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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* MARK NICHOLS

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Appeal 2016-006636  
Application 12/390,356<sup>1</sup>  
Technology Center 3600

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Before ANTON W. FETTING, BRADLEY B. BAYAT, and  
TARA L. HUTCHINGS, *Administrative Patent Judges*.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Mark Nichols (“Appellant”) seeks our review under 35 U.S.C. § 134 from the decision rejecting claims 1–9. We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

We AFFIRM.

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<sup>1</sup> Appellant identifies “Trimble Navigation Ltd.” as the real party in interest. Appeal Brief (filed Oct. 28, 2015 (hereinafter “Br.”)) 1.

## THE INVENTION

Appellant's invention is "related to the field of construction site management" (Spec. ¶ 1). Claim 1, the sole independent claim on appeal, is reproduced below and representative of the claimed subject matter:

1. A computer implemented method for adaptive construction sequencing, said method comprising:
  - using a scheduling component implemented by a processor of a computer system to generate a schedule for completing a project, wherein said schedule comprises a sequence of events to take place in performing said project;
  - using a 3-D simulation component implemented by said processor of said computer system to access a 3-dimensional (3-D) model of at least one component used in completing the project;
  - using said 3-D simulation component implemented by said processor of said computer system to generate a 3-D simulation showing the construction of the project in accordance with said schedule wherein said schedule is created by dragging a 3-D model of said at least one component into a 3-D terrain model of a worksite; and
  - using a cost estimating component implemented by said processor of said computer system to generate a cost estimate of the cost of completing the project in accordance with said schedule and wherein said cost estimating component uses said sequence of events

described in said schedule, as well as a vehicular traffic pattern created during said project, to determine said cost estimate.

Br. 25, Claims App.

#### THE REJECTIONS

The following rejections are before us for review.

1. Claims 1–9 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Final Office Action (mailed July 21, 2015 (hereinafter “Final Act.”)) 6–7.
2. Claims 1–3 are rejected under 35 U.S.C. § 103(a) as unpatentable over Blackmon (US 2005/0171790 A1; pub. Aug. 4, 2005), Barros (US 2009/0138826 A1; pub. May 28, 2009), and Thiel et al. (US 8,280,697 B2; iss. Oct. 2, 2012). Final Act. 7–10.
3. Claim 4 is rejected under 35 U.S.C. § 103(a) as unpatentable over Blackmon, Barros, Thiel, and Mehta et al. (US 7,292,965 B1; iss. Nov. 6, 2007). Final Act. 10–11.
4. Claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as unpatentable over Blackmon, Barros, Thiel, and Jung (US 2003/0208342 A1; pub. Nov. 6, 2003). Final Act. 11–12.
5. Claims 7–9 are rejected under 35 U.S.C. § 103(a) as unpatentable over Blackmon, Barros, Thiel, and Burns et al. (US 5,189,606; iss. Feb. 23, 1993). Final Act. 12–13.

## ANALYSIS

### *Non-Statutory Subject Matter Rejection*

We are not persuaded that Appellant has shown reversible error as to the Examiner's non-statutory subject matter rejection.

Under 35 U.S.C. § 101, an invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted 35 U.S.C. § 101 to include an implicit exception: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (citation omitted).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289, 1300 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts,” such as an abstract idea. *Id.* If the claims are not directed to a patent-ineligible concept, the inquiry ends. Otherwise, the inquiry proceeds to the second step to look at the claim for “something more” by “examin[ing] the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 2354, 2357 (quoting *Mayo*, 132 S. Ct. at 1294, 1298). This inventive concept must do more than simply recite “well-understood, routine, conventional activity.” *Mayo*, 132 S. Ct. at 1298.

*Alice Step One*

Applying the framework in *Alice*, and as the first step of that analysis, the Examiner determined “[c]laim(s) 1–9 are directed to project modeling, simulation and cost estimation, which are abstract ideas falling within the abstract idea exception to § 101.” Final Act. 6. According to the Examiner, the concept of “[p]roject management and cost estimation could well be described as a fundamental economic practice (concepts relating to the economy or commerce) or a method of organizing human activity (managing transactions between people).” Examiner’s Answer (mailed Apr. 20, 2016 (hereinafter “Ans.”)) 4. The Examiner reasoned that prior to the advent of computers, architectural project management processes were performed manually. *Id.*

Appellant argues

that at least the features of, “using said 3-D simulation component implemented by said processor of said computer system to generate a 3-D simulation showing the construction of the project in accordance with said schedule wherein said schedule is created by dragging a 3-D model of said at least one component into a 3-D terrain model of a worksite,” and, “using a cost estimating component implemented by said processor of said computer system to generate a cost estimate of the cost of completing the project in accordance with said schedule and wherein said cost estimating component uses said sequence of events described in said schedule,” (emphasis added) are not Fundamental Economic Practices, Methods of Organizing Human Activity, An Idea of Itself, such as a mental process (thinking), or Mathematical Relationships/Formulas.

Br. 6; *see also id.* at 7–8.

These arguments are unpersuasive because they do not address the Examiner’s actual determination of the patent-ineligible concept. “[T]he

‘directed to’ inquiry [in the claims] applies a stage-one filter to [the] claims, considered in light of the specification, based on whether ‘their character as a whole is directed to excluded subject matter.’” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015). The Examiner’s articulation of the concept to which the claims are directed to (“project modeling, simulation and cost estimation”) is more in line with what is being sought in making the “directed to” inquiry than Appellant’s articulation of specific claimed functions because, for example, “dragging a 3-D model of said at least one component into a 3-D terrain model of a worksite” is not what claim 1 as a whole is directed to, but rather, an element that just one of the steps uses (“generat[ing] a 3-D simulation showing the construction of the project,” “by the processor of the computer system”). Br. 6.

The court in *Enfish* put the question as being “whether the focus of the claims is on [a] 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.” *Enfish*, 822 F.3d at 1336. The court found that the “plain focus of the claims” there was on “an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336.

Claim 1 recites “[a] computer implemented method for adaptive construction sequencing, said method comprising” four steps: “generate a schedule for completing a project...;” “access a 3-dimensional (3-D) model of at least one component used in completing the project;” “generate a 3-D simulation showing the construction of the project...;” and “generate a cost estimate of the cost of completing the project in accordance with said

schedule....” Each of these steps is performed by “using . . . a component implemented by a processor of a computer system.”

In determining the eligibility of Appellant’s claimed process under 35 U.S.C. § 101, the “claims must be considered as a whole.” *Diamond v. Diehr*, 450 U.S. 175, 188 (1981). The question is whether claim 1 as a whole “focus[es] on a specific means or method that improves the relevant technology” or is “directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016). In this case, claim 1 as a whole is focused on determining the cost of completing a construction project based on a schedule of events for completing the project. Claim 1 is not focused on an improvement to the claimed “processor” or “computer system,” but rather, on an economic task for which a computer is merely invoked as a tool and used in its ordinary capacity. *Cf. In re TLI Communications LLC Patent Litigation*, 823 F.3d 607, 613 (Fed. Cir. 2016) (The claims’ focus “was not on an improved telephone unit or an improved server.”).

Appellant’s Specification indicates that invention is “related to the field of construction site management” (Spec. ¶ 1), and more specifically, “[a] computer implemented method and computer system for adaptive construction sequencing.” Spec. ¶ 2. According to the Specification,

sequencing system 200 estimates the cost of completing the project based upon the sequence of events defined in the schedule described above. For example, a given project may be completed using 2 different schedules which define different sequences of events. While the events themselves may be the same, they may be performed in different sequences to complete the project. However, the sequencing of the events may impact the cost of

completing the project. Thus, by comparing the cost estimates, a user can determine which schedule for the project is more cost efficient.

*Id.* ¶ 13.

In one embodiment, scheduler 240 is configured to generate a schedule in which a sequence of events for completing a project is defined. In one embodiment, schedule 290 comprises a spreadsheet which identifies each component or operation which is performed in the project. Each of these components or operations is also associated with a time when that component or operation is to be completed. In one embodiment, *a user can manually enter into the spreadsheet each component/operation and the time of completion.*

*Id.* ¶ 27 (emphasis added). Considered in light of the Specification, we determine the character of claim 1 as a whole is directed to the concept of construction management,<sup>2</sup> which entails generating a cost estimate of completing a construction project based on a planned schedule of sequence of events<sup>3</sup> — a business practice long prevalent and a method of organizing human activity. Accordingly, we find that the Examiner has the better

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<sup>2</sup> “Organizing, scheduling, mobilizing, and directing equipment, material, and personnel in performance of a construction contract.”

<http://www.businessdictionary.com/definition/construction-management.html> (last visited March 15, 2018).

<sup>3</sup> *Cf. Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d at 1353 (When “the focus of the asserted claims” is “on collecting information, analyzing it, and displaying certain results of the collection and analysis,” the claims are directed to an abstract idea.).

position because the Examiner’s articulation of the abstract idea is consistent with our determination.<sup>4</sup>

We note Appellant’s contention that claim 1 is directed to statutory subject matter because it is not attempting to tie up any judicial exception. Br. 6–7 (citing Example 27 System Software-BIOS of the USPTO July 2015 Update Appendix 21–22). But Example 27 is distinguishable from the present claim on appeal. In Example 27, claim 15 involved transferring BIOS code between a remote location and a local computer system. Example 27. The steps of initializing a local computer using BIOS code, triggering transfer of BIOS code between memory locations upon powering up of the computer, and transferring control of the processor operations to the BIOS code recited in Example 27 are directed to a technical invention, not an abstract idea that is merely implemented using generic processor. *Id.* As such, we agree with the Examiner (Ans. 3), and see no parallel between Appellant’s claim 1 and claim 15 of Example 27.

#### *Alice Step Two*

Step two of the *Alice* framework is “a search for an ‘inventive concept’ — i.e., an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 134 S. Ct. at 2355 (citing *Mayo*, 132 S. Ct. at 1294).

In that regard, the Examiner found

the claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial

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<sup>4</sup> “An abstract idea can generally be described at different levels of abstraction.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016).

exception. For example, the additional steps of generating a schedule and accessing a 3-D model, as recited in independent claim 1, are conventional practices and incident to the abstract idea. In addition, the recited hardware functions conventionally, and claims do not purport to offer a transformation, improvements to the functioning of the hardware itself, or an improvement to another technology or technological field akin to the types of recitations previously deemed to constitute significantly more.

Final Act. 6–7.

Appellant argues that the “recited features are other than what is well-understood, routine, and conventional in the field . . . . focused on a specific technical application [and] does not prevent others from creating 3-D models of structures or terrain, creating project schedules, or generating cost estimates.” Br. 11.

We are unpersuaded by Appellant’s argument and find “the claims at issue amount to ‘nothing significantly more’ than an instruction to apply the abstract idea . . . using some unspecified, generic computer.” *Alice*, 134 S. Ct. at 2360 (citing *Mayo*, 132 S. Ct. at 1298). Specifically, claim 1 uses a generic processor to perform “‘well-understood, routine, conventional activit[ies]’ previously known to the industry. *Id.* at 2359 (quoting *Mayo*, 132 S. Ct. at 1294). “[S]imply appending conventional steps, specified at a *high level of generality*, to [] abstract ideas cannot make those [] ideas patentable.” *Mayo*, 132 S. Ct. at 1300 (emphasis added). As discussed, claim 1 recites four steps: (i) “*using* a scheduling component implemented by a processor of a computer system to generate a schedule for completing a project;” (ii) “*using* a 3-D simulation component implemented by said processor of said computer system to access a 3-dimensional (3-D) model;”

(iii) “*using* said 3-D simulation component implemented by said processor of said computer system to generate a 3-D simulation showing the construction of the project in accordance with said schedule wherein said schedule is created by dragging a 3-D model of said at least one component into a 3-D terrain model of a worksite;” and (iv) “*using* a cost estimating component implemented by said processor of said computer system to generate a cost estimate of the cost of completing the project.” *See* Br. 25, Claims App. (emphasis added).

Each of the recited steps in claim 1 merely advises one to use a component implemented by a processor to perform an action. Appellants neither allege that they invented 3-D modeling nor recite any technical implementation in carrying out the recited steps. And each of the actions to be performed upon *using* each recited component: to generate a schedule;<sup>5</sup> to access a 3-D model; to generate a 3-D simulation showing the construction of the project by dragging a 3-D model into a 3D terrain model; and to generate or calculate a cost estimate (Spec. ¶ 49) by a generic processor fails to transform the abstract idea. Each of these actions is well-understood, routine, and conventional in the field of computer technology. The steps in claim 1 are recited at a high level of generality by functionally reciting the result of the steps performed upon using each component, rather than how these steps are actually accomplished.

For example, claim 1 does not recite how a 3-D model is generated, but instead, by implementing a component on a generic processor the result

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<sup>5</sup> *See e.g.*, Spec. ¶ 46 (“using a text or spreadsheet editor alone to generate a schedule”); Spec. ¶ 48 (“schedules 290 can be generated using a spreadsheet program, word editor”).

is achieved. And using 3-D modeling software is well-known and performing drag and drop operations is routine and conventional, requiring nothing more than off-the-shelf computer software and display technology. As such, the above recited steps individually and as an ordered combination, are functions a generic computer conventionally performs. “Taking the claim elements separately, the function performed by the computer at each step of the process is ‘[p]urely conventional.’” *Alice*, 134 S. Ct. at 2359 (citing *Mayo*, 132 S. Ct. at 1298). “Considered ‘as an ordered combination,’ the computer elements of [Appellant’s] method ‘ad[d] nothing . . . that is not already present when the steps are considered separately.’” *Id.* See, e.g., *Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044, 1057 (Fed. Cir. 2017) (“[T]he claims do not provide details as to any non-conventional software for enhancing the financing process.”); *Intellectual Ventures I LLC v. Erie Indemnity Company*, 850 F.3d 1315, 1342 (Fed. Cir. 2017) (Explaining that “[o]ur law demands more” than claim language that “provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it.”); *Electric Power Grp.*, 830 F.3d at 1354 (Explaining that claims are directed to an abstract idea where they do not recite “any particular assertedly inventive technology for performing [conventional] functions.”).

Finally, Appellant’s contention regarding preemption is, likewise, unpersuasive. Br. 7. The Supreme Court has described “the concern that drives this exclusionary principle [i.e., the exclusion of abstract ideas from patent eligible subject matter,] as one of pre-emption” (see *Alice*, 134 S. Ct. at 2354), and characterizing preemption as a driving concern for patent eligibility is not the same as characterizing preemption as the sole test for

patent eligibility. “The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability” and “[f]or this reason, questions on preemption are inherent in and resolved by the § 101 analysis.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2354). Yet, although “preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.” *Id.*; see *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015), *cert. denied*, 136 S. Ct. 701 (2015) (“[T]hat the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do not make them any less abstract”).

For the foregoing reasons, we sustain the rejection of independent claim 1 under 35 U.S.C. § 101, including dependent claims 2–9, which are not argued separately with any specificity. See Br. 14.

#### *Obviousness Rejections*

We are persuaded by Appellant’s arguments that Thiel, on which the Examiner relies, “fails to disclose the feature of using a vehicular traffic pattern created during the project to determine a cost estimate as recited in claim 1.” Br. 17, (*see* Claim 1; “wherein said cost estimating component uses said sequence of events described in said schedule, as well as a vehicular traffic pattern created during said project, to determine said cost estimate.”).

In rejecting claim 1 as obvious over Blackmon, Barros, and Thiel, the Examiner found that neither Blackmon nor Thiel disclose the above disputed limitation. Final Act. 7–9. To cure this deficiency, the Examiner found that “**Thiel** teaches considering vehicular traffic patterns in determining cost

estimates, i.e., as is apparent from consideration of the cost of traffic control. *See* col. 8, ll. 17-25, *see also* col. 5, ll. 14-30.” *Id.* at 9; *see also* Ans. 7 (The Examiner additionally cites column 8, lines 1–50 of Thiel in support of this disputed limitation.).

In response to Appellant’s arguments disputing the Examiner’s finding and interpretation of the claimed *vehicular traffic pattern created during the project* (*see* Br. 18–19), the Examiner asserts:

As examples, step 604 may include steps such as estimating costs for materials, labor, traffic control, or estimating interest rates, inflation, or other factors—to name a few--required by a particular application.”). One cost consideration is for “traffic control.” *Id.* *The examiner understands traffic control to implicitly indicate a traffic pattern has been created by the project, which in turn requires a cost for resources to manage said traffic. Only one construction working with a flag directing cars or construction vehicles could broadly read on a traffic pattern that determines a cost.*

Ans. 7 (emphasis added).

We find the Examiner’s interpretation of the disputed claim limitation is unreasonably broad and inconsistent with the Specification. During examination, claims are to be given their broadest reasonable interpretation consistent with the specification, and the language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. Appellant’s Specification does not provide an express definition for the term “traffic pattern.” The Oxford Dictionary defines “traffic pattern” as “[t]he characteristic distribution of traffic on a

route.”<sup>6</sup> Appellant’s Specification indicates that cost estimator 230 can factor in traffic patterns created during the project when generating cost estimate 270, *e.g.*, traffic capacity of the roads, peak traffic hours. *See* Spec. ¶ 32 (“For example, if a foundation for a large building is being poured, it is likely that traffic on the project site will increase compared with other times due to the large number of concrete mixers which will be traversing the project site. Additionally, the projected delivery times of other materials can affect the amount of traffic on a project site and can also be factored into cost estimate 270.”). We therefore construe *vehicular traffic pattern created during the project* as characteristic distribution of vehicular traffic on a route created during the construction project. As such, we agree with Appellant that traffic control as understood by one of ordinary skill in the art and mentioned at the relied-upon portion of Thiel (Thiel, col. 8, ll. 24–25) refers to personnel costs for controlling vehicular traffic, which involves directing vehicular and pedestrian traffic around a construction zone. *See* Br. 18 (“Appellant understands traffic control to mean the wages paid to employees to hold signs or direct traffic at the construction site. However, it does not inherently mean that vehicular traffic patterns created during the project are modeled, known, or factored into the cost estimate for the concrete pavement design.”).

In other words, the cost associated with vehicular traffic pattern is based on the distribution of vehicles on a route, whereas, the cost associated with traffic control is based on personnel directing vehicular

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<sup>6</sup> [https://en.oxforddictionaries.com/definition/us/traffic\\_pattern](https://en.oxforddictionaries.com/definition/us/traffic_pattern) (last visited Mar. 16, 2018) (“Oxford Dictionary”).

traffic. The difficulty with the Examiner's reasoning is that the "cost of resources to manage said traffic" as proffered by the Examiner *supra*, does not necessarily account, for example, for the cost of delay of deliveries to a construction site due to vehicular traffic on a route (e.g., during peak traffic hours). Therefore, estimating the cost of traffic control during a construction project as taught by Thiel fails to reasonably broadly account for using "vehicular traffic pattern created during said project, to determine said cost estimate," as called for in claim 1.

Accordingly, we do not sustain the rejection of independent claim 1, and claims 2 and 3 which depend from claim 1. *Cf. In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) ("[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious."). Because the Examiner's rejections of dependent claims 4–9 based on Blackmon, Barros, and Thiel, in combination with Mehta, Jung, and Burns, do not cure the deficiency in the Examiner's rejection of independent claim 1, we also do not sustain the rejections of claims 4–9 under 35 U.S.C. § 103(a).

#### DECISION

The rejection of claims 1–9 under 35 U.S.C. § 101 is affirmed.

The rejections of claims 1–9 under 35 U.S.C. § 103(a) are reversed.

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

AFFIRMED