner has the burden of proving unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). That burden never shifts to the patentee. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

We implement procedures to facilitate a just, speedy, and inexpensive resolution of the proceeding (*see* 37 C.F.R. § 42.1(b)), and to that end, we place limitations on the contents of reply and sur-reply briefs and the parties' oral hearing presentations. Any arguments presented in the Reply or Sur-reply that are not fairly responsive to arguments raised in the preceding merits brief are untimely and forfeited. *See id.* § 42.23(b) (limiting scope of replies and sur-replies); Trial Practice Guide[15] 73–74 (explaining that "replies and sur-replies can help crystalize issues for decision" but cannot

[14] The record does not include allegations or evidence of objective indicia of obviousness or nonobviousness.

[15] PTAB Consolidated Trial Practice Guide (Nov. 2019), *available at* https://www.uspto.gov/TrialPracticeGuideConsolidated.

"proceed in a new direction with a new approach" or belatedly raise new issues or evidence); *see also* Trial Practice Guide 73 (explaining that a petitioner "may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability"). Similarly, any arguments for patentability that Patent Owner did not raise in the Response are forfeited. *See* Paper 22 (Scheduling Order), 8 (cautioning Patent Owner that "any arguments not raised in the response may be deemed waived");[16] Trial Practice Guide 52; *see also In re NuVasive, Inc.*, 842 F.3d 1376, 1380–82 (Fed. Cir. 2016) (holding that argument raised in the preliminary response but not raised in a patent owner response was waived). The parties' oral hearing presentations were limited to arguments made in their briefs. Paper 53 (Order Setting Argument), 2–3; Tr. 4:2–3; *see* Trial Practice Guide 85–86. Any new arguments raised at oral hearing are untimely and also forfeited. *See also Dell Inc. v. Acceleron, LLC*, 818 F.3d 1293, 1301 (Fed. Cir. 2016) (holding Board erred by relying on argument first presented at oral hearing).

B. The Level of Ordinary Skill in the Art

Our reviewing court has explained that "the level of skill in the art is a prism or lens through which a judge, jury, or the Board views the prior art and the claimed invention." *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (citing *Al-Site Corp. v. VSI International, Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999)). "This reference point prevents these

[16] *See In re Google Tech. Holdings LLC*, 980 F.3d 858, 862–63 & n.8 (Fed. Cir. 2020) (explaining that "forfeiture is the failure to make the timely assertion of a right" and noting that the court and parties have sometimes used the term "waiver" when applying the doctrine of forfeiture).

factfinders from using their own insight or, worse yet, hindsight, to gauge obviousness." *Id.*

Petitioner asserts that the level of ordinary skill in the art corresponds to "a bachelor's degree in electrical engineering, computer science, computer engineering, or equivalent field" and "two years of prior experience with image capturing/scanning technology, involving transferring and processing of image data to and at a server." Pet. 15–16 (citing Ex. 1102 ¶¶ 42–45). Petitioner further asserts that "[l]ess work experience may be compensated by a higher level of education, and vice versa." *Id.* at 16. For purposes of the Institution Decision, we adopted Petitioner's proposal (Inst. Dec. 17), and neither party addresses the level of ordinary skill in the post-institution briefs (*see* PO Resp.; Pet. Reply).

In this Decision, we again adopt the level of ordinary skill proposed by Petitioner. We are satisfied that it generally comports with the level of skill necessary to understand and implement the teachings of the '559 patent and the asserted prior art. *Accord* Inst. Dec. 17.

C. Claim Construction

We interpret claim terms using "the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b). Under the principles set forth by our reviewing court, the "words of a claim 'are generally given their ordinary and customary meaning,'" as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

In the Petition, Petitioner identified several claim constructions proposed or agreed-upon by Petitioner and/or Patent Owner in *PNC I*. Pet. 12–15. In the Institution Decision, we preliminarily determined that none of those terms or phrases required construction. Inst. Dec. 18–19. At trial, the parties address the construction of a claim term and two phrases, all of which appear in the independent claims. *See* PO Resp. 19–30; Pet. Reply 1–7. These arguments are best organized into two claim construction issues, which we discuss in turn.

1. "Computing Device" and "Accepting . . ." Limitations

The term "computing device" appears only in the preamble of the challenged claims. *See* Ex. 1101, 14:22–16:61. Patent Owner submits that this term limits the claim and means "general purpose computer." PO Resp. 19 (citing Pet. 13–14; Ex. 1159, 25–29); *see also id.* at 30. But, in explaining its arguments, Patent Owner asserts that this "general purpose computer" can be more than one server or device, so long as these devices do not "comprise multiple systems at separate and unaffiliated institutions." *Id.* at 21; *see* Tr. 60:1–4, 62:9–63:7. Patent Owner submits claim 1 states that the "computing device" comprises both the recited first and second processing circuitry and memory, which respectively are able to perform the steps recited in the claim. PO Resp. 19. From this, Patent Owner contends that claim 1 requires one or more devices at a single institution that can perform each of the claimed steps, including the "accepting" limitation recited by element 1[p]. *Id.* at 19–21; *see id.* at 26–27. In addition, and relatedly, Patent Owner contends that the claimed phrase "accepting the digital image for check deposit . . ." must necessarily occur at a depositor's bank (in other words, the payee bank) because that is where check deposit

necessarily occurs. *Id.* at 20–21, 23–26; *see id.* at 23–25 (arguing that check deposit is "separate" from clearing a check with the payor bank). According to Patent Owner, either of these constructions show that the Petition is defective because the Petition is premised on a contention that the payor bank or a clearing house performs the "accepting" limitation (e.g., element 1[p]). *Id.* at 27.

We do not need to resolve these arguments because, even assuming that the payee bank must perform the "accepting" limitation, as Patent Owner contends, we find that Petitioner has shown that the challenged claims would have been obvious over the cited references. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that "we need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). We address the corresponding claim limitations in Section II.E.1.b, below.

However, if we needed to substantively address these arguments, we would reject Patent Owner's proposed constructions. As for the "accepting" limitation, we agree with Petitioner's arguments (*see* Pet. Reply 5–7) that the intrinsic record does not limit the term "accept[]" to only include acceptance by the depositor's bank (i.e., the payee bank). *See also* PO Sur-reply (not disputing these arguments). Moreover, although Patent Owner relies on the premise that a check is deposited at the payee bank, the claim language recites "accepting [a] digital image *for check deposit* in place of the check," rather than *depositing a check* using a digital image. In addition, contrary to Patent Owner's arguments (*see* PO Resp. 21–23, 26–27), the Specification indicates that both the payor and payee banks use the digital image of the

check in the check depositing process. *See, e.g.*, Ex. 1101, 5:60–6:39, Fig. 1. In addition, the Specification supports Petitioner's interpretation of the term "accept": it uses this term (and its derivates) to refer exclusively to a third party (such as a payor bank) accepting a check as part of the check depositing process. *See id.* at 11:66–12:5. Finally, as to Patent Owner's arguments regarding the differences between check deposit and clearance (*see* PO Resp. 23–25), these arguments lack sufficient explanation and evidentiary support. In particular, although we agree that deposit and clearance have different meanings, we do not agree that the description of clearing a check is irrelevant to this claim language. For at least these reasons, Patent Owner's proposed construction of the "accepting" limitation is erroneous.[17]

As for the "computing device" (a term that only appears in the preamble), we are not persuaded that this term is limiting and means a "general purpose computer," as Patent Owner contends. Patent Owner does

[17] Incidentally, we also agree with Petitioner (*see* Pet. Reply 2–3) that Patent Owner's arguments in this proceeding are inconsistent with those successfully advanced in IPR2021-01076, in which we denied institution of Petitioner's other challenge to the same claims. *See*, *e.g.*, Ex. 1161 (Preliminary Response in the 1076 IPR), 62 (arguing that "the claims permit the recited 'first' and 'second' circuitry to be implemented in one or more servers or other systems," without specifying that those servers or systems be commonly controlled); Ex. 1168 (Institution Decision in the 1076 IPR), 22 (finding that the written description discloses second circuitry in the payor bank). For context, we observe that Patent Owner's arguments regarding the scope of this limitation also appear to be in tension with those it made in *PNC I*. *See also* Ex. 1162 (Patent Owner's *Markman* Brief), 22 (arguing the second circuitry "can be one server or multiple servers" as "[t]he purpose of the 'circuitry' language is to make clear that the recited functions are performed by circuitry in the system, not humans").

not substantiate its position in this regard, instead relying on the parties' purported agreement. *See* PO Resp. 19 (citing Pet. 13–14; Ex. 1159, 25–29); *see also* Ex. 1159, 25–29 (stating that the parties agree that "computing device" is limiting and analyzing whether other aspects of the preamble are limiting). We determine that we are not bound by that agreement[18] because Patent Owner's arguments rely on a particular (and unusual) understanding of the scope of the term "general purpose computer," and Petitioner disagrees with that understanding. *See VLSI Tech. LLC v. Intel Corp.*, 53 F.4th 646, 654 (Fed. Cir. 2022) (noting "this was not a case in which the parties actually agreed on the proper claim construction"). In our view, Patent Owner's contention that the claimed "computing device" includes several computers *only if they are commonly controlled* is not supported by the intrinsic record. *See* Tr. 60:1–4, 62:9–63:7 (explaining contention); PO Resp. 21–23 (arguing that the intrinsic record supports its interpretation because the Specification consistently describes a single financial institution as performing the claimed steps). Further, we perceive no basis for concluding that the preamble's recitation of a "computing device" is limiting. *See* Tr. 29:3–30:5, 31:9–12; *cf.* Ex. 1159, 25–29 (instead addressing whether other aspects of the preamble are limiting). "Generally, the preamble does not limit the claims," and we discern no reason for concluding that the computing device "recites essential structure or steps" or "is necessary to give life, meaning, and vitality to the claim." *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002); *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir.

[18] The Board is not limited to the claim constructions proffered by the parties, but may adopt its own claim construction. *See WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1328 (Fed. Cir. 2018).

2002) (internal quotation omitted). As a result, on this record, we conclude that the preamble is not a limitation.

Finally, we observe that Patent Owner provides no basis for asserting that its construction of "computing device" reveals a deficiency in Petitioner's arguments regarding independent claim 10. *See* Tr. 61:15–62:2 (appearing to agree); *cf.* PO Resp. 20 (including claim 10 without explanation). Claim 1 is an apparatus claim reciting "[a] computing device" that comprises first and second circuitry and memory operable to perform various steps. Ex. 1101, 14:22–65. Claim 10 recites substantially similar steps, but it is a method claim that does not specify whether any of the steps are performed in the computing device. *Id.* at 15:38–16:17. Thus, we determine that this aspect of Patent Owner's argument does not apply to independent claim 10 (and its dependent claims).

2. "suitable for creating a substitute check"

Patent Owner contends that "suitable for creating a substitute check" means "in a form that is sufficient for creating a reproduction of an original check that can be processed in place of the original." PO Resp. 30 (citing Pet. 14–15; Ex. 1159, 25–29, 32–34). This is the construction of this phrase adopted by the district court (Ex. 1159, 34), and Petitioner does not dispute it in this proceeding (*see* Pet. Reply). But Patent Owner does not explain *why* this construction is necessary or beneficial here. For example, Patent Owner does not dispute Petitioner's contentions that the references teach this limitation. *See* PO Resp.; *see also infra* § II.E.1.f (addressing element 1[m]). In addition, we discern no dispute that would be resolved by construing this phrase. *See Nidec*, 868 F.3d at 1017. Although it contains slightly different language than the two alternative proposals addressed in

the Petition (*see* Pet. 14, 56–59), Patent Owner identifies (and we perceive) no relevant differences vis-à-vis the patentability issues presented in this proceeding. Thus, we decline to construe this phrase in this Decision. However, our findings and analysis would be the same if we had instead adopted Patent Owner's proposed construction.

D. Summary of Prior Art

1. Garcia (Ex. 1103)[19]

Garcia describes a method of transmitting a digital image of a check from a mobile device to a financial institution (such as a bank) for validation, processing, and storage. Ex. 1103, code (57), 1:6–13, 4:1–18. In this way, a check can be "deposit[ed] into the existing account at a banking institution . . . by a user using a mobile device that incorporates a camera." *Id.* at 4:14–16. According to Garcia, its "system achieves greater simplicity, speed, and security . . . in depositing checks[] by replacing the traditional check reader with a multi-purpose mobile device." *Id.* at 7:18–22; *see id.* at 7:22–8:14 (further explaining these benefits).

Figure 2 (reproduced below) illustrates an example mobile device and financial institution that can use Garcia's method. Ex. 1103, 9:6–7.

[19] The English translation of Garcia begins on page 28 of Exhibit 1103. Unless otherwise noted, we follow the parties' convention and cite to pages and lines within the English translation.

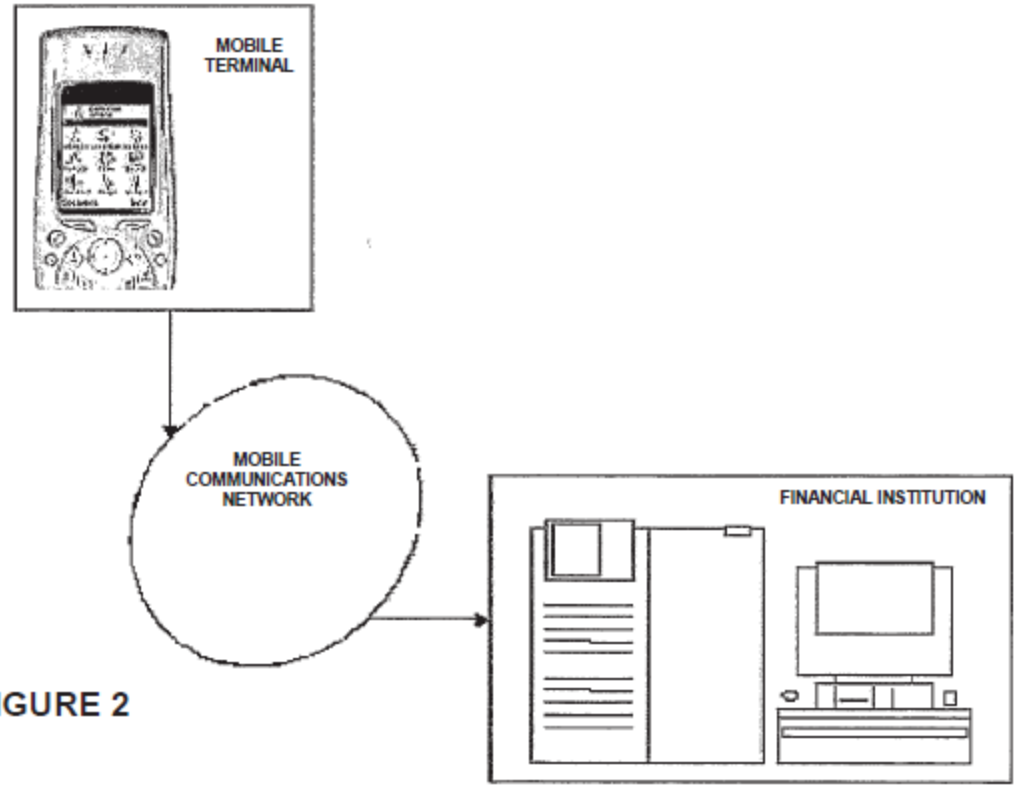


Figure 2 (reproduced above) shows a mobile device and a financial institution that are connected via a mobile communications network.

In Garcia's method, a session is opened with the receiving institution, and a user enters "user recognition data, consisting of security keys for the user's identification and authentication . . . as well as data associated with the document itself, such as the amount." Ex. 1103, 5:9–20; *see also id.* at 9:21–10:9. The mobile device then captures a digital image of the document and transmits both the digital image and the user recognition data to the institution. *Id.* at 5:21–6:5; *see also id.* at 10:10–18. The institution then "[r]ecogniz[es], verif[ies], and electronically treat[s] and process[es] the information received." *Id.* at 6:8–10. For these tasks, the institution "must have certain electronic means . . . consist[ing] basically of computer equipment connected to the Internet that has an optical character recognition (OCR) system, a code authentication system and means of transmitting data

to the institution's document processing system." *Id.* at 11:7–15. Garcia states that the financial institution "processes the document in question by the usual means (truncation systems)," but does not further explain how this is done. *Id.* at 11:15–19.

2. Randle (Ex. 1104)

Randle describes an "electronic end to end check processing" system that captures "check payment data and an electronic image of the check" and performs dynamic quality assurance (QA) and routing in order to settle and clear the check. Ex. 1104, code (57), ¶¶ 2, 4; *see id.* ¶ 7 (noting that the invention "capture[s], validate[s] and clear[s] transactions" with "the electronic capture of paper items").

In Randle, a deposit bank captures an image of the front and back of the check and "collects information such as the payee name, bank, payee's account number, the amount of the check and the MICR data." Ex. 1104 ¶ 19. Then, based on the transaction profile, dynamic QA "is performed on a captured check image and its related transaction data." *Id.* ¶ 42. The QA (which can include parallel paths) may evaluate "pre-stored information criteria" such as "human input amount," "OCR amount," "MICR read," and/or "point of presentment." *Id.* ¶ 74, Figs. 19A, 19B. After QA, the image may be "converted to a less size intensive format for transmission and use in the check processing chain" to "increase[] transmission speed and reduce[] storage requirements." *Id.* ¶ 43. Once the transaction is cleared, the check "in image or IRD (image replacement document) form" is returned to the payor bank, where it is associated with the payor's account, and payee bank credits the funds to the payee. *Id.* ¶ 19.

Randle's system can be implemented in a network that connects multiple banks, as depicted in Figure 3, below. Ex. 1104 ¶¶ 13, 66.

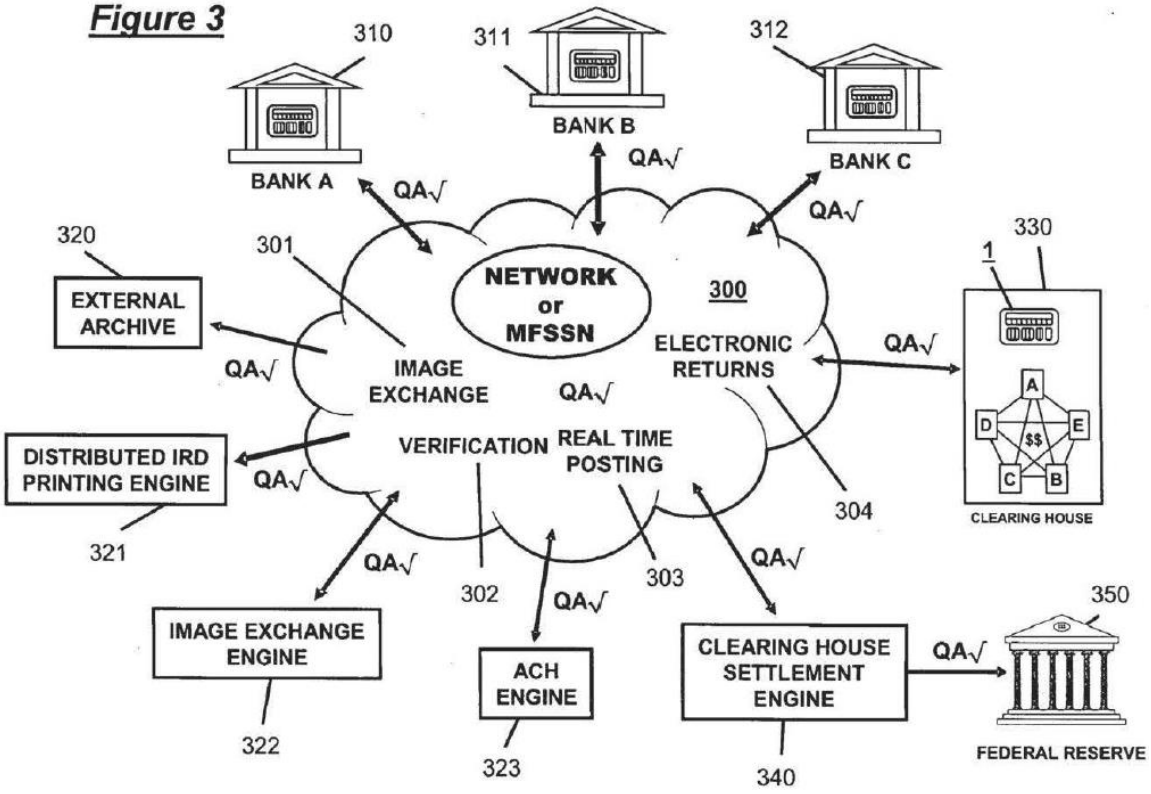


Figure 3 (reproduced above) depicts a private network 300 (with image exchange 301, verification 302, real-time posting 303, and electronic returns 304 functions), participating Bank A 310, Bank B 311, and Bank C 312, clearing house 330, and clearing house settlement engine 340. *Id.* ¶ 66. Randle explains that this arrangement "provides enhanced inter-bank clearing capabilities, such as real-time verification and posting across members." *Id.* ¶ 67.

3. Slater (Ex. 1105)

Slater provides a method for processing, verifying, and transmitting an electronic image of a check in place of the paper check. Ex. 1105, code (57), ¶ 2. Specifically, Slater describes a customer access terminal

(CAT) at a banking center that includes "a scanner or check imager in place of a traditional envelope deposit slot as currently used in automatic teller machines" as well as OCR software. *Id.* ¶¶ 22–23. Slater states:

> When a check is scanned in, an image of each check is presented on the customer display. The customer can then, using an appropriate keyboard and Courtesy Amount Recognition Software (CAR), input the check amount. A comparison between the scanned amount and the entered amount is made, and if there is a match, the transaction proceeds. If the customer's input and the courtesy amount recognition differ, even after a customer's second input, the system will send the check image to a customer service operator who will be able to read the check and resolve any discrepancies.

Id. ¶ 23; *see also id.* ¶ 28. The CAT then transmits the electronic image of the check along with other data to a central processing center. *Id.* ¶¶ 24, 27.

4. Lev (Ex. 1106)

Lev converts a printed document (such as a "bank check[]") into electronic form using "a standard portable wireless device," such as a camera phone or camera enabled PDA (personal digital assistant). Ex. 1106 ¶¶ 42, 72. Lev states that images can be captured "during an interactive session," where the server provides instructions to the user to assist with capturing a sufficient image. *Id.* ¶¶ 71, 114–119; *see id.* ¶¶ 20–24 (identifying problems that can occur when taking an image with a mobile device). For example, the server may provide the following instruction: "move camera to the right and closer please." *Id.* ¶ 117. The server may also correct the orientation, shape, and size of the captured image. *Id.* ¶ 93; *see also id.* at Fig. 4.

5. Watanabe (Ex. 1107)

Watanabe describes a digital camera which has a document photographing mode in addition to a normal photographing mode. Ex. 1107, 1:8–10. In the document photographing mode, "a display unit displays the guidance to notify a user of photographing conditions of a document during displaying of the picture of the subject on the monitor before it is photographed" so that "the user can easily fix the location of the document." *Id.* at 2:49–54. The guidance is provided in the form of "a guidance frame" shown on the camera's liquid crystal display (LCD) screen. *Id.* at 7:16–35, Fig. 4; *see also id.* at 3:61–4:4, Fig. 1.

6. Aoyama (Ex. 1108)

Aoyama describes a camera that displays "guidance information" on its LCD screen to assist users. Ex. 1108, ¶¶ 2, 12, 58, 62; *see also id.* at Figs. 2, 5A–7B. For example, when a mode dial is set to a fully automatic mode, the camera's guidance information states: "You can easily photograph well simply by pressing the shutter button." *Id.* ¶¶ 114, 125–126.

7. Byrne (Ex. 1109)

Byrne allows a bank customer to scan checks using a personal computer and then to deposit them into a bank account. Ex. 1109 ¶ 3. In particular, after a user logs into the system's server, a "Check21 application launches . . . and creates an account list from the user's authorized accounts." *Id.* ¶ 173; *see id.* ¶¶ 47–48, Figs. 1, 6. From that list, the user selects an account into which the checks should be deposited. *Id.* ¶ 173.

E. Obviousness Ground Based on Garcia, Randle, and Slater

Petitioner contends that the subject matter of independent claims 1 and 10 and dependent claims 2, 3, 11, and 12 would have been obvious over the combination of Garcia, Randle, and Slater. Pet. 23–73.

Patent Owner disputes Petitioner's showing for the independent claims. PO Resp. 30–60. Specifically, Patent Owner contends that a person of ordinary skill in the art would not have been motivated to combine Garcia and Randle (*id.* at 33–60), and Patent Owner argues that the Petition is premised on an incorrect claim interpretation for "the 'computing device' limitations" found in independent claim 1 (*id.* at 30–33; *see id.* at 19–30 (addressing claim construction)).

1. Independent Claim 1

a) Proposed Combination of Garcia and Randle[20]

(1) Summary of the Parties' Contentions

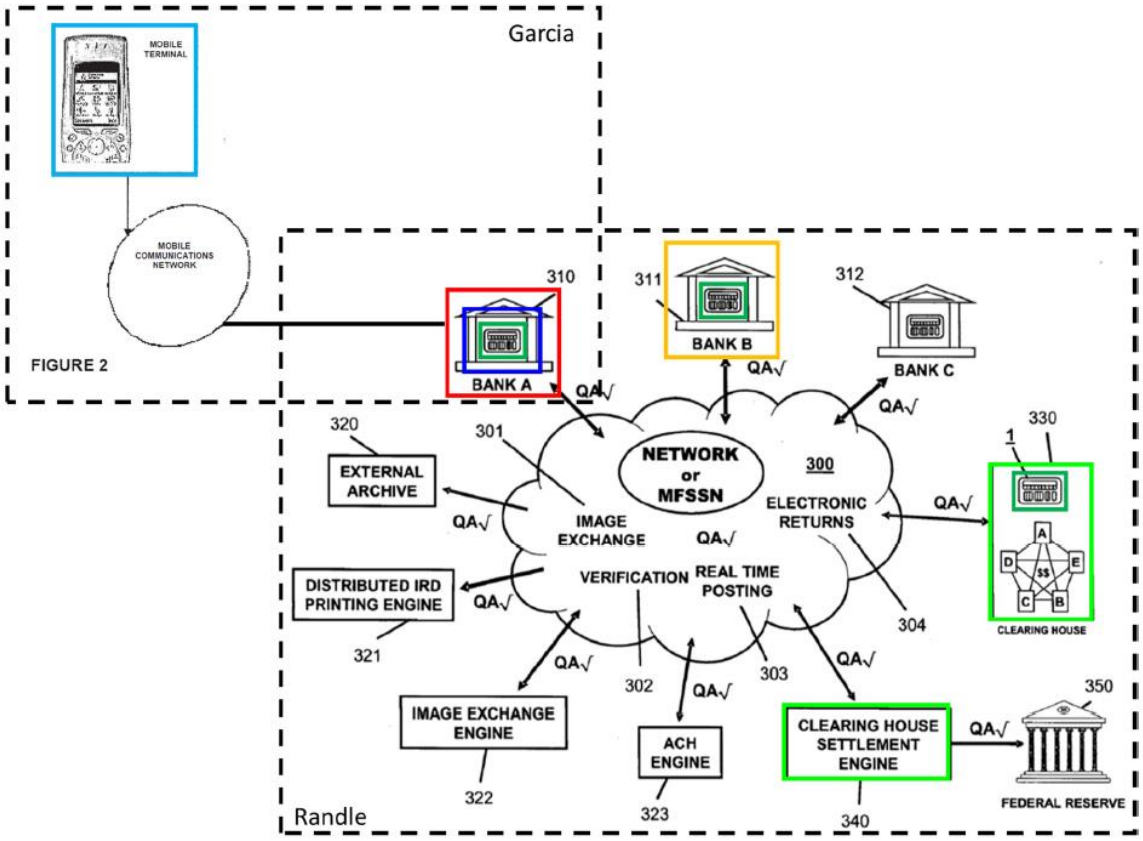
Petitioner asserts that it would have been obvious to a person of ordinary skill in the art to combine Garcia and Randle. Pet. 23–29. According to Petitioner, Garcia discloses that "computer equipment" at a financial institution recognizes, verifies, processes, and deposits a check image received from a mobile device using OCR, but Garcia does not "expressly disclose details about how the computer equipment implements these processes." *Id.* at 23–24 (citing Ex. 1103, 4:11–16, 7:18–21, 9:11–18, 11:7–13, 12:20–21, 15:8–10, Fig. 2). Petitioner contends that an ordinarily

[20] We address Petitioner's proposed addition of Slater to the Garcia-Randle combination in Section II.E.1.e, which discusses the OCR verification limitations (i.e., elements 1[g]–1[l]).

skilled artisan would have been motivated to find these implementation details, and would have expected the prior art to provide them, given Garcia's indication that these details were known. *Id.* at 24–25 (citing Ex. 1103, 11:10–19; Ex. 1102 ¶ 63).

Petitioner contends that Randle discloses these implementation details. Pet. 25–26. According to Petitioner, Randle provides a check processing system that "validate[s] and clear[s] transactions" based on an electronic image of a paper check. *Id.* at 25 (quoting Ex. 1104 ¶ 7). Petitioner asserts that, after receiving a check image, Randle's engine performs quality assessment (QA) operations on the received check and then transmits the quality-checked image to a clearing house, which clears and settles the transaction between the banks. *Id.* at 25–26 (citing Ex. 1104 ¶¶ 19–21, 28, 36, 42–43, 54, 74, Fig. 3). Petitioner contends that it would have been obvious to a person of ordinary skill in the art to incorporate Randle's engine into Garcia's computer equipment (in its financial institution) and to implement Garcia's financial institution as part of Randle's network. *Id.* at 26–28 (citing Ex. 1103, 11:7–13; Ex. 1104 ¶¶ 20–21, 28, 36, 42–43, 54, 74, Fig. 1B; Ex. 1102 ¶¶ 64–65). To illustrate its proposed combination, Petitioner combines Garcia's Figure 2 with Randle's Figure 3, as shown below. *Id.* at 27.

Illustration of Garcia in combination with Randle



Petitioner's illustration (shown above) depicts Randle's Figure 3 alongside an excerpt of Garcia's Figure 2. The illustration includes Garcia's mobile terminal (in light blue box), but it replaces Garcia's financial institution with Randle's Bank A 310, which is shown as including a dark blue box that represents Garcia's computer equipment. The illustration also includes Randle's Bank A 310 (payee bank) in red, Bank B 311 (payor bank) in yellow, and clearing house 330 and settlement engine 340 in light green. Petitioner further explains that it would have been obvious to a person of ordinary skill in the art to combine Garcia and Randle in this way because it combines known elements and methods in a predictable way, an ordinarily skilled artisan would have had a reasonable expectation of success, and the

combination would have been obvious to try given Garcia's need for implementation details. Pet. 28–29 (citing Ex. 1102 ¶¶ 66–68).

Patent Owner disagrees. PO Resp. 33–54; *see also id.* at 54–60 (arguing that an ordinarily skilled artisan would not have included Randle's data reduction feature in the combination).[21] Patent Owner contends that Petitioner fails to sufficiently show *why* an ordinarily skilled artisan would have been motivated to combine Garcia with Randle specifically. *Id.* at 34–39; *see id.* at 35 (addressing whether an ordinarily skilled artisan would have combined Garcia with Randle "as opposed to" another system (emphasis omitted)). Patent Owner argues that Petitioner only makes "a generic assertion that the combination would 'improve the reliability' of Garcia's system," but provides no "specific evidence about how or why it would have been expected to do so." *Id.* at 37–38 & n.6 (citing Pet. 28; Ex. 1102 ¶ 66).

In addition, according to Patent Owner, an ordinarily skilled artisan would not, in fact, have been motivated to use Randle's check processing system in the proposed combination because Randle relies on images produced by check scanners, not mobile devices. PO Resp. 39–54. Patent Owner notes that Randle's system receives check images from different sources that "all . . . employ[] check scanners," and "Randle never suggests that its system can process checks captured by cellular telephones." *Id.* at 39–41 (citing Ex. 1107 ¶¶ 7, 22–23, 25, 28). Patent Owner argues that "there are significant differences between capturing check images for deposit using a cellular telephone and using a scanning device" (*id.* at 42),

[21] We address Patent Owner's arguments regarding the motivation to combine the references to yield these particular limitations in connection with the corresponding claim elements. *See infra* § II.E.1.d (elements 1[d]–1[f]).

and the Petition's mere assertion that the mobile device in Garcia "operates just like 'an image-scanning device at the customer's location'" is insufficient (*id.* at 41 (quoting Pet. 29; Ex. 1102 ¶ 67)).

To that end, Patent Owner submits that Petitioner's arguments and evidence in other proceedings show there were technological challenges associated with capturing a check image using a camera phone, rather than using a traditional check scanner. PO Resp. 42–55; *see also id.* at 44–45 ("Petitioner has repeatedly stated in other proceedings . . . [that ordinarily skilled artisans] did not understand scanners to operate 'just like' mobile devices with integrated cameras"). In support, Patent Owner points to: (1) arguments and evidence presented by Petitioner in *PNC I* in support of arguments that the challenged claims are not enabled or lack written description support (*id.* at 42–43 (citing Ex. 2029, 14; Ex. 2030 ¶¶ 94, 126)); (2) Dr. Noble's testimony in IPR2021-01071 regarding whether claims in a related patent lacked sufficient written description support (*id.* at 43–44 (citing Ex. 2015 ¶ 58)); and (3) evidence that "the system purportedly implementing Garcia's disclosure relied on the receipt, by mail, of a paper check," (*id.* at 42 (indirectly citing Ex. 2020, 112:18–23, 116:6–117:7; Ex. 2024, 13; Ex. 2025, 7)).

Patent Owner also contends that the quality of the scanned check image is important for depositing a check using Randle's system. PO Resp. 45–51. Patent Owner quotes Randle, which states that "capture of a check in an 8 bit gray scale (or color) *high dpi format (100 dpi or 200 dpi)* may be needed to assure a high level of quality for a QA process." *Id.* at 45 (quoting Ex. 1104 ¶ 43). Patent Owner argues that an ordinarily skilled artisan would expect a lower-resolution image to be difficult to process for deposit. *Id.* at 45–46 (citing Ex. 2020, 40:3–6, 47:11–18). Patent Owner

further argues that an ordinarily skilled artisan would have understood camera phones to be inadequate tools for capturing a check given problems associated with the camera angle, focus, and lighting as well as network limitations on the size of the image document. *Id.* at 46–49 (citing Ex. 2015 ¶ 58; Ex. 1106 ¶¶ 14–23; Ex. 2020, 25:20–26:2, 30:3–6, 30:17–20). Finally, Patent Owner contends that Petitioner does not explain why an ordinarily skilled artisan would have combined Garcia with Randle even though this combination would be "be less reliable (if operable at all) than processing deposits via the 'usual means (truncation systems)' described in Garcia." *Id.* at 52–53.

(2) Analysis

Having considered the parties' arguments and evidence, we are persuaded that a person of ordinary skill in the art would have been motivated to combine Garcia and Randle as proposed. We begin our analysis with the references themselves.

Garcia describes a method for remotely depositing a check using a mobile device. *E.g.*, Ex. 1103, 1:5–13, 4:10–5:9. Garcia teaches that a user captures a digital image of the check with the mobile device and enters the check amount. *Id.* at 5:14–21, 10:10–12. In addition, Garcia notes that the user may also enter other data associated with the check, such as the check number. *Id.* at 5:14–20, 10:12–13. The image and the manually-entered data are transmitted to a payee bank for automatic processing. *Id.* at 5:14–6:10, 9:19–10:18. Garcia does not explain in detail how the deposit is accomplished by the bank. *Cf. id.* at 11:7–19. Garcia simply states that the bank has "certain electronic means of recognizing, verifying and processing the information sent by the user," which "consist basically of computer

equipment connected to the Internet" that can perform optical character recognition (OCR), store the check's image, and process the check "by the usual means (truncation systems)." *Id.* at 11:7–19.

From this, we find that an ordinarily skilled artisan would understand Garcia to teach using a check's image to remotely deposit the check. *See also* Ex. 1103, 7:18–8:8 ("This system achieves greater simplicity, speed, and security in the process of accepting bank documents and bills, and particularly in depositing checks, by replacing the traditional check reader with a multi-purpose mobile device."). We also find that Garcia suggests performing an OCR on the check image as part of that process. We further find that Garcia suggests that its invention be implemented using computer equipment at a bank that can OCR and store a check image and that uses the bank's existing check processing systems. *See also* Ex. 1102 ¶ 63. These findings are consistent with Garcia as a whole.

Randle describes computer equipment at a bank that can OCR and store a check image as well as process a check. *E.g.*, Ex. 1104 ¶¶ 2, 4, 7. Randle's system is designed to receive a check's image from various sources, including a bank teller or ATM as well as a point of sale or other "commercial and corporate" source. *Id.* ¶¶ 7, 20, Fig. 1B. In either event, the payee bank collects images "of the front and back of the check" as well as "information such as the payee name, bank, payee's account number, the amount of the check and the MICR data." *Id.* ¶ 19. Randle's engine collects information from an OCR on the check's image and from human input. *See id.* ¶ 74 (referencing "human input amount," "OCR on check number," and "OCR amount"). Randle's engine performs dynamic QA on the check using the collected information (*e.g.*, *id.* ¶¶ 7, 19), and the QA method selected may depend on "the presentment method or environment" (*id.* ¶¶ 21, 34).

Randle explains that an "institution must be confident that it has captured a quality assured (QA) image and related data" "[b]efore institutions can perform truncation[22] at the point of capture." *Id.* ¶ 42. In addition, Randle notes that a check image and information must be transmitted and stored even after its quality has been verified, and to that end, it describes image data reduction methods. *Id.* ¶¶ 42–43.

Given these disclosures, we agree with Petitioner's contentions that a person of ordinary skill in the art would have been motivated to combine Garcia and Randle by incorporating Randle's engine in Garcia's computer equipment at the payee bank, despite Patent Owner's contrary arguments. *See* Pet. 23–28; Pet. Reply 8–9; *see also* Ex. 1102 ¶ 63 (testifying that an ordinarily skilled artisan would have been motivated to find implementation details for Garcia and would have understood them to be provided by Randle). We find that the references naturally lend themselves to this combination. Garcia suggests implementing its invention using computer equipment at a bank that can OCR and store a check image as well as the bank's traditional systems for processing checks, and Randle discloses such a system. Further, Randle states that its techniques will improve the reliability of electronic check processing for check images received from a variety of different sources. Further, as discussed in more detail below, we discern no reason why an ordinarily skilled artisan would be discouraged from implementing Garcia using Randle's system, as Petitioner proposes.

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[22] Truncation refers to replacing the physical check with an electronic version of it. *See* Ex. 1102 ¶¶ 23–24; *see also* Ex. 1121 ¶ 9 ("'Truncation' is defined as the removal of an original paper check from the collection process. The check information is captured electronically in a data file and the original paper check is destroyed.").

Also, we perceive no evidence in the record indicating that an ordinarily skilled artisan would have been led to implement Garcia in a different way.

We also find that an ordinarily skilled artisan would have had a reasonable expectation of success in making the proposed Garcia-Randle combination. Petitioner's declarant, Dr. Noble, testifies that "[i]t was well known that back-end check processing systems are mostly independent of the source from which the check image is received." Ex. 1102 ¶ 67. We credit this testimony because: it is supported by Garcia's disclosure (*see* Ex. 1103, 11:7–19), and Patent Owner identifies no evidence contradicting it. Dr. Noble also testifies that "[a] person of ordinary skill would have reasonably expected that Randle's back-end check processing system could process a check image captured by Garcia's mobile device with integrated camera." Ex. 1102 ¶ 67. In support, he explains that Randle's engine processes check images received from a variety of sources, including "an image-scanning device at the customer's location." *Id.* (quoting Ex. 1104 ¶ 28; citing *id.* ¶¶ 23, 25). We credit this testimony because it is supported by Randle's disclosure.

Patent Owner's arguments to the contrary are unavailing.

We disagree with Patent Owner's argument (*see* PO Sur-reply 4–6, 18–19) that the Petition is deficient because it does not show that Randle describes the "usual means" of check processing. Patent Owner argues that Petitioner must show that Randle was "usual" (which Patent Owner equates with commercially implemented) because Garcia states that its computer system includes "the usual means (truncation systems)." Ex. 1103, 11:18–19. We disagree with Patent Owner's understanding of Garcia. We understand Garcia to use the words "usual means" to refer to a bank's existing (or usual) check processing systems, i.e., the check processing used

for other checks received by the bank. *See id.* at 11:7–19; *see also* Ex. 1172 ¶ 36 (testifying that an ordinarily skilled artisan would understand "truncation system" to refer to the bank's back-end processes for depositing a check). As explained above, Randle describes a solution for doing so, by facilitating remote check deposit from a variety of different sources.

Relatedly, we disagree with Patent Owner's argument (*see* PO Resp. 42, 53) that Garcia requires a physical check to be sent to the payee bank. Garcia states that its "system achieves greater simplicity, speed, and security . . . by replacing the traditional check reader with a multi-purpose mobile device." Ex. 1103, 7:18–22. Moreover, Garcia explains that the user avoids unnecessary trips to a branch because the truncation process is performed external to the bank (*id.* at 7:22–8:11), and it states that the bank uses an image of check and additional data to automatically process the deposit (*id.* at 12:17–22). Given these disclosures, we find that Garcia's reference to "the usual means (truncation systems)" does not indicate that a bank receives the physical check and then truncates it. *See also* Ex. 1172 ¶¶ 35–36. The alleged commercial embodiment of Garcia is not probative of the reference's disclosure. *See* PO Resp. 7–8, 42; Pet. Reply 17–18.

Patent Owner's other arguments primarily rely on the differences between using a camera phone and a traditional check scanner to capture a check image (*see* PO Resp. 39–54; *see also id.* at 33); however, these arguments are fundamentally flawed because they fail to account for Garcia's disclosure. In particular, Patent Owner's argument is that an ordinarily skilled artisan would not have reasonably expected to be able to use Randle's system to remotely deposit a check using a mobile phone because he would not have expected a check image captured by a mobile phone to be sufficient. But Garcia specifically teaches a system that uses a

mobile phone to capture a check image for this purpose. *E.g.*, Ex. 1103, 1:5–13, 4:10–5:9; *see* Pet. Reply 10–11. This is not a passing reference in Garcia; rather, this is Garcia's invention. *See, e.g.*, Ex. 1103, Abstr. As a result, Garcia is strong evidence that a person of ordinary skill in the art would have expected to be able to remotely deposit a check using a mobile phone.[23] In other words, even assuming *arguendo* that "there are significant [and important] differences between capturing check images for deposit using a cellular telephone and using a scanning device," as Patent Owner argues (PO Resp. 42), we find Garcia's disclosure to be persuasive evidence that an ordinarily skilled artisan would have expected to be able to successfully address those challenges. We note that we assign significantly more weight to Garcia's disclosure than we do to any expert's testimony because Garcia is documentary evidence written at the relevant time.

We also do not agree with Patent Owner's suggestion (*see* PO Resp. 39–41) that Randle *requires* a specialized scanning device. We agree with Patent Owner that Randle expresses a preference for "capture of a check in an 8 bit gray scale (or color) high dpi format (100 dpi or 200 dpi)." *Id.* at 45–46 (emphasis omitted) (quoting Ex. 1104 ¶ 43); *see also* Ex. 2020, 29:24–30:6 (testifying that this is "not an absolute threshold" but "Randle's system may have trouble recognizing" images that have a lower resolution), 47:11–18 (same). We find, however, that a mobile device was capable of sending an image of a check that exceeded that resolution. *See* Ex. 1172

[23] Patent Owner does not contend that Garcia's disclosure is not enabled, so we presume that it is. *See, e.g., Apple Inc. v. Corephotonics, Ltd.*, 861 F. App'x 443, 449 (Fed. Cir. 2021) (non-precedential) ("It is well-established that prior art patents and printed publications like Konno, a Japanese patent publication, are presumed enabling.").

¶¶ 21–29; *see also id.* ¶ 31 (testifying that an ordinarily skilled artisan implementing Garcia would have understood check images to have minimum requirements). We have considered, but are not persuaded by, Patent Owner's attempts to undermine Dr. Noble's testimony on this point. *See* PO Sur-reply 16–17 (citing Ex. 2034, 32:17–25, 33:23–34:3 106:8–10, 139:12–140:5). We are not persuaded that tests to confirm his calculations and analysis would have been particularly probative. Although we recognize that Dr. Noble's calculations did not account for the impacts of warp or skew (which are addressed below), we credit his testimony on this point because it is clearly explained. Moreover, Patent Owner identifies no evidence to indicate that a mobile phone could not, in fact, capture a check in an 8 bit gray scale or color format at 100 dpi or 200 dpi. Finally, we do not agree that mobile network bandwidth constraints would have influenced an ordinarily skilled artisan, despite Patent Owner's suggestion (*see* PO Resp. 48), because there is no persuasive evidence to that effect.

We have considered the evidence regarding optical distortions such as lighting and skew. *See* PO Resp. 42–44, 46–50; PO Sur-reply 8–9, 15–16. Although these were challenges to be addressed by an ordinarily skilled artisan, we find that an ordinarily skilled artisan would not have been dissuaded by these challenges and would not have questioned the likelihood of success for three reasons. First, Garcia expressly discloses using a mobile phone to remotely deposit a check, as discussed above. Second, at most, these issues would have caused the Garcia-Randle combination to be able to deposit an image in *some*, but *not all* cases.[24] We need not decide how often

[24] Patent Owner faults Dr. Noble for not detailing the circumstances required to create such an image (*see* PO Sur-reply 17 (citing Ex. 1172 ¶ 20; Ex. 2034, 102:14–103:15)), but this seeks implementation details, which are

the system would have successfully deposited the check because claim 1 simply requires the system to have the capability of performing the recited limitations. We find that the Garcia-Randle combination is capable of performing the recited steps, and the claim does not require a system that always does so (or even usually does so). *See Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1002 (Fed. Cir. 2016) ("[C]ombinations of prior art that sometimes meet the claim elements are sufficient to show obviousness."). Third, the Specification of the '559 patent indicates that an ordinarily skilled artisan would have been able to implement a Garcia-Randle combination, contrary to Patent Owner's arguments. *See* PO Sur-reply 9. The Specification does not address any unique constraints for camera phones, and it states that image distortion problems (such as lighting and skew) are simply addressed by providing general instructions to the user via a software application. *E.g.*, Ex. 1101, 2:41–45, 8:5–18, 8:45–55. Notably, Patent Owner faults Petitioner's expert and the prior art for not addressing various complicating factors (*see* PO Sur-reply 10), but we discern no reference to any of these concepts in the Specification or the claims.

In support of its arguments, Patent Owner relies upon statements made by Petitioner's experts (Dr. Noble, Dr. Kia, and Mr. Peterson) in other proceedings.[25] *See* PO Resp. 42–44 (citing Ex. 2015 ¶ 58; Ex. 2030 ¶¶ 94,

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unnecessary for our inquiry. We agree with Dr. Noble that Garcia's disclosure on this point is clear. Dr. Noble's inability to provide details causes us to assign less weight to this portion of his testimony than we would have otherwise.

[25] Patent Owner also relies on Petitioner's arguments in a motion for summary judgment in *PNC I*. *See* PO Resp. 42–43 (citing Ex. 2029, 14). Those arguments relate to a different issue (enablement), and the issue of

126), 46–49 (citing Ex. 2020, 25:20–26:2, 30:3–6, 30:17–20); PO Sur-reply 6–7 (citing Ex. 2032, 941:13–25, 943:4–7; Ex. 2033, 42:3–43:5, 43:9–44:2, 124:20–25), 12–16 (citing Ex. 2018 ¶¶ 201–207; Ex. 2032, 938:5–24, 939:5–18, 939:22–940:23, 970:9–14, p.24; Ex. 2033, 29:19–30:4, 43:9–442:2, 69:1–18, 92:19–93:13, 124:20–25, 170:20–22; Ex. 2034, 27:21–28:4, 30:3–7). Even considering these statements (as we have), we find this evidence to be only marginally relevant to this proceeding. We note that the testimony is directed to a different question—i.e., is the full scope of these (and other) claims enabled—and as a result, it conveys general concepts that are not particularly helpful to determining whether an ordinarily skilled artisan would have been motivated to combine Garcia and Randle and whether he would have had a reasonable expectation of success.

For example, Dr. Kia in *PNC I* testified that camera phones at the time "produced relatively low quality photos," which had a resolution of 1–3 megapixels. Ex. 2030 ¶ 94. He also testified that obtaining a sufficient quality image of a check "was a difficult problem in 2006" and a digital camera made for a less predictable image than a scanner given variability in lighting and focus, for example. *Id.* ¶ 126; *see also* Ex. 2032, 939:22–940:23 (describing skewing, warping, lighting, and resolution problems), 951:13–25 (testifying that algorithms would need to be developed). At trial, he explained that a check's routing number, account number, and check number are necessary for a successful deposit, and that an image of a certain quality was needed for the OCR to operate properly. Ex. 2032, 937:5–24.

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whether the full scope of the claims is enabled is distinct from whether the prior art combination teaches an embodiment of the claims. In addition, those arguments did not prevail, and attorney arguments are not evidence. Accordingly, those arguments are of little to no probative value.

Mr. Peterson in *PNC II* testified that a "workable system" to capture check images with a mobile phone required "algorithms that were not inventible" at the time. Ex. 2033, 42:3–19; *see also id.* at 43:9–44:2 (explaining that it was not predictable because of lighting and angle associated with mobile camera images). Finally, in another Board proceeding, Dr. Noble testified that cell phone cameras had "limited resolution" at the time. Ex. 2015 ¶ 58.

Patent Owner also relies on Lev's disclosure. PO Resp. 47–50 (citing Ex. 1106 ¶¶ 14–23). Lev explains that, when using a mobile device, "the capture of a readable image of a full one page document in a single photo is very difficult," and image capture is complicated by image resolution and imaging angles (Ex. 1106 ¶ 21), skewing and rotation (*id.* ¶ 22), and optical effects such as lighting conditions and focusing (*id.* ¶ 23).[26] *See also id.* ¶¶ 68 (noting that prior art techniques perform image processing to improve legibility of the document and geometric correction), 70 (explaining that text enhancement is problematic if a document includes both printed and handwritten text).

At most, the cited evidence shows that using a camera phone to capture a usable check image was challenging at the time of the invention, and these challenges were greater than those encountered when using a traditional check scanner. It also shows that the challenges included the

[26] Lev also distinguishes "[s]pecial purpose flatbed scanners," which require special hardware but provide a reliable scan, from "mobile imaging devices such as camera phones," which "are typically not useful" for faxing, archiving, or reading. Ex. 1106 ¶¶ 14–20. A flatbed scanner is designed to produce an image without skew. Ex. 2020, 30:17–31:10 (referencing Ex. 1107, Figs. 5A, 5B); *see also* Ex. 2032, 939:5–18. However, this evidence is of marginal relevance because we discern no evidence indicating that Randle's check scanners are flatbed scanners.

resolution of the image as well as image quality problems resulting from poor focus, image distortions caused by skew and rotation, and poor lighting. Further, it indicates that the existing algorithms were not able to reliably and consistently correct these problems in images actually captured by users in working systems.

As a consequence of Patent Owner's evidence, we do not agree with Petitioner's assertion that Garcia "operates just like 'an image scanning device at the customer's location'" of Randle. Pet. 29 (*quoted in* PO Resp. 41, 44). However, that assertion was made in passing, and Petitioner's obviousness rationale is not materially diminished by rejecting it. In particular, we are nonetheless persuaded that an ordinarily skilled artisan "would have reasonably expected that a check image captured by Garcia's mobile device with an integrated camera . . . can be processed by Randle's check processing system" (Pet. 29), despite Patent Owner's contrary arguments (*e.g.*, PO Resp. 41, 52). As noted above, Garcia teaches that a check image could be captured by a mobile phone for remote deposit. Also, we are persuaded by Petitioner's arguments that the challenges identified by Patent Owner would add yet further motivation to use Randle's system because Randle provides dynamic QA that accounts for the image source. *See* Pet. Reply 13 (arguing that purported shortcomings would strengthen, rather than weaken, the motivation to use Randle's QA).[27] Moreover, we

[27] We disagree with Patent Owner's contention that this argument is untimely. *See* Tr. 45:16–46:10. This argument responds to Patent Owner's arguments that an ordinarily skilled artisan would not have made the proposed combination given the deficiencies in images obtained from camera phones. *See* PO Resp. 39–45 (*cited in* Pet. Reply 10–13). We likewise rely upon it for that purpose. Moreover, we disagree with Patent Owner's response to this argument. *See* Tr. 46:11–20. Garcia's preference

discern (and Patent Owner identifies) no reason to suspect that Randle would be unsuitable for Garcia's purposes.

Patent Owner's other arguments are also unavailing. First, although we agree that Petitioner must provide a rationale for making the specific proposed combination (*see* PO Resp. 34–38), we are persuaded that Petitioner persuasively does so, for the reasons explained in this Decision.[28]

Second, to the extent Patent Owner faults Petitioner for not explaining why an ordinarily skilled artisan would have selected Randle over other approaches (*see, e.g.*, PO Resp. 35, 53), this argument is inapposite. Petitioner need not show that the Garcia-Randle combination is superior to other potential combinations, and it does not matter if there are other obvious ways of implementing Garcia. *See PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014) (stating that "the

for "the immediate availability in the user's account" shows that an ordinarily skilled artisan would have been motivated to include Randle's engine in the payee bank, as Petitioner contends. Ex. 1103, 7:21–8; Ex. 1104 ¶ 19 (stating that payee bank captures the image and related information by a scan, checks it for quality, and then routes information for settlement and clearing).

[28] Patent Owner cites a non-precedential Board decision in support of these arguments, but we perceive no analogy to that case. *See* PO Resp. 38, 51–52 (citing Ex. 2022, 26). In IPR2020-01650, a different entity filed a petition challenging a different patent (with materially different claims) based on different prior art (*see* Ex. 2022, 1, 8–10), and the Board denied institution because the petitioner failed to show a motivation to combine those references (*id.* at 28, 37–38). Importantly, the Board noted that the petitioner was missing a reason why an ordinarily skilled artisan would have used a digital camera to capture a check image for deposit (*e.g.*, *id.* at 24–25); however, in this case, Garcia expressly teaches doing so (*e.g.*, Ex. 1103, 4:10–18). Thus, not only is that decision not binding precedent, it is not germane to our analysis.

motivation [need not] be the best option, only that it be a suitable option from which the prior art did not teach away."); *see also In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (The "case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.").

Third, although we agree with Patent Owner that Randle does not suggest processing checks captured by a cell phone (*see* PO Resp. 39–41), this argument is inapposite because Petitioner relies upon Garcia (and the proposed combination) for these claimed aspects. *See Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed. Cir. 2019) (arguments individually attacking the references in an obviousness combination are not persuasive) (citing *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.")).

Finally, we do not rely on Petitioner's argument that the Garcia-Randle combination was obvious because it was a combination of known methods with predictable results or obvious to try (*see* Pet. 28–29; Pet. Reply 9), so we need not respond to Patent Owner's critique of these contentions (*see* PO Sur-reply 6–8).

In its Sur-reply, Patent Owner presents two new arguments. Each of these arguments are untimely and forfeited because they do not fairly respond to Petitioner's Reply. *See supra* § II.A (addressing limitations on scope of Sur-reply). However, we briefly address these arguments to explain why they would not have been persuasive even if they had been timely presented.

Patent Owner first argues that Garcia describes manual entry of information necessary for deposit, such as the MICR line,[29] and that this undercuts Petitioner's rationale to combine.[30] PO Sur-reply 2–4, 13–14 (citing Ex. 1103, 5:14–20, 11:7–19, 9:19–10:15; Ex. 2033, 42:15–19, 124:20–25; Ex. 2034, 75:21–76:13, 88:12–90:2, 106:16–23, 141:4–13). We agree that Garcia allows for manual entry of some information, but we disagree with Patent Owner's conclusion that Garcia describes "a complete system" in which the user manually enters all information necessary for check deposit. *See id.*; *see also* Ex. 2032, 937:5–12 (testifying that a check's routing number, account number, and check number are necessary for a successful deposit).

Garcia teaches that a user enters "data associated with" the check, such as the amount or check number. Ex. 1103, 5:14–20, 10:12–13. Garcia does not state whether the MICR line is manually entered,[31] but Garcia indicates that the bank performs an OCR on the check image and that this OCR is necessary for deposit. *See id.* at 11:7–19. In our view, the most reasonable read of this disclosure is that it suggests extracting the MICR line

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[29] A MICR line is a string of numbers at the bottom of a check that identify the bank's routing number, the customer's account number, and the check number. Ex. 1102 ¶¶ 20–21.

[30] As to the untimeliness of this argument, we note that we perceive no relevant discussion of this issue in either the Response or the Reply, and neither brief even includes the term "MICR." In addition, Patent Owner's attempts to make further arguments in this vein at the oral hearing are also untimely. We limit our conditional discussion of these issues to the arguments in the Sur-reply.

[31] Patent Owner argues that Dr. Noble admitted that Garcia teaches entering the MICR line (*see* PO Sur-reply 2), but Dr. Noble in fact only testified that the "document number" referenced by Garcia *could* be the MICR line. Ex. 2034, 75:21–76:13.

using the OCR. A MICR line includes a long string of numbers representing a bank's routing number, a customer's account number, and the check number. *See* Ex. 1102 ¶¶ 20–21. In our view, manually entering this long string of numbers (and not confirming it with the OCR) would be counterintuitive. The inadvertent entry of the wrong numbers would seem to run an unacceptable risk of withdrawing from the wrong account, and the evidence cited by Petitioner shows that it was known to OCR the MICR line. *E.g.*, Ex. 1109 ¶ 174 (stating that "the MICR is OCRed").

Second, Patent Owner criticizes Dr. Noble for lacking knowledge on certain concepts and failing to consider others. PO Sur-reply 10–12; *see, e.g.*, *id.* at 11 (arguing that Dr. Noble did not "consider the difference between what quality image a human can read and what quality image is necessary for an automatic recognition system"). At most, these arguments show that *some* of Garcia's images would not be suitable for deposit, but we are persuaded that Garcia teaches that *some would be*, which satisfies the relevant claim limitations, for the reasons explained above. To the extent Patent Owner advances these arguments to make a different point, it is insufficiently explained.

Accordingly, we are persuaded that a person of ordinary skill in the art would have been motivated to combine Garcia, Randle, and Slater in the manner proposed by Petitioner and would have had a reasonable expectation of success in doing so.

b) The Structural Limitations: 1[pre], 1[a], 1[b], 1[n], 1[o], and 1[p]

Claim 1 recites:

[pre] A computing device for processing a remote deposit of a check, the computing device comprising:

> [a] first processing circuitry;
>
> [b] a first memory having stored thereon executable instructions that, when executed by the first processing circuitry, cause the first processing circuitry to perform first operations . . .
>
> . . .
>
> [n] second processing circuitry; and
>
> [o] a second memory having stored thereon executable instructions that, when executed by the second processing circuitry, cause the second processing circuitry to perform second operations including:
>
> > [p] accepting the digital image for check deposit in place of the check depicted in the digital image.

Ex. 1101, 14:22–28, 14:59–65.

For these limitations, Petitioner relies on the combination of Garcia and Randle. *See* Pet. 33–41, 59–67. Specifically, Petitioner contends: computer equipment in payee bank (Bank A) includes the claimed the "first processing system" and "first memory"; the engine in the payor bank (Bank B), the clearing house, and/or equipment for accepting inbound check images (Bank A) includes the claimed "second processing system" and "second memory"; and these components collectively form the claimed "computing device." *Id.* at 34–35 & n.9 (citing Ex. 1102 ¶¶ 78–80); *see also id.* at 39–41 (re: "first processing system" and "first memory"), 59–62 (re: "second processing system" and "second memory"). Petitioner asserts that these components are "for processing a remote deposit of a check," as recited by the preamble. *Id.* at 38–39 (citing Ex. 1103, 12:17–22; Ex. 1104 ¶ 2). In addition, Petitioner contends that Randle teaches that payor bank (Bank B) and the clearing house each can accept a check image for deposit in place of the physical check, and the corresponding engine (specifically,

image exchange receipt process 280) handles the acceptance processing. *Id.* at 64–67 (citing Ex. 1104 ¶¶ 2, 19, 48, 59, Fig. 1A, Fig. 2); *see also id.* at 61–62 (contending that Bank A may be the payee bank that includes image exchange receipt process for handling the acceptance processing).

Petitioner further elaborates on these contentions. Petitioner asserts that an ordinarily skilled artisan would have understood the computer equipment and engine to be a general purpose computer, as "it was well known that financial institutions performed electronic check processing using servers implemented using general-purpose computers." Pet. 35–37 (citing Ex. 1102 ¶¶ 81–82; Ex. 1103, Fig. 2); *see also id.* at 37–38 (citing Ex. 1102 ¶¶ 83–85) (further arguing that, for similar reasons, it would have been obvious to use a general purpose computer). Petitioner also asserts that, like the '559 patent, the payor and payee banks may be the same, and "the computer equipment in payee bank includes Randle's engine that also performs the functionalities of the payor bank." *Id.* at 61–62 (citing *id.* at 62–67; Ex. 1101, 12:14–18; Ex. 1102 ¶¶ 137–138; Ex. 1104 ¶¶ 36, 57, 59, 60). Petitioner further asserts that an ordinarily skilled artisan would have understood Garcia's computer equipment and Randle's engine to each implement its functionality as instructions stored in memory and executed by processing circuitry. *Id.* at 40, 60–61 (citing Ex. 1102 ¶¶ 88, 134); *see also id.* at 40–41, 61 (citing Ex. 1102 ¶¶ 89, 135–136) (further arguing that this would have been obvious).

Patent Owner does not dispute Petitioner's showing for elements 1[pre], 1[a], 1[b], 1[n], and 1[o], but argues that Petitioner fails to show element 1[p] ("accepting the digital image for check deposit"). PO Resp. 30–33. Specifically, according to Patent Owner, the "accepting" step must be performed by the payee bank, not the payor bank (*id.* at 19–27; *see*

also supra § II.C.1 (summarizing claim construction position)), where the Petition asserts that this step is performed by the payor bank and the clearing house (PO Resp. 27, 31–33). Patent Owner specifically responds to Petitioner's alternative contention (which contends that Bank A, the payee bank, accepts the digital image) by arguing that the cited portions of Randle do not support Petitioner's argument. *Id.* at 27–30.

Having considered the parties' arguments and evidence, we are persuaded that the Garcia-Randle combination teaches or suggests elements 1[pre],[32] 1[a], 1[b], 1[n], 1[o], and 1[p].

As explained above, Petitioner proposes incorporating Randle's engine into Garcia's computing device (*see supra* § II.E.1.a), and the resulting combination teaches a "computing device," as recited by 1[pre] (*e.g.*, Ex. 1102 ¶¶ 81–82). We also find that this computing device is "for processing a remote deposit of a check," as further recited by 1[pre]. *E.g.*, Ex. 1103, 12:17–22; Ex. 1104 ¶ 2; Ex. 1102 ¶ 86; *see also* Ex. 1103, 4:10–5:9; Ex. 1104, Abstr. Moreover, Garcia and Randle describe operations performed by this computing device, and we find that an ordinarily skilled artisan would understand these operations to be performed via processing circuitry executing instructions stored in memory, as required by elements 1[a], 1[b], 1[n], and 1[o].[33] *E.g.*, Ex. 1102 ¶¶ 88, 90.

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[32] For purposes of this Decision, we treat the entire preamble of claim 1 as a claim limitation. *See supra* § II.C.1 (addressing "computing device"); *accord* Inst. Dec. 30 n.15 (citing Pet. 14, 33; Ex. 1159, 25–29).

[33] We note that the District Court concluded that "the 'first' and 'second' processing circuitry cannot be identical, [but] there may be overlap between them, and they need not be physically separate from one another." Ex. 1159, 31; *see also id.* at 29–32.

In addition, we find that the Garcia-Randle combination teaches element 1[p], which requires a second processing circuitry and second memory that "accept[s] the digital image for check deposit in place of the check depicted in the digital image." As explained in our claim construction section (*supra* § II.C.1), we assume Patent Owner's understanding of the requirements of this limitation (i.e., it requires the payee bank to accept the check for deposit) because, even applying this understanding, the Garcia-Randle combination teaches the limitation. There are two independent bases for this finding.

First, we find that the Garcia-Randle combination discloses a payee bank accepting a digital image for check deposit in place of the actual image. Patent Owner states that such an acceptance occurs when a payee bank deposits the amount into the payee's account using the digital image (*see* PO Resp. 24–25), and both Garcia and Randle clearly teach a payee bank depositing a check using its digital image (*e.g.*, Ex. 1103, 4:10–18; Ex. 1104 ¶ 19).[34] Although Petitioner does not explicitly advance this particular argument in this particular way, it is inherent in Petitioner's proposed combination of these references and fundamental to the disclosures of those references. *E.g.*, Pet. 23–26; *see also id.* at 58 (contending that Garcia teaches depositing the check); Pet. Reply 5 n.3 (citing Pet. 64); *cf.* PO Resp. 32–33 (acknowledging that Randle discloses that check deposit occurs at the payee bank). In other words, given the contentions in the Petition, we are persuaded that the proposed combination teaches depositing a check into

[34] Patent Owner states that, if a check has been cleared, then it must also have been accepted by the payee bank. *See* Tr. 60:13–18. Randle teaches clearing a check (*e.g.*, Ex. 1104 ¶ 19), which further supports our finding that Randle teaches a payee bank accepting the check.

an account based on the digital image. In fact, the references are so clear on this point that we perceive no support for finding that either reference fails to teach this, and given Petitioner's extensive reliance on those same portions of the references, we cannot find that Petitioner fails to sufficiently show it is taught by the combined teachings of Garcia and Randle.

Second, and setting aside the first point, we are persuaded by Petitioner's contention that Randle discloses that the payee bank performs the accepting recited in element 1[p]. In its alternative contention, Petitioner asserts that the computer equipment in Bank A includes the claimed second processing circuitry and memory. Pet. 35 n.9, 61–62 (*cited in* Inst. Dec. 31). Petitioner observes that, sometimes, the payee and payor bank will be the same bank (e.g., when a payee deposits a check into an account at the same bank used by the payor), so the same bank will perform the functions of the payor bank and the payee bank. *See id.* at 61–62. Petitioner contends that, if this satisfies element 1[p],[35] then the proposed combination also satisfies this

[35] The clarity of this argument is somewhat obscured by Petitioner's conditional presentation of it, but we find the Petition to be sufficiently clear, particularly given the context of the related proceedings between these parties. Petitioner filed a petition in IPR2021-01076 at the same time as this proceeding, which challenged the same claims but was premised on breaking the '559 patent's priority chain. In that petition, Petitioner argued that the Specification of the '559 patent failed to provide written description support for element 1[p], even though the Specification stated that a bank could be both the payee and payor. *See* IPR2021-01076, Paper 4 (Petition), 27–32. We disagreed and denied institution as a result. Ex. 1168, 20–24. In doing so, we agreed with Patent Owner's argument that the Specification disclosed a bank internally clearing a check and that this taught element 1[p]. *Id.* at 23–24. Given this context, we understand the relevant portion of the Petition to contend that, if the Specification is sufficient to disclose this limitation, then the proposed combination also teaches or suggests it.

limitation. *Id.* at 62 (citing Ex. 1104 ¶¶ 36, 57, 59, 60; Ex. 1102 ¶¶ 137–138); *see also* Pet. Reply 3–4. We agree.

We are persuaded that an ordinarily skilled artisan would have understood Randle to teach that the payee bank would, in some situations, be both the payee bank and the payor bank engine. *See, e.g.*, Ex. 1104 ¶¶ 36 (referencing processing of "on-us" items by the engine), 57 (logging "on-us" items processed); Ex. 1102 ¶ 138 (testifying regarding Randle's disclosure of "on-us"); *see also* Ex. 2020, 94:20–22 (explaining "on-us" refers to "a process from within the same bank"); Ex. 1172 ¶ 8 (similar). Randle teaches a payor bank accepting a check image for deposit. *E.g.*, Ex. 1104 ¶¶ 2, 19 (describing sending check image to payor bank for processing and association with individual payor account). Thus, the payee bank (which would sometimes be the payor bank) is capable of accepting the digital image for check deposit in place of the physical check (on behalf of the payor). *See also* Ex. 1102 ¶ 138; Ex. 1172 ¶ 8; *cf.* PO Resp. 28 (acknowledging that Randle's payee bank "is capable of performing the functions of a payor bank in situations where it is the payor bank"). Patent Owner's contrary arguments (*see* PO Resp. 27–30) are unavailing because they are premised on misunderstandings of the Petition or relate to Randle's image exchange receipt process 280, upon which we do not rely. We note that Petitioner clearly reiterated its argument in the Reply and explained that it applied even if Patent Owner's claim construction were adopted (*see* Pet. Reply 3–4), but Patent Owner elected to not respond to this argument (*see* PO Sur-reply).

Furthermore, if we were to apply Petitioner's proposed construction of element 1[p], we would also find that the Garcia-Randle combination teaches it. In addition to the reasons provided above, Randle also teaches

that the engine in payor bank includes image exchange receipt process that handles the acceptance and validation of inbound image files. Ex. 1104 ¶ 59, Fig. 2. This component also accepts the digital image of the check in the depositing process in place of the actual check, as required.

For these reasons, we are persuaded the Garcia-Randle combination teaches or suggests elements 1[pre], 1[a], 1[b], 1[n], 1[o], and 1[p].

c) The Image Receipt Limitation: 1[c]

Claim 1 recites: "receive a digital image depicting at least portions of the check submitted by a user for the remote deposit of the check, the digital image transmitted using a mobile device associated with an image capture device, the digital image being captured by the image capture device." Ex. 1101, 14:29–34.

Petitioner relies on Garcia to teach this limitation. *See* Pet. 41–44. In particular, Petitioner quotes Garcia's disclosure that a "mobile device with incorporated digital camera" "captur[es] the digital image of the obverse and the reverse side of the [check]" and "transmit[s] the digital image . . . to the institution" so that the institution's computer equipment can "process the deposit of the check." *Id.* at 42–44 (alterations Petitioner's) (quoting Ex. 1103, 6:3–5, 6:12–20, 10:10–11, 10:16–18, 12:17–22; citing *id.* at 4:11–18, 5:21–22, 9:19, 11:10–15, 12:4–9, 15:17–18, Fig. 1). Patent Owner does not dispute these contentions. *See* PO Resp.

We are persuaded that Garcia teaches element 1[c]. Garcia's mobile device captures digital images of the check using its digital camera and then transmits those images to the bank's computer equipment. *E.g.*, Ex. 1103, 6:12–20, 10:10–11, 10:16–18.

d) The Image Format Limitations: 1[d], 1[e], and 1[f]

Claim 1 recites:

[d] detect an image format of the digital image;

[e] determine the digital image is stored in a first image format;

[f] convert the digital image into a second image format, wherein an image quality of the first image format is greater than an image quality of the second image format;

Ex. 1101, 14:35–41.

Petitioner relies on Randle to teach these limitations. *See* Pet. 44–46. In particular, Petitioner points to Randle's disclosure of converting the check image from "a high level of quality" to "a less size intensive format for transmission and use in the check processing chain." *Id.* at 44 (quoting Ex. 1104 ¶ 43). Petitioner quotes Randle, which states that "[e]xamples of data reduction include: 1) 8 bit gray scale to bi-tonal (black and white); . . . 6) color (grey scale or full color) to bi-tonal (black and white)." *Id.* at 44 (quoting Ex. 1104 ¶ 43) (alteration Petitioner's). According to Petitioner, an ordinarily skilled artisan would have understood that different data reduction processes would be applied, depending upon the format of the received image; therefore, an ordinarily skilled artisan would have understood Randle's engine to detect an image format before creating the lower quality image. *Id.* at 44–45 (citing Ex. 1102 ¶ 98). Finally, Petitioner contends that an ordinarily skilled artisan would have been motivated to incorporate these aspects of Randle in the combination to "increase[] transmission speed and reduce[] storage requirements" and because the Federal Reserve banks adopted a bi-tonal TIFF format for Check 21 services. *Id.* at 45, 47 (quoting Ex. 1104 ¶ 43; citing Ex. 1113; Ex. 1102 ¶¶ 99, 103–104) (alterations Petitioner's).

Patent Owner does not disagree with Petitioner's assertion that Randle teaches these claim elements, but disputes Petitioner's contention that a person of ordinary skill in the art would have been motivated to include these aspects of Randle in the proposed Garcia-Randle combination. PO Resp. 54–60; *see also id.* at 36–37; PO Sur-reply 19–26. Patent Owner characterizes this aspect of Randle as "optional" (PO Resp. 54 (citing Ex. 1104 ¶ 42)) and argues that Petitioner fails to sufficiently explain why an ordinarily skilled artisan would have incorporated it into computer equipment at the payee bank (instead of, for example, a payor bank or clearing house 340) (*id.* at 54–60). Specifically, Patent Owner reasons that the Federal Reserve's use of the bi-tonal TIFF format would not motivate the proposed combination because Randle shows the Federal Reserve connected to clearing house 340, not the payee bank, and clearing house 340 may require the higher quality version of the image for its QA processes. *Id.* at 56–57 (citing Ex. 1104 ¶ 43, Fig. 3). Patent Owner also submits that "the proposed combination would perform a permanent reduction in image quality that, per Randle's own teachings, would limit the downstream party's ability to perform its own QA and require it to trust the payer [sic—payee] bank's processes." *Id.* at 57–58 (citing Ex. 1104 ¶¶ 14, 66). According to Patent Owner, "Petitioner fails to explain why a [person of ordinary skill in the art] would be motivated to accept these tradeoffs" and does not "acknowledge these drawbacks at all." *Id.* at 58–59.

Having considered the record, we find that Randle teaches elements 1[d], 1[e], and 1[f]. *See* Ex. 1103 ¶ 43; Ex. 1102 ¶¶ 97–98, 101, 103. In particular, Randle discloses that a high-resolution version of a check image may be required to perform QA, and it discloses converting the image to a low-resolution version for transmission and use in check processing:

> The capture of a check in an 8 bit gray scale (or color) high dpi format (100 dpi or 200 dpi) may be needed to assure a high level of quality for a QA process. Once that QA process is completed on the high resolution image . . . then the image is converted to a less size intensive format for transmission and use in the check processing chain. The QA signature provides an audit trail for this process and assures QA is not lost as part of the data reduction process. Examples of data reduction include: 1) 8 bit gray scale to bi-tonal (black and white); . . . 6) color (grey scale or full color) to bi-tonal (black and white), and 7) equivalent or similar reductions in tone, color, contrast, resolution or other parameters. Thus, the image is captured, QA'd, and then data reduction is performed (keeping the unique digital signature and transitive QA) as a method to reduce file size which increases transmission speed and reduces storage requirements.

Ex. 1104 ¶ 43. Dr. Noble explains that an ordinarily skilled artisan would have understood this to disclose detecting an image format of the original check image because the specific technique selected to perform the desired data reduction would depend on that format. Ex. 1102 ¶ 98. We credit this testimony because it is sufficiently explained.

We also find that an ordinarily skilled artisan would have been motivated to include this technique from Randle in the proposed combination with Garcia for two reasons. In our view, either would motivate an ordinarily skilled artisan to include Randle's data reduction capability in the computer equipment of the payee bank in the Garcia-Randle combination.

First, the cited paragraph of Randle expressly advocates Randle's data reduction techniques. It states that "the image is captured, QA'd, and then data reduction is performed (keeping the unique digital signature and transitive QA) as a method *to reduce file size which increases transmission speed and reduces storage requirements*." Ex. 1104 ¶ 43 (emphasis

added).[36] Randle teaches (or at least suggests) including this capability in the payee bank. *See, e.g.*, Ex. 1104 ¶¶ 19 (payee bank performs QA and then transmits QA checkmark along with image and data for clearing and settlement), 43 ("Once that QA process is completed on the high resolution image . . . then the image is converted to a less size intensive format for transmission and use in the check processing chain."); *also cf.* PO Resp. 57 (stating that "Randle does teach that it is possible for the payee bank to reduce the file size before transmission by stamping the image with a 'QA√ signature'"). Randle explains that a payee bank's QA will, in certain situations, be trusted by recipients in the check processing chain, such as the payor bank and/or the clearing house. *See, e.g.*, Ex. 1104 ¶¶ 4 (establishing QA "early in the process allows others in the processing chain to accept the item and its QA stamp without additional QA"), 66 (referencing reliance on a "previous QA accomplished by a prior trusted party"), 69 ("QA performed at any of the QA checkmark 'QA√' identification points shown will allow an agreed to QA signature to be accepted at any other end point. The recipient has the option to not do any additional QA if the recipient agrees to the original QA process using one or more QA attributes."), 70 (referencing "a vicarious trusted party, quality assured relationship"), Fig. 3. As a result, we find that Randle's disclosure would have motivated an ordinarily skilled artisan to include Randle's data reduction capability at the payee bank because this would allow the payee bank to transmit a low-resolution version

[36] To the extent Patent Owner argues that the Reply's reliance on this sentence was improper (*see* PO Sur-reply 23 (citing Pet. Reply 21, 45–46)), we disagree. The Petition quotes this sentence to explain why an ordinarily skilled artisan would have been motivated to combine this aspect of Randle with Garcia (Pet. 45), and the Institution Decision identified it as one of the Petition's two motivations to combine for these elements (Inst. Dec. 33).

of the check image when appropriate (e.g., when the payor bank trusts the payee bank's QA and does not require the high-resolution version).

Second, we are persuaded that the Federal Reserve banks' requirements would have motivated an ordinarily skilled artisan to incorporate Randle's data reduction technique in the payee bank. Dr. Noble testifies that the Federal Reserve banks adopted a bi-tonal TIFF format, and he opines that this would further motivate an ordinarily skilled artisan to implement Randle's data reduction technique. Ex. 1102 ¶ 104 (citing Ex. 1113). We credit this testimony because it is supported by documentary evidence and because we perceive no evidence that contradicts it. Indeed, it is also supported by Randle's disclosure, which provides several examples that convert check images to bi-tonal formats. *E.g.*, Ex. 1104 ¶ 43 ("Examples of data reduction include: 1) 8 bit gray scale to bi-tonal (black and white) . . . ."). We are further persuaded that an ordinarily skilled artisan would have been motivated to include that capability in the payee bank for the reasons explained above. Patent Owner's argument that this functionality would be included in Randle's clearing house settlement engine 340 (*see* PO Resp. 56–57 (citing Ex. 1104, Fig. 3)) is inapposite because it does not relate to whether a *payee bank* would also have the functionality. *Cf.* PO Resp. 57 (stating that "Randle does teach that it is possible for the payee bank to reduce the file size before transmission"). Moreover, the evidence indicates that clearing house 340 is the Federal Reserve's clearing house (Ex. 1104 ¶¶ 50, 66; Ex. 1166, 113), which also suggests that the functionality would be included in the payee bank.

We do not agree with Patent Owner's argument (*see* PO Resp. 57–60) that an ordinarily skilled artisan would have been discouraged from Petitioner's proposed combination given the required tradeoffs. Initially, we

note that the mere presence of tradeoffs does not undercut a motivation to combine. *Cf. Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 795 (Fed. Circ. 2021) (stating that "simultaneous advantages and disadvantages do not necessarily obviate motivation to combine" (cleaned up)); *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (The "case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention."). We have considered the identified tradeoffs, and for the reasons below, we find that they do not affect the rationale to combine Garcia and Randle.

Patent Owner argues that a disadvantage of the payee bank transmitting a low-resolution image is that it would eliminate a recipient's ability to perform its own QA, requiring it to trust the payee bank (PO Resp. 57–58), but even accepting the premise *arguendo*,[37] we do not agree that this would have discouraged the proposed combination, as Patent Owner contends. As we found above, Randle teaches (or at least suggests) including the data reduction *capability* in the payee bank, and it indicates that this would be used in some situations. This is sufficient to teach the

[37] Incidentally, we do not agree that Randle's low-resolution version would eliminate other entities' ability to perform QA. Randle expressly contemplates performing QA *after* data reduction, and to this end, it describes segmenting the check image into different areas stored at different resolutions. *See* Ex. 1104 ¶¶ 43 (noting that "QA [is] available before and after data reduction"), 44 (explaining that critical information is kept at higher resolution while irrelevant areas are converted to lower resolution). We do not agree with Patent Owner's contrary understanding of this portion (*see* PO Resp. 50–51), which is only supported by attorney argument.

claim's requirements.[38] Moreover, there is no basis to assume that the proposed combination would always (and only) send the low-resolution image for further processing, even when that image would be insufficient, as this would be illogical and contrary to Randle's disclosure. *See* Ex. 1104 ¶ 42 (noting that data reduction is an "option"). As a result, Patent Owner identifies a disadvantage that might sometimes be encountered by a particular implementation of the proposed combination. That disadvantage does not diminish the motivation to combine these references or the obviousness of the challenged claims.

Patent Owner also argues that this drawback would be "further exacerbated" by the lower-quality images received from Garcia's cellular telephone (as compared to images received from Randle's scanners). PO Resp. 58; *see also* PO Sur-reply 22–23. As explained above (*supra* § II.E.1.a), we do not agree with Patent Owner's arguments that an ordinarily skilled artisan would be discouraged from making the combination due to an expectation that a mobile phone's image would be insufficient. Patent Owner implies that the low-resolution version of the check image would be unsuitable for sending to the payor bank (*see* PO Resp. 2; PO Sur-reply 25–26), but this argument is insufficiently explained.[39] The claim does not appear to require that the low-resolution

[38] Patent Owner appears to assume that, in order to teach or suggest these claim limitations, Randle must disclose that the payee bank *always* performs data reduction (*see, e.g.*, PO Sur-reply 24), but fails to provide (and we discern) no support for such an assumption.

[39] In addition, although the argument presented in the Sur-reply is unclear and vague, it appears to be an untimely new argument (*see* PO Sur-reply 25–26). *See supra* § II.A. However, we address it here to explain why it would not have been persuasive even if it had been properly presented.

version of the check qualify as a substitute check or be suitable for creating one (*cf.* Ex. 1101, 14:56–58 ("determine *the digital image* is suitable for creating a substitute check")), and Randle describes a situation where the payor bank trusts the payee bank's quality check, which makes sending the high-resolution version that is suitable for creating a substitute check unnecessary (*e.g.*, Ex. 1104 ¶ 69).

Finally, we do not address Patent Owner's arguments regarding the Petition's cross-reference to a different section that provides a general motivation to combine Garcia and Randle (*see* PO Resp. 55–56 (citing Pet. 46); PO Sur-reply 21–22) because we do not rely upon that aspect of the Petition for our findings regarding elements 1[d], 1[e], and 1[f].

For these reasons, we are persuaded that Randle teaches elements 1[d], 1[e], and 1[f], and that an ordinarily skilled artisan would have been motivated to combine this aspect of Randle with Garcia and would have had a reasonable expectation of success.

e) The OCR Verification Limitations: 1[g], 1[h], 1[i], 1[j], 1[k], and 1[l]

Claim 1 recites:

[g] apply optical character recognition to the digital image;

[h] determine an amount for the remote deposit of the check based on the optical character recognition applied to the digital image;

[i] compare the determined amount against a customer-entered amount;

[j] optically read a magnetic ink character recognition (MICR) line depicted in the digital image;

[k] determine a routing number from the optically read MICR line;

> [l] perform duplicate check detection on the check depicted in the digital image based at least in part on information obtained via the optical character recognition applied to the digital image; and

Ex. 1101, 14:42–55. Petitioner relies on Garcia, Randle, and Slater for these limitations (Pet. 46–56), and Petitioner asserts that an ordinarily skilled artisan would have been motivated to combine these references to yield the subject matter recited in these limitations (*id.* at 29–33). Patent Owner does not dispute these contentions.[40] *See* PO Resp. For the reasons explained below, we are persuaded by Petitioner's contentions.

As for element 1[g], Petitioner points to Garcia's disclosure that the financial institution includes computer equipment that "has an optical character recognition (OCR) system" for "recognizing, verifying and processing" the check image received from the user. Pet. 46 (quoting Ex. 1103, 11:7–15; citing *id.* at 6:3–10, 12:4–9, 12:13–22).

We agree, and we find that Garcia states that the bank's computer equipment performs optical character recognition on the digital image of the check. Ex. 1103, 6:3–10, 11:7–15; Ex. 1102 ¶ 106; *see also* Ex. 1103, 7:18–8:11 (explaining that the described system "replac[es] the traditional check reader with a multi-purpose mobile device" and the truncation process is performed external to the bank), 12:17–22 (stating that bank uses image of check and additional data to automatically process the deposit). Accordingly, we are persuaded that Garcia teaches element 1[g].

[40] To the extent Patent Owner's oral hearing arguments are directed to these limitations, those arguments are untimely and forfeit because they were not presented in the Patent Owner Response.

As for elements 1[h] and 1[i], Petitioner asserts that Randle's engine performs QA based on data including a check's "OCR amount" and a "human input amount," and that an ordinarily skilled artisan would have understood this to include determining an amount based on an OCR of the check image. Pet. 47 (citing Ex. 1104 ¶ 74, Fig. 9B (item 121); Ex. 1102 ¶ 108); *see id.* at 29–30 (alleging Randle teaches "117 human input amount"). Petitioner acknowledges that Randle does not explicitly state that its QA compares these amounts, but contends that it would have been obvious to do so and that this is expressly taught by Slater. *Id.* at 29–30 (citing Ex. 1102 ¶¶ 69–71; Ex. 1105 ¶¶ 23, 28); *see also id.* at 49–50 (arguing that Slater expressly teaches comparing an OCR amount and an amount entered by a user) (citing Ex. 1102 ¶ 111). In particular, Petitioner contends that it would have been obvious to incorporate Slater's comparison into Garcia-Randle's engine because an ordinarily skilled artisan would have understood that this would both reduce data entry and OCR errors and predictably improve the system's accuracy and reliability. *Id.* at 30–32 (citing Ex. 1102 ¶¶ 70–72). Petitioner further contends that an ordinarily skilled artisan would have been motivated to make this combination because it combines known elements and methods in a predictable way, he would have had a reasonable expectation of success, and it would have been obvious to try given that Slater provided a predictable, improved solution to the need to validate check items. *Id.* at 32–33 (citing Ex. 1102 ¶¶ 73–75).

We are persuaded that it would have been obvious to combine Slater with Garcia and Randle, as proposed, to yield the subject matter recited by elements 1[h] and 1[i]. As noted above, Garcia expressly states that the bank's computer equipment "has an optical character recognition (OCR) system" for "recognizing, verifying and processing the information sent by

the user," which includes the check image as well as recognition data entered by the user (e.g., check amount). Ex. 1103, 10:10–18, 11:7–15; *see also id.* at 5:14–20, 12:9–11 (*cited in* Inst. Dec. 42 n.17). Randle similarly indicates that its engine includes OCR software, and specifically, Randle states that its QA considers a "human input amount" and an "OCR amount." Ex. 1104 ¶¶ 19, 21, 42, 74, Fig. 9B (items 117, 121). Although Randle does not explain how the QA uses these two pieces of data, Slater expressly teaches that these amounts should be compared to identify transactions that require manual review by a customer service operator. Ex. 1105 ¶¶ 22–23, 28. Based on these disclosures, Petitioner's declarant, Dr. Noble, opines that a person of ordinary skill in the art would have been motivated to (and able to) include Slater's comparison in the Garcia-Randle system with a reasonable expectation of success. *See* Ex. 1102 ¶¶ 69–75, 111. In support, Dr. Noble explains that this comparison would improve reliability because "[a]ny discrepancy would mean there was error either in the user input or the image from which the check amount is read," and he notes that "there would be no reason to capture both OCR and customer-entered versions unless there was a possibility of such discrepancy." *Id.* ¶ 72. We credit Dr. Noble's testimony on these points because it is supported by the cited references. Accordingly, we find that a person of ordinary skill in the art would have been motivated to include Slater's comparison in the Garcia-Randle system, and that the resulting combination teaches elements 1[h] and 1[i].

As for elements 1[j] and 1[k], Petitioner again points to Garcia's statement that the financial institution's computer equipment includes an OCR system for recognizing, verifying, and processing the check image. Pet. 50–51. According to Petitioner, Randle teaches that the payee bank

collects the MICR data and, from it, determines a routing number identifying the payor bank. *Id.* at 51 (citing Ex. 1104 ¶¶ 18–19), 54 (citing Ex. 1104 ¶¶ 18–19, 76, Fig. 11A (item 150); Ex. 1102 ¶ 120). According to Petitioner, a person of ordinary skill in the art would have understood that Randle reads the MICR data "optically" from the check image because "that was a standard method of collecting MICR data from a check image" and because Randle expressly teaches performing an OCR on the check number. *Id.* at 51 (citing Ex. 1102 ¶ 114; Ex. 1104 ¶ 74). In the alternative, Petitioner contends that an ordinarily skilled artisan would have been motivated to optically read the MICR data because, in the proposed combination, the payee bank only receives an image of the check. *Id.* at 52–54 (citing Ex. 1102 ¶ 115–118); *see also id.* at 61–62 (addressing contention that payee bank also includes this component).

We find that the Garcia-Randle combination teaches elements 1[j] and 1[k]. As noted above, Garcia teaches using OCR to recognize, verify, and process the check image. *E.g.*, Ex. 1103, 11:7–15. Randle discloses reading the MICR line depicted in the check's image. Ex. 1104 ¶ 19 ("The deposit bank 4 captures the check and related information by a scan 5 to create an image of the front and back of the check and collects information such as . . . the MICR data."). We are persuaded that an ordinarily skilled artisan would have been motivated to combine Garcia and Randle so that the MICR line is optically read with an OCR performed by the bank's computer equipment. In particular, we agree with Petitioner that, in the proposed Garcia-Randle combination, the bank receives an image of a check rather than the physical check itself (*see* Pet. 52), and Garcia suggests that an OCR system at the bank is used for recognizing and verifying the check's information. *See, e.g.*, Ex. 1103, 7:18–8:14, 11:7–13. In addition, we credit Dr. Noble's

testimony that optically reading the MICR line "was a well-known and typical way of collecting MICR data from an image of a check," and we credit his testimony that an ordinarily skilled artisan would have had a reasonable expectation of success in combining Garcia and Randle in this way.[41] Ex. 1102 ¶¶ 114–117. Further, we find that a person of ordinary skill in the art would have understood Randle to teach determining a routing number from the MICR line. *E.g.*, Ex. 1104 ¶¶ 18–19, 36, 76; Ex. 1102 ¶ 120.

As to element 1[l], Petitioner contends that Randle's check verification controller detects duplicate transactions using the check number determined from an OCR of the check image. Pet. 54–56 (citing Ex. 1104 ¶¶ 36, 54, 61, 74, Fig. 2 (items 220 and 221), Fig. 9B (item 115)). We agree, and we find that Randle teaches performing duplicate check detection based on the check number obtained from the OCR of the check's image. *See* Ex. 1104 ¶¶ 36, 54, 61, 74.

For these reasons, we are persuaded the Garcia-Randle-Slater combination teaches or renders obvious elements 1[g], 1[h], 1[i], 1[j], 1[k], and 1[l].

f) The Suitability Limitation: 1[m]

Claim 1 recites: "determine the digital image is suitable for creating a substitute check and sufficient to go forward with the deposit." Ex. 1101, 14:56–58.

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[41] To the extent Patent Owner disputes Petitioner's contentions regarding this element in the Sur-reply, those arguments are untimely and forfeited. In addition, even if they had been properly advanced, they would not have been persuasive for the reasons explained above. *See supra* § II.E.1.a.2 (addressing Sur-reply's arguments regarding the MICR line).

For this limitation, Petitioner relies on Randle and Garcia. *See* Pet. 56–59. According to Petitioner, Randle teaches that its engine determines the digital image is suitable for creating a substitute check because, based on the results of the QA, the engine dynamically routes the check for clearing and settlement, which may include posting to the image exchange or paper clearing utilizing an image replacement document (IRD) (i.e., a substitute check). *Id.* at 57–58 (citing Ex. 1104 ¶¶ 7–8, 19, 47, 51, 74, Fig. 9B; Ex. 1102 ¶¶ 127–128). Petitioner contends that Garcia teaches that the financial institution's computing equipment verifies the check image and processes the deposit into the user's account. *Id.* at 58 (citing Ex. 1103, 11:7–19, 12:17–22). Petitioner further contends that these aspects are also taught by Randle, which performs QA on the image and, if quality is insufficient, the transaction is routed for exception processing. *Id.* at 58–59 (citing Ex. 1104 ¶¶ 19, 21, 23–24, 28).

Patent Owner does not dispute these contentions. *See* PO Resp.

We are persuaded that Randle teaches element 1[m].[42] Randle discloses that its engine determines, in at least some circumstances, that a check's digital image is suitable for creating a substitute check (*e.g.*, Ex. 1104 ¶¶ 19, 47, 51) and sufficient to go forward with the deposit (*e.g.*, *id.* ¶¶ 19, 21). *See also id.* ¶ 2. We also find that this digital image is in a form that is sufficient for creating a reproduction of an original check that

[42] In addition, we also find that Randle and Garcia further teach that payee bank accepts the digital image for check deposit in place of the check depicted, as required by element 1[p]. Ex. 1104 ¶ 19 ("Payee bank 21, receiving funds, will assign the funds represented by the financial instrument and credit the funds to the respective individual payee."); Ex. 1103, 11:15–17, 12:20–22; *see supra* § II.E.1.b (addressing element 1[p]).

can be processed in place of the original. *E.g.*, *id.* ¶¶ 7, 19. In addition, Garcia discloses that the bank's computer equipment determines, in at least some circumstances, that the received digital image is sufficient to go forward with the deposit. *E.g.*, Ex. 1103, 11:7–15.

g) Conclusion

For the reasons provided above, we are persuaded that a person of ordinary skill in the art would have been motivated to combine Garcia, Randle, and Slater in the manner proposed by Petitioner, and we are also persuaded that the Garcia-Randle-Slater combination teaches or suggests each limitation of claim 1. Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of independent claim 1 would have been obvious over Garcia, Randle, and Slater.

2. Independent Claim 10

Independent claim 10 includes limitations that are commensurate with limitations found in independent claim 1, and Petitioner relies on its prior analysis for this claim. *See* Pet. 69–72. Most of Patent Owner's arguments regarding claim 1 apply equally to independent claim 10, but those arguments are not persuasive for the reasons explained above. *Supra* § II.E.1. Patent Owner does not otherwise dispute Petitioner's arguments, analysis, or evidence for claim 10. *See* PO Resp.

For the reasons provided for claim 1, we are persuaded that Petitioner has shown, by a preponderance of the evidence that the subject matter of independent claim 10 would have been obvious over Garcia, Randle, and Slater.

3. Dependent Claims 2, 3, 11, and 12

Claims 2 and 3 depend from independent claim 1, and claims 11 and 12 depend from independent claim 10. Ex. 1101, 14:66–15:7, 16:18–28. Petitioner contends that the additionally-recited limitations of these claims are taught or suggested by the Garcia-Randle-Slater combination. Pet. 67–69, 72–73. Patent Owner does not separately dispute these contentions. *See* PO Resp.

Having considered the record, we are persuaded that Petitioner has shown that the proposed combination teaches or suggests each additionally-recited limitation of dependent claims 2, 3, 11, and 12.[43] *See* Pet. 67–69. We find the Garcia-Randle-Slater combination teaches the requirements of the respective independent claims, and we find that an ordinarily skilled artisan would have been motivated to combine these references as proposed. *See supra* § II.E.1–2 (addressing requirements of independent claims 1 and 10).

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 2, 3, 11, and 12 would have been obvious over Garcia, Randle, and Slater.

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[43] Our finding regarding dependent claims 2 and 11 is conditioned upon some of our analysis of claim 1. *See supra* §§ II.C.1 (addressing meaning of "accepting" limitation), II.E.1.b (finding Garcia-Randle-Slater combination teaches element 1[p] for several reasons). In particular, if our finding regarding element 1[p] were only supported by Randle's disclosure of "on-us" transactions (and if Patent Owner's construction of the "accepting" limitation were correct), then we would not find that Petitioner had shown the combination teaches the additionally-recited limitations of claims 2 and 11, which require initiating a deposit "from a first financial institution to a second financial institution using the digital image." Ex. 1101, 15:1–3, 16:20–24.

F. Obviousness Ground Based on Garcia, Randle, Slater, and Lev

Petitioner contends that the subject matter of dependent claims 4, 9, 13, and 18 would have been obvious over Garcia, Randle, Slater, and Lev. Pet. 73–78. In support, Petitioner relies upon its analysis of independent claims 1 and 10 and argues that it would have been obvious to add Lev (which accounts for additionally-recited limitations) to the Garcia-Randle-Slater combination. *Id.*

Patent Owner contends that, "at least with respect to claims 4 and 13, Petitioner has . . . failed to show a motivation to combine Lev with the Garcia/Randle/Slater system to produce the claimed invention." PO Resp. 60–64. Otherwise, Patent Owner does not dispute Petitioner's contentions for this ground. *See id.*

1. Claims 4 and 13

Claim 4 depends from independent claim 1 and recites that the first operations include "control[ling] display of instructions for assisting the user to capture the image using the image capturing device by placing a digital camera at a proper distance away from the check." Ex. 1101, 15:8–13 (the "instruction limitation"). Claim 13 depends from independent claim 10 and includes substantially the same subject matter. *Id.* at 16:29–34.

Petitioner contends that the instruction limitation is taught by Lev. Pet. 73–74; *see also id.* at 77. In support, Petitioner asserts that "Lev teaches converting 'printed documents' (such as 'bank checks') 'into electronic ones' using 'a standard portable wireless device' 'such as [a] camera phone[]'" and Lev "explains that the document images can be 'captured during an interactive session of the user with the backend server.'" *Id.* at 73 (citing Ex. 1106 ¶¶ 42, 71, 72, 114). Petitioner also quotes Lev's statements

that its "interactivity" includes "[g]uiding the user to the proper areas and proper imaging distance in order to optimally capture some parts of the document (for example, 'move camera to the right and closer please'), based on the recognition of the part of the document the camera is currently pointing at." *Id.* at 73–74 (quoting Ex. 1106 ¶ 117) (emphasis omitted; alteration Petitioner's).

Petitioner further contends that an ordinarily skilled artisan would have been motivated to incorporate Lev's instructions into the payee computer equipment of the Garcia-Randle-Slater combination to improve the quality of the image received by the payee bank. Pet. 74–75. In support, Petitioner notes that Garcia, like Lev, describes an "interactive session with the receiving institution," and Petitioner submits that an ordinarily skilled artisan would have understood both that a check image taken using a mobile phone is "often limited in quality" and that Lev's technique would improve the image quality for Garcia's OCR. *Id.* (citing Ex. 1103, 5:11–6:10, 7:15–17, 10:10–11, 11:8–15; Ex. 1106 ¶¶ 21–24; Ex. 1102 ¶¶ 167–168). Petitioner also contends that an ordinarily skilled artisan would have had a reasonable expectation of success because implementation of Garcia's interactive session with Lev's instructions are routine design choices. *Id.* at 75 (citing Ex. 1102 ¶¶ 169–171).

In response, Patent Owner contends that Petitioner fails to show a motivation to combine Lev with the Garcia-Randle-Slater combination to yield the instruction limitation. PO Resp. 60–64. Patent Owner asserts that Lev fails to teach the instruction limitation and instead "teaches away" from the claimed approach. *Id.* at 61. According to Patent Owner, Lev states that a single image of a whole document from a mobile device camera is low-quality and unreadable, particularly when that document contains both

printed and handwritten text. *Id.* (citing Ex. 1106 ¶¶ 49, 68, 70). Patent Owner submits that "Lev teaches a different approach" to this problem, which guides the user in capturing the document in several different images that are combined into a final document, resulting in higher resolution and image quality. *Id.* at 61–63 (citing Ex. 1106, Abstr., Fig. 3, ¶¶ 49, 79). Patent Owner contends that the portions of Lev relied upon by Petitioner describe instructions provided to the user for this purpose. *Id.* at 63 (citing Ex. 1106 ¶ 117). From this, Patent Owner submits that Lev fails to teach the instruction limitation because it does not provide "an instruction guiding the user to place the digital camera at a proper distance and capturing an image of a check (or any complete document)." *Id.*

Having considered the parties' arguments and evidence, we find that Lev teaches the instruction limitation. We are also persuaded that an ordinarily skilled artisan would have been motivated to combine Lev's instruction with the Garcia-Randle-Slater combination to yield the subject matter recited by claims 4 and 13, and that an ordinarily skilled artisan would have had a reasonable expectation of success in doing so.

We find that Lev teaches providing instructions to assist a user in capturing an image by placing a mobile device a proper distance away from a document such as a check. *See* Ex. 1106 ¶¶ 42, 71–72, 114, 117. Specifically, Lev describes using an interactive session between the user and a computational facility (or server) to facilitate capturing the image(s). *Id.* ¶ 71. Lev states that this interactive session may "[g]uid[e] the user to the proper areas and proper imaging distance in order to optimally capture some parts of the document (for example, 'move camera to the right and closer please')." *Id.* ¶ 117; *see id.* ¶ 114 (noting that Lev's image processing can

take place during an interactive imaging session). Accordingly, we find that Lev teaches the instruction limitation.

We also find that an ordinarily skilled artisan would have been motivated to include Lev's instructions the Garcia-Randle-Slater combination so that the system provides instructions for capturing the digital image, as required by these claims. As Petitioner notes (*see* Pet. 74–75), Garcia teaches that "an interactive session" is established between the user and the payee bank to facilitate the entry of user information and images of the front and back of the check. Ex. 1103, 5:11–6:10, 10:10–11; *see also id.* at 7:15–17 ("There is constant communication between the user and the financial institution via the mobile communications operator during the entire process."). Lev teaches that such an interactive session may provide a user with instructions regarding the placement of the physical document relative to the camera. Ex. 1106 ¶¶ 114, 117. In addition, we are persuaded that an ordinarily skilled artisan would have understood the benefits of Lev's teachings because he would have known that improper placement would negatively impact image quality. *See* Ex. 1102 ¶ 168. We further find that an ordinarily skilled artisan would have had a reasonable expectation of success in making this combination. *See id.* ¶¶ 169–171.

Patent Owner's contrary arguments (*see* PO Resp. 61–63) are unavailing because they are largely premised on a misunderstanding of Lev. Although Lev does describe techniques for capturing and combining multiple images of a physical document (*e.g.*, Ex. 1106 ¶¶ 48–49, 79), it also teaches techniques that are applicable to improving image quality generally.

Lev states that, in the prior art, documents could be captured either as a single image or as multiple images, but each approach had problems:

> 1. As a result of limited imaging device resolution, physical distance limitations, and imaging angles, the capture of a readable image of a full one page document in a single photo is very difficult. With some imaging devices, the user may be forced to capture several separate still images of different parts of the full document. With such devices, the parts of the full document must be assembled in order to provide the full coherent image of the document. . . .
>
> 2. Since there is no fixed imaging angle common to all still images of the parts of the full document, the multiple still images suffer from variable skewing, scaling, rotation and other effects of projective geometry. Hence, these still images cannot be simply "put together" . . . .

Id. ¶¶ 21–22. Lev also states both the single image and multiple image approach are subject to "several optical effects and imaging degradations," such lighting problems, focusing problems, and poor resolution, which can make the document "virtually useless for many of the purposes documents typically serve." *Id.* ¶ 23. In addition, according to Lev, some prior art text enhancement techniques were unsuitable for a document that included both printed and handwritten text:

> FIG. 2 displays typical limitations of prior art in text enhancement. A complex form containing both printed text in several sizes and fonts and handwritten text is processed. Since the algorithms of prior art do not have additional information about which parts of the image contain each type of text, they apply some average processing rule which causes the handwritten text, which is actually the most important part of the document, to become completely unreadable. Element 201 demonstrates that the original writing is legible, while element 202 shows that the processed image is unreadable.

Ex. 1106 ¶ 70; *see id.* ¶ 55 ("FIG. 2 illustrates a typical result of document enhancement using prior art products that have no a priori information on the location of handwritten and printed text in the document.").

Lev seeks to address these problems. To that end, it uses a database of reference images to "recogniz[e] the document (or a part thereof) appearing in the image via visual image cues appearing in the image, and using a priori information about the document." Ex. 1106 ¶ 43. Then, it "perform[s] dedicated image processing on various parts of the image based on knowledge of which document has been imaged and what type of information this document has in its various parts." *Id.* ¶ 44. Lev's method may also recognize characters or other symbols on the document and may route the information appropriately. *Id.* ¶¶ 45–46.

Lev also makes clear that it can handle documents captured either as a single image or as multiple images: Lev states that one aspect of its invention captures "an image of a printed form," which is improved with Lev's techniques (Ex. 1106 ¶ 47), and another aspect "captur[es] several partial and potentially overlapping images of a printed document," which are combined and improved with Lev's techniques (*id.* ¶ 48; *see also id.* ¶ 49). Indeed, Lev's detailed description of its invention confirms this understanding. It states that its portable device captures either "a single image of the whole document" or "a plurality of N images that cover various parts of the document," and "[t]he image(s)" are sent to the server for processing. *Id.* ¶ 71. Lev states that its server uses "the image set" to identify a reference document that corresponds to the captured image(s). *Id.* ¶ 77.

Of particular relevance is Lev's discussion of providing instructions to the user. *See* Ex. 1106 ¶¶ 114, 117. Lev states that image processing can occur "either after the user has sent the image(s) for processing (as in an off-line processing mode) or during the imaging session itself (as in on-line

processing)." *Id.* ¶ 114. According to Lev, on-line "interactivity" can include:

> Guiding the user to the proper areas and proper imaging distance in order to optimally capture some parts of the document (for example, "move camera to the right and closer please"), based on the recognition of the part of the document the camera is currently pointing at and the image cue location.

Id. ¶ 117. We find that an ordinarily skilled artisan would have understood this disclosure, in the context of Lev, to teach (or at least suggest) providing instructions to a user for capturing an image of a document, whether or not that image was part of a series of images. This finding is further supported by Dr. Noble's testimony that an ordinarily skilled artisan would recognize that this discussion is designed to solve the broader problem of obtaining good images. *See* Ex. 1102 ¶¶ 81, 168; Ex. 1172 ¶¶ 47–48 (*cited in* Pet. Reply 24–25). We observe that Patent Owner's Sur-reply does not identify any contrary evidence or dispute Petitioner's contentions on this point. *See* Sur-reply.

We disagree with Patent Owner's argument that Lev teaches away from the claimed invention. *See* PO Resp. 61–63; *see In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant."). Lev identifies problems with prior art techniques for capturing and processing documents (*e.g.*, Ex. 1106 ¶¶ 68, 70), and Lev provides solutions to these problems, including providing instructions to a user to assist capturing an image (*id.* ¶ 117). This teaches towards, not away from, the claimed invention.

To the extent Patent Owner also contends that Lev does not expressly teach capturing an entire check in a single image (PO Resp. 63), this argument is unavailing. Petitioner contends that Garcia teaches capturing the necessary portions of the check in an image, as required by claim 1 (*see, e.g.*, Pet. 42–44), and Petitioner contends that the subject matter of claim 4 would have been obvious over a combination of Lev with Garcia. As a result, Patent Owner's argument fails to respond to Petitioner's grounds. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) ("Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.").

Accordingly, we determine that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 4 and 13 would have been obvious over Garcia, Randle, Slater, and Lev.

2. Claims 9 and 18

Claims 9 and 18 depend from independent claims 1 and 10, respectively. Ex. 1101, 14:66–15:7, 16:18–28. Petitioner contends that the additionally-recited limitations of these claims are taught by Lev, and that it would have been obvious to add this feature to the Garcia-Randle-Slater combination. Pet. 76–78. Patent Owner does not separately dispute these contentions. *See* PO Resp.

Having considered the record, we are persuaded that Petitioner has shown that Lev teaches the additionally-recited limitation of these dependent claims. *See* Pet. 76. Moreover, for the reasons explained above (*see supra* § II.F.1) and those presented by Petitioner (*see* Pet. 76–77), we are persuaded that an ordinarily skilled artisan would have been motivated to

add Lev to the Garcia-Randle-Slater combination as proposed. Also, we find the Garcia-Randle-Slater combination teaches the requirements of the respective independent claims, and we find that an ordinarily skilled artisan would have been motivated to combine those references as proposed. *See supra* § II.E.1–2 (addressing requirements of independent claims 1 and 10).

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 9 and 18 would have been obvious over Garcia, Randle, Slater, and Lev.

G. Obviousness Ground Based on Garcia, Randle, Slater, Lev, and Watanabe

Petitioner contends that the subject matter of claims 5 and 14 would have been obvious over Garcia, Randle, Slater, Lev, and Watanabe. Pet. 78–82. Specifically, Petitioner contends that the additionally-recited limitation in these claims is taught by Watanabe, and Petitioner contends that it would have been obvious to combine Watanabe with Garcia, Randle, Slater, and Lev. *Id.* Patent Owner does not separately dispute these contentions. *See* PO Resp.

Having considered the record, we are persuaded that Petitioner has shown that Watanabe teaches the additionally-recited limitation (*see* Pet. 78–80), and we are persuaded by Petitioner's undisputed showing that it would have been obvious to combine Watanabe with the Garcia-Randle-Slater-Lev combination (*see id.* at 80–81). Also, we find the Garcia-Randle-Slater-Lev combination teaches the requirements of the claims from which these claims depend, and we find that an ordinarily skilled artisan would have been motivated to combine those references as proposed. *See supra*

§§ II.E.1–2 (addressing requirements of independent claims 1 and 10), II.F.1 (addressing requirements of dependent claims 4 and 13).

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 5 and 14 would have been obvious over Garcia, Randle, Slater, Lev, and Watanabe.

H. Obviousness Ground Based on Garcia, Randle, Slater, Lev, Watanabe, and Aoyama

Petitioner contends that the subject matter of claims 6 and 15 would have been obvious over Garcia, Randle, Slater, Lev, Watanabe, and Aoyama. Pet. 82–84. Specifically, Petitioner contends that the additionally-recited limitation in these claims is taught by Aoyama, and Petitioner contends that it would have been obvious to combine Aoyama with Garcia, Randle, Slater, Lev, and Watanabe. *Id.* Patent Owner does not separately dispute these contentions. *See* PO Resp.

Having considered the record, we are persuaded that Petitioner has shown that Aoyama teaches the additionally-recited limitation (*see* Pet. 82–83), and we are persuaded by Petitioner's undisputed showing that it would have been obvious to combine Aoyama with the Garcia-Randle-Slater-Lev-Watanabe combination (*see id.* at 83–84). Also, we find the Garcia-Randle-Slater-Lev-Watanabe combination teaches the requirements of the claims from which these claims depend, and we find that an ordinarily skilled artisan would have been motivated to combine those references as proposed. *See supra* §§ II.E.1–2 (addressing requirements of independent claims 1 and 10), II.F.1 (addressing requirements of dependent claims 4 and 13), II.G (addressing requirements of dependent claims 5 and 14).

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 6 and 15 would have been obvious over Garcia, Randle, Slater, Lev, Watanabe, and Aoyama.

I. Obviousness Ground Based on Garcia, Randle, Slater, and Byrne

Petitioner contends that the subject matter of dependent claims 7, 8, 16, and 17 would have been obvious over Garcia, Randle, Slater, and Byrne. Pet. 84–88. Specifically, Petitioner contends that the additionally-recited limitations in these claims are taught by Byrne or Slater, and Petitioner contends that it would have been obvious to combine Byrne with Garcia, Randle, and Slater. *Id.* Patent Owner does not separately dispute these contentions. *See* PO Resp.

Having considered the record, we are persuaded that Petitioner has shown that either Byrne or Slater teaches each additionally-recited limitation (*see* Pet. 84–87), and we are persuaded by Petitioner's undisputed showing that it would have been obvious to combine Byrne with the Garcia-Randle-Slater-Lev combination (*see id.* at 85–87). Also, we find the Garcia-Randle-Slater-Lev combination teaches the requirements of the respective independent claims, and we find that an ordinarily skilled artisan would have been motivated to combine those references as proposed. *See supra* §§ II.E.1–2 (addressing requirements of independent claims 1 and 10).

Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 7, 8, 16, and 17 would have been obvious over Garcia, Randle, Slater, and Byrne.

III. PARTIES' MOTIONS

A. Petitioner's Motion to Exclude

Petitioner moves to exclude Exhibits 2002, 2004, 2005, 2008–2013, 2030, 2032, and 2033. Paper 58. Petitioner contends that Exhibits 2002, 2004, 2005, and 2008–2013 are irrelevant because they are not cited or discussed anywhere in the merits briefs. *Id.* at 2. Petitioner contends that Exhibit 2030 is incomplete under Federal Rule of Evidence 106 and "should be excluded unless the complete context for Dr. Kia's testimony can be provided through, at least, Petitioner's proposed Exhibit 1173 which provides Dr. Kia's obviousness opinions from his expert report." *Id.* at 2–3; *see also id.* at 3–4 (stating that "[t]he record may be further completed with the admission" of Exhibits 1174–1176). Finally, Petitioner contends that Exhibits 2032 and 2033 are incomplete, irrelevant, and unduly prejudicial. *Id.* at 4–7.

In its opposition, "Patent Owner does not oppose the exclusion of Patent Owner's Exhibits 2002, 2004–2005, and 2008–2013 and asks the Board to exclude Petitioner's Exhibits 1173–1176 for the same reasons." Paper 62, 1; *see infra* III.C (addressing Patent Owner's Motion to Exclude Exhibits 1173–1176). As for Exhibit 2030, Patent Owner contends that Rule 106 is not a "proper subject of a motion to exclude" and that Petitioner "had every opportunity to supplement the record with additional portions of that report with its Petitioner Reply brief." Paper 62, 1–3; *see also id.* at 3 (noting that Exhibits 1174–1176 do not contain excerpts from the report at issue). Finally, Patent Owner contends that Exhibits 2032 and 2033 are, in fact, relevant. *Id.* at 4–8

As for Exhibits 2002, 2004, 2005, and 2008–2013, these exhibits are not cited or relied upon in the merits papers, and we have not considered them in this Decision. As a result, that portion of Petitioner's Motion to Exclude is moot. *See* Trial Practice Guide 79–80 ("In the Board's experience, consideration of the objected-to evidence is often unnecessary to resolve the patentability of the challenged claims, and the motion to exclude is moot.").

As for Exhibits 2030, 2032, and 2033, even considering the objected to evidence (as we have above), we determine that Petitioner has shown by a preponderance of the evidence that the challenged claims are unpatentable. As a result, that portion of Petitioner's Motion to Exclude is moot.

Accordingly, we *dismiss* Petitioner's Motion to Exclude (Paper 58) as moot.

B. Patent Owner's Motion to Exclude

Patent Owner moves to exclude Exhibits 1173–1176, which include excerpts from expert reports, depositions, and trial testimony of Dr. Kia and Mr. Peterson. Paper 59. Patent Owner contends that these statements are hearsay under Federal Rule of Evidence 802 and not subject to any hearsay exceptions. *Id.* at 2. In addition, Patent Owner contends that these exhibits are "irrelevant to any issue in these proceedings" because they are not cited in the merits papers of this proceeding. *Id.* at 2–3.

Petitioner opposes the motion. Paper 61. Petitioner notes that Patent Owner submitted its own excerpts from Dr. Kia's and Mr. Peterson's testimony and argues that Exhibits 1173–1176 simply show that Petitioner has taken consistent positions. *Id.* at 1–2. Petitioner also submits that these

exhibits are not hearsay (*id.* at 1–6) and are relevant in view of the Sur-Reply, which relies on Exhibits 2032 and 2033 (*id.* at 6–7).

Exhibits 1173–1176 are not cited or relied upon in the merits papers, and we have not considered them in this Decision. Accordingly, we *dismiss* Patent Owner's Motion to Exclude (Paper 59) as moot. *See* Trial Practice Guide 79–80 ("In the Board's experience, consideration of the objected-to evidence is often unnecessary to resolve the patentability of the challenged claims, and the motion to exclude is moot.").

C. Patent Owner's Motion to Submit Supplemental Information

On December 8, 2022, after oral hearing, Patent Owner filed a Motion to Submit Supplemental Information Pursuant to 37 C.F.R. § 42.123(b). Paper 71 ("Mot."). In it, Patent Owner seeks to introduce two exhibits, which are excerpts from briefs submitted by the parties in *PNC I*. *Id.* at Ex. A (Petitioner's brief), Ex. B (Patent Owner's brief). Patent Owner submits that these excerpts are from the parties' briefs regarding Petitioner's motion for judgment as a matter of law on invalidity, which contends that certain claims of patents related to the '559 patent are not enabled. *Id.* at 1, 5. Patent Owner asserts that consideration of this information would be in the interest of justice because it is "evidence of inconsistent statements on common issues between the IPR and district court litigation" and thus relevant to this proceeding. *Id.* at 5.

Petitioner opposes the motion. Paper 72 ("Opp."). Petitioner submits that most of Patent Owner's motion "re-argu[es] substantive issues already briefed in this proceeding and addressed at oral argument." *Id.* at 1 (citing Mot. 1–4). According to Petitioner, the '559 patent is no longer at issue in

PNC I, and an enablement determination regarding one patent cannot be imputed to a different patent, even if they share a common specification. *Id.*

According to our rules,

> A party seeking to submit supplemental information more than one month after the date the trial is instituted, must request authorization to file a motion to submit the information. The motion to submit supplemental information must show why the supplemental information reasonably could not have been obtained earlier, and that consideration of the supplemental information would be in the interests-of-justice.

37 C.F.R. § 42.123(b). Additionally, "[t]he supplemental information must be relevant to a claim for which the trial has been instituted." *Id.* § 42.123(a)(2). "The moving party has the burden of proof to establish that it is entitled to the requested relief." *Id.* § 42.20(c)

We deny the Motion for two independent reasons.

First, Patent Owner fails to show that the supplemental information is relevant to a claim for which the trial has been instituted. As noted above, Patent Owner seeks to introduce a few pages of the parties' briefing regarding the enablement (or lack thereof) of related patents. *See* Mot. Exs. A, B. Patent Owner argues that consideration of this information would be in the interest of justice via the following two sentences:

> As the Board has recognized in past cases, as well as this one, evidence of inconsistent statements on common issues between the IPR and district court litigation is relevant and should be considered in the interests-of-justice. The Federal Circuit has similarly held that the Board should consider evidence of contradictory statements on common issues.

Mot. 5 (citing *Ultratec, Inc. v. CaptionCall, LLC*, 872 F.3d 1267, 1272–74 (Fed. Cir. 2017; *Kingston Tech. Co., Inc. v. Spex Techs., Inc.*, IPR2017-01021, Paper 31 at 2, 4–5 (PTAB May 29, 2018)). We disagree.

Patent Owner fails to explain why the parties' briefs regarding enablement of different patents are relevant to any of the claims for which this trial has been instituted. While the evidence underlying those briefs might be relevant (*see, e.g.*, Mot. 1–2, 4), Patent Owner does not seek to introduce that evidence. *Cf. Ultratec*, 872 F.3d at 1272 (concluding that an expert's trial testimony should have been allowed), *Kingston*, IPR2017-01021, Paper 31 at 3, 6 (authorizing submission of expert reports and testimony). Also, we perceive no inconsistency between arguing that the full scope of a claim is not enabled by the specification of a patent while, at the same time, arguing that it would have been obvious to make an embodiment of that claims. Moreover, even if arguments regarding enablement of a particular claim were relevant to whether that same claim is obvious, Patent Owner does not explain why arguments regarding *different claims* are relevant.

Second, even if there were some minimal relevance to the information, we determine that consideration of it would not be in the interests of justice for several reasons. The information includes only a few pages of the parties' briefs, without sufficient context for the arguments and without including the evidence and documents cited therein. This lack of context weighs against allowing the information to be submitted. Also, the late stage of this proceeding weighs against allowing it to be submitted. Patent Owner's Motion was filed approximately six weeks before the statutory date for issuing a final written decision, and the parties had no opportunity to address the information in the merits briefing. Finally, Patent Owner's Motion appears to be a thinly-veiled attempt to supplement its briefing regarding the implications of Dr. Kia's testimony (Exhibit 2032). Patent Owner dedicates most of the Motion to addressing the content and

implications of an exhibit already in the record, rather than addressing the documents sought to be added to it. *See* Mot. 2–4. These arguments should have been made in Patent Owner's Sur-reply, and inclusion of them in a motion to supplement information filed at the eleventh-hour of this proceeding is inappropriate. These arguments are untimely, and we do not consider them. In our view, Patent Owner's attempt to use its Motion for an improper purpose also weighs against granting it.

For these reasons, we *deny* Patent Owner's Motion (Paper 71).

IV. CONCLUSION[44]

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties' respective arguments, Petitioner has shown by a preponderance of the evidence that claims 1–18 are unpatentable.

[44] Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 10–12	103(a)	Garcia, Randle, Slater	1–3, 10–12	
4, 9, 13, 18	103(a)	Garcia, Randle, Slater, Lev	4, 9, 13, 18	
5, 14	103(a)	Garcia, Randle, Slater, Lev, Watanabe	5, 14	
6, 15	103(a)	Garcia, Randle, Slater, Lev, Watanabe, Aoyama	6, 15	
7, 8, 16, 17	103(a)	Garcia, Randle, Slater, Byrne	7, 8, 16, 17	
Overall Outcome			**1–18**	

V. ORDER

Accordingly, it is

ORDERED that claims 1–18 of U.S. Patent No. 10,621,559 B1 are determined to be unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude (Paper 58) is *dismissed* as moot;

FURTHER ORDERED that Patent Owner's Motion to Exclude (Paper 59) is *dismissed* as moot; and

FURTHER ORDERED that Patent Owner's Motion to Submit Supplemental Information (Paper 71) is *denied*; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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