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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte XINYI CUI, WENJIE FU, HAOMIN YU, OU JIN, EITAN SHAY,
RICHARD BILL SIM, and JUN YANG

Appeal 2018-004450
Application 14/279,149¹
Technology Center 3600

Before BRUCE T. WIEDER, KENNETH G. SCHOPFER, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

WIEDER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the
Examiner's final rejection of claims 1, 4–7, 10–14, 17, 18, and 21–28
35 U.S.C. § 6(b).

We AFFIRM.

¹ According to Appellants, the real party in interest is Facebook, Inc.
(Appeal Br. 2.)

CLAIMED SUBJECT MATTER

Appellants' invention "relates generally to social networking systems, and more specifically to advertising via a social networking system." (Spec. ¶ 1.) More particularly, Appellants' invention relates to predicting an online "advertisement's reach, impressions, conversions, and/or cost based on an advertiser-specified bid amount, a specification of a target audience, and optionally an advertiser-specified budget in a received advertising request." (*Id.* ¶ 4.)

Claims 1, 14, and 18 are the independent claims on appeal. Claim 1 is illustrative. It recites:

1. A method comprising:
 - receiving from an advertiser at a social networking system an advertisement request, the advertisement request comprising advertisement content and a specification of a target audience for the advertisement content;
 - defining a plurality of bid values for the advertisement request;
 - for each of the plurality of bid values, estimating a corresponding value of advertisement reach for the target audience by:
 - sampling by the social networking system a subset of users from the target audience,
 - for each sampled user:
 - reviewing an advertisement impression history for the sampled user based on a recency criterion to retrieve costs associated correspondingly with a plurality of impressions in the reviewed impression history,
 - computing normalized measures of the retrieved costs associated with each of the plurality of impressions in the reviewed impression history,
 - comparing the bid value to each of the computed normalized measures of the retrieved costs, and

recording a positive reach count for the sampled user if the bid amount in the advertisement request is greater than at least one of the computed normalized measures of the retrieved costs, and a zero reach count for the sampled user if the bid amount in the advertisement request is lower than each of the computed normalized measures of the retrieved costs,

based on the sampling, estimating an aggregate reach of the advertisement content for the subset of users as an aggregation of the reach counts for the sampled users in the subset, and

estimating a total reach of the advertisement content for the target audience by extrapolating the aggregate reach for the subset of users to the target audience;

based on each of the plurality of bid values and corresponding total reach of the advertisement content for the target audience, evaluating an efficacy of an advertiser-specified bid value; and

providing for display to the advertiser a visual representation of the evaluated efficacy of the advertiser-specified bid value.

REJECTIONS

Claims 1, 4–7, 10–14, 17, 18, and 21–28 are rejected under 35 U.S.C. § 112(b) as indefinite for failing to particularly point out and distinctly claim the subject matter which the joint inventors regard as the invention.

Claims 1, 4–7, 10–14, 17, 18, and 21–28 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

Claims 1, 4–7, 10–14, 17, 18, and 21–28 are rejected under 35 U.S.C. § 103 as unpatentable over Hegeman (US 2013/0124297 A1, pub. May 16, 2013), Jordan (US 2014/0089106 A1, pub. Mar. 27, 2014), and Hite (US 2011/0153449 A1, pub. June 23, 2011).

The § 112(b) rejections

The bid amount

Claim 1 is rejected under § 112(b) because “it is unclear as to whether the phrase ‘the bid **amount**’ (bolding emphasis added) references a bid ‘amount’ not specifically/positively recited in Claim 1, references one of the recited ‘bid values’, references the recited ‘plurality of bid values’ in Claim 1, or references some combination thereof.” (Final Action 4.)

Appellants do not respond to this rejection. In view of this, we summarily affirm this rejection. For the same reason, we also summarily affirm the rejection of dependent claims 4–7 and 10–13, which depend from claim 1.

The reach counts

Claim 1 is also rejected under § 112(b) because

it is unclear as to whether the phrase “the reach counts for the sampled users” references “reach counts” not specifically/positively recited in Claim 1, references only positive reach counts for sampled users, references only zero reach counts for sampled users, or references both positive and zero reach counts for sampled users, or references some combination thereof.

(Final Action 5.)

Appellants argue that this is a typographical error and that Appellants will address this “following a decision on appeal.” (Appeal Br. 8.)

In view of the above, we summarily affirm this rejection. For the same reason, we also summarily affirm the rejection of claims 4–7 and 10–13, which depend from claim 1.

The bid value

Independent claims 1, 14, and 18 are rejected under § 112(b) because it is unclear as to whether the phrase “the bid value” (singular) references a single bid value not specifically/positively recited in any independent claim, references “plurality of bid values” recited in each independent claim, references one of “bid values” recited in each independent claim, references all of “bid values” (plural) of the recited plurality recited in the independent claims, or references some combination thereof.

(Final Action 5.)

Appellants argue that “[i]t is clear when reading the language in the context of the claim as a whole that there is a (1) estimation of a corresponding value for ‘each of the plurality of bid values,’ and then (2) the estimation is by comparing the bid value to computed normalized measures of retrieved costs. (Appeal Br. 8.)

The Examiner answers that “‘the bid value’, as currently recited in each independent claim, fails to provide any one-to-one correspondence between a single bid value and a particular one of the multiple bid values.” (Answer 5.)

We are persuaded of error. Claim 1 recites “for each of the plurality of bid values, estimating a corresponding value of advertisement reach . . . by: sampling . . . a subset of users,” and “for each sampled user,” “comparing the bid value to each of the computed normalized measures of the retrieved costs.” Applying a broadest reasonable interpretation, the term “for each of the plurality of bid values, estimating a corresponding value” includes for each bid value, comparing it to each of the computed normalized measures of the retrieved costs for each sampled user.

Claims 14 and 18 contain similar language and for similar reasons we are persuaded of error. For the same reasons, we are persuaded of error with regard to claims 4–7, 10–13, 17, and 21–28, which depend from claims 1, 14 and 18.

The historical bid amount

Claims 14 and 18 are also rejected under § 112(b) because

it is unclear as to whether the phrase “the historical bid amount” (singular) refers to a single historical bid amount not specifically/positively recited in any of Claims 14 and 18, refers to one of the recited “historical bid amounts” (plural), refers to the “plurality of historical bid amounts”, or refers to some combination thereof.

(Final Action 6.)

Appellants argue that this is a typographical error and that Appellants will address this “following a decision on appeal.” (Appeal Br. 8.)

In view of the above, we summarily affirm this rejection. For the same reason, we also summarily affirm the rejection of claims 17 and 21–28, which depend from claims 14 and 18.

The sampled user

Claims 1, 14, and 18 are also rejected under § 112(b) because

it is unclear as to whether the phrase “the sampled user” references one of “subset of users” recited in each independent claim, references all of “users” (plural) of the recited “subset”, or references a single sampled user not specifically/positively recited in the independent claims since the step/process of “sampling” directly refers to “a subset” that being sampled with the recited “subset” being directly or indirectly associated with the recited “users” (plural).

(Final Action 6.)

Appellants argue that, similar to the argument made with regard to the claim term “the bid value,” “the phrase ‘the sampled user’ has antecedent basis in ‘for each sampled user.’” (Appeal Br. 9.)

We are persuaded of error. Claim 1 recites “sampling . . . a subset of users,” “for each sampled user: reviewing an advertisement impression history for the sampled user.” Applying a broadest reasonable interpretation, the terms “each sampled user” and “the sampled user” include users in the subset, i.e., each user in the subset is sampled; that is, each user in the subset is a sampled user. The Specification supports this interpretation. It discloses, e.g., that “[a] subset of users is sampled . . . from the target audience to determine a reach count for each user in the subset.” (Spec. ¶ 61.)

Claims 14 and 18 contain similar language and for similar reasons we are persuaded of error. For the same reasons, we are persuaded of error with regard to claims 4–7, 10–13, 17, and 21–28, which depend from claims 1, 14 and 18.

The evaluated efficacy

Claims 1, 14, and 18 are also rejected under § 112(b) because it is unclear as to whether the phrase “the **evaluated** efficacy” (bolding emphasis added) references an “evaluated efficacy” not specifically/positively recited in the independent claims, references the step/process of to evaluate or evaluating (verb phrase), which may or may not produce any “evaluated efficacy” (noun) since the step of evaluating (verb phrase), as currently recited, does not necessarily end to produce any “evaluated efficacy” (noun), references recited “an efficacy” which itself may not be fully or completely “evaluated” during the recited

step/process of evaluating (verb phrase), or refers to something else.

(Final Action 7.)

Appellants argue that “[t]he phrase ‘the evaluated efficacy’ makes antecedent reference to the evaluating step that states ‘evaluating an efficacy’. A skilled artisan would understand what is claimed in light of the specification in this case.” (Appeal Br. 9.)

The requirements of § 112(b) do not demand “unreasonable precision.” *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014). “Rather, how much clarity is required necessarily invokes some standard of reasonable precision in the use of language in the context of the circumstances.” *Id.* Here, claim 1 recites “evaluating an efficacy of an advertiser-specified bid value; and providing for display . . . of the evaluated efficacy of the advertiser-specified bid value.”

We are persuaded of error. We determine that one of ordinary skill in the art would be reasonably apprised that the term “the evaluated efficacy” relies, for its antecedent basis, on the step of “evaluating an efficacy.” *See id.* (citing *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 258 F.3d 124, 136 (2d Cir. 1958)).

Claims 14 and 18 contain similar language and for similar reasons we are persuaded of error. For the same reasons, we are persuaded of error with regard to claims 4–7, 10–13, 17, and 21–28, which depend from claims 1, 14, and 18.

The instructions that cause the processor to estimate

Claims 14 and 18 are also rejected under § 112(b) because

it is unclear as to whether the phrase “the instructions that cause the processor to estimate ...” references estimation instructions not specifically/positively recited in Claims 14 and 18, positively references all of the “instructions” that is [sic] recited as being on the recited memory (Claim 14) or storage medium (preamble of Claim 18), or references some part or subset of the instructions, such as only estimation instructions, that is recited as being on the recited memory (Claim 14) or storage medium (preamble of Claim 18).

(Final Action 7.)

Appellants argue that “[i]t is clear when reading the language in the context of the claim as a whole (including the first portion that introduces that there are instructions encoded on memory[]) that ‘the instructions’ is referring to the instructions to estimate a corresponding value that are encoded on memory.” (Appeal Br. 10.)

In relevant part, claim 14 recites (emphasis added):

14. A computer system comprising:
a processor;
memory coupled to the processor, *the memory having encoded thereon instructions that, when executed by the processor, cause the processor to:*

...

for each of the plurality of bid values, *estimate a corresponding value of advertisement reach for the target audience, where the instructions that cause the processor to estimate the corresponding value of advertisement reach for the target audience* comprise instructions that cause the processor to:

sample by the social networking system a subset of users from the target audience,
for each sampled user:

...

compare each of the historical bid amounts for the sampled user to the bid value, for each comparison, *determine whether the bid value would have won an advertisement auction against the historical bid amount to present the advertisement content to the sampled user.*

Applying a broadest reasonable interpretation, claim 14 recites that the instructions encoded in the memory coupled to the processor, when executed by the processor, cause the processor to “estimate a corresponding value of advertisement reach for the target audience.” Claim 14 then recites what comprises those particular instructions, i.e., claim 14 recites that “the instructions that cause the processor to estimate the corresponding value of advertisement reach for the target audience comprise instructions that cause the processor to”

In view of the above, we are persuaded of error. *See In re Packard*, 751 F.3d at 1313 (citing *Georgia-Pacific Corp.*, 258 F.3d at 136).

Claim 18 contain similar language and for similar reasons we are persuaded of error. For the same reasons, we also persuaded of error with regard to claims 17 and 21–28, which depend from claims 14 and 18.

The instructions that cause the processor to determine

Dependent claims 21 and 28 are rejected under § 112(b) because it is unclear as to whether the phrase “the instructions that cause the processor to determine ...” references determination instructions not specifically/positively recited in any of Claims 14 and 18, positively references all of the “instructions” that is [sic] recited as being on the recited memory (Claim 14) or storage medium (preamble of Claim 18), or references some part

or subset of the instructions, such as only determination instructions, that is not positively recited in any claim.

(Final Action 8.)

Appellants argue that “[i]t is clear when reading the language of claim 21 in the context of claim 14 (including the first portion that introduces that there are instructions encoded on memory[]) that ‘the instructions’ is referring to the instructions to determine whether the bid value would have won that are encoded on memory.” (Appeal Br. 11.)

Claim 21 recites:

21. The computer system of claim 14, wherein the instructions that cause the processor to determine whether the bid value would have won an advertisement auction against the historical bid amount to present the advertisement content to the sampled user comprise instructions that cause the processor to:

determine whether the bid value is greater than the historical bid amount.

Applying a broadest reasonable interpretation, claim 14 recites that the instructions encoded in the memory coupled to the processor, when executed by the processor, cause the processor “to determine whether the bid value would have won an advertisement auction against the historical bid amount to present the advertisement content to the sampled user” Claim 21 then recites what comprises those particular instructions, i.e., claim 21 recites that “the instructions that cause the processor to determine whether the bid value would have won an advertisement auction against the historical bid amount to present the advertisement content to the sampled user comprise instructions that cause the processor to”

In view of the above, we are persuaded of error. *See In re Packard*, 751 F.3d at 1313 (citing *Georgia-Pacific Corp.*, 258 F.3d at 136).

Claim 28 contains similar language and for similar reasons we are persuaded of error.

The § 101 rejection

Appellants do not separately argue the claims. We select claim 1 as representative. Claims 4–7, 10–14, 17, 18, and 21–28 will stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. Section 101, however, “contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)).

Alice applies a two-step framework, earlier set out in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 573 U.S. at 217.

Under the two-step framework, it must first be determined if “the claims at issue are directed to a patent-ineligible concept.” *Id.* at 218. If the claims are determined to be directed to a patent-ineligible concept, e.g., an abstract idea, then the second step of the framework is applied to determine if “the elements of the claim . . . contain[] an ‘inventive concept’ sufficient

to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 221 (citing *Mayo*, 566 U.S. at 72–73, 79).

With regard to step one of the *Alice* framework, we apply a “directed to” two prong test to: 1) evaluate whether the claim recites a judicial exception, and 2) if the claim recites a judicial exception, evaluate whether the claim “appl[ies], rel[ies] on, or use[s] the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.” *See* USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54 (Jan. 7, 2019) (hereinafter “2019 Guidance”).

Here, the Examiner determines that claim 1 is “directed toward the concept of utilizing characteristics of an advertisement and potential recipients of the advertisement to predict effectiveness/effect (e.g., reach, reach count) that the advertisement may have with users.” (Final Action 10.) Based on this, the Examiner determines that claim 1 recites “a fundamental economic practice and/or a method of organizing human activities and, therefore, the claimed subject matter is drawn to an abstract idea.” (*Id.*)

Appellants argue that claim 1 is not directed to an abstract idea and, in particular, that “claim 1 is not directed to ‘fundamental economic practices.’” (Appeal Br. 14.) Rather, Appellants argue, “claim 1 recites a method for estimating reaches of an advertisement in a social networking system based on impressions histories of sampled users of the social networking system and evaluating an efficacy of an advertiser-specified bid value based on the estimated reaches.” (*Id.*)

Under step one of the *Alice* framework, we “look at the ‘focus of the claimed advance over the prior art’ to determine if the claim’s ‘character as a whole’ is directed to excluded subject matter.” *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)).

The ‘directed to’ inquiry . . . cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon Rather, the ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether ‘their character as a whole is directed to excluded subject matter.’ *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016). In other words, the first step of the *Alice* framework “asks whether the focus of the claims is on the specific asserted improvement in [the relevant technology] or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335–36; *see also* 2019 Guidance at 54–55.

The Specification provides evidence as to what the claimed invention is directed. In this case, the Specification discloses that the invention “relates generally to social networking systems, and more specifically to advertising via a social networking system.” (Spec. ¶ 1.) Claim 1 provides further evidence. Claim 1 recites “receiving . . . an advertisement request . . . comprising advertisement content and a specification of a target audience,” “defining a plurality of bid values,” “for each of the plurality of bid values, estimating a corresponding value of advertisement reach . . . by: sampling . . . a subset of users,” “for each sampled user: reviewing an

advertisement impression history,” “computing normalized measures of the retrieved costs,” “comparing the bid value to each of the computed normalized measures of the retrieved costs, and recording a . . . reach count,” “estimating an aggregate reach of the advertisement content,” “estimating a total reach of the advertisement content,” “evaluating an efficacy of an advertiser-specified bid value,” “and providing for display . . . a visual representation of the evaluated efficacy.”

In short, claim 1 recites advertising, marketing or sales activities or behaviors. These steps are accomplished by receiving information, defining bid values and estimating corresponding advertising reach by sampling users, reviewing an advertising impression history, calculating values, comparing values, recording/storing values, estimating values, evaluating values, and displaying values. *See, e.g., Content Extraction and Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (“[T]he claims of the asserted patents are drawn to the abstract idea of 1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory.”); *Elec. Power Grp.*, 830 F.3d at 1353 (“[M]erely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis.”); *see also Bridge and Post, Inc. v. Verizon Commc’ns, Inc.*, No. 2018-1697, slip op. at 6–9 (Fed. Cir. July 5, 2019) (nonprecedential) (deciding media content to provide to a user by retrieving usage patterns for the user’s device, generating a user profile based on the usage patterns, and analyzing the data, including the user profile, determined to be directed to an abstract idea).

None of the limitations recite technological implementation details for any of the steps. Instead, they describe functional results to be achieved by any means. Moreover, beyond the recitation of a generic “social networking system,” claim 1 does not recite any computer-related components. Claim 1 merely recites the functional results to be achieved. It does not recite “a particular way of programming or designing the software . . . , but instead merely claim[s] the resulting [method].” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016). Additionally, Appellants’ Specification makes clear that social networking systems were well known. (*See, e.g.*, Spec. ¶¶ 2, 3, 26.)

We do not see how the recitation of a “social networking system,” even in conjunction with the recited functions, “ensure[s] ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Alice*, 573 U.S. at 221 (brackets in original) (quoting *Mayo*, 566 U.S. at 77.)

In view of the above, we determine that claim 1 is directed to advertising, marketing or sales activities or behaviors. (*See* Guidance at 52.) And further in view of the above, we agree with the Examiner that claim 1 is directed to the abstract idea of certain methods of organizing human activity. (*See* Final Action 10; *see also* Guidance at 52.)

Although we and the Examiner describe, at different levels of abstraction, to what the claim is directed, it is recognized that “[a]n abstract idea can generally be described at different levels of abstraction.” *Apple, Inc.*, 842 F.3d at 1240. That need not and, in this case, does not “impact the patentability analysis.” *See id.* at 1241.

Nonetheless, Appellants seek to analogize claim 1 to the claims in *Enfish*. (Appeal Br. 18–20.) Appellants argue that, as in *Enfish*, “[t]he

claimed invention provides a unique way of estimating reaches of an advertisement for a plurality of defined bid values and evaluate an efficacy of an advertiser-specified bid value based on the estimated reaches.” (*Id.* at 19.)

We do not find this argument persuasive. The claims in *Enfish* were “specifically directed to a *self-referential* table for a computer database.” *Enfish*, 822 F.3d at 1337. That is, “the plain focus of the claims [was] on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336. Appellants do not persuasively argue how claim 1 improves computer functionality.

Appellants also seek to analogize claim 1 to the claims in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). (*See* Appeal Br. 20–21.) Appellants argue that “similar to *McRO*, claim 1 includes specific limitations that prevent preemption of all techniques for providing advertising messages, or even for providing social endorsements.” (*Id.* at 20.)

We do not find this argument persuasive. “The claimed improvement [in *McRO*] was to how the physical display operated (to produce better quality images), unlike (what is present here) a claimed improvement in a mathematical technique with no improved display mechanism.” *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018). In other words, in *McRO*, data was used to improve the technology, i.e., the display mechanism. Here, “the innovative aspect of the claimed invention is an entrepreneurial rather than a technological one.” *See Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 722 (Fed. Cir. 2014).

Nor do we find persuasive Appellants’ preemption argument. Preemption is not a separate test. “Where a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). In other words, “preemption may signal patent ineligible subject matter, [but] the absence of complete preemption does not demonstrate patent eligibility.” *Id.*

Step two of the *Alice* framework has been described “as a search for an “‘inventive concept’” –*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73).

Appellants seek to analogize claim 1 to the claims in *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016). (Appeal Br. 22–24.) Specifically, Appellants argue that claim 1 “passes muster under the second step [of *Alice*] and supplies ‘an unconventional and non-generic’ application of estimating reach of an advertisement.” (*Id.* at 23.)

Appellants also argue that

[a]s a whole, these claims recite a “specific, discrete implementation” of defining a plurality of bid values, sampling of a subset of users of a target audience, reviewing impression histories of the sampled users, computing normalized measures of retrieved costs associated with impressions in the reviewed impression histories, comparing each defined bid value with the normalized measures of retrieved costs, recording positive reach count and zero reach count, estimating an aggregate reach of each defined bid value for the subset, estimating a total reach of

each defined bid value for the target audience, and estimating an efficacy of an advertiser-specified bid value based on the estimated total reaches of the defined bid values.

(Appeal Br. 23–24.) Appellants argue that “claim 1 also is novel and non-obvious over the references cited by the examiner.” (*Id.* at 24.)

We do not find this argument persuasive. In *BASCOM*, the court determined that “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *BASCOM*, 827 F.3d at 1350. Specifically, “[t]he inventive concept described and claimed in the ’606 patent is the installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user.” *Id.* at 1350. The Federal Circuit determined that this “particular arrangement of elements is a technical improvement over prior art ways of filtering.” *Id.* Here, Appellants do not contend, and claim 1 does not specify, that the recited social networking system must be arranged in a non-conventional manner. Nor do Appellants explain how the claimed method allegedly improves the function of the social networking system. *See, e.g., BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1288 (Fed. Cir. 2018) (“[A]n improvement to the information stored by a database is not equivalent to an improvement in the database’s functionality.”).

Moreover, “[n]o matter how much of an advance in the . . . field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm. An advance of that nature is ineligible for patenting.” *SAP Am., Inc.*, 898 F.3d at 1163. Additionally, “[t]he ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly

patentable subject matter.” *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981).

Taking the claim elements separately, the functions performed by the generic “social networking system” are purely conventional. Receiving information, defining values, sampling information, reviewing information, calculating values, comparing values, recording/storing values, estimating values, evaluating and displaying values are well-understood, routine, and conventional functions previously known to the industry. *See Elec. Power Grp.*, 830 F.3d at 1356 (The claims “do not include any requirement for performing the claimed functions of gathering, analyzing, and displaying in real time by use of anything but entirely conventional, generic technology. The claims therefore do not state an arguably inventive concept”); *see also In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (“Absent a possible narrower construction of the terms ‘processing,’ ‘receiving,’ and ‘storing,’ . . . those functions can be achieved by any general purpose computer without special programming.”).

Considered as an ordered combination, the generic social networking system of Appellants’ claimed invention adds nothing that is not already present when the limitations are considered separately. For example, claim 1 does not, as discussed above, purport to improve the functioning of the social networking system itself. Nor does it effect an improvement in any other technology or technical field. Instead, claim 1 amounts to nothing significantly more than an instruction to apply the abstract idea using a generic computer system performing routine computer functions. That is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 573 U.S. at 225–26.

In view of the above, we are not persuaded that the Examiner erred in rejecting claim 1. Claims 4–7, 10–14, 17, 18, and 21–28 fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The § 103 rejection

The Examiner finds that Jordan teaches “sampling by the social networking system a subset of users from the target audience, for each sampled user . . . sampling data serves as the basis for forecasting the future state of the market.” (Final Action 17 (citing Jordan ¶ 27).)

Appellants argue that the cited references do not disclose “sampling a subset of users from the target audience specified in an advertisement request.” (Appeal Br. 25.) Specifically, Appellants argue that Jordan discloses sampling impression data, but “does not teach or suggest sampling users.” (*Id.* at 25–26.)

The Examiner answers that

Jordan teaches an Internet ad campaign that targets advertisements to online users where those users that have been shown an advertisement (note: ad “impression” is a term that refers to a display of an advertisement to a user, or as *Jordan* at ¶ [0025] explains, “[a]n impression is a single instance of an advertisement being displayed before an Internet user”). After showing advertisements to the users (i.e., presenting ad impressions to users), the online user data of *Jordan* is sampled to extract historical impression data associated with the online users.

(Answer 16.)

Jordan discloses “[a] system and method for formulating a bid on an impression for an Internet advertising campaign using market forecast data.” (Jordan, Abstract.) Jordan further discloses that “[h]istorical impression data

pertaining to the advertising campaign is sampled using an applicable sampling technique.” (*Id.*) More specifically, Jordan discloses that “[a]n impression is a single instance of an advertisement being displayed before an Internet user. In the context of an advertising exchange, an impression is an opportunity to transmit an advertisement to a user. . . . An advertiser or other entity can place a bid on the impression.” (*Id.* ¶ 25.)

Jordan further discloses that “sampled impression data is generated from historical impression data. The sampled impression data comprises a subset of all of the impressions purchased throughout the history of an advertising campaign. This data serves as the basis for forecasting the future state of the market. (*Id.* ¶ 27.)

Claim 1 recites “sampling . . . a subset of users from the target audience.” The portion of Jordan relied on by the Examiner discloses generating sampled impression data “from historical impression data,” and, as noted above, sampled impression data is a subset of all of the impressions purchased throughout the ad campaign. It is unclear where Jordan discloses sampling users, as opposed to sampling “an advertisement being displayed.” (*See id.* ¶ 25.) Albeit, advertisements are presented to users, but the cited portions of Jordan disclose that the sampling is of a subset of the impressions purchased, rather than a subset of users. (*See id.*) The Examiner does not rely on the other cited art to cure this deficiency.

Therefore, we are persuaded that the Examiner erred in rejecting claim 1. Independent claims 14 and 18 contain similar language.

DECISION

The Examiner's rejection of claims 1, 4-7, 10-14, 17, 18, and 21-28 under 35 U.S.C. § 112(b) is affirmed.

The Examiner's rejection of claims 1, 4-7, 10-14, 17, 18, and 21-28 under 35 U.S.C. § 101 is affirmed.

The Examiner's rejection of claims 1, 4-7, 10-14, 17, 18, and 21-28 under 35 U.S.C. § 103 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED