

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

UNILOC 2017 LLC,
Patent Owner

Case No. IPR2017-01993
Patent No. 9,414,199 B2

PETITIONERS' NOTICE OF APPEAL

Pursuant to 37 C.F.R § 90.2(a) and 35 U.S.C. § 142, Petitioner Apple Inc. (“Petitioner”) hereby gives notice that it appeals the Patent Trial and Appeal Board’s (“Board’s”) Final Written Decision, entered on March 6, 2019 (Paper No. 25) in the above-captioned *inter partes* review of United States Patent No. 9,414,199 (the “’199 Patent”) to the United States Court of Appeals for the Federal Circuit, including all underlying orders, decisions, rulings, and opinions that are adverse to Petitioner.

For the limited purpose of providing the Director with the information requested in 37 C.F.R § 90.2(a)(3)(ii), Petitioner’s issues on appeal may include, but are not limited to: (1) the Board’s construction of the claim phrase “within the predetermined maximum amount of time” and other related claim language; (2) the Board’s application of its construction to the prior art of record; (3) the Board’s determination of patentability of claims 1-2 of the ’199 Patent under 35 U.S.C § 103 in view of Blegen and Monteverde; (4) the Board’s determination of patentability of claims 3-5 of the ’199 Patent under 35 U.S.C § 103 in view of Blegen, Monteverde, and Schmidt; (5) the Board’s determination of patentability of claims 1-5 of the ’199 Patent under 35 U.S.C § 103 in view of Charlebois and Gillies; (6) the Board’s determination of patentability of claims 1-5 of the ’199 Patent under 35 U.S.C § 103 in view of Charlebois, Gillies, and Froloff; (7) the

Board's legal errors in undertaking its claim construction and obviousness analyses; (8) the Board's findings that conflict with the evidence of record and are not supported by substantial evidence; and (9) any findings or determinations supporting or related to the aforementioned issues as well as all other issues decided adversely to Apple Inc. in any orders, decisions, rulings, phone conference decisions, and/or opinions.

Simultaneously with this submission, Petitioner is filing a true and correct copy of this Notice of Appeal with the Director of the United States Patent and Trademark Office and a true and correct copy of the same, along with the required docketing fee, with the Clerk of the United States Court of Appeals for the Federal Circuit.

Respectfully submitted,

Date: March 8, 2019

/s/ Xin-Yi Zhou

Xin-Yi Zhou (Reg. No. 63,366)

Counsel for Petitioner Apple Inc.

CERTIFICATE OF SERVICE

In accordance with 37 CFR § 90.2(a)(1) and § 104.2, I hereby certify that on March 8, 2019, in addition to being filed electronically through the Board's E2E System, a true and correct copy of the foregoing **Petitioner's Notice of Appeal** was served by express overnight mail on the Director of the United States Patent and Trademark Office, at the following address:

Director of the United States Patent and Trademark Office
c/o Office of the General Counsel
P.O. Box 1450
Alexandria, Virginia 22313-1450

CERTIFICATE OF SERVICE

I hereby certify that on March 8, 2019, a true and correct copy of the foregoing **Petitioner's Notice of Appeal**, along with a copy of the Final Written Decision, was filed electronically with the Clerk's Office of the United States Court of Appeals for the Federal Circuit, at the following address:

United States Court of Appeals for the Federal Circuit
717 Madison Place, N.W., Suite 401
Washington, DC 20005

CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(1), the undersigned certifies that on March 8, 2019, a true and correct copy of the foregoing **Petitioner's Notice of Appeal** was served via email to the Patent Owner by serving the email correspondence addresses of record as follows:

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FINAL WRITTEN DECISION

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

UNILOC 2017 LLC,
Patent Owner.

Case IPR2017-01993
Patent 9,414,199 B2

Before MIRIAM L. QUINN, KERRY BEGLEY, and
CHARLES J. BOUDREAU, *Administrative Patent Judges*.

QUINN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

We instituted *inter partes* review pursuant to 35 U.S.C. § 314 to review claims 1–5 of U.S. Patent No. 9,414,199 B2 (“the ’199 patent”), owned by Uniloc 2017 LLC. We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has not shown by a preponderance of the evidence that claims 1–5 of the ’199 patent are unpatentable.

II. BACKGROUND

A. THE ’199 PATENT

1. Disclosure

The ’199 patent is directed to methods and systems for delivery of information, such as advertisements, from a server to user devices based on “the current location” as well as “predicted future locations” of the devices. Ex. 1001, [57], 1:30–33, 2:39, 3:10–19. The server gathers location information from user devices “[o]ver time” and “uses the gathered location information to periodically predict future locations of the devices.” *Id.* at 1:33–36, 3:15–19. Upon determining that a “device is likely to be in one [or more] predetermined locations within [a] predetermined maximum amount of time with at least the predetermined minimum likelihood,” the server performs one or more actions, such as “sending a promotion or advertisement” to the device. *Id.* at 1:37–46. For example, a department store manager seeking to send a promotional code to anyone who is at least 50% likely to visit a competing store within one hour can specify the “locations of all competing stores within a five-mile radius” as the “one or more predetermined locations,” “50% as the predetermined minimum

likelihood,” and “one hour as the predetermined maximum amount of time.” *Id.* at 1:52–61. “The manager can also specify days and times at which the actions are applicable,” for example, during store hours. *Id.* at 1:61–64.

In a disclosed embodiment, server 106 maintains location data record 300 for user device 102A, which includes location reports 304 identifying location 306 of the device at various dates and times. *Id.* at 4:22–29, Fig. 3. Server 106 also stores location-based action records 400, each with trigger event 402. *Id.* at 4:34–42. “[T]rigger event 402 specifies, as a condition for performance of action 404 . . . , that user device 102A must be determined to be at least as likely as threshold likelihood 502 . . . to be at any of applicable locations 506 within an amount of time represented by threshold time 504.” *Id.* at 4:54–58. “In essence, trigger event 402 asks whether user device 102A is likely to be in any of a number of locations within a predetermined amount of time in the future.” *Id.* at 4:44–47.

Server 106, in processing location-based action record 400, generally uses two predictive patterns to determine “the likelihood of user device 102A . . . be[ing] in a particular place at a particular time.” *Id.* at 5:4–7, 5:15–19. Specifically, server 106 analyzes location data record 300 of user device 102A for “location patterns” associated with: (1) “times of day, days of the week, days of the month, and days of the year,” and (2) “other locations of user device 102A.” *Id.* at 5:15–22, 5:32–34. If trigger event 402 of location-based action record 400 is satisfied, server 106 performs action 404, such as sending a message to user device 102A. *Id.* at 4:59–64, 6:8–12; *see id.* at 4:29–33.

2. Prosecution History

During prosecution of the ’199 patent, the Examiner issued a Final Rejection of claims 1–5—as subsequently issued—under 35 U.S.C. § 103

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over U.S. Patent Application Publication Nos. 2013/0036165 A1 (“Tseng”) and 2005/0249175 A1 (“Nasu”). Ex. 1002, 55–56, 70–72. Patent Owner appealed the rejection to the Board. *Id.* at 46.

On June 1, 2016, the Board reversed the Examiner’s rejection. *Id.* at 19–24. The Board explained that “in the context of” claim 1 and the specification, the term “predetermined likelihood” “refers to the probability or the percentage likelihood that a mobile device will be at a predicted location in the future.” *Id.* at 23. The Board disagreed with the Examiner that the term could “be broadly interpreted to encompass” Tseng’s “interest value” and “relevance score,” because—in contrast to the claimed “predetermined likelihood”—these elements relate to a user’s personal interest in and preference for different categories of items. *Id.* at 22–24, 43.

The Examiner then issued a Notice of Allowability. *Id.* at 4–8.

B. ILLUSTRATIVE CLAIM

Challenged claim 1, reproduced below, is the sole independent claim of the ’199 patent, and is illustrative of the recited subject matter:

1. A method for delivering information to two or more user devices, the method comprising:
 - retrieving the information from one or more data records that associate the information with one or more predetermined locations, a predetermined maximum amount of time, a predetermined likelihood, and one or more predetermined actions; and
 - for each of the two or more user devices:
 - predicting whether the user device will be at any of the one or more predetermined locations within the predetermined maximum amount of time with at least the predetermined likelihood; and
 - in response to the predicting that the user device will be at any of the one or more predetermined locations within the predetermined maximum amount of time with at least the

predetermined likelihood, performing the one or more predetermined actions;
wherein at least one of the actions includes delivering the information to the user device.

Ex. 1001, 8:7–25. We refer to the steps of claim 1 as the retrieving step, the predicting step, and the performing step, respectively.

C. PROCEDURAL HISTORY

Petitioner, Apple Inc., filed a Petition for *inter partes* review challenging claims 1–5 of the ’199 patent. Paper 1 (“Pet.”). Patent Owner, Uniloc 2017 LLC, filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). On March 8, 2018, we determined that Petitioner had shown a reasonable likelihood of prevailing on its unpatentability challenge as to all the challenged claims, but not on all asserted grounds. Paper 10 (“Dec. on Inst.”). On April 24, 2018, the Supreme Court held that a decision to institute under U.S.C. § 314 may not institute on fewer than all claims challenged in a petition. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018). In light of the Board’s Guidance on the Impact of SAS on AIA Trial Proceedings, posted to the Office’s website on April 26, 2018,¹ we modified our Institution Decision to institute on all claims and all grounds. Paper 13.

During trial, Patent Owner filed a Patent Owner Response (Paper 14 (“PO Resp.”)) and Petitioner filed a Reply (Paper 15 (“Reply”)). Patent Owner requested authorization to file a Sur-reply, which we granted. (Paper 18 (“Sur-reply”)). We heard oral argument on December 4, 2018, a transcript of which is filed in the record. Paper 24 (“Tr.”).

¹ See <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>.

D. EVIDENCE OF RECORD

The Petition relies upon U.S. Patent Application Publication Nos.: 2009/0125321 A1 (published May 14, 2009) (Ex. 1007, “Charlebois”); 2010/0082397 A1 (published Apr. 1, 2010) (Ex. 1004, “Blegen”); 2010/0151882 A1 (published June 17, 2010) (Ex. 1008, “Gillies”); 2012/0089465 A1 (published Apr. 12, 2012) (Ex. 1009, “Froloff”); 2012/0226554 A1 (published Sept. 6, 2012) (Ex. 1006, “Schmidt”); and 2012/0259704 A1 (published Oct. 11, 2012) (Ex. 1005, “Monteverde”). In addition, Petitioner supports its contentions with the Declaration of Gabriel Robins, Ph.D. (Ex. 1003) (“Robins Decl.”).

E. INSTITUTED GROUNDS OF UNPATENTABILITY

The following grounds of unpatentability are at issue. Pet. 3; Paper 13.

Challenged Claims	Basis	References
1, 2	§ 103	Blegen and Monteverde
3–5	§ 103	Blegen, Monteverde, and Schmidt
1–5	§ 103	Charlebois and Gillies
1–5	§ 103	Charlebois, Gillies, and Froloff

III. ANALYSIS

A. CLAIM CONSTRUCTION

The Board interprets claim terms of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent.” 37 C.F.R. § 42.100(b) (2017);² *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). We presume a claim term carries its “ordinary

² A recent amendment to this rule does not apply here because the Petition was filed before November 13, 2018. *See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42).

and customary meaning,” which is the meaning “the term would have to a person of ordinary skill in the art” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (citation omitted).

In our Decision on Institution, on the “underdeveloped” record on the issue before us at that stage of the proceeding, we preliminarily disagreed with Patent Owner’s assertion in the Preliminary Response that the phrase “within the predetermined maximum amount of time,” in the predicting step of independent claim 1, is limited to a “predetermined maximum amount of time” that extends *from the present*. Dec. on Inst. 6, 9 & n.1. In other words, we preliminarily determined that the claim language and the specification had not been shown, based on the pre-institution briefing, to support the notion that a window of time from which the “predetermined maximum amount of time” is derived must extend from the present time. We reasoned that the specification may reasonably convey that the disclosed predetermined amount of time may begin at any time “in the future.” *Id.* at 8–9.

Both parties briefed the scope of this phrase. Patent Owner argues that the word “within” in the claim language carries significance. PO Resp. 6. In particular, Patent Owner posits that the plain and ordinary meaning of “within” and the surrounding claim language convey a temporal reference for deriving the predetermined maximum amount of time from a window of time. *Id.* According to Patent Owner, the claim language refers to a duration of time (i.e., “predetermined maximum amount of time”) that begins with the predicting calculation and ends when the “predetermined maximum amount of time” expires. *Id.* This plain and ordinary reading of the claim language, Patent Owner argues, means that the “predetermined

maximum amount of time” is a duration of time “starting from the present.”
Id. at 7.

Petitioner, in contrast, argues that the specification contradicts Patent Owner’s position. Reply 5–6. In particular, Petitioner focuses on an example, which Petitioner refers to as the “department store” example, in which a store manager requests a transmission of advertisements to users who are likely to visit a competitor of the department store “within the hour,” *or* the “manager can also specify days and times at which the actions are applicable, e.g., only during hours at which the new department store is open.” Reply 5 (citing Ex. 1001, 1:52–64). According to Petitioner, the department store example offers two options for a “predetermined maximum amount of time”: (1) a one-hour duration that starts from the present or (2) a time period (or time window) that begins and ends in the future. *Id.* at 5–6. Petitioner proffers another example in the specification, the “restaurant” example, in which the “predetermined maximum amount of time,” according to Petitioner, can be specified as “week days from 11:30 am to 2:00 pm,” which includes time windows starting in the future. *Id.* at 6 (citing Ex. 1001, 2:17–27).

Having reviewed the full record developed at trial, including the parties’ respective positions and the evidence cited in support, we now agree with Patent Owner’s interpretation of the claim language—“within the predetermined maximum amount of time” in the predicting step—as requiring that the duration of time or time period starts when the predicting is performed. The claim language alone supports this interpretation. The retrieving step of claim 1 requires that a record associate the information, e.g., an advertisement, with four elements: one or more predetermined

locations, a predetermined maximum amount of time, a predetermined likelihood, and one or more predetermined actions. The predicting step, in turn, requires, for each user device, predicting “whether the user device will be at any of the one or more predetermined locations within the predetermined amount of time with at least the predetermined likelihood.” Finally, in response to the predicting step, the action(s) are performed.

The method of claim 1 thereby refers to the “predetermined maximum amount of time” in two separate events. The first event refers to the data record that contains the “predetermined maximum amount of time.” In this instance, the “predetermined maximum amount of time” has been recorded in this data record at some point prior to the method beginning because the claim recites retrieving the data record that includes the “predetermined maximum amount of time.” The second event is the predicting step. This step uses the “predetermined maximum amount of time” from the data record in the retrieving step to determine whether the user device will be at a particular location, in the period of time specified by the “predetermined maximum amount of time,” with at least the predetermined likelihood. Focusing here on the role of the “predetermined maximum amount of time” in the predicting step, the method is concerned with the potential future location of the user device. The future location is circumscribed by the duration of the “predetermined maximum amount of time.” And because the claim requires determining whether the user will be at a predetermined location “*within* the predetermined maximum amount of time,” the range of locations predicted must at least begin with the *current* location of the user device, i.e., the location at the time when the predicting starts. Thus, both parties are right that the word “within” connotes a window of time. The claim language, however, informs us that the window of time starts at the

time when the predicting is performed and ends with a future time, when the predetermined maximum amount of time expires.

The '199 patent specification also confirms this interpretation of the claim language. In the Summary of the Invention, the specification provides three examples of predicting the user's location by introducing the concept of a "current context": "the server considers the user device's location history in a current context." Ex. 1001, 1:47–49. This current context is further described as having three implementations: a current day/current time application, current location application, and combination of current day/current time and current location. *Id.* at 1:49–50, 1:65–66, 2:18–19. For each of these three implementations, the specification provides an example that shows the application of these "current context" applications. Each of these implementations either discloses or implies that the "predetermined maximum amount of time" involves a now-starting time window, i.e., a period of time that begins when the predicting step is performed.

The first implementation is the "department store" example, where the manager of the department store requests that anyone who is at least 50% likely to visit a competitor's store "within one hour should be sent a promotional code entitling that person to a discount." *Id.* at 1:50–56. The manager specifies "one hour as the predetermined maximum amount of time." *Id.* at 1:60–61. The specification goes on: "The manager can also specify days and times at which the actions are applicable, e.g., only during hours at which the new department store is open." *Id.* at 1:61–64. This example explicitly describes the "one hour" as the "predetermined maximum amount of time" that the predicting step uses to determine the potential

customer's location *within* that time. The predicting starts by taking into account the *current* time and goes forward, into the future, up to one hour. As an additional feature, the manager can *also* specify days and times at which *the actions are applicable*, e.g., by specifying operating hours of the department store. *Id.* at 1:61–64. The focus of this additional feature is whether the actions are applicable. This additional feature, however, does not change and is not a substitute for the “predetermined maximum amount of time” of one hour, on which the predicting is based. Rather, the predicting continues to rely on one hour as “the predetermined maximum amount of time.” The additional feature only affects whether the promotional code will be delivered. For instance, in carrying out this feature, the system would not send a promotional code after the department store closes at 5 pm, notwithstanding that user devices, at 5 pm, may be found 50% likely to be at competing stores *within the hour*. Thus, we are not persuaded by Petitioner's argument that this option supports the contention that the specification discloses predicting “*within* the predetermined maximum amount of time” using a future-starting window. *See Reply 5.*

As for the second implementation, the specification continues with the “department store” example described above. Ex. 1001, 1:66–2:4. In this second example, the department store manager's concern is that a current customer, after learning about a new product in the department store, “*immediately go[es]*” to a discount store to buy the new product at a lower price. *Id.* (emphasis added). In this implementation, “the server can deliver a promotional code to the user device, encouraging the user of the user device to buy the product in the department store rather than at the

competitor.” *Id.* at 2:7–9. In this example, the predicting step indicates that the user device is at the department store, but is likely that it “will *soon* be heading to a competitor of the department store.” *Id.* at 2:4–6 (emphasis added). This example implies that the predicting step will take into account a “predetermined maximum amount of time” beginning with the current time from the perspective of when the calculation is performed—again, a now-starting window.

The third implementation, which Petitioner refers to as the “restaurant” example, also continues with the department store implementation, and adds the option for the manager to “specify other nearby restaurants as the predetermined locations[,] but *limit the applicability of those locations* to week days from 11:30 am to 2:00 pm, for example.” *Id.* at 2:20–27 (emphasis added); *see* Reply 6. This example, again, “continu[es] . . . the above example,” which informs us that the “predetermined maximum amount of time” of one hour has not changed. But more importantly, the example is directed to another feature: specifying the “applicability” of the predetermined locations to specific days and times. Much like the previous example where the applicability of the actions is set as an additional feature, here too the feature is to constrain further whether the predetermined locations will trigger an action. To illustrate, the server would send a promotional code to a user device that has a 50% likelihood of being at a competing restaurant within the hour, when performing the prediction at 11:30 am on Friday, but may not send a code when performing the prediction at 11:30 am on Saturday. Again, we understand this example as providing additional features, and not changing or substituting the earlier disclosure of a “predetermined maximum amount of time” of one hour.

Thus, we are not persuaded by Petitioner’s arguments that this “restaurant” example supports a “predetermined maximum amount of time” that encompasses a future-starting window of time. *See* Reply 6.

Our reading of the specification and the scope of the claim language further aligns with a stated benefit of the invention: “the information presented to a user device in the manner described herein can actually influence the future location of the user device by offering an alternative trip the user can take rather than the trip *typically taken in the current context.*” Ex. 1001, 2:31–35 (emphasis added). In other words, predicting where the user device will be during a now-starting window and sending an advertisement as a result of the prediction would potentially change the user’s location also within that now-starting window. Petitioner does not explain, nor do we find, how that objective of affecting a trip typically taken in the *current* context could be accomplished with a future-starting window.

Petitioner argues that the specification does not explain any scheduling feature for the predicting step, such that a now-starting window is required by the claims. Reply 6–7. The argument is not persuasive as we have not relied on any scheduling feature, but rather we have relied on the natural reading of the claim. We have also considered the specification, of which the claim is a part. The context of the specification confirms the scope of “within” as used in the claim language and as explained above.

Petitioner further argued at the hearing that a future-starting window is not precluded from claim scope because the specification does not expressly disclaim or define the phrase “within the predetermined maximum amount of time.” Tr. 9:14–20. But there is no requirement that the specification define or expressly limit the claimed invention for the meaning

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of the claim to be evident to a person of ordinary skill in the art. “Even when guidance is not provided in explicit definitional format, ‘the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.’”

Irdeto Access, Inc. v. Echostar Satellite Corp., 383 F.3d 1295, 1300 (Fed. Cir. 2004) (internal single quotation marks and citations omitted).

Furthermore, it is not persuasive to argue that the specification does not preclude a certain broad reading of the claim language or that the proposed construction is not inconsistent with the specification, because the role of the specification, in the appropriate inquiry, focuses on what and how the inventor describes the invention in the specification, i.e., an interpretation that is consistent with the specification. *In re Smith Int’l, Inc.*, 871 F.3d 1375, 1382–83 (Fed. Cir. 2017) (The “broadest reasonable interpretation . . . is an interpretation that corresponds with what and how the inventor describes his invention in the specification.”).

Petitioner also refers to other portions of the specification that allegedly confirm a claim scope that includes a future-starting window. Reply 7. There are two relevant citations to the specification in Petitioner’s argument. The first one states: “In essence, trigger event 402 asks whether user device 102A is likely to be in any of a number of locations within a predetermined amount of time *in the future*.” Ex. 1001, 4:44–47 (emphasis added). Petitioner argued at the hearing that this portion of the specification refers to a “predetermined maximum amount of time in the future,” as supporting the notion that the “within” claim language encompasses performing the predicting step with a future-starting window.

Tr. 27:17–28:3. According to Petitioner, the use of the future tense can be

interpreted to mean that a future-starting window is not unreasonable. *Id.* On the full record now before us, we are not persuaded that this portion of the specification supports Petitioner’s contention.

The sentence of the specification Petitioner relied upon refers to the determination of the *future location* of the user device constrained by the duration of the “predetermined amount of time.” Ex. 1001, 4:44–47. Granted, the claim and the specification use the future tense when referring to predicting “whether the user device *will be* at any . . . predetermined location[] within the predetermined maximum amount of time.” *Id.* at 8:15–17 (emphasis added), *see also id.* at 4:34–37 (“if user device 102A is predicted to be in any of a number of locations in the future within a predetermined amount of time by a predetermined threshold likelihood”). After all, as discussed above with the “restaurant” and the “department store” examples, the one hour ends one hour into the future. Thus, a future location of the user device is envisioned, hence the future tense. But using the future tense in this sense does not *ipso facto* imbue the “within” phrase with a meaning that encompasses future-starting windows. This would expand the use of the word “within” beyond what the specification describes and not in accordance with the plain and natural reading of the claim language. The claim language only ascribes the future tense to the location of the user device: “whether the user device *will be* at any of the one or more predetermined locations.” The word “within” has no tense implied, and only restricts the future locations of the user devices to those occurring inside the period of time that has been predetermined. Therefore, the fact that the specification and the claim have recitations of future tense does not

persuade us that the “within” phrase is broad enough to encompass a future-starting window of time.

The second portion of the specification on which Petitioner relied states: “There are generally two (2) predictive patterns checked by server 106 in determining the likelihood of user device 102A to be in a particular place at *a particular time*.” *Id.* at 5:16–19 (emphasis added). Again, there is nothing in this passage that discloses or implies a future-starting window. The specification explains further the “particular time” for the first predictive pattern by explaining that “[i]f the current time is 12:00 pm and it is currently a work week day, server 106 can determine that the likelihood of user device 102A going to that same place *within the next hour* to be three in five, or 60%.” Ex. 1001, 5:25–28 (emphasis added). The specification also explains for the second predictive pattern that “server 106 tries to answer the question, ‘Given that user device 102A is at its current location, what are the odds that user device 102A will be in another given location *within the predetermined amount of time* according to the location history of user device 102A?’” *Id.* at 5:35–39 (emphasis added). In both of these explanations, the “particular time” alluded to earlier in the specification refers to a time within the predetermined amount, e.g., one hour, which expressly starts from the *current* time of 12:00 pm in the first predictive pattern, and impliedly starts when the prediction occurs in the second predictive pattern because the example refers to a *current* location. Thus, we view the specification as consistently describing the predicting step as determining where the user device will be, starting from the time the prediction occurs and ending when the “predetermined maximum amount of time” expires.

Petitioner further argues that the prosecution history contradicts Patent Owner's position that the claim is directed to a now-starting window. Reply 8–10. Petitioner posits that during prosecution, the applicant took the opposite position when distinguishing prior art. *Id.* at 8. Specifically, according to Petitioner, the Examiner found that Tseng (Exhibit 1018) disclosed the “predetermined maximum amount of time” limitation. *Id.* (citing Ex. 1002, 72–74; Ex. 1018 ¶ 50). And, according to Petitioner, the applicant argued that Tseng only disclosed a current time window, not a future-starting window. *Id.* at 8–9 (citing Ex. 1002, 31 (“Thus, the time window taught by Tseng is not a time window in which a device is predicted to be somewhere in the future but is instead only compared to the current time.”)).

Patent Owner counters that the relevant argument distinguished Tseng from the claimed invention based on Tseng's failure to determine where the device *will be*, and was not directed to the “predetermined maximum amount of time.” Sur-reply 6. We agree with Patent Owner. The prosecution history passage that Petitioner relies on does not address whether the alleged “predetermined maximum amount of time” in Tseng was or was not a future-starting window. Applicant's statements during prosecution addressed Tseng's time window as only being concerned with the location of the device currently, with no mention of future locations of the device. *See* Ex. 1002, 31 (“Applicant finds no evidence in Tseng of any appreciation for predicting a future state of a device.”). In evaluating these statements, we recognize that the applicant's mention of a “time window” appears to refer to the “predetermined maximum amount of time.” But applicant clarified that whatever the Examiner pointed to in Tseng as a “time window” showed

that Tseng pertains “to the current state of the device.” *Id.* That is, a temporal reference that only takes into account the current location does not disclose or teach the required predicting of future locations.

Petitioner further urges us to consider the impact of Dr. Robins’s “unrebutted” opinion regarding the predicting step. Reply 12–13. We recognize that Petitioner filed a declaration in support of its Petition, while Patent Owner did not. However, we do not discount Patent Owner’s arguments on claim construction merely because no expert testimony supports those arguments, particularly when the arguments are based on the intrinsic record. We also do not credit expert testimony that is at odds with the claim language or the specification—as is Dr. Robins’s relevant testimony. *See Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008) (“A court may look to extrinsic evidence so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record.” (citation omitted)). For instance, Dr. Robins opines that the “predetermined maximum amount of time is ‘lunch time on weekdays’ from 11:30 am to 2:00 pm,” as disclosed in the “restaurant” example. Robins Decl. ¶ 45. Dr. Robins explains that this time window “specifies the maximum amount of time during which a lunch offer will be sent to the user device.” *Id.* (citing Ex. 1001, 2:17–27). But as we explained above, this time period serves to limit the applicability of *the predetermined locations* in the prediction, but does not refer to the “predetermined maximum amount of time.” Dr. Robins does not explain how the specification’s description of limiting applicability of the predetermined locations in any way also implicates the “predetermined maximum amount of time.” And just because Dr. Robins’s testimony in this

regard is unrebutted does not mean that we should give it weight, especially when we find that it is not consistent with the '199 patent disclosure.

Accordingly, we are not persuaded by Petitioner's arguments that we should construe the phrase as Petitioner proposes merely because its proffered expert's testimony is unrebutted and Patent Owner has no expert.

On the topic of attorney argument, Petitioner also argues that Patent Owner's examples of the common use of the word "within" do not compel a narrow reading of the claim language to preclude a future-starting window. Reply 11. First, Petitioner argues that the word "comprising" indicates that "other essential elements may be added and still form a construct within the scope of the claim." *Id.* (quoting *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997)). Second, Petitioner argues that a dictionary definition of the word "within" confirms that it is common to use "within" for a future-starting window. *Id.* at 11–12. We address each of these last of Petitioner's arguments in turn.

As to the use of "comprising," although Petitioner is correct that the claim is open-ended, such use alone does not broaden the recited claim language. As Petitioner notes, the word "comprising" allows for other elements to be added to *the named essential elements*. See Reply 11 (citing *Genentech*, 112 F.3d at 501). In other words, the "comprising" transition, merely because it is "open-ended," does not eliminate or modify an essential element. The claim may have *additional* elements to those we have determined are necessary. Here, having found that the now-starting window results from the natural reading of the "within" phrase in the predicting step, the claim requires a now-starting window. A future-starting window, however, would modify the use of the word "within" in the claim and as described in the specification. The claim may not preclude a future-starting

window from being *added*, in accordance with the use of the word “comprising,” but a future-starting window cannot *replace* the required now-starting window.

As to the dictionary definition, we do not agree that the “common” use of “within” is to describe a future-starting window. *See* Reply 11–12. Petitioner proffers as Exhibit 1019 a definition of the preposition “within” in multiple contexts, without describing in its brief which definition Petitioner contends supports its argument. *Id.*; *see* Ex. 1019, 1359. Upon review of the proffered definitions, we find that one aligns to the issue of temporal reference, definition 2:a, which states “**2** — used as a function word to indicate a situation or circumstance in the limits or compass of: as **a:** before the end of <gone ~ a week>.” Ex. 1019, 1359. The definition confirms that, in the context of a time period, “within” marks the *upper limit* of a situation or circumstance, e.g., before the end of that time period. The definition says nothing about when the time period starts. The start of the time period, however, may be derived from the context of a sentence. For instance, Patent Owner points out, and we agree, “[i]n the absence of qualifying language that specifies a reference time other than the present . . . the meaning of ‘within’ followed by a quantity of time has a commonly understood meaning” indicating a now-starting window. PO Resp. 7. For example, Patent Owner makes the point that when a restaurant host informs a patron that a table will be available within 30 minutes, the patron understands the 30 minutes to begin from when the host made the statement. *Id.*

Petitioner offers additional examples of common usage of “within” for a future-starting window, but these examples offer qualifying language that either specifies or implies that time reference. For example, Petitioner

states that a “runner may announce that he or she wants to finish a marathon within three hours; [but] that statement does not indicate that the runner will run immediately.” Reply 12. This example, in the context of timing of the marathon, has an implied start time for the time period of three hours: when the runner begins the race. In the second example that Petitioner provides a similar situation arises: “[w]hen an events promoter states that he or she expects the tickets to the Super Bowl to sell out within minutes, the statement is again referring to a future time window.” *Id.* Again, this example, in the context of the sale of tickets, provides a start time that hinges from when the “selling” of the tickets begin. Thus, the beginning of the time period ascribed to any phrase that uses “within” depends on the context of the sentence that the phrase qualifies. Here, claim 1 of the ’199 patent provides the context for when the duration of the “predetermined maximum amount of time” begins: when the predicting action occurs.

In sum, the claimed predicting requires that there be an amount of time during which locations of the user device can be determined. The claim undeniably specifies the end of that time period: at the end of the “predetermined maximum amount of time.” But such ending is relative to a beginning, which has been the source of dispute in this trial. As discussed above, the plain reading of the claim urges a beginning coincident with the start of the predicting step. We have found that the specification consistently supports this reading of the claim. And we have also found that time windows disclosed in the specification that start at a specified time in the future do not pertain to the “predetermined maximum amount of time.” Rather, they further modify other unclaimed features, such as whether an *action* (e.g., sending a promotional code) is performed during operation hours of an establishment, or whether certain predetermined *locations* are

relevant to the predicting step only on week days during a lunch period. Consequently, we are persuaded that the claimed “within the predetermined maximum amount of time” is not as broad as Petitioner argues—to include a future-starting window. The plain and ordinary meaning of the claim language “within” relative to the predicting step dictates otherwise, and the specification provides the context and confirms that this reading aligns with what the inventor described as the invention.

For the reasons stated above, we determine that “within the predetermined maximum amount of time,” as recited in the predicting step of claim 1, means that the duration of time or time period starts when the predicting takes place.

Because we find that this determination is dispositive of the issues presented, we need not address specific constructions for any other claim terms.³ See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only terms “that are in controversy” must be construed and “only to the extent necessary to resolve the controversy”).

B. LEGAL STANDARDS FOR OBVIOUSNESS

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 Petition presents a construction for the claim term “predetermined likelihood” based on another decision of the Board, which resulted from an appeal of the application that issued as the ’199 patent. Pet. 7. Patent Owner challenges Petitioner’s contentions regarding the scope of the term, but otherwise contends that no construction is necessary because the claim is clear on its face. PO Resp. 5–6. We agree that no construction is necessary as we resolve the case on the basis of the phrase “within the predetermined maximum amount of time.”

(3) the level of ordinary skill in the art;⁴ and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

C. ALLEGED OBVIOUSNESS OVER BLEGEN AND MONTEVERDE

Petitioner argues that claims 1 and 2 of the ’199 patent would have been obvious over Blegen alone or in view of Monteverde. Pet. 8–29. Patent Owner disputes Petitioner’s assertions. Prelim. Resp. 16–21.

1. *Overview of Blegen*

Blegen is directed to systems and methods for targeting advertisements to mobile device users based on “geo-temporal models,” which are mathematical models of location information at different times. Ex. 1004, [57], ¶¶ 14, 80. Blegen creates the geo-temporal models by collecting and analyzing “time-stamped location information” for mobile devices and uses the models to “predict locations of mobile devices during specified time periods.” *Id.* at [57], ¶¶ 3, 14, 48, 80. Advertisements are “selected based on the predicted locations” and provided to the devices for presentation during the specified time periods. *Id.* ¶ 3; *see id.* ¶¶ 67–68, 86.

In embodiments, Blegen’s system features geo-temporal targeting server 228, which includes prediction component 346. *Id.* ¶¶ 46, 53, 67,

⁴ Petitioner states that the level of ordinary skill in the art includes a “bachelor’s degree in computer science or equivalent, and at least two years of experience or research in software engineering, and/or computer systems.” Pet. 7 (citing Robins Decl. ¶¶ 29–31). Patent Owner offers no proposed level of ordinary skill. We adopt Petitioner’s level of ordinary skill in the art.

Fig. 3. Prediction component 346 uses the geo-temporal model to “predict[] geographic locations in which . . . mobile device 310 will be located at specified time periods”—such as “Sep[tember] 26, 2008, in the afternoon” or “between 3:00 p.m. and 4:30 p.m.” *Id.* ¶¶ 61, 67–68, 85. Prediction component 346 also determines confidence levels “associated with [the] predictions of device locations” for the “various specified time periods.” *Id.* ¶¶ 67, 85–86, Fig. 6. Prediction component 346 “compare[s] the confidence levels . . . against a predetermined confidence level threshold” (e.g., 80% or 90%) to determine if the confidence level “associated with a prediction” that the device “will be” at a location is “above” or “exceeds” the threshold. *Id.* If so, advertisements are “selected for presentation in [the] . . . location” and the selected advertisements are “provided for presentation to the user during the specified . . . time period.” *Id.* ¶¶ 67–68, 85; *see id.* ¶¶ 70, 78, Figs. 4, 6.

Blegen further explains how advertisements appropriate for presentation at specified locations and times are selected. *Id.* ¶¶ 3, 36–37, 44, 67, 71, 85. In one embodiment, the system includes ad server 226 and ad source 224, featuring storage 225 that supports “advertisement (ad) database 227,” a relational database that includes “attributes corresponding to” advertisement identifiers that identify advertisements in storage 225. *Id.* ¶¶ 35–36, 42, Fig. 2. The attributes can “indicate situations,” for example, “particular geographical regions,” “in which the advertisement should be provided.” *Id.* ¶¶ 36–37, 44. “[T]o select appropriate advertisements to present to users at particular times and in specified geographic locations,” ad server 226 queries the database “using geo-temporal targeting information in the query definition.” *Id.* ¶ 44; *see id.* ¶ 71.

2. *Overview of Monteverde*

Monteverde discloses a system that targets users with “time-specific commercial offers based on the location and time-based routines of the user.” Ex. 1005 ¶ 7. In Monteverde, “goods or services associated with [a] commercial offer can only be obtained” or “used” “during an offer period,” for example, a “breakfast coupon” that “can only be used during morning hours” or “breakfast hours.” *Id.* at [57], ¶¶ 5, 11, 74.

Monteverde’s system provides the commercial offers to users who are “commonly located” and, thus, are “likely to be located” at or near the vendor’s location “at the time of day in which the commercial offer is most relevant.” *Id.* at [57], ¶¶ 7, 74; *see id.* ¶ 69. The system periodically records the user’s location and determines, based on past location information, “a probability score indicating the likelihood that the user will be located in the offer area during the offer period.” *Id.* ¶¶ 75–77, Fig. 10; *see id.* ¶ 11. “If the probability score is above a predetermined threshold,” “the commercial offer is transmitted to the user.” *Id.* ¶ 76; *see id.* ¶ 11, Fig. 10.

3. *Independent Claim 1*

Our analysis focuses on Petitioner’s argument that independent claim 1 of the ’199 patent would have been obvious over Blegen alone or in view of Monteverde. *See* Pet. 13–28; Ex. 1003 ¶¶ 58–101.

a. *Analysis of Blegen*

The Petition provides numerous citations to Blegen disclosing “a specified time period” that allegedly teaches the “predetermined maximum amount of time” limitation. Pet. 16–18. Petitioner focuses on paragraphs 3–5, 39, 67, 68, and 71 to argue that Blegen discloses a specified time period in the form of “afternoon” on a certain date, such as September 26, 2008. *Id.*

at 16–17 (citing particularly to Ex. 1004 ¶ 71). Petitioner then argues that Blegen discloses sending an advertisement to a user when that user is predicted to be at a specified geographic location within the “specified time period.” *Id.* at 17 (citing Ex. 1004 ¶¶ 14, 48, 85, 86). According to Petitioner, a person of ordinary skill in the art would have understood that an “afternoon” on a future date is a “predetermined maximum amount of time” because it specifies the maximum time window for the predicted arrival of the user at a predetermined location to trigger an advertisement. *Id.* (citing Robins Decl. ¶ 70). Petitioner contends that Blegen’s specified time period is a “predetermined maximum amount of time” because during that time period “goods and services associated with the advertisement are available.” *Id.* (citing Ex. 1004 ¶¶ 44, 71, 80–84, Fig. 5).

Patent Owner challenges Petitioner’s contentions on the basis that Blegen’s “specified time period” is defined by fixed start and stop times that both occur in the future, such as an afternoon on a future date. PO Resp. 15. Based on Patent Owner’s claim construction position that the claims preclude a future-starting window as a “predetermined maximum amount of time,” Patent Owner argues that because Blegen’s time periods start in the future, Blegen does not teach the limitation. *Id.* at 15–16.

We agree with Patent Owner. Per our analysis of the “within” phrase, discussed above in Section III.A, the “predetermined maximum amount of time” is a period of time with a start time coincident with the predicting step. In contrast, Blegen’s specified time period is some period of time that starts in the future. We do not credit Dr. Robins’s testimony that an “afternoon” on a future date is a “predetermined maximum amount of time,” as that testimony is not based on the proper construction of the claim. Blegen’s

future-starting window is not coincident with the prediction action, and no other alleged time window in Blegen has been shown to have the requisite start time. Rather, Blegen looks to future locations during a future-starting window. *See* Ex. 1004 ¶ 68. Consequently, we determine that Blegen does not teach the “within the predetermined maximum amount of time” limitation.

b. *Analysis of Combination with Monteverde*

As an alternative, Petitioner argues that the combination of Blegen and Monteverde renders obvious claim 1. Pet. 22–28. Petitioner proposes to “modify Blegen to incorporate” Monteverde’s teachings regarding “specif[ying] . . . an ‘offer period’ [] for each advertisement.” Pet. 11–12, 24; Robins Decl. ¶ 77. Petitioner refers to Monteverde’s disclosures that an “offer period,” specified by the vendor, allows its system to target “time-specific offer[s]” to users who are likely to be at the vendor’s location when the offer is “most relevant.” Ex. 1005 ¶¶ 5, 76, 79; *see* Pet. 12, 24; Ex. 1005, [57], ¶¶ 7, 11. According to Petitioner and Dr. Robins, an ordinarily skilled artisan would have recognized that “targeting the advertisement to users who are likely to be at the location within the ‘offer period’”—as Monteverde teaches—“enhance[s]” the “relevance and value” of the advertisement. Pet. 12; Robins Decl. ¶ 77.

Patent Owner argues that Monteverde’s “offer period” is used in a “calculation that takes place in advance of a period that starts at a future time.” PO Resp. 18. According to Patent Owner, “the advance calculation is required, for example, to enable sending advertisements *the night before* an ‘offer period’ of 8:00[]am to 9:00[]am the next morning.” *Id.* (citing Ex. 1005 ¶¶ 77–79). Patent Owner not only characterizes Monteverde’s

“offer period” as a future-starting window, but also argues that a calculation in advance, as taught in *Monteverde*, teaches away “from the current context of the claimed ‘predicting’ limitations.” *Id.* at 18–19.

We are persuaded by Patent Owner’s arguments. *Monteverde* describes the “offer period” in the context of breakfast hours. For instance, the commercial offer may be applicable to a user that periodically, *during breakfast hours*, is anticipated to be at or near the location of a vendor. Ex. 1005 ¶ 74. More specifically, *Monteverde* explains that if a user travels past a specific restaurant between 8:00 am and 9:00 am, at least four times a week, the process estimates that the user is “likely to pass by the same restaurant in the future between 8:00 am and 9:00 am” and would be a targeted candidate. *Id.* ¶ 77. But the “offer period” is a window of time indicating when that particular restaurant’s offer is applicable, much like the “restaurant” example in the ’199 patent, where the time period of 11:30 am to 2:00 pm limits the applicability of the locations. *See* 1005 ¶¶ 77–79. The applicability of the location is not relevant to predicting “within the predetermined maximum amount of time,” per our construction discussed above in Section III.A.

Further, we find that *Monteverde*’s “offer period” is a time period with a start time that has no correlation to the time when the prediction is performed. *Id.* (explaining that the system sends the coupon *the night before* the likely trip to or near the restaurant). We also find unpersuasive Petitioner’s assertion that the offer period is a “predetermined maximum amount of time” because the “goods and services associated with the commercial offer can only be obtained during [the] offer period.” Pet. 22 (citing Ex. 1005 ¶ 11). The time period of availability of goods and services

is unrelated to the time during which a prediction takes place. Much like Blegen, Monteverde does not predict the future location of the mobile device based on a now-starting window of time. Rather, Monteverde looks to future locations during a future-starting window, for scheduling the transmission of the relevant advertisement. *See* Ex. 1005 ¶ 74 (“The process 1000 can then transmit commercial offers to the user that are specifically targeted for the times that the user is likely to be located in the offer area at the anticipated time”); ¶ 77 (the user is “likely to pass by the same restaurant in the future between 8:00 am and 9:00 am” and “process 1000 can transmit commercial offers for breakfast and coffee discounts to the user at any time”).

Further descriptions of Monteverde’s “offers” fare no better. For instance, as Patent Owner points out, Monteverde explains other times at which to transmit offers: “a user can receive [a] commercial offer for a breakfast coupon at night, and use the breakfast coupon during the morning hours.” *Id.* ¶ 79. Although this passage refers to when Monteverde transmits the coupon, it informs us that the prediction in Monteverde is performed at a time unrelated to the morning hours, or the “offer period” in this example. The prediction is occurring “at night” and the coupon is transmitted accordingly, but the offer period (the alleged “predetermined maximum amount of time”) is breakfast hours the next morning.

Accordingly, Monteverde does not disclose the “predetermined maximum amount of time” with a start time coincident with the predicting step, in accordance with our analysis and construction of the “within” limitation. Petitioner has not shown any other time period in Monteverde to meet the limitation of a “predetermined maximum amount of time” in the

predicting step. *See* Pet. 26 (identifying, for the predicting step, the “offer period” as a “predetermined maximum amount of time”).

c. Conclusion

We have considered Petitioner’s arguments and evidence and Patent Owner’s argument in opposition, and we determine that Petitioner has not shown by a preponderance of the evidence that Blegen, either alone or in combination with Monteverde, would have rendered obvious claim 1, and challenged claim 2, which depends from claim 1.

D. ALLEGED OBVIOUSNESS OVER BLEGEN, MONTEVERDE, AND SCHMIDT

Petitioner alleges that dependent claims 3–5 would have been obvious over Blegen, Monteverde, and Schmidt. Pet. 30–40.

1. Overview of Schmidt

Schmidt is directed to delivering “timely and relevant advertisements” that are tailored to a subscriber by correlating “real-time behavior” with “historical behavior,” including “travel patterns,” “to predict future behavior.” Ex. 1006, [57], ¶¶ 9–10, 28, 107. Advertisement server 14 uses the location history of subscriber 16 to create a transition probability matrix, which includes “the estimated probability” of the subscriber transitioning from one point of interest (“POI”) to another POI at various “time of day window[s].” *Id.* ¶¶ 99–100, Tables 2–3; *see id.* ¶¶ 86, 95. To select an advertisement for subscriber 16, server 14 compares the subscriber’s location with its behavioral profile “to predict real-time behavior information.” *Id.* ¶¶ 94, 99–100, 103–106, Fig. 6. Server 14 may select an advertisement related to a POI if “the chance of subscriber 16 transitioning to the POI is greater than a threshold (e.g., 50%).” *Id.* ¶¶ 101, 107.

2. *Limitations of Dependent Claims 3–5*

Claims 3–5 each depend directly from independent claim 1 and additionally recite “analyzing a location history of the user device.” Ex. 1001, 8:28–40. Claim 3 further requires that the analysis is “for day- and time-based patterns related to a current time and a current day,” whereas the analysis in claim 4 must be “for movement patterns related to a current location of the user device” and the analysis in claim 5 must be “for patterns that involve day- and time-based and movement related to a current time, a current day, and a current location of the user device.” *Id.* Petitioner does not rely on Schmidt as disclosing the limitation we found lacking with respect to claim 1. Accordingly, for the reasons given above in our analysis of Petitioner’s assertion that claim 1 would have been obvious over Blegen and Monteverde, we determine that Petitioner has not shown by a preponderance of the evidence that Blegen, Monteverde, and Schmidt would have rendered obvious claims 3–5.

E. ALLEGED OBVIOUSNESS OVER CHARLEBOIS AND GILLIES

Petitioner contends, and Patent Owner disputes, that claims 1–5 of the ’199 patent would have been obvious over Charlebois alone or in view of Gillies. Pet. 41–68; PO Resp. 19–27.

1. *Overview of Charlebois*

Charlebois discloses methods and systems for selecting and delivering targeted messages, such as advertisements, to mobile clients. Ex. 1007, [57], ¶¶ 6, 9–10. Charlebois generates and updates a user profile for each mobile client user to allow for selection and delivery of messages that “would most likely interest the user.” *Id.* at [57], ¶¶ 94, 101, 384, 388, 393–395, Fig. 42. The user profile “includes information derived from past observations of the

user.” *Id.* ¶ 394; *see id.* ¶ 388. This location history can be used to “form a time probability distribution of the user’s past presence and movement,” resulting in a “probability density function” of the user’s presence “at a given location as a function of time.” *Id.* ¶ 388; *see id.* ¶¶ 383, 394. In addition, the user profile can be used to determine “the likelihood that a user will be at a particular location . . . at a given time frame” and similarly, “likely locations . . . for particular time periods” and “likely time periods for a given location.” *Id.* ¶¶ 382, 393. Together with the current location and time, the user profile can be used to determine the user’s “likely destinations [and] transition times,” including “the current most likely probable destinations.” *Id.* ¶¶ 382, 388; *see id.* ¶¶ 379–380, 390, Figs. 39–41.

In addition, Charlebois discusses “Advertisement Metadata,” which may be attached to an advertisement to provide additional information about the advertisement, e.g., “advertisement viewing start time” and “end time.” *Id.* ¶ 69; *see id.* ¶ 241. This metadata may include “advertisement targeting and playback rules,” which are rules “specified by advertisers” regarding displaying advertisements “and/or . . . target[ing] advertisement[s] towards a particular segment of users.” *Id.* ¶¶ 69, 84.

Charlebois explains that a server may select targeted messages for a mobile client. *Id.* ¶ 361. In one disclosed message distribution protocol, server 150-C stores the user profile for wireless access terminal 100 and implements parts of the selection process. *Id.* ¶¶ 92, 363, Fig. 35. “[U]pon receiving a message pull request from the [terminal], the server 150-C can readily push only targeted messages to the device.” *Id.* ¶ 363.

Charlebois discloses that messages may be selected based on “available metadata” according to rules provided by the message infrastructure. *Id.* ¶ 100; *see id.* ¶ 186. Moreover, Charlebois explains that

messages may be selected based on the user profile as well as a “target user profile” that is derived for each message. *See id.* at [57], ¶¶ 216, 219–220, 363, 384, 395, Figs. 23, 42. Specifically, this target user profile is “compare[d]” with the user profile of the relevant user, resulting in a “match indication ‘score’” that “quantizes how well a particular . . . message is compatible with the user profile.” *Id.* ¶ 219; *see id.* ¶ 252 (discussing a “user profile match indicator (MI),” which indicates “how well the target user profile matches” the user profile). The message may be selected only if this “match indication ‘score’ ranks well enough.” *Id.* ¶ 220.

In one example disclosed in Charlebois, the system determines, based on a user’s location history and current location, “that the user has left work and is on-route to a shopping center the user frequents.” *Id.* ¶ 373. “In response,” the system “may automatically forward information relating to products in which the user may be interested.” *Id.*

2. Overview of Gillies

Gillies is directed to “location and time based filtering” of advertisements using “location and time criteria.” Ex. 1008, [57], ¶¶ 28, 32. The location and time criteria may be included in broadcast metadata for the advertisement that is provided by a broadcast center, sent to terminals, and used to “target potentially interested users.” *Id.* ¶¶ 20, 28–29, 31, 64.

Gillies explains that the location and time criteria may relate to the location and time of an event associated with the advertisement, for example, a sales event. *Id.* ¶ 32; *see id.* ¶ 28. The location and time criteria may be defined by a set of N target areas (L_n), time periods (D_n), and presence or absence requirements (PA_n), where “in general” $N \geq 1$. *Id.* ¶¶ 37–38; *see id.* ¶ 119. A location criterion may be a “target area,” or L_n , “in which a potential recipient terminal should be within . . . in order for the

broadcast information to be pertinent.” *Id.* A time criterion, in turn, may be a “time period,” or D_n , “in which the terminal should be within . . . the target area.” *Id.* ¶¶ 32, 37. The “time period D_n may be defined by a start time TS_n and an end time TE_n ” “in the past, present, or future.” *Id.* In addition, the presence or absence requirement PA_n may have a value of present for either some or all of the time period with a probability of at least P_n . *Id.* ¶¶ 38–40.

In one example discussed in Gillies, a department store in a shopping mall is holding a sale on an “upcoming Saturday” and is interested in advertising the sale to “people who are expected to be in the vicinity of the store during sales hours.” *Id.* ¶ 53. “[T]o target these users in an advertisement for the sale,” the location and time criteria (e.g., LTC_c) may be defined as whether “a terminal will be in the city area containing the mall sometime during the sales event with a probability of at least 50%” and “may be expressed as”: “ $LTC_c = (PA_1 \text{ at } L_1 \text{ during } D_1)$ where PA_1 = present for some of the time period with a probability of at least 50%, L_1 = area of the city containing the shopping mall, and D_1 = the Saturday of the sale event, e.g., 9:00 am start time and 6:00 pm end time.” *Id.* ¶¶ 53–54, 61–63.

A terminal uses received location and time criteria to filter advertisements. *Id.* ¶ 119, Fig. 8. Where the location and time criteria “cover user location in the future,” the terminal “predicts its future location” during the time period. *Id.* ¶¶ 100, 119, 124. The terminal “evaluates” the criteria and determines “whether to download and/or present” the advertisement “[b]ased on the result of the evaluation.” *Id.* at [57], ¶¶ 29, 119, Fig. 8. Specifically, the terminal may alert a user about the advertisement “only if” the location and time criteria are satisfied. *Id.* ¶ 64.

3. *Independent Claim 1*

Our analysis focuses on Petitioner’s argument that Charlebois alone or in view of Gillies renders obvious independent claim 1 of the ’199 patent. *See* Pet. 46–62; Ex. 1003 ¶¶ 69–188. Petitioner contends that Charlebois alone “discloses or suggests” each claim limitation. Pet. 48–55, 59–62. Petitioner alleges that Charlebois’s disclosures related to certain “locations” (e.g., a “shopping center”); certain “time periods” or the start and end time of an advertisement or message delivery; and a match indicator based on comparing a user profile to the target user profile disclose or suggest the recited “predetermined locations,” “predetermined maximum amount of time,” and “predetermined likelihood,” respectively. *Id.* at 49–55, 60.

In the alternative, Petitioner argues that the retrieving, predicting, and performing steps of claim 1 would have been obvious over Charlebois “in view of” or “in combination with Gillies.” *Id.* at 55–61. Petitioner alleges that Gillies’s target area “L₁” (e.g., “area of the city containing the shopping mall”) corresponds to the recited “predetermined locations”; its “time period” D₁ (e.g., a “‘9:00am start time and 6:00 pm end time’ on ‘an upcoming Saturday’”) corresponds to the recited “predetermined maximum amount of time”; and its presence or absence requirement PA₁ “(e.g., 50%)” corresponds to the recited “predetermined likelihood.” Pet. 55–59.

a. *The Retrieving Step*

Petitioner alleges that Charlebois alone discloses “retrieving the information,” such as advertisement and traffic information, from one or more data records that associate the information with “Advertisement Metadata.” Pet. 48 (citing Ex. 1007 ¶ 69). Petitioner argues that the “Advertisement Metadata” includes various parameters, such as “viewing

start time” and “viewing end time,” and specifies “respective targeting and playback rules provided by the advertiser” for each advertisement. *Id.*

Expanding further on the “predetermined maximum amount of time,” Petitioner argues that Charlebois predicts the likely locations and or “likely paths for *particular time periods*,” such as likely time periods for a given location or paths. *Id.* at 49–50 (citing particularly to Ex. 1007 ¶¶ 393–395). Specifically, Petitioner focuses on Charlebois’s “likely destinations” and “likely time periods” of arriving at the destinations, and argues that “the server must store ‘Advertisement Metadata’ specifying the locations and time periods of the associated advertisement in one or more data records.” *Id.* at 50 (citing Ex. 1007 ¶¶ 69, 84; Robins Decl. ¶¶ 154–155). In sum, we understand Petitioner to allege that three distinct time periods in Charlebois satisfy the recited “predetermined maximum amount of time”: (1) time periods such as likely time periods for a given location or paths, (2) the viewing start and end time in Advertisement Metadata, and (3) the start and end time of message delivery.

Claim 1 requires that the data records associate the information, which according to Petitioner is the advertisement and traffic information, with, among other parameters, the “predetermined maximum amount of time.” Petitioner has shown that the Advertisement Metadata in Charlebois’s server is associated with a “viewing start time” and “viewing end time.” Ex. 1007 ¶ 69; *see also* Pet. 51 (identifying “time periods associated with the shopping advertisement and traffic information”). But Charlebois does not teach “particular time periods” for likely destinations and arrival times at destinations *associated with the advertisement and traffic information*.

To cure this deficiency, Petitioner argues, supported by testimony from Dr. Robins, that a person of ordinary skill in the art would have understood that in order for the server to select advertisements based on those time periods for “likely destinations” and “likely time periods” of arrival, the server must store “Advertisement Metadata” specifying the locations and time periods of the associated advertisements in one or more data records. *Id.* at 50–51 (citing Robins Decl. ¶¶ 154–155, Ex. 1007 ¶¶ 69, 84, 363). Petitioner further argues that Charlebois’s example of a user leaving work and on-route to a shopping center would be understood by a person of ordinary skill in the art as Charlebois selecting information for delivery based on the predetermined location (i.e., the shopping center) and a predetermined maximum amount of time (i.e., the “time period” of arrival at the shopping center). *Id.* at 51 (citing Ex. 1007 ¶¶ 373, 382–384, 393–395; Robins Decl. ¶ 155). Petitioner refers to “time periods” as “time periods associated with the shopping advertisement and traffic information” as the time periods that are associated with the “Advertisement Metadata.” *Id.* (citing Ex. 1007 ¶ 363).

We do not agree with Petitioner’s contention that the time period for “likely destinations” and “likely time periods” of arrival teach the “predetermined maximum amount of time” in the retrieving step, and we do not credit Dr. Robins’s testimony in this regard. Robins Decl. ¶¶ 157–158. The user profile stored in the mobile device contains the likely destinations and likely time periods of arrival. *See* Ex. 1007 ¶ 384 (describing that the mobile client uses location information and likelihood information to determine the likely times that the user will be at such locations, which is then updated in the user profile in the mobile client). These “likely times”

are not associated with any advertisement or traffic information—they are part of the information that the mobile client collects to calculate user location patterns. Ex. 1007 ¶¶ 393–395. In contrast, Charlebois’s server stores advertisement rules, which include restrictions on how advertisements may be displayed and rules to target an advertisement toward a particular segment of users, e.g., target user profile. *Id.* ¶ 84. The server also stores “Advertisement Metadata” that includes “advertisement viewing start time” and “advertisement viewing end time.” *Id.* ¶ 69. None of these rules and metadata refer to, or even imply, that the advertisement is associated with any time periods *in the user profile* at the mobile client.

Charlebois’s manner of advertisement selection also confirms this lack of association. For instance, Charlebois selects advertisements based on the server metadata (*id.* ¶ 100), which does not include any of the “likely times” identified by Petitioner. Charlebois also discloses selecting advertisements based on matching a target user profile with the actual user profile. *See id.* at [57], ¶¶ 216, 219–220, 363, 384, 395, Figs. 23, 42. That is, Charlebois compares the user profile to a target user profile to determine if the target advertisement is a match for the actual user. *Id.* ¶ 219. The target user profile does not include the “likely time periods” identified by Petitioner—again, those “likely time periods” are part of the actual user profile. Indeed, we see no need for the server to associate the “likely time periods” in the user profile with the advertisement information because Charlebois, instead, *compares* the information collected in the user profile (read here the “likely time period” of arrival or time period for “likely destinations”) with the Advertisement Metadata and target user profiles that the advertisers set for each offer. Only if there is a certain match between the two sets of information does the “likely time period” of arrival or the

“likely destinations” in the user profile have any relevance to or overlap with offer time periods specified in the Advertisement Metadata or the target user profile stored at the server. And even when there is a match, there is no evidence that any of Charlebois’s server records identified by Petitioner link or associate the “likely time periods” in the user profile with the matched advertisement. Thus, we are not persuaded that the time periods for “likely destinations” and “likely time periods” of arrival in Charlebois meet the “predetermined maximum amount of time” limitation in the retrieving step because they are not associated, in any data records, with either the advertisement or the traffic information.

As stated above, however, we agree that the “viewing start time” and the “viewing end time” are associated with the “Advertisement Metadata.” Therefore, we proceed with the predicting step analysis on the basis of the “viewing start time” and “viewing end time” parameters in Charlebois. We also proceed with the predicting step analysis based on Petitioner’s identification of the start and end time of *message delivery* in Charlebois, which, according to Petitioner, the advertiser specifies for a particular ad campaign. *See* Pet. 52 (citing Ex. 1007 ¶¶ 69, 241). We note that Petitioner also asserts that a person of ordinary skill in the art would have understood that start and end times of message delivery define a “predetermined maximum amount of time” during which the advertisement offer is available. *Id.* (citing Robins Decl. ¶ 156). Before turning to the predicting step analysis, we review Petitioner’s contentions regarding Gillies for the retrieving step.

In the alternative to Charlebois, Petitioner argues that Gillies discloses “retrieving the information” with regard to the “predetermined maximum amount of time.” Pet. 55–56. In particular, Petitioner points to Gillies’s

“broadcast metadata” including “location time criteria” associated with advertisements (i.e. “broadcast information”), which are stored in storage unit 152 of a server. *Id.* at 55 (citing Ex. 1008 ¶¶ 28–29, 53, Fig. 1).

Petitioner argues, citing Dr. Robins’s testimony, that a person of ordinary skill in the art would have understood that Gillies’s storing advertisement parameters—such as an offer area, offer period, and probability threshold as broadcast metadata— “necessarily involves storing the parameters associated with each advertisement in “one or more data records.” Robins Decl. ¶¶ 151–153. Specifically to the “predetermined maximum amount of time” limitation, Petitioner argues that the “time period” for the sales offer (hereinafter “offer period” for consistency), such as a 9 am start time and 6 pm end time on “an upcoming Saturday,” is a predetermined maximum amount of time “because the advertisement information is presented to the user only if the system predicts that the user device will be at the sales event within the ‘time period.’” Pet. 56 (citing Ex. 1008 ¶¶ 32, 53, 62–63; Robins Decl. ¶¶ 151–153). Based on Petitioner’s identification of Gillies’s offer period as the “predetermined maximum amount of time” associated with the information (Gillies’s broadcast information), we proceed to the analysis of the predicting step.

b. *The Predicting Step*

Petitioner alleges that “Charlebois, alone or in view of Gillies, discloses or suggests” the predicting step of claim 1. Pet. 61. With respect to Charlebois alone, Petitioner argues that “Charlebois discloses predicting whether a user device will be at a predetermined location (e.g., ‘shopping center’) within the ‘time period’ (predetermined maximum amount of time), with a ‘match indicator’ that ‘ranks well enough’ (at least a predetermined

likelihood).” *Id.* at 60 (citing Ex. 1007 ¶¶ 219–220, 373); Robins Decl. ¶ 180. As stated above with regard to the retrieving step, we proceed in our analysis of Petitioner’s contentions of Charlebois with regard only to the “viewing start time” and “viewing end time” of the Advertisement Metadata, and start and end time of message delivery. We find that neither of these start and end times teaches or suggests “within the predetermined maximum amount of time” in the predicting step, as we have construed this phrase in Section III.A.

Petitioner asserts that Charlebois’s advertiser specifies the start and end time of message delivery such that, after the message viewing campaign end time (in the Advertisement Metadata), the message can expire and may no longer be shown. Pet. 52 (citing Ex. 1007, ¶ 241). This “time period” defines, according to Petitioner, when the advertisement offer is available. *Id.* (citing Robins Decl. ¶ 156). And according to Dr. Robins, a person of ordinary skill in the art would understand that the time period is, therefore, a “predetermined maximum amount of time.” Robins Decl. ¶ 156. We do not credit this testimony, and disagree with Petitioner’s contention that Charlebois’s time periods in the Advertisement Metadata teach the “predetermined maximum amount of time” required by the predicting step.

First, Petitioner fails to show that the Advertisement Metadata time periods are used to determine whether the user device will be at any of the predetermined locations “within” those time periods. Charlebois determines the likely destinations and likely paths of a user device with the time frames derived from the location information, i.e., to determine patterns of behavior in the user’s activity. Ex. 1007 ¶¶ 382–384; *see also id.* ¶ 73 (describing the user profile generation agent at the client that receives various data, such as user behavior and location data from the GPS, to generate user profile

elements). Indeed, Charlebois describes expressing the “time likelihood,” which includes the time frames at which the user is (or might be) at particular locations, in a variety of ways, all of which are derived from the location information captured by the GPS of the cellular phone. *Id.* ¶¶ 382–383. Thus, none of the so-called predictions of the user’s likely destination, paths, or arrival times in Charlebois are performed with the Advertisement Metadata time period information.

But even if the Advertisement Metadata were somehow involved in determining the future location of Charlebois’s user, the viewing start time has not been shown to coincide with the act of calculating the likelihood of the user’s arrival time or any other prediction of future user location. Charlebois’s “predicting” (which Petitioner identifies as the “match” indication (Pet. 60)) of user locations at the user profile time periods has no temporal correlation to the *start time* of any time periods in the Advertisement Metadata or the advertisement delivery times. Indeed, the viewing start time is relevant only *after* the advertisement has been selected (if there is a sufficient match) and delivered to the mobile device.

Charlebois’s start time for message delivery suffers from a similar defect. Specifically, the start time for message delivery campaign is only relevant *after* a match threshold has been met. *See* Ex. 1007 ¶ 241 (describing the message delivery campaign start time and end time as the time for the message viewing start time and message viewing end time, after which the message expires (will no longer be displayed at the terminal) and may be removed from the terminal’s cache).

Put simply, the viewing start time and end time and message delivery windows are all future-starting windows of time. We have determined that a future-starting window is not coincident with the “predetermined maximum

amount of time” in the predicting step, in the context of the “within” phrase. Accordingly, we are not persuaded that any of Charlebois’s time periods identified by Petitioner in the Advertisement Metadata or for message delivery meet the predicting step’s “within the predetermined maximum amount of time.”

With regard to Gillies, Petitioner identified, as described above, the “offer period,” such as a 9 am start time and 6 pm end time on “an upcoming Saturday,” as the “predetermined maximum amount of time.” Pet. at 60–61 (“Gillies discloses predicting whether the user device will be at any of the one or more predetermined locations (‘L₁=area of the city containing the shopping mall’) within the predetermined maximum amount of time (‘9:00 am start time and 6:00 pm end time’ on ‘an upcoming Saturday’) with at least the predetermined likelihood (‘50%’).”). As described below, however, the “offer period” is a future-starting window, not coincident with the action of predicting.

Gillies describes an equation for calculating “location time criteria” for the broadcast advertisement in terms of a series of three probabilities corresponding to locations of the terminal or user. Ex. 1008 ¶¶ 53–54. The first probability component, LTC_A, defines “a location and time criterion that a terminal (and hence a user) has been present at the mall on at least one of three *previous Saturdays* with a probability of at least 50%.” *Id.* ¶ 54 (emphasis added). The second probability component, LTC_B, defines the location and time criterion that at terminal has been present in the area surrounding the mall on each of *three previous nights* with a probability of at least 70%.” *Id.* (emphasis added). The third probability component, LTC_C, and the one Petitioner relies on, defines the location and time criterion that a

terminal will be in the city area containing the mall *sometime during the sales event* with a probability of at least 50%.” *Id.* (emphasis added). For the first two probability components, therefore, the time periods refer to the past locations, to analyze the user behavior with respect to the shopping mall and the surrounding area. The third probability component, however, focuses on a future time period: the sales event. Gillies defines the third probability component, LTC_C as $LTC_C = (PA_1 \text{ at } L_1 \text{ during } D_1)$ (*id.* ¶ 61), where the duration D_1 is “the Saturday of the sale event, e.g., 9:00 am start time and 6:00 pm end time.” *Id.* ¶ 63. Accordingly, if Gillies targets users who are expected to be in the vicinity of the store during the sale hours, Gillies’s “offer period” is a window of time that starts in the future, when the sales event is scheduled. Thus, the example of a sales event in the future, or “offer period,” does not meet the predicting step “within the predetermined maximum amount of time,” as we have construed that phrase.

In Reply, to rebut Patent Owner’s arguments that Gillies’s “offer period” is a future-time window (PO Resp. 23–24), Petitioner expands on its contention in the Petition that Gillies provides for a time period that extends from the present. Reply 14–15; Pet. 57 (referring to Gillies’s disclosure that its time period can be specified as a duration extending from the present). Gillies, according to Petitioner, discloses that each time period may be defined by a start time and an end time, which may each be defined in the present. Pet. 57; Ex. 1008 ¶ 37; Robins Decl. ¶ 160. According to Petitioner, Gillies discloses that the duration D_n , defined by a start time TS_n and an end time TE_n , is a time window whose duration starts at the time of calculation because the start time TS_n is defined in the “present.” Reply 15–16 (citing Ex. 1008 ¶ 37). According to Petitioner, the “predetermined

maximum amount of time” would simply be the difference between the present time (TS_n) and end time (TE_n). Citing Dr. Robins, Petitioner asserts that a person of ordinary skill in the art would have understood from Gillies’s disclosure “that its time period can be specified as a duration extending from the present.” Reply 16 (citing Robins Decl. ¶ 160).

We do not agree with Petitioner’s contention that Gillies, by disclosing that the start time TS_n may be the “present” time, teaches the “predetermined maximum amount of time.” The issue with such duration D_n , with TS_n in the present, is that, although starting in the “present”—arguably, when the predicting calculation is occurring—there is no evidence that the duration is “predetermined.”

According to the plain meaning of the claim language, any window of time alleged to constitute the recited “predetermined maximum amount of time,” because it has been “predetermined,” must yield an *unchanging* amount of time used in the “predicting” step. Ex. 1001, 8:9–13. Claim 1 retrieves the associated “predetermined maximum amount of time” (*id.*) and for each of the user devices, the method performs the recited prediction using the “predetermined maximum amount of time” (*id.* at 8:15–23). Therefore, the same, i.e., unchanging, maximum amount of time must be used in both the retrieving step and the predicting step.

Gillies does allow setting duration D_n with start time TS_n in the “present,” and end time TE_n also in the “present” or some point in the future, but that duration is not a “predetermined maximum amount of time,” because the amount is changing each time the calculation is run. For example, where the “offer period” of Gillies starts at 1:30 pm and ends at 2:30 pm every Wednesday, the duration of one hour will be “predetermined”

only if *coincidentally* the calculation is run at 1:30 pm on a Wednesday. But running the calculation any other time that day, for instance, running the calculation at 1:10 pm on Wednesday, changes the duration, e.g., 50 minutes in this example. Because TS_n changed to the “present,” the start time is 1:10 pm, but end time TE_n , i.e., 2:30 pm, did not change. Petitioner’s contention focuses solely on the start time TS_n as a “present” time, but more is needed for Gillies to teach the “*predetermined* maximum amount of time.”

On this point, we are persuaded by Patent Owner’s contention that Gillies’s duration, expressed in terms of TS_n and TE_n —whether they are defined in the past, present, or future—reflects that Gillies’s time window is fixed. PO Resp. 26–27. According to Patent Owner, and we agree, Gillies may set the start time to be defined in the present initially, but Gillies does not describe that either the start time or end time of Gillies’s window changes dynamically, as time passes, in order to adjust the time window to remain a “*predetermined* maximum amount of time.” *Id.* Patent Owner refers to this as Gillies missing a “dynamic” modification. *Id.*; Tr. 61:5–24. At oral argument, Patent Owner further explained the lack of a “dynamic” nature of Gillies because Gillies requires a fixed start time and end time for the location time criterion equation. Tr. 61:5–12.

We agree with Patent Owner that Gillies’s duration is a fixed time window, which is defined by a fixed start time and an end time. Ex. 1008 ¶ 37. All the examples of Gillies define time periods with a specific start time and end time. *Id.* ¶ 57 (each of the three previous Saturdays, from 9:00 am start time and 6:00 pm end time); ¶ 60 (each of three previous consecutive days, Monday, Tuesday, and Wednesday, with midnight start time and 6:00 am end time); ¶ 63 (Saturday of the sales event, with 9:00 am

start time and 6:00 pm end time). Thus, even though Gillies allows for setting a time window that starts in the present, no time window in Gillies is dynamic such that the start time would adjust to a continuously changing “present” time. And even if Gillies’s start time could be adjusted dynamically to account for the ever-changing “present” time, Petitioner does not show or even argue how an end time would also be dynamically adjusted. Dynamic adjustment of both the start time and end time would be necessary to ensure that the “amount of time” or duration of the window of time would be the same amount of time that was predetermined when the location time criteria was created. Gillies does not teach or suggest any such adjustments. Neither does Petitioner offer persuasive evidence supported by facts that would lead us to conclude that a person of ordinary skill in the art would understand Gillies as performing such adjustments. Consequently, we find that Petitioner has not shown by a preponderance of the evidence that Gillies’s time periods, with a start time that may be defined in the “present” time, teach or suggest the “predetermined maximum amount of time” that claim 1 requires.

4. Conclusion as to Claim 1 and Dependent Claims 2–5

We have determined above that, for claim 1, Petitioner has not shown by a preponderance of the evidence that either Charlebois or Gillies teaches or suggests the recited limitations involving the “predetermined maximum amount of time.” Petitioner argues that Charlebois alone or in combination with Gillies renders obvious the additional limitations of dependent claims 2–5. Pet. 62–68. None of the arguments presented for these dependent claims cure the deficiencies identified above with respect to claim 1. In view of the arguments and evidence of record, we determine that

Petitioner has not shown by a preponderance of the evidence that Charlebois and Gillies render obvious claims 1–5.

F. ALLEGED OBVIOUSNESS OVER CHARLEBOIS, GILLIES, AND FROLOFF

In addition to the asserted ground relying on Charlebois and Gillies, Petitioner alleges another obviousness ground that relies on these references, as well as a third reference, Froloff, to challenge claims 1–5. Pet. 68–70. For this asserted ground, Petitioner “incorporates the analysis” in the ground relying on Charlebois and Gillies “as to all claim limitations.” *Id.* at 68. Petitioner “relies further on Froloff for claim elements requiring the use of a ‘predetermined maximum amount of time’ . . . in the event that Patent Owner argues that the term should be interpreted narrowly to be limited to a maximum time period calculated from the current time to the predicted time of arrival at a predetermined location.” *Id.*

Patent Owner argues that the Decision on Institution decided that Petitioner failed to show a reasonable likelihood of prevailing, and that the Board should take judicial notice of that decision. PO Resp. 27–28. Patent Owner also argues against Petitioner offering new arguments and evidence regarding this ground. *Id.* at 28.

1. Overview of Froloff

Froloff discloses an advertisement system that sends advertisements to mobile users “located within a selected range” from the vendor location. Ex. 1009, [57], ¶ 18. In Froloff, the vendor selects a “run time” or “time radius” for the advertisement. *Id.* ¶¶ 55, 58–59. Based on this time and the user’s average velocity, the system calculates the distance from the vendor at which the user will receive the advertisement. *Id.* ¶¶ 58–59, Fig. 2.

2. Discussion

Petitioner’s proffered analysis of this asserted ground—beyond incorporating its analysis of the ground relying on Charlebois and Gillies—consists only of a discussion of Froloff’s disclosures regarding a time radius and an alleged motivation to combine Froloff’s time radius with Charlebois and Gillies. Pet. 68–70. From these allegations, Petitioner concludes that “[i]n the event that Patent Owner argues that a predetermined maximum amount of time should be interpreted narrowly . . . , it would have been obvious to modify Charlebois/Gillies in view of Froloff.” *Id.* at 70. In our Decision on Institution we determined that Petitioner had not met its burden to articulate with particularity the proposed combination of Froloff with Charlebois and Gillies, and how any combination of the references would operate. Dec. on Inst. 40–41. In particular, we found the Petition to be conclusory in the assertion that “it would have been obvious to modify Charlebois/Gillies in view of Froloff.” *Id.* at 41. Although the Petition states that Froloff contributes a “time radius,” Petitioner does not articulate how that time radius replaces, modifies, or adds to the teachings of Charlebois and Gillies so as to meet the claimed “predetermined maximum amount of time.” *Id.* at 41.

Since our Decision on Institution, Petitioner has had an additional opportunity in its Reply to brief the instant ground vis-à-vis the determination that the Petition provides insufficient explanation of the asserted combination. Reply 23–25. Petitioner again refers to Froloff’s “time radius” as a “maximum time period . . . between the present time and the estimated time of arrival,” and states that the Petition offered the operation of the modified system: “By sending the advertisement a period of time before the user is expected to arrive at a predetermined location, the

advertisement's relevance and value are enhanced." *Id.* at 24 (citing Pet. 69; Robins Decl. ¶ 212). This explanation, however, is presented in the Petition under the heading "Reasons to Combine" and is substantially the same reason to combine provided for the combination of Charlebois and Gillies: "By targeting the advertisement to users who are likely to be at the predetermined location within the 'time period' associated with the 'event,' the advertisement's relevance and value are enhanced." Pet. 45. Relying on this vague and conclusory rationale to combine as an explanation of how the proposed teachings are combined is insufficient. We are not persuaded that this explanation adequately provides the "operation" of the modified system.

At best, the explanation informs us that sending an advertisement beforehand provides an advantage: relevance and value of the advertisement are enhanced. The explanation provides no detail of how Petitioner contends the Froloff "time radius" fits with the teachings of either Charlebois or Gillies. Further, asserting that the combination of Charlebois/Gillies/Froloff sends advertisements before the user arrives at a predetermined location does not factually distinguish this combination from the Charlebois/Gillies combination, which Petitioner asserts also performs the operation of sending beforehand advertisements to users likely to be at the sales event. In sum, Petitioner's attempt in the Reply to explain the Petition as providing detail sufficient to show its obviousness contentions based on Froloff does not remedy the insufficiencies we noted in our Decision on Institution.

Further, Petitioner argues that it is immaterial "whether Froloff's 'time radius' adds to or substitutes for Charlebois'[s] 'time window.'" Reply 24. Petitioner contends that because claim 1 is "open-ended," presumably because of the use of "comprising," using either possibility

(Froloff’s “time radius” or Charlebois’s “time window”) or both would render claim 1 obvious. *Id.* Finally, citing Dr. Robins’s declaration, Petitioner adds that Charlebois’s system is modified “such that the time radius taught by Froloff replaces the fixed time window taught by Charlebois.” *Id.* (citing Pet. 69; Robins Decl. ¶ 212). None of these explanations show that Froloff’s “time window,” whether as a substitute for or in addition to Charlebois’s “fixed time window,” meets “the predetermined maximum amount of time,” as recited in the predicting step of claim 1.

First, as determined above, Charlebois’s time windows asserted for the predicting step are all future-starting windows. Further, Charlebois’s process of determining whether any of the Advertisement Metadata or target user profiles match the actual user profile does not occur at the start time of any of the time periods identified by Petitioner. So now alleging that Froloff’s time radius may be used in Charlebois still leaves unanswered the question whether, if Charlebois were modified to accept a time radius, rather than a time window, would the beginning of the time radius coincide with the “predicting” action in Charlebois. There is no explanation in the Petition or in Dr. Robins’s testimony of how Charlebois, or the Charlebois-Gillies combination, would work with a now-starting time radius, instead of a fixed time window that starts in the future.

Second, Froloff’s time radius is not a “predetermined maximum amount of time.” Froloff is concerned with setting, as a selectable parameter, the duration of an ad’s display or run time. Ex. 1009 ¶ 56. An example of that ad run time is 3 minutes. *Id.* ¶ 59. Froloff then refers to this ad run time as a “time radius” because it uses the ad run time to calculate, for a particular consumer, a distance out from the vendor, i.e., a radius, with

the vendor at its starting point. *Id.* For instance, Froloff uses the velocity of a consumer and the ad run time to calculate that at a certain distance from the vendor, the vendor may send ads that will run for the given run time. *Id.* To illustrate, for the 3-minute example, a consumer walking at 3 miles per hour could begin to receive ads when that consumer's location is detected to be at a distance of 0.15 miles from the vendor. *Id.* Froloff's consumer, however, will not receive the ad unless the consumer is detected to be within the radius of 0.15 miles. Again, the focus of Froloff's time radius is to set the duration of the ad run time. It assumes that once the consumer is within the radius, the consumer will see the ad for 3 minutes *if* the consumer continues traveling toward the vendor at the calculated speed.

Froloff's time radius is used to calculate a distance from the vendor, i.e., a vendor zone. *See id.* ¶ 63 (describing how Froloff detects if the mobile app user (consumer) is within a vendor location and if within the zone, after checking if the user activity exceeds the vendor's activity threshold, the ad is sent to the user's app for display). This time radius is not used to predict whether the user is likely to be at a predetermined location, such as the vendor zone, with at least a predetermined likelihood, as required in the predicting step. The Froloff time radius is used for a different purpose—to trigger the ad *if* the consumer actually enters the vendor zone. *Id.* Simply put, Froloff's "time radius" refers to how long the ad will run on the mobile app of the user. At best, Froloff uses the "time radius" to determine a boundary around the vendor. But that boundary is not a prediction that the user is likely to be within that boundary in the future, much less within the time that is specified by Froloff's time radius. Note that even in the 3-minute example, Froloff says that a consumer traveling on foot at 3 miles per hour "would receive a mobile app ad from a vendor

distance-radius of 0.15 miles.” *Id.* ¶ 59. That is, the consumer is not at all predicted to be within the vendor distance-radius. Instead, Froloff says the consumer *would receive the ad* at that radius if the consumer actually enters the zone circumscribed by the radius. *See id.* ¶ 63 (checking whether the candidate mobile app is found to be within a sponsor zone before the system sends an ad to the consumer).

Further, with respect to the Advertising Metadata, even if the Froloff “time radius” were useful in determining a vendor zone at which to show ads to consumers, Petitioner does not allege, much less explain, how or why a person of ordinary skill in the art would include such a zone in Charlebois’s Advertising Metadata to determine future locations of Charlebois’s users. Nor does the Petition indicate how Charlebois would associate the “time radius” with advertisements. Any explanation by Petitioner would have to reconcile that Charlebois’s user profiles, not the Advertising Metadata, collect the likely locations of the users. And further, Petitioner fails to explain modifications needed for Charlebois to perform real-time ad placement—the Froloff technique for determining the vendor zone and ad duration features (Ex. 1009 ¶ 30)—which Charlebois does not do.

Therefore, we find that Petitioner has failed to show that Froloff’s “time radius” teaches a “predetermined maximum amount of time” that would be used, in predicting future user locations, in combination with Charlebois and Gillies. Accordingly, we determine that Petitioner has not shown by a preponderance of the evidence that the combination of Charlebois, Gillies, and Froloff renders obvious claim 1.

Petitioner does not provide any explanation as to how Froloff meets the limitations further recited in claims 2–5, which depend from claim 1. Accordingly, for the same reasons as claim 1, we also determine that

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Petitioner has not shown by a preponderance of the evidence that claims 2–5 are unpatentable as obvious over Charlebois, Gillies, and Froloff.

III. ORDER

Accordingly, it is:

It is ORDERED that claims 1–5 of the '199 patent have not been shown to be 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.

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