



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.
11/347,136	02/03/2006	Matteo Maga	10022/740	4859
28164	7590	01/23/2020	EXAMINER	
BGL/Accenture - Chicago BRINKS GILSON & LIONE P O BOX 10395 CHICAGO, IL 60610			BEHNCKE, CHRISTINE M	
			ART UNIT	PAPER NUMBER
			3624	
			MAIL DATE	DELIVERY MODE
			01/23/2020	PAPER

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MATTEO MAGA, PAOLO CANALE, and
ASTRID BOHE

Appeal 2018-003433
Application 11/347,136
Technology Center 3600

Before ANTON W. FETTING, BIBHU R. MOHANTY, and
BRUCE T. WIEDER, *Administrative Patent Judges*.

WIEDER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ seeks review under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1–6, 42–45, and 47–54. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ 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 Accenture Global Services Limited. (Appeal Br. 3.)

CLAIMED SUBJECT MATTER

Appellant's invention relates to "managing churn among the customers of a business." (Spec., Abstract.) In particular, "[t]he system and method provide for an analysis of the causes of customer churn and identifies customers who are most likely to churn in the future." (*Id.*)

Claims 1, 42, and 48 are the independent claims on appeal. Claim 1 is illustrative. It recites:

1. A data mining system comprising;
 - a memory device having stored thereon a data mart comprising current customer data and historical customer data received from a plurality of different data sources, the current and historical customer data comprising multiple month aggregated usage, revenue, contact and product information respectively associated with each of a plurality of different respective customers;
 - a processor in communication with the memory device;
 - a data manipulation module executable by the processorto:
 - selectively and dynamically extract portions of the historical customer data stored in the data mart for each of the plurality of customers in accordance with technical constraints determined with the data manipulation module based on a definition of customer churn selectable from a set of definitions of customer churn;
 - calculate a plurality of derived variable values from the extracted portions of the historical customer data, the derived variables determined in accordance with the selected definition of customer churn,
 - identify variables repeatedly included in the extracted portion of the historical customer data of each of the customers having a continuous smooth domain of variability,
 - average, for each of the customers, the variables repeatedly included in the historical customer data of each of the customers to generate corresponding average

variables of each respective customer as first derived variable values in association with the selected definition of customer churn,

store the first derived variable values in the data mart;

create with the corresponding averaged variables of each respective customer and the current customer data a respective customer distribution of the customers,

classify a respective customer according to a position of the respective customer in the respective customer distribution;

calculate second derived variable values for each of the customers as respective classifications according to the position of the respective customer in the respective customer distribution and store the second derived variable in the data mart, wherein the respective classifications of the customers from a plurality of different respective customer distributions are indicative of customer characteristics of each one of the respective customers according to the selected definition of churn; and

select an input data set to create customer analytical records associated with the selected definition of customer churn, the customer analytical records for use with a data mining tool to maximize discovery of patterns of customer behavior with the data mining tool in accordance with the selected definition of customer churn, wherein:

the input data set includes the first and second derived variable values; and

the selection of the input data set is based on an analysis of historical customer data stored in the data mart;

the data mining tool executable by the processor to perform a multi-dimensional clustering analysis data mining function using at least the first and second derived variable values included in the input data set and the historical data to discover clusters of customers sharing common characteristics or attributes in accordance with the selected definition of customer churn; and

an end user access module executable by the processor to perform analytical processing of the clusters of customers by enabling dynamic manipulation and contrasting of historical data, current data and the first and second derived variable values to generate, on a display device in communication with the processor, a graphical representation identifying the clusters of customers, resulting from the clustering analysis, with propensity to churn, the end user access module also executable by the processor to generate a customer retention target list, the graphical representation indicative of patterns and associations between customers in the clusters based on the derived variables, and the customer retention target list provided to an automated system for implementation of a customer retention program.

REJECTION

Claims 1–6, 42–45, and 47–54 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

ANALYSIS

Appellant does not separately argue claims 49–54. We select claim 1 as representative. Claims 49–54 will stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. Section 101, however, “contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)).

Alice applies a two-step framework, earlier set out in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 573 U.S. at 217.

Under the two-step framework, it must first be determined if “the claims at issue are directed to a patent-ineligible concept.” *Id.* at 218. If the claims are determined to be directed to a patent-ineligible concept, e.g., an abstract idea, then the second step of the framework is applied to determine if “the elements of the claim . . . contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 221 (citing *Mayo*, 566 U.S. at 72–73, 79).

With regard to step one of the *Alice* framework, we apply a “directed to” two-prong test to: 1) evaluate whether the claim recites a judicial exception, and 2) if the claim recites a judicial exception, evaluate whether the claim “appl[ies], rel[ies] on, or use[s] 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.” *See* USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54 (Jan. 7, 2019) (hereinafter “2019 Guidance”).

Here, the Examiner determines that claim 1 is directed to “calculating derived variable values from historical customer data, to discover customers sharing common characteristics or attributes in accordance with the selected definition of customer churn.” (Final Action 7 (emphasis omitted).)

Appellant argues the “the claims in this case are directed to specific systems and method for accomplishing a result of maximizing discovery of

patterns of customer behavior with a data mining tool in accordance with the selected definition of customer churn – not to the result itself.” (Reply Br. 4 (emphasis omitted).)

Under step one of the *Alice* framework, we “look at the ‘focus of the claimed advance over the prior art’ to determine if the claim’s ‘character as a whole’ is directed to excluded subject matter.” *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016).

The ‘directed to’ inquiry . . . cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon Rather, the ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether ‘their character as a whole is directed to excluded subject matter.’ *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016). In other words, the first step of the *Alice* framework “asks whether the focus of the claims is on the specific asserted improvement in [the relevant technology] or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335–36; *see also* 2019 Guidance at 54–55.

The Specification provides evidence as to what the claimed invention is directed. In this case, the Specification discloses that the invention relates to “managing churn among the customers of a business.” (Spec., Abstract.) Claim 1 provides further evidence. Claim 1 recites “a memory device,” “a processor in communication with the memory device to . . . extract portions of the historical customer data stored in the data mart,” “calculate a plurality

of derived variable values,” “identify variables,” “average . . . variables,” “store the first derived variables,” “create . . . averaged variables,” “classify a respective customer,” “calculate second derived variable values,” “select an input data set . . . associated with the selected definition of customer churn . . . for use with a data mining tool,” “the data mining tool executable by the processor to perform a multi-dimensional clustering analysis, “and an end user access module executable by the processor to perform analytical processing of the clusters of customers . . . [and] generate, on a display device . . . , a graphical representation identifying the clusters of customers, . . . [and] a customer retention list.”

In short, claim 1 recites a generic processor in communication with a generic memory device to obtain data, calculate values, identify data, average values, store data, create data, classify data, calculate additional data, obtain additional data associated with a selected definition, perform a clustering analysis on data, perform analysis of the clusters, and present results on a generic display device. (*See, e.g.*, Spec. ¶¶ 29, 33, 34, Fig. 2.)

The claim limitations do not recite technological implementation details for any of the steps. Nor does claim 1 recite “a particular way of programming or designing the software . . . , but instead merely claim[s] the resulting systems.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016). Claim 1 merely recites functional results to be achieved by any means. In short, claim 1 does not recite a specific asserted improvement to computer technology.

In view of the above evidence, we determine that claim 1 is directed to a system for identifying customers sharing common characteristics or attributes, e.g., customers with a propensity to churn, i.e., “advertising,

marketing or sales activities or behaviors.” (*See* 2019 Guidance at 52.) Independent claims 42 and 48 contain similar language. (Claim 42 recites “[a] method of identifying customers,” and claim 48 recites “[a] computer-readable non-transitory storage medium comprising a plurality of instructions . . . to generate a customer retention target list.”) Thus, like claim 1, claims 42 and 48 are directed to “advertising, marketing or sales activities or behaviors.” (*See id.*) Therefore, the claims are directed to the abstract idea of certain methods of organizing human activity. (*See id.*) This is in accord with the Examiner’s determination. (*See* Final Action 7.)

Although we and the Examiner describe, at different levels of abstraction, to what the claims are directed, it is recognized that “[a]n abstract idea can generally be described at different levels of abstraction.” *Apple, Inc.*, 842 F.3d at 1240. That need not and, in this case, does not “impact the patentability analysis.” *See id.* at 1241.

Moreover, we do not see how the recitation of a generic processor, a generic memory device, and a generic display device, even in conjunction with the recited functions, “ensure[s] ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *See Alice*, 573 U.S. at 221 (brackets in original) (quoting *Mayo*, 566 U.S. at 77.)

Appellant, however, argues that the claims describe technical solutions to technical problems faced when trying to consider, compare, and cross reference a vast number of different customer attributes and variables. The technical solution described in the claims is far from an abstract idea as it relates to solving the technical problem of effective multi-dimensional clustering analysis by developing an objective repeatable clustering analysis to analyze large numbers of customer attributes of individual customers and identify

significant customer groupings of different customers based on derived variable values.

(Appeal Br. 20; *see also* Supp. Br. 3.²) Appellant further argues:

The claims also recite additional aspects of the technical solution to the technical problem of maximizing the discovery power of the data mining tool. For example paragraph [0034] of Appellant's specification provides:

"In order to maximize the discovery power of the data mining tool, variables known to be significant to identifying and predicting churn are provided to the data mining module 116. The data manipulation module 114 pulls the necessary data from the data mart 110, calculates derived variables and formats others to create data files for feeding data into the data mining module 116. The effectiveness of the data mining operation is highly dependent on the quality of the data provided to the data mining tool. Accordingly, as will be described in more detail below, great care must be taken in the selection of the variables supplied to the data mining tool. The data manipulation module 114 is also responsible for receiving the output from the data mining module and loading the results back into the data mart 110."

This technical solution is far from an abstract idea as it relates to data structure manipulation in the form of structuring customer data using derived variable values to provide clustering analysis.

(Appeal Br. 21; *see also id.* at 25 (arguing that paragraph 34 of the Specification also details "improvement in computer functionality."))

We do not find these arguments persuasive. The subject [of the claims] is nothing but a series of mathematical calculations based on selected information and the presentation

² "Supp Br." refers to the Supplemental Brief Appellant filed on January 6, 2020.

of the results of those calculations No matter how much of an advance in the . . . field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm.

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

Appellant further argues “that the technical solution described in the claims closely aligns with *Enfish*.” (Reply Br. 2.) Specifically, Appellant argues that

similar to *Enfish*, operation of the data mining tool is improved due to the creation and use of the first and second derived variables which are stored in customer analytical records (CARS), where such CARS that include the first and second derived variables specifically improve the processing capabilities of the computer to discover attributes that would otherwise be undiscoverable.

(*Id.*)

We do not find this argument persuasive. The claims in *Enfish* were “specifically directed to a *self-referential* table for a computer database.” *Enfish*, 822 F.3d at 1337. That is, “the plain focus of the claims [was] on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336. Here, the processor, memory device, and display device are used in their ordinary capacity. Appellant’s argument, in sum, is that use of the derived variables produces a better result. But an improvement to the resulting information is not equivalent to an improvement in computer functionality. *See, e.g., BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1288 (Fed. Cir. 2018) (“[A]n improvement to the information stored by a database is not equivalent to an improvement in the database’s functionality.”).

Appellant also seeks to analogize the claims to those in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014). (Appeal Br. 21–22.) Specifically, Appellant argues that “[t]he claims also recite additional aspects of the technical solution related to the technical problem of maximizing the discovery power of the data mining tool.” (*Id.* at 21 (citing Spec. ¶ 34).) However, as noted above, paragraph 34 discloses that “[i]n order to maximize the discovery power of the data mining tool, variables known to be significant to identifying and predicting churn are provided to the data mining module 116.” In other words, Appellant’s argument is that an important aspect to maximizing the discovery power of the data mining tool is the use of better data. For the reasons discussed above, we do not find the argument persuasive. *See BSG Tech LLC*, 899 F.3d at 1288. In contrast, the claims in *DDR Holdings* “specify how interactions with the Internet are manipulated to yield a desired result — *a result that overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.*” *DDR Holdings*, 773 F.3d at 1258 (emphasis added). Appellant does not persuasively argue why a system that provides variables known to be significant to the data mining module is analogous to a system for “overrid[ing] the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.” *See id.*

Appellant also seeks to analogize the claims to the claims in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). (Reply Br. 5.) Appellant argues that “the present case[] describes rules that are used by the data mining tool computer to render derived variables into a specific format, which are used to set graphical representations indicative of

patterns and associations between customers in clusters.” (*Id.*) We do not find this argument persuasive. “The claimed improvement [in *McRO*] was to how the physical display operated (to produce better quality images), unlike (what is present here) a claimed improvement in [identification of clusters of customers with propensity to churn] with no improved display mechanism.” *SAP Am., Inc.*, 898 F.3d at 1167.

Appellant also argues that the claims are “narrowly tailored” and that “the claimed invention does not preempt others from performing activities toward clustering and generation of data variables.” (Appeal Br. 44.) We do not find this argument persuasive. Preemption is not a separate test. “Where a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). In other words, “preemption may signal patent ineligible subject matter, [but] the absence of complete preemption does not demonstrate patent eligibility.” *Id.*

With regard to dependent claim 3, Appellant argues that it describes technical details because it “describes that the data mart is configured to receive multiple raw customer data sets over time,” and “that the use of a slope of a trend line as first derived variable values, which are included in a data set used to create a customer analytical record does not ‘merely limit the abstract idea to a particular environment.’” (Appeal Br. 36–37.)

The Examiner answers that the

additional elements are not significantly more than the abstract idea because the claims are not seen to recite an improvement to another technology or technical field, an improvement to the

functioning of the computer itself, or meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment.

(Answer 7.) Additionally, the “Examiner notes that discovering patterns of customer behavior does not arise solely in computing applications.

Appellant presents no evidence that this is a technical problem. The problem does not arise from computer structures, but rather from the data itself.” (*Id.* at 9.) Claim 3 merely recites additional details for performing the abstract idea. We are not persuaded of error.

For the same reasons, we do not find persuasive of error Appellant’s argument that “claims 2-6, which depend from claim 1[,] further describe the technical details of how the derived variables are calculated and/or creation of the customer analytical records.” (Appeal Br. 36.)

Appellant’s arguments regarding dependent claims 43–45 and 47 (Appeal Br. 40) are also unpersuasive. Like dependent claim 3, these claims merely recite additional details for performing the abstract idea. The “subject [of the claims] is nothing but a series of mathematical calculations based on selected information and the presentation of the results of those calculations.” *SAP Am., Inc.*, 898 F.3d at 1163.

Moreover, we find no indication in the Specification that the claimed invention effects a transformation or reduction of a particular article to a different state or thing. Nor do we find anything of record that attributes an improvement in computer technology or functionality to the claimed invention or that otherwise indicates that the claimed invention “appl[ies], rel[ies] on, or use[s] 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.” (*See* 2019

Guidance at 54–55.) As such, under step one of the *Alice* framework, the claims are directed to an abstract idea, and we move to step two.

Step two of the *Alice* framework has been described “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*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73).

Appellant argues that the features of the claims are not conventional or routine and add significantly more. (*See* Appeal Br. 35–42.) Specifically, Appellant argues that “the claims in this application are directed to novel, non-obvious technical solutions.” (*Id.* at 36.) We do not find this argument persuasive. Even if the claimed techniques are “[g]roundbreaking, innovative, or even brilliant,” that is not enough for patent eligibility. *Ass’n for Molecular Pathology*, 569 U.S. at 591. “The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.” *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981).

Taking the claim elements separately, the functions performed in claim 1 by the generic processor, generic memory device, and generic display device, are purely conventional. (*See, e.g.*, Spec. ¶¶ 29, 33, 34, Fig. 2.) Obtaining data, calculating values, identifying data, averaging values, storing data, creating data, classifying data, calculating additional data, obtaining additional data, analyzing data (performing a clustering analysis and analyzing the clusters), and presenting results are well-understood, routine, and conventional functions previously known to the

industry. *See Elec. Power Grp.*, 830 F.3d at 1356 (The claims “do not include any requirement for performing the claimed functions of gathering, analyzing, and displaying in real time by use of anything but entirely conventional, generic technology. The claims therefore do not state an arguably inventive concept”); *see also In re Katz Interactive Call Processing Patent Litig.*, 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.”).

Considered as an ordered combination, the generic computing components of Appellant’s claimed invention add nothing that is not already present when the limitations are considered separately. (*See e.g.*, *Spec.*, *Fig. 2.*) For example, claim 1 does not, as discussed above, purport to improve the functioning of the computing components themselves. Nor does it effect an improvement in any other technology or technical field. Instead, claim 1 amounts to nothing significantly more than an instruction to apply the abstract idea using generic computing components performing routine computer functions. (*See Answer 7.*) That is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 573 U.S. at 225–26.

Appellant argues that independent

claim 42 describes a number of different features which provide significantly more than the alleged abstract idea. In a first example, claim 42 describes selectively extracting, with a processor, a first set of raw customer data from a data mart in accordance with technical constraints determined with the processor based on a definition of customer churn selectable from a set of definitions of customer churn, the raw customer

data being a portion of current data and historical data comprising multiple month aggregated usage, revenue, contact and product information respectively associated with a plurality of customers, wherein each customer has at least one of a plurality of customer characteristics. Such activities are not included in the list of well-understood, routine and conventional functions

(Appeal Br. 37.)

We do not find this argument persuasive. Claim 42 recite a generic processor performing purely conventional functions, e.g., extracting data, formatting data, calculating values, storing data, analyzing data, and displaying data. Like claim 1 discussed above, the claim limitations do not recite technological implementation details for any of the steps or a particular way of programming. *See Apple, Inc.*, 842 F.3d at 1241. Claim 42 merely recites functional results to be achieved by any means. It does not recite a specific asserted improvement to computer technology. Appellant makes similar arguments for independent claim 48 (Appeal Br. 40–41), and for similar reasons we find the arguments unpersuasive.

“It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than the ineligible concept.” *BSG Tech LLC*, 899 F.3d at 1290. In other words, “under the *Mayo/Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility.” *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016).

CONCLUSION

The Examiner's rejection of claims 1-6, 42-45, and 47-54 under 35 U.S.C. § 101 is affirmed.

Specifically:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-6, 42-45, 47-54	101	eligibility	1-6, 42-45, 47-54	

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).

AFFIRMED