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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARCIA ELAINE WALKER and
PHILIP JOHN KAUFMAN

Appeal 2018-001716[1]
Application 12/429,817
Technology Center 3600

Before CARL L. SILVERMAN, JOYCE CRAIG, and JASON M. REPKO, *Administrative Patent Judges*.

SILVERMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1, 2, 4, 11, 14, 15, and 18–30, which constitute all pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

The invention relates to a dynamic sustainability factor management system that can facilitate scoring of sustainability factors associated with an

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[1] Appellants identify Rockwell Automation, Inc. as the real party in interest. App. Br. 2.

industrial environment in which the system can evaluate factors related to the "planet, people, and profits" to establish a sustainability rating. The system can enhance management of both supply chain and production operations by using sustainability factors to enhance or otherwise optimize sustainability of a product and/or process. Abstract; Spec. ¶¶ 2–6, 28, 41; Fig. 1. Claim 1, reproduced below, is exemplary of the subject matter on appeal (emphasis added):

> 1. A system that facilitates sustainability factor scoring, comprising:
>
> at least one *industrial automation device* disposed in an industrial environment and configured to generate a set of contextual data comprising information related to an industrial process employed to convert one or more raw materials into one or more products, an amount of the one or more products produced by the industrial process, and environmental conditions associated with the industrial process; and
>
> at least one *processor coupled to memory retaining instructions* configured *to control operations of the at least one automation industrial automation device*, wherein the *instructions are carried out by the at least one processor*, in operation, for:
>
> a collection component that, in operation, gathers:
>
> a plurality of resource data elements from the at least one industrial automation device, wherein the plurality of resource data elements comprises:
>
> a first value that quantifies a first sustainability factor associated with the industrial process; and
>
> a second value that quantifies a second sustainability factor associated with each of the one or more products produced by the industrial process, wherein the first

> and second sustainability factors quantify an effect to a sustainability of a planet and financial costs associated with the industrial process and the one or more products, respectively; and
>
> the set of contextual data directly from the at least one industrial automation device; and
>
> a score generation component that, in operation, establishes a dynamic sustainability score for the industrial process and the one or more products based on the first value and the second value, respectively, wherein the dynamic sustainability score corresponds to an order, ranking, or rating of the industrial process and the one or more products, wherein the at least one *processor is configured to adjust the operations of the at least one industrial automation device* based on the dynamic sustainability score and the set of contextual data.

App. Br. 21–22. Claims Appendix.

THE REJECTIONS[2]

Claims 1, 2, 4, 11, 14, 15, and 18–30 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to patent-ineligible subject matter. Final Act. 2–4.

Claims 1, 2, 4, 11, 14, 15, and 18–30 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Final Act. 4–8.

[2] The Examiner states "[c]laims 1–2, 4, 11, 14, 15, [and] 18-30 overcome the prior [art] of record." Final Act. 2.

Claim 1, 2, 4, 11, 14, 15, and 18–30 are rejected under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant, regards as the invention. Final Act. 8.

The § 101 Rejection

PRINCIPLES OF LAW

Patent-eligible subject matter is defined in 35 U.S.C. § 101 of the Patent Act, which recites:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

There are, however, three judicially created exceptions to the broad categories of patent-eligible subject matter in 35 U.S.C. § 101: "[l]aws of nature, natural phenomena, and abstract ideas." *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court's two-step framework, described in *Mayo* and *Alice*. *See Alice*, 573 U.S. at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is "directed to." *See Alice*, at 219 ("On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.,* the use of a third party to mitigate settlement risk."); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010)

("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores" (*id.* at 184 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that "[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula." *Diehr*, 450 U.S. at 176; *see also id.* at 191–192 ("We view respondents' claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula."). Having said that, the Supreme Court also indicated that a claim "seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment." *Id.* (citing *Benson* and *Flook*); *see, e.g.*, *id.* at 187 ("It is now commonplace that an *application* of a law of nature or mathematical formula

to a known structure or process may well be deserving of patent protection.").

If the claim is "directed to" an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where "we must examine 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." *Alice*, 573 U.S. at 221 (quotation marks omitted). "A claim that recites an abstract idea must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" *Id.* (quoting *Mayo*, 566 U.S. at 77). "[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention." *Id.*

The United States Patent and Trademark Office "USPTO" recently published revised guidance on the application of § 101. USPTO's January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance,* 84 Fed. Reg. 50 ("Memorandum"). Under that guidance, we first determine whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and
> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

> (3) adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)); or

> (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See Memorandum.

ANALYSIS

The Examiner rejected claims 1, 2, 4, 11, 14, 15, and 18–30 under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception (i.e., an abstract idea) without "significantly more." Final Act. 2–3. According to the Examiner, regarding independent claim 1:

> The claims are directed to the abstract idea of a mathematical relationship or formula (e.g. establishes/calculating a dynamic sustainability score for the industrial process of the one or more product[s] based on the sustainability factors (resource data) associated with the industrial process and the one or more products wherein the dynamic sustainability score corresponds to an order, ranking, or rating of the industrial process and the one or more product[s]).
> The claim(s) does not include additional element[s] that are sufficient to amount to significantly more than the judicial exception because the claim generically recites computer elements (e.g. a processor) are merely a generic computer which do not add a meaningful limitation to the abstract idea because they would be routine in any computer implementation. Further, using the industrial automation device to generate contextual data, and adjusting the operations of the industrial automation device is not significantly more than abstract idea because it is well-understood, routine and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception (e.g. industrial automation device in view of Applicant's specification (at least par. 0087 is broadly disclosed in non-limiting terms as encompassing conventional sensors). In addition, collecting resource data and contextual data are merely data gathering and is considered as insignificant extra activity solution. Viewed as a whole, these additional claim element(s) do not provide meaningful limitation(s) to transform

> the abstract idea into a patent eligible application of the abstract idea such that the claims(s) amounts to significantly more than the abstract idea itself. Further, claim to a system and computer readable memory device is held ineligible for the same reason, e.g., the generically-recited computers add nothing of substance to the underlying abstract idea.

Id. at 2–3.

Appellants argue the recited systems and methods are not merely *mathematical relationships and formulas,* because the disclosed systems and methods are directed towards determining the sustainability of products and process based on data regarding the sustainability effects on a planet and financial costs associated with the products and the process. App. Br. 9. Appellants argue, "like the claims in *Enfish*, the present claims collect contextual data regarding an industrial process, products produced by the industrial process, and environmental conditions associated with the industrial process; gathers values associated with a sustainability of the industrial process and a sustainability of the products produced by the process; generates a sustainability score for the products and processes; and adjusts operations of an industrial automation device based on the sustainability score." *Id.* at 10 (citing *Enfish, L.L.C. v. Microsoft Corp.* (Fed. Cir. 2016). According to Appellants, "the calculation of sustainability scores is a unique approach in evaluating how industrial automation devices should perform, and is therefore useful in improving the operations of the industrial automation devices with respect to environmental and financial conditions associated with the industrial process." *Id.*

Appellants argue, like the claims in *McRo*, the present claims are directed to a combined order of specific rules that controls the operation of industrial automation devices based on a sustainability score associated with

an industrial process and products produced by the process. *Id.* at 11 (citing *McRo, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299 (Fed. Cir. 2016).

Appellants argue the claims provide improvements in the field of the operation of an industrial automation device by adjusting operations of the industrial automation device according to a dynamic sustainability score that accounts for a sustainability of a planet and financial costs associated with an industrial process performed by the industrial automation device and the one or more products produced by the industrial process. *Id.* at 11–12. In addition, Appellants contend that the present claims include meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment. *Id.* at 12.

Appellants argue, like the claimed process in *Diehr*, "the present claims determines a dynamic sustainability score that accounts for a sustainability of a planet and financial costs associated with an industrial process performed by an industrial automation device and one or more products produced by the industrial process and *uses [to] the dynamic sustainability score to control an operation of the industrial automation device"* and, *as* such, "the present claims clearly integrate the concept of the dynamic sustainability score into an *eligible control scheme to improve another technological process.*" *Id.* (citing *Diamond v. Diehr*, 450 U.S. 175 (1981)).

Appellants argue, "like the claims at issue in *Amdocs*, the present claims are narrowly drawn to controlling an operation of the industrial automation device based on a dynamic sustainability score that accounts for a sustainability of a planet and financial costs associated with an industrial

process performed by an industrial automation device and one or more products produced by the industrial process." *Id.* at 14 (citing *Amdocs (Isr.) Ltd v. Openet Telecom Inc.*, 841 F.3d 1288 (Fed. Cir. 2016)).

In the Answer, the Examiner determines "determining/calculating the sustainability score as claimed is clearly directed to an abstract idea of mathematical relationship and this seems to be consistent with Applicant's specification." Ans. 9 (citing Spec., Figs. 2, 3, ¶¶ 44–54). The Examiner refers to the paragraph 45 description that "the score established by the calculation component 302 could be an individual value, a combination value, a multi-factorial value, or, optionally, a weighted value; and that paragraphs 48–51 disclose how the sustainability score for the product is calculated using the mathematical formula. *Id.* According to the Examiner, "the system and method of the present claims focus on determining a dynamic sustainability score, this score is determined based on the use of the mathematical relationship and therefore is directed to an abstract idea." *Id.* at 9–10.

Regarding whether additional limitations amount to significantly more than the abstract idea, the Examiner reiterates the Final Action determination that the only additional limitation is the processor, and this is insufficient to amount to significantly more than the abstract idea. *Id.* at 3; *see* Final Act. 3, *supra*). The Examiner states "[t]ransformation of data and/or concrete and tangible system as alleged by Appellant are not factors in subject matter eligibility" because "[u]sing a generic processor to perform such functions inherently requires some form of transformation of data" and "such transformation is not considered 'significantly more' because it is routine

and conventional that amounts to mere instructions to implement the abstract idea on a computer." *Id.* at 5.

In the Reply Brief, Appellants argue the "[E]xaminer also asserted that 'adjusting industrial machines in any way encompasses well-understood, routine and conventional activities previously known in the industry'." Reply Br. 4 (citing Ans. 10). However, Appellants argue that the recitations of the present claims include adjustment of an industrial automation device based on a dynamic sustainability score and a set of contextual data. *Id.* at 5. According to Appellants, this specific adjustment of an industrial automation device was not previously well-known in the art, because a dynamic sustainability score is absent from the prior art. *Id.* at 4–5.

As discussed below, we are not persuaded by Appellants' arguments.

Applying the current Guidelines (Memorandum), we conclude that claim 1 is directed to abstract ideas constituting "mathematical concepts" and also directed to "mental processes" that can be performed with pen and paper. *See* Final Act. 2–4; Ans. 2–5; Memorandum, 84 Fed. Reg. at I(a), III. In view of the current Guidelines, we clarify and expand the Examiner's reasoning as follows.

We refer to the claim 1 limitations that recite (1) *generate a set of contextual data*; (2) *gather a plurality of resource data elements wherein a first value that quantifies a first sustainability factor associated with the industrial process and a second value that quantifies a second sustainability factor associated with each of the one or more products produced by the industrial process, wherein the first and second sustainability factors quantify an effect to a sustainability of a planet and financial costs*

associated with the industrial process and the one or more products. Similarly, the limitation (3*) establishes a dynamic sustainability score for the industrial process and the one or more products based on the first value and the second value, respectively, wherein the dynamic sustainability score corresponds to an order, ranking, or rating of the industrial process and the one or more products.* These limitations are directed to mathematical concepts. As described in the Specification, the sustainability factors are utilized and a sustainability score is calculated by the calculation component 302. *See* Spec. ¶¶ 44–54. For example, the Specification describes:

> [0044] In operation, the calculation component 302 can employ these metrics (among others) to enable computation of a dynamic sustainability score for each product from either a unit and/or batch perspective. In other words, planet, people and profit factors can be quantified into a sustainability score or rating. The calculation component 302 can employ logic (e.g., computer-assisted algorithms, logic and formulae) to calculate an optimal result from certain metrics to establish the 'most sustainable' product or process for the end user.
>
> [0045] The score established by the calculation component 302 could be an individual value, a combinatorial value, a multi-factorial value, or, optionally, a weighted value. By way of example, a weighting component 304 can be employed to individualize or personalize sustainability factors. For instance, a given individual may particularly care about a single value, such as an overall carbon impact, or emissions, for a given product. That value might be "3.3 metric tons."
>
> [0098] The availability of the resource (e.g., energy) requirement profile for various components of the manufacturing line or process also enables an enhancement to the control process. As stated above, the typical method for controlling energy costs is simply turning on or off various portions of a facility. However, in many cases there is another alternative that may be more desirable. Instead of viewing the controllable elements as being either on or off, they can be controlled to operate along the continuum between those two states. In other words, the production line or process can be "modulated" based on the mathematical model.

Limitations (1)–(3) of claim 1 are nothing more than "mental processes" that could be performed in the human mind or by a human using a pen and paper—a subject matter that falls within the three types of abstract ideas identified by the Memorandum. *See CyberSource*, 654 F.3d at 1372–73 ("[A] method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101."); *see also In re Comiskey*, 554 F.3d 967, 979 (Fed. Cir. 2009) ("[M]ental processes—or processes of human thinking—standing alone are not patentable even if they have practical application."); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) ("Phenomena of nature, . . . *mental processes*, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work." (Emphasis added)). Additionally, mental processes remain unpatentable even when automated to reduce the burden on the user of what once could have been done with pen and paper. *CyberSource*, 654 F.3d at 1375 ("That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*."). ."). *See also* 84 Fed. Reg. at 52.

For example, the claimed system includes an industrial automation device that generates contextual data related to an industrial process. Spec. ¶ 67. This type of data (e.g., temperature) can be observed and generated by an operator in an industrial environment. The claimed collection component gathers resource data elements for the industrial automation device, including a first value that quantifies a first sustainability factor associated with the industrial process, a second value that quantifies a second sustainability factor associated with products produced by the industrial process, wherein the first and second sustainability factors quantify an effect

to planet sustainability and financial costs associated with the industrial process and the products, and the collection component gathers the contextual data from the industrial automation device. Spec. ¶¶ 41, 43. The resource data elements include, for example, water usage and utilities cost, and can be performed by a human. *Id.*

The claimed score generation component establishes a dynamic sustainability score for the industrial process and the products based on the first and second values corresponding to an order, ranking, or rating of the industrial process and the products, and adjusts the operations of the industrial automation device based on the dynamic sustainability score and the contextual data. *Id.* at ¶¶ 27–29, 38, 40, 43–45, 55, 71, 90, 94–99. The order, ranking, or rating can be selected by a human. *Id.*; *see also id.* at 46–54. Adjusting the operations of the industrial automation device based on the dynamic sustainability score and the contextual data can be performed manually by a human or by an automated process. *Id.* at 90–99; *see also id.* at ¶¶ 1, 2.

We determine the additional limitations do not integrate the judicial exception into a practical application. More particularly, the claims do not recite: (i) an improvement to the functionality of a computer or other technology or technical field (*see* MPEP § 2106.05(a)); (iii) use a "particular machine" to apply or use the judicial exception (*see* MPEP § 2106.05(b)); (iv) a particular transformation of an article to a different thing or state (*see* MPEP § 2106.05(c)); or (vi) any other meaningful limitation (*see* MPEP § 2106.05(e)). *See also* Memorandum, 84 Fed. Reg. at 55.

Here, although the claim includes additional elements (*industrial automation device, at least one processor, collection component, score*

generation component, adjust the operations), these are insufficient to constitute integration into a practical application because these elements are recited at high level of generality and the claim simply applies the judicial exception using these elements That is, the claim merely utilizes these additional elements as a tool to perform the abstract idea (mathematical concepts and mental processes). *See* MPEP § 2106.05(f); Memorandum, 84 Fed. Reg. at 55; *see also Alice*, 573 U.S. at 223 ("if [the] recitation of a computer amounts to a mere instruction to implement an abstract idea on a computer that addition cannot impart patent eligibility" (quotations and internal citations omitted)).

These additional elements also do not constitute a particular machine. Even assuming the additional elements represent a generically recited computer (i.e., generic computer components) to perform the abstract idea, that is insufficient. *See* Memorandum, 84 Fed. Reg. 50 at III A(2); MPEP § 2106.05(b); *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 64–65 (1923); MPEP § 2106.05(f); *Alice*, 573 U.S. at 222–26; *Benson*, 409 U.S. 63; *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044 (Fed. Cir. 2017).

Appellants' arguments regarding improved functioning of a computer are not persuasive as the arguments are conclusory and not commensurate with the scope of the claim. Contrary to Appellants' arguments, the claim recitations are not a technological improvement or an improvement in a technology. Appellants' claim 1 does not "improve the functioning of the computer itself" or "any other technology or technical field." *Alice*, 573 U.S. at 225. Nor, does it provide a technological solution to a technological problem. *See DDR Holdings*, 773 F.3d at 1257; MPEP § 2106.05(a).

Rather, Appellants' claims and, in particular, the above-identified additional elements are similar to the claims in *Alice* (*see Alice*, 573 U.S. at 225–26) and *Versata Dev. Group, Inc. v. SAP America., Inc.*, 793 F.3d 1306, 1333–34 (Fed. Cir. 2015) in that the instant claims implement an abstract idea utilizing a general purpose computer.

Unlike the claims of *Enfish*, claim 1 is not "directed to an innovative logical model for a computer database [that] includes all data entities in a single table, with column definitions provided by rows in that same table" or similar improvements. *Enfish*, 822 F.3d at 1330. Unlike the claims of *DDR*, claim 1 does not "specify how interactions with the Internet are manipulated to yield . . . a result that overrides the routine and conventional sequence of events" or provide similar technology improvements. *DDR Holdings*, 773 F.3d at 1258–59. Further, claim 1 recites an invention that merely uses computer elements as a tool—the opposite of what the claims of *DDR* represent. *See id.*

The limitation *adjust the operations of the at least one industrial automation device based on the dynamic sustainability score and the set of contextual data* is not a meaningful limitation as *adjust* and the *automation device* are broadly claimed and minimally described in the Specification.

Therefore, under the Memorandum, claim 1 is directed to an abstract idea, and we proceed to analyze the claim under *Alice*, step 2. As discussed above, in the *Alice*, step 2 inquiry, we determine whether there is an inventive concept that renders the abstract idea patent eligible.

We note the introduction of a processor into the claims to implement an abstract idea is not a patentable application of the abstract idea. *Alice*, 573 U.S. at 222–23. The computer implementation here is purely

conventional and performs basic functions. *See id.* at 224–25. Appellants do not adequately show that the broadly recited claim limitations cannot be done manually or that they are not routine and conventional functions of a generic computer. *See Versata*, 793 F.3d at 1334 ("[T]he limitations of claim 17 involve arranging a hierarchy of organizational and product groups, storing pricing information, retrieving applicable pricing information, sorting pricing information, eliminating less restrictive pricing information, and determining the price. All of these limitations are well-understood, routine, conventional activities previously known to the industry."). Moreover, the Specification does not support the view that the computer related claim elements are unconventional. In particular, the Specificaiton states,

> As used in this application, the terms "component" and "system" are intended to refer to a computer-related entity, either hardware, a combination of hardware and software, software, or software in execution. For example, a component can be, but is not limited to being, a process running on a processor, a processor, an object, an executable, a thread of execution, a program, and/or a computer. By way of illustration, both an application running on a server and the server can be a component. One or more components can reside within a process and/or thread of execution, and a component can be localized on one computer and/or distributed between two or more computers.

Spec. ¶ 23.

Appellants' argument regarding the absence of a prior art rejection is unpersuasive, because a prior art rejection is determined under 35 U.S.C. § 102 and § 103, which are different statutory requirements. As the Supreme Court emphasizes: "[t]he 'novelty' of any element or steps in a process, or even of the process itself, is of *no relevance* in determining whether the subject matter of a claim falls within the § 101 categories of

possibly patentable subject matter." *Diehr*, 450 U.S. at 188–89 (emphasis added). Our reviewing court further guides that "[e]ligibility and novelty are separate inquiries." *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1340 (Fed. Cir. 2017).

We find no element or combination of elements recited in Appellants' claim 1 that contains any "inventive concept" or adds anything "significantly more" to transform the abstract concept into a patent-eligible application. *Alice*, 573 U.S. at 221. As discussed *supra*, we are not persuaded the added computer elements transform the abstract idea into a patent eligible invention. As our reviewing court has observed, "after *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible." *DDR*, 773 F.3d at 1256 (citing *Alice*, 573 U.S. at 223).

We note the patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, "[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact." *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018). Here, the additional elements are set forth at a high level of generality, as discussed *supra*, and the record sufficiently establishes that these elements and the combination are well-understood, routine, and conventional to a skilled artisan in the relevant field.

Regarding preemption, although preemption may denote patent ineligibility, its absence does not demonstrate patent eligibility. *See FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1098 (Fed. Cir.

2016). For claims covering a patent-ineligible concept, preemption concerns "are fully addressed and made moot" by an analysis under the *Mayo/Alice* framework. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015).

Unlike the claims of *McRO*, claim 1 is not directed to "a specific asserted improvement in computer animation" or similar improvements. *McRO*, 837 F.3d at 1314. Nor is claim 1 directed to using "a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results: a sequence of synchronized, animated characters" or similar functions. *Id.* at 1315. Instead, as discussed, *supra*, claim 1 focuses on abstract ideas that merely use computer elements as tools to gather information, calculate sustainability score, and then use the score.

In view of the above, we do not sustain the rejection of claim 1, independent claims 14 and 19 as these claims recite similar limitations to claim 1, and dependent claims 2, 4, 11, 15, 18, and 20–30. Because our decision is dispositive of the rejection of these claims under the Memorandum, we do not address additional arguments raised by Appellants.

The § 112 written description rejection

The Examiner finds that that the Specification does not reasonably convey that the applicant had possession of the subject matter of the claim 1 limitation "*wherein the at least one processor is configured to adjust the operations of the at least one industrial automation device based on the dynamic sustainability score and the set of contextual data.*" Final Act. 4–5. According to the Examiner, the Specification

> seems to describe a lot of end results (e.g. enhance or optimize sustainability of a product and/or process, in operation sustainability factors can be used to extend specification materials products and etc.) based on the calculating the sustainability score for the industrial process and products using the sustainability factors. However, there is no algorithm or indication exactly how the enhancing or optimizing sustainability of a product and/or process is being done based on the dynamic sustainability score and the set of contextual data comprising information related to an industrial process employed to converted one or more raw materials into one or more products, an amount of the one or more products produced by the industrial process, and environmental conditions associated with the industrial process. Further, given a specific of the variables used in the score (pars. 0043-0044) and the contextual data is not disclosed how this information would be used to control the adjustment operation of the industrial automation device. For example, how would industrial automation device as claimed can be adjusted in light of e.g. type of energy used, diversity factors, marketing/end user appeal? Therefore, the Examiner asserts that Applicant's specification does not describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize applicant was in possession of the claimed invention.

Final Act. 5–6 (citing Spec. ¶¶ 25–28).

Appellants argue the Specification describes an automated factory that adjusts operations by certain machines and that these automated production practices factor in a sustainability score. App. Br. 17 (citing Spec. ¶¶ 38–41). According to Appellants, additional control aspects of the present application are described in the Specification. *Id.* (citing Spec. ¶¶ 90, 94, 95, 98). Appellants argue that paragraph 98 provides an example in which a production line or process can be controlled to operate along a continuum between on or off and paragraphs 90–98 describe an example in which production lines or processes can be modulated based on various data

embodiments described in the specification. *Id.*

In the Answer, the Examiner finds the written description requirement may be satisfied through disclosure of function and minimal structure when there is a well-established correlation between structure and function. In contrast, however, without such a correlation (as here), the capability to recognize or understand the structure from the mere recitation of function and minimal structure is highly unlikely. In this latter case, disclosure of function alone is little more than a wish for possession; it does not satisfy the written description requirement. Ans. 7 (citing *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406 (written description requirement not satisfied by merely providing "a result that one might achieve if one made that invention"); *In re Wilder*, 736 F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming a rejection for lack of written description because the specification does "little more than outline goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate"). Compare *Fonar*, 107 F.3d at 1549, 41 USPQ2d at 1805 (disclosure of software function adequate in that art)." *Id.*

In the Reply Brief, Appellants argue an algorithm is not required for the adjustment, because the operation could be a simple adjustment of the industrial automation device to change a particular parameter: turn the device on or off. Reply Br. 10 (citing Spec. ¶ 98). Appellants argue, assuming *arguendo,* that an algorithm is required, a person of ordinary skill in the art would understand the algorithm to include, a continuum between an "on" position and "off" position of an industrial automation device and thus adjust the operation of the device according to the continuum with respect to the sustainability score. *Id.*

We are persuaded by Appellants' arguments because the Specification discloses the scope of the broad claim 1 and the claim does not set forth specific limitations that the Examiner finds lacking (e.g., algorithm) in the written description. A written "description must 'clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed." *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (alteration in original) (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991)). "In other words, the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Id.* (citing *Vas-Cath*, 935 F.2d at 1563). "Although [the applicant] does not have to describe exactly the subject matter claimed, . . . the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." *Vas-Cath*, 935 F.2d at 1563 (alteration in original) (quoting *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989)). Put another way, "the applicant must . . . convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*." *Id.* at 1563–64.

In view of the above, we do not sustain the rejection of claim 1, independent claims 14 and 19 as these claims recite similar limitations to claim 1, and dependent claims 2, 4, 11, 15, 18, and 20–30.

The § 112 indefinite rejection

The Examiner finds the claim 1, 14, and 19 limitation "wherein the at least one processor is configured to adjust the operations of the at least one industrial automation device based on the dynamic sustainability score and

the set of contextual data" is not clear how the automation device is being adjusted because the automation device is recited as "configured to generate the contextual data" and there is no indication that the automation device is an example of manufacturing the one or more product. Final Act. 8.

Appellants argue the Specification indicates that the automation device may also include automated factory components that adjust operations based on sustainability scores. App. Br. 19 (citing Spec. ¶¶ 38–41, 90, 94, 95, and 98).

In the Answer, the Examiner finds that the claim merely requires the automation device to generate data related to an industrial process but "[t]there is no indication of actual operations on any raw materials in the industrial process by the automation device." Ans. 16. The Examiner additionally finds that the nature and scope of the claim is so broad that it is unclear as to the scope of the automation device being adjusted and the scope of the adjustment. *Id.* at 16–17.

In the Reply Brief, Appellants argue the Examiner errs by reading the claim in a vacuum and not in view of the Specification and the level of skill in the art. Reply Br. 12. According to Appellants, the Specification sufficiently describes an industrial automation device that may produce a product:

> For example, paragraph [0090] recites "many automated *production* lines can monitor some level of energy and/or water usage for startup profiles, maintaining recipe optimization, or for regulatory compliance." (Emphasis added.) Application, [0090]. Here, one of ordinary skill in the art would understand that an automated *production* line could employ an industrial automation device and produce a *product.*
>
> Further, examples of adjusting the operations of an industrial automation device are provided in the specification. In

> one embodiment, an adjustment may be made to an automated *production* line based on electrical utility demand changes. *See* Application, paragraphs [0092]–[0095]. In this manner, a "user may achieve consumption cost saving by improving the efficiency of the system." *Id* at paragraph [0093]. Thus, in this embodiment, sustainability may be optimized as a result of the adjustment to an industrial automation device. *See id* at paragraphs [0028] and [0041].

We are persuaded by Appellants' arguments regarding indefiniteness based on the understanding of one of ordinary skill in the art. "[A] claim is indefinite when it contains words or phrases whose meaning is unclear." *In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014). Although the claim is broad in scope, on the record before us, its meaning is sufficiently clear to one of ordinary skill in the art. "Breadth is not indefiniteness." *In re Gardner*, 427 F.2d 786, 788 (CCPA 1970).

In view of the above, we do not sustain the rejection of claim 1, independent claims 14 and 19 as these claims recite similar limitations to claim 1, and dependent claims 2, 4, 11, 15, 18, and 20–30.

DECISION

We affirm the Examiner's decision rejecting claims 1, 2, 4, 11, 14, 15, and 18–30 under 35 U.S.C. § 101.

We reverse the Examiner's decision rejecting claims 1, 2, 4, 11, 14, 15, and 18–30 under 35 U.S.C. § 112, first paragraph.

We reverse the Examiner's decision rejecting claims 1, 2, 4, 11, 14, 15, and 18–30 under 35 U.S.C. § 112, second paragraph.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED