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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VISHV JEET and VISHAL SHEKHAR

Appeal 2019-000189
Application 14/505,258
Technology Center 3600

Before JOHN A. EVANS, JAMES W. DEJMEK, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

EVANS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ seek our review under 35 U.S.C. § 134(a) of the Examiner's final rejection of Claims 1–18. App. Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.²

¹ Appellants state the real party in interest is Axioma, Inc. App. Br. 1.

² Rather than reiterate the arguments of Appellants and the Examiner, we refer to the Appeal Brief (filed April, 30, 2018, "App. Br."), the Reply Brief (filed October 8, 2018, "Reply Br."), the Examiner's Answer (mailed August 16, 2018, "Ans."), the Final Office Action (mailed December 15, 2017, "Final Act."), and the Specification (filed October 2, 2014 and

STATEMENT OF THE CASE

The claims relate to methods relates to methods for calculating performance attribution results for investment portfolios having composite investments. Spec. 1:7–9.

Invention

Claims 1, 8, and 15 are independent. An understanding of the invention can be derived from a reading of Claim 1, which is reproduced below:

1. A computer-implemented method for computing and reporting the performance attribution of a set of portfolio holdings over time comprising:

[a]³ electronically receiving and storing by a programmed computer a set of dates defining an attribution time horizon to be analyzed;

[b] for each date, electronically receiving and storing by the programmed computer a set of possible investments where at least one of the investments on at least one of the dates represents a composite investment in two or more underlying simple assets;

[c] for each composite investment opportunity, electronically receiving and storing by the programmed computer a set of underlying weights in simple assets that define each composite investment composition;

[d] for each date, electronically receiving and storing by the programmed computer a historical portfolio of holdings having original investment weights in the set of possible investments where at least one of the original investments on at

amended September 26, 2017, “Spec.”) for their respective details.

³ Bracketed letters added for ease of reference.

least one of the dates represents an investment in a composite investment;

[e] for each date, electronically receiving and storing by the programmed computer a set of supporting data required to compute a performance attribution on the historical portfolios;

[f] for each date, electronically calculating a reallocation of the historical portfolios into sub-portfolios, that includes a sub-portfolio representing the original investments in simple assets only and a sub-portfolio representing each composite investment present in the historical portfolio wherein the sum of the original investment weights equals the sum of the investment weights across the sub-portfolios;

[g] computing a performance attribution analysis for each sub-portfolio; and

[h] electronically outputting the performance attribution results using an output device.

Rejections

Claims 1–18 stand rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter without significantly more. Final Act. 2–4.

Claims 1–18 stand rejected under 35 U.S.C. § 103 as unpatentable over Present et al. (US 2009/0063363 A1; Mar. 5, 2009) (“Present”) and Lo et al. (US 2013/0041842 A1; Feb. 14, 2013) (“Lo”). *Id.* at 4–9.

ANALYSIS

We have reviewed the rejections of Claims 1–18 in light of Appellants’ arguments that the Examiner erred. We have considered in this decision only those arguments Appellants actually raised in the Briefs. Any other arguments which Appellants could have made but chose not to make in the Briefs are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). As to the rejection under § 101, we are not persuaded that Appellants identify

reversible error. Upon consideration of the arguments presented in the Appeal Brief and Reply Brief, we agree with the Examiner that all the pending claims are unpatentable under § 101. We adopt as our own the determinations and reasons set forth in the rejection from which this appeal is taken and in the Examiner's Answer, to the extent consistent with our analysis below. We provide the following explanation to highlight and address specific arguments and determinations primarily for emphasis. We consider Appellants' arguments *seriatim*, as they are presented in the Appeal Brief, pages 19–30, and Reply Brief, pages 1–2.

CLAIMS 1–18: PATENT-INELIGIBLE SUBJECT MATTER

Appellants argue all claims as a group in view of the limitations of Claim 1 and the similar limitations of Claims 8 and 15. *See* App. Br. 19–24, 28–30; Reply Br. 1–2. Therefore, we decide the appeal of the § 101 rejections with reference to Claim 1, and refer to the rejected claims collectively herein as “the claims.” *See* 37 C.F.R. § 41.37(c)(1)(iv); *In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986).

Preemption.

Appellants contend the claims do not seek to tie up any judicial exception so that others cannot practice it. App. Br. 23. 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). We conduct such an

analysis below. In response to Supreme Court and Federal Circuit opinions, the USPTO has issued updated guidance. We review this appeal within the framework of the Revised Guidance, which specifies and particularizes the *Mayo/Alice* framework.

35 U.S.C. § 101

Section 101 provides that a patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has long recognized, however, that § 101 implicitly excludes “[I]aws of nature, natural phenomena, and abstract ideas” from the realm of patent-eligible subject matter, as monopolization of these “basic tools of scientific and technological work” would stifle the very innovation that the patent system aims to promote. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)); *see also Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–78 (2012); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

Under the mandatory 2019 Revised Guidance,⁴ we reconsider whether Appellants’ claims recite:

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

⁴ USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84(4) Fed. Reg. 50–57 (January 7, 2019) (“Revised Guidance,” “Rev. Guid.”).

2. additional elements that integrate the judicial exception into a practical application (*see* Manual of Patent Examination Procedure (MPEP) § 2106.05(a)–(c), (e)–(h)).⁵

Only if a claim, (1) recites a judicial exception, and (2) does not integrate that exception into a practical application, do we then reach the issue of 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 simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

A. Judicial Exceptions.

The Revised Guidance extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract idea exception includes the following groupings of subject matter, when recited as such in a claim limitation(s) (that is, when recited on their own or *per se*): (a) mathematical concepts,⁶ i.e., mathematical relationships, mathematical formulas, equations,⁷ and mathematical calculations⁸; (b) certain methods of

⁵ All references to the MPEP are to Rev. 08.2017 (Jan. 2018).

⁶ *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“The concept of hedging . . . reduced to a mathematical formula . . . is an unpatentable abstract idea.”).

⁷ *Diehr*, 450 U.S. at 191 (“A mathematical formula as such is not accorded the protection of our patent laws”); *Parker v. Flook*, 437 U.S. 584, 594 (1978) (“[T]he discovery of [a mathematical formula] cannot support a patent unless there is some other inventive concept in its application.”).

⁸ *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018)

organizing human activity—fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions)⁹; and (c) mental processes¹⁰—concepts performed in the human mind (including observation, evaluation, judgment, opinion).¹¹

The limitations of Claim 1 are analyzed in Table I as they correspond to abstract ideas as set forth in the Revised Guidance:

(holding that claims to a “series of mathematical calculations based on selected information” are directed to abstract ideas).

⁹ *Alice*, 573 U.S. at 219–20 (concluding that use of a third party to mediate settlement risk is a “fundamental economic practice” and thus an abstract idea); *see* Rev. Guid. 52 n.13 (for a more extensive listing of “certain methods of organizing human activity” that have been found to be abstract ideas).

¹⁰ If a claim, under its broadest reasonable interpretation, covers performance in the mind but for the recitation of generic computer components, then it is still in the mental processes category unless the claim cannot practically be performed in the mind. *See* Rev. Guid. 52 n.14; *see Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016) (“[W]ith the exception of generic computer-implemented steps, there is nothing in the claims themselves that foreclose them from being performed by a human, mentally or with pen and paper.”).

¹¹ *Mayo*, 566 U.S. at 71 (“[M]ental processes[] and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work” (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972))).

Table I

Claim 1 – Abstract Idea	Revised Guidance
<p>A . . . method for computing and reporting the performance attribution of a set of portfolio holdings over time comprising:</p>	<p>“computing”—(a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations. Rev. Guid. 52, 52 n.12. “reporting”— “post-solution activity.” Additional element adds insignificant extra-solution activity to the judicial exception. Rev. Guid. 55 n.31.</p>
<p>. . . receiving and storing . . . a set of dates defining an attribution time horizon to be analyzed;</p>	<p>“mere data gathering.” Additional element adds insignificant extra-solution activity to the judicial exception. Rev. Guid. 55, 55 n.31.</p>
<p>for each date, . . . receiving and storing . . . a set of possible investments where at least one of the investments on at least one of the dates represents a composite investment in two or more underlying simple assets;</p>	<p>“mere data gathering.”</p>
<p>for each composite investment opportunity, . . . receiving and storing . . . a set of underlying weights in simple assets that define each composite investment composition;</p>	<p>“mere data gathering.”</p>
<p>for each date, . . . receiving and storing . . . a historical portfolio of holdings having original investment weights in the set of possible investments where at least one of the original investments on at least one of the dates represents an investment in a composite investment;</p>	<p>“mere data gathering.”</p>

<p>for each date, . . . receiving and storing . . . a set of supporting data required to compute a performance attribution on the historical portfolios;</p>	<p>“mere data gathering.”</p>
<p>for each date, . . . calculating a reallocation of the historical portfolios into sub-portfolios, that includes a sub-portfolio representing the original investments in simple assets only and a sub-portfolio representing each composite investment present in the historical portfolio wherein the sum of the original investment weights equals the sum of the investment weights across the sub-portfolios;</p>	<p>(a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations.</p>
<p>computing a performance attribution analysis for each sub-portfolio; and</p>	<p>(a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations.</p>
<p>. . . outputting the performance attribution results.</p>	<p>“post-solution activity.”</p>

Under their broadest reasonable interpretation, the limitations of Claim 1 (as recited in Table I above) recite a method for computing and reporting the performance attribution for a set of investment portfolio holdings by receiving and storing investment information, performing mathematical calculations based on the received and stored investment information, and outputting the results of those calculations. More specifically, the mathematical calculations comprise (1) computing a reallocation of the historical portfolios into sub-portfolios that include a sub-portfolio representing the original investments in simple assets only and

a sub-portfolio representing each composite investment present in the historical portfolio wherein the sum of the original investment weights equals the sum of the investment weights across the sub-portfolios; and (2) computing a performance attribution analysis for each sub-portfolio. The Federal Circuit recently held similar claims for providing statistical analysis of investment data as “nothing but a series of mathematical calculations based on selected information and the presentation of the results of those calculations” and, thus, directed to the abstract idea of “selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis.” *SAP Am.*, 898 F.3d at 1163, 1167. Furthermore, our reviewing Court has held claims directed to “analyzing information . . . by mathematical algorithms, without more” to be within the realm of abstract ideas. *Elec. Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (citing cases, including *Flook*, 437 U.S. at 589–90, and *Benson*, 409 U.S. at 67). We also agree with the Examiner that “the claims are analogous to organizing and transforming information through mathematical correlations . . . and a mathematical procedure for converting one form of numerical representation to another.” Final Act. 3 (citing *Digitech Image Techs., LLC v. Elec. for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014); *Benson* 409 U.S. at 65).

Appellants argue

[a]s was the case in DDR Holdings, the present claims do not simply use a computer to automate what was done previously, but rather address an invention that recognizes a problem and advantageously improves upon what was previously done with a computer, solving a specific problem and providing an improvement to computer technology.

App. Br. 28 (citing *DDR Holdings, LLC v. Hotels.com L.P.*, 773 F.3d 1245 (Fed. Cir. 2014)). Appellants further argue the patent-eligible claims in *Trading Tech*—directed to “a method and system for electronic trading of stocks, bonds, futures, option and similar products”—are “akin to” their claims. App. Br. 28 (citing *Trading Tech. Int’l, Inc. v. CQC, Inc.*, 675 F. App’x 1001 (Fed. Cir. 2017) (non-precedential)). According to Appellants, the present invention provides new and improved tools and specific procedures, based in computers and software, to more accurately and effectively assess performance attribution results. App. Br 21–22.

We disagree. The patent-eligible claim at issue in *DDR Holdings* recited limitations for providing a composite web page based on a link activation occurring at a remote computer, thereby addressing a problem that is unique to the Internet. *DDR Holdings*, 773 F.3d at 1257–58 (“We caution, however, that not all claims purporting to address Internet-centric challenges are eligible for patent.”). The claims in *Trading Tech.* recited an improvement in existing graphical user interface devices including a “specific structure and concordant functionality of [a] graphical user interface . . . removed from abstract ideas.” *Trading Tech.*, 675 F. App’x. at 1004. By contrast, Appellants describe their problem to be solved (existing performance attribution approaches provide results for net investment only in single assets, not composite investments) as one rooted in the particular calculations and data methods employed, not in the hardware or software used to implement their invention. Spec. 2:14–3:2. Moreover, Appellants’ Claim 1 recites only broad and generic technological elements (i.e., “computer-implemented,” “electronically,” “by a programmed computer,”

and “output device”). Thus, contrary to Appellants’ arguments, the claims are not analogous to the patent-eligible claims in *DDR Holdings or Trading Tech*.

Appellants further argue that the Final Office Action should be reversed because, contrary to *Berkheimer*,¹² the Examiner “repeatedly asserts claim elements are well-understood, routine or the like without support,” for example, that “a method of evaluating a composite investment portfolio” is “a long standing commercial practice,” and that the “analysis of composite investments, and allocation of sub-portfolios in order to analyze a portfolio are also pre-existing, and well-known, routine and conventional.” App. Br. 23–24. In response, the Examiner cites the background section of Appellants’ Specification and various webpages as evidence to support the challenged assertions, and otherwise construes the assertions as takings of Official Notice. Ans. 12. Appellants reply

[t]he present background and the specification as a whole are evidence that the present invention as claimed is not ‘well-understood, routine, conventional activity’. Both the untimely, conclusory assertion of Official Notice and the untimely citation of web sites listed by the Answer are not to the contrary. . . . and [do] not follow the U.S.P.T.O.’s current guidance.

Reply Br. 2.

Appellants’ arguments are unpersuasive. As an initial matter, *Berkheimer*’s requirement of providing facts or evidence only relates to *step two* of the *Mayo/Alice* framework:

¹² *Berkheimer v. HP Inc.*, 890 F.3d 1369 (Fed. Cir. 2018).

Our decisions in *Berkheimer* and *Aatrix* are narrow: to the extent it is at issue in the case, whether a claim element or combination is well-understood, routine, and conventional is a question of fact. This inquiry falls under step two in the § 101 framework, in which we “consider the elements of each 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.”

Berkheimer, 890 F.3d at 1374 (citations omitted). Thus, the Examiner did not need to provide evidence that the asserted abstract idea, “a method of evaluating a composite investment portfolio,” was “a long standing commercial practice.”¹³ Nor did the Examiner need to provide evidence that the “[a]nalysis of composite investments, and allocation of sub-portfolios in order to analyze a portfolio” were “well-understood, routine, conventional” activities. These functions are not additional elements, but rather part of the recited abstract idea itself that “simply provide further narrowing of what are still mathematical operations. They add nothing outside the abstract realm.” *SAP Am.*, 898 F.3d at 1169 (citing *Mayo*, 566 U.S. at 88–89); *see also Flook*, 437 U.S. at 594–595 (holding a narrow mathematical formula unpatentable). For the additional limitations of claim 1, we address these below in the “Well-Understood, Routine, Conventional” section under step two of the *Mayo/Alice* framework. To the extent Appellants are arguing the Examiner has applied USPTO examination guidance documents improperly, such

¹³ Nevertheless, the Examiner provides evidence that the claims recite a mathematical concept, which the Revised Guidance identifies as another type of abstract idea. *See* Final Act. 3 (citing similar claims held to be abstract in *Digitech* and *Benson* as evidence that Appellants’ claims recite a mathematical concept).

alleged procedural errors by the Examiner may not be addressed through appeal, but instead by petitioning the Director of the United States Patent and Trademark Office for supervisory review. *See* 37 C.F.R. § 1.181. The Director has not delegated this supervisory authority to the Board.

Therefore, we conclude Claim 1 recites performing mathematical calculations based on certain information, i.e., a mathematical concept, which the Revised Guidance identifies as a type of abstract idea.

B. Integration of the judicial exception into a practical application.

Where, as here, we determine the claim recites a judicial exception, we look to determine the presence of additional elements that integrate the judicial exception into a practical application. The Revised Guidance is “designed to more accurately and consistently identify claims that recite a practical application of a judicial exception [] and thus are not ‘directed to’ a judicial exception.” Rev. Guid. 53. The Revised Guidance identifies several exemplary considerations for when a claim may recite an additional element (or combination of elements) such that the judicial exception has been integrated into a practical application, which we address below. *See id.* at 55.

For the reasons that follow, we conclude that Appellants’ claims do not integrate the judicial exception into a practical application. *See* MPEP §§ 2106.05(a)–(c) and (e)–(h). We have considered the additional elements both individually and “as an ordered combination,” and determine that “the computer components . . . ‘ad[d] nothing . . . that is not already present when the steps are considered separately’” and simply recite implementing a mathematical concept on a generic computer. *Alice*, 573 U.S. at 225 (quoting *Mayo*, 566 U.S. at 79). We address the relevant “practical

application” MPEP sections below:

MPEP § 2106.05(a) “Improvements to the Functioning of a Computer or To Any Other Technology or Technical Field.” & MPEP § 2106.05(f) “Mere Instructions To Apply An Exception.”

“In determining patent eligibility, examiners should consider whether the claim ‘purport(s) to improve the functioning of the computer itself’” or “‘any other technology or technical field.’” MPEP § 2106.05(a).

Although the claims recite various computing elements, Appellants present no persuasive evidence that practicing the claims results in an improvement to the functioning of the computer. The claim is silent regarding specific limitations directed to an improved machine, apparatus, computer, processor, memory, server, output device, network element, etc.

Appellants purport their invention “improves upon what was previously done with a computer” (App. Br. 28), but the claims recite functions that are merely part of an abstract idea, viz., a mathematical concept, which is being applied on a computer. *See* Rev. Guid. 55 n.30, citing *Benson*, 409 U.S. at 63 (holding that merely implementing a mathematical principle on a general-purpose computer is a patent-ineligible abstract idea). In other words, Claim 1 is not focused on an improvement to computers or software as tools, but rather uses a computer as a tool to execute the judicial exception. *See* Rev. Guid. 55 n.30; *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017). In order to transform a judicial exception into a patent-eligible application, the additional element or combination of elements must do “‘more than simply

stat[e] the [judicial exception] while adding the words ‘apply it.’” *Alice*, 573 U.S. at 221 (quoting *Mayo*, 566 U.S. at 72).

MPEP § 2106.05(b) Particular Machine.

At the outset, we note that the *Bilski* machine-or-transformation test is only applicable to the method (process) claims on appeal. This section of the MPEP guides: “When determining whether a claim recites significantly more than a judicial exception, examiners should consider whether the judicial exception is applied with, or by use of, a particular machine.”

MPEP § 2106.05(b); *see also Bilski*, 561 U.S. at 604 (“[T]he machine-or-transformation test is a useful and important clue, and investigative tool” for determining whether a claim is patent eligible under § 101).

MPEP § 2106.05(b) provides further guidance regarding what constitutes a particular machine:

[A]s described in MPEP §2106.05(f), additional elements that invoke computers or other machinery merely as a tool to perform an existing process will generally not amount to significantly more than a judicial exception. *See, e.g., Versata Development Group v. SAP America*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) (explaining that in order for a machine to add significantly more, it must “play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly”).

Claim 1 recites computing elements including a “computer-implemented” method that performs various functions “electronically . . . by a programmed computer” and outputs results using an “output device.”¹⁴ But the claim is *silent* regarding specific limitations

¹⁴ Independent Claim 8 recites a system including “a memory,” “a

directed to a *particular* machine, nor do Appellants direct our attention to such specific elements in the claim or Specification. “[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice*, 573 U.S. at 223; *see also BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348 (Fed. Cir. 2016) (“An abstract idea on ‘an Internet computer network’ or on a generic computer is still an abstract idea”). Applying this reasoning here, we conclude Claim 1 is not directed to a particular machine, but rather merely implement an abstract idea using generic computer components. Thus, we conclude the claim fails to satisfy the “tied to a particular machine” prong of the *Bilski* machine-or-transformation test.

MPEP § 2106.05(c) Particular Transformation.

This section of the MPEP guides: “Another consideration when determining whether a claim recites significantly more is whether the claim effects a transformation or reduction of a particular article to a different state or thing.” “[T]ransformation and reduction of an article ‘to a different state or thing’ is the clue to patentability of a process claim that does not include particular machines.” *Bilski*, 561 U.S. at 658 (quoting *Benson*, 409 U.S. at 70).

Claim 1 recites performing mathematical calculations based on certain information. These data operations are not a transformation or reduction of

processor,” and “an output device” to perform steps similar to those of claim 1. Independent Claim 15 recites a “computer-implemented” method, dependent claim 16 recites “an output device,” and dependent claim 17 recites steps performed “electronically . . . by a programmed computer.”

an article into a different state or thing constituting patent-eligible subject matter. “The mere manipulation or reorganization of data . . . does not satisfy the transformation prong.” *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011). Applying this guidance here, we conclude Claim 1 fails to satisfy the transformation prong of the *Bilski* machine-or-transformation test.

MPEP § 2106.05(e) Other Meaningful Limitations & MPEP § 2106.05(h) Field of Use and Technological Environment.

The MPEP guides:

For a claim that is directed to a judicial exception to be patent-eligible, it must include additional features to ensure that the claim describes a process or product that applies the exception in a meaningful way, such that it is more than a drafting effort designed to monopolize the exception. The claim should add meaningful limitations beyond generally linking the use of the judicial exception to a particular technological environment to transform the judicial exception into patent-eligible subject matter.

MPEP § 2106.05(e). Further, the Supreme Court has stated that, even if a claim does not wholly pre-empt an abstract idea, it still will not be limited meaningfully if it contains only insignificant or token pre- or post-solution activity—such as identifying a relevant audience, a category of use, field of use, or technological environment. *See* MPEP ¶ 2106.05(h); *Ultramercial, Inc. v. Hulu, LLC*, 722 F.3d 1335, 1346 (Fed. Cir. 2013).

We agree with the Examiner’s conclusion that the claims do not add meaningful limitations beyond generally linking the use of the judicial exception to a particular technological environment. *See* Final Act. 3–4. As the Examiner explains, the additional limitations of Claim 1 are nothing

more than generic computer components, which do not amount to significantly more than an abstract idea. *See id.* In particular, Claim 1’s additional recitation of a “computer-implemented” method that performs various functions “electronically . . . by a programmed computer” and outputs results using an “output device” fails to integrate the abstract idea into a practical application because it does no more than generally link the use of a judicial exception to a particular technological environment or field of use, that is, a computerized method. *See Rev. Guid. 55.* This reasoning applies similarly to the system of independent Claim 8, and the computer-implemented method of independent claim 15.

MPEP § 2106.05(g) Insignificant Extra-Solution Activity.

Claim 1’s “receiving” and “storing” of various inputs are merely data gathering steps that amount to insignificant extra-solution activity that is insufficient to confer patent eligibility. *Rev. Guid. 55, 55 n.31.* Claim 1’s “outputting” step also recites insignificant extra-solution activity in the form of post-solution activity. *Id.* “[M]erely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis.” *SAP Am.*, 898 F.3d at 1167 (quoting *Elec. Power*, 830 F.3d at 1354).

In view of the foregoing, we conclude the claims do not recite additional elements that integrate the judicial exception into a practical application and, thus, are “directed to” a judicial exception, namely an abstract idea.

C. *Well-understood, routine, conventional; specified at a high level of*

generality.

Because the claims recite a judicial exception and do not integrate that exception into a practical application, we must then reach the issue of whether the claims add a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field. Rev. Guid. 56. It is indicative of the absence of an inventive concept where the claims simply append well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. *Id.* “Whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination.” *Berkheimer*, at 1369.

Here, the Examiner determines “the claims do not move beyond a general link, of the use of an abstract idea to a particular, albeit well-understood, routine and conventional technological environment.” Final Act. 4. The Examiner explains that “[u]nder *Alice*, merely applying or executing the abstract idea on one or more generic computer system (e.g., a computer system comprising a generic database; a generic element (NIC) for providing website access, etc.; a generic element for receiving user input; and a generic display on the computer, in any of their forms) to carry out the abstract idea more efficiently fails to cure patent ineligibility.” *Id.* (citing *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014); *Mortg. Grader, Inc. v. First Choice Loan Serv. Inc.*, 811 F.3d 1314, 1324–25 (Fed. Cir. 2016)).

As discussed above in step one of the *Mayo/Alice* framework, Appellants argue the Examiner failed to provide evidence that the additional

limitations of claim 1 were “well-understood, routine and conventional,” as required under *Berkheimer*. App. Br. 23–24, Reply Br. 2. We disagree.

In the Answer, the Examiner provides sufficient evidence to support the finding that the additional claim limitations were “well-understood, routine and conventional.” For example, the Examiner cites Appellants’ Specification as evidence that “the invention may be performed across general purpose computers.” Ans. 5 (citing Spec. 6:1–10); *accord* Spec. 6:11–7:18, Fig. 1 (showing a block diagram of a generic computer-based system with generic components). Additionally, the Examiner takes Official Notice of the limitations that were previously asserted as “well-understood, routine, and conventional.” Ans. 12.

Appellants cannot reasonably contend that there is a genuine issue of material fact (and, therefore, a requirement for evidence) regarding the operation of these components as well-understood, routine, or conventional where, as here, there is nothing in the Specification to indicate that the operations recited in the claims require any specialized hardware or inventive computer components, invoke any assertedly inventive programming, or that the claims are implemented using other than generic computer components. Indeed, the Federal Circuit, in accordance with *Alice*, has “repeatedly recognized the absence of a genuine dispute as to eligibility for the many claims that have been defended as involving an inventive concept based merely on the idea of using existing computers or the Internet to carry out conventional processes, with no alteration of computer functionality.” *Berkheimer*, 890 F.3d at 1373.

Additionally, to the extent Appellants assert the lack of an adequate rejection under 35 U.S.C. §§ 102 or 103 suggests the instant claims do not recite well understood, routine, or conventional activities (*see* App. Br. 23–24), we are not persuaded. Subject-matter eligibility under 35 U.S.C. § 101 is a requirement separate from other patentability inquiries. *See Mayo*, 566 U.S. at 90 (recognizing that the § 101 inquiry and other patentability inquiries “might sometimes overlap,” but that “shift[ing] the patent-eligibility inquiry entirely to these [other] sections risks creating significantly greater legal uncertainty, while assuming that those sections can do work that they are not equipped to do”); *Diehr*, 450 U.S. at 190 (“The question . . . of whether a particular invention is novel is ‘wholly apart from whether the invention falls into a category of statutory subject matter.’” (citations omitted)).

Therefore, we conclude that the claims, viewing their limitations “both individually and as an ordered combination,” do not recite significantly more than the judicial exception to transform the claim into patent-eligible subject matter. *See Alice*, 573 U.S. at 217 (internal quotations omitted) (quoting *Mayo*, 566 U.S. at 79).

In view of the foregoing, we sustain the rejection of Claims 1–18 under 35 U.S.C. § 101.

CLAIMS 1–18: REJECTIONS UNDER 35 U.S.C. § 103

In rejecting claim 1, the Examiner relies on the combined teachings and suggestions of Present and Lo. Final Act. 5–7 (citing Present Fig. 1, ¶¶ 10, 17, 27, 33, 47–49, 50, 57, 63, 70, 76, 83, and 92; Lo ¶¶ 7, 65, and 81–83). We begin our analysis with a review of these references.

Present relates to a method of forming an ETF that provides access to active management. Present ¶ 12. Present discloses that a portfolio of funds may be combined or blended in various ways to create a “Macro Portfolio” or “Fund Index,” which may be converted into a set of securities, i.e., “Tracking Portfolio,” that can track the performance of the Macro Portfolio or Fund Index. *Id.* ¶¶ 35–38, 83. A Tracking Portfolio creation module may be used to weight the individual securities in a portfolio, and a Tracking Portfolio optimization module may be used to improve trading costs or efficiency. *Id.* ¶¶ 49, 83. A vehicle implementation module may be used to convert a Tracking Portfolio in an investment vehicle such as an ETF. *Id.* ¶ 83. In a disclosed embodiment, in order to minimize tracking error in the Macro Portfolio, performance attribution software may be used to export track records of existing funds and combine those records into a composite track record. Present ¶ 47. The composite record may then be loaded back into the software, allowing a user to model and describe, quantitatively, the capitalization and investment style of the Macro Portfolio. *Id.* ¶ 48.

Lo relates to systems and methods “for reducing investors’ exposure to the variability of an asset class’s short-term volatility . . . by constructing an index that employs a momentum portfolio policy, i.e. assets with prices that appear to be trending upward are held long, and those with prices that appear to be trending downward are sold short.” Lo, Abstract. In a disclosed embodiment, a process for determining risk allocation of indices to each of their constituent assets may be performed. *Id.* ¶ 65. Figure 9 of Lo illustrates this process by showing a hierarchy comprising StableRisk Trend Composite Index volatility at the lowest level, various individual StableRisk

Trend indexes at the second-lowest level, groups of assets at the third-lowest level, and individual assets at the highest level. *Id.*, Fig. 9.

The Examiner concludes “[i]t would have been obvious to an ordinary artisan to modify the teachings of Present, to include the treatment of weighting and allocation into sub-portfolios as taught by Lo, in order to enable determination of performance attributes such as turning points, and provide diversification benefits.” Final Act. 7.

Appellants argue, among other things, the combination of Present and Lo does not teach or suggest “calculating a reallocation of the historical portfolios into sub-portfolios, that includes a sub-portfolio representing the original investments in simple assets only and a sub-portfolio representing each composite investment present in the historical portfolio wherein the sum of the original investment weights equals the sum of the investment weights across the sub-portfolios.” App. Br. 26. In particular, Appellants contend “Present is describing traditional performance attribution in which the sub-portfolios are resolved into net investments in simple assets only.” *Id.* Appellants contend Lo does not cure this deficiency, as “performance attribution is not specifically addressed by Lo at all.” *Id.*

In the Answer, the Examiner reiterates Present’s disclosures of a system for constructing an ETF by using an investment module, a fund identification module, a fund contribution module, a macro portfolio conversion module, tracking portfolio creation and optimization modules, and a vehicle implementation module. Ans. 13 (citing Present ¶ 83). The Examiner also reiterates that

Lo teaches receiving [sic] and normalizing original investment weights among a composite portfolio, and allocating the constituents thereof into asset groups and sub-portfolios, attributing a risk weight to each, and then combining asset class portfolios into a composite index, “treating all of the assets within an asset class as an “asset group,” and combining all of the asset class portfolios together such that each asset class has equal risk allocation, and the overall composite portfolio's short-term volatility targets its volatility benchmark.”

Ans. 13–14 (citing Lo ¶ 65); *see also* Ans. 8 (additionally citing Lo ¶¶ 32, 51, and 66–69).

We find the Examiner erred by failing to provide sufficient persuasive technical reasoning or evidence that Present or Lo, either alone or in combination, teaches or suggests calculating a reallocation of the historical portfolios into *sub-portfolios that include a sub-portfolio representing the original investments in simple assets only and a sub-portfolio representing each composite investment present in the historical portfolio*. The Examiner admits that Present fails to expressly teach this limitation. Final Act. 6–7; Ans. 8. To remedy this deficiency, the Examiner cites Lo’s risk allocation process, as disclosed in Lo, paragraph 65, and illustrated by the hierarchy in Lo, Figure 9. Final Act. 7 (citing Lo ¶ 65); *see* Lo, Fig. 9. But it appears the cited disclosures of Lo teach individual assets and asset groups at different levels of attribution within the decomposed hierarchy, whereas claim 1 recites a reallocation of the historical portfolios such that the individual assets and composite assets are at the sub-portfolio level of attribution. The Examiner does not explain or identify adequately why Lo’s risk allocation process remedies the admitted deficiencies of Present. Nor has Examiner provided a sufficient rationale or articulated reasoning to fill the gaps in the

rejection. We decline to resort to impermissible speculation or unfounded assumptions or rationales to cure the deficiencies in the factual bases of the rejection before us. *In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967).

For the reasons discussed *supra*, and constrained by the evidence of record before us, we do not sustain the Examiner's § 103 rejection of independent claim 1. For similar reasons, we also do not sustain the Examiner's § 103 rejection of independent claims 8 and 15. Additionally, we do not sustain the Examiner's § 103 rejections of claims 2–7, 9–14, and 16–18, which depend directly or indirectly therefrom.

DECISION

We affirm the rejection of Claims 1–18 under 35 U.S.C. § 101.

We reverse the rejection of Claims 1–18 under 35 U.S.C. § 103.

Because we affirm at least one ground of rejection with respect to each claim on appeal, the Examiner's decision rejecting claims 1–18 is affirmed. *See* 37 C.F.R. § 41.50(a)(1).

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

AFFIRMED