



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
**United States Patent and Trademark Office**  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/909,873	06/04/2013	Carl J. Reed	GOLD11-00438	3656
132787	7590	12/31/2019	EXAMINER	
Docket Clerk-GOLD P.O. Drawer 800889 Dallas, TX 75380			KRINGEN, MICHELLE THERESE	
			ART UNIT	PAPER NUMBER
			3625	
			NOTIFICATION DATE	DELIVERY MODE
			12/31/2019	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@munckwilson.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* CARL J. REED and CHARLES KLEIN

---

Appeal 2018-001703  
Application 13/909,873  
Technology center 3600

---

Before JOHN A. EVANS, CARL L. SILVERMAN, and  
JAMES W. DEJMEK, *Administrative Patent Judges*.

EVANS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant<sup>1</sup> seeks our review under 35 U.S.C. § 134(a) of the Examiner’s Final rejection of Claims 1–7, 9–17, 19, and 21. Appeal Br. 3. Claims 8, 18, 20, and 22–28 are cancelled. *Id.* We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.<sup>2</sup>

---

<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42 (2016). Appellant identifies Goldman, Sachs & Co., as the real party in interest. Appeal Br. 3.

<sup>2</sup> Rather than reiterate the arguments of Appellant and the Examiner, we refer to the Appeal Brief (filed May 22, 2017, “Appeal Br.”); the Reply

STATEMENT OF THE CASE

The claims relate to systems and methods for a product driven approach to technology provisioning operations. *See* Abstract.

INVENTION

Claims 1, 9, and 19 are independent. An understanding of the invention can be derived from a reading of Claim 1, which is reproduced in Table I, *infra*.

*References and Rejections*<sup>3</sup>

Bellows	US 5,132,920	July 21, 1992
Li	US 2006/0111963 A1	May 25, 2006
Burrell	US 2007/0226122 A1	Sept. 27, 2007
Benedetti	US 2008/0168459 A1	July 10, 2008
Hirose	US 2010/0005451 A1	Jan. 7, 2010
Dettinger	US 2011/0270866 A1	Nov. 3, 2011
Marsten	US 8,078,489 B1	Dec. 13, 2011

1. Claims 1–7, 9–17, 19, and 21 stand rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. Final Act. 2–5.

---

Brief (filed December 6, 2017, “Reply Br.”); the Examiner’s Answer (mailed October 6, 2017, “Ans.”); the Final Action (mailed December 30, 2016, “Final Act.”); and the Specification (filed June 4, 2013, “Spec.”) for their respective details.

<sup>3</sup> The Application was examined under pre-AIA first inventor provisions. Final Act. 2.

2. Claims 1–3, 6, 7, 9, 10, 16, and 17<sup>4</sup> stand rejected under 35 U.S.C. § 103(a) as unpatentable over Marsten and Hirose. Final Act. 6–39.
3. Claims 4, 5, 13, and 15 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Marsten, Hirose, and Bellows. Final Act. 39–44.
4. Claim 11 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Marsten, Hirose, and Li. Final Act. 44–45.
5. Claims 12 and 14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Marsten, Hirose, and Benedetti. Final Act. 46–50.
6. Claims 19 and 21 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Marsten, Hirose, Dettinger, and Burrell. Final Act. 50–58.

#### ANALYSIS

We have reviewed the rejections of Claims 1–7, 9–17, 19, and 21 in light of Appellant’s arguments that the Examiner erred. We are persuaded that Appellant identifies reversible error. We provide the following explanation to highlight and address specific arguments and findings primarily for emphasis. We consider Appellant’s arguments presented in the Appeal Brief, pages 6–16.

#### CLAIMS 1, 9, AND 19: INELIGIBLE SUBJECT MATTER

Appellant argues the independent claims as a group with particular reference to the similar recursion limitations recited in each claim. *See*

---

<sup>4</sup> The rejections of Claims 22–28, as recited in various rejection headers, is mooted by their cancellation. *See* Appeal Br. 3.

Appeal Br. 7–8. Therefore, we decide the appeal of the 35 U.S.C. § 101 rejections with reference to independent Claim 1, and refer to the rejected claims collectively herein as “the claims.” *See* 37 C.F.R. § 41.37(c)(1)(iv); *see also In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986).

## PRINCIPLES OF LAW

### A. 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.<sup>5</sup>

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*. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 217–18 (2014) (citing *Mayo*, 566 U.S. at 75–77). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. 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,

---

<sup>5</sup> This threshold analysis of whether a claim is directed to one of the four statutory categories of invention, *i.e.*, a process, machine, manufacture, or composition of matter, is referred to as “*Step I*” in the patent-eligibility inquiry under 35 U.S.C. § 101.

include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *see also 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, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diehr*, 450 U.S. at 191); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. (15 How.) 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 “a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187, 191 (“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.* at 191 (citing *Benson* and *Flook*), 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.”).

Abstract ideas may include, but are not limited to, fundamental economic practices, methods of organizing human activities, and

mathematical formulas or relationships. *Alice*, 573 U.S. at 217–21. Under this guidance, we must therefore ensure at step one that we articulate what the claims are directed to with enough specificity to ensure the step one inquiry is meaningful. *Id.* at 217 (“[W]e tread carefully in construing this exclusionary principle lest it swallow all of patent law.”).

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 (citation 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.*

#### B. USPTO Revised Guidance<sup>6</sup>

The PTO recently published revised guidance in the Federal Register concerning the application of § 101.

Under the Revised Guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain

---

<sup>6</sup> 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (January 7, 2019) (hereinafter “Revised Guidance,” or “Rev. Guid.”) (<https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf>).

groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes);<sup>7</sup> and

(2) additional elements that integrate the judicial exception into a practical application (*see* Manual for Patent Examining Procedure (“MPEP”) § 2106.05(a)–(c), (e)–(h)).<sup>8</sup>

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 are 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.<sup>9</sup>

*See* Revised Guidance.

#### *Step 2A(i) — Abstract Idea*

Informed by our judicial precedent, 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

---

<sup>7</sup> Referred to as “*Revised Step 2A, Prong 1*” in the Revised Guidance (hereinafter “*Step 2A(i)*”).

<sup>8</sup> Referred to as “*Revised Step 2A, Prong 2*” in the Revised Guidance (hereinafter “*Step 2A(ii)*”).

<sup>9</sup> Items (3) and (4) continue to be collectively referred to as “*Step 2B*” of the Supreme Court’s two-step framework, described in *Mayo* and *Alice*.

matter, when recited as such in a claim limitation:

(a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;

(b) Certain methods of 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); and

(c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).

Under the Revised Guidance, if the claim does not recite a judicial exception (a law of nature, natural phenomenon, or subject matter within the enumerated groupings of abstract ideas above), then the claim is patent-eligible at *Step 2A(i)*. This determination concludes the eligibility analysis, except in rare situations identified in the Revised Guidance.<sup>10</sup>

However, if the claim recites a judicial exception (i.e., an abstract idea enumerated above, a law of nature, or a natural phenomenon), the claim

---

<sup>10</sup> In the rare circumstance in which an Examiner believes a claim limitation that does not fall within the enumerated groupings of abstract ideas should nonetheless be treated as reciting an abstract idea, the procedure described in of the Guidance for analyzing the claim should be followed. *See* Revised Guidance, Section III.C.

requires further analysis for a practical application of the judicial exception in *Step 2A(ii)*.

*Step 2A(ii) — Practical Application*

If a claim recites a judicial exception in *Step 2A(i)*, we determine whether the recited judicial exception is integrated into a practical application of that exception in *Step 2A(ii)* by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application.

The seven identified “practical application” sections of the MPEP,<sup>11</sup> cited in the Revised Guidance under *Step 2A(ii)*, are:

- (1) MPEP § 2106.05(a) Improvements to the Functioning of a Computer or To Any Other Technology or Technical Field
- (2) MPEP § 2106.05(b) Particular Machine
- (3) MPEP § 2106.05(c) Particular Transformation
- (4) MPEP § 2106.05(e) Other Meaningful Limitations
- (5) MPEP § 2106.05(f) Mere Instructions To Apply An Exception
- (6) MPEP § 2106.05(g) Insignificant Extra-Solution Activity
- (7) MPEP § 2106.05(h) Field of Use and Technological

---

<sup>11</sup> See MPEP § 2106.05(a)–(c), (e)–(h). Citations to the MPEP herein refer to revision [R-08.2017].

### Environment

If the recited judicial exception is integrated into a practical application as determined under one or more of the MPEP sections cited above, then the claim is not directed to the judicial exception, and the patent-eligibility inquiry ends. If not, then analysis proceeds to *Step 2B*.

#### *Step 2B — “Inventive Concept” or “Significantly More”*

Under our precedent, it is possible that a claim that does not “integrate” a recited judicial exception under *Step 2A(ii)* is nonetheless patent eligible. For example, the claim may recite additional elements that render the claim patent eligible even though a judicial exception is recited in a separate claim element.<sup>12</sup> The Federal Circuit has held claims eligible at the second step of the *Alice/Mayo* test (USPTO *Step 2B*) because the additional elements recited in the claims provided “significantly more” than the recited judicial exception (e.g., because the additional elements were unconventional in combination).<sup>13</sup> Therefore, if a claim has been determined to be directed to a judicial exception under *Revised Step 2A*, we must evaluate the additional elements individually and in combination under *Step 2B* to determine whether they provide an inventive concept (i.e., whether the additional elements amount to significantly more than the exception itself).<sup>14</sup>

---

<sup>12</sup> See, e.g., *Diehr*, 450 U.S. at 187.

<sup>13</sup> See, e.g., *Amdocs Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300, 1304 (Fed. Cir. 2016); *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349–52 (Fed. Cir. 2016); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–59 (Fed. Cir. 2014).

<sup>14</sup> The patent-eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325

Under the Revised Guidance, we must consider in *Step 2B* whether an additional element or combination of elements: (1) “Adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present;” or (2) “simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.” *See* Revised Guidance, III.B.<sup>15</sup>

In the *Step 2B* analysis, an additional element (or combination of elements) is not well-understood, routine or conventional unless the examiner finds an evidentiary basis, and expressly supports a rejection in writing with, one or more of the following:

1. A citation to an express statement in the

---

(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).

<sup>15</sup> In accordance with existing *Step 2B* guidance, an Examiner’s finding that an additional element (or combination of elements) is well-understood, routine, conventional activity must be supported with at least one of the four specific types of evidence required by the USPTO *Berkheimer* Memorandum, as shown above (shown on next page). For more information concerning evaluation of well-understood, routine, conventional activity, *see* MPEP § 2106.05(d), as modified by the USPTO *Berkheimer* Memorandum (USPTO Commissioner for Patents Memorandum dated Apr. 19, 2018, “Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*)” (hereinafter “*Berkheimer Memo*”).

specification or to a statement made by an applicant during prosecution that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .

2. A citation to one or more of the court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional element(s).

3. A citation to a publication that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .

4. A statement that the examiner is taking official notice of the well-understood, routine, conventional nature of the additional element(s)

*See Berkheimer Memo.*

The analysis in *Step 2B* further determines whether an additional element or combination of elements:

(a) Adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present; or

(b) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.

Revised Guidance, *and see Berkheimer Memo.*

If the Examiner or the Board determines under *Step 2B* that the element (or combination of elements) amounts to significantly more than the exception itself, the claim is eligible, thereby concluding the eligibility analysis.

However, if a determination is made that the element and combination of elements does not amount to significantly more than the exception itself, the claim is ineligible under *Step 2B*, and the claim should be rejected for lack of subject matter eligibility.

## ANALYSIS

### *Step 1*

“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 . . . .” MPEP § 2104 (quoting 35 U.S.C. § 101).

Independent Claim 1 recites, *inter alia*, a “computer-implemented method”; Independent Claims 9 and 19 recite, *inter alia*, a “system.” Thus, independent Claim 1 is a process and Claims 9 and 19 are machines under § 101. Therefore, the issue before us is whether the claims, despite reciting a statutory class, are nonetheless directed to a judicial exception without significantly more. At Step 1, we disagree with the Examiner’s finding that the “[t]he claims do not fall within at least one of the four categories of patent eligible subject matter because the claimed invention is directed to a judicial exception.” Final Act. 2. That is, contrary to the Examiner, we find the claims fall in a statutory category, but further inquire whether the claims are none-the-less patent ineligible as directed to a judicial exception.

### *Step 2A(i): Do the Claims Recite a Judicial Exception?*

We review the claims, *de novo*, to determine whether they comply with 101. “Whether a claim is drawn to patent-eligible subject matter is an issue of law that we review *de novo*.” *SiRF Tech., Inc. v. Int’l Trade*

*Comm’n*, 601 F.3d 1319, 1331 (Fed. Cir. 2010).

The preamble of Claim 1 recites a “computer-implemented method comprising.” The remaining limitations of Claim 1 are set forth in the left column of Table I and analyzed according to the Revised Guidance in the right column.

**Table I**

<b>Claim 1</b>	<b>Revised Guidance</b>
[a] <sup>16</sup> receiving, through a portal, a product ordering request that specifies a set of features and functional requirements desired by a requestor;	An additional element, data-gathering, that adds insignificant extra-solution activity. Rev. Guid. 55, n.31.
[b] accessing a recursive model stored in memory to match the set of features and functional requirements to a provisionable assembly that satisfies the set of features and functional requirements;	Mental processes—concepts performed in the human mind. <sup>17</sup> (including an observation, evaluation, judgment, opinion). Rev. Guid. 52, n.12.
[c] determining, based on the	Methods of organizing human

---

<sup>16</sup> Step designators, e.g., “[a]” were added to facilitate discussion.

<sup>17</sup> 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 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.”).

recursive model, a set of constituent components to create the provisionable assembly; and	behavior including fundamental economic principles and practices. Rev. Guid. 52, n.13.
[d] generating, using a processor, a request to provision a product based on the set of constituent components;	Mental processes—concepts performed in the human mind. (including an observation, evaluation, judgment, opinion).
[e] wherein determining the set of constituent components comprises minimizing a total cost of the provisionable assembly to be created using the set of constituent components.	Mathematical concepts: mathematical relationships, formulas, equations, or calculations. Rev. Guid. 52, n.12.

Thus, under Step 2A(i), we find limitations [b]–[e] recite steps which the Revised Guidance categorizes within the “mental processes,” “mathematical concepts,” and “methods of organizing human behavior” groupings of abstract ideas.

*Step 2A(ii): Judicial Exception Integrated into a Practical Application?*

If the claims recite a patent-ineligible concept, as we conclude above, we proceed to the “practical application” *Step 2A(ii)* in which we determine whether the recited judicial exception is integrated into a practical application of that exception by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the 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.” Revised Guidance 53.

The Examiner finds the claims “are directed to a method and systems for provisioning products, which is considered to be an abstract idea. Provisioning products is a method of organizing human activity, and a mathematical relationship/formula.” Final Act. 3.

The Examiner finds receiving product ordering requests, determining constituent components, generating requests to provision products, and provisioning products, are considered managing relationships or transactions, and are also considered sales activities that have been identified by the Federal Circuit as abstract ideas. Final Act. 3 (citing *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014)). The Examiner further finds:

Applicant’s specification states “Recently, waste management companies have emerged that combine the benefits of both the independent local haulers and the larger multi-regional operators. These companies consider the waste service needs of various customers, and select and manage a combination of local independent and multi-regional service providers to satisfy the service needs of those customers. Generally, the waste management companies select a particular service provider for each customer based directly on the service needs of the customer, a provider cost, a customer budget, or a service location. The selection process, however, is manually implemented and can be cumbersome, time-consuming, inefficient, and error-prone.” (Spec, [0004]). This indicates that the process can be, and has been, performed by waste management companies in the past using the same method.

Ans. 9–10 (citing Spec. ¶ 4).

Appellant contends that the Specification nowhere discusses waste management and that the “Examiner is apparently making arguments related to another patent application, which is clear error.” Reply Br. 9.

Contrary to the Examiner’s findings, Appellant discloses:

As the demands for the use of various technologies evolve, there have been increasing burdens placed on the support and management of these systems. Moreover, the ongoing evolution of IT as a recognized business differentiator has been a major factor in driving ever increasing industry investment and innovation. Further, the evolution of IT has made it difficult for the end users or consumers of the technology to keep abreast of technological advancements. The resulting diversity of technology solutions combined with increasing demand from technology users has produced an unprecedented pressure on the enterprise to manage its technology assets and services as a core business. Like any other business, IT needs to provide its “clients” with the “products” and “services” they demand with agility, cost transparency, efficiency, and abstraction from technical complexity.

Spec. ¶ 4. This misquotation of Appellant’s Specification diminishes our confidence in any findings based thereon (we note a word search of the Specification failed to find the term “waste”).

Appellant contends a product catalogue may be silent on whether a device has a particular capability for which a client may search. Appeal Br. 10. Appellant argues the prior art resolves the query by using a catalogue to build a highly detailed and unwieldy model by specifying whether each device in the catalogue has a particular capability. *Id.* (“[o]ne approach to resolving the query could be to build a more detailed model using the catalogue by specifying whether each device in the catalogue has a

particular capability. Such a level of detail model could be unwieldy”). Appellant argues *buySAFE* merely recited steps of receiving and processing a request, but failed to specify how such processing might occur. Reply Br. 3. Appellant argues, in contrast, the claims use recursion to enable inference and generalization to resolve the query with a less detailed product model using compact domain rules. *Id.* at 5 (citing Spec. ¶¶ 45, 48, 49).

The Answer re-iterates the Final Action findings and further finds a recursive model is a mathematical formula. Ans. 4 (citing *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014)).

For the reasons which follow, we conclude that Appellant’s claims in fact do integrate the judicial exception into a practical application.

MPEP § 2106.05(a) “Improvements to the Functioning of a Computer or To Any Other Technology or Technical Field.”

“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).

#### *McRO*

With respect to technological improvements, Appellant argues in *McRO*, the Federal Circuit found “a claim that uses limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice is not directed to an abstract idea.” Reply Br. 6 (citing *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (2016)). Appellant argues that analogously to *McRO*, the claims invoke limited rules involving a stored recursive model to determine a minimized-

cost set of components to provide a required set of features and functional requirements. *Id.* at 7.

Appellant discloses an example provisionable search which might yield certain inference rules. Spec. ¶ 45. Appellant discloses “Unified Modeling Language (UML) is a popular formalism for modeling structures of basic concepts and relationships,” but that certain types of inferential rules cannot be formally represented by a UML model. Spec. ¶ 47.

Appellant discloses the “most effective modeling formalisms with available implementation platforms are ontology languages” the Common Logic (CL) class of languages, of which two varieties have full implementations in integrated knowledge store and query and inference engines and also have the broad range of features that allow product modelers to express all of the key types of catalog model detail. Spec. ¶ 48. “CL is the only type of implemented modeling language that offers a substantial degree of second order logical expressive power. Second order expressions allow the system to state rules about all classes, or all relationships, of a certain type.” Spec. ¶ 50. Appellant discloses these second order expressions allow generating queries from external (i.e., vendor) catalogues. Spec. ¶ 52.

We find, the claimed “automation goes beyond merely ‘organizing [existing] information into a new form’ or carrying out a fundamental economic practice. The claimed process uses a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results,” i.e., an improvement to search engine technology. *McRO*, 837 F.3d at 1315 (citations omitted). In view of the foregoing, we find the claims are not “directed to” their underlying abstract

ideas and are thus patent eligible. We reverse the rejection of Claims 1–7, 9–17, 19, and 21 under 35 U.S.C. § 101.

CLAIMS 1–7, 9–17, 19, AND 21: OBVIOUSNESS OVER  
MARSTEN, HIROSE, DETTINGER, AND BURRELL.

*Recursive model.*

The Examiner finds Marsten generally teaches the claimed invention except for failing to explicitly teach a recursive model. Final Act. 9. The Examiner finds Marsten teaches “neighborhoods of similar configurations” which by “reconfiguration relations” “capture” other configurations. *Id.* at 9–10. The Examiner finds “[r]econfiguration could be interpreted as the model being recursive.” *Id.* at 10.

Appellant contends neither “reconfiguration,” nor searching for new patterns, show or render obvious the repeated application of a rule, definition, or procedure to successive results. Appeal Br. 14. The Answer does not find contrary to Appellant’s contention. *See* Ans. 20 (“However, Marsten does not teach a recursive model, and recursively decomposing. Examiner turns to Hirose to teach the model is recursive.”) (emphasis omitted).

Appellant contends “recursion used for creating software applications, as discussed in Hirose, does not render obvious a multi-dimensional model that recursively maps products into a set of constituent components.”

Appeal Br. 15. Appellant argues:

a function that can recursively call itself, as used for creating software applications, does not render obvious how to recursively map products into constituent components, such as

recursively determining that a Nokia Lumia 900 has Windows Phone 7 as its factory installed operating system, that the Office Mobile program is designed to run on the Windows Phone 7 operating system, and that the Excel Mobile program is a subprogram of the Office Mobile program.

*Id.* (citing Spec. ¶ 45).

The Examiner finds Hirose “teaches *recursively* decomposing.”  
Ans. 21. The Examiner finds “Hirose teaches ‘Architectures that enable the creation of software applications through the assembly of components have become more complex, and some standards such as Service Component Architecture (SCA) allow recursive composition, wherein even individual components can recursively be created through the use of other components.’” *Id.* The Examiner interprets “[r]ecursively creating components” “as recursively decomposing.” *Id.*

Appellant contends Hirose discloses creating “applications recursively, which is to say that each of the components used to build an application can itself be built using components.” Reply Br. 14 (quoting Hirose ¶ 6). Appellant argues Hirose also discloses “recursive composition, wherein even individual components can recursively be created through the use of other components.” *Id.* (quoting Hirose ¶ 22). Appellant argues recursion as taught by Hirose is a process by which a component may be created by using other components. *Id.* But, Appellant argues, Hirose does not disclose or suggest recursively decomposing or mapping a product into a set of constituent components. *Id.* Appellant contends “[c]reating a component using other components is the exact opposite of recursively decomposing or mapping a product into a set of constituent components.”  
*Id.*

First, as argued by Appellant, the Examiner provides no evidence to support the finding that “[r]ecursively creating components” is the same as “recursively decomposing.” *See* Ans. 21. Second, as argued by Appellant, the Examiner provides no evidence to support a finding that creating a known, product from known substituents is a process equivalent to its inverse, i.e., determining the (not necessarily known) substituents of a given product.

Because the prior art fails to teach at least one claimed limitation, we decline to sustain the rejection of Claims 1–7, 9–17, 19, and 21 under 35 U.S.C. § 103.

#### DECISION

The rejection of Claims 1–7, 9–17, 19, and 21 under 35 U.S.C. § 101 is reversed.

The rejection of Claims 1–7, 9–17, 19, and 21 under 35 U.S.C. § 103 is reversed.

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–7, 9–17, 19, 21	101	Abstract Ideas		1–7, 9–17, 19, 21
1–7, 9–17, 19, 21	103	Marsten, Hirose, Bellows, Li, Benedetti, Burrell		1–7, 9–17, 19, 21
<b>Overall Outcome</b>				1–7, 9–17, 19, 21

REVERSED