United States Court of Appeals for the Federal Circuit

RECENTIVE ANALYTICS, INC.,
Plaintiff-Appellant

v.

FOX CORP., FOX BROADCASTING COMPANY, LLC, FOX SPORTS PRODUCTIONS, LLC,
Defendants-Appellees

2023-2437

Appeal from the United States District Court for the District of Delaware in No. 1:22-cv-01545-GBW, Judge Gregory Brian Williams.

Decided: April 18, 2025

ROBERT FREDERICKSON, III, Goodwin Procter LLP, Boston, MA, argued for plaintiff-appellant. Also represented by JESSE LEMPEL; ALEXANDRA D. VALENTI, New York, NY.

RANJINI ACHARYA, Pillsbury Winthrop Shaw Pittman LLP, Palo Alto, CA, argued for defendants-appellees. Also represented by MICHAEL ZELIGER; EVAN FINKEL, MICHAEL SHIGEYORI HORIKAWA, Los Angeles, CA.

Before DYK, and PROST, *Circuit Judges*, and GOLDBERG, *Chief District Judge*.[1]

DYK, *Circuit Judge*.

This case presents the question of patent eligibility of four patents directed to the use of machine learning. The patents claim the use of machine learning for the generation of network maps and schedules for television broadcasts and live events.

Appellant Recentive Analytics, Inc. ("Recentive"), the owner of the patents, sued appellees Fox Corp., Fox Broadcasting Company, LLC, and Fox Sports Productions, LLC (collectively, "Fox") for infringement. The district court dismissed, concluding that the patents were directed to ineligible subject matter under 35 U.S.C. § 101. We affirm because the patents are directed to the abstract idea of using a generic machine learning technique in a particular environment, with no inventive concept.

BACKGROUND

I

Recentive is the owner of U.S. Patent Nos. 10,911,811 ("'811 patent"), 10,958,957 ("'957 patent"), 11,386,367 ("'367 patent"), and 11,537,960 ("'960 patent"). The patents purport to solve problems confronting the entertainment industry and television broadcasters: how to optimize the scheduling of live events and how to optimize "network maps," which determine the programs or content displayed by a broadcaster's channels within certain geographic markets at particular times. The patents fall

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[1] Honorable Mitchell S. Goldberg, Chief District Judge, United States District Court for the Eastern District of Pennsylvania, sitting by designation.

into two groups that the parties refer to as the "Machine Learning Training" patents and the "Network Map" patents.

A. The Machine Learning Training Patents

The '367 and '960 patents are the "Machine Learning Training" patents. Both are titled "Systems and Methods for Determining Event Schedules." They share a specification and concern the scheduling of live events. Claim 1 of the '367 patent is representative of the Machine Learning Training patents and recites a method containing: (i) a collecting step (receiving event parameters and target features); (ii) an iterative training step for the machine learning model (identifying relationships within the data); (iii) an output step (generating an optimized schedule); and (iv) an updating step (detecting changes to the data inputs and iteratively generating new, further optimized schedules).[2]

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[2] Claim 1 of the '367 patent recites:

A computer-implemented method of dynamically generating an event schedule, the method comprising:

receiving one or more event parameters for series of live events, wherein the one or more event parameters comprise at least one of venue availability, venue locations, proposed ticket prices, performer fees, venue fees, scheduled performances by one or more performers, or any combination thereof;

receiving one or more event target features associated with the series of live events, wherein the one or more event target features comprise at least one of event attendance, event profit, event revenue, event expenses, or any combination thereof;

providing the one or more event parameters and the one or more target features to a machine learning

(ML) model, wherein the ML model is at least one of a neural network ML model and a support vector ML model;

iteratively training the ML model to identify relationships between different event parameters and the one or more event target features using historical data corresponding to one or more previous series of live events, wherein such iterative training improves the accuracy of the ML model;

receiving, from a user, one or more user-specific event parameters for a future series of live events to be held in a plurality of geographic regions;

receiving, from the user, one or more user-specific event weights representing one or more prioritized event target features associated with the future series of live events;

providing the one or more user-specific event parameters and the one or more user-specific event weights to the trained ML model;

generating, via the trained ML model, a schedule for the future series of live events that is optimized relative to the one or more prioritized event target features;

detecting a real-time change to the one or more user-specific event parameters;

providing the real-time change to the trained ML model to improve the accuracy of the trained ML model; and

updating, via the trained ML model, the schedule for the future series of live events such that the schedule remains optimized relative to the one or more prioritized event target features in view of the real-time change to the one or more user-specific event parameters.

'367 patent, col. 14 ll. 2–49.

The specification teaches that the machine learning model may be "trained using a set of training data," which can include "historical data from previous live events or series of live events." *Id.* col. 6 ll. 5–8. That historical data may include prior event dates, venue locations, and ticket sales. *Id.* col. 6 ll. 6–11. In operating the machine learning model, users enter "target features," which are a user's selected results, such as maximizing event attendance, revenue, or ticket sales. *Id.* col. 6 ll. 12–15. The machine learning model may "be trained to recognize how to optimize, maximize, or minimize one or more of the target features based on a given set of input parameters." *Id.* Eventually, the machine learning model will "generate the optimized schedule[] and provide the schedule . . . as output." *Id.* col. 6 ll. 16–17.

The specification also makes clear that the patented method employs "any suitable machine learning technique[,] . . . such as, for example: a gradient boosted random forest, a regression, a neural network, a decision tree, a support vector machine, a Bayesian network, [or] other type of technique." *Id.* col. 6 ll. 1–5. The schedules are generated "dynamically, in response to real-time changes in data," allowing "input parameters and target features [to] be processed and considered more efficiently and accurately[] compared to prior approaches." *Id.* col. 9 ll. 20–25.

B. The Network Map Patents

The '811 and '957 patents are the Network Map patents. Both are titled "Systems and Methods for Automatically and Dynamically Generating a Network Map." They share a specification and concern the creation of network maps for broadcasters. Claim 1 of the '811 patent is representative of the Network Map patents and recites a method containing: (i) a collecting step (receiving current broadcasting schedules); (ii) an analyzing step (creating a network map); (iii) an updating step

(incorporating real-time changes to the data inputs); and (iv) a using step (determining program broadcasts using the optimized network map).[3]

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[3] Claim 1 of the '811 patent recites:

A computer-implemented method for dynamically generating a network map, the method comprising:

receiving a schedule for a first plurality of live events scheduled to start at a first time and a second plurality of live events scheduled to start at a second time;

generating, based on the schedule, a network map mapping the first plurality of live events and the second plurality of live events to a plurality of television stations for a plurality of cities,

wherein each station from the plurality of stations corresponds to a respective city from the plurality of cities,

wherein the network map identifies for each station (i) a first live event from the first plurality of live events that will be displayed at the first time, and (ii) a second live event from the second plurality of live events that will be displayed at the second time, and

wherein generating the network map comprises using a machine learning technique to optimize an overall television rating across the first plurality of live events and the second plurality of live events;

automatically updating the network map on demand and in real time based on a change to at least one of (i) the schedule and (ii) underlying criteria;

wherein updating the network map comprises updating the mapping of the first plurality of live events and the second plurality of live events to the plurality of television stations; and

The Network Map patents use training data in conjunction with a machine learning model to generate optimized network maps. The training data may include "weather data, news data, and/or gambling data," but is not limited to such categories. *Id.* col. 3 ll. 26–30. In operating the machine learning model, users may input target features to achieve a selected result. For example, in the context of National Football League broadcasts, users may select a target feature that maximizes "overall ratings for the NFL across all games, ratings for the NFL with a particular affiliate (CBS or FOX), ratings for the NFL in a particular market, with a particular audience, or at a particular time." *Id.* col. 3 ll. 12–15. The specification clarifies that the disclosed method uses generic computing equipment in conjunction with "any suitable machine learning technique." *Id.* col. 3 ll. 22–26.

II

On November 29, 2022, Recentive sued Fox, alleging infringement of the four patents. Fox moved to dismiss for failure to state a claim on the ground that the patents are ineligible under § 101.

In opposing Fox's motion, Recentive acknowledged that "the concept of preparing network maps[] [had] existed for a long time," and that prior to computers, "networks were preparing these network maps with human beings." Transcript of Motion to Dismiss Hearing at 28:19–29:06, *Recentive Analytics, Inc. v. Fox Corp.*,

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using the network map to determine for each station (i) the first live event from the first plurality of live events that will be displayed at the first time and (ii) the second live event from the second plurality of live events that will be displayed at the second time.

'811 patent, col. 9 ll. 66–col. 10, ll. 32.

692 F. Supp. 3d 438 (D. Del. 2023) (No. 22-cv-1545), ECF No. 39 ("Transcript"). Recentive also recognized that "the patents do not claim the machine learning technique itself," *id.* at 26:14–15, but instead "claim[] the application of the machine learning technique to the specific context[s]" of event scheduling and network map creation, *id.* at 26:15–21.

Recentive asserted that its patents claim eligible subject matter because they involve "the unique application of machine learning to generate customized algorithms, based on training the machine learning model, that can then be used to automatically create . . . event schedules that are updated in real-time." Plaintiff's Opposition to Defendants' Motion to Dismiss at 2, *Recentive Analytics, Inc. v. Fox Corp.*, 692 F. Supp. 3d 438 (D. Del. 2023) (No. 22-cv-1545), ECF No. 20 ("Opposition Br."). According to Recentive, this includes using iterative training for its machine learning model on "different event parameters and . . . event target features" to "identify relationships" within the data. *Id.* at 9 (alteration in original) (quoting '367 patent, col. 14 ll. 21–23).

Recentive acknowledged that "the way machine learning works is the inputs are defined, the model is trained[;] and then the algorithm is actually updated and improved over time based on the input," Transcript at 26:21–24; that "[t]he process of training the machine learning model[] . . . is required for any machine learning model," Opposition Br. at 16; and that "'using a machine learning technique[]' . . . necessarily includes [an] 'iterative[] training' step," *id.* at 9 (quoting '811 patent, col. 3 ll. 26–28). Recentive characterized its patents as introducing "the application of machine learning models to the unsophisticated, and equally niche, prior art field of generating network maps for broadcasting live events and live event schedules." *Id.* at 1.

The district court granted Fox's motion to dismiss, concluding that the patents were ineligible under the two-step inquiry of *Alice Corporation v. CLS Bank International*, 573 U.S. 208 (2014). The court first found that the asserted claims were "directed to the abstract ideas of producing network maps and event schedules, respectively, using known generic mathematical techniques." *Recentive*, 692 F. Supp. 3d at 451. The court then found at step two of *Alice* that the patents' claims were not directed to an "inventive concept" that would "amount[] to significantly more than a patent upon the [ineligible concept] itself," *id.* at 456 (second alteration in original) (quoting *Alice*, 573 U.S. at 217–18), because the machine learning limitations were no more than "broad, functionally described, well-known techniques" and claimed "only generic and conventional computing devices," *id.* at 457 (footnote omitted). Finally, the district court denied Recentive's request for leave to amend. *See id.* In the district court's view, any amendment to Recentive's complaint would have been futile. *Id.*

Recentive appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review challenges to a district court's dismissal of a complaint for failure to state a claim de novo. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014); *Sands v. McCormick*, 502 F.3d 263, 267 (3d Cir. 2007). We likewise review a district court's determination of patent eligibility under § 101 de novo. *Content Extraction*, 776 F.3d at 1346; *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012).

An invention is patent eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. The Supreme Court has interpreted this language to exclude "[l]aws of nature, natural

phenomena, and abstract ideas" from patent eligibility. *Alice*, 573 U.S. at 216; *Mayo Collab. Servs. v. Prometheus Lab'ys, Inc.*, 566 U.S. 66, 70 (2012).

Under *Alice*, courts perform a two-step analysis to determine patent eligibility under § 101. "First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Alice*, 573 U.S. at 217. If the claims are directed to a patent-ineligible concept, we assess the "elements of each claim both individually and 'as an ordered combination'" to determine whether they possess an "inventive concept" that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* at 217–18 (alteration in original) (quoting *Mayo*, 566 U.S. at 72).

This case presents a question of first impression: whether claims that do no more than apply established methods of machine learning to a new data environment are patent eligible. We hold that they are not.

I

Under the first step of the *Alice* inquiry, "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.'" *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1149 (Fed. Cir. 2019) (quoting *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016)). In the context of software patents (which includes machine learning patents), the step-one inquiry determines "whether the claims focus on 'the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an abstract idea for which computers are invoked merely as a tool.'" *Id.* (alteration in original) (quoting *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018)).

Considering the focus of the disputed claims, *Alice*, 573 U.S. at 217, it is clear that they are directed to ineligible, abstract subject matter. Recentive has repeatedly conceded that it is not claiming machine learning itself. *See* Appellant's Br. 45; Transcript at 26:14–15. Both sets of patents rely on the use of generic machine learning technology in carrying out the claimed methods for generating event schedules and network maps. *See, e.g.*, '367 patent, col. 6 ll. 1–5, col. 11–12; '811 patent, col. 3, l. 23, col. 5 l. 4. The machine learning technology described in the patents is conventional, as the patents' specifications demonstrate. *See, e.g.*, '367 patent, col. 6 ll. 1–5 (requiring "any suitable machine learning technology . . . such as, for example: a gradient boosted random forest, a regression, a neural network, a decision tree, a support vector machine, a Bayesian network, [or] other type of technique"); '811 patent, col. 3 l. 23 (requiring the application of "any suitable machine learning technique.").[4]

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[4] The patents additionally employ only generic computing machines and processors. *See, e.g.*, '367 patent, col. 11 ll. 50–62 ("The processes and logic flows described in this specification can be performed by one or more programmable processors executing one or more computer programs to perform actions by operating on input data and generating output . . . . Processors suitable for the execution of a computer program include . . . both general and special purpose microprocessors, and any one or more processors of any kind of digital computer."); '811 patent, col. 5 ll. 4–6 ("FIG. 4 shows an example of a generic computing device 450, which may be used with the techniques described in this disclosure"). As we have explained, "generic steps of implementing and processing calculations with a regular computer do not

The requirements that the machine learning model be "iteratively trained" or dynamically adjusted in the Machine Learning Training patents do not represent a technological improvement. Recentive's own representations about the nature of machine learning vitiate this argument: Iterative training using selected training material and dynamic adjustments based on real-time changes are incident to the very nature of machine learning. *See, e.g.*, Opposition Br. 9 ("[U]sing a machine learning technique[] . . . necessarily includes [an] iterative[] training step . . . ." (internal quotation marks and citation omitted)); Transcript at 26:21–24 ("[T]he way machine learning works is the inputs are defined, the model is trained, and then the algorithm is actually updated and improved over time based on the input").

Recentive argues in its briefs that its application of machine learning is not generic because "Recentive worked out how to make the algorithms function dynamically, so the maps and schedules are automatically customizable and updated with real-time data," Appellant's Reply Br. 2, and because "Recentive's methods unearth 'useful patterns' that had previously been buried in the data, unrecognizable to humans," *id.* (internal citation omitted). But Recentive also admits that the patents do not claim a specific method for "improving the mathematical algorithm or making machine learning better." Oral Arg. at 4:40–4:44.

Even if Recentive had not conceded the lack of a technological improvement, neither the claims nor the specifications describe how such an improvement was

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change the character of [the claim] from an abstract idea into a practical application." *In re Bd. of Trs. of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1250 (Fed. Cir. 2021).

accomplished. That is, the claims do not delineate steps through which the machine learning technology achieves an improvement. *See, e.g.*, *IBM v. Zillow Grp., Inc.*, 50 F.4th 1371, 1381 (Fed. Cir. 2022) (holding abstract a claim that "d[id] not sufficiently describe how to achieve [its stated] results in a non-abstract way," because "[s]uch functional claim language, without more, is insufficient for patentability under our law." (quoting *Two-Way Media Ltd v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017))); *see also Intell. Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (similar); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (similar). "[T]he patent system represents a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time." *Pfaff v. Wells Elecs.*, 525 U.S. 55, 63 (1998); *Sanho Corp. v. Kaijet Tech. Int'l Ltd.*, 108 F.4th 1376, 1382 (Fed. Cir. 2024). Allowing a claim that functionally describes a mere concept without disclosing how to implement that concept risks defeating the very purpose of the patent system. In this respect, the patents' claims are materially different from those in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), and *Koninklijke*, the cases on which Recentive relies.

Instead of disclosing "a specific implementation of a solution to a problem in the software arts," *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016), or "a specific means or method that solves a problem in an existing technological process," *Koninklijke*, 942 F.3d at 1150, the only thing the claims disclose about the use of machine learning is that machine learning is used in a new environment. This new environment is event scheduling and the creation of network maps.

As Recentive acknowledges, before the introduction of machine learning, event planners looked to what the

Machine Learning Training patents describe as "event parameters" such as prior ticket sales, weather forecasts, and other data to determine when and where to schedule a particular event or series of events. *See* Appellant's Br. 4 (describing prior methods as "entirely manual, static[,] and incapable of responding to changing conditions" (quoting '811 patent, col. 1 l. 25)). The patents recognize this. *See, e.g.*, '367 patent, col. 1 ll. 13–26. The same goes for the creation of network maps, which have been "manual[ly]" created by humans to determine "which content will be displayed on which channel at a certain time." '811 patent, col. 1 ll. 16–17, 25.

We see no merit to Recentive's argument that its patents are eligible because they apply machine learning to this new field of use. We have long recognized that "[a]n abstract idea does not become nonabstract by limiting the invention to a particular field of use or technological environment." *Intell. Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015); *see also Alice*, 573 U.S. at 222; *Parker v. Flook*, 437 U.S. 584, 593 (1978); *Stanford*, 989 F.3d at 1373 (rejecting argument that a claim was not abstract where patentee contended "the specific application of the steps [was] novel and enable[d] scientists to ascertain more haplotype information than was previously possible").

We have also held the application of existing technology to a novel database does not create patent eligibility. *See, e.g.*, *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018); *Elec. Power*, 830 F.3d at 1353 ("[W]e have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas." (citing *Internet Pats. Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1349 (Fed. Cir. 2015); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015); *Content Extraction*, 776 F.3d at 1347; *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*,

758 F.3d 1344, 1351 (Fed. Cir. 2014); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011))). Stated differently, patents may be directed to abstract ideas where they disclose the use of an "already available [technology], with [its] already available basic functions, to use as [a] tool[] in executing the claimed process." *SAP Am.*, 898 F.3d at 1169–70. We think those cases are equally applicable in the machine learning context. Recentive's argument that its patents are eligible simply because they introduce machine learning techniques to the fields of event planning and creating network maps directly conflicts with our § 101 jurisprudence.

Finally, the claimed methods are not rendered patent eligible by the fact that (using existing machine learning technology) they perform a task previously undertaken by humans with greater speed and efficiency than could previously be achieved. We have consistently held, in the context of computer-assisted methods, that such claims are not made patent eligible under § 101 simply because they speed up human activity. *See, e.g.*, *Content Extraction*, 776 F.3d at 1347; *DealerTrack*, 674 F.3d at 1333. Whether the issue is raised at step one or step two, the increased speed and efficiency resulting from use of computers (with no improved computer techniques) do not themselves create eligibility. *See, e.g.*, *Trinity Info Media, LLC v. Covalent, Inc.*, 72 F.4th 1355, 1363 (Fed. Cir. 2023) (rejecting argument that "humans could not mentally engage in the 'same claimed process' because they could not perform 'nanosecond comparisons' and aggregate 'result values with huge numbers of polls and members'") (internal citation omitted); *Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359, 1365 (Fed. Cir. 2020) (holding claims abstract where "[t]he only improvements identified in the specification are generic speed and efficiency improvements inherent in applying the use of a computer to any task"); *compare McRo*, 837 F.3d at 1314–

16 (finding eligibility of claims to use specific computer techniques different from those humans use on their own to produce natural-seeming lip motion for speech).

The district court correctly concluded that the Machine Learning Training and Network Map patents are directed to abstract ideas at step one of *Alice*.

II

At *Alice* step two, we "consider the elements of [the] claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 79). Transforming the nature of a claim "into a patent-eligible application requires more than simply stating the abstract idea while adding the words 'apply it.'" *Trinity*, 72 F.4th at 1365 (quoting *Alice*, 573 U.S. at 221); *see also SAP Am.*, 898 F.3d at 1167. "[T]he claim must include 'an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application.'" *Trinity*, 72 F.4th at 1365 (quoting *Alice*, 573 U.S. at 221); *Broadband iTV, Inc. v. Amazon.Com, Inc.*, 113 F.4th 1359, 1370 (Fed. Cir. 2024) ("[W]e must determine whether the claims include 'an element or combination of elements' that transforms the claims into something 'significantly more' than a claim on the patent-ineligible concept itself." (quoting *Alice*, 573 U.S. at 217–18)).

Recentive claims that the inventive concept in its patents is "using machine learning to dynamically generate optimized maps and schedules based on real-time data and update them based on changing conditions." Appellant's Br. 44. As the district court correctly recognized, *see Recentive*, 692 F. Supp. 3d at 456, this is no more than claiming the abstract idea itself. Such a position plainly fails to identify anything in the claims that would "'transform' the claimed abstract idea into a patent-eligible

application." *Alice*, 573 U.S. at 221 (quoting *Mayo*, 566 U.S. at 71).

In short, we perceive nothing in the claims, whether considered individually or in their ordered combination, that would transform the Machine Learning Training and Network Map patents into something "significantly more" than the abstract idea of generating event schedules and network maps through the application of machine learning. *See SAP Am.*, 898 F.3d at 1169–70; *Broadband iTV*, 113 F.4th at 1372. Recentive has also failed to identify any allegation in its complaint that would suffice to plausibly allege an inventive concept to defeat Fox's motion to dismiss. *Trinity*, 72 F.4th at 1365.

The district court did not err in concluding that Recentive's claims fail to satisfy step two of the *Alice* inquiry.

III

We additionally reject Recentive's argument that the district court should have granted it leave to amend, a determination that is committed to the sound discretion of the district court. *See Celgene Corp. v. Mylan Pharms., Inc.*, 17 F.4th 1111, 1130 (Fed. Cir. 2021); *In re Allergan ERISA Litig.*, 975 F.3d 348, 356 n.13 (3d Cir. 2020). Here, the court determined further amendment would be futile. *See Recentive*, 692 F. Supp. 3d at 457. Recentive failed to propose any amendments or identify any factual issues that would alter the § 101 analysis. In light of this failure and our holding with respect to the ineligibility of Recentive's patents, we discern no error in the district court's conclusion.[5]

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[5] Recentive additionally suggests that the district court erred by resolving claim-construction disputes at

CONCLUSION

Machine learning is a burgeoning and increasingly important field and may lead to patent-eligible improvements in technology. Today, we hold only that patents that do no more than claim the application of generic machine learning to new data environments, without disclosing improvements to the machine learning models to be applied, are patent ineligible under § 101.

AFFIRMED

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the pleading stage. We are not convinced. The district court correctly recognized that "[d]ismissal is appropriate" where, as here, "a plaintiff has failed to identify claim terms requiring a construction that could affect the patent-ineligibility analysis." *Recentive*, 692 F. Supp. 3d at 448; *Trinity*, 72 F.4th at 1360–61 ("[A] patentee must propose a specific claim construction or identify specific facts that need development and explain why those circumstances must be resolved before the scope of the claims can be understood for § 101 purposes.").