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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARK SCHWANS,
GERALD JOSEPH HANSON,
and RENJITH MOOLAYIL

Appeal 2018–007149
Application 14/086,206
Technology Center 3600

Before ANTON W. FETTING, BIBHU R. MOHANTY, and TARA L. HUTCHINGS, *Administrative Patent Judges*.

FETTING, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE[1]

Mark Schwans, Gerald Joseph Hanson, and Renjith Moolayil (Appellant) seeks review under 35 U.S.C. § 134 of the Examiner's Final rejection of claims 1, 2, and 4–20, the only claims pending in the application

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[1] Our decision will make reference to the Appellant's Appeal Brief ("App. Br.," filed March 22, 2018) and Reply Brief ("Reply Br.," filed July 3, 2018), and the Examiner's Answer ("Ans.," mailed May 3, 2018), and Final Action ("Final Act.," mailed October 25, 2017).

on appeal.[2] We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

The Appellant invented a way of determining the best combination of inventory "just-in-time" for need, in which businesses that align inventory to consumer demand can still take advantage of all the supply chain efficiency of pre-packaged assortments of items having multiple SKUs that can consist of multiple sizes and/or multiple colors.[3] Spec. para. 9.

An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below (bracketed matter and some paragraphing added).

> 1. A non-transitory computer-readable medium storing instructions that when executed by one or more processors of a device cause the device to perform at least:
>
> [1] receiving, as an electronic input, a demand quantity for an item that includes different types of the item that are sold using a separate identifier for each of the different types,
>
> > wherein the demand quantity is electronically derived by projecting the demand quantity according to seasonal fluctuations in sales and from current sales data of the item from when the demand quantity is received;
>
> [2] accessing, by at least the processor by reading an electronic data structure, a size profile that specifies a relative contribution of each of the different types of the item to overall sales of the item,

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[2] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Oracle International Corporation (Appeal Br. 2).

[3] SKUs are stocking keeping units. Spec. para. 1.

wherein the relative contribution identifies a fractional amount assigned to each of the different types of the item, wherein a sum of the fractional amounts equals one;

[3] generating, by at least the processor, demand contributions for the different types of the item as a function of the size profile,

wherein an amount of each of the different types of items is selected based on the fractional amount assigned to a given type of the item;

[4] electronically producing, by at least the processor, a plurality of demands using the demand quantity and the demand contributions in real-time in response to the demand quantity,

where the plurality of demands correspond to demand for the different types of the item;

and

[5] iteratively allocating, by at least the processor, the different types of the item into one or more packs represented as a data structure when the demand quantity is received to fulfill the demand quantity for the item according to the plurality of demands

by transmitting an electronic communication over a network to an electronic distribution system of a warehouse that

identifies the plurality of demands

and

causes the one or more packs of the item to physically contain the amounts of each of the different types of items based on the assigned fractional amounts from the size profile and cause the one or more packs to be shipped in satisfaction of the demand quantity,

and

where allocating includes receiving a strategy selection that controls whether the demand quantity is honored

> when allocating by permitting allocation of quantities of the different types of the item in excess of the demand quantity according to the strategy selection,
>
> wherein the strategy selection specifies either
>
> > i) a no substitution strategy specifying that the demand quantity cannot be exceeded by allocation of any type of item and that fulfillment of less than the entire demand quantity is permissible
> >
> > or
> >
> > ii) a substitution allowed strategy specifying that the demand quantity can be exceeded by any allocation and that fulfillment of less than the entire demand quantity is not permissible.

The Examiner relies upon the following prior art:

Name	Reference	Date
Chien	US 8,065,203 B1	Nov. 22, 2011
Pang	US 8,131,581 B1	Mar. 6, 2012
Hoskin	US 2004/0162763 A1	Aug. 19, 2004
Wertheimer	US 2006/0143030 A1	June 29, 2006
McMains	US 2012/0179507 A1	July 12, 2012
Vakhutinsky	US 2012/0284071 A1	Nov. 8, 2012

Claims 1, 2, and 4–20 stand rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

Claims 1, 6, 7, 9, and 15 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, and Pang.

Claims 2, 8, 10, 14, 16, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, Pang, and McMains.

Claims 4, 5, 11–13, 17, and 18 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, Pang, McMains and Hoskin.

ISSUES

The issues of eligible subject matter turn primarily on whether the claims recite more than abstract conceptual advice of results desired.

The issues of obviousness turn primarily on whether Pang describes the recited size profile that specifies relative contributions in fractional amounts.

FACTS PERTINENT TO THE ISSUES

The following enumerated Findings of Fact (FF) are believed to be supported by a preponderance of the evidence.

Facts Related to the Prior Art

Chien

01. Chien is directed to providing estimations for product attributes. Chien 1:17–20.

02. Chien describes providing estimations for a product for purchase at a plurality of stores. Groups of stores are generated based upon similarity of store demand data. For each group, a distribution of attribute values is determined with respect to the attribute of the product. The distribution is used to provide estimations with respect to the amount of product to be provided for sale at the stores. Chien 1:48–56.

Vakhutinsky

03. Vakhutinsky is directed to optimizing retail pre-packs. Vakhutinsky para. 1.

04. Vakhutinsky describes determining an optimized pre-pack solution. The system receives demand data and constraints and initializes a current pre-pack configuration comprising a current pre-pack design that comprises a plurality of pre-pack types, each pre-pack type comprising one or more different products. The system optimizes a pre-pack allocation based on the current pre-pack configuration and determines an objective function value improvement comprising, for each product in each pre-pack type, changing a level of the product by one unit and determining if the objective function value has improved. If the objective function value has improved, the system generates a new pre-pack design based on the changed level of the product and assigns the new pre-pack design as the current pre-pack design and re-optimizes the allocation. The system repeats until the objective function value stops improving. The system then outputs an optimized pre-pack configuration and optimized pre-pack allocation. Vakhutinsky para. 6.

Wertheimer

05. Wertheimer is directed to computer systems for use in a warehouse environment. Wertheimer para. 2.

06. Wertheimer describes providing relatively efficient allocation of items to orders for those items. An optimal allocation of items to meet a particular order is calculated. The items, then, may be

allocated to the order according to the calculated allocation. This describes allocating items so as to provide an amount of material closest to the ordered amount. Wertheimer para. 10.

Pang

07. Pang is directed to effecting order fulfillment for a merchant such as an on-line merchant or a brick and mortar retail outlet. Pang 1:64–2:9.

08. Pang describes the product level demand forecast being generated at an adapted critical ratio that is determined by the critical ratio adaptor. Inputs to the critical ratio adaptor include a desired critical ratio determined by inventory planners and is used to calculate the product level demand forecast. By specifying the desired critical ratio in this manner, inventory planners indicate the desired probability that a given product level demand forecast will exceed a demand for a given product. Thus, the critical ratio comprises a value between 0 and 1. If planners want to ensure that demand will not exceed inventory, for example, then a relatively high desired critical ratio may be specified such as "0.9" or other value. Lower values for the critical ratio may be around 0.6 or other value.

ANALYSIS

Initially we determine that although there are no nominal method claims, the two non-transitory media claims are for all intents and purposes method claims, as evidenced by the last three word of each of their preambles, viz, “the method comprising.” We refer to these claims as method claims below for this reason.

Next we construe the limitation "allocating." To allocate is to apportion or designate.[4] All of the claims have all of the limitations performed by and on a computer. Therefore, such allocation is notational rather than physical. We construe "allocating" as generating data representing a notation of how to apportion or designate.

Next we construed the clause "causes the one or more packs of the item to physically contain the amounts of each of the different types of items based on the assigned fractional amounts from the size profile and cause the one or more packs to be shipped in satisfaction of the demand quantity" in limitation 5. Causing is not doing. Causation is a predicate, not a result. Thus, causing containment and shipment is not containment and shipment, but only the predicate for such.

The phrase "physically contain" is a state of existence, not a change in form. The phrase does no more than state the logical consequence of allocation, which is that the allocated parts as a whole contain the individual allocated parts.

This is consistent with the Specification, which does not describe physical movement of items, but only logical assignment of items. In particular, Appellant cites Specification paragraphs 10, 22, 26, 32, 40, and 41 for support. Appeal Br. 4. All of these paragraphs describe logical assignment. None describe physical movement. Nothing in the Specification describes physical shipment. Thus, the recited causation of physical shipment is no more than performing the predicate allocation upon which some shipment outside the scope of the claim will be based on.

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[4] Merriam-Webster Dictionary (accessed Dec. 12, 2019), https://www.merriam-webster.com/dictionary/allocate

Thus, we construe "causes the one or more packs of the item to physically contain the amounts of each of the different types of items based on the assigned fractional amounts from the size profile and cause the one or more packs to be shipped in satisfaction of the demand quantity" to mean "assigning the 'amounts of each of the different types of items' to the one or more packs of the item based on the assigned fractional amounts from the size profile in preparation for the one or more packs to later be shipped in satisfaction of the demand quantity."

Claims 1, 2, and 4–20 rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more

STEP 1[5]

Claim 1, as a non-transitory computer-readable medium storing computer-executable instructions, which we construe as a method claim for the reasons supra, nominally recites one of the enumerated categories of eligible subject matter in 35 U.S.C. § 101. The issue before us is whether it is directed to a judicial exception without significantly more.

STEP 2

The Supreme Court

> set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. First, . . . determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, "[w]hat else is there in the claims before us? To answer that question, . . . 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-

[5] For continuity of analysis, we adopt the steps nomenclature from 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Revised Guidance").

> eligible application. [The Court] described step two of this analysis as a search for an "'inventive concept'"—i.e., an element or combination of elements that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself."

Alice Corp., Pty. Ltd. v CLS Bank Intl, 573 U.S. 208, 217–18 (2014) (citations omitted) (*citing Mayo Collaborative Services v. Prometheus Laboratories, Inc*., 566 U.S. 66 (2012)). To perform this test, we must first determine what the claims are directed to. This begins by determining whether the claims recite one of the judicial exceptions (a law of nature, a natural phenomenon, or an abstract idea). Then, if claims recite a judicial exception, determining whether the claims at issue are directed to the recited judicial exception, or whether the recited judicial exception is integrated into a practical application of that exception, i.e., that the claims "apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception." Revised Guidance 54. If the claims are directed to a judicial exception, then finally determining whether the claims provide an inventive concept because the additional elements recited in the claims provide significantly more than the recited judicial exception.

STEP 2A Prong 1

At a high level, and for our preliminary analysis, we note that method claim 1 recites receiving demand data, accessing profile data, generating SKU demand contributions, producing plural demands, and allocating items to fulfill demand quantity. Accessing data is receiving data. Generating demand contributions, producing demands, and allocating items are all conventional mathematical calculations and are therefore conventional

computer analysis. Thus, claim 1 recites receiving and analyzing data. None of the limitations recite technological implementation details, or even mathematical algorithms, for any of these steps, but instead recite only results desired by any and all possible means.

From this we see that claim 1 does not recite the judicial exceptions of either natural phenomena or laws of nature.

Under Supreme Court precedent, claims directed purely to an abstract idea are patent in-eligible. As set forth in the Revised Guidance, which extracts and synthesizes key concepts identified by the courts, abstract ideas include (1) mathematical concepts,[6] (2) certain methods of organizing human activity,[7] and (3) mental processes.[8] Among those certain methods of organizing human activity listed in the Revised Guidance are commercial or legal interactions. Like those concepts, claim 1 recites the concept of allocating inventory to meet market demand. Specifically, claim 1 recites operations that would ordinarily take place in advising one to allocate items based on contributions to overall demand based on multiple SKU sizes. The advice to allocate items based on contributions to overall demand based on

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[6] *See, e.g.*, *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010); and *Mackay Radio & Telegraph Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018).

[7] *See, e.g.*, *Bilski*, 561 U.S. at 628; *see also Alice*, 573 U.S. at 219–20; *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed Cir. 2014); *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1383 (Fed. Cir. 2017); and *In re Marco Guldenaar Holding B.V.*, 911 F.3d 1157, 1160–61 (Fed. Cir. 2018).

[8] *See, e.g.*, *Benson*, 409 U.S. at 67; *see also CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371–72 (Fed. Cir. 2011); and *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016).

multiple SKU sizes involves allocating items for sale, which is an economic act, and basing this on demand, which is an act ordinarily performed in the stream of commerce. For example, claim 1 recites "allocating items," which is an activity that would take place whenever one is readying inventory for sale in a market. Similarly, claim 1 recites "to fulfill the demand," which is also characteristic of selling optimally into a market.

The Examiner determines the claims to be directed to allocation of retail goods based on a size profile and/or a selected strategy. Final Act. 12.

The preamble to claim 1 does not recite what it is to achieve, but the steps in claim 1 result in calculating how to allocate items to meet demand absent any technological mechanism other than a conventional computer for doing so.

As to the specific limitations, limitations 1 and 2 recite receiving data. Limitations 3–5 recite generic and conventional receiving and analyzing of demand data, which advise one to apply generic functions to get to these results. The limitations thus recite advice for allocating items based on contributions to overall demand based on multiple SKU sizes. To advocate allocating items based on contributions to overall demand based on multiple SKU sizes is conceptual advice for results desired and not technological operations.

The Specification at paragraph 9 describes the invention as relating to determining the best combination of inventory "just-in-time" for need, in which businesses that align inventory to consumer demand can still take advantage of all the supply chain efficiency of pre-packaged assortments of items having multiple SKUs that can consist of multiple sizes and/or multiple colors. Thus, all this intrinsic evidence shows that claim 1 recites

allocating inventory to meet market demand. This is consistent with the Examiner's determination.

This in turn is an example of commercial or legal interactions as a certain method of organizing human activity because allocating inventory to meet market demand is part of the process of making inventory available for commercial sale. The concept of allocating inventory to meet market demand by allocating items based on contributions to overall demand based on multiple SKU sizes is one idea for matching the demand in commerce to availability. The steps recited in claim 1 are part of how this might conceptually be premised.

Our reviewing court has found claims to be directed to abstract ideas when they recited similar subject matter. *Credit Acceptance Corp. v. Westlake Services*, 859 F.3d 1044, 1055 (2017) (selection of parts from inventory).

Alternately, this is an example of concepts performed in the human mind as mental processes because the steps of receiving and analyzing data mimic human thought processes of observation, evaluation, judgment, and opinion, perhaps with paper and pencil, where the data interpretation is perceptible only in the human mind. *See In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016); *see also FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016). Claim 1, unlike the claims found non-abstract in prior cases, uses generic computer technology to perform data reception and analysis and does not recite an improvement to a particular computer technology. *See, e.g., McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314–15 (Fed. Cir. 2016) (Finding claims not abstract because they "focused on a specific asserted

improvement in computer animation."). As such, claim 1 recites receiving and analyzing data, and not a technological implementation or application of that idea.

Alternately, this is an example of a mathematical concept because the steps of determining demand contributions, applying such contributions to demand quantity, and allocating to meet the demand perform mathematical algorithms. The remaining steps are mere data gathering and incidental post processing steps.

From this we conclude that at least to this degree, claim 1 recites allocating inventory to meet market demand by allocating items based on contributions to overall demand based on multiple SKU sizes, which is a commercial and legal interaction, one of certain methods of organizing human activity identified in the Revised Guidance, and, thus, an abstract idea.

STEP 2A Prong 2

The next issue is whether claim 1 not only recites, but is more precisely directed to this concept itself or whether it is instead directed to some technological implementation or application of, or improvement to, this concept i.e. integrated into a practical application.[9]

> At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent law. At some level, "all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept. "[A]pplication[s]" of such concepts "'to a new and useful end,'" we have said,

[9] *See, e.g., Alice*, 573 U.S. at 223 (discussing *Diamond v. Diehr*, 450 U.S. 175 (1981)).

> remain eligible for patent protection. Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the "'buildin[g] block[s]'" of human ingenuity and those that integrate the building blocks into something more.

Alice, 573 U.S. at 217 (citations omitted).

Taking the claim elements separately, the operation performed by the computer at each step of the process is expressed purely in terms of results, devoid of implementation details. Steps 1 and 2 are pure data gathering steps. Limitations describing the nature of the data do not alter this. Steps 3–5 recite generic computer processing expressed in terms of results desired by any and all possible means and so present no more than conceptual advice. All purported inventive aspects reside in how the data is interpreted and the results desired, and not in how the process physically enforces such a data interpretation or in how the processing technologically achieves those results.

As we construe supra "causes the one or more packs of the item to physically contain the amounts of each of the different types of items based on the assigned fractional amounts from the size profile and cause the one or more packs to be shipped in satisfaction of the demand quantity" to mean assigning the "amounts of each of the different types of items [to the one or more packs of the item] based on the assigned fractional amounts from the size profile in preparation for the one or more packs to later be shipped in satisfaction of the demand quantity," this limitation only expresses the implication of the assignment. Reply Br. 6.

Viewed as a whole, Appellant's claim 1 simply recites the concept of allocating inventory to meet market demand by allocating items based on contributions to overall demand based on multiple SKU sizes as performed

by a generic computer. This is no more than conceptual advice on the parameters for this concept and the generic computer processes necessary to process those parameters, and do not recite any particular implementation.

Claim 1 does not, for example, purport to improve the functioning of the computer itself. Nor does it effect an improvement in any other technology or technical field. The 19+ pages of specification do not bulge with disclosure, but only spell out different generic equipment[10] and parameters that might be applied using this concept and the particular steps such conventional processing would entail based on the concept of allocating inventory to meet market demand by allocating items based on contributions to overall demand based on multiple SKU sizes under different scenarios. They do not describe any particular improvement in the manner a computer functions. Instead, claim 1 at issue amounts to nothing significantly more than an instruction to apply allocating inventory to meet market demand by allocating items based on contributions to overall demand based on multiple SKU sizes using some unspecified, generic computer. Under our precedents, that is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 573 U.S. at 225–26.

None of the limitations reflect an improvement in the functioning of a computer, or an improvement to other technology or technical field, applies or uses a judicial exception to effect a particular treatment or prophylaxis for a disease or medical condition, implements a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or manufacture

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[10] The Specification describes a computer that includes a processor, a memory, and input/output ports operably connected by a bus. Spec. para. 45.

that is integral to the claim, effects a transformation or reduction of a particular article to a different state or thing, or applies or uses the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception.

We conclude that claim 1 is directed to achieving the result of allocating inventory to meet market demand by advising one to allocate items based on contributions to overall demand based on multiple SKU sizes, as distinguished from a technological improvement for achieving or applying that result. This amounts to commercial or legal interactions, which fall within certain methods of organizing human activity that constitute abstract ideas. The claim does not integrate the judicial exception into a practical application.

STEP 2B

The next issue is whether claim 1 provides an inventive concept because the additional elements recited in the claim provide significantly more than the recited judicial exception.

The introduction of a computer into the claims does not generally alter the analysis at *Mayo* step two.

> the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea "while adding the words 'apply it'" is not enough for patent eligibility. Nor is limiting the use of an abstract idea "'to a particular technological environment.'" Stating an abstract idea while adding the words "apply it with a computer" simply combines those two steps, with the same deficient result. Thus, if a patent's recitation of a computer amounts to a mere instruction to "implement[t]" an abstract

> idea "on . . . a computer," that addition cannot impart patent eligibility. This conclusion accords with the preemption concern that undergirds our § 101 jurisprudence. Given the ubiquity of computers, wholly generic computer implementation is not generally the sort of "additional feature[e]" that provides any "practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself."

Alice, 573 U.S. at 223–24 (citations omitted).

"[T]he relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea [] on a generic computer." *Alice*, 573 U.S. at 225. They do not.

Taking the claim elements separately, the function performed by the computer at each step of the process is purely conventional. Using a computer for receiving and analyzing data amounts to electronic data query and retrieval—one of the most basic functions of a computer. All of these computer functions are generic, routine, conventional computer activities that are performed only for their conventional uses. *See Elec. Power Grp. v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016); *see In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) ("Absent a possible narrower construction of the terms 'processing,' 'receiving,' and 'storing,' []those functions can be achieved by any general purpose computer without special programming."). None of these activities are used in some unconventional manner nor do any produce some unexpected result. Appellant does not contend it invented any of these activities. In short, each step does no more than require a generic computer to perform generic computer functions. As to the data operated upon, "even if a process of collecting and analyzing information is 'limited to particular content' or a particular 'source,' that limitation does not make the collection

and analysis other than abstract." *SAP America, Inc. v. InvestPic LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018).

Considered as an ordered combination, the computer components of Appellant's claim 1 add nothing that is not already present when the steps are considered separately. The sequence of data reception-analysis is equally generic and conventional. *See Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (sequence of receiving, selecting, offering for exchange, display, allowing access, and receiving payment recited an abstraction); *see also Inventor Holdings, LLC v. Bed Bath & Beyond, Inc*., 876 F.3d 1372, 1378 (Fed. Cir. 2017) (sequence of data retrieval, analysis, modification, generation, display, and transmission); and *Two-Way Media Ltd. v. Comcast Cable Communications, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (sequence of processing, routing, controlling, and monitoring). The ordering of the steps is therefore ordinary and conventional.

We conclude that claim 1 does not provide an inventive concept because the additional elements recited in the claim do not provide significantly more than the recited judicial exception.

REMAINING CLAIMS

Claim 1 is representative. The other independent non-transitory computer-readable medium storing computer-executable instructions claim 16 which we construe as a method claim is substantially similar at least as regards this analysis. The remaining claims construed as method claims merely describe process parameters. We conclude that the method claims at issue are directed to a patent-ineligible concept itself, and not to the practical application of that concept.

As to the structural system claims, they

> are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long "warn[ed] . . . against" interpreting § 101 "in ways that make patent eligibility 'depend simply on the draftsman's art.'"

Alice, 573 U.S. at 226. As a corollary, the claims are not directed to any particular machine.

LEGAL CONCLUSION

From these determinations we further determine that the claims do not recite an improvement to the functioning of the computer itself or to any other technology or technical field, a particular machine, a particular transformation, or other meaningful limitations. From this we conclude the claims are directed to the judicial exception of the abstract idea of certain methods of organizing human activity as exemplified by the commercial and legal interaction of allocating inventory to meet market demand by advising one to allocate items based on contributions to overall demand based on multiple SKU sizes, without significantly more.

APPELLANT'S ARGUMENTS

As to Appellant's Appeal Brief arguments, we adopt the Examiner's determinations and analysis from Final Action 12–13 and Answer 4–22 and 28–29 and reach similar legal conclusions. We now turn to the Reply Brief.

We are not persuaded by Appellant's argument that there is no showing that the limitations are conventional. Reply Br. 3. Such showing is presented supra under Step 2B.

We are not persuaded by Appellant's argument that the claims contain an inventive concept that is also found in the specific ordered combination

of the limitations, similar to the Federal Circuit's findings in *BASCOM* (*Bascom Global Internet v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016)). Reply Br. 3. Initially, we remind Appellant that *BASCOM* did not find claims eligible on the substance, but rather that the Appellees did not provide sufficient evidence to support a 12(b)(6) motion to dismiss in which facts are presumed in the non-movant's favor.

The key fact in *BASCOM* was the presence of a structural change in "installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user. This design gives the filtering tool both the benefits of a filter on a local computer and the benefits of a filter on the ISP server." *BASCOM*, 827 F.3d at 1350. The instant claims have no analogous structural benefit.

> We are not persuaded by Appellant's argument that
>
> > It is not well-understood, routine, and convention to iteratively allocate packs and generate demand contributions as a function of a size profile, and then to identify a fractional amount assigned to each of different types of an item that is specified in the size profile, and then to cause packs of the item to physically contain the amounts of each of the different types of items based on the assigned fractional amounts from the size profile as recited in claim 1. These are not well-understood or routine functions.

Reply Br. 4. All of these are mathematical algorithms performed on specified data. As we determined supra, the nature or origin of the data cannot confer eligibility. Also, information is abstract. "Information, whether displayed in the form of price values or P&L values, is abstract." *Trading Techs. Int'l, Inc. v. IBG LLC*, 921 F.3d 1378, 1384 (Fed. Cir. 2019). Similarly, reciting the performance of a mathematical algorithm cannot confer eligibility.

> Nothing "transforms" the abstract idea of encoding and decoding into patent-eligible subject matter. Nor does the presence of a mathematical formula dictate otherwise. Claims that are directed to a nonabstract idea are not rendered abstract simply because they use a mathematical formula. But the converse is also true: A claim directed to an abstract idea does not automatically become eligible merely by adding a mathematical formula.

RecogniCorp, LLC v. Nintendo Co., Ltd., 855 F.3d 1322, 1328 (2017). And as we also determined supra, the limitation regarding causing "packs of the item to physically contain the amounts of each of the different types of items" (claim 1, limitation 5) is not part of the step and does no more than recite a state of being.

> We are not persuaded by Appellant's argument that the
>
> claim limitations are similar to those in *Diamond v. Diehr* that were directed to an improved process for determining when to cause an action from a machine after the computer determines some conditions: "opening the press automatically when a said comparison indicates equivalence[.]" (Claim 1 in *Diamond v. Diehr*). Opening a press (which is caused by a computer control signal) after the computer determines temperature conditions is an action by a machine controlled by the computer. This is similar to the present claims that involve the computer determining a number of allocation conditions and causing packs to be filled with specified items, which is an action by a machine.

Reply Br. 6. Here, Appellant further argues that the asserted claims are akin to the claims found patent-eligible in *Diamond v. Diehr*, 450 U.S. 175 (1981). Reply Br. 7–8. But,

> we must read *Diehr* in light of Alice, which emphasized that *Diehr* does not stand for the general proposition that a claim implemented on a computer elevates an otherwise ineligible claim into a patent-eligible improvement, *Alice*. Rather, *Diehr*

> involved "a 'well-known' mathematical equation . . . used . . . in a process designed to solve a technological problem in 'conventional industry practice.'"

OIP Techs., Inc. v. Amazon.com, Inc., 788 F.3d 1359, 1363 (Fed. Cir. 2015). *Diehr* solved a technological problem in the conventional industry practice of molding tires. Here, Appellant argues that the invention causes packs to be filled. But causing is not doing. And the claim does not recite filling.

We construe supra "causes the one or more packs of the item to physically contain the amounts of each of the different types of items based on the assigned fractional amounts from the size profile and cause the one or more packs to be shipped in satisfaction of the demand quantity" to mean "assigning the amounts of each of the different types of items to the one or more packs of the items based on the assigned fractional amounts from the size profile [in preparation for] the one or more packs to [later] be shipped in satisfaction of the demand quantity." This is thus an abstraction and not an industrial operation like opening *Diehr's* tire manufacturing machine.

We are not persuaded by Appellant's argument that the claims are analogous to those in *Enfish, LLC v. Microsoft Corp*., 822 F.3d 1327 (Fed. Cir. 2016). Reply Br. 7–8. The claims differ from those found patent eligible in *Enfish*, where the claims were "specifically directed to a *self-referential* table for a computer database." *See Enfish*. The claims thus were "directed to a specific improvement to the way computers operate" rather than an abstract idea implemented on a computer. *Enfish*, 822 F.3d at 1336. Here, by contrast, the claims are not directed to an improvement in the way computers operate. Though the claims purport to accelerate the process of allocating items, our reviewing court has held that speed and accuracy increases stemming from the ordinary

capabilities of a general purpose computer "do[] not materially alter the patent eligibility of the claimed subject matter." *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012). Instead, the claims are more analogous to those in *FairWarning,* wherein claims reciting "a few possible rules to analyze audit log data" were found directed an abstract idea because they asked "the same questions (though perhaps phrased with different words) that humans in analogous situations detecting fraud have asked for decades." *FairWarning*, 839 F.3d at 1094, 1095.

Claims 1, 6, 7, 9, and 15 rejected under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, and Pang

We are persuaded by Appellant's argument that Pang does not describe the recited size profile that specifies relative contributions in fractional amounts. Appeal Br. 18–20; *see also* Reply Br. 9–10. In particular, Appeal Brief 19, first paragraph, articulates precisely why Pang's probability ratio of whether a forecast will exceed a demand does not describe the recited relative contribution ratio. The Examiner provides no reasoning for why Pang's probability forecast should read on the recited contribution ratio in the Answer.

Claims 2, 8, 10, 14, 16, 19, and 20 rejected under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, Pang, and McMains

These are dependent claims, and so Appellant's arguments are persuasive here.

Claims 4, 5, 11–13, 17, and 18 rejected under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, Pang, McMains and Hoskin

These are dependent claims, and so Appellant's arguments are persuasive here.

CONCLUSIONS OF LAW

The rejection of claims 1, 2, and 4–20 under 35 U.S.C. § 101 as directed to a judicial exception without significantly more is proper.

The rejection of claims 1, 6, 7, 9, and 15 under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, and Pang is improper.

The rejection of claims 2, 8, 10, 14, 16, 19, and 20 under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, Pang, and McMains is improper.

The rejection of claims 4, 5, 11–13, 17, and 18 under 35 U.S.C. § 103(a) as unpatentable over Chien, Vakhutinsky, Wertheimer, Pang, McMains and Hoskin is improper.

CONCLUSION

The rejection of claims 1, 2, and 4–20 is affirmed.

In summary:

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1, 2, 4–20	101	Eligibility	1, 2, 4–20	
1, 6, 7, 9, 15	103	Chien, Vakhutinsky, Wertheimer, Pang		1, 6, 7, 9, 15
2, 8, 10, 14, 16, 19, 20	103	Chien, Vakhutinsky, Wertheimer, Pang, McMains		2, 8, 10, 14, 16, 19, 20
4, 5, 11–13, 17, 18	103	Chien, Vakhutinsky, Wertheimer, Pang, McMains Hoskin		4, 5, 11–13, 17, 18
Overall Outcome			1, 2, 4–20	

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. § 1.136(a)(1)(iv) (2011).

AFFIRMED

Notice of References Cited	Application/Control No. 14/086,206	Applicant(s)/Patent Under Patent Appeal No. 2018–007149	
	Examiner	Art Unit 3624	Page 1 of 1

U.S. PATENT DOCUMENTS

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	U	Merriam-Webster Dictionary (accessed Dec. 12, 2019), https://www.merriam-webster.com/dictionary/allocate.
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allocate verb

al·lo·cate | \ ˈa-lə-ˌkāt \

allocated; **allocating**

Definition of *allocate*

transitive verb

1 : to apportion for a specific purpose or to particular persons or things : DISTRIBUTE
// allocate tasks among human and automated components

2 : to set apart or earmark : DESIGNATE
// allocate a section of the building for special research purposes