

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KIOSOFT TECHNOLOGIES, LLC and TECHTREX, INC.,
Petitioner,

v.

PAYRANGE INC.,
Patent Owner.

PGR2021-00093
Patent 10,891,614 B2

Before KEN B. BARRETT, STACEY G. WHITE, and
GEORGE R. HOSKINS, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 328(a)

ORDER
Denying Petitioner's Motion to Exclude
37 C.F.R. § 42.64

I. INTRODUCTION

A. *Background and Summary*

KioSoft Technologies, LLC and TechTrex, Inc. (collectively, “Petitioner”)¹ filed a Petition requesting post-grant review of U.S. Patent No. 10,891,614 B2 (“the ’614 patent,” Ex. 1001). Paper 2 (“Pet.”). The Petition challenges the patentability of claims 1–25 of the ’614 patent. We instituted a post-grant review of all challenged claims on all proposed grounds of unpatentability. Paper 12 (“Institution Decision” or “Inst. Dec.”), 48. PayRange Inc. (“Patent Owner”)² filed a Response to the Petition. Paper 15 (“PO Resp.”). Petitioner filed a Reply (Paper 19, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 23, “PO Sur-reply”).

Additionally, Petitioner filed a Motion to Exclude Evidence (Paper 28, “Mot.”), to which Patent Owner filed an Opposition (Paper 30, “Opp. to Mot.”), and Petitioner filed a Reply (Paper 32, “Reply to Mot.”).

An oral hearing was held on September 16, 2022, and a transcript of the hearing is included in the record. Paper 37 (“Tr.”).

This Final Written Decision is entered pursuant to 35 U.S.C. § 328(a). For the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–6, 8–10, 14, 15, and 18–25 of the ’614 patent are unpatentable, but Petitioner has *not* shown by a preponderance of the evidence that claims 7, 11–13, 16, and 17 of the ’614 patent are unpatentable. We also *deny* Petitioner’s Motion to Exclude.

¹ Petitioner identifies KioSoft Technologies, LLC and TechTrex, Inc. as real parties-in-interest. Pet. 2.

² Patent Owner identifies PayRange Inc. as the real party-in-interest. Paper 3, 2.

B. Related Proceedings

Both parties identify, as matters involving or related to the '614 patent, *PayRange Inc. v. KioSoft Technologies, LLC et al.*, No. 1:20-cv-24342 (S.D. Fla.) (involving the '614 patent) and *PayRange, Inc. v. KioSoft Technologies, LLC et al.*, No. 1:20-cv-20970-RS (S.D. Fla.) (involving US 9,659,296, which Petitioner identifies as the parent of the '614 patent). Pet. 2; Paper 3, 2. The parties also identify several Patent Trial and Appeal Board cases as related matters. Pet. 2–3; Paper 3, 2.

C. The '614 Patent

The '614 patent is titled “Method and System for Presenting Representations of Payment Accepting Unit Events” and issued on January 12, 2021. Ex. 1001, codes (45), (54). The '614 patent claims priority, through a chain of patent applications, to a provisional patent application and a design patent application, both filed on December 18, 2013. *Id.* at 1:5–25.³

The Specification, in the Background of the Invention section, states:

As the number of people with Internet-connected mobile devices proliferates, so does the variety of uses for such devices. Mobile payment is a logical extension. There is a large development effort around bringing mobile payment to the retail sector in an effort to not only provide options to the user, but also increased convenience.

Ex. 1001, 2:1–6.

³ Because the earliest possible effective filing date for the '614 patent is after March 16, 2013 (the effective date for the first inventor to file provisions of the America Invents Act) and the Petition was filed within 9 months of its issue date, the '614 patent is eligible for post-grant review. See 35 U.S.C. § 321(c).

The '614 patent describes “a mobile-device-to-machine payment processing system for processing transactions over a non-persistent network connection.” Ex. 1001, 5:53–56. The mobile-device-to-machine payment processing system may be a “payment accepting unit” (i.e., “equipment that requires payment for the dispensing of products and/or services,” such as a vending machine, a parking meter, a toll booth, a laundromat washer and dryer, an arcade game, a kiosk, a photo booth, or a transit ticket dispensing machine). *Id.* at 1:45–55.

The '614 patent explains that some payment accepting units are capable of accepting cashless payments, such as “credit cards, debit cards, and alternative mobile device payment methods using, for example, smart phones.” See Ex. 1001, 6:36–42. However, “traditional payment accepting units that accept cashless payments . . . require a persistent connection to a network (wired or wireless) to facilitate the cashless payments.” *Id.* Thus, “[i]f the network connection to a traditional machine is temporarily interrupted, cashless payments will be temporarily unavailable. If the machine is located in a location where no network connection is available, cashless payment processing over the network connection is not possible.” *Id.* at 6:47–52.

The '614 patent purports to be able to solve this network connectivity problem by having a user's mobile device serve as an intermediary between the payment accepting unit and network. *Id.* at 5:59–64, 6:52–54. At the same time, the described system in the '614 patent purportedly also minimizes or even eliminates user interaction with the mobile device. *Id.* at 6:52–58. For example, one feature that the payment accepting unit may possess is a “manual (swipe-to-pay) mode.” *Id.* at 6:1–2. When a user's

mobile device is brought within range of a payment accepting unit running this “manual mode,” a pre-installed mobile application on the mobile device automatically connects to the payment accepting unit. *Id.* at 7:7–10. The mobile device then connects to a server, which maintains a balance of the user’s funds and authorizes the use of these funds. *Id.* at 10:11–14, 11:20–31. From there, the mobile application may display the balance on the mobile device’s touchscreen, which the user then “swipes” to transfer payment to the payment accepting unit, “just as if cash was inserted in the machine with the user inputting his selection on the payment accepting unit and the payment accepting unit dispensing the product or service.” *Id.* at 7:9–19 (reference numbers omitted).

D. Illustrative Claim

Of the challenged claims of the ’614 patent, claims 1, 14, and 20 are independent claims. Claim 1, reproduced below with bracketed annotations⁴ inserted, is illustrative.

1. [1.0] A method of presenting representations of payment accepting unit events, comprising:

[1.1] at a mobile device with one or more processors, memory, one or more output devices including a display, and one or more radio transceivers:

[1.2] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, [1.3] the identifying including detecting predefined radio messages broadcast by the one or more payment accepting units, [1.4] wherein the one or more payment accepting units

⁴ We utilize Petitioner’s annotations for claim 1 (see Pet. 39–46) and have retained the paragraph formatting from the issued patent.

are vending machines that accept payment for dispensing of products and/or services;

[1.5] displaying a user interface of the mobile payment application on the display of the mobile device, [1.6] the user interface being configured to display a visual indication of the one or more payment accepting units and [1.7.1] accept user input to (i) receive selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units and [1.7.2] (ii) trigger payment by the mobile payment application for a vending transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units;

[1.8] establishing via the one or more radio transceivers a wireless connection between the mobile device and the available payment accepting unit of the one or more payment accepting units;

[1.9] after establishing the wireless connection, presenting the user interface of the mobile payment application and enabling user interaction with the user interface of the mobile payment application to complete the vending transaction;

[1.10] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the vending transaction; and

[1.11] in response to receiving the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.

Ex. 1001, 46:61–47:34.

E. Evidence

Petitioner relies on the following references:

Reference		Dates	Exhibit No.
Low	US 10,210,501 B2	Filed July 25, 2013; Issued Feb. 19, 2019	1007
Breitenbach	US 2011/0172848 A1	Filed Jan. 11, 2011; Published July 14, 2011	1008
Faith	US 8,761,809 B2	Filed Nov. 23, 2010; Issued June 24, 2014	1009
Mockus	US 2012/0029691 A1	Filed June 1, 2011; Published Feb. 2, 2012	1010

Petitioner also relies on the declaration of Mr. Gerald Smith (Ex. 1003) in support of its arguments, and Patent Owner relies on the declaration of Dr. Michael I. Shamos (Ex. 2019) in support of its arguments. The parties also rely on other exhibits as discussed below.

F. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–25	101	Subject Matter Eligibility
1–25	112(a)	Lack of Written Description
21	112(b)	Indefiniteness
1, 14, 20	102	Low
1–25	103	Low ⁵
1–25	103	Low, Breitenbach
7	103	Low, Breitenbach, Faith

⁵ The table of grounds in the Petition indicates that only the dependent claims are challenged as obvious over Low. Pet. 5. Elsewhere, the Petition asserts that all claims are challenged as being obvious over Low. *See, e.g., id.* at 35.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–25	103	Low, Mockus

II. ANALYSIS

A. *The Burden of Persuasion*

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Cf. Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing burdens in the context of *inter partes* reviews). To prevail, Petitioner must establish by a preponderance of the evidence that the challenged claims are unpatentable. 35 U.S.C. § 326(e) (2018); 37 C.F.R. § 42.1(d) (2020).

B. *The Level of Ordinary Skill in the Art*

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (internal quotation marks and citation omitted).

Petitioner contends:

A [person of ordinary skill in the art (“POSITA” or “POSA”)] at the time of the earliest claimed filing date of the ’614 Patent would have had an education background of, or practical experience providing an equivalent to, a Bachelor of Science in Electrical Engineering, Computer Science, Information Technology, or a related/equivalent field and at least 3 years of academic or industry experience in electronic payment systems.

Pet. 16 (citing Ex. 1003 ¶¶ 5–6). Patent Owner affirmatively states that it does not dispute Petitioner’s asserted educational background of a person of ordinary skill in the art. PO Resp. 7. Patent Owner does not dispute

Petitioner’s proposed number of years of experience, instead contending that “the claims are patentable regardless of the number of years of work experience a POSA would have had.” *Id.* (citing Ex. 2019 ¶¶ 49–58).

Petitioner’s definition is consistent with the level of ordinary skill reflected in the prior art references of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (recognizing that the prior art itself may reflect an appropriate level of skill in the art). We adopt Petitioner’s definition of the person of ordinary skill in the art.

C. Claim Construction

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.200(b) (2020). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner proposes constructions of the following claim limitations and asserts that all other claim terms should be given their plain and customary meaning.

(1) **Payment accepting unit:** vending machine, which means a machine that holds tangible goods and dispenses them on demand;

(2) **Identify one or more payment accepting units in proximity to the mobile device:** determine the individual identities of one or more specific vending machines physically near the mobile device;

(3) **available to accept payment from the mobile payment application:** [a specific vending machine identified in the foregoing identification step] capable at the time of the identification step of accepting payment from the mobile payment application;

(4) **establishing via the one or more radio transceivers a wireless connection between the mobile device and the available payment accepting unit of the one or more payment accepting units:** establishing via the one or more radio transceivers a short-range communication connection between the mobile device and the specific vending machine identified in the foregoing identification step capable at the time of the identification step of accepting payment from the mobile payment application; and

(5) **exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the vending transaction:** exchanging information with the specific vending machine identified in the foregoing identification step capable at the time of the identification step of accepting payment from the mobile payment application via the short-range communication connection in the foregoing establishing step.

Pet. 6–7. Petitioner does not provide any substantive explanation as to why we should adopt these proposed constructions. *Id.*; *but see id.* at 7 (“[B]y way of background, the claim construction order in the Related Litigation is attached herewith as Exhibit 1015.”).

Patent Owner states that it “does not necessarily agree with Petitioners’ constructions, but the Board need not resolve any claim

construction disputes to find that Petitioners have failed to satisfy their burden of proof.” PO Resp. 8. Patent Owner goes on to state its agreement with Petitioner’s proposed construction for the “identifying” limitation (*id.* at 9) and indicate its disagreement with certain of Petitioner’s proposals (*id.* at 9–14). Patent Owner confirmed at the oral argument that no claim term needs to be construed to reach a dispositive issue. Tr. 33:23–34:5.

We determine that we need not expressly construe any claim terms to resolve the parties’ disputes.

D. Section 101 Subject Matter Eligibility—Claims 1–25 (Ground 1)

1. Principles of Law

a. Section 101

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. However, the U.S. Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g., Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Court’s two-part framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4

in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making waterproof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Court held that “a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citation omitted) (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221. “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

b. USPTO Section 101 Guidance

In January 2019, the U.S. Patent and Trademark Office (USPTO) published revised guidance on the application of § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (“2019 Revised Guidance”).⁶ “All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance.” *Id.* at 51; *see also* October 2019 Update at 1.

Under the 2019 Revised Guidance and the October 2019 Update, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of

⁶ In response to received public comments, the Office issued further guidance on October 17, 2019, clarifying the 2019 Revised Guidance. USPTO, *October 2019 Update: Subject Matter Eligibility* (the “October 2019 Update”) (available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf).

organizing human activity such as a fundamental economic practice, or mental processes) (“Step 2A, Prong One”); and

(2) additional elements that integrate the judicial exception into a practical application (see MPEP § 2106.05(a)–(c), (e)–(h) (9th ed. Rev. 08.2017, Jan. 2018)) (“Step 2A, Prong Two”).^[7]

2019 Revised Guidance, 84 Fed. Reg. at 52–55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look, under Step 2B, to whether the claim:

(3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional activity” in the field (see MPEP § 2106.05(d)); or

(4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

2019 Revised Guidance, 84 Fed. Reg. at 52–56.

2. Analysis: Independent Claim 1

a. Step 1

Step 1 asks whether the claimed subject matter falls within the four statutory categories of patentable subject matter identified by 35 U.S.C. § 101: process, machine, manufacture, or composition of matter.

Claim 1 recites “[a] method of presenting representations of payment accepting unit events” and corresponding steps. Ex. 1001, 46:61–47:34. Claim 1, thus, falls within the process category.

⁷ This evaluation is performed by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception, and (b) evaluating those additional elements individually and in combination to determine whether the claim as a whole integrates the exception into a practical application. See 2019 Revised Guidance - Section III(A)(2), 84 Fed. Reg. 54–55.

b. Step 2A, Prong One

Under Step 2A, Prong One, we determine whether the claims recite any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes).

Petitioner asserts that the claims are directed to “identifying a merchant and making a purchase from the merchant.” Pet. 19. Petitioner states: “The claimed process of a purchaser and merchant communicating information about a purchase is an abstract idea dressed in conventional technical language. It is no less abstract than a customer noticing a store, making a purchase, and receiving a receipt.” *Id.* at 20.

In the Institution Decision, we determined, based on the record at that time, that claim 1 recites “the concept of identifying a merchant and making a purchase from the merchant.” Inst. Dec. 28. We stated that “[c]laim 1 also recites steps for conducting the purchase.” *Id.*

Patent Owner disagrees with Petitioner’s and our articulation of the recited concept. PO Resp. 25–30. In particular, Patent Owner points out that “the independent claims do not recite making a purchase from the merchant, and certain dependent claims (e.g., claims 5–6) specifically recite that the vending transaction is aborted or fails.” *Id.* at 28. Patent Owner contends that “‘making a purchase from the merchant’ is not the focus of the claims; the independent claims are practiced ‘regardless of whether the user makes a purchase from the merchant.’” *Id.* at 29. Patent Owner concedes that “[t]he independent claims do recite **enabling** user interaction with the user interface of the mobile payment application to complete a vending transaction,” but contends that “[e]nabling a user interaction is a very different operation than the concept of ‘making’ a purchase.” *Id.* at 28–29;

see also id. at 26 (Patent Owner arguing that “Petitioners’ §101 arguments are ‘untethered from the language of the claims.’” (quoting *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1293 (Fed. Cir. 2020))). According to Patent Owner, “[r]ather than recite an abstract idea, as Petitioners argue, the claims instead recite ‘a specific process for transmitting specific information in a specific order to achieve a specific result for a specific computer network system’ in a technological environment that is ‘not analogous’ to the scenario identified in the petition.” *Id.* at 27 (Ex. 2019 ¶¶ 45–47).

Petitioner responds by again asserting that claim 1 is directed to the abstract idea of identifying a merchant and making a purchase from the merchant. Pet. Reply 2–3.

Claim 1 recites, in part:

[1.2] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, [1.3] the identifying including detecting predefined radio messages broadcast by the one or more payment accepting units, [1.4] wherein the one or more payment accepting units are vending machines that accept payment for dispensing of products and/or services;

[1.5] displaying a user interface of the mobile payment application on the display of the mobile device, [1.6] the user interface being configured to display a visual indication of the one or more payment accepting units and [1.7.1] accept user input to (i) receive selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units and [1.7.2] (ii) trigger payment by the mobile payment application for a vending transaction initiated by the user of the mobile device with the available payment accepting unit of the one or more payment accepting units;

[1.8] establishing via the one or more radio transceivers a wireless connection between the mobile device and the

available payment accepting unit of the one or more payment accepting units;

[1.9] after establishing the wireless connection, presenting the user interface of the mobile payment application and enabling user interaction with the user interface of the mobile payment application to complete the vending transaction;

[1.10] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the vending transaction; and

[1.11] in response to receiving the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.

Ex. 1001, 46:66–47:34.

All of the claimed method steps of claim 1 occur “at the mobile device” (element 1.1), and the method includes a step of enabling user interaction with the user interface to complete the vending transaction (element 1.9). *Id.* at 46:61–65, 47:24–28. Claim 1 does not recite completing the purchase. The ’614 patent describes a commercial transaction completed at the payment accepting unit (i.e. the vending machine), not at the mobile device. Ex. 1001, 7:15–19; *see also id.* at 16:46–50; 17:57–59; 19:17–20; 19:35–38. We, thus, agree with Patent Owner that the claimed method does not require completing or conducting the transaction, but only *enabling* the completion of the transaction.

On this complete record, we are persuaded that the elements block quoted above recite the concept of identifying a merchant and enabling completion of a purchase from the merchant. *See* Pet. 20 (arguing that the claimed method “is no less abstract than a customer noticing a store, making a purchase, and receiving a receipt.”); Pet. Reply 5 (arguing that the claim describes “nothing more than a customer noticing and identifying a store

amongst multiple stores based on the unique visual image of that store, entering the store and communicating with the merchant, making a purchase, and receiving a receipt—all while using conventional tools.”). In particular, claim 1 recites a step for identifying a merchant based on its advertised presence—identifying a nearby vending machine that is available to accept payment from a mobile payment application, with that identifying involving the broadcasting of predefined radio messages.⁸ Claim 1 also recites steps for enabling completion of a purchase from the merchant—establishing a communication connection between the user’s device and the vending machine; displaying an interface that allows a user to select a vending machine, to trigger payment for the vending transaction, and to enable the completion of the transaction; and updating the user interface after receiving information from the vending machine regarding the transaction (which, as indicated by dependent claim 3, may be information indicating that the vending transaction was completed). Our slight revision of the abstract idea from what we previously stated in our Institution Decision does not impact the patentability analysis. *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016).

Identifying a merchant and enabling completion of a purchase from the merchant—with the enabled purchase, in this case, being via a mobile payment application—is similar to other concepts our reviewing court has held to be an abstract idea. *See In re Elbaum*, No. 2021-1719, 2021 WL 3923280, at *2 (Fed. Cir. Sept. 2, 2021) (“The plain language of claim 48

⁸ The Specification describes “the area in which the adapter module 100 is able to broadcast its presence” and that “the adapter module 100 advertises its presence.” Ex. 1001, 18:31–33, 20:27–30.

recites a method for enabling an internet seller to pay a finder's fee to a retail store when a customer finds the internet seller's product through advertising in the retail store. Accordingly, the claim is directed to an abstract idea, specifically a method of providing information and allowing customers to utilize that information to engage in a commercial transaction.”); *Western Express Bancshares, LLC v. Green Dot Corp.*, 816 F. App'x 485, 486 (Fed. Cir. 2020) (a method of funds transfer using a payment card is a fundamental economic practice long prevalent in our system of commerce); *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1371–72 (Fed. Cir. 2017) (acquiring identification data from a bankcard, granting access to a transit system if the bankcard is valid, funding a transit ride from multiple balances associated with the bankcard, and charging a different fare if the bankcard is associated with a time pass subway card involve the collection, storage, and recognition of data as an abstract idea) *id.* at 1372 (“Taken together, the Asserted Claims are directed to the formation of financial transactions in a particular field (i.e., mass transit) and data collection related to such transactions.”).

Accordingly, we find that identifying a merchant and enabling completion of a purchase from the merchant is a commercial interaction. It falls within the enumerated “[c]ertain methods of organizing human activity” grouping of abstract ideas set forth in the Revised Guidance. Revised Guidance, 84 Fed. Reg. at 52.

c. Step 2A, Prong Two

Under Step 2A, Prong Two, if a claim recites a judicial exception, we determine whether the recited judicial exception is integrated into a practical application of that exception by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and

(b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application. 2019 Revised Guidance, 84 Fed. Reg. at 54–55. “A claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.” *Id.* at 54. “If the recited judicial exception is integrated into a practical application, the claim is not directed to the judicial exception. *Id.* at 54–55.

Petitioner argues that claiming of generic features, such as displaying a user interface, “do not constitute patentable subject matter.” Pet. 21–23; *see also id.* at 20 (“Tying the otherwise abstract claims of the patent to the physical world through inclusion of features like a ‘radio transceiver’ or generic display and interface functions does not make the claim patent-eligible.”).

In addition to the abstract idea, claim 1 recites these additional elements: 1) a mobile device, with one or more processors, memory, a display, and a radio transceiver; 2) an application, with a user interface, executing on the mobile device; and 3) a payment accepting unit (i.e., a vending machine).

Patent Owner argues that the challenged claims “are integrated into a practical application” because “[t]hey recite a specific method for use with particular machines that are integral to the claims, they solve problems in an existing technological field by focusing on improving the functionality of a computer network platform itself, and they do not simply invoke computers as a tool for performing an abstract idea.” PO Resp. 18 (citing Ex. 2019

¶¶ 12, 30–34, 45–47). Specifically, Patent Owner argues that the “challenged claims focus on improving the functional capabilities of a computer network platform arising in the particular technological architecture of machine-to-machine payment systems for the unattended retail space (i.e., vending machines), especially over a non-persistent network connection” (*id.* at 19 (citing Ex. 1001, 1:28–32, 2:10–14, 5:53–59, 6:34–67; Ex. 2019 ¶¶ 30–33, 37)) and that “the challenged claims provide particular technological solutions to particular technological problems that arise in the specific architecture of using one machine (e.g., a mobile device) to convey cashless authorization to a vending machine” (*id.* at 20 (citing Ex. 2019 ¶¶ 32–39, 41)). *See also id.* at 25 (referring to “the network architecture shortcomings that the invention of the ’614 patent addresses.”); PO Sur-reply 11 (“[T]he claims all require a specific type of improved network . . .”). Patent Owner further submits that the claims provide technological solutions that “dynamically create a network connection with a specific vending machine that is available to accept payment from the mobile payment application based on proximity and thereby avoid the need for a persistent network connection.” PO Resp. 21 (citing Ex. 2019 ¶¶ 32, 40); *see also id.* at 21–22 (associating “[u]sing a mobile device to create a dynamic network connection with a vending machine based on proximity” with “help[ing] to solve the problems of requiring a persistent network connection at the point of sale.”).

We do not agree with these arguments pertaining to the problem of a non-persistent network and purported solution of a dynamically created network because the arguments are not tied to the *claimed* subject matter. Claim 1 does not require a non-persistent network nor is it so narrow as to

preclude the use of a persistent network connection. *See, e.g.*, Tr. 40:2–16 (Question: “You mentioned the specification. Can you point to language in claim 1 that embodies this concept of the avoiding the non-persistent network connection[?]” Answer: “I would agree that the claimed invention, at least with respect to claim 1 if we can focus on that claim, does not have a requirement that the vending machine itself lack a persistent network connection.”); *see id.* at 41:2–14 (Patent Owner unable to identify any specific claim language addressing the problem and solution, and asserting that the lack of a network connection is the “technological environment”). It is the subject matter of the claims, not embodiments disclosed in the Specification, that we analyze. *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1334 (Fed. Cir. 2012) (“The fact that certain algorithms are disclosed in the specification does not change the outcome. In considering patent eligibility under § 101, one must focus on the claims. This is because a claim may ‘preempt’ only that which the claims encompass, not what is disclosed but left unclaimed.”). To the extent that Patent Owner relies on *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303 (Fed. Cir. 2020) in arguing otherwise, Patent Owner’s reliance is misplaced. *See, e.g.*, PO Sur-reply 12, 14–15; Tr. 40:20–41:1. *Uniloc* does not hold that the purported solution need not be embodied in the claimed subject matter, just that the advantage thereof need not be expressly stated in the claim. *Uniloc USA, Inc.*, 957 F.3d at 1309 (“To the extent LG argues that the claims themselves must expressly mention the reduced latency achieved by the claimed system, LG is in error. Claims need not articulate the advantages of the claimed combinations to be eligible.”).

Although the '614 patent does describe a solution to a non-persistent network connection problem, independent claim 1 was drafted in such a way as to not embody that solution. The Specification explains that “traditional payment accepting units [(vending machines)] that accept cashless payments (e.g., credit cards, debit cards, and alternative mobile device payment methods using, for example, smart phones) require a persistent connection to a network (wired or wireless) to facilitate the cashless payments.” Ex. 1001, 6:37–42. If the vending machine’s network connection goes down or the machine is located where there is no network connection, the vending machine cannot accept cashless payment because it cannot reach the remote server that maintains a balance of the user’s funds and authorizes the use of these funds. *Id.* at 6:45–52, 10:11–14, 11:20–31. The solution described in the Specification is of a two-leg communications journey utilizing the mobile device as an intermediary, or communication bridge, between the vending machine and the server. *See id.* at 6:52–54, 8:54–57; *see also id.* at 9:49–53 (“The payment accepting units 120 described herein do not require a traditional persistent network connection. The user’s mobile device 150 acts as a communication bridge between the adapter module 100 [of the payment accepting unit (vending machine)] and the server 130.”). The first leg involves data flow from the vending machine to the mobile device using the mobile device’s short-range transceiver by such technology as near-field communications (NFC), Bluetooth, and radio frequency identification (RFID). *See id.* at 9:57–67; 39:1–13. The second leg involves data flow from the mobile device to the server using the mobile device’s

long-range transceiver by such technology as Wi-Fi and cellular. *See id.* at 9:38–45, 9:53–57, 39:1–13.⁹

Independent claim 1 embodies only the first leg of the journey—referring only to interactions between the vending machine (payment accepting unit) and the mobile device. *See, e.g.*, Ex. 1001, 47:20–23 (element 1.8: “establishing via the one or more radio transceivers a wireless connection between the mobile device and the available payment accepting unit of the one or more payment accepting units.”); *id.* at 47:47–52 (dependent claim 4 adding, to the claimed subject matter, a long-range transceiver and a step involving the server). Accordingly, we disagree with Patent Owner’s arguments that independent claim 1 provides a technical solution, in the form of a dynamically created network connection, to the problem of a non-persistent network connection such that the claimed subject matter integrates the abstract idea into a practical application.

Patent Owner further argues that “[t]he claims of the ’614 patent improve the capabilities of specific computer networks . . . : the patent improves how devices communicate within a system by using a mobile device to create a dynamic network connection with a vending machine based on proximity and detecting a predefined radio message broadcast.” PO Resp. 22; *see* PO Sur-reply 11–12 (referring to “the problem of a figuring out which payment accepting unit should receive the user’s payment” and that “the ’614 patent overcomes a problem with prior art

⁹ We have described here the data flow from the vending machine to the server via the mobile device bridge. Data, of course, also may flow in the opposite direction to, for example, inform the vending machine that the funds for the purchase are authorized. *See* Ex. 1001, 24:51–25:4, Figs. 7–9.

vending machines that used persistent network connections to handle cashless payments” that is purportedly solved by “claiming a dynamic network connection based on proximity.”). Patent Owner further argues that, “[a]s in *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306 (Fed. Cir. 2019)], the claims challenged here ‘recite a specific, plausibly^[10] inventive way of arranging devices and using protocols rather than the general idea of identifying a merchant and making a purchase from the merchant.’ PO Resp. 44 (quoting *CellSpin Soft, Inc.*, 927 F.3d at 1319). We do not agree with these arguments.

This “dynamic network connection” between the vending machine and a mobile device is not an element in addition to the abstract idea itself; the connection is the line of communication between the purchaser and merchant initiated in preparation for completion of the vending transaction and after the merchant advertised its presence to the purchaser. See 2019 Revised Guidance, 84 Fed. Reg. at 54–55 (it is any additional elements recited in the claim beyond the judicial exception that are evaluated to

¹⁰ In *CellSpin*, the court used the term “plausibly” because the case involved a grant of a motion to dismiss in district court litigation; the Federal Circuit was evaluating whether the allegations were adequate to defeat that motion and was not reaching the ultimate issue of whether the claimed subject matter was patent-eligible. See *Cellspin Soft, Inc.*, 927 F.3d at 1317–18 (Fed. Cir. 2019) (“In this case, Cellspin made specific, plausible factual allegations about why aspects of its claimed inventions were not conventional, e.g., its two-step, two-device structure requiring a connection before data is transmitted. The district court erred by not accepting those allegations as true.”).

determine whether they integrate the exception into a practical application); *see Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017) (“The ‘focus of the claims’ is on the method of financing, and the recited generic computer elements ‘are invoked merely as a tool.’”). This connection is a handshake performed with computers, as the Specification explains:

[T]he adapter module 100 [of the vending machine] advertises [i.e. broadcasts] its presence along with the threshold at which it considers any mobile device 150 to be in the authorization zone 104. This is a one-way communication from adapter module 100 to mobile device 150. Once the mobile device 150 enters the authorization zone 104, there is a handshake that is established between the adapter module 100 and the mobile device 150.

Ex. 1001, 20:27–35; *id.* at 10:43–45 (“Each adapter module 100 advertises its presence by broadcasting signals (advertising broadcast signals) to mobile devices”); *see also, e.g., id.* at 16:40–43 (“During an initial handshake”); *id.* at 18:48–54 (“[a]fter a successful handshake”). Further, we disagree that the “dynamic network connection” “improves how devices communicate within a system” as Patent Owner urges. The Specification explains that which Patent Owner labels a “dynamic network connection,” i.e., the purported technical solution, is enabled by known technology, not an improvement to the technology or technical field:

Communications between user mobile devices 150 and the adapter module 100 of the payment accepting unit 120 take place using “short-range communication technology” or “short-range communication protocol” (e.g., Bluetooth (such as Bluetooth 4.0, Bluetooth Smart, Bluetooth Low Energy (BLE)), near-field communication (NFC), Ultra Wideband (UWB), radio frequency identification (RFID), infrared wireless, induction wireless, *or any wired or wireless technology that*

could be used to communicate a small distance (approximately a hundred feet or closer) that is known or yet to be discovered).

Ex. 1001, 9:57–67 (emphasis added).

Patent Owner argues that the claimed invention provides a technical solution via the identification of a vending machine through the use of a predefined radio message, and argues that such is more than conventional Bluetooth pairing. PO Sur-reply 6. In support, Patent Owner asserts that “Dr. Shamos testified during his deposition that mere Bluetooth pairing would not satisfy this claim requirement because it does not indicate that a device is available to accept payment.” *Id.* (citing, *inter alia*, Ex. 1030, 118:24–119:12).¹¹ However, Patent Owner confirmed that the recited predefined radio message itself does not have to include an indication that the vending machine is available to accept payment from the mobile payment application. Tr. 61:13–62:7; *see* Ex. 1001, 47:2–5 (simply requiring that “the identifying including detecting predefined radio messages broadcast by the one or more payment accepting units” without specifying the content of the message). Thus, Dr. Shamos’s opinion as to a purported technological solution is not persuasive as it is based on reading in

¹¹ Patent Owner also cites to columns 27, 29, and 30 of the Specification, but without elaboration or adequate explanation as to how those portions support the proposition that the predefined radio message is more than that normally used in conventional Bluetooth pairing. *See* PO Sur-reply 6 (citing Ex. 1001, 27:38–50, 29:64–30:28). Patent Owner appears to read into the broadly recited “message” term elements that are not claimed, such as authentication codes and status flags. *See* Ex. 1001, 27:21–22 (indicating that the cited discussion pertains to the unclaimed “process 1000 of authenticating a user to perform a transaction”); *id.* at 30:4–5 (“In some implementations, the one or more status flags 1108 indicate a state of the payment module 100.”).

limitations rather than on the actually claimed subject matter. The “dynamic network connection” does not integrate the recited judicial exception into a practical application.

Patent Owner relies on *CosmoKey Solutions GmbH & Co. KG v. Duo Security LLC*, 15 F.4th 1091 (Fed. Cir. 2021). *See, e.g.*, PO Resp. 36, 44–46. In that case, the court determined that the subject claims were patent eligible under *Alice* Step 2 because “[t]he ’903 patent claims and specification recite a specific improvement to authentication that increases security, prevents unauthorized access by a third party, is easily implemented, and can advantageously be carried out with mobile devices of low complexity.” *CosmoKey*, 15 F.4th at 1097–98. Patent Owner argues that “the challenged claims also alter the way an authentication function is performed to reduce complexity, enhance security, and minimize user interaction, all without requiring non-conventional mobile device hardware but by employing an unconventional approach.” PO Resp. 42 (citing Ex. 2019, ¶¶ 30–37, 40–44). Patent Owner further argues that “the claims require timing the conveyance of the authorization code that unlocks the desired vending machine until after the wireless connection is formed with the vending machine, when user interaction with the mobile payment application interface is enabled to complete the transaction.” *Id.* at 32; *see also id.* at 19 (unlocking a vending machine and conveying cashless authorization); *id.* at 24 (arguing that “the ordered combination of the claims helps to solve the problem of preventing an unauthorized user from making use of an authorization that is not their own,” and that this is made possible by the mobile device serving as the network bridge); *id.* at 27 (“the claimed invention uses technological means to perform a technological function

specific to using one machine (specifically a mobile device) *to unlock a second machine* (specifically an automatic retail machine) that is broadly available to multiple users.” (emphasis added)). According to Patent Owner, the purported “requirements of the claims” regarding authentication and the dynamically created network connection (discussed above), “provide for the authorization to be conveyed at the appropriate time, to the appropriate machine, for the appropriate user, while requiring no or minimal user interaction with the mobile device and without requiring a persistent network connection.” *Id.* at 32; *see also* PO Sur-reply 12–13.

Patent Owner does not identify a limitation in the claims regarding an authorization code that unlocks the desired vending machine. *See* PO Resp. 32. At the hearing, Patent Owner, when asked to identify a claim limitation to which this referred, conceded that the argument was a reference to the Specification’s discussion of funds authorization by the server, and that claim 1 does not touch on the server. *See* Tr. 59:22–61:12. As discussed above, claim 1 only contains requirements directed to the first leg of the data’s journey—the short-range communications between the vending machine and the mobile device—but not the second leg—the long-range communications with the server, which handles authorization requests. *See, e.g.,* Ex. 1001, 28:7–11 (“[T]he mobile device 150 sends (1004), via a long-range communication capability (e.g., GSM, CDMA, Wi-Fi, or the like), an authorization request to the server 130.”). The claimed subject matter of independent claim 1 does not represent an improvement to authentication that improves security as Patent Owner urges. To the extent that Patent Owner is referring to some kind of “authorization” in claim 1 to confirm that the correct user is at the correct vending machine, that, again, is

the computerized version of the abstract idea of a purchaser initiating a conversation with a merchant in advance of making a purchase, and is implemented using existing short-range communications technology, i.e. communications technology used between two devices in close proximity. *See, e.g.*, Ex. 1001, 9:57–67; *id.* at 18:29–37.

Patent Owner also relies on *Data Engine Technologies LLC v. Google LLC*, 906 F.3d 999 (Fed. Cir. 2018). PO Resp. 23–24. In that case, a claim to a specific method of user interaction was determined to not be directed to an abstract idea. *Data Engine Techs.*, 906 F.3d at 1007–08. Rather, the court determined that “the claim is directed to a specific method for navigating through three-dimensional electronic spreadsheets [and t]he method provides a specific solution to then-existing technological problems in computers and prior art electronic spreadsheets.” *Id.* at 1008. “[P]rior art computer spreadsheets were not user friendly” and the user interaction “was burdensome and hindered a user’s ability to find or access the many commands and features available in prior art computer spreadsheets, undercutting the effectiveness of the computer as a means to review and edit a spreadsheet.” *Id.* “The Tab Patents solved this known technological problem in computers in a particular way—by providing a highly intuitive, user-friendly interface with familiar notebook tabs for navigating the three-dimensional worksheet environment.” *Id.*

Citing *Data Engine Technologies*, Patent Owner points to the recited user interface feature as rendering the claimed subject matter patent eligible. *See, e.g.*, PO Resp. 22–24 (arguing that the “claims of the ’614 patent improve the capabilities of specific computer networks” through the user interface and that this is one of the purported “patent-eligible technical

solutions to technological problems.”); *see also id.* at 20–21 (referring to the user interface for vending machine selection, triggering payment, and completing the transaction). The subject matter of Patent Owner’s independent claim 1 is not analogous to that of *Data Engine Technologies*, and the reliance on that case is misplaced.

Patent Owner argues, for example, that:

Using mobile phones to select products or services for dispensing from a vending machine requires significant user interaction with the cellular telephone, which presents a particular problem due to the small size of user interfaces on mobile devices. To address this problem, the system of the ’614 patent minimizes user interaction with the mobile device while still using the mobile device as an intermediary between the payment accepting vending machine and the server.

PO Resp. 20 (citing Ex. 2019 ¶ 41; Ex. 1001, 6:52–58).

Patent Owner’s articulated “problem” quoted above is impliedly premised on the claimed mobile device being a cellphone with a very small display—a display so small that the user cannot easily make purchase transactions on the device. *See* PO Resp. 20. The Specification indicates that the claimed mobile device is not limited to such a cellphone, but can be larger devices such as tablets and laptops. Ex. 1001, 8:64–9:2. Further, the portion of the Specification cited by Patent Owner does not indicate that small screen size was a problem, but rather simply refers to a feature of the described system as minimizing user interaction with the mobile device, “i.e., the manual mode.” Ex. 1001, 6:52–58. The Specification indicates that the manual mode utilizes swiping gestures and, in that way, minimizes

user interaction. *See id.* at 7:1–21.¹² Independent claim 1 does not limit the user interface to the use of swiping gestures (or to any specific form of interaction), and, thus, does not integrate the abstract idea in a manner to solve the purported problem. *See* Ex. 1001, 47:8–19 (claim 1 reciting a user interface configured to receive selection of an available vending machine and to trigger payment, but not further specifying that configuration); *id.* at 47:24–28 (“enabling user interaction with the user interface of the mobile payment application to complete the vending transaction”).

Patent Owner argues that the claimed subject matter “improve[s] the convenience of user interfaces over prior art systems in a particular way.” PO Resp. 23; *see also* PO Sur-reply 14–15 (referring to “the particular user interface . . . recited in claim 1”). According to Patent Owner, “[u]nlike the prior art [which allowed the user to select products on their mobile device], the ’614 patent claims allow vending machine users to use the vending machine’s built-in, intuitive interface, rather than requiring users to navigate a separate, unwieldy interface via their mobile device to select a good or service to purchase from the machine.” PO Resp. 23¹³; *see* Ex. 1008, Fig. 8C (prior art depicting the selection of a soda on a mobile device). Patent Owner argues that “the vending transaction disclosed in the ’614 patent *requires* the user to select the products or services directly with the vending machine (not by selecting products or services from a menu on the

¹² Patent Owner agrees that the disclosed “hands-free” mode is not claimed. Tr. 44:24–45:6.

¹³ We note that the purported solution—using the vending machine’s existing buttons to select a product for purchase—merely is the *status quo*.

mobile device).” *Id.* at 29 (emphasis added) (citing Ex. 2019 ¶ 37; Ex. 1001, 7:15–19).

At the hearing, Patent Owner, when pressed to identify any limitations directed to the purported requirement, was unable to point out where claim 1 recites that the user must select the product or service for purchase directly with the vending machine or that the claim excludes the selection on the mobile device. *See* Tr. 45:23–48:8; *see id.* at 45:25–46:16 (Patent Owner making the circular argument that the transaction must be carried out on the vending machine because the generically-recited “exchang[ed] information” of limitation 1.10 must be informing the mobile device that the transaction occurred on the vending machine). In order to give rise to its purported solution, Patent Owner asks us to construe the user interface as limited to only the recited functions such that it would preclude being used to, for example, select a product for purchase. *Id.* at 46:17–26, 47:24–48:8. We decline to re-write the claims as Patent Owner requests. The language of claim 1 does not recite the user interface in closed terms (*e.g.*, “consisting of”) and broadly recites “enabling user interaction with the user interface of the mobile payment application to complete the vending transaction.” Ex. 1001, 47:8–19, 47:26–28; *cf. Affinity Labs of Texas, LLC v. Amazon.com Inc.*, 838 F.3d 1266, 1272 (Fed. Cir. 2016) (“The addition of basic user customization features to the interface does not alter the abstract nature of the claims and does not add an inventive component that renders the claims patentable.”).

As mentioned, Patent Owner argues that, “[r]ather than recite an abstract idea, as Petitioners argue, the claims instead recite ‘a specific process for transmitting specific information in a specific order to achieve a

specific result for a specific computer network system’ in a technological environment that is ‘not analogous’ to the scenario identified in the petition.” PO Resp. 27 (Ex. 2019 ¶¶ 45–47). To the extent that argument regarding the order of transmitting information refers to the vending machine identification involving predefined broadcast messages or the user interface (*see id.* at 38–39), those elements, as discussed above (and to the extent that Patent Owner is referring to claimed features), are not something in addition to the abstract idea or do not represent an improvement to technology. In the Sur-reply, Patent Owner quotes Dr. Shamos for the proposition that “[t]he claims to not recite generically receiving alerts and notifications ... [i]nstead the claims recite displaying an updated user interface of the mobile payment application to the user of the mobile device in a particular order as part of a particular technological process.” PO Sur-reply 10 (citing Ex. 2019 ¶¶ 32, 96; PO Resp. 18, 38–39) (alterations in original; internal quotations omitted). Dr. Shamos is referring to limitations 1.10 and 1.11, which recite “exchanging information with the available payment accepting unit . . . , in conjunction with the vending transaction” and “in response to receiving the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.” Ex. 1001, 47:29–34. We fail to see, and neither Patent Owner nor Dr. Shamos explains adequately, how updating a display after the transmittal of some unspecified information “in conjunction with a vending transaction” constitutes a technological improvement or otherwise integrates the abstract idea into a practical application. *See, e.g.*, Ex. 2019 ¶ 96 (Dr. Shamos, rather than testifying affirmatively regarding any

technological improvement, asserting that Petitioner’s witness did not testify that the displaying step was well-known and conventional).

In summary, the additional elements in claim 1 are merely used as a tool to perform an abstract idea on computers and do not integrate the exception into a practical application and claim 1 does not require the technical solutions set forth in the by Patent Owner. *See Credit Acceptance Corp.*, 859 F.3d at 1055 (“Our prior cases have made clear that mere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology. In those cases, ‘the focus of the claims is not on such an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools.’”). Accordingly, we determine that there are no additional elements in claim 1 that individually or in combination integrate the judicial exception into a practical application

d. Step 2B

Under Step 2B, only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim: (3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, [and] conventional” in the field; or (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. 2019 Revised Guidance, 84 Fed. Reg. at 56.

The Federal Circuit in *Berkheimer* made clear that “not every § 101 determination contains genuine disputes over the underlying facts material to the § 101 inquiry.” *Berkheimer v. HP, Inc.*, 881 F.3d at 1360, 1368 (Fed. Cir. 2018). In fact, the Federal Circuit in *Berkheimer* did not require evidentiary support for independent claim 1 because “[t]he limitations [of

claim 1] amount to no more than performing the abstract idea of parsing and comparing data with conventional computer components.” *Id.* at 1370.

Petitioner contends that “[t]he ’614 Patent claims are directed to the abstract idea of facilitating a purchase through conventional and generic wireless and mobile technology.” Pet. 19. Petitioner specifically contends that the “identifying” step involves “a conventional [graphical user interface] and conventional radio broadcast technology,” and asserts that “[t]he inclusion of a vending machine does not render the claims non-abstract, as the functionality of the vending machine is not otherwise implicated.” *Id.* Petitioner further contends that:

[The step of “displaying a user interface”] recites a conventional application for performing a purchase that displays unspecified general information and allows unspecified general input. [The step of establishing a connection] recites the use of conventional wireless technology to perform the abstract task of communicating. [The step of presenting a user interface and enabling user interaction] recites the use of generic technology to display that communication to a user and accept input from the user. Similarly, [the step of exchanging information] recites the generic task of transmitting information regarding a transaction from a vending machine using generic and conventional wireless technology. Finally, [the step of displaying an updated user interface] merely recites displaying or showing the transmitted information to the customer.

Id. at 20. Petitioner argues that claiming of generic features, such as displaying a user interface, “do[es] not constitute patentable subject matter.”

Id. at 21–23. Petitioner further argues that “the only feature added in the ’614 Patent claims is a conventional wireless mobile device with display capabilities used for the conventional task of carrying out the abstract idea of a purchase transaction.” *Id.* at 26. Petitioner contends that the ’614 patent,

itself, shows that the additional elements are conventional elements performing conventional activities. *Id.* at 26–27 (citing Ex. 1001, 2:1–3, 9:4–6, 9:19–22, 9:31–66, 13:30–47).

Patent Owner argues that “the claims of the ’614 patent contain multiple inventive concepts that confirm that they are eligible for patenting.” PO Resp. 36. According to Patent Owner, one such concept “is that the mobile device uses predefined radio messages broadcast by the payment accepting vending machines to identify machines in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device.” *Id.* at 38. Patent Owner further argues that “Dr. Shamos explains [that] this claim step was not well-known, conventional, or routine in the industry” and that the Board correctly recognized in the Institution Decision that Petitioner’s asserted references do not disclose the claimed steps. *Id.* at 38 (citing Ex. 2019 ¶¶ 78–84, 105; Inst. Dec. 43–44, 46–47, 50).

We do not agree with Patent Owner’s arguments as they rest on the alleged novelty of the abstract idea itself, not a specific limitation *beyond the judicial exception*, i.e., the additional elements. “[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.” *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018). A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent ineligible. *See Mayo*, 566 U.S. at 90. “The ‘novelty’ of any element or steps in a process, or even of the process itself, is of *no relevance* in determining whether the subject matter of a claim

falls within the § 101 categories of possibly patentable subject matter.”
Diehr, 450 U.S. at 188–89 (emphasis added).

The subject limitation is directed to the identification of a merchant after the merchant advertised its presence to the purchaser and indicated that it accepted certain forms of payment such as a particular credit card. In claim 1, the recited mobile device; an application, with a user interface, executing on the mobile device; and payment accepting unit in the form of a vending machine (i.e. the additional elements), are no more than generic components. *See, e.g.*, Ex. 1001, 8:64–9:2 (The ’614 patent explaining that “Mobile devices include, but are not limited to smart phones, tablet or laptop computers, or personal digital assistants (PDAs), smart cards, or other technology (e.g., a hardware-software combination) known or yet to be discovered that has structure and/or capabilities similar to the mobile devices described herein.”). Further, even if novelty was relevant, Patent Owner’s reliance on Dr. Shamos’s testimony and our determinations in the Institution Decision is misplaced. Patent Owner does not direct our attention to any affirmative testimony, beyond a mere conclusory assertion, from Dr. Shamos that the use of a predefined broadcast message process was not well-known or conventional. Rather, Dr. Shamos asserts that Petitioner failed to show that to be true, which sounds more like attorney-argument than technical opinion.¹⁴ *See, e.g.*, Ex. 2019 ¶¶ 79–80 (“[T]he Petition does not demonstrate that the claims add nothing more than well-known, routine, and conventional features or post-solution activity. . . . The Petition fails to

¹⁴ In addition to technical degrees, Dr. Shamos holds a juris doctorate. *See* Ex. 2019 ¶ 3. We find attorney-argument unhelpful from a witness offered as an expert in the technical subject matter of the challenged patent.

show that the claimed identifying step was well-known, routine, and conventional.”); *but see id.* ¶ 105 (Dr. Shamos offering the concluding and conclusory opinion that, “[a]s discussed above, each Challenged Claim recites (or incorporates) technological solutions that are not well-known, routine, and conventional.”). In the Institution Decision, we merely determined that Petitioner’s cited portions of Low did not appear to disclose the subject limitations, we did not state that such were not well-known, routine, or conventional. *See* Inst. Dec. 45, 47. A determination that Petitioner fails to meet its burden regarding a specific piece of prior art does not equate to an affirmative finding that a person of ordinary skill in the art would not deem a feature to be well-known, routine, and conventional.

As discussed above, the Specification indicates that the short-range communication between the vending machine and mobile device can be not only conventional technologies such as Bluetooth, near-field communication (NFC), and radio frequency identification (RFID), but also could be “any wired or wireless technology that could be used to communicate a small distance (approximately a hundred feet or closer) that is known.” Ex. 1001, 9:57–67. The Specification ties that technology to the “broadcast” in claim 1 (*id.* at 47:2–5). For example, the Specification explains that “[e]ach adapter module 100 [of the vending machine] advertises its presence by broadcasting signals (advertising broadcast signals) to mobile devices in the zones 102, 104, 106.” *Id.* at 10:43–45. “The outermost range is the Bluetooth range 106 . . . [and] is the area in which the adapter module 100 is able to broadcast its presence.” *Id.* at 18:29–33. Further, Dr. Shamos testified that the Bluetooth protocol requires that two devices wishing to interact with each other identify themselves to each other. Ex. 1030, 102:3–

24. Dr. Shamos also testified that the Low prior art reference discloses that a vending machine identifies itself to the user. *Id.* at 100:9–20; *see* Ex. 1007, 2:25–28 (Low stating that, “in some embodiments, multiple machines may send their unique identifiers, such that the user is able to select one or more machines to purchase from.”). Thus, the abstract idea of identifying a merchant is implemented by nothing more than well-known, routine, and conventional wireless communications.

As mentioned above, Patent Owner argues that, “[a]s in *CellSpin*, the claims challenged here ‘recite a specific, plausibly inventive way of arranging devices and using protocols rather than the general idea of’ identifying a merchant and making a purchase from the merchant.” PO Resp. 44 (quoting *CellSpin*, 927 F.3d at 1319). Patent Owner further argues that:

The unconventional manner in which the claimed steps are performed (e.g., dynamically networking—based on proximity—with vending machines that are available to accept payment from the mobile payment application, affording the user an opportunity to select a desired vending machine and trigger payment to it using a user interface configured to display a visual indication of the vending machine, enabling user interaction with the mobile device to complete the vending transaction while allowing the user to select the products and/or services on the payment accepting vending machine, make the claims patent eligible.

Id. (citing *CellSpin*, 927 F.3d at 1316–19; Ex. 2019 ¶¶ 32–34, 37–44, 79–94). Patent Owner’s argument again rests on the alleged novelty of the abstract idea itself, not a specific limitation *beyond the judicial exception*, i.e., the additional elements. And, as discussed above, “allowing the user to select the products and/or services on the payment accepting vending

machine” is not a claimed aspect of independent claim 1. Further, Patent Owner does not identify anything unconventional in the above argument.

Relying on *CosmoKey* again, Patent Owner argues that, “[l]ike claims that recite ‘a specific improvement to a particular computer-implemented authentication technique,’ the present claims also are patent eligible under *Alice* step 2.” PO Resp. 36 (citing *CosmoKey*, 15 F.4th at 1091–94).

Referring to its earlier arguments, Patent Owner asserts that “the challenged claims also alter the way an authentication function is performed to reduce complexity, enhance security, and minimize user interaction, all without requiring non-conventional mobile device hardware but by employing an unconventional approach.” PO Resp. 42 (citing Ex. 2019 ¶¶ 30–37, 40–44). Relatedly, Patent Owner argues that “no transaction is authorized via the user interface of the mobile payment application before the desired vending machine is selected.” *Id.* at 39.

As discussed above, Patent Owner’s argument is based in part on an authorization code but Patent Owner is unable to identify a limitation in the claims regarding an authorization code that unlocks the desired vending machine, and Patent Owner conceded that the argument was referring to the unclaimed process of receiving fund authorization from the server via the unclaimed second leg of the data journey. *See* Tr. 59:22–61:12. Further and as discussed above, the argument about minimizing user interaction is premised on the unclaimed requirements of using the vending machine buttons to select a product and precluding that selection on the mobile device.

Patent Owner additionally argues that “Claim 1 also requires that the mobile device afford the user an opportunity to select the desired machine

and to trigger payment to that machine using a mobile payment application user interface configured to display a visual indication of the machine,” and argues that is not well-known, routine, or conventional. PO Resp. 38 (citing Ex. 2019 ¶¶ 78–79, 85–92, 95–104). This, again, is an argument based on the abstract idea itself. Providing this user interface is the computerized version of the purchaser seeing and selecting a merchant (a visual indication of the vending machine and selecting a desired vending machine) and then facilitating a purchaser’s payment for the purchase. *See, e.g.*, Ex. 1001, Figs. 10A–10B (an embodiment in the challenged patent of a user interface involving swiping up on a depiction of a bill as if sliding it into a vending machine). Additionally, the argued feature is performed by a generalized user interface, and we fail to discern anything sufficiently innovative about the recited user interface. *See Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324–25 (Fed. Cir. 2016) (“[T]he claims ‘add’ only generic computer components such as an ‘interface,’ ‘network,’ and ‘database.’ These generic computer components do not satisfy the inventive concept requirement.”); *see also* Ex. 1008 ¶¶ 107–108 (the Breitenbach reference disclosing: “The customer interface 802 may, for example, be utilized by a customer and may facilitate the customer’s location and/or identification a smart visi-cooler and/or desired product, execution of a purchase of a unit of the desired product, and/or providing of information that allows the customer to leave the store with the unit of product purchased via the customer interface 802.”), Fig. 8A (depiction of a user interface allowing the customer to choose a location of a smart visi-cooler).

Dr. Shamos’s testimony to the contrary is not persuasive as it is unclear whether the witness is referring to the claimed subject matter or unclaimed

embodiments, and because it is based, at least, in part on his mistaken assumption that the claims require the use of the vending machine buttons to select a product and preclude that selection on the mobile device. *See, e.g.*, Ex. 2019 ¶ 85 (Dr. Shamos referring to some unidentified “specifically-describe[d] user interface”); ¶ 93 (“Enabling completion of a vending transaction by user interaction with the user interface of the mobile payment application without also using the interface of the mobile device to select the products and/or services was not well-known, conventional, or routine. . . . Separating the two functions of transaction selection and transaction authorization onto two different devices was counterintuitive because it requires the user to interact with more than one device.”).

We determine that independent claim 1 simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, and is thus patent ineligible under § 101.

3. Analysis: Independent Claims 14 and 20

Challenged claims 14 and 20 are independent claims. For purposes of the patent eligibility ground, the parties argue all of the independent claims together and without distinction. *See, e.g.*, Pet. 17–19; PO Resp. 28–29. The parties agree that claims 14 and 20, respectively, are directed to a mobile device and a computer readable medium that recite the same steps as in independent claim 1. *See* Pet. 19 (“Independent claims 14 and 20 recite identical subject matter in apparatus and computer-readable-medium forms.”); PO Resp. 6 (“Each of [claims 14 and 20] also includes elements corresponding to 1[a]–1[f].”). Whereas independent claim 1 recites a method performed “at a mobile device,” independent claim 14 recites that device having a memory storing instructions to perform that method.

Ex. 1001, 46:61–47:34, 48:29–49:3. Independent claim 20 recites a computer readable storage medium storing instructions to perform that method on that mobile device. *Id.* at 49:42–50:28. We discern no substantive differences between the independent claims for purposes of our patent eligibility analysis. Accordingly, we determine that independent claims 14 and 20 also are patent ineligible under § 101.

4. Analysis: Dependent Claims 2–13, 15–19, and 21–25

Petitioner contends that the dependent claims also are patent ineligible because they purportedly “merely add abstract information or recite conventional components that operate in a conventional manner.” Pet. 23. Patent Owner argues that the Petition fails procedurally because Petitioner does not individually analyze any of these dependent claims. PO Resp. 46. Patent Owner also presents substantive arguments for certain claims. *See id.* at 46–49. Although the articulations in the Petition are somewhat terse,¹⁵ we determine, for the reasons discussed below, that some of Petitioner’s contentions are adequate given the nature of the claimed subject matter.

Claims 2 and 21 recite that the updated user interface displays or includes a message, banner notification, or visual alert from an LED. *See, e.g.,* Ex. 1001, 47:35–42. Claim 15 recites the addition of a speaker, LED,

¹⁵ We do not consider any of the arguments directed to the dependent claims made for the first time in Petitioner’s Reply. *See* Pet. Reply 14; PO Sur-reply 19–21; 37 C.F.R. § 42.23(b); *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369–70 (Fed. Cir. 2016) (concluding that the Board did not abuse its discretion in refusing to consider reply brief arguments advocating a “new theory” of unpatentability under 37 C.F.R. § 42.23(b)); Patent Trial and Appeal Board Consolidated Trial Practice Guide (“TPG”) (Nov. 2019), 74, *available at* <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

or vibration mechanism. *Id.* at 49:4–7. The claims do not further specify the content of those, *e.g.*, messages, or how the conventional components, *e.g.*, a speaker, are used. Claims 3 and 22 recite that the information exchanged indicates completion of the transaction. *See, e.g., id.* at 47:43–46. Patent Owner does not present substantive arguments regarding these claims. We agree with Petitioner that claims 2, 3, 15, 21, and 22 do not add meaningful limitations to the judicial exception and that the claimed subject matter of each of those claims is patent ineligible. *See* Pet. 23–25; *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (“That a computer receives and sends the information over a network—with no further specification—is not even arguably inventive.”).

Claim 4 recites the addition of a second conventional transceiver and the transmission of the transaction amount to a conventional server via that transceiver. Ex. 1001, 47:47–52. Claims 5, 6, and 8 recite the content of the information exchanged in claim 1 (indicating abortion or failure of the transaction, or a malfunction or status of the vending machine). *Id.* at 47:53–59, 48:1–3. Claims 23–25 recite a similar information transmission but without reciting the transceiver. *Id.* at 50:42–56. Patent Owner does not present substantive arguments regarding these claims. We agree with Petitioner that claims 4–6, 8, and 23–25 do not add meaningful limitations to the judicial exception and that the claimed subject matter of each of those claims is patent ineligible. *See* Pet. 23–25.

Claim 7 adds, *inter alia*, the use of an accelerometer to determine whether the user is walking away from the vending machine and, if so, canceling the transaction. Ex. 1001, 47:60–67. Petitioner impliedly contends that accelerometers were well-known and further contends that

“[t]his step is fundamentally no different than ending a personal transaction when a customer walks out of the store.” Pet. 25–26. Petitioner also argues that “Claim 7 also lacks any inventiveness.” Pet. Reply 14 (citing Pet. 25–26, 49–50). Patent Owner, relying on the testimony of Dr. Shamos, argues that the use of an accelerometer in the claimed manner is not well-known, routine, and conventional, and that the claim provides a technical solution. PO Resp. 28–49 (citing Ex. 2019 ¶¶ 30–33, 110). We agree that Petitioner has not explained, for example, how the recited *use* of an accelerometer (as opposed to merely the accelerometer itself) was conventional and is not indicative of an innovative concept. We determine that Petitioner fails to articulate adequately and with particularity why dependent claim 7 is patent ineligible under § 101.

Claim 9 adds, to the information exchange, receiving a user-targeted coupon, which Petitioner characterizes as “an inherently abstract financial instrument.” Ex. 1001, 48:9–13; Pet. 24. Claim 10 adds a generic notification that the wireless connection has been established. Ex. 1001, 48:9–13. Claim 18 recites a list of conventional machines, *e.g.*, a parking meter, that may be the payment accepting unit. Ex. 1001, 49:29–33. Claim 19 recites a list of conventional short-range technologies, *e.g.*, Bluetooth, that may form the wireless connection. *Id.* at 49:34–41. Patent Owner does not present substantive arguments regarding these claims. We agree with Petitioner that claims 9, 10, 18, and 19 do not add meaningful limitations to the judicial exception and that the claimed subject matter of each of those claims is patent ineligible. *See* Pet. 23–25.

Claim 11 elaborates on the user interface requirement of independent claim 1 and calls for the visual representation of the vending machine, a

“prepared balance,” and “an affordance that when slid, indicates the initiation of the vending transaction.” Ex. 1001, 48:14–21. Claim 12 depends from claim 11 and adds that the affordance is slid by the user. *Id.* at 48:22–24. The Petition quotes the claim language and argues that “[t]he addition of generic and conventional GUI elements does not render the claims patentable.” Pet. 25. Patent Owner argues that “Petitioners present no evidence that the particularly claimed interface, as recited in claims 11–12 was well-known, routine, and conventional.” PO Resp. 47. In the Reply, Petitioner cites, for the first time, certain evidence and argues that “the iPhone already had a ‘Swipe’ feature.” Pet. Reply 14 (citing Pet. 11–12, 52–54; Ex. 1003 ¶¶ 43, 176–83; Ex. 1030, 82:9–83:23). Even if we were to consider this belatedly-developed articulation of its theory, we agree with Patent Owner that Petitioner still has failed to adequately address the claim as a whole. *See* PO Sur-reply 21. Simply asserting that swiping as a general concept was known does not explain adequately, for example, whether the use as recited in the claim and in conjunction with the other displayed information is indicative that an inventive concept may be present or simply appends well-understood, routine, conventional activities previously known to the industry. 2019 Revised Guidance, 84 Fed. Reg. at 56. Petitioner fails to articulate adequately and with particularity why dependent claims 11 and 12 are patent ineligible under § 101.

Claim 13 specifies that the broadcasted predefined radio message of independent claim 1 indicates the status of the payment accepting unit. Ex. 1001, 48:25–28. Petitioner characterizes this as “generic ‘status’ information.” Pet. 24. Patent Owner, quoting Dr. Shamos, argues that the Petition fails to show that this “technical feature . . . was well-known,

routine, and conventional.” PO Resp. 48 (quoting Ex. 2019 ¶ 107). Patent Owner further argues that “Petitioners present no evidence that indicating vending machine status as part of an identifying broadcast as recited in claim 13 was well-known, routine, and conventional.” *Id.* Petitioner replies, citing as support only its own arguments, that the recited status information is “simply a type of data, the transmission of which via conventional means was well-understood, routine, and conventional.” Pet. Reply 14 (citing Pet. 24, 54). We determine that Petitioner fails to present adequate evidence and to articulate adequately and with particularity why dependent claim 13 is patent ineligible under § 101.

Petitioner characterizes claim 16 as “recit[ing] using the mobile device to communicate with a generic ‘payment module’ through a radio transceiver,” and contends in the Reply that “Claim 16 adds nothing new—and PO’s expert’s analysis is conclusory.” Pet. 24; Pet. Reply 14. Petitioner’s characterization is an oversimplification of the claim that is fourteen lines long and recites, *inter alia*, the use of an internal interface of the payment accepting unit. Ex. 1001, 49:8–21. We agree with Patent Owner that Petitioner has not adequately addressed this claim. See PO Resp. 48. Accordingly, Petitioner has not met its burden with respect to claim 16.

Dependent claim 17 adds to the claimed subject matter of independent apparatus claim 14 a second receiver and includes the recitation that “the information is exchanged via a second transceiver.” Ex. 1001, 49:22–26. Petitioner addresses this claim by stating that “[c]laim 17 recites the use of multiple transceivers,” and, to the extent we understand the argument, contends that the claim recites “conventional technology in a conventional

manner to implement the abstract idea of the claimed invention.” Pet. 24–25. We agree with Patent Owner that Petitioner’s analysis is inadequate. See PO Resp. 46–47. For example, Petitioner does not explain how the recited use of two transceivers in the recited manner (with one transceiver establishing a wireless connection between the vending machine and the mobile device and the second transceiver exchanging information between the vending machine and mobile device) is a “conventional manner.”

In summary, Petitioner has demonstrated that dependent claims 2–6, 8–10, 15, 18, 19, and 21–25 are patent ineligible under § 101. Petitioner, however, has not met its burden to demonstrate that dependent claims 7, 11–13, 16, and 17 are patent ineligible.

E. Written Description—Claims 1–25 (Ground 2)

Petitioner, in the Petition, argued that all the challenged claims are unpatentable under § 112(a), asserting that the independent claims contain two limitations—the “vending machine limitation” and the “user interface configuration limitation”—lacking written description support. Pet. 29–34. In the Institution Decision, we determined that Petitioner had not shown sufficiently that it was more likely than not that the challenged claims are unpatentable for lack of written description. Inst. Dec. 34–38. We nonetheless instituted a post-grant review on all of Petitioner’s challenges pursuant to *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) because we determined that Petitioner established that it is more likely than not that at least one claim of the ’614 patent is unpatentable. Inst. Dec. 47–48. Patent Owner, in the Patent Owner Response, points to

portions of the Specification¹⁶ regarding both of the subject aspects of the claims and argues that the written description requirement is satisfied. PO Resp. 49–55. Petitioner addresses only the vending machine limitation in its Reply. Pet. Reply 14–16; *cf.* Tr. 21:9–30:10 (Petitioner, at the oral argument, discussing the written description challenge only as to the vending machine limitation).

Under 35 U.S.C. § 112(a), “[t]he specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same” To satisfy the written description requirement, the disclosure must reasonably convey to skilled artisans that the patentee possessed the claimed invention as of the filing date. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). The requirement under § 112 does not demand that the specification recite the claimed invention verbatim. *Id.* at 1352 (citations omitted); *In re Smith*, 481 F.2d 910, 914 (CCPA 1973) (The “claimed subject matter need not be described *in haec verba* in the specification in order for that specification to satisfy the description requirement.”).

1. The Vending Machine

Independent claim 1, for example, recites “wherein the one or more payment accepting units are vending machines that accept payment for dispensing of products and/or services.” Ex. 1001, 47:5–7 (limitation 1.4).

¹⁶ We understand that the parties cite to the Specification of the issued patent (Ex. 1001) as a proxy for the Specification as originally filed (Ex. 1002, 12–129).

Independent claims 14 and 20 recite similar limitations. *Id.* at 48:41–44, 49:54–57.

Petitioner contends that “[t]he ’614 Patent does not disclose, implicitly or explicitly, a description that informs a POSITA that the inventor was in possession of the full scope of the *vending machine limitation* as of the filing date of the ’614 Patent.” Pet. 30 (emphasis in original). Petitioner bases this contention on the argument that the Specification defines vending machines as “machines that dispense goods, not ‘products and/or services.’” *Id.* at 31; Pet. Reply 16 (“Read as a whole, the specification does not convey to a POSITA that the inventors were in possession of vending machines that dispense services.”).¹⁷

Petitioner incorrectly focuses its analysis at the limitation level, rather than the claimed subject matter as a whole. Additionally, Petitioner’s arguments are that there are definitional issues with the term “vending machines” and purported inconsistencies between the use of the term in claim and in the Specification. *See* Pet. 31–32. However, the written description requirement is concerned with possession, not definition.

Independent claim 1, for example, recites a method involving the use of a mobile device in conjunction with a payment accepting unit. There is

¹⁷ We acknowledge that the District Court construed “vending machine,” as used in a different patent, as a machine that dispenses goods. Ex. 1015, 4–6; *cf.* Inst. Dec. 36 n.12 (noting this and stating that, “[d]uring trial, the parties should address whether and how the district court’s construction applies in the context of the ’614 patent.”). Here, however, we do not have that claim construction issue before us because the challenged claims explicitly state that “the one or more payment accepting units are vending machines that accept payment for dispensing of products and/or services.” *E.g.*, Ex. 1001, 47:5–7 (independent claim 1).

no dispute that the original specification of the '614 patent evidences possession of a method involving payment accepting units that dispense products and/or services. *See* Tr. 24:10–14 (Petitioner’s counsel agreeing that the specification at least shows possession of payment accepting units that could dispense services); Ex. 1001, 1:47–49 (“A payment accepting unit (or machine) is equipment that requires payment for the dispensing of products and/or services.”); Ex. 1002, 13 (paragraph 4 of the original application stating the same). We disagree with Petitioner that the Specification’s statement that “[m]odern vending machines stock many different types of products” is a definitional statement that excludes the vending of services or otherwise evidences that Patent Owner lacked possession of the claimed method applied to vending machines that vend services. *See* Pet. 31 (quoting Ex. 1001, 1:36–43).

The Specification indicates that “Vending Transactions” are those transactions that result in the user receiving products or services. *See* Ex. 1001, 7:49–57 (“Multiple Vending Transactions (Multi-Vend): . . . After making his/her first selection and *receiving his product(or service)*, [h]e/she could make another selection (or multiple selections) and *receive additional product(s) (or service(s).)*” (emphasis added)); Ex. 1002, 11 (paragraph 60 of the original application stating the same). This evidences that Patent Owner had possession of a method utilizing machines that vend services. We determine that the original disclosure reasonably conveys to a person of ordinary skill in the art of the challenged patent that the patentee possessed the claimed invention as of the filing date. Petitioner has not shown that claims 1–25 are unpatentable for lack of written description support regarding the “vending machines” term.

Dependent claim 18 recites that “the one or more payment accepting units further comprise one or more of [a list of devices].” Ex. 1001, 49:29–33. Petitioner argues that “[t]here is no description . . . that provides adequate written description . . . to inform the POSITA of the difference between the *vending machine limitation* and the purported additional, different machines added in claim 18.” Pet. 32 (citing Ex. 1003 ¶¶ 77–79). This, again, appears to be an argument about definitions rather than possession. Petitioner does not explain adequately how the purported failure to inform the person of ordinary skill in the art of differences between listed items pertains to the possession test or raises a written description concern. Petitioner does not argue that the Specification or the original application fails to evidence possession of the listed devices. We determine that Petitioner has not met its burden to show that dependent claim 18 is unpatentable due to a lack of written description support.

2. *The User Interface Configuration*

Independent claim 1 recites:

[1.5] displaying a user interface of the mobile payment application on the display of the mobile device, [1.6] the user interface being configured to display a visual indication of the one or more payment accepting units and [1.7.1] *accept user input to (i) receive selection by a user of the mobile device of an available payment accepting unit of the one or more payment accepting units.*

Ex. 1001, 47:8–15 (bracketed annotations and emphasis added).

Independent claims 14 and 20 recite similar limitations. *Id.* at 48:45–51, 50:1–7.

Petitioner asserts that the ’614 patent does not provide written description support for limitation 1.7.1 because it describes that in both hands-free mode and manual (swipe-to-pay) mode, the software

automatically selects the payment accepting unit. Pet. 32–33. Patent Owner argues otherwise. PO Resp. 54–55.

We noted in the Institution Decision: “As Petitioner itself points out (Pet. 34), the ’614 patent describes that the user can manually change the already automatically selected payment accepting unit 120.” Inst. Dec. 38 (citing Ex. 1001, 24:41–47). We determined that Petitioner had not sufficiently explained why the ’614 patent’s description of manually changing the automatically selected payment accepting unit fails to provide the necessary written description support. *Id.* Petitioner did not address this user interface configuration challenge in its Reply.

Now, after a full trial, we determine that Petitioner has not shown by a preponderance of the evidence that the claims are unpatentable for lack of written description regarding the user interface configuration of limitation 1.7.1.

F. Indefiniteness—Claim 21 (Ground 3)

Petitioner asserts that claim 21 is indefinite because claim 21 recites “[t]he non-transitory computer readable storage medium of claim 9” (Ex. 1001, 50:29–30) and claim 9 does not recite a non-transitory computer readable storage medium. Pet. 35. Claim 9 recites a method. Ex. 1001, 48:4.

Patent claims must “particularly point[] out and distinctly claim[] the subject matter which the inventor or a joint inventor regards as the invention.” 35 U.S.C. § 112(b). “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in

the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014); see USPTO Memorandum on the Approach to Indefiniteness Under 35 U.S.C. § 112 in AIA Post-Grant Proceedings (Jan. 6, 2021).¹⁸

In the Institution Decision, we indicated our agreement with Patent Owner’s explanation regarding the alleged indefiniteness issue and determined that Petitioner had failed to show sufficiently that claim 21 is more likely than not unpatentable under 35 U.S.C. § 112(b) for being indefinite. Inst. Dec. 39–41. We stated:

Based on the present record, we are persuaded by Patent Owner’s reading of the prosecution history of the ’614 patent. Upon review of that prosecution history, it is apparent the Office made a mistake in re-numbering the allowed claims of the application (“application claims”) to be printed in the patent (“patent claims”). In particular, based on the present record, it appears that patent claim 21 should have been printed as depending from patent claim 20, not patent claim 9

Id. at 39. We went on to describe in detail what transpired during prosecution, and concluded that “the prosecution history of the ’614 patent repairs the lack of clarity in the scope of claim 21 in the ’614 patent.” *Id.* at 39–40.

After institution, Patent Owner reiterated its position. PO Resp. 55–57. Petitioner did not address the ground further in the Reply. See, e.g., Pet. Reply ii (Table of Contents omitting a heading for the indefiniteness ground); cf. Tr. 6:24–7:3 (Petitioner stating at the oral argument: “Well, the

¹⁸ Available at <https://www.uspto.gov/sites/default/files/documents/IndefinitenessMemo.pdf>.

indefiniteness ground is fully presented in the petition. I’m choosing not to spend our time today to address it.”).

Now, after a full trial, we determine, for the same reasons set out in the Institution Decision, that Petitioner has not shown that claim 21 is unpatentable for indefiniteness.

G. Anticipation and Obviousness—Claims 1–25 (Grounds 4–7¹⁹)

1. Principles of Law

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987); *see also Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008) (to anticipate a patent claim under 35 U.S.C. § 102, “a single prior art reference must expressly or inherently disclose each claim limitation”). Moreover, “[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). Whether a reference anticipates is assessed from the perspective of one of ordinary skill in the art. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368–69

¹⁹ We use Petitioner’s numeric designations of the grounds, but note that Petitioner’s table of the grounds identifies, as the single Ground 4, two challenges based on Low—the anticipation challenge to the independent claims and the obviousness challenge to the dependent claims. *See* Pet. 5.

(Fed. Cir. 2003) (“[T]he dispositive question regarding anticipation [i]s whether *one skilled in the art* would reasonably understand or infer from the [prior art reference’s] teaching’ that every claim element was disclosed in that single reference.” (second and third alterations in original) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991))).

Additionally, under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates. *MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (citation omitted); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349–50 (Fed. Cir. 2002).

A patent claim is unpatentable under 35 U.S.C. § 103 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 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 skill in the art; and (4) any objective evidence of obviousness or non-obviousness.²⁰ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

²⁰ The parties have not directed our attention to any objective evidence of obviousness or non-obviousness.

2. *The Alleged Anticipation of Claims 1, 14, and 21 by Low and Obviousness of Claims 1–25 over Low*

Petitioner alleges that “Low anticipates the independent claims 1, 14, and 20 and renders obvious claims 1–25.” Pet. 39 (section heading); *but see id.* at 5 (Table of Grounds listing only the dependent claims in the “obviousness” row). Patent Owner argues that Petitioner has failed to show how Low discloses or suggests at least the “identifying” limitations. PO Resp. 58.

a. *Low (Ex. 1007)*

Low is titled “Electronic Payments to Non-Internet Connected Devices Systems and Methods” and issued on February 19, 2019, from an application filed on July 25, 2013. Ex. 1007, codes (22), (45), (54).

Low describes wireless electronic payments for purchases from non-Internet connected machine (“NICM”), such as vending machines, through user devices, such as smartphones. *See id.* at code (57) (Abstract), 1:17–19, 2:11–25. Figure 1 of Low is reproduced below.

FIG. 1

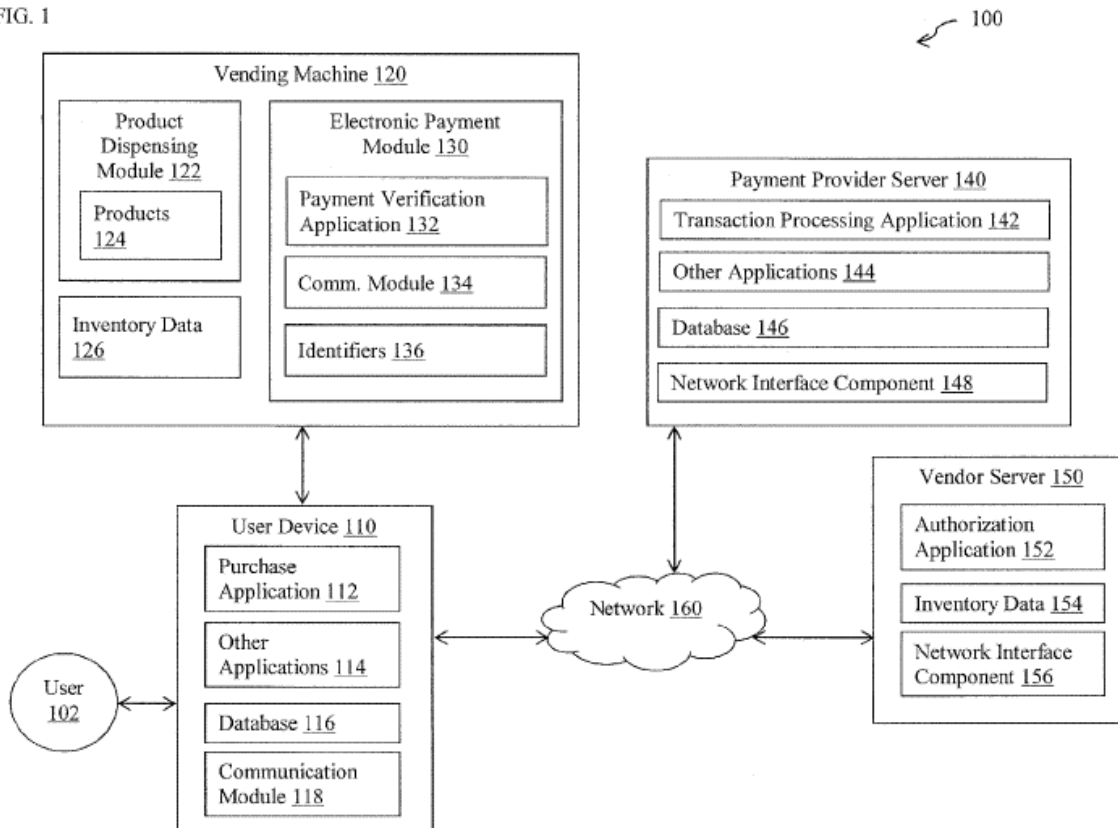


Figure 1 depicts a block diagram of Low's networked system. *Id.* at 1:52–54, 2:63–65. System 100 includes vending machine 120 (i.e., a NICM) in communication with user device 110, which is in communication with payment provider server 140 and vendor server 150 through network 160. *Id.* at 3:18–25. User device 110 has a purchase application 112, which is an interface that permits user 102 to select, purchase, and dispense products for sale at vending machine 120. *Id.* at 3:49–51, 3:57–60.

Figure 3 of Low is reproduced below.

FIG. 3

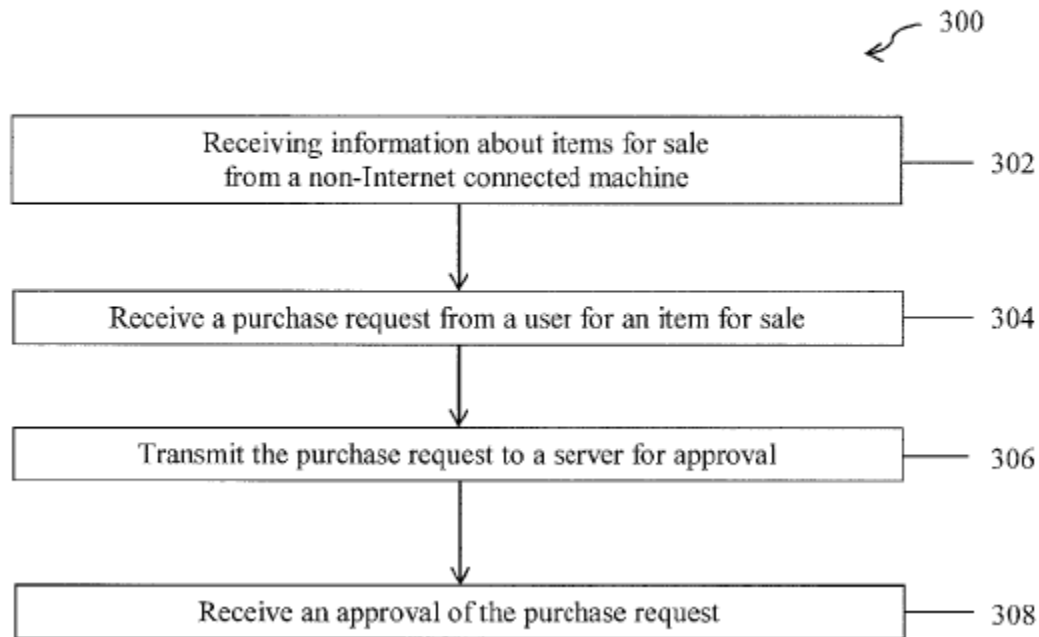


Figure 3 depicts “a flowchart illustrating a method for use by a user device for an electronic payment to a non-Internet connected device.” *Id.* at 1:59–61, 10:1–3. At step 302, user device 110 connects to electronic payment module 130 of a vending machine or NICM 120 using a short range wireless communication connection, such as Bluetooth communication, and receives information about items for sale from vending machine 120. *Id.* at 10:5–14. “User device 110 may transmit a device identifier and receive a listing of items for sale, as well as information corresponding to vending machine 120, such as a machine identifier.” *Id.* at 10:14–17. User 102 may then select a product for purchase using the user device 110 or directly from vending machine 120. *Id.* at 10:23–30. At step 304, user device 110 receives a purchase request, which may include a product name, product price, product code, a machine identifier, and transaction number. *Id.* at 10:18–23. At step 306, user device 110 transmits the purchase request to payment provider

server 140 for approval. *Id.* at 10:41–44. If approved, at step 308, user device 110 receives an approval having a payment authorization and uses the payment authorization to dispense the purchased product from vending machine 120. *Id.* at 10:55–61.

Low states:

In various embodiments, a user may not know a location of a NICM configured to accept electronic payments. However, the user may utilize a user device to access payment provider server 140 and receive locations of available NICMs with lists of available products at each machine. The user can further receive directions, map coordinates, and/or a GPS location of desired NICM.

Id. at 9:16–23.

b. Analysis

The disputed “identifying” step of, for example, independent claim 1 includes two components, limitations 1.2 and 1.3:

[1.2] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device,

[1.3] the identifying including detecting predefined radio messages broadcast by the one or more payment accepting units.

Ex. 1001, 46:66–47:5. The other independent claims contain the same recitations. *Id.* at 48:36–41, 49:49–54. In accordance with limitation 1.1, the steps are performed “at a mobile device” and, in accordance with limitation 1.4, the payment accepting unit is a vending machine. *Id.* at 46:63–65, 47:5–7; *see also, e.g., id.* at 48:33–35 (In apparatus claim 14, the steps of the program are to be executed by the mobile device’s processor). Together, the limitations require the step, performed at the

mobile device, of identifying a vending machine that can work with the mobile payment application, and with the identification step involving “detecting [at the mobile device] predefined radio messages broadcast” by the vending machine.

Petitioner does not identify clearly and unambiguously what it contends to be the recited “predefined radio messages broadcast [by a vending machine].” *See, e.g.*, Pet. 40–41, 55, 63 (claim charts for the subject limitations of independent claims 1, 14, and 20, respectively). The Petition contains a claim chart that does not use the phrase “predefined radio messages” or the term “broadcast” beyond quotations of the claim limitation itself. *See id.* As such, we are unable to discern Petitioner’s theory of its case and, thus, cannot assess that theory under the preponderance of evidence standard.

For limitations 1.2 and 1.3, the Petition points to portions of Low indicating that the user device (mapped to the recited mobile device) and the vending machine contain identifiers, that the user device and vending machine may communicate wirelessly with each other, and that the *server* provides to the user device the identification of vending machines. *See* Pet. 40–41 (citing, *inter alia*, Ex. 1007, 4:57–5:3, 6:17–31, 9:14–23; Ex. 1003 ¶¶ 93, 101, 231–232, 300); Ex. 1007, 9:18–21 (“[T]he user may utilize a user device to access payment provider server 140 and receive locations of available NICMs [(non-Internet connected machines)] with lists of available products at each machine.”). However, the claim requires there to be a predefined message broadcast by the payment accepting unit (the vending machine), not some general identifying action by the server.

The cited portions of Mr. Smith’s testimony merely are conclusory assertions that Low discloses the claim elements and do not offer any helpful opinion as to how Low might disclose identifying a vending machine with a predefined radio message that is broadcast by the vending machine. *See* Ex. 1003 ¶¶ 93, 101, 231–232, 300.

Although Petitioner nominally asserts that the independent claims would have been obvious over Low, the Petition contains no developed obviousness theory with the necessary specificity. *See* Pet. 35 (Heading for Ground 4: “Low Anticipates the Independent Claims and Renders Obvious Claims 1–25”), *see, e.g., id.* at 37–39; *id.* at 39 (the proposition, without citation, that, “[t]o the extent any claim limitation is not inherently disclosed in Low, it would have been obvious to a POSITA to include at the time of the alleged invention.”).

Patent Owner, in the Preliminary Response, argued that the Petition contained this flaw. *See* Paper 6, 34–37. In the Institution Decision, we determined that Petitioner had not met its burden with regard to the Low ground, and we specifically put Petitioner on notice of our determination that it had failed to meet its threshold burden with regard to both limitations 1.2 and 1.3. Inst. Dec. 44–47. We, nonetheless, instituted a post-grant review on all grounds because Petitioner had met its burden with regard to at least one claim under another ground. *See id.* at 47–48. Patent Owner, in its Response after institution, reiterated its argument that the Petition failed to demonstrate how Low discloses, *inter alia*, the limitation requiring the identification to include a predefined message broadcast by the vending machine. *See* PO Resp. 57–63; *id.* at 62 (“Petitioners’ argument is facially deficient for element 1.3.”). Petitioner’s Reply addresses

limitation 1.2—the general “identifying” limitation—but conspicuously omits a discussion of limitation 1.3—requiring the broadcast of a predefined message. *See* Pet. Reply 16–19; *id.* at 16 (section heading: “Low Discloses Elements [1.2/14.2/20.2]”). Thus, Petitioner declined to take advantage of the opportunity to explain to us and Patent Owner how the *Petition* set forth a viable theory.

Rather, Petitioner, in the Reply, cited to other portions of Low and faulted Patent Owner for failing to consider “what Low discloses in the four corners of the reference.” Pet. Reply 17 (citing, *e.g.*, Ex. 1007, 13:30–14:3); *see also id.* at 16 (citing, but not later explicitly applying, caselaw regarding a showing of anticipation when a person of ordinary skill could “at once envisage” the claimed arrangement). We decline to consider new arguments raised for the first time in Petitioner’s Reply or to shift the burden onto Patent Owner to, in the first instance, develop a potential theory for Petitioner and then point out flaws in such a theory. *Cf. Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable. . . . Thus, it was Harmonic’s burden to explain to the Board how Haskell combined with Rossmere rendered the challenged claims unpatentable.”).

After a full trial and having considered all of the parties’ arguments and evidence, we determine that Petitioner has failed to show by a preponderance of evidence that Low discloses or teaches “the identifying including detecting predefined radio messages broadcast by the one or more payment accepting units,” as recited in the independent claims.

The allegations in the Petition regarding the dependent claims do not cure the flaw in the underlying independent claims. *See* Pet. 46–67; *see, e.g., id.* at 54 (Petitioner, for dependent claim 13, again pointing to location information provided by the server, not the vending machine).

Accordingly, Petitioner has not demonstrated that the challenged claims are unpatentable as anticipated by or being obvious over Low.

3. The Remaining Obviousness Grounds

Petitioner contends that claims 1–25 would have been obvious over Low and Breitenbach (Ground 5); that dependent claim 7 would have been obvious over Low, Breitenbach, and Faith (Ground 6); and that claims 1–25 would have been obvious over Low and Mockus. Pet. 67–91. Petitioner does not rely on the additional references to cure the underlying defect of Petitioner’s Low anticipation ground. *See id.* at 71 (for Ground 5, relying on the Low Ground 4 for limitation 1.3); *id.* at 83 (for Ground 6, relying on Faith’s accelerometer for dependent claim 7); *id.* at 89 (for Ground 7, relying on the Low Ground 4 for limitation 1.3).

Accordingly, Petitioner has not shown by a preponderance of the evidence that claims 1–25 would have been obvious over Low and Breitenbach; that dependent claim 7 would have been obvious over Low, Breitenbach, and Faith; or that claims 1–25 would have been obvious over Low and Mockus.

III. PETITIONER’S MOTION TO EXCLUDE

Petitioner moves to exclude the Declaration of Dr. Michael I. Shamos (Ex. 2019). Mot. 2. Petitioner requests that Exhibit 2019 be excluded under Federal Rule of Evidence (“FRE”) 702 because, according to Petitioner, Dr. Shamos’s knowledge and experience “is below the level of ordinary skill

in the art” preliminarily adopted by the Board. Mot. 2. Petitioner further requests that Exhibit 2019 be excluded under FRE 401, 402, and 403 “to the extent that it is not cited by the Patent Owner’s Response, including and not limited to paragraphs 17–29, 48, 75–77, 215–218.” *Id.*

Patent Owner disagrees. As a threshold matter, Patent Owner submits that Petitioner’s motion should fail for lack of particularity in Petitioner’s initial objections to the testimony. Opp. to Mot. 1–2. Patent Owner further argues that Dr. Shamos qualifies as an expert. *Id.* at 3–11 (citing numerous qualifications including Masters degrees in physics and computer science, a Ph.D. in Computer Science, experience as a consultant in the wireless payment and vending machine spaces, and experience as a professor of computer science, and founder and former co-director of Carnegie Mellon’s Institute for eCommerce, among other work experience).

Federal Rule of Evidence 702 provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

We are not persuaded that Dr. Shamos’s testimony should be excluded under FRE 702. *See* 37 C.F.R. §§ 42.20(c) (the party moving to exclude evidence “bears the burden of proof to establish that it is entitled to

the requested relief,” i.e., that the material sought to be excluded is inadmissible under the Federal Rules of Evidence), 42.62(a). We are satisfied that Dr. Shamos’s education and experience are sufficient to qualify him as an expert. *See generally* Ex. 2020 (CV of Dr. Shamos).

We are not persuaded that Dr. Shamos does not qualify as a person of skill in the art as defined in these proceedings. *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1376–77 (Fed. Cir. 2022) (“To offer expert testimony from the perspective of a skilled artisan in a patent case—like for claim construction, validity, or infringement—a witness must at least have ordinary skill in the art. Without that skill, the witness’ opinions are neither relevant nor reliable.”). In that definition, we determine that a person having ordinary skill in the art would have had an education background of, or practical experience providing an equivalent to, a Bachelor of Science in Electrical Engineering, Computer Science, Information Technology, or a related/equivalent field. *See* II.B, *supra*. Dr. Shamos possesses a Ph.D. in Computer Science (Ex. 2020, 1), and therefore satisfies the educational component of a person of skill in the art as defined in these proceedings.

We also determine that a person having ordinary skill in the art would have had at least three years of academic or industry experience in electronic payment systems. We are satisfied that Dr. Shamos possesses the requisite level of experience. *See, e.g.*, Ex. 2020, 1, 2 (experience as Director of eBusiness Technology degree program, instructor of Ecommerce technology, instructor of electronic payment systems). Petitioner’s attempt to undermine Dr. Shamos’s testimony based on his alleged lack of experience in the *development* of wireless communication or mobile

electronic payment software applications (Mot. 6), or “developing mobile electronic payments applications that leverage wireless communications protocols and interface with vending machines” (*id.* at 7), is unavailing as we do not require (and Petitioner did not proffer) that a person of skill in the art have such development experience.

As to Petitioner’s second argument that uncited aspects of Dr. Shamos’s disclosure should be excluded, this argument is moot. We do not rely upon any uncited testimony in our decision.

Accordingly, Petitioner’s motion to exclude Exhibit 2019, the testimony of Dr. Shamos, is denied.

IV. CONCLUSION²¹

Petitioner has shown by a preponderance of the evidence that claims 1–6, 8–10, 14, 15, and 18–25 of the ’614 patent are unpatentable under 35 U.S.C. § 101 as being patent ineligible. Petitioner has *not* shown by a preponderance of the evidence that claims 7, 11–13, 16, or 17 of the ’614 patent are unpatentable.

²¹ 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*. See 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
1–25	101	Subject Matter Eligibility	1–6, 8–10, 14, 15, 18–25	7, 11–13, 16, 17
1–25	112(a)	Lack of Written Description		1–25
21	112(b)	Indefiniteness		21
1, 14, 20	102	Low		1, 14, 20
1–25	103	Low		1–25
1–25	103	Low, Breitenbach		1–25
7	103	Low, Breitenbach, Faith		7
1–25	103	Low, Mockus		1–25
Overall Outcome			1–6, 8–10, 14, 15, 18–25	7, 11–13, 16, 17

V. ORDER

For the foregoing reasons, it is

ORDERED that claims 1–6, 8–10, 14, 15, and 18–25 of the '614 patent have been proven to be unpatentable;

FURTHER ORDERED claims 7, 11–13, 16, and 17 of the '614 patent have *not* been proven to be unpatentable;

FURTHER ORDERED that Petitioner's motion to exclude Exhibit 2019, the testimony of Dr. Shamos, 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.

PGR2021-00093
Patent 10,891,614 B2

FOR PETITIONER:

Holiday Banta
Safet Metjahic
Simone Park
Thomas Rammer
ICE MILLER LLP
h.banta@icemiller.com
safet.metjahic@icemiller.com
simone.park@icemiller.com
tom.rammer@icemiller.com

FOR PATENT OWNER:

Michael Rosato
Matthew Argenti
Jad Mills
WILSON SONSINI GOODRICH & ROSATI
mrosato@wsgr.com
margenti@wsgr.com
jmills@wsgr.com