2020-1171

United States Court of Appeals for the Federal Circuit

SIMIO, LLC,

Plaintiff-Appellant,

v.

FLEXSIM SOFTWARE PRODUCTS, INC.,

Defendant-Appellee.

Appeal from the United States District Court for District of Utah in Case No. 2:18-cv-00853-DB, Judge Dee Benson

APPELLANT SIMIO, LLC'S COMBINED PETITION FOR PANEL REHEARING AND REHEARING *EN BANC*

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January 27, 2021

CERTIFICATE OF INTEREST

Counsel for the Appellant Simio, LLC certifies as follows:

1. The full name of every party represented by me is:

SIMIO, LLC

2. The name of the real party in interest represented by me is:

SIMIO, LLC

3. The parent companies, subsidiaries (except wholly owned subsidiaries), and affiliates that have issued shares to the public, of the parties represented by me are:

NONE

4. The names of all law firms and the partners or associates that appeared for the parties now represented by me in the trial court or are expected to appear in this Court are:

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5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal.

NONE

6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases)and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

NONE/NOT APPLICABLE

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STATEMENT OF COUNSEL

Based on my professional judgment, I believe a panel rehearing and *en banc* review of the panel decision is "necessary to secure or maintain uniformity of the court's decisions," and "involves a question of exceptional importance." Fed. R. App. P. 35.

Based on my professional judgment, I believe the panel decision is contrary to the following decision(s) of this Court and the United States Supreme Court: *Alice Corp. v. CLS Bank International*, 573 U.S. 208 (2014); *Aatrix Soft. v. Green Shades*, 882 F.3d 1121 (Fed. Cir. 2018); *Arctic Cat Inc. v. GEP Power Prods.*, 919 F.3d 1320 (Fed. Cir. 2019; *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253 (Fed. Cir. 2016); *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306 (Fed. Cir. 2019); *Enfish, LLC v. Microsoft*, 822 F.3d 1327 (Fed. Cir. 2016); *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1375–76 (Fed. Cir. 2016); *Graham v. John Deere Co.*, 383 U.S. 1 (1966); *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143 (Fed. Cir. 2019); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016); *MyMail, Ltd. v. ooVoo, LLC*, 934 F.3d 1373 (Fed. Cir. 2019); *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303 (Fed. Cir. 2020).

Based on my professional judgment, I believe this appeal requires an answer to the following precedent-setting question(s) of exceptional importance: (1) Whether, in the field of computer simulation technology and pursuant to the

instruction provided by *Arctic Cat* and *Graham,* as well as *Affinity Labs* and *Genetics*, it is necessary to review the claimed limitation as a whole in light of both the specification and prosecution history of a patent to determine if providing a previously unavailable technique for altering the behavior of a simulated object in a manner that enables changes to a simulated instance of that object to be made in a span of simulated time satisfies the *Alice* test; and (2) whether an unconventional solution to a technological problem in a computer environment that is not addressable by programming constitutes a patent eligible improvement to computer functionality under the *Alice* test and the precedential decisions applying this test, rather than only a benefit to user experience.

Dated: January 27, 2021

Respectfully submitted,

/s/ David G. Oberdick
David G. Oberdick

ATTORNEY FOR APPELLANT SIMIO, LLC

STATEMENT OF THE POINT OVERLOOKED OR MISAPPREHENDED BY THE PANEL

The Panel overlooked or misunderstood the claimed advance over the prior art by holding, based on a review of the specification only, that the "executable process" limitation is nothing more than the use of graphics instead of programming to create object-oriented simulations, when, instead, the key innovation of the '468 Patent, is the use of process logic that spans time to define/modify/extend the behavior of a simulated instance of an object, rather than that object's definition, in a manner that could not previously be accomplished by conventional programming techniques. In so doing, the Panel failed to "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*, 838 F.3d at 1257; *Genetic Techs*, 818 F.3d at 1375–76. This failure is amplified by the Panel's failure to also consider the prosecution history of the '468 Patent as required by *Arctic Cat* and *Graham*. As a result, the Panel did not follow the standards for conducting the *Alice* test provided by this Court's precedents (including, but not limited to, *Aatrix*, *CellSpin*, *MyMail*, *Enfish*, *McRO*, and *Koninklijke*).

Dated: January 27, 2021

Respectfully submitted,

/s/ David G. Oberdick
David G. Oberdick

ATTORNEY FOR APPELLANT SIMIO, LLC

PRELIMINARY STATEMENT

A panel of this Honorable Court issued a precedential opinion on December 29, 2020, *see* Addendum, affirming the District Court's dismissal of Simio's Complaint and invalidation of the '468 Patent. This decision warrants rehearing by the Panel and/or rehearing by this Court sitting *en banc* because the Panel fundamentally misapprehended and overlooked the '468 Patent's claimed advance over prior art together with controlling precedent supporting this conclusion. By holding that the "executable process" limitation is nothing more than the use of graphics instead of programming to create object-oriented simulations, the Court overlooked the key innovation of the Patent: the use of process logic that, in a simulation model, spans time to define/modify/extend the behavior of a simulated instance of an object in a manner that could not previously be accomplished by computer programming. This innovation and improvement are apparent from a full review of the claimed limitation in light of **both** the specification and prosecution history of the '468 Patent, as required by *Graham*, *Arctic Cat*, *Affinity Labs*, and *Genetics*.

Under the standards dictated by the precedential decisions of this Court (including, but not limited to, *Aatrix*, *CellSpin*, *MyMail*, and *Koninklijke*), the '468 Patent is therefore patent eligible under the *Alice* test formulated by the U.S. Supreme Court. When viewed "as a whole" and "as an ordered combination" in

light of the Prosecution and Specification, the "executable process" claim limitation of the '468 Patent is directed to an improvement in the computer technology itself and not directed to generic components performing conventional activities. This improvement is achieved not only by requiring less programming, as recognized by the Panel, but also by addressing a simulation need that could **not** be solved by conventional programming—specifically, the ability to conduct simulation modeling over a span of simulated time to define/modify/extend the behavior of an object.

This Court's controlling precedents in *Aatrix*, *Arctic Cat*, *CellSpin*, *Genetics*, *MyMail*, and *Koninklijke*, as well as the U.S. Supreme Court's decisions in *Alice* and *Graham*, do not permit dismissal of Simio's claims and the invalidation of the presumptively valid '468 Patent at this early stage without a holistic claim construction in light of the prosecution history. The Panel and District Court focused almost exclusively on the '468 Patent's replacement of programming with graphical processes. While this replacement is a significant benefit of the '468 Patent, it is not the key advancement made by the'468 Patent and the advancement over prior art relied on by the Patent Office during prosecution. Accordingly, Simio asks the Panel and/or this Court *en banc* to rehear this matter, reverse the decisions of the Panel and the District Court, and remand this matter to the District Court for further proceedings.

RELEVANT BACKGROUND

Simio is the owner of United States Patent No. 8,156,468 B22 ("the '468 Patent"), entitled System and Method for Creating Intelligent Simulation Objects Using Graphical Process Descriptions, and issued on April 10, 2012. Appx28 ¶7; Appx38-63.

The '468 Patent relates generally to an object-oriented, computer-based system for developing simulation models. *Id.*

A model is built by creating objects that represent the physical components of the system being modeled into the model, and then running the model. *Id.*; Appx39. For example, a factory is modeled by describing the workers, machines, conveyors, robots, and other objects that make up the system. Appx54, 3:6-8. The system behavior emerges from the interaction of these objects. *Id.*, 3:8-9.

The system comprises a physical computing device, including software that implements one or more base objects, such as a machine or robot, and one or more graphical processes. As described in the specification, new objects are created from base objects by a user assigning one or more graphical processes or process flow charts to the base object(s). Appx61; Appx874-892. There are six base objects, each of which has intelligence added by one or more processes. Appx59. New objects are created without the need for computer programming (also referred to as a "method"). Appx61, 18:20-23; Appx28 ¶8. Independent Claim 1 of the

’468 Patent is addressed to a computer-based system for developing simulation models on a physical computing device, and Claims 2-13 depend directly or indirectly upon Claim 1. Appx28 ¶9. Importantly, Claim 1 was allowed only after it was amended to recite an “executable process”:

> an executable process to add a new behavior directly to an object instance of the one or more object instances without changing the object definition and the added new behavior is executed only for that one instance of the object.

Appx61, 18:15-19; Appx28-29 ¶10.

This limitation was critical to allowance of the ’468 Patent in both its initial examination and reexamination.[1] The “executable process” or “add-on process” allows a new behavior to be added to one instance[2] of a simulated object in a manner that, previously, could not be addressed by computer programming. Appx61, 8:52-59. Specifically, this behavior modification of this process model “can span simulated time and therefore simulate processes such as operation times or queuing delays that take place over simulated time.”[3] Appx57, 10:3-6. The

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[1] *See*Appx1227-1237; Appx1743-1751; Appx153-154; Appx857 ¶39; Appx871 ¶78; Appx873 ¶83; Appx889-891 ¶93; Appx892-894 ¶¶97-104; Dist. Ct. ECF Nos. 33-2, 33-3; *see also* Fed.R.App.P. 30(a)(2) (“Parts of the record may be relied on by the court or the parties even though not included in the appendix.”).

[2] An “instance” of an object is defined in the ’468 Patent as an instantiation of an object referring back to a parent object definition. Appx58, 12:34-39. The parent definition defines the default behavior of each individual instance of the object. *Id.*

[3] For example, a simulation where the user waits for a forklift driver to return from break, and then continue a route.

’468 Patent details the manner in which this process is executed to add a new behavior directly to an object instance without changing the object definition:

> In some cases an object definition does not exactly meet the needs of a particular application because it lacks some specific logic. Although it is possible to sub-class the object and create a new object definition that includes the missing logic, in many cases it would be more desirable to add that logic to a specific instance of the object, without having to create a new object definition. Simio supports this capability through the concept of an “add-on” process that does not change the object definition and is executed only for that one instance of the object.
>
> The builder of the object definition adds support for add-on processes by incorporating Execute steps at specific logical locations where an add-on process may be desirable. The purpose of the Execute step is to execute a process (if any) that has been passed into the object as a property. For example, the Simio standard library has a Source object that creates entities that are released into the system. This object has add-on processes that may be executed just before the entity is created, just after the entity is created, and just before the entity departs the Source object.
>
> **Note that an “add-on” process is a much more powerful concept than simply an “add-on” method call. An add-on process can model process delays that span simulated time, whereas a simple method call can only alter the state of the model at a specific instant in time.**

Appx60, 15:45-50 (emphasis added). The specification further details that this ability to span simulated time was not available in prior art simulation models and could not be provided by programming. *See* Appx56, 8:54-59 (“A [programming] method has no concept of simulated time. It cannot execute over a period of simulated time (e.g. the time required for a part to be processed through a work center). In contrast, the approach used in the present invention is to implement the internal object state changes using a process model in place of a method.”).

The U.S. Patent and Trademark Office ("USPTO") twice found this final limitation in Claim 1, which adds a new behavior to an object instance and enables modeling across simulated time, to be novel and supportive of patentability over the prior art. *See* supra note 1. As confirmed by the USPTO in both examinations of the '468 Patent, the inventive component is the "executable process" and not the broader use of a graphical process alone. *Id*.

ARGUMENT

Petitioner Simio respectfully submits that the Panel erred by overgeneralizing and misapprehending the claimed subject matter, contradicting the directives of (1) *Affinity Labs*, 838 F.3d at 1267 and *Genetic Technologies*, 818 F.3d at 1375-76 to focus on the claimed advance over prior art and (2) *Graham* and *Arctic Cat* to review the claims in light of both the prosecution history and specification. As a result, the Panel failed to adhere to this Court's precedents applying *Alice* to similar claims (including, but not limited to, *Aatrix*, *CellSpin*, *MyMail*, *Enfish*, *McRO*, and *Koninklijke*). Specifically, the Panel broadly characterized the claims of the '468 Patent in terms of application of a graphical process to object simulation by review of the specification only and without discussing or recognizing that the "executable process" limitation was twice found by the USPTO to be more than just use of graphics. *See* Panel Decision at 9 ("The '468 Patent showcases its key advance: using graphics instead of programming to create object-oriented simulations."); *id.* at 10 ("Simply applying the already widespread practice of using graphics instead of programing to the environment of *object-oriented* simulations is no more than an abstract idea."); *id.* at 11 ("[T]he claim is directed to the abstract idea of using graphics instead of programming to create object-oriented simulations"); *id.* at 17.

This framing of the ’468 Patent’s claimed subject matter, chiefly the final “executable process” limitation, as use of graphics only instead of programming fundamentally misapprehends the key innovation of the Patent: the use of process logic that spans time to define/modify/extend the behavior of an object.

This Court recently reiterated:

> At 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 Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (internal quotation marks omitted). “In cases involving software innovations, this inquiry often turns on 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.’” *Finjan, Inc. v. Blue Coat System, Inc.*, 879 F.3d 1299, 1303 (Fed. Cir. 2018) (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-36 (Fed. Cir. 2016) (internal quotation marks omitted)). Since *Alice*, we have found software inventions to be patent-eligible where they have made non-abstract improvements to existing technological processes and computer technology. (citations omitted)

Koninklijke KPN N.V. v. Gemalto M2M GmbH, 942 F.3d 1143, 1149-40 (Fed. Cir. 2019).

To avoid this trap of overgeneralizing claimed subject matter, the “focus of the claimed advance over the prior art,” and not just one of various known principles employed by the claimed subject matter, must be identified. *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1375–76 (Fed. Cir. 2016) (cited by *Enfish*, 822 F.3d at 1335–36). Courts must consider the claims “as a whole,”

Diamond v. Diehr, 450 U.S. 175, 188 (1981), and "as an ordered combination," as required by *Alice*, 573 U.S. at 217.

Here, the Panel relied heavily on the description in the specification of the '468 Patent of the claimed advance that was not, alone, found to be patentable by the USPTO, namely, replacing programming with graphical processes. In doing so, the Panel failed to properly analyze and construe the executable process limitation in accordance with precedent and based on all relevant portions of the specification of the '468 Patent **and** its prosecution history. *See Graham v. John Deere Co.*, 383 U.S. 1, 33 (1966) ("An invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office."); *Arctic Cat Inc. v. GEP Power Prods.*, 919 F.3d 1320, 1327 (Fed. Cir. 2019) (quoting *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1357 (Fed. Cir. 2012)) (requiring that claims be construed "on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history."). Instead, advancement of the executable process limitation is dismissed by the Panel by commenting on its limited discussion within the specification and combining this limitation with the discussion of graphical processes.

The Panel's analysis entirely ignores the prosecution history of the '468 Patent, which found that the executable process limitation represents a nonobvious

advance over conventional techniques for interacting with, and modifying the behaviors of, simulated objects. As discussed above, *see supra* Relevant Background, Claim 1 of the ’468 Patent was amended to incorporate the executable process limitation during prosecution, and it was this limitation that rendered Claim 1, as a whole, novel, non-obvious, and patentable by the USPTO. The fact that more references to a “graphical process” are made in the specification does **not** diminish or somehow subsume the separate patentability and non-abstractness of the described and claimed executable process.

Importantly, therefore, while the executable process limitation uses a graphical process as a substitute for programming, the advancement of the executable process is not defined solely by the attributes of a graphical process. Indeed, and as explained at oral argument, the specification of the ’468 Patent explains that the executable or “add-on” process, *inter alia*, “is a much more powerful concept than simply an ‘add-on’ method call. An add-on process can model process delays that span simulated time, whereas a simple method call can only alter the state of the model at a specific instant in time.” Appx60, 15:65–16:2.

The Panel Decision suggests that statements by Simio’s counsel at oral argument undermined Simio’s argument that the executable-process limitation is inventive. *See* Panel Decision at 16 (“When pressed as to whether the functionality reflected in the executable-process limitation was conventional or

known in object-oriented programming, Simio confirmed that it was.") (citing Oral Arg. at 6:14-7:31). The Panel Decision further states that Simio "distinguished the claimed invention by saying that it 'us[es] a visual flowchart . . . whereby [a] behavior can be modified, and whereby you do not, as a user, need to know and understand and implement software programming." *Id.* (alterations in original). Simio respectfully asks this Court to reexamine the remarks of counsel at oral argument. Simio's counsel did accurately state that "the idea of altering a behavior of an object through programming was known." Oral Arg. at 7:26-7:33. Immediately thereafter, however, Simio's counsel twice-clarified the unconventional and inventive nature of the claimed advance. *See* Oral Arg. at 8:15-8:57 ("That is what is described as revolutionary by FlexSim and, at Column 4, Appendix 54 of the specification, is referenced as simplifying the model, making it dramatically easier, and, ***if we go further to the specification at Column 15 and the top of 16, that add on process is described as a much more powerful concept because it allows – and this is more specific to simulation – it allows the add-on process to model process delays that span simulated time***.") (emphasis added); Oral Arg. at 9:30-10:02 (responding to a question regarding why the add-on logic is particularly desirable or advantageous in a simulation argument by explaining: "If I jump to the bottom of that, in the simulation environment, I was reading the very last paragraph, ends on 15 and runs to the top of 16, where it is specific to a

simulation environment, ***it talks about the add-on process being a much more powerful concept because in that simulation context it can model delays that span simulated time and not just at one specific instant in time***.") (emphasis added). This same language was quoted at page 35 of Simio's Opening Appellant Brief. Therefore, Simio respectfully contends that, rather than undermining its arguments, the statements of Simio's counsel at oral argument actually emphasize that the Panel overgeneralized and misapprehended the key innovation of the Patent to be the use of graphics instead of programming to create object-oriented simulations. The true advance is the use of process logic that spans simulated time to define/modify/extend the behavior of an object, as the full record shows.

Indeed, the '468 Patent explains further that prior art computer programming could not span simulated time:

> A *method* has no concept of simulated time. It cannot execute over a period of simulated time (e.g. the time required for a part to be processed through a work center). In contrast, the approach used in the present invention is to implement the internal object state changes using a process model in place of a method.

Appx56, 8:54-59.

This advancement as to spanning simulated time was identified and explained in the Reexamination of the '468 Patent. *See* Dist. Ct. ECF No. 33-6 at 19-20 (explaining the "key difference" between the '468 Patent and prior art is "the ability to incorporate logic in response to events that span time. This distinction

i[s] discussed in the '468 Patent when comparing a simple method call represented by the Entry and Exit Java programming code used in the AnyLogic statechart to a graphical process approach that spans simulated time.") (citing Appx56, 8:52-59); ECF No. 61-15 at 19-20, 59; Appx894, ¶102. In response to FlexSim's attack on the '468 Patent in that process, Simio submitted and quoted from D. Roberts, D. Pegden, *The History of Simulation Modeling* (Winter Simulation Conference 2017). *Id*. This article highlights the competitive advantage of the final claim limitation of Claim 1 in Section 2.3, stating*:*

> Another key advance with Simio was the notion of using add-in process for objects to modify their behavior on an instance by instance basis, without modifying the object definition. Before the introduction of this concept into Simio the primary method for adding custom logic to an object instance was by adding custom-coded events to the object. Add-in processes was a significant breakthrough because they are both easier to use as well as more powerful. The added power comes from process logic that can represent activities that span time, whereas a coded event is limited to an instant in time.

Appx894, ¶102. (quoting ECF No. 33-7 at 318).

Prior to the '468 Patent, a programming insert method allowed a user to add special logic to an object that was not originally provided by the creator of the object. Appx53, 1:33-67; Appx57, 10:2-3. A simulation modeling tool has a simulation clock that advances time as the simulation runs. *See, e.g.*, Appx53, 2:39-42 (referencing "integer clock"); Appx43-Appx52, Figs. 5B, 7B-11B (all referencing "starting time" and "ending time"). When a programming insert is

executed, the simulation clock is stopped at a specific time, and does not advance during the execution of the programming insert. All the logic in the program insert executes at an instant in simulated time. As described in the '468 Patent, the problem with programming inserts or methods is that the simulation time is fixed. Appx56, 8:54-55 ("A method has no concept of simulated time.").

However, often the logic that needs to be added spans simulated time. For example, a user may want a simulation to:

1. Wait until a tank is filled with water, and then turn off the input valve.
2. Perform a machine set up operation that takes 1 hour, and then continue processing.

In these two examples (and many more) the simulation clock must advance time. However, this is not possible with a programming insert/method because the insert/method has no concept of, and cannot execute over, a period of simulated time (that is, simulation clock cannot advance until the programming insert completes and gives control back to the simulation). *See* Appx56, 8:52-57. Hence programming inserts are limited to simple state changes at a fixed time. Prior to copying Simio's add-in process features for including process logic that spans simulated time, FlexSim users could not add this type of logic to their object modeling. FlexSim promoted this new add-in process capability for spanning time as "magical" and "revolutionary".

The key innovation of the Patent is the use of process logic in the executable process that spans time to define/modify/extend the behavior of an object. Making a programming language graphical does nothing to address the core problem of spanning time because programming could not address this problem in the first place. Developing a framework for going beyond programming logic (fixed time) with process logic (spans time) was the key breakthrough in the executable or "add-on" process that FlexSim copied from Simio.

When the advancement over prior art is properly framed as the use of process logic that, in a simulation, spans simulated time to define/modify/extend the behavior of an object in a manner that could not previously be accomplished by programming, rather than being overgeneralized as only the use of graphics instead of programming to create object-oriented simulations, the claims of the '468 Patent easily pass muster under both Step One and Step Two of the *Alice* test, as argued in far greater detail in Simio's prior briefing before this Court. More directly, the novel executable process is directed to a specific, non-abstract, and inventive improvement to simulation technology on a physical computing system, i.e., the use of process logic that spans time to define/modify/extend the behavior of an object in a manner that could not previously be accomplished by programming. *See Aatrix*, 882 F.3d 1121 (articulating the *Alice* test and holding that claims that were directed to systems and methods for designing, creating, and importing data

into a viewable form on a computer were patent ineligible); *Cellspin,*, 927 F.3d at 1319 (asserted claims do significantly more than simply carrying out an abstract idea and are patent eligible because "they recite a specific, plausibly inventive way of arranging devices and using protocols rather than the general idea of capturing, transferring, and publishing data."); *Uniloc*, 957 F.3d at 1309 ("Our precedent is clear that software can make patent-eligible improvements to computer technology, and related claims are eligible as long as they are directed to non-abstract improvements to the functionality of a computer or network platform itself."); *Enfish*, 822 F.3d at 1339 (claims directed to a self-referential database were patent eligible because "the claims are directed to a specific implementation of a solution to a problem in the software arts"); *Koninklijke*, 942 F.3d at 1150 (claims for an invention that checks for errors in data transmissions were "patent-eligible because they are directed to a non-abstract improvement in an existing technological process (i.e., error checking in data transmissions)."); *McRO*, 837 F.3d 1299; *MyMail*, 934 F.3d at 1380.

CONCLUSION

The Panel Decision warrants rehearing by the Panel and/or rehearing by this Court sitting *en banc* because, in contravention of this Court's precedents, the Panel misapprehended and overlooked the '468 Patent's claimed advance over prior art by holding that the "executable process" limitation is nothing more than the use of graphics instead of programming to create object-oriented simulations. First, the Panel failed to properly consider both this limitation as whole in view of the specification **and** prosecution history in the '468 Patent as directed by *Arctic Cat* and *Graham,* as well as *Affinity Labs* and *Genetics*. Specifically, the Panel misapprehended that the key innovation of the '468 Patent is the use of process logic that spans time to define/modify/extend the behavior of an object in a manner that could not previously be accomplished by programming. Second, when this claimed advance of prior art is analyzed properly pursuant to *Alice, Aatrix*, *CellSpin*, *MyMail*, *Enfish*, *McRO*, and *Koninklijke*, the '468 Patent's claims are clearly directed to non-abstract and inventive improvements to the functionality of a computer and solution to the significant technology problem of being unable to span simulated time that previously existed in simulating modeling. Therefore, Simio asks the Panel and/or this Court *en banc* to rehearing and reconsider this matter.

Dated: January 27, 2021

Respectfully submitted,

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ADDENDUM

United States Court of Appeals for the Federal Circuit

SIMIO, LLC,
Plaintiff-Appellant

v.

FLEXSIM SOFTWARE PRODUCTS, INC.,
Defendant-Appellee

2020-1171

Appeal from the United States District Court for the District of Utah in No. 2:18-cv-00853-DB, Senior Judge Dee V. Benson.

Decided: December 29, 2020

DAVID G. OBERDICK, Meyer, Unkovic & Scott, Pittsburgh, PA, argued for plaintiff-appellant. Also represented by JOSEPH AARON CARROLL; JAMES C. WATSON, H. DICKSON BURTON, TraskBritt, P.C., Salt Lake City, UT.

MARK A. MILLER, Dorsey & Whitney LLP, Salt Lake City, UT, argued for defendant-appellee. Also represented by BRETT L. FOSTER, ELLIOT HALES.

Before PROST, *Chief Judge*, CLEVENGER and STOLL, *Circuit Judges*.

PROST, *Chief Judge*.

Simio, LLC ("Simio") sued FlexSim Software Products, Inc. ("FlexSim") in the United States District Court for the District of Utah for infringing U.S. Patent No. 8,156,468 ("the '468 patent"). The district court held the asserted claims of the '468 patent ineligible for patenting under 35 U.S.C. § 101 and, as a result, dismissed the action because Simio's complaint failed to state a claim upon which relief could be granted. Simio then moved for leave to file an amended complaint, which the district court denied.

Simio appeals the dismissal and the denial of its motion for leave to amend. We affirm.

BACKGROUND

I

The '468 patent is titled "System and Method for Creating Intelligent Simulation Objects Using Graphical Process Descriptions." Its background section describes different types of simulations, including those that are event-oriented, process-oriented, and object-oriented, the last of which is relevant here. '468 patent col. 2 l. 10–col. 3 l. 26.

Object-oriented simulations are, as the name suggests, based on "objects." Objects can be things in the simulation, such as people, vehicles, or machines. Although the patent acknowledges that object-oriented simulations have existed since the 1960s, *id.* at col. 2 ll. 10–19, it states that earlier object-oriented simulation products were "programming-based tools" that were "largely shunned by practitioners as too complex," *id.* at col. 3 ll. 13–14. The patent also describes a trend that emerged in the 1980s and 1990s: using graphics to simplify building simulations. *See id.* at col. 2 ll. 46–54 ("The introduction of Microsoft Windows

made it possible to build improved graphical user interfaces and a number of new graphically based tools emerged . . . .").

The '468 patent's purported invention concerns making object-oriented simulation easier and more accessible by letting users build simulations with graphics instead of programming:

> Objects are built using the concepts of object-orientation. Unlike other object-oriented simulation systems, however, the process of building an object in the present invention is simple and completely graphical. There is no need to write programming code to create new objects.

Id. at col. 8 ll. 22–26; *see also id.* at col. 4 ll. 39–42 ("Unlike existing object-oriented tools that require programming to implement new objects, Simio™ objects can be created with simple graphical process flows that require no programming."), col. 6 ll. 50–53 ("The present invention is designed to make it easy for beginning modelers to build their own intelligent objects . . . . Unlike existing object-based tools, no programming is required to add new objects.").

Claim 1 is the only independent claim.[1] It recites:

> A computer-based system for developing simulation models on a physical computing device, the system comprising:
>
> one or more graphical processes;

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[1] The district court discussed only claim 1. Because Simio also discusses only claim 1 and does not separately argue any other claim's eligibility, we treat claim 1 as representative for purposes of our eligibility analysis. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1352 (Fed. Cir. 2016).

> one or more base objects created from the one or more graphical processes,
>
> wherein a new object is created from a base object of the one or more base objects by a user by assigning the one or more graphical processes to the base object of the one or more base objects;
>
> wherein the new object is implemented in a 3-tier structure comprising:
>
> > an object definition, wherein the object definition includes a behavior,
> >
> > one or more object instances related to the object definition, and
> >
> > one or more object realizations related to the one or more object instances;
>
> wherein the behavior of the object definition is shared by the one or more object instances and the one or more object realizations; and
>
> an executable process to add a new behavior directly to an object instance of the one or more object instances without changing the object definition and the added new behavior is executed only for that one instance of the object.

This last limitation—the "executable-process limitation" (also referred to as the "add-on limitation")—concerns changing a particular object's behavior without changing the object's overall definition in the simulation. By way of an example given during prosecution, in a simulation containing an object definition for "Poodle" and poodles Sam and Fred, a user might independently change Sam's behavior (e.g., make him tend to chase cars) without similarly changing the behavior of Fred or any other poodle.

II

Simio's complaint accused FlexSim of infringing claims 1–3, 6, 8, and 9 of the '468 patent (the "asserted claims"). On December 21, 2018, FlexSim moved to dismiss the complaint under Federal Rule of Civil Procedure 12(b)(6), arguing that it failed to state a claim upon which relief could be granted because the asserted claims are ineligible for patenting under 35 U.S.C. § 101.

On January 18, 2019, before Simio filed its opposition to the motion to dismiss, the parties jointly submitted a report to the district court agreeing to a March 15, 2019 deadline to move to amend pleadings. The court adopted the parties' proposed deadline and set March 15, 2019, as the "Last Day to File Motion to Amend Pleadings (absent good cause)" in its January 23, 2019 scheduling order. J.A. 145.

Simio filed its opposition to the motion to dismiss on February 8, 2019. The opposition included a footnote stating: "Simio also reserves the right to amend its [c]omplaint in order to more fully develop these issues." J.A. 175 n.8 (citing *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121 (Fed. Cir. 2018)). FlexSim replied, and the district court held a hearing on the motion on May 29, 2019.

The district court applied the two-step framework set forth in *Alice Corp. Pty. Ltd. v. CLS Bank International*, 573 U.S. 208 (2014), and held the asserted claims ineligible. *Simio, LLC v. FlexSim Software Prods., Inc.*, No. 2:18-cv-00853, 2019 WL 2552243, at *3–4 (D. Utah June 20, 2019) ("*Dismissal Op.*"). In a thoughtful opinion, the court concluded that (1) the claims are directed to "the decades-old computer programming practice of substituting text[-]based coding with graphical processing," which the court determined was an ineligible abstract idea and (2) considering the claim elements both individually and as an ordered combination, FlexSim "met its burden of showing no inventive concept or alteration of computer functionality sufficient to transform the system into a patent-

eligible application." *Id.* The district court accordingly granted the motion to dismiss.[2]

After the court's dismissal and entry of judgment, Simio moved for reconsideration under Rule 59(e) and leave to file a proposed amended complaint ("PAC"). The district court denied both. It concluded that Simio had failed to justify reconsideration, having presented no intervening change in law, previously unavailable evidence, or need to correct clear error or manifest injustice. *Simio, LLC v. FlexSim Software Prods., Inc.*, No. 2:18-cv-00853, 2019 WL 5423609, at *3 (D. Utah Oct. 23, 2019). The court also concluded that "amendment would be futile because the new factual allegations [in the PAC] are inadequate to remedy the '468 patent on the merits." *Id.* It did not reach FlexSim's argument that because Simio moved for leave to amend after the scheduling order's deadline and did not show good cause for missing that deadline, leave to amend should be denied.

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[2] The district court also held the asserted claims ineligible for not falling into any of § 101's four categories of eligible subject matter: "process," "machine," "manufacture," or "composition of matter." In particular, the court determined that the claims did not fall into the "machine" category (which was the only category Simio relied on). *Dismissal Op.*, 2019 WL 2552243, at *2–3 (citing *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014)). We need not reach this issue, however, because even assuming the claims fall into the "machine" category, we conclude that they nonetheless claim nothing more than an ineligible abstract idea under *Alice*'s two-step framework. *See Alice*, 573 U.S. at 224 (explaining that claims to, "in § 101 terms, a 'machine,'" may nonetheless be ineligible for claiming one of these exceptions).

Simio timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review a district court's dismissal for failure to state a claim under the regional circuit's law. *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1347 (Fed. Cir. 2016). The Tenth Circuit reviews such dismissals de novo, "accept[ing] all well-pled factual allegations as true and view[ing] these allegations in the light most favorable to the nonmoving party." *Evans v. Diamond*, 957 F.3d 1098, 1100 (10th Cir. 2020) (quoting *Peterson v. Grisham*, 594 F.3d 723, 727 (10th Cir. 2010)).

We also review a district court's denial of motions for reconsideration and leave to amend a complaint under the regional circuit's law. *Del. Valley Floral Grp., Inc. v. Shaw Rose Nets, LLC*, 597 F.3d 1374, 1379 (Fed. Cir. 2010) (reconsideration); *Chi. Bd. Options Exch., Inc. v. Int'l Sec. Exch., LLC*, 677 F.3d 1361, 1374 (Fed. Cir. 2012) (leave to amend a complaint). The Tenth Circuit reviews such denials for abuse of discretion, but when leave to amend is denied for futility, review of the legal basis for an amendment's futility is de novo. *Johnson v. Spencer*, 950 F.3d 680, 707 n.10, 720–21 (10th Cir. 2020).

Patent eligibility under § 101 is a question of law that may involve underlying questions of fact. *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1342 (Fed. Cir. 2018). We review the district court's ultimate conclusion on patent eligibility de novo. *Id.* A patent may be determined ineligible at the Rule 12(b)(6) stage "when there are no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law." *Aatrix*, 882 F.3d at 1125.

We first address the dismissal for patent ineligibility, then the denial of leave to amend the complaint.[3]

I

Section 101 of the Patent Act defines patent-eligible subject matter as "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. "This provision, however, contains longstanding judicial exceptions, which provide that laws of nature, natural phenomena, and abstract ideas are not eligible for patenting." *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 765 (Fed. Cir. 2019) (citing *Alice*, 573 U.S. at 216).

At step one of *Alice*'s two-step framework, we "determine whether the claim[] at issue [is] directed to" an abstract idea. *Alice*, 573 U.S. at 218. If so, we move to step two, where we "examine the elements of the claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-

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[3] Although Simio purports to separately appeal the district court's denial of reconsideration, *see* Appellant's Br. 3–4, 64, its opening brief makes no supporting argument distinct from its arguments concerning the original dismissal or denial of leave to amend the complaint. In the Tenth Circuit, grounds warranting Rule 59(e) reconsideration include (1) an intervening change in controlling law, (2) new evidence previously unavailable, and (3) the need to correct clear error or prevent manifest injustice. *Servants of the Paraclete v. Does*, 204 F.3d 1005, 1012 (10th Cir. 2000). Simio has shown none of these—much less explained how the district court abused its discretion by not finding them. Therefore, to the extent Simio separately appeals the district court's denial of reconsideration, we affirm.

eligible application." *Id.* at 221 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72, 80 (2012)).

A

Under step one's directed-to inquiry, we ask "what the patent asserts to be the focus of the claimed advance over the prior art," *Solutran, Inc. v. Elavon, Inc.*, 931 F.3d 1161, 1168 (Fed. Cir. 2019) (cleaned up), to determine whether the claim's "character as a whole" is directed to ineligible subject matter, *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257–58 (Fed. Cir. 2016).

The '468 patent showcases its key advance: using graphics instead of programming to create object-oriented simulations. '468 patent col. 8 ll. 22–26 ("Objects are built using the concepts of object-orientation. Unlike other object-oriented simulation systems, however, the process of building an object in the present invention is simple and completely graphical. There is no need to write programming code to create new objects."); *see id.* at col. 4 ll. 39–42 ("Unlike existing object-oriented tools that require programming to implement new objects, Simio™ objects can be created with simple graphical process flows that require no programming."), col. 4 ll. 47–50 ("By making object building a much simpler task that can be done by non-programmers, this invention can bring an improved object-oriented modeling approach to a much broader cross-section of users."), col. 6 ll. 50–53 ("The present invention is designed to make it easy for beginning modelers to build their own intelligent objects . . . . Unlike existing object-based tools, no programming is required to add new objects."), col. 8 ll. 60–62 ("In the present invention, a graphical modeling framework is used to support the construction of simulation models designed around basic object-oriented principles."), col. 9 l. 67–col. 10 l. 3 ("In the present invention, this logic is defined graphically . . . . In other tools,

this logic is written in programming languages such as C++ or Java.").

This purported advance is claim 1's focus as well—particularly when read in light of the above. *See TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1292 (Fed. Cir. 2020) (observing that the directed-to inquiry focuses on the claim language itself, read in light of the specification). Claim 1's preamble relates to "developing simulation models," and the claim then describes creating objects with graphics—reciting "one or more graphical processes," "one or more base objects created from the one or more graphical processes," and "wherein a new object is created from a base object . . . by assigning the one or more graphical processes to the base object." Although a few limitations follow, aside from the executable-process limitation (which we discuss below), Simio does not rely on any of them for its eligibility arguments.

As the '468 patent acknowledges, using graphical processes to simplify simulation building has been done since the 1980s and 1990s. '468 patent col. 2 ll. 46–54; *see id.* at col. 1 ll. 25–32 (describing "the shift from programming to graphical modeling" as an important advance—albeit one "made 25 years ago").[4] Simply applying the already-widespread practice of using graphics instead of programming to the environment of *object-oriented* simulations is no more than an abstract idea. *See FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1094 (Fed. Cir. 2016) (citing *Alice*, 573 U.S. at 219–20) (holding claims directed to an abstract idea because, among other things, they "merely implement[ed] an old practice in a new environment"). Indeed, here, the claim is "directed to the use of conventional

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[4] The application leading to the '468 patent was filed in May 2009, and it claims priority from an application filed in September 2008. *See* '468 patent, at [22], [63]; *id.* at col. 1 ll. 9–11.

or generic technology [i.e., graphical processing generally] in a . . . well-known environment [i.e., object-oriented simulations], without any claim that the invention reflects an inventive solution to any problem presented by combining the two." *See In re TLI Commc'ns LLC Pat. Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016) (holding claims directed to an ineligible abstract idea, as opposed to an eligible improvement in computer functionality).

And where, as here, "the abstract idea tracks the claim language and accurately captures what the patent asserts to be the focus of the claimed advance . . . , characterizing the claim as being directed to an abstract idea is appropriate." *Solutran*, 931 F.3d at 1168 (cleaned up). Accordingly, we agree with the district court and FlexSim that (trivial differences in articulations aside) the claim is directed to the abstract idea of using graphics instead of programming to create object-oriented simulations.

Simio maintains that claim 1 is not directed to an abstract idea because it "present[s] improvements to computer-implemented simulation, resulting in improvements in the computers' capabilities." Appellant's Br. 33. To be sure, "software can make patent-eligible improvements to computer technology, and related claims are eligible as long as they are directed to non-abstract improvements to the functionality of a computer . . . itself." *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1309 (Fed. Cir. 2020). But Simio has not shown how claim 1 is directed to improving a computer's functionality.

For example, Simio argues that the claim "improves on the functionality of prior simulation systems through the use of graphical or process modeling flowcharts with no programming code required." Appellant's Br. 33. But this argument does not explain how the *computer's* functionality is improved beyond the inherent improvement of the experience of a user who cannot (or maybe, would rather not) use programming. In this case, "improving a user's

experience while using a computer application is not, without more, sufficient to render the claims directed to an improvement in computer functionality." *Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359, 1365 (Fed. Cir. 2020) (citing *Trading Techs. Int'l, Inc. v. IBG LLC*, 921 F.3d 1084, 1092–93 (Fed. Cir. 2019)).

Simio also asserts that claim 1 improves a computer's functionality "by employing a new way of customized simulation modeling with improved processing speed." Appellant's Br. 41. FlexSim responds, however, that this allegedly improved "processing speed" is not that of the *computer*; rather, it concerns only a user's ability to build (or "process") simulation models faster by using graphics instead of programming. *See* Appellee's Br. 39. Simio does not contest this characterization in its reply brief. *See* Reply Br. 16–17. We reject Simio's argument, because "'claiming the improved speed or efficiency inherent with applying the abstract idea on a computer' [is] insufficient to render the claims patent eligible as an improvement to computer functionality." *Customedia*, 951 F.3d at 1364 (quoting *Intell. Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1367, 1370 (Fed. Cir. 2015)); *see also BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1288 (Fed. Cir. 2018) ("These benefits, however, are not improvements to database functionality. Instead, they are benefits that flow from performing an abstract idea in conjunction with a well-known database structure.").

Continuing with its "improves computer functionality" argument, Simio marshals an array of cases in which we have found eligibility at step one—including *Enfish*, *McRO*, and *KPN*—and argues that they are analogous. Each is readily distinguished. In *Enfish*, the claims were eligible at step one because they were directed to a self-referential table that improved a computer's functionality by improving the way it stored and retrieved data in memory. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336–39 (Fed. Cir. 2016); *see BASCOM*, 827 F.3d at 1349 ("The

Enfish claims, understood in light of their specific limitations, were unambiguously directed to an improvement in computer capabilities."). In *McRO*, the claims were eligible at step one because they used a "combined order of specific rules" to achieve "an improved technological result." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1315–16 (Fed. Cir. 2016). And in *KPN*, the claims were step-one eligible given their "specific implementation of varying the way check data is generated," which was a technological improvement—indeed, an undisputed one—over the prior art's ability to detect systematic errors. *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1150–51 (Fed. Cir. 2019). In each of these cases, the nature of the claims read in light of their specifications confirmed that they were directed to—were focused on—an actual technological improvement. The same cannot be said here.

Simio finally emphasizes the executable-process limitation and argues that it reflects an improvement to computer functionality sufficient to survive step-one scrutiny:

> an executable process to add a new behavior directly to an object instance of the one or more object instances without changing the object definition and the added new behavior is executed only for that one instance of the object.

'468 patent claim 1.

We conclude that this limitation does not, by itself, change the claim's "character as a whole" from one directed to an abstract idea to one that's not. *See Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1316 (Fed. Cir. 2019) ("While some of the limitations noted by [patentee] . . . may evidence an inventive concept . . . , none of them change the fact that the claims as a whole . . . are directed to an abstract idea."); *BSG Tech*, 899 F.3d at 1289 ("[M]erely reciting components more specific than a generic computer does not preclude a claim from being directed to an abstract idea."); *cf. BASCOM*, 827 F.3d at 1348 (noting that, in some

cases involving computer-related claims, "there may be close calls about how to characterize what the claims are directed to," and that in such cases "an analysis of whether there are arguably concrete improvements in the recited computer technology could take place under step two" (quoting *Enfish*, 822 F.3d at 1339)).

The specification supports our conclusion. In stark contrast to its heavy focus on the abstract idea of using graphics instead of programming to create object-oriented simulations, the specification dedicates relatively little attention to the functionality reflected in the executable-process limitation. *Compare, e.g.*, '468 patent col. 4 ll. 29–42 (noting that "the present invention makes model building dramatically easier," as "Simio™ objects" can be created with graphics, requiring no programming), *and id.* at col. 4 ll. 47–50 (describing "this invention" as one that makes object-building simpler, in that it "can be done by non-programmers"), *and id.* at col. 6 ll. 50–53 (describing "[t]he present invention" as one requiring no programming to build objects), *and id.* at col. 8 ll. 23–26 ("Unlike other object-oriented simulation systems, however, the process of building an object in the present invention is simple and completely graphical. There is no need to write programming code to create new objects."), *and id.* at col. 8 ll. 60–62 ("In the present invention, a graphical modeling framework is used to support the construction of simulation models designed around basic object-oriented principles."), *with* col. 15 l. 45–col. 16 l. 6 (describing the executable-process limitation). This disparity—in both quality and quantity—between how the specification treats the abstract idea and how it treats the executable-process limitation suggests that the former remains the claim's focus. *See ChargePoint*, 920 F.3d at 768 (finding that the patent's identified problem and the way it describes the invention "strongly suggests that the abstract idea" identified in the claim "may indeed be the focus of that claim"); *TLI Commc'ns*, 823 F.3d at 611 (observing that "the specification's

emphasis that the present invention [relates to an abstract concept] underscores that [the claim] is directed to an abstract concept").

Further supporting our conclusion is Simio's own characterization of the executable-process limitation. According to Simio, this limitation reflects that "a new behavior can be added to one instance of a simulated object *without the need for programming*." Appellant's Br. 6 (emphasis added) (footnote omitted); *see also* Reply Br. 5 (describing this limitation as reflecting an "executable process that *applies the graphical process to the object* (i.e., by applying only to the object instance not to the object definition)" (emphasis added)). While somewhat more specific than the abstract idea of using graphics instead of programming to create object-oriented simulations, these characterizations' close alignment with that idea supports our conclusion that the focus of the claimed advance remains the abstract idea. Accordingly, this limitation is better considered as a potentially inventive application of the abstract idea at step two, rather than as sufficient to shift the claim's focus away from the abstract idea at step one. *See Cellspin*, 927 F.3d at 1316 (deferring to step two consideration of limitations that did not "change the fact that the claims *as a whole* . . . are directed to an abstract idea" (emphasis added)); *BASCOM*, 827 F.3d at 1348–49 (deferring to step two consideration of specific limitations where "the claims and their specific limitations [did] not readily lend themselves to a step-one finding that they are directed to a nonabstract idea").

B

At 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." *Alice*, 573 U.S. at 217 (cleaned up). This "transformation into a patent-eligible application requires more than simply

stating the abstract idea while adding the words 'apply it.'" *Id.* at 221 (cleaned up). We are looking for an "inventive concept"—"an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more" than a patent on the abstract idea itself. *Id.* at 217–18 (cleaned up). Whether the claim "supplies an inventive concept that renders [it] 'significantly more' than an abstract idea to which it is directed is a question of law." *BSG Tech*, 899 F.3d at 1290. And, critically, "a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept." *Id.*

Simio says the executable-process limitation provides the necessary inventive concept. Appellant's Br. 52 n.11. But its statements at oral argument undermine this assertion. When pressed as to whether the functionality reflected in the executable-process limitation was conventional or known in object-oriented programming, Simio confirmed that it was. Oral Arg. at 6:14–7:31.[5] Simio, however, distinguished the claimed invention by saying that it "us[es] a visual flowchart . . . whereby [a] behavior can be modified, and whereby you do not, as a user, need to know and understand and implement software programming." *Id.* at 7:32–56; *see id.* at 7:59–8:17 ("[T]he idea of using programming to alter a behavior was known; the idea of using a visual process . . . to modify the behavior as part of that simulation system was not known.").[6] In other

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[5] No. 20-1171, http://www.cafc.uscourts.gov/oral-argument-recordings ("Oral Arg.").

[6] These statements accord with Simio's characterizations of this limitation in its briefing. Appellant's Br. 6 ("[A] new behavior can be added to one instance of a simulated object *without the need for programming*." (emphasis

words, while Simio acknowledges that implementing the executable process's functionality through *programming* was conventional or known, it contends that doing so with *graphics* in a simulation provides the inventive concept necessary to confer eligibility. But what Simio relies on is just the abstract idea itself, which "cannot supply the inventive concept that renders the invention 'significantly more' than that [abstract idea]" at step two. *BSG Tech*, 899 F.3d at 1290; *see ChargePoint*, 920 F.3d at 774.

Simio stresses that the executable-process limitation is novel. But "[e]ven assuming that is true, it does not avoid the problem of abstractness." *Affinity Labs*, 838 F.3d at 1263; *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) ("That some of [these] steps were not previously employed in this art is not enough—standing alone—to confer patent eligibility upon the claims . . . ."). Indeed, "a claim for a *new* abstract idea is still an abstract idea." *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (explaining that the search for an inventive concept under § 101 is distinct from demonstrating novelty under § 102).

And that's really what we have: a claim directed to the idea of using graphics instead of programming to create object-oriented simulations—maybe a new idea, but still an abstract one—and lacking any inventive concept, any meaningful *application* of this idea, sufficient to save the claim's eligibility. *See BSG Tech*, 899 F.3d at 1290–91 ("If a claim's only 'inventive concept' is the application of an abstract idea using conventional and well-understood techniques, the claim has not been transformed into a patent-

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added) (footnote omitted)); Reply Br. 5 (describing this limitation as reflecting an "executable process that *applies the graphical process to the object* (i.e., by applying only to the object instance not to the object definition)" (emphasis added)).

eligible application of an abstract idea."). We therefore affirm the district court's dismissal.

II

We now address whether the district court properly denied Simio leave to amend its complaint. We affirm the court's futility-based denial. We also affirm the denial on the independent, alternative ground that Simio failed to show good cause for its untimely motion for leave to amend.

A

The district court denied leave to amend as futile because it concluded that the new factual allegations in the PAC did not save the asserted claims from ineligibility at the pleadings stage. *See, e.g.*, *Jefferson Cnty. Sch. Dist. No. R–1 v. Moody's Inv.'s Servs., Inc.*, 175 F.3d 848, 859 (10th Cir. 1999) ("A proposed amendment is futile if the complaint, as amended, would be subject to dismissal."). We review the legal basis for the court's futility conclusion de novo. *Johnson*, 950 F.3d at 720–21.

Although we have already discussed the claims' ineligibility at length, Simio makes two eligibility arguments particularly relevant to the denial of leave to amend. First, it argues that the PAC's new allegations were sufficient to preclude dismissal for ineligibility. Second, it argues that the district court erred by finding ineligibility without first conducting claim construction.[7]

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[7] Simio also argues that the district court should have conducted claim construction before dismissing in the first place, but we view its argument for claim construction as more applicable to the denial of leave to amend, because Simio raised and developed most of its claim-construction arguments for the first time in its motion for leave to amend. Because we conclude here that the district court

As to Simio's first argument, we disagree that the PAC's new allegations are sufficient to preclude dismissal. Simio directs us to allegations concerning the executable-process limitation and its purported benefits, quoting one such allegation in its entirety, which we deem illustrative:

> [T]he claimed executable process improves the functioning and operations of the computer, itself, as the creation and modification of a simulation objects, and the addition of new behaviors to object instances, can be done more efficiently and without the need for software programming. In addition, the claimed system requires less programming in operation and results in faster processing speed. Further, a user of the invention can more efficiently customize simulation objects for use in the user's modeled system. Such customization, in turn, provides a more useful and powerful simulation model to the user.

Appellant's Br. 50 (quoting J.A. 893 ¶ 100).

We disregard conclusory statements when evaluating a complaint under Rule 12(b)(6). *E.g.*, *Khalik v. United Air Lines*, 671 F.3d 1188, 1191 (10th Cir. 2012). A statement that a feature "improves the functioning and operations of the computer" is, by itself, conclusory. And the allegations in support of that conclusion just repackage assertions of non-abstractness we've already rejected as a matter of law—for example, the improved "efficiency" and "processing speed" (again, Simio means the user's speed, not

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did not err in finding the claims ineligible without first conducting claim construction, we need not reach FlexSim's contentions that Simio waived (or rather, forfeited) any claim-construction arguments by not raising or adequately developing them before the district court ruled on the motion to dismiss.

the computer's) inherent with applying the abstract idea of using graphics instead of programming to create object-oriented simulations. *See Customedia*, 951 F.3d at 1364 ("[C]laiming the improved speed or efficiency inherent with applying the abstract idea on a computer [is] insufficient to render the claims patent eligible as an improvement to computer functionality." (cleaned up)); *Intell. Ventures I*, 792 F.3d at 1370 ("[O]ur precedent is clear that merely adding computer functionality to increase the speed or efficiency of the process does not confer patent eligibility on an otherwise abstract idea."). This is therefore not a case in which a complaint's allegations "prevent resolving the eligibility question as a matter of law." *Aatrix*, 882 F.3d at 1125.

Simio's second argument—that the district court erred by determining ineligibility without first conducting claim construction—is also unpersuasive. The main problem with this argument is that Simio has not explained how it might benefit from any particular term's construction under an *Alice* § 101 analysis. Rather, Simio limits its specific claim-construction arguments to showing that claim 1 is to a statutorily eligible "machine." *See, e.g.*, Appellant's Br. 21–23, 26–30. We therefore see no error in the district court's determining ineligibility without first conducting claim construction. *See Elec. Commc'n Techs., LLC v. ShoppersChoice.com, LLC*, 958 F.3d 1178, 1184 (Fed. Cir. 2020) (concluding that the district court properly resolved patent eligibility at the pleadings stage without first conducting claim construction where the patentee did not explain how any term's construction "could affect the analysis").

B

We also affirm the district court's denial of leave for a different reason: Simio failed to show good cause for seeking leave to amend only after the scheduling order's deadline. Although the district court did not reach this issue,

we may affirm on "any grounds for which there is a record sufficient to permit conclusions of law, even grounds not relied upon by the district court." *Lambertsen v. Utah Dep't of Corr.*, 79 F.3d 1024, 1029–30 (10th Cir. 1996) (quoting *United States v. Sandoval*, 29 F.3d 537, 542 n.6 (10th Cir. 1994)) (affirming denial of motion to amend complaint because, among other things, plaintiff failed to provide an adequate explanation for its delay in seeking amendment); *see Johnson*, 950 F.3d at 720 ("Although the district court justified its denial of leave to amend on other bases, we may affirm on any ground supported by the record . . . ."). Here, the record supports concluding that Simio failed to show good cause for its requested post-deadline amendment.

In the Tenth Circuit, parties seeking leave to amend after a scheduling-order deadline must demonstrate good cause under Rule 16(b)(4).[8] *Gorsuch, Ltd., B.C. v. Wells Fargo Nat'l Bank Ass'n*, 771 F.3d 1230, 1240 (10th Cir. 2014); *see* Fed. R. Civ. P. 16(b)(4) (providing that a scheduling order "may be modified only for good cause and with the judge's consent"). Satisfying this standard "requires the movant to show the scheduling deadlines cannot be met despite the movant's diligent efforts." *Gorsuch*, 771 F.3d at 1240 (cleaned up). The standard may be satisfied if, for example, a movant learns new information through discovery or the underlying law has changed. *Id.* Ultimately, demonstrating good cause requires the movant to "provide an adequate explanation for any delay." *Tesone v. Empire Mktg. Strategies*, 942 F.3d 979, 988 (10th Cir. 2019)

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[8] Such parties must also satisfy Rule 15(a)'s standard, but because we find that Simio failed to show good cause under Rule 16(b)(4), we need not consider whether it satisfied Rule 15(a). *See Birch v. Polaris Indus., Inc.*, 812 F.3d 1238, 1247–49 (10th Cir. 2015).

(quoting *Husky Ventures, Inc. v. B55 Invs., Ltd.*, 911 F.3d 1000, 1020 (10th Cir. 2018)).

Simio fails to show why it could not have met the amendment deadline with diligence. It concedes that the PAC contained no facts that couldn't have been alleged before the deadline. Oral Arg. at 10:08–20; *see Tesone*, 942 F.3d at 991 (affirming denial of leave to amend based on lack of good cause where the movant admitted she "was aware of the facts on which the amendment was based for some time prior to the filing of the motion to amend" (quoting *Fed. Ins. Co. v. Gates Learjet Corp.*, 823 F.2d 383, 387 (10th Cir. 1987))). Nor has Simio demonstrated any change of law that might justify its belated amendment. We also cannot say that "the need for more time was neither foreseeable nor [the movant's] fault." *See Tesone*, 942 F.3d at 988 (quoting 3 James Wm. Moore et al., *Moore's Federal Practice* § 16.14[1][b] (3d ed. 2019)). Here, Simio agreed to the deadline in the face of FlexSim's pending motion to dismiss based on ineligibility.

Attempting to justify its delay, Simio directs us to a footnote tucked into its motion-to-dismiss opposition, which said: "Simio also reserves the right to amend its [c]omplaint in order to more fully develop these issues." J.A. 175 n.8 (citing *Aatrix*, 882 F.3d 1121). According to Simio, this footnote shows that it "acted with diligence in reserving its right to amend."[9] Reply Br. 20. We disagree

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[9] It is unclear what "right" to amend Simio was reserving at this point. Although Rule 15 gives plaintiffs the right to amend their complaint "once as a matter of course" within 21 days after service of a Rule 12(b) motion or an answer (whichever is earlier), *see* Fed. R. Civ. P. 15(a)(1)(B), FlexSim served both its Rule 12(b)(6) motion and answer (in that order) on December 21, 2018. This 21-day period therefore expired well before Simio's February 8, 2019 motion-to-dismiss opposition.

that this footnote helps Simio. Initially, we note that the Tenth Circuit takes a dim view of "drive-by requests to amend the complaint," having "repeatedly held that a bare request to amend in response to a motion to dismiss is insufficient to place the court and opposing parties on notice of the plaintiff's request to amend and the particular grounds upon which such a request would be based." *Johnson*, 950 F.3d at 721 (cleaned up). Here, we question whether Simio's reservation of its purported right even arose to the level of such a request. But assuming it did, Simio has supplied no authority suggesting that this kind of drive-by request insulates a party from the consequences of missing the amendment deadline, or that it otherwise helps a party show good cause. If anything, Simio's pre-deadline recognition of an amendment's potential impact seems to cut against its showing of good cause for missing the deadline. *Cf. Tesone*, 942 F.3d at 991 (weighing against the movant her prior acknowledgment that she might need to add an additional claim).

Having heard from Simio no adequate explanation for its delay in seeking amendment, we affirm the district court's denial of leave to amend on the independent, alternative ground that Simio failed to show good cause under Rule 16(b)(4).

CONCLUSION

We have considered Simio's remaining arguments but find them unpersuasive. For the foregoing reasons, we affirm the district court's dismissal and denial of leave to amend the complaint.

AFFIRMED

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

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