

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.

PGR2021-00077
Patent 10,719,833 B2

Before MEREDITH C. PETRAVICK, JUSTIN T. ARBES, and
STACEY G. WHITE, *Administrative Patent Judges*.

PETRAVICK, *Administrative Patent Judge*.

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

Denying Petitioner's Motion to Exclude
37 C.F.R. § 42.64(c)

I. INTRODUCTION

A. *Background and Summary*

KioSoft Technologies, LLC and TechTrex, Inc. (collectively, “Petitioner”) filed a Petition requesting post-grant review of claims 1–27 of U.S. Patent No. 10,719,833 B2 (Ex. 1001, “’833 patent”). Paper 2 (“Pet.”).

PayRange Inc. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). On October 28, 2021, we instituted trial. Paper 8 (“Inst. Dec.”).

Patent Owner filed a Response. Paper 11 (“PO Resp.”). Petitioner filed a Reply. Paper 16 (“Pet. Reply”). Patent Owner filed a Sur-reply. Paper 20 (“PO Sur-reply”).

Petitioner filed a Motion to Exclude Evidence. Paper 23 (“Mot.”). Patent Owner filed an Opposition to the Motion to Exclude (Paper 24, “Opp. to Mot.”), and Petitioner filed a Reply (Paper 26, “Reply to Mot.”).

We held oral argument on August 2, 2022, and a transcript appears in the record. Paper 31 (“Tr.”).

After consideration of the parties’ arguments and evidence, and for the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 of the ’833 patent is unpatentable and has not shown by a preponderance of the evidence that claims 2–27 are unpatentable.

B. *Related Matters*

The ’833 patent is the subject of *PayRange Inc. v. KioSoft Technologies, LLC et al.*, Case No. 1:20-cv-24342, in the U.S. District Court for the Southern District of Florida (“the district court litigation”). Pet. 8; Paper 4, 2. Related U.S. Patent Nos. 10,891,608 and 10,891,614 are also the

subject of the district court litigation. U.S. Patent No. 10,891,608 is challenged in PGR2021-00084 and U.S. Patent No. 10,891,614 is challenged in PGR2021-00093.

The '833 patent is related to U.S. Patent No. 9,659,296 and U.S. Patent No. 9,134,995, which are the subject of *PayRange Inc. v. Kiosoft Technologies, LLC et al.*, No. 1:20-cv-20970-RS in the U.S. District Court for the Southern District of Florida (“the '20970 district court litigation”). Pet. 8; Paper 4, 2. U.S. Patent No. 9,659,296 was challenged in CBM2020-00026 and IPR2021-00086, in which we exercised discretion respectively under 35 U.S.C. § 324(a) and § 314(a) to deny institution. Pet. 8; Paper 4, 2.

C. The '833 Patent

The '833 patent is titled “Method and System for Performing Mobile Device-to-Machine Payments” and issued on July 21, 2020. Ex. 1001, codes (45), (54). The '833 patent claims priority, through a chain of patent applications, to a provisional patent application filed on December 18, 2013. *Id.* at code (60).

1. Disclosed Embodiment

The '833 patent describes “a mobile-device-to-machine payment system for facilitating a cashless transaction for purchase of at least one product or service by a user from a payment accepting unit that preferably has input mechanisms.” *Id.* at 3:49–52.

Figure 5 of the '833 patent is reproduced below.

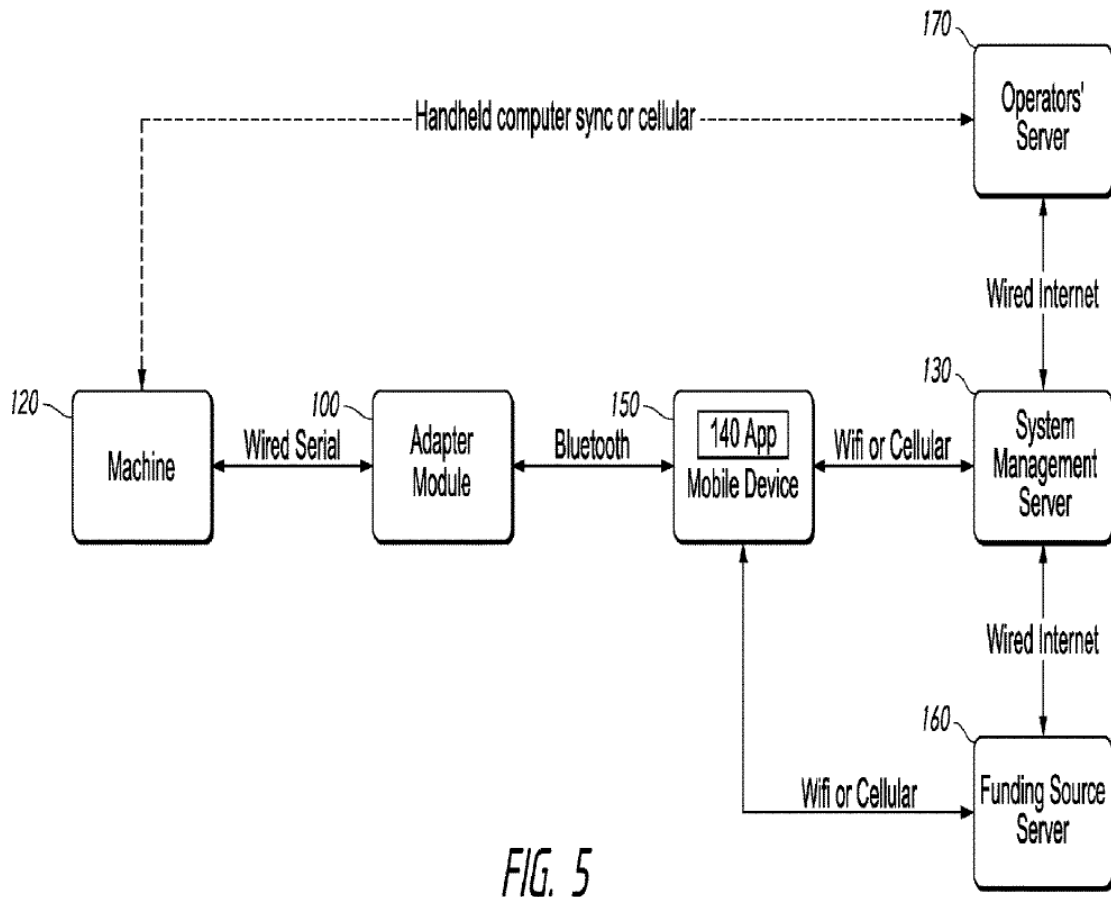


Figure 5 depicts “block schematic[s] that show[] elements of the system.” *Id.* at 6:49–50. The system includes Machine 120, Adapter Module 100, Mobile Device 150, Operators’ Server 170, System Management Server 130, and Funding Source Server 160. *Id.* at Fig. 5.

“Payment Accepting Unit” or Machine 120 is connected to Adapter Module 100 by a wired serial connection. *Id.* at 13:4–7. Adapter Module 100 may be a dongle installed in Machine 120 that bridges the communication between Machine 120 and Mobile Device 150. *Id.* at 12:11–33.

Adapter Module 100 is connected to Mobile Device 150 via a short-range communication technology, such as Bluetooth, RFID, infrared

wireless, or “any wired or wireless technology that could be used to communicate a small distance.” *Id.* at 13:50–53, 19:10–13. Alternatively, “the shown short-range communication technology may be replaced with alternative short-range communication technology known or yet to be discovered.” *Id.* at 20:6–12; *see also id.* at 13:44–53, 17:40–42. “The user’s mobile device 150 acts as a communication bridge between the adapter module 100 and the server 130.” *Id.* at 13:38–40.

Mobile Device 150 maybe a smart phone, tablet, laptop computer, personal digital assistant, smart card, or other technology known or yet to be discovered that has similar capabilities. *Id.* at 12:47–53. Mobile Device 150 has an App 140 (“any software program(s) capable of implementing the features”) running on it. *Id.* at 12:53–57.

Mobile Device 150 also is connected to System Management Server 130 and/or Funding Source Server 160 via a long-range communication technology, such as WiFi or Cellular connection. *Id.* at 19:19–25. “[T]he shown long-range communications technology may be replaced with alternative long-range communications technology known or yet to be discovered.” *Id.* at 20:6–9; *see also id.* at 17:42–45.

Machine 120 also may be connected to an Operators’ Server 170, via a handheld computer sync or a cellular connection. *Id.* at 19:33–39.

Figure 1 of the '833 patent is reproduced below.

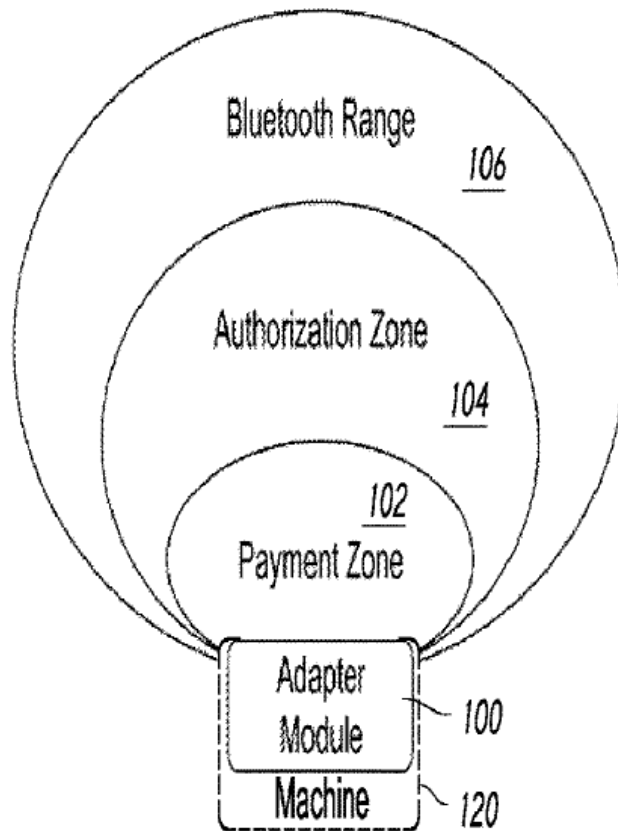


FIG. 1

Figure 1 depicts a schematic diagram of Machine 120 with Adapter Module 100, and “three zones: a first ‘communication zone’ (e.g., ‘Bluetooth range’), a second ‘authorization zone,’ and a third ‘payment zone.’” *Id.* at 6:36–38. App 140 on Mobile Device 150 continuously scans for a signal, communication, or transmission from Adapter Module 100, which constantly advertises its availability, for example, via Bluetooth. *Id.* at 28:64–67, 29:18–25. Mobile Device 150 then tracks and monitors the signal strength until the user is in the authorization zone threshold. *Id.* at 29:25–28. The zone thresholds are determined, for example, by an In-Range

Heuristics mathematical computation to derive an optimal Received Signal Strength Indicator threshold. *Id.* at 14:35–56.

As the user enters authorization zone 104, Mobile Device 150 establishes a connection to Adapter Module 100. *Id.* at 23:1–5. After a successful handshake with Adapter Module 100, Adapter Module 100 requests an authorization from Server 130 via Mobile Device 150’s network connection. *Id.* at 23:5–10. App 140 on Mobile Device 150 “creates a request for authorization (AuthRequest) and passes the AuthRequest to the server 130 using appropriate communication technology (e.g. cellular or WiFi).” *Id.* at 29:33–37.

Server 130 “responds with an authorization grant (AuthGrant)” and Mobile Device 150 retains the AuthGrant from Server 130 until Mobile Device 150 is ready to issue payment to Adapter Module 100. *Id.* at 29:37–44. Unused AuthGrants expire and are purged from Mobile Device 150. *Id.* at 29:47–48.

As the user continues to approach Adapter Module 100, the user enters payment zone 102 and an event threshold is triggered based on heuristics performed by the Mobile Device 150. *Id.* at 29:59–62. If the authorization grant has not expired, Mobile Device 150 sends the authorization grant to Adapter Module 100 to start a transaction. *Id.* at 30:2–8. In a hands-free mode, (*id.* at 11:12–36), Mobile Device 150 sends the authorization grant automatically without user interaction, and, in manual (swipe to pay) mode (*id.* at 10:58–11:11), Mobile Device 150 sends the authorization grant after a prompt from the user, such as a “swipe” on Mobile Device 150. *Id.* at 30:8–16.

“The user completes the transaction on the payment accepting unit 120 in much the same manner as if cash had been inserted into the payment

accepting unit 120 to establish credit.” *Id.* at 23:38–41; *see also* 11:5–9, 11:30–34, 21:7–11. Details of the transaction are then returned to Mobile Device 150 and Server 130. *Id.* at 23:41–45.

2. *State of the Art*

The ’833 patent explains that vending machines are an old and well-known type of “‘automatic retailing’ machine” or “payment accepting unit” and that “coin operated vending machines were introduced in the 1800s.” Ex. 1001, 1:25–28, 1:34–36. “[V]ending machines are ubiquitous.” *Id.* at 1:33.

When using a vending machine,

a user will (1) approach the payment accepting unit, (2) determine from the face of the payment accepting unit the product (or service) he desires, (3) insert payment (e.g. coins, bills, or payment cards), and (4) input his selection into the payment accepting unit using a user interface (e.g. a series of buttons, a key pad, touch screen, or other input mechanism using, for example, the column and row at which a product is located). Based on the user’s inputted selection, technology within the payment accepting unit provides the desired product (or service) to the user.

Id. at 1:46–56.

The ’833 patent explains that “[a]s the number of people with internet-connected mobile devices proliferates,” “[m]obile payment is a logical extension.” *Id.* at 1:57–59; *see also id.* at 1:60–66 (discussing “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 increase[] convenience”).

The ’833 patent describes a number of known vending machines, which use mobile devices to communicate payment to the vending machine. *See id.* at 1:64–2:8 (citing U.S. Pat. No. 6,584,309 to Whigham

(“Whigham”), U.S. Pat. No. 7,127,236 to Khan et al. (“Khan”), and International Publication No. WO/2008/083025 to Carlson (“Carlson”), among others).¹

In particular, the ’833 patent explains that, for example the Whigham reference, “disclose[s] alternative payment accepting units that accept cashless payments by using the user’s cellular phone to allow the user to manually input coding to a remote server and, thereby act as an on-demand bridge network connection.” *Id.* at 10:38–44. Whigham discloses that upon receiving a vend code, which may be an RF code, from the server, the consumer transmits the vend code to the vending machine. *Id.* at 2:9–22. Similarly, the Khan reference discloses an application on a user’s “personal trusted device” may be used to effectuate cashless purchases. *Id.* at 2:37–42. Khan’s application may communicate with a “point of sale MicroAdapter device” which receives a “purchase signal from the personal trusted device including order and payment.” *Id.* at 2:37–48.

The ’833 patent also describes the Carlson reference. *Id.* at 3:25–41, 31:28–47. The Carlson reference “is directed to a system and a method for using a portable consumer device such as a mobile phone for payments and the like.” *Id.* at 3:25–27. Carlson discloses a method that includes prompting a user to select, from their mobile device, a product for purchase at a vending machine after the user is authorized to make the purchase.

One embodiment of the Carlson system is directed to a method that includes the steps of receiving a payment request message (that includes a request to pay for a product from a vending machine) from a portable consumer device operated by a consumer, sending an authorization response message back to

¹ The ’833 patent states that it incorporates by reference all cited references in their entirety. *Id.* at 32:52–55.

the vending machine wherein the vending machine subsequently prompts the consumer to enter a selection if the authorization response message indicates that the consumer is authorized to make a purchase, and receiving an acknowledgement message from the vending machine that the product was purchased.

Id. at 3:27–38. The authorization response is sent to the vending machine by a “remote payment server.” *Id.* at 3:38–41; 31:40–44. In an embodiment of Carlson, the user uses a mobile wallet to purchase an item from a vending machine and “the portable consumer device may automatically detect the vending machine and prompt the consumer to enter information associated with the vending machine.” *Id.* at 31:30–40.

D. *Illustrative Claim*

Claims 1, 14, and 21 are independent. Claims 2–13 depend from claim 1. Claims 15–20 depend from claim 14. Claims 22–27 depend from claim 21. Claim 1 is illustrative of the claimed subject matter.

1. A method of payment processing, the method comprising:
at a mobile device with one or more processors, memory, and a communications unit, and prior to user selection of any items or services provided by an automatic retail machine:
identifying the automatic retail machine based at least in part on a transmission received from an electronic payment device of the automatic retail machine;
in response to identifying the automatic retail machine, obtaining, from the electronic payment device, a request via the communications unit of the mobile device, to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;
sending, to a server, the request via the communications unit of the mobile device;
in response to sending the request to the server, obtaining from the server an authorization grant of an amount of

funds for use in conjunction with the cashless transaction with the automatic retail machine;
detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and
in response to detecting the trigger condition, sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.

Ex. 1001, 33:6–34.

E. Prior Art and Asserted Grounds

Petitioner asserts that claims 1–27 are unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	Basis
1–27	101	Subject Matter Eligibility
1–27	112(a)	Lack of Enablement
1–27	112(b)	Indefiniteness
1–7, 10–27	102	Skowronek ²
8, 9	103	Skowronek, Räsänen ³
12, 13	103	Skowronek, Westerman ⁴
1, 7, 10, 11, 14, 20, 21, 27	103	Behjat ⁵ , Kamat ⁶
2–6, 15–19, 22–26	103	Behjat, Kamat, Linde ⁷

² U.S. Patent App. Pub. No. 2009/0106160 A1 (pub. Apr. 23, 2009) (Ex. 1007) (“Skowronek”).

³ U.S. Patent No. 6,810,234 B1 (issued Oct. 26, 2004) (Ex. 1006) (“Räsänen”).

⁴ U.S. Patent No. 8,059,101 B2 (issued Nov. 15, 2011) (Ex. 1012) (“Westerman”).

⁵ U.S. Patent App. Pub. No. 2013/0126607 A1 (pub. May 23, 2013) (Ex. 1008) (“Behjat”).

⁶ U.S. Patent App. Pub. No. 2014/0074723 A1 (pub. Mar. 13, 2014) (Ex. 1009) (“Kamat”).

⁷ U.S. Patent App. Pub. No. 2014/0064116 A1 (pub. Mar. 6, 2014) (Ex. 1013) (“Linde”).

Claims Challenged	35 U.S.C. §	Basis
8, 9	103	Behjat, Kamat, Räsänen
12, 13	103	Behjat, Kamat, Westerman
1, 7, 10, 11, 14, 20, 21, 27	103	Insolia ⁸ , Atkinson ⁹ , Lei ¹⁰
2–6, 15–19, 22–26	103	Insolia, Atkinson, Lei, Linde
8, 9	103	Insolia, Atkinson, Lei, Räsänen
12, 13	103	Insolia, Atkinson, Lei, Westerman

Pet. 10.

Petitioner relies on the Declaration of Gerald Smith (Corrected Ex. 1003).¹¹ Patent Owner relies on the Declaration of Michael I. Shamos, Ph.D., J.D. (Ex. 2016).

II. ANALYSIS

A. *Level of Ordinary Skill*

Petitioner contends:

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, or a related/equivalent field and at least four years of work experience in identity, transaction, and telecommunication solutions.

⁸ U.S. Patent App. Pub. No. 2009/0306819 A1 (pub. Dec. 10, 2009) (Ex. 1014) (“Insolia”).

⁹ U.S. Patent App. Pub. No. 2003/0236872 A1 (pub. Dec. 25, 2003) (Ex. 1015) (“Atkinson”).

¹⁰ U.S. Patent App. Pub. No. 2003/0158891 A1 (pub. Aug. 21, 2003) (Ex. 1016) (“Lei”).

¹¹ Petitioner filed the declaration with its Petition on April 21, 2021, then filed a “corrected” version on May 20, 2021, along with a paper stating that Patent Owner does not object to the filing of the corrected version. Paper 6.

Pet. 13 (citing Ex. 1003 ¶ 20). Patent Owner does not dispute Petitioner’s contention. PO Resp. 6–7.

Based on the complete record before us, we adopt Petitioner’s asserted level of ordinary skill. This level of skill in the art is consistent with the disclosure of the ’833 patent and the prior art of record. *See In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

B. § 101 Eligibility – Claims 1–27

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 water-proof 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”).¹² “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 organizing human activity such as a fundamental economic practice, or mental processes) (“Step 2A, Prong One”); and

¹² 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).

(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”).¹³

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” 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: 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 payment processing” and steps for authorizing a cashless transaction at an automatic retail machine. Ex. 1001, 33:6–34. Claim 1, thus, falls within the process category. Petitioner does not dispute this. *See generally* Pet.

¹³ 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 “recite the use of a mobile device and automatic retail machine to perform the abstract task of authorizing a purchase and then conducting the purchase.” Pet. 24. Petitioner states: “The subject matter of the challenged claims is effectively no different than a person entering a store, the store checking the customer’s available credit (or calling a bank to do so) and when the customer decides on the item, completing the purchase.” *Id.* at 22.

In the Institution Decision, we determined, based on the record at the time, that claim 1 recites the “concept of obtaining authorization for a purchase and then conducting the purchase.” Inst. Dec. 29. We stated that “[c]laim 1 also recites steps for conducting a purchase (i.e., cashless transaction) — detecting a trigger condition and sending the authorization grant to the electronic payment device to complete the transaction.” *Id.* at 30.

Patent Owner disagrees with Petitioner’s and our articulation of the recited concept. PO Resp. 25–29. In particular, Patent Owner points out that “the claim does not recite completing the transaction or conducting the purchase.” *Id.* at 27. Patent Owner emphasizes that the claims recite “*enabling completion of the cashless transaction at the automatic retail machine.*” *Id.*

Petitioner responds that “[t]he patent’s abstract idea is the fundamental practice of obtaining payment authorization for performing a

financial transaction. Regardless of whether a purchase is ultimately completed, the claimed methods are no different than what happens when a store checks a customer's credit and approves the customer to make a purchase." Pet. Reply 4.

Claim 1 recites:

1. *A method of payment processing, the method comprising:*
at a mobile device with one or more processors, memory, and a communications unit, *and prior to user selection of any items or services provided by an automatic retail machine:*
identifying the automatic retail machine based at least in part on a transmission received from an electronic payment device of the automatic retail machine;
in response to identifying the automatic retail machine, obtaining, from the electronic payment device, a request via the communications unit of the mobile device, to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine;
sending, to a server, the request via the communications unit of the mobile device;
in response to sending the request to the server, obtaining from the server an authorization grant of an amount of funds for use in conjunction with the cashless transaction with the automatic retail machine;
detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine; and
in response to detecting the trigger condition,
sending to the electronic payment device the authorization grant to enable completion of the cashless transaction at the automatic retail machine.

Ex. 1001, 33:6–34 (emphasis added).

As can be seen from claim 1 above, all of the claimed method steps occur “at the mobile device” and the final step is *to enable completion of a cashless transaction*. Claim 1 does not recite completing the purchase. The

'833 patent describes that any commercial transaction is completed at the automatic retail machine, not at the mobile device. Ex. 1001, 11:5–9; *see also id.* at 21:4–11, 22:18–20, 23:53–61, 30:25–27. 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 italicized above recite the concept of obtaining authorization for a purchase and enabling completion of a cashless transaction, prior to user selection of any items or services. *See* Pet. 22–23 (arguing that the claimed method “is effectively no different than a person entering a store, the store checking the customer’s available credit (or calling a bank to do so) and when the customer decides on the item, completing the purchase”); Pet. Reply 5–6 (arguing that the claim recites “obtaining payment authorization and performing a financial transaction, the same as a person entering a store, the store checking the customer’s available credit (or calling a bank to do so) and, when the customer decides on the item, allowing the purchase”). In particular, claim 1 recites steps for obtaining authorization prior to user selection of any items or services — steps of identifying the automatic retail machine, obtaining a request from the electronic payment device, sending the request to a server, and obtaining from the server an authorization grant. Claim 1 also recites steps for enabling the completion of a purchase (i.e., cashless transaction) — detecting a trigger condition and sending the authorization grant to the electronic payment device. 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).

Obtaining authorization for the purposes of conducting a cash-less transaction is similar to other concepts our reviewing court has held to be an abstract idea. *See 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 (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); *Credit Acceptance Corp.*, 859 F.3d at 1054.

Accordingly, we find that obtaining authorization for a purchase and enabling the completion of a cashless transaction prior to user selection of any items or services 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. If the recited judicial

exception is integrated into a practical application, the claim is not directed to the judicial exception. *Id.*

Petitioner argues that the additional elements (e.g., the automatic retail machine, the mobile device, the application, and the server) recited by claim 1 are merely “a medium for carrying out the abstract idea of requesting authorization for a purchase and then making the purchase.” Pet. 24–25. According to Petitioner, “[t]he challenged claims do not . . . have meaningful technical limitations. They solely recite communications between a mobile device, server, and automatic retail machine.” *Id.* at 23.

In the Institution Decision, we determined, based on the record at the time, that the non-italicized, i.e., additional elements “are merely used as a tool to perform an abstract idea on computers and do not integrate the exception into a practical application.” Inst. Dec. 32 (citing *Credit Acceptance Corp.*, 859 F.3d at 1055–56 (using a computer as a tool to process an application for financing a purchase)). We also found that the additional elements do not reflect an improvement in the functioning of a computer or an improvement to other technology or technical field, and [that] the additional elements, individually and in combination, do not integrate the exception into a practical application. *Id.*

Patent Owner disagrees and argues that “[t]he ’833 patent 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. 17–18 (citing Ex. 2016 ¶¶ 27–33, 50–56).

In particular, Patent Owner argues that the “claims address technological problems arising in the particular technological architecture of using a mobile device to unlock an automatic retail payment machine in a particular and non-conventional way” because “all challenged claims operate by: (1) enabling purchasing *at the automatic retail machine*, by the mobile device obtaining a request for preemptive authorization of funds for a cashless transaction *in response to the mobile device identifying the automatic retail machine*; and (2) the mobile device sending the authorization to the automatic retail machine *in response to detecting a trigger condition* instead of immediately upon approval.” *Id.* at 19–20 (citing Ex. 2016 ¶¶ 46, 50–53). Patent Owner argues that “[t]hese technological solutions provided by the claims permit asynchronous, or non-persistent, communication between the payment server and the automatic retail machine via the mobile device, thus avoiding the need for a persistent network.” *Id.* at 20 (citing Ex. 2016 ¶ 54), 21–23 (citing *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1307 (Fed. Cir. 2020) (determining that “the claims at issue are directed to a patent-eligible improvement to computer functionality, namely the reduction of latency experienced by parked secondary stations in communication systems”), and *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1007–1008 (Fed. Cir. 2018) (determining that the claim at issue “is directed to a specific method for navigating through three-dimensional electronic spreadsheets [that] provides a specific solution to then-existing technological problems in computers and prior art electronic spreadsheets”)).

While Patent Owner purports to have claimed a technical solution that improves upon the prior art methods, neither enabling purchasing by requesting preemptive authorization, nor sending authorization to a retail

machine in response to detecting a trigger condition are technical in nature. These alleged improvements, as recited in claim 1, relate to the sequence or timing of events (i.e. when authorization is obtained and sent), not to the “computer network platform itself” or any other technical improvement.

Whether the alleged improvements permit “asynchronous, or non-persistent, communication between the payment server and the automatic retail machine via the mobile device, thus avoiding the need for a persistent network” is irrelevant because the claims do not require as much. *Id.* at 20. Claim 1 does not preclude the automatic retail machine from having a persistent network. Claim 1 does not specify how the authorization grant is sent to the electronic payment device and does not preclude it from being sent, for example, via WiFi.

Patent Owner also argues that “the trigger condition limitations of the claims helped to solve the problem of how to prevent a preemptive authorization for one user from being employed while a different user is operating the automatic retail machine. . . . In other words, the patent improves conventional payment networking systems . . . by offering a solution that leverages the mobile phone’s short- and long-range communication capabilities and capacity to store a pre-authorization token and communicate it asynchronously to the automatic retail machine.” *Id.* at 23–24 (citing Ex. 1001, 10:44–50; Ex. 2016 ¶¶ 54–56).

But the trigger condition recited in claim 1 is not so specific as to preclude the use of one user’s preemptive authorization while another operates the same automatic retail machine. Moreover, the purported solution, “leverag[ing] the mobile phone’s short- and long-range communication capabilities and capacity to store a pre-authorization token and communicate it asynchronously to the automatic retail machine,” is not

required by claim 1. Claim 1 does not recite that the mobile device uses short- and long-range communications to complete the method steps. Nor does claim 1 require that the trigger condition be proximity to the automatic retail machine (i.e., location within a payment zone). *See Weisner v. Google LLC*, -- F.4th --, 2022 WL 7265934, at *6 (Fed. Cir. Oct. 13, 2022) (concluding that due to the breadth of the claims, “the purported benefit [argued by the patent owner] is not captured in the claims and, accordingly, does not shift the focus of the claims away from the abstract idea”).

In sum, claim 1 does not require the technical solutions set forth in the by Patent Owner. Accordingly, we determine that claim 1 does not 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.

In the Institution Decision, we found that the “’833 patent discloses that the additional elements (a mobile device, with one or more processors, memory, and a communications unit, an application on the mobile device, an automatic retail machine with an electronic payment device, and a server) are well-understood, routine, and conventional element performing well-understood, routine, and conventional activities (sending and receiving information).” Inst. Dec. 34 (citing Ex. 1001, 1:46–3:41, 3:25–38, 10:38–44, 12:47–57, 13:4–12, 13:36–53, 13:56–62, 16:9–63, 17:26–45, 17:55–18:4, 20:4–13, 31:57–32:9; *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.”); *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016) (determining receiving, processing, and sending data to be well-known, generic computer-implemented steps); *Cyberfone Sys., L.L.C. v. CNN Interactive Grp., Inc.*, 558 F. App’x 988, 992 (Fed. Cir. 2014) (organizing, storing, and transmitting information determined to be well-established)). We determined that Petitioner made a sufficient showing for claim 1 as to Step 2B. *Id.* at 35.

Patent Owner argues that “the claims of the ’833 patent contain multiple inventive concepts that confirm they are eligible for patenting.”

PO Resp. 32. According to Patent Owner, one such concept is:

that the mobile device uses its communications unit to obtain a request for preemptive funds authorization for a cashless transaction with an automatic retail machine ***in response to identifying that automatic retail machine*** based on a transmission received from an electronic payment device of the automatic retail machine.

Id. at 33 (citing Ex. 2016 ¶¶ 50, 54, 56) (emphasis in original).

Another is that:

the mobile device sends the authorization grant it obtained preemptively from the server to the electronic payment device ***in response to detecting a trigger condition*** to perform the cashless transaction rather than upon receipt of the authorization grant.

Id. (citing Ex. 2016 ¶¶ 51, 55–56) (emphasis in original).

Patent Owner further argues that the steps of “obtaining, from the electronic payment device, a request, via the communications unit of the mobile device, to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine” and “sending, to a server, the request via the communications unit of the mobile device” as recited in claim 1, were not “well-known, conventional, or routine in the industry” and that this step does not “merely require generic computer implementation.” *Id.* at 34–35 (citing Ex. 2016 ¶¶ 50–56).

We are not persuaded. Patent Owner’s arguments rest on the alleged novelty of the abstract idea itself, not the “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).

Patent Owner and Dr. Shamos do not identify, and we cannot find, anything in the claim suggesting that the mobile device, server, or automated retail device (i.e., the additional elements) are more than generic

components. Indeed, the '833 patent's specification demonstrates that these elements were well-understood, routine, and conventional to the industry. Ex. 1001, 2:23–29, 37–42, 3:25–38 (explaining that Offer “teaches permitting the cashless utilization of a vending machines via a communications service, such as a cellular telephone;” Khan teaches an application on a user’s “personal trusted device” used to effectuate cashless purchases; and Carlson teaches “a system and a method for using a portable consumer device such as a mobile phone for payments and the like,” the method including prompting a user to select, from his mobile device, a product for purchase at a vending machine, after/if the user is authorized to make the purchase, and sending an authorization response to the vending machine from a “remote payment server”).

Patent Owner’s arguments also are belied by Dr. Shamos’s testimony which attributes the alleged technical improvements to the timing or sequence of events, and the abstract idea itself:

By obtaining funds authorization *before* selecting any items or services, the '833 Patent explains that the claims help to solve the problem of needing to use a mobile device interface (e.g., a relatively small key pad or display screen having an inconvenient interface) to select goods or services and obviate the need for a persistent network connection at the point of sale. [Ex. 1001], 10:47-56. By obtaining *preemptive* authorization in response to an identification of the automatic retail machine, the claims decrease the amount of user interaction required and reduce any latency that would keep the user from performing a transaction at the automatic retail machine at the appropriate time. For example, obtaining a traditional credit card authorization after selecting goods typically requires between five and 15 seconds. In the '833 Patent, *there is no waiting time because authorization is obtained preemptively.*

Ex. 2016 ¶ 54 (emphasis added).

Patent Owner further argues that claim 1 is patent eligible because like the claims at issue in *CosmoKey*¹⁴, it uses a mobile device to enable a financial transaction and improves security. PO Resp. 33, 41–42. Patent Owner’s reliance on *CosmoKey* is misplaced. In that case, the court found that the “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 1098. The claim limitations were “specific and recite[d] an improved method for overcoming hacking by ensuring that the authentication function is normally inactive, activating only for a transaction, communicating the activation within a certain time window, and thereafter ensuring that the authentication function is automatically deactivated.” *Id.* at 1099.

Claim 1 of the ’833 patent is not so specific. Here, the purported improvement recited in claim 1 relates to timing of a sequence of events, specifically preauthorization for enabling a transaction, and even that concept was well-understood in the art. *See, e.g.*, Ex. 1001, 3:27–38.

The other improvements identified by Patent Owner, e.g., asynchronous, or non-persistent, communication between the payment server and the automatic retail machine via the mobile device; preventing a preemptive authorization for one user from being employed while a different user is operating the automatic retail machine; and leveraging the mobile phone’s short- and long-range communication capabilities and capacity to store a pre-authorization token and communicate it asynchronously to the

¹⁴ *CosmoKey Solutions GMBH & Co. KG v. Duo Security LLC*, 15 F.4th 1091 (Fed. Cir. 2021).

automatic retail machine (PO Resp. 19–20, 23–24) are not recited in claim 1. Thus, while “improving computer or network security can constitute a non-abstract computer-functionality improvement if done by a specific technique that departs from earlier approaches to solve a specific computer problem” (*CosmoKey*, 15 F.4th at 1099 (internal citation omitted)), claim 1 fails to recite such an improvement for all the reasons discussed above.

Patent Owner’s reliance on *Cellspin*¹⁵ is also unavailing. Patent Owner submits that in that case, the Federal Circuit found that “claims that use an environment—a computer, a mobile phone, etc.—to do significantly more than simply carry out an abstract idea are patent eligible.” PO Resp. 39–40 (citing 927 F.3d at 1319). Patent Owner concludes that its own claim 1 is patent eligible because like the claims in *Cellspin*, the challenged claims “recite a specific, plausibly inventive way of arranging devices and using protocols rather than the general idea of authorizing and then performing a financial transaction.” PO Resp. 40 (internal citations omitted).

The facts in *Cellspin* are not so analogous to this case to support a conclusion of patent eligibility. In *Cellspin*, it was allegedly unconventional to separate steps so that “each step would be performed by a different device,” such that the claimed “two-step, two-device structure . . . provided various benefits over prior art systems.” 927 F.3d at 1316–1317. No such unconventional structure exists here—the mobile device, server, and automatic retail machine each operate in a well known and conventional manner. Ex. 1001, 1:21–3:41. We also note that in *Cellspin*, the court determined that the asserted claims “use an environment—a computer, a mobile phone, etc.—to do significantly more than simply carry out an

¹⁵ *Cellspin Soft, Inc. v. FitBit, Inc.*, 927 F.3d 1306 (Fed. Cir. 2019).

abstract idea [and thus] are patent eligible . . . , *at least based on the allegations we must accept as true at this stage.*” 927 F.3d at 1319 (emphasis added). That is, the court did not hold that the claims were patent eligible *per se*. *See also id.* at 1318 (explaining that the court found “no basis, *at the pleadings stage*, to say that the[] claimed techniques, among others, were well-known or conventional as a matter of law”) (emphasis added). By contrast, our determination here is based on a full evidentiary record.

Accordingly, we determine that 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.

2. Analysis: Independent claims 14 and 21

Patent Owner argues that Petitioner does not meet its burden to show that claims 14 and 21 are unpatentable because it fails to address “the material distinctions” between the claims. PO Resp. 44–46; PO Sur-reply 14–15.

We agree that Petitioner has not met its burden. Petitioner fails to articulate, with particularity, why claims 14 and 21 are patent ineligible under § 101. *See generally* Pet. 19–26; *see also* Pet. Reply 5. Petitioner asserts that “[c]laims 14 and 21 recite substantially identical subject matter in apparatus and computer-readable medium form.” Pet. 22. Petitioner, thus, appears to rest on its arguments for claim 1.

Claims 14 and 21, however, recite additional elements not recited by claim 1. By way of example, claims 14 and 21 recite:

a first transceiver corresponding to a short-range communication mode, and a second transceiver, distinct from

the first transceiver, corresponding to a long-range communication mode distinct from the short-range communication mode

Ex. 1001, 34:44–48; 35:64–36:1. Petitioner does not address these claim elements in its patent eligibility analysis. *See generally* Pet. 19–26. We determine that Petitioner has failed to meet its burden to establish by a preponderance of the evidence that claims 14 and 21 are patent ineligible under § 101.

3. Analysis: Dependent claims

Petitioner’s argument regarding dependent claims 2–13, 15–20, and 22–27 is deficient for at least the same reasons as Petitioner’s arguments regarding claims 14 and 21. *See* PO Resp. 44–46; PO Sur-reply 14–15. The entirety of Petitioner’s argument reads:

the dependent claims do not recite any novel technical limitations or new technology. These claims merely recite the generic detection of a user’s proximity, the receipt of input through an interface, and the exchange of information.

Pet. 26.

As with claims 14 and 21, this argument fails to articulate, with particularity, why dependent claims 2–13, 15–20, and 22–27 are patent ineligible under § 101. By way of example, Petitioner does not address the limitations of claim 2, which recites:

2. The method of claim 1, wherein:

the transmission at least includes authorization zone threshold criterion; and after receiving the transmission, initiating a handshake process with the electronic payment device, wherein the handshake process includes:

sending, to the electronic payment device, mobile device information corresponding to the mobile device via a first transceiver of the mobile device; and

receiving, from the electronic payment device, electronic payment device information, wherein the electronic payment device information at least includes an identifier corresponding to the electronic payment device.

Ex. 1001, 2:35–49.

Accordingly, we determine that Petitioner has failed to meet its burden to establish by a preponderance of the evidence that claims 2–13, 15–20, and 22–27 are patent ineligible under § 101.¹⁶

C. *Claim Construction*

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.200(b) (2020). This standard requires that we construe claims “in accordance with the ordinary and customary meaning of such claim[s] as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*; see also *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Only those terms that are in controversy need be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); see also *Nidec Motor Corp. v. Zhongshan Broad*

¹⁶ 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 8–10; PO Sur-reply 16–18; 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>.

Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an AIA trial proceeding).

Petitioner proposes constructions of the following claim limitations:

1) “identifying the automatic retail machine based at least in part on a transmission received from an electronic payment device of the automatic retail machine” (“identifying limitation”);

2) “obtaining, from the electronic payment device, a request to preemptively obtain authorization to make funds available for a cashless transaction with the automatic retail machine” (“obtaining limitation”);

3) “detecting, by an application executing on the mobile device, a trigger condition to perform the cashless transaction with the automatic retail machine” (“detecting limitation”);

4) “authorization zone threshold criterion” (“authorization limitation”); and

5) “payment zone threshold criterion” (“payment limitation”).

Pet. 15–17. For each proposed construction, the Petition merely cites to the Declaration of Gerald Smith and does not provide any substantive explanation as to why we should adopt Petitioner’s proposed constructions. *See id.* (citing Ex 1003 ¶¶ 23–28).

At the institution stage, we determined that no claim term required explicit construction. Inst. Dec. 35–37. Petitioner does not challenge our determination or otherwise advance its claim constructions in its Reply. *See generally* Pet. Reply.

Patent Owner does not advance any explicit claim construction. PO Resp. 7–13. Regarding the identifying limitation, Patent Owner indicates that it is “undisputed between the parties that the claims require ***automatically*** determining the identity of the specific automatic retail machine based on an electronic transmission received from an electronic

payment device of that automatic retail machine.” *Id.* at 7–8 (emphasis in original, citing Ex. 2018, 3; Ex. 2016 ¶ 68).

Patent Owner submits that Petitioner’s constructions for each of the obtaining, authorization, and payment limitations should be rejected “for lacking accordance with the plain meaning of the claim in view of the specification” or “ignor[ing] the plain meaning of the term.” *Id.* at 9, 12, 13. As to the detecting limitation, Patent Owner argues that certain prior art asserted in the grounds in the Petition fails to teach the term as construed. *Id.* at 9.

We determine that we need not expressly construe these claim terms to resolve the parties’ disputes. *See Nidec*, 868 F.3d at 1017; *see also Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms... that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Patent Owner’s arguments regarding interpretation of the five terms identified above relate to the asserted grounds under §§ 102 and 103, which we find deficient for a reason unrelated to those terms. *See* PO Resp. 7–13; *infra* Sections II.G–I. Further, neither party argues that interpretation of the five terms impacts the asserted ground under § 101, analyzed above.

D. § 112 Lack of Enablement – Claims 1–27

Petitioner asserts that claims 1–27 lack enablement for the claimed “trigger condition” (Pet. 27–28) and that claims 2–6, 15–19, and 22–26 lack enablement for the authorization and payment zone “threshold criterion” limitations. *Id.* at 28–30; *see also* Pet. Reply 19–20. In the Institution Decision, we determined based on the record at the time that Petitioner had

not shown that the claims are more likely than not unpatentable for lack of enablement. Inst. Dec. 37–39.

Patent Owner argues that Petitioner’s “challenge is conclusory and incomplete, and fails to make any *prima facie* showing of lack of enablement.” PO Resp. 47. According to Patent Owner, Petitioner “fails to demonstrate that making or using the claimed invention would require undue experimentation in view of the nature of the invention, state of the art, level of ordinary skill, and level of predictability in the art” in the Petition. *Id.* at 46–47. Petitioner makes only a cursory mention of the enablement ground in its Reply, repeating the argument in the Petition and not addressing Patent Owner’s arguments (other than to state that the *Wands* factors are “illustrative, rather than mandatory”). Pet. Reply 19–20.

To be enabling, “the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’” *MagSil Corp. v. Hitachi Global Storage Techs., Inc.*, 687 F.3d 1377, 1380–81 (Fed. Cir. 2012).

The enablement requirement ensures that the public knowledge is enriched by the patent specification to a degree at least commensurate with the scope of the claims. The scope of the claims must be less than or equal to the scope of the enablement. The scope of enablement, in turn, is that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue experimentation. *National Recovery Techs. Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195–96 (Fed Cir. 1999).

Some experimentation, even a considerable amount, is not “undue” if, e.g., it is merely routine, or if the specification provides a reasonable amount of guidance as to the direction in which the experimentation should proceed. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

Factors to be considered in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Id. The above “*Wands* factors” are illustrative, rather than mandatory, and therefore, “all of the factors need not be reviewed when determining whether a disclosure is enabling.” *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 1371 (Fed. Cir. 1999).

To prevail in its challenge to Patent Owner’s claims, Petitioner must demonstrate that the claims are unpatentable and that burden never shifts to the patentee. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). The petitioner has the burden from the outset to show with particularity why a challenged patent claim is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016).

We agree with Patent Owner’s arguments regarding the conclusory nature of Petitioner’s enablement allegations. *See* PO Resp. 46–49. As set forth in the Petition, Petitioner’s enablement challenge is deficient—lacking sufficient analysis and evidence, and failing to comply with 35 U.S.C. § 322(a)(3) and 37 C.F.R. § 42.22(a)(2). *See* Pet. 27–29. Under 35 U.S.C. § 322(a)(3), a petition must “identif[y], in writing and *with particularity*, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim” (emphasis added). Similarly, 37 C.F.R. § 42.22(a)(2) requires each petition to include “[a] *full statement of the reasons* for the relief requested,

including a *detailed explanation* of the significance of the evidence including material facts, and the governing law, rules, and precedent” (emphases added).

Accordingly, we determine that Petitioner has not met its burden of showing by a preponderance of the evidence that claims 1–27 are unpatentable under 35 U.S.C. § 112(a) for lack of enablement.

E. § 112 Indefiniteness – Claims 1–27

Petitioner asserts that the “trigger condition” limitation recited in claims 1–27 (Pet. 30–31) and “threshold criterion” limitation recited in claims 2–6, 15–19, and 22–26 (*id.* at 31–32) are indefinite. *See also* Pet. Reply 19–20. In the Institution Decision, we determined based on the record at the time that Petitioner had not shown that the claims are more likely than not unpatentable as indefinite. Inst. Dec. 39–40.

Patent Owner argues that Petitioner’s challenges are conclusory and fail to satisfy Petitioner’s burden to show that the claims are indefinite. PO Resp. 49–53; *see also* PO Sur-reply 3–4. Again, Petitioner makes only a cursory mention of the indefiniteness ground in its Reply, repeating the argument in the Petition and not addressing Patent Owner’s arguments. Pet. Reply 19–20.

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).¹⁷

We agree with Patent Owner. *See* PO Resp. 49–53. Petitioner has failed to meet its burden to show with particularity why the challenged patent claims are unpatentable. *Harmonic*, 815 F.3d at 1363. The Petition’s indefiniteness challenge is deficient—lacking sufficient analysis and evidence to comply with 35 U.S.C. § 322(a)(3) and 37 C.F.R. § 42.22(a)(2). As set forth in the Petition, Petitioner’s analysis does not sufficiently show that claims 1–27 fail to particularly point out and distinctly claim the subject matter which the patentee regards as the invention.

Accordingly, we determine that Petitioner has not met its burden of showing by a preponderance of the evidence that claims 1–27 are unpatentable under 35 U.S.C. § 112(b) for being indefinite.

F. *Principles of Law – §§ 102 and 103*

A claim is anticipated under § 102(b) “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).

A claim is unpatentable under § 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 filed 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); 35 U.S.C.

¹⁷ Available at <https://www.uspto.gov/sites/default/files/documents/IndefinitenessMemo.pdf>.

§ 103 (“claimed invention as a whole would have been obvious before *the effective filing date* of the claimed invention”). 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) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Whether a combination of elements produces a predictable result weighs in the ultimate determination of obviousness. *Id.* at 416–417.

G. *Skowronek Grounds (Grounds 4–6)*

1. *Overview of Skowronek*

Skowronek is titled “Authorizations for Mobile Contactless Payment Transactions” and published on April 23, 2009. Ex. 1007, codes (43), (54). Skowronek describes a method “for processing electronic payments for retail services and goods delivered by [an] unattended retail device” by “leverag[ing] a consumer’s mobile appliance to send the transaction and payment information to an authorizing authority.” *Id.*, code (57).

Figure 4 of Skowronek is reproduced below.

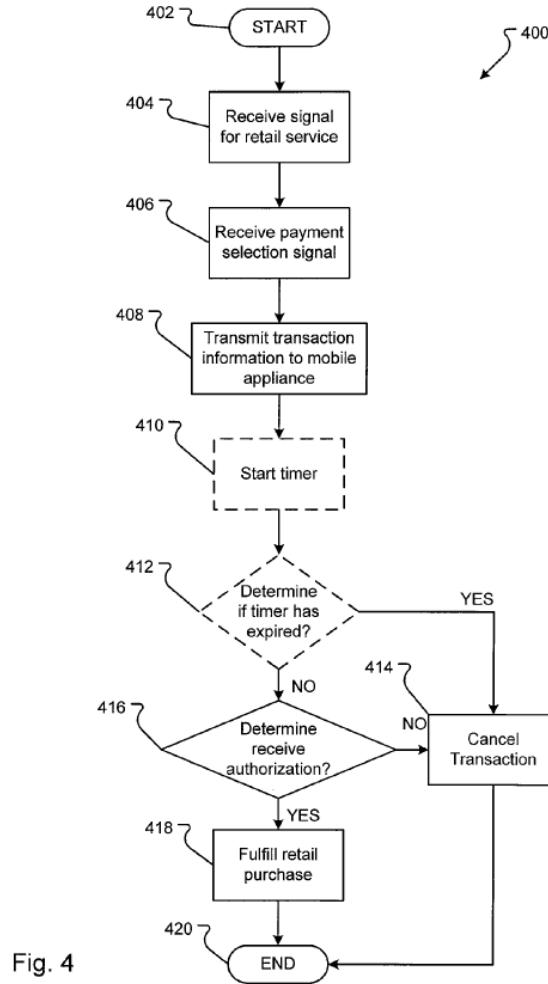


Fig. 4

Figure 4 depicts “a flow diagram of an embodiment of a process for authorizing contactless payment executed at an unattended retail device.”

Id. ¶ 10. In step 404, “a consumer may select a service or good provided by the unattended retail device 102.” *Id.* ¶¶ 26, 53. In step 406, the consumer selects what payment method the consumer wants to use. *Id.* ¶¶ 26, 54. In other embodiments, the consumer selects a payment type using eWallet 207 on mobile appliance 104. *Id.* ¶¶ 26, 54, 62. Transaction information, which includes transaction details, such as an amount and product details, is then sent via mobile appliance 200 to merchant processor 222 for authorization. *Id.* ¶¶ 46, 55–58, 63–74, Figs. 3A, 3B. If an authorization message is

returned, unattended retail device 202 provides the goods and services. *Id.* ¶ 58.

2. *Alleged Anticipation by Skowronek — Claims 1–7 and 10–27*

Petitioner contends that Skowronek anticipates claims 1–7 and 10–27.¹⁸ Pet. 32–53; *see also* Pet. Reply 20–22. Patent Owner disagrees. PO Resp. 54–58; PO Sur-Reply 4–6. The parties’ dispute centers on whether Skowronek discloses performing, or instructions for performing, the claimed steps “prior to user selection of any items or services provided by an automatic retail machine,” as recited in independent claims 1, 14, and 21.

Petitioner asserts that “Skowronek teaches that each of the remaining elements in claims 1, 14 and 21 can be carried out prior to user selection of any items or services provided by the automatic retail machine 102.” Pet. 35–36; Pet. Reply 20–22. The Petition does not cite any express teaching in support of this assertion; rather, Petitioner alleges that the “order of operations” disclosed in Skowronek “[can] be performed in any order.” Pet. 36 (citing Ex. 1007 ¶¶ 18, 52, 61).

In response, Patent Owner argues that contrary to the claimed invention, Skowronek teaches authorizing payment for a service or good *after* the service or good is selected. PO Resp. 54 (citing Ex. 1007 ¶¶ 16, 26–28). More specifically, Patent Owner contends that Skowronek teaches “gather[ing] the transaction information 508 *before* identifying payment type 516, creating payment information 522, and appending payment information to the transaction information 524 to send the information to the

¹⁸ In the Institution Decision, we determined based on the record at the time that Petitioner had not shown that the challenged claims are more likely than not unpatentable under any of the grounds asserting anticipation or obviousness. Inst. Dec. 41–51.

server 526 to obtain authorization 534.” *Id.* at 55 (citing Ex. 1007 ¶¶ 62–63, Fig. 5) (emphasis in original). Patent Owner also contends that “Skowronek’s generic disclosure that the order of *some* steps or operations *may* be performed in a different order does not explicitly or inherently describe obtaining an authorization grant from a server prior to user selection of any items or services.” *Id.* at 56 (citing Inst. Dec. 43–44).

We agree with Patent Owner. Independent claim 1 requires that the various method steps be performed “prior to user selection of any items or services provided by an automatic retail machine.” Ex. 1001, 33:9–11. The steps of the method require obtaining from the server an authorization grant. *Id.* at 33:15–27. Independent claims 14 and 21 require similar limitations. *Id.* at 34:43–35–10, 35:61–34:27.

Skowronek describes receiving inputs from the consumer for retail services, such as the selection of a soda or other item, before requesting payment authorization. *See* Ex. 1007 ¶¶ 38–39, 62–63, Fig. 4, steps 404, 406, 408, Figs. 5A–B, steps 508, 524, 532. Skowronek does not explicitly describe obtaining an authorization grant from a server prior to the user selection of any items or services.

Petitioner asserts that Skowronek’s “order of operations can be altered and performed in any order.” Pet. 36 (citing Ex. 1007 ¶¶ 18, 52, 61). Petitioner’s reliance upon the cited paragraphs of Skowronek is misplaced. The cited paragraphs of Skowronek may generically disclose that the order of *some* of the steps or operations *may* be performed in a different order in *some* circumstances. *See* Ex. 1007 ¶ 18 (“Although a flowchart may describe the operations as a sequential process, many of the operations can be performed in parallel or concurrently. In addition, the order of the operations may be rearranged.”), ¶ 52 (“While a logical order is shown in

FIG. 4, the steps shown or described can, in some circumstances, be executed in a different order than presented herein.”), ¶ 61 (“While a logical order is shown in FIG. 5, the steps shown or described can, in some circumstances, be executed in a different order than presented herein.”). Petitioner does not provide any sufficient explanation as to how this generic disclosure explicitly or inherently describes changing the order of the Skowronek’s operations such that an authorization grant is obtained from a server prior to the user selection of any items or services. “Because 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) (internal quotation marks omitted).

In its Reply, Petitioner argues that Skowronek is anticipatory because “a [person of ordinary skill in the art (POSITA)], reading Skowronek, would ‘at once envisage’ the step of preemptively obtaining and storing an authorization grant in the mobile device to be used at the customer’s convenience and discretion, as demonstrated, for example, in step 504 (Fig. 5A) in [Skowronek].” Pet. Reply 20–21 (citing *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376 (Fed. Cir. 2015)). Petitioner further argues that Skowronek “explicit[ly] state[s] that the authorization grant is obtained from a server prior to user selection.” *Id.* at 21 (citing Ex. 1003 ¶¶ 140–141; Ex. 1007 ¶¶ 16, 62).

Petitioner’s reliance on *Kennametal* is misplaced. The Federal Circuit has made clear that “*Kennametal* does not stand for the proposition that a reference missing a limitation can anticipate a claim if a skilled artisan

viewing the reference would ‘at once envisage’ the missing limitation. Rather, *Kennametal* addresses whether the disclosure of a limited number of combination possibilities discloses one of the possible combinations. . . . *Kennametal* does not permit the Board to fill in missing limitations simply because a skilled artisan would immediately envision them.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1274–75 (Fed. Cir. 2017). Contrary to Petitioner’s argument, neither step 504 of Skowronek, nor the corresponding disclosure in paragraph 62 disclose the missing limitation. These paragraphs, when read in context of the remaining disclosure, indicate that the transaction information, including services or goods, are selected prior to the authorizing steps performed in Figure 5. For example, paragraph 16 states:

[A]n unattended retail device leverages a consumer’s mobile appliance *to send the transaction and payment information to a merchant processing authority*. The merchant payment processing authority (“merchant processor”) *then* sends the transaction and payment information on to a consumer payment authorizing authority. *The consumer payment authorizing authority receives the payment and transaction information*, authorizes or declines the payment of the transaction, and forwards the authorization or declination to the merchant payment processing authority. The merchant payment processing authority *then* forwards the authorization or declination to the mobile appliance. The mobile appliance then sends the authorization or declination to the unattended retail device.

Ex. 1007 ¶ 16 (emphases added). That is, transaction and payment information is obtained *before* it is sent to the merchant processing authority, which then sends it to the authorizing authority. Paragraph 26 states:

In operation, *a consumer may select a service or good provided by the unattended retail device* 102. For example, the consumer selects a soda from a vending machine. The unattended retail

device 102, in embodiments, requires payment. In an embodiment, the consumer uses his or her mobile appliance 104 to start a credit or debit transaction. In an alternative embodiment, the unattended retail device 102 begins the transaction.

Id. ¶ 26 (emphasis added).

That is, regardless of whether the unattended retail device or mobile appliance starts the transaction, the consumer selects the service or good, prior to such a transaction and thus prior to authorization. Accordingly, we find that Petitioner has failed to establish by a preponderance of the evidence that claims 1–7 and 10–27 are anticipated by Skowronek.

3. *Obviousness over Skowronek and Räsänen — Claims 8 and 9*

Because claims 8 and 9 depend, either directly or indirectly, from claim 1, Petitioner has not shown by a preponderance of the evidence that claims 8 and 9 are unpatentable based on Skowronek and Räsänen. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.”). Petitioner does not rely upon Räsänen to cure the above deficiency of Skowronek. *See* Pet. 53–55.

4. *Obviousness over Skowronek and Westerman — Claims 12 and 13*

Because claims 12 and 13 depend, either directly or indirectly, from claim 1, Petitioner has not shown by a preponderance of the evidence that claims 12 and 13 are unpatentable based on Skowronek and Westerman. *See In re Fritch*, 972 F.2d at 1266. Petitioner does not rely upon Westerman to cure the above deficiency of Skowronek. Pet. 55–56.

H. *Behjat and Kamat Grounds (Grounds 7–10)*

1. *Overview of Behjat*

Behjat is titled “Using Optical Representations Communicated To or From a Mobile Device” and published on May 23, 2013. Ex. 1008, codes (43), (54). Behjat discloses using an optical representation for communication during a financial transaction with mobile devices. *Id.* ¶ 174. For example, Behjat discloses a customer registering with a company on its website, including by uploading credit card information, and then downloading the company’s app to their smartphone. *Id.* ¶ 234. When making a purchase at the checkout counter of a retail location, the customer opens the app, chooses a credit card to use, and inputs a PIN and a purchase price. *Id.* A Quick Response (“QR”) code image then appears on the smartphone. *Id.* A clerk then scans the QR code into the retailer’s point-of-sale (“POS”) system and processes the information in the same manner as credit/debit card information is currently being processed. *Id.*

2. *Alleged Obviousness over Behjat and Kamat — Claims 1, 7, 10, 11, 14, 20, 21, and 27*

Petitioner contends that Behjat and Kamat render obvious claims 1, 7, 10, 11, 14, 20, 21, and 27. Pet. 56–66; *see also* Pet. Reply 23–25. In particular, Petitioner asserts that “Behjat teaches performing and processing an authorization request without requiring an item to be pre-selected.” *Id.* at 56 (citing Ex. 1008 ¶ 207), 58 (additionally citing Ex. 1008 ¶ 171).

Patent Owner disagrees and responds that “these references explicitly teach that the user selects an item for purchase *before* authorization is obtained.” PO Resp. 63–64 (citing Ex. 1009 ¶¶ 85–87, Fig. 5); PO Sur-reply 6–8.

Petitioner cites to paragraph 171 of Behjat. Pet. 58–59. In its summary section, Behjat states:

[0171] 122. A method comprising

[0172] enabling a mobile device, which is in the vicinity of a vending device, to permit the vending device to confirm indirectly with a payment processor, a payment from an account of a holder of the mobile device for an item or service being sold from the passive vending device to the holder, without the vending device confirming the payment directly with the payment processor,

[0173] the mobile device *optically sensing an identity of the item or service and its price as provided optically by the vending device*, executing the payment from the account, and providing an authentic indication to the vending device that the payment has been executed.

Ex. 1008 ¶¶ 171–173 (emphasis added). Contrary to Petitioner’s argument, as can be seen from the above, the cited paragraphs of Behjat describe optically sensing an identity of an item or service and its price and then executing payment. *Id.* ¶ 173.

Petitioner also cites to paragraph 207 of Behjat. Pet. 56. Behjat’s paragraph 207 discloses that the user can use its system on a subscription or one-time basis “or in some cases only by pre-arrangement.” Ex.1008 ¶ 207. Petitioner, however, does not provide any sufficient explanation as to how this discloses performing the steps of the claimed method prior to user selection of any items or services. *See generally* Pet. 56–58.

Petitioner also asserts that “Kamat teaches prior to user selection of any items or services provided by an automatic retail machine 20” because “Kamat discloses that any disclosed functions may occur out of the order noted in the Figures.” Pet. 58 (citing Ex. 1009 ¶ 42). In its Reply, Petitioner suggests that Kamat discloses the claimed feature with corresponding

argument that Kamat “can be an anticipating reference.” Pet. Reply 23 (citing *Kennametal*).

Petitioner’s reliance on *Kennametal* is unavailing for the same reasons discussed above with respect to the Skowronek Grounds.

Paragraph 42 of Kamat states:

It should also be noted that, in some alternative implementations, the functions noted in the block may occur out of the order noted in the Figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, *depending upon the functionality involved*.

Ex. 1009 ¶ 42 (emphasis added). Petitioner does not provide any sufficient explanation as to how this generic disclosure describes changing the order of Kamat’s operations such that an authorization grant is obtained from a server prior to the user selection of any items or services and does not provide any explanation as to how this teaching would apply to Behjat. *See generally* Pet. 56–58.

Petitioner also argues that “[p]erforming process steps in any order is *prima facie* obvious in the absence of new or unexpected results.” Pet. Reply 23. Initially, we note that Petitioner raises this argument for the first time in its Reply. *See generally* Pet. “While replies and sur-replies can help crystalize issues for decision, a reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered.” TPG 74; *see also* 37 C.F.R. § 42.23(b); *Intelligent Bio-Sys.*, 821 F.3d at 1369–70. Nonetheless, as Patent Owner correctly notes, the burden of persuasion never shifts to Patent Owner. PO Sur-reply 6–7 (citing *In re Magnum Oil Tools Int’l, Inc.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016)). Petitioner provides no sufficient evidence that the disputed step was known and used in Behjat or Kamat.

Absent a teaching of all the claimed steps in the prior art, there is also no disclosure of an original order of steps for the artisan to rearrange into the claimed order of steps, and consequently nothing obvious about the claimed order of steps.

Accordingly, we determine that Petitioner has not met its burden of showing by a preponderance of the evidence that claims 1, 7, 10, 11, 14, 20, 21, and 27 are unpatentable over Behjat and Kamat.

3. *Obviousness over Behjat, Kamat, and Linde — Claims 2–6, 15–19, and 22–26*

Because claims 2–6, 15–19, and 22–26 depend, either directly or indirectly, from claims 1, 14, and 21, Petitioner has not shown by a preponderance of the evidence that claims 2–6, 15–19 and 22–26 are unpatentable based on Behjat, Kamat, and Linde. *See In re Fritch*, 972 F.2d at 1266. Petitioner does not rely upon Linde to cure the above deficiency of Behjat and Kamat. *See* Pet. 66–72.

4. *Obviousness over Behjat, Kamat, and Räsänen — Claims 8 and 9*

Because claims 8 and 9 depend, either directly or indirectly, from claim 1, Petitioner has not shown by a preponderance of the evidence that claims 8 and 9 are unpatentable based on Behjat, Kamat, and Räsänen. *See In re Fritch*, 972 F.2d at 1266. Petitioner does not rely upon Räsänen to cure the above deficiency of Behjat and Kamat. *See* Pet. 72–73.

5. *Obviousness over Behjat, Kamat, and Westerman — Claims 12 and 13*

Because claims 12 and 13 depend, either directly or indirectly, from claim 1, Petitioner has not shown by a preponderance of the evidence that claims 12 and 13 are unpatentable based on Behjat, Kamat, and Westerman.

See In re Fritch, 972 F.2d at 1266. Petitioner does not rely upon Westerman to cure the above deficiency of Behjat and Kamat. Pet. 73–74.

I. *Insolia* Grounds (Grounds 11–14)

1. Overview of Insolia

Insolia is titled “Virtual Vending Machine in Communication with a Remote Data Processing Device” and published on December 10, 2009. Ex. 1014, codes (43), (54). Insolia discloses a vending machine with vending bridge 500 having virtual equipment modules. *See id.* ¶¶ 45, 47–48. One of the virtual equipment modules is virtual payment center 708I that manages remote acceptance of coins, bills, and cashless transactions. *Id.* ¶¶ 57, 62. In one embodiment, Insolia discloses a vending cycle where a consumer uses personal data device 108 or payment icon 600 to make a purchase. *Id.* ¶ 134.

Figure 5 of *Insolia* is reproduced below.

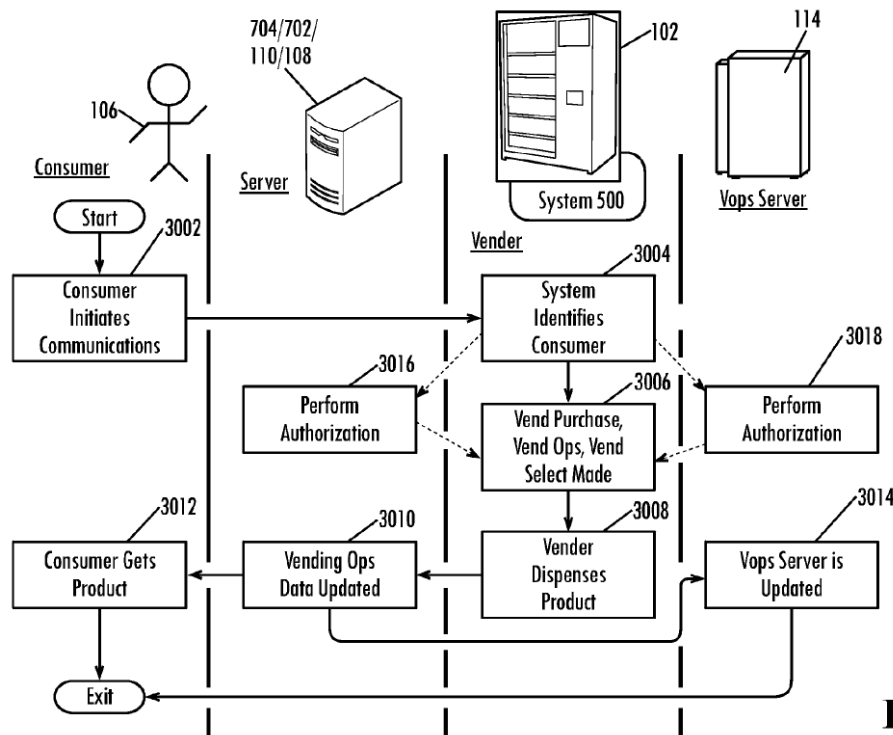


Fig. 5

Figure 5 depicts “one example of a method of a consumer-vender transaction, having optional transaction authorization and vending operations server update support.” *Id.* ¶ 30. “In block 3006, the vending bridge 500 allows products or services to be selected.” *Id.* ¶ 136. “In block 3016, an authorization of consumer identification, payment, or other authorization optionally may be performed by the server 702, 704, 110, 108.” *Id.* ¶ 138. “In block 3018, an authorization of consumer identification, payment, or other authorization optionally may be performed by the vending operations server 114.” *Id.*

2. *Alleged Obviousness over Insolia, Atkinson, and Lei — Claims 1, 7, 10, 11, 14, 20, 21, and 27*

Petitioner contends that Insolia, Atkinson, and Lei render obvious claims 1, 7, 10, 11, 14, 20, 21, and 27. Pet. 74–89. In particular, Petitioner asserts that Insolia teaches using a mobile device to perform payment processing prior to user selection of any items or services provided by an automatic retail machine. Pet. 77 (citing Ex. 1014 ¶¶ 134–138, Fig. 5).¹⁹

Petitioner also asserts that Insolia and Atkinson teach the prior to user selection of any items or services provided by an automatic retail machine limitation. Pet. 78–79 (citing Ex. 1014 ¶ 175; Ex. 1015 ¶ 42). Paragraph 175 of Insolia states:

The flow diagrams depicted herein are just examples. There may be many variations to these diagrams or the steps (or operations) described therein without departing from the spirit of the invention. For instance, the steps may be performed in a differing order, or the steps may be added, deleted or modified.

Ex. 1014 ¶ 175.

¹⁹ Petitioner does not provide any additional arguments concerning this ground in Petitioner’s Reply. *See generally* Pet. Reply; PO Sur-reply 9.

Patent Owner argues that Figure 5 describes an embodiment in which, “the vending bridge 500 ‘*identifies the consumer 106*’ and then, ‘[i]n block 3006, the vending bridge 500 allows products or services to be selected’ using the personal data device 108 or payment icon 600 . . . The vending bridge 500 then ‘dispenses the selected products or services.’” PO Resp. 71 (citing Ex. 1014 ¶¶ 135–136). Patent Owner further argues that the “transaction authorization” and “vending operations server update support” of Figure 5 are merely “optional.” *Id.* (citing Ex. 1014 ¶¶ 30, 133–134; Ex. 2016 ¶¶ 171, 105–107).

Insolia discloses that “[p]rocessing then moves to block 3006, block 3016, or block 3018 for authorization” after “consumer 106 initiates communications with the vending bridge 500 to transact a vending cycle” and “the vending bridge 500 identifies the consumer 106 and communicates with the consumer’s personal data device 108 or payment icon 600” (Ex. 1014 ¶ 135); but, Petitioner does not sufficiently explain how this disclosure teaches obtaining an authorization grant before the consumer selects the product or service. Nor does Petitioner sufficiently explain how Insolia’s generic disclosure that the disclosed diagrams and steps may be varied, teaches changing the order of Insolia’s operations such that an authorization grant is obtained from a server prior to the user selection of any items or services. *See generally* Pet. 78–79. Paragraph 42 of Atkinson does not address authorizing a payment prior to a user selection of items or services. Ex. 1015 ¶ 42.

Accordingly, we determine that Petitioner has not met its burden of showing by a preponderance of the evidence that claims 1, 7, 10, 11, 14, 20, 21, and 27 are unpatentable over Insolia, Atkinson, and Lei.

3. *Obviousness over Insolia, Atkinson, Lei, and Linde — Claims 2–6, 15–19, and 22–26*

Because claims 2–6, 15–19, and 22–26 depend, either directly or indirectly, from claims 1, 14, and 21, Petitioner has not shown by a preponderance of the evidence that claims 2–6, 15–19 and 22–26 are unpatentable based on Insolia, Atkinson, Lei, and Linde. *See In re Fritch*, 972 F.2d at 1266. Petitioner does not rely upon Linde to cure the above deficiency of Insolia, Atkinson, and Lei. *See* Pet. 89–92.

4. *Obviousness over Insolia, Atkinson, Lei, and Räsänen — Claims 8 and 9*

Because claims 8 and 9 depend, either directly or indirectly, from claim 1, Petitioner has not shown by a preponderance of the evidence that claims 8 and 9 are unpatentable based on Insolia, Atkinson, Lei, and Räsänen. *See In re Fritch*, 972 F.2d at 1266. Petitioner does not rely upon Räsänen to cure the above deficiency of Insolia, Atkinson, and Lei. *See* Pet. 92–93.

5. *Obviousness over Insolia, Atkinson, Lei, and Westerman — Claims 12 and 13*

Because claims 12 and 13 depend, either directly or indirectly, from claim 1, Petitioner has not shown by a preponderance of the evidence that claims 12 and 13 are unpatentable based on Insolia, Atkinson, Lei, and Westerman. *See In re Fritch*, 972 F.2d at 1266. Petitioner does not rely upon Westerman to cure the above deficiency of Insolia, Atkinson, and Lei. Pet. 93–94.

III. MOTION TO EXCLUDE

Petitioner moves to exclude the Declaration of Dr. Michael I. Shamos (Ex. 2016). Mot. 2. Petitioner requests that Exhibit 2016 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 and his testimony is entirely unsupported by “independent evidence, principles, or methods.” Mot. 2. Petitioner further requests that Exhibit 2016 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 17–26 and 97–100.” *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. 2–3. 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. 2017 (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, or a related/equivalent field. *See* II.A, *supra*. Dr. Shamos possesses a Ph.D. in Computer Science (Ex. 2017, 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 four years of work experience in identity, transaction, and telecommunication solutions. We are satisfied that Dr. Shamos possesses the requisite level of experience. *See, e.g.*, Ex. 2017, 1, 2 (experience as Director of eBusiness Technology, instructor of Ecommerce technology, instructor of electronic payment systems); *see also* Ex. 1026, 176:4–8

(Dr. Shamos’s unequivocal testimony that he has “[p]lenty more than” at least four years of work experience in identity, transaction, and telecommunication solutions). Petitioner’s attempt to undermine Dr. Shamos’s testimony based on his alleged lack of experience in cellular phone technologies, recent experience as a “full-time computer scientist” (Mot. 6), or “developing payment authorization 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 experience.

As to Petitioner’s second argument that Dr. Shamos’s testimony should be excluded because it “fails to refer to any document outside of Petitioners’ prior art references,” is “unsupported by additional evidence,” and “contradicts many basic tenets cited in the evidence already of record” (Mot. 9–10), these arguments go to the credibility and/or sufficiency of Dr. Shamos’s testimony, not its admissibility. A motion to exclude is not the proper vehicle to challenge the sufficiency of the evidence to prove a particular fact. *See* TPG, 79. Rather, it is within our discretion to assign the appropriate weight to be accorded to evidence. *See, e.g., Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (holding Board has discretion to give more weight to one item of evidence over another “unless no reasonable trier of fact could have done so”); *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”); *Velandier v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003) (“In giving more weight to prior publications than to subsequent conclusory statements by experts, the Board acted well within [its] discretion.”).

As to Petitioner's final 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 2016, the testimony of Dr. Shamos, is denied.

IV. CONCLUSION²⁰

For the reasons given, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 of the '833 patent is unpatentable. Petitioner has not met its burden with respect to claims 2–27.

Our determinations are summarized below:

Claims Challenged	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–27	101	Subject Matter Eligibility	1	2–27
1–27	112(a)	Lack of Enablement		1–27
1–27	112(b)	Indefiniteness		1–27
1–7, 10–27	102	Skowronek		1–7, 10–27
8, 9	103	Skowronek, Räsänen		8, 9

²⁰ 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).

Claims Challenged	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
12, 13	103	Skowronek, Westerman		12, 13
1, 7, 10, 11, 14, 20, 21, 27	103	Behjat, Kamat		1, 7, 10, 11, 14, 20, 21, 27
2–6, 15–19, 22–26	103	Behjat, Kamat, Linde		2–6, 15–19, 22–26
8, 9	103	Behjat, Kamat, Räsänen		8, 9
12, 13	103	Behjat, Kamat, Westerman		12, 13
1, 7, 10, 11, 14, 20, 21, 27	103	Insolia, Atkinson, Lei		1, 7, 10, 11, 14, 20, 21, 27
2–6, 15–19, 22–26	103	Insolia, Atkinson, Lei, Linde		2–6, 15–19, 22–26
8, 9	103	Insolia, Atkinson, Lei, Räsänen		8, 9
12, 13	103	Insolia, Atkinson, Lei, Westerman		12, 13
Overall Outcome			1	2–27

V. ORDER

ORDERED that Petitioner has shown by a preponderance of the evidence that claim 1 of the '833 patent is unpatentable;

FURTHER ORDERED that Petitioner has not shown by a preponderance of the evidence that claims 2–27 of the '833 patent are unpatentable; 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.

PGR2021-00077
Patent 10,719,833 B2

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