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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte PALLIPURAM V. KANNAN, RAVI VIJAYARAGHAVAN and
KRANTHI MITRA ADUSUMILLI.

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Appeal 2018-004925
Application 14/080,578
Technology Center 3600

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Before JEAN R. HOMERE, CARL W. WHITEHEAD JR.,
and JEREMY CURCURI, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's
Final Rejection of claims 6–13, which constitute all claims pending in this
application.[1] App. Br. 1. Claims 1–5 and 14–17 have been canceled.
Claims App'x. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] Appellants identify 24/7 Customer, Inc., as the real party in interest. App.
Br. 2.

Introduction

According to Appellants, the claimed subject matter relates to a customer relationship management (CRM) system using machine learning and statistical models for dynamically generating a customized on-line survey consistent with the customer's preferences (interests, look and feel, purchase habits) when a computed value corresponding to the customer's predicted intent exceeds a predetermined threshold confirming that the customer is likely to respond to the survey. Spec. 2:15–22, Fig. 2.

Representative Claim

Claims 6 and 10 are independent. Independent claim 6 is representative, and reads as follows:

> 6. A computer implemented method for automatically generating a customized survey design, comprising:
> obtaining any of machine learning and statistical models that predict a customer intent as a function of customer data,
> wherein said machine learning and statistical models are trained to identify associations between customer data and a pre-defined list of possible customer intents including any of browsing for specific product information, browsing for deals on a specific product, simple browsing without intent of purchase, intent of purchasing a specific product in immediate future, intent of purchasing a product for a specific need in immediate future, trying to gather information to solve a specific service related problem or a problem associated with a specific product;
> obtaining customer data having a record of a plurality of web page activities associated with a customer device,
> wherein the plurality of web page activities include any of a time of a web page visit associated with the customer device, a referral web page, landing and/or exit web pages, detected interaction with a web page, and interaction history with a web page;
> in connection with receiving and fulfilling a request for Web-based information, from a customer device, a processor applying any of the machine learning and the statistical models to predict a customer intent based on the customer data said processor identifying

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an ordered sequence of inputs in the customer data associated with a web browsing history through a plurality of web pages by the customer device and interaction history with the plurality of web pages;

applying, by said processor, the predicted customer intent and the ordered sequence of inputs to proactively determine whether a customized survey is to be delivered to said customer device by: additional web browsing history and interaction history is detected, at each instance said processor calculating the predicted customer intent and a probability of receiving a survey response;

when the probability of receiving the survey response crosses a predetermined threshold, said processor generating a customized survey design based on the predicted customer intent, the customized survey design including at least one question among a plurality of questions, at least one option to answer the at least one question, and an appearance selected from a design library corresponding to the predicted customer intent, wherein generating the customized survey design comprises a survey selection module, based upon model provided information, mapping the predicted customer intent to at least one available question among a plurality of available questions and/or applying a weighting function to select at least one available question among the plurality of available questions, the at least one available question being incorporated in the customized survey design; and said processor delivering a survey including the customized survey design to the customer device.

Rejection on Appeal

Claims 6–13 stand rejected under 35 U.S.C. §101 as being directed to patent ineligible material. Final Act. 4–8.

ANALYSIS[2]

Standard for Patent Eligibility

An invention is patent-eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014).

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*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is "directed to." *See Alice*, 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, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts

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[2] We refer to Appellants' arguments and the Examiner's findings and conclusions set forth in the Final Action (mailed April 21, 2017, "Final Act."), the Appeal Brief (filed January 26, 2018, "App. Br."), the Answer (mailed February 9, 2018, "Ans."), and the Reply Brief (filed April 6, 2018, "Reply Br.") for the respective details.

determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores" (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that "a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula." *Diehr*, 450 U.S. at 176, 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.* (citing *Benson* and *Flook*), and 187 ("It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.").

If the claim is "directed to" an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where "we must examine the elements of the claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221. "A claim that recites an abstract idea must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" *Id.*

(quoting *Mayo*, 566 U.S. at 77). "[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention." *Id.*

The PTO recently published revised guidance on the application of section 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50–57 (Jan. 7, 2019) ("2019 PEG"). Under the 2019 PEG, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and

> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).[3]

See 2019 PEG, 52, 55–56. Only if a claim: (1) recites a judicial exceptionl and (2) does not integrate that exception into a practical application, does the office then look to whether the claim:

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

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

See 2019 PEG at 56.

Examiner's Findings and Conclusions

In the first step of the Alice inquiry, the Examiner determines independent claims 6 and 10 are directed to the abstract idea of "managing customized survey generation and delivery." Final Act. 4. According to the Examiner, the underlying steps of

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[3] All references to the MPEP are to Rev. 08.2017 (Jan. 2018).

> obtaining statistical models to predict a customer intent as a
> function of customer data, . . . obtaining customer data having a
> record of a plurality of web page activities associated with a
> customer device,...applying the predicted customer intent and
> ordered sequence of inputs to proactively determine whether a
> customized survey is to be delivered to said customer, . . .
> generating a customized survey design . . . based on the
> predicted customer intent including at least one question among
> a plurality of questions

are all steps which can be performed by a human mentally or with pen and

paper. *Id.* at 4–5. Further, the Examiner determines that the recited steps

are simply directed to collecting information, analyzing it, and displaying

certain results of the collection and analysis as in *Electric Power Group.*[4]

Id. at 5; *see also* Ans. 3–4. Furthermore, the Examiner determines that

notion of managing customized survey generation and delivery is also

considered as a method of organizing human activity, a fundamental

economic practice, similar to the concept of "generating menus on a

computer" as in *Apple Inc. v. Ameranth, Inc.(Fed. Cir. 2016).* Final Act. 6.

The Examiner therefore submits:

> Utilizing customer data to predict an intent and further
> using that intent as input data to select/determine **a** survey
> design (from available questions and a design library (i.e., other
> input data)) is simply executing an algorithm/function to find a
> resulting value(s) based on input parameters; which is mere
> manipulation or reorganization of data. It is noted that the mere
> manipulation or reorganization of data does not satisfy the
> transformation prong and does not provide significantly more
> than an abstract idea. See *Cybersource Corp. v. Retail
> Decisions, Inc.* (Fed. Cir. 2011).

Ans. 4.

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[4] *Electric Power Group, LLC v. Alstom S.A.*, 830 F3d. 1350 (Fed. Cir.
2016)).

> Appellant's claimed invention does not pertain to the fact
> pattern of *McRO* and *DDR Holdings* decisions/cases.
> Appellant's claimed invention at most provides an
> improvement, such as increased rate of response, to a business
> model (and not a technology) of surveying customers by
> incorporating customer intent/interests and probability
> threshold for customer response into the generating of the
> survey. Further, the claimed invention merely uses generic
> computer/ computing technologies to perform the functions of
> the invention.

Id.

At *Alice* step 2, the Examiner determines the claims do not recite additional elements sufficient to amount to significantly more than the abstract idea of managing customized survey generation and delivery. Final Act. 7. Instead, the Examiner avers the claims merely implement the abstract idea on generic devices, which are simply performing their well-understood, routine, and conventional functions. *Id.* According to the Examiner, merely labeling an algorithm (e.g., statistical algorithm or regression algorithm) that can be performed manually or on a generic computer (e.g. a learning machine) does not provide significantly more than the abstract idea. *Id.* at 7–8. Likewise, the Examiner avers that providing targeted content to customers based on customer data/attribute is a well-known practice that predate Appellants' invention. Ans. 5. Further, the Examiner determines that the recited functions of transmitting/exchanging data between well-known devices, locating a customer based on location of the customer device (GPS tracking, triangulation), storing data in a database, tracking browser activities of a person are insignificant extra solution activities, which do not transform the identified abstract idea into patent eligible subject matter. Final Act. 8. The Examiner therefore submits:

> The claims do not amount to "significantly more" than the
> abstract idea because they neither (1) recite any improvements
> to another technology or technical field; (2) recite any
> improvements to the functioning of the computer itself; (3)
> apply the judicial exception with, or by use of, a particular
> machine; (4) effect a transformation or reduction of a particular
> article to a different state or thing; (5) add a specific limitation
> other than what is well-understood, routine and conventional in
> the field; (6) add unconventional steps that confine the claim to
> a particular useful application; nor (7) provide other meaningful
> limitations beyond generally linking the use of the judicial
> exception to a particular technological environment.

Id. at 7.

Appellants' Contentions

Regarding the first step of the Alice inquiry, Appellants argue that because the present claims in this appeal recite "a transformation of customer data to a predicted customer intent which itself is transformed into a customized survey design", they are not directed to an abstract idea. App. Br. 7. Therefore, Appellants argue because the claimed customized survey design is not a direct result of obtained data, and does not merely recite displaying customer data (e.g., displaying web page access events) back to a customer device, it is distinguishable from the claims at issue in *Electric Power Group. Id.* Likewise, Appellants argue that the present claims are distinguishable from *Ameranth,* which involves claims reciting a menu consisting of a static menu (not customized for any particular customer) with categories displayable in a window of a graphical user interface (GUI), whereas the "present claims recite a dual transformation involving machine learning and statistical models used to transform customer data into another state or thing (e.g., a predicted customer intent) which is further transformed into another state or thing (e.g., a customized survey design)". *Id.* at 8.

Appellants further argue that even if the claimed customization of the survey design implicated a judicial exception, it is patent-eligible because (1) it effects the transformation or reduction of customer data (e.g., predicted customer intent) into a different state or thing (e.g., a customized survey design), (2) it improves computer-related technology by allowing computer performance of a function not previously performed by a computer renders it patent eligible, (3) it arranges non-conventional and non-generic elements to result in an inventive concept. *Id.* at 8–9

Our Review

Applying the guidance set forth in the 2019 PEG, we determine whether the Examiner has erred in rejecting the claims as being directed to patent ineligible subject matter.

In revised step 1 of 2019 PEG, we consider whether the claimed subject matter falls within the four statutory categories of patent-eligible subject matter identified by 35 U.S.C. § 101: process, machine, manufacture, or composition of matter. Because independent claim 6 recites a process including a number of steps, claim 6 falls within the process category of patent-eligible subject matter. Because independent claim 10 recites an apparatus, claim 10 falls within a machine category of patent-eligible subject matter.

In prong 1 of revised step 2A of the 2019 PEG, we determine whether any judicial exception to patent eligibility is recited in the claims. The guidance identifies three judicially-excepted groupings: (1) mathematical concepts; (2) certain methods of organizing human activity such as fundamental economic practices; and (3) mental processes. Independent claim 6 recites, *inter alia*, the following limitations:

(1) obtaining any of machine learning and statistical models that predict a customer intent as a function of customer data,

(2) wherein said machine learning and statistical models are trained to identify associations between customer data and a pre-defined list of possible customer intents including any of browsing for specific product information, browsing for deals on a specific product, simple browsing without intent of purchase, intent of purchasing a specific product in immediate future, intent of purchasing a product for a specific need in immediate future, trying to gather information to solve a specific service related problem or a problem associated with a specific product… a processor applying any of the machine learning and the statistical models to predict a customer intent based on the customer data said processor identifying an ordered sequence of inputs in the customer data associated with a web browsing history through a plurality of web pages by the customer device and interaction history with the plurality of web pages;

(3) applying, by said processor, the predicted customer intent and the ordered sequence of inputs to proactively determine whether a customized survey is to be delivered to said customer device;

At a high level, the claimed invention relates to an internet vendor generating and delivering a customized survey to a customer based on the analysis of collected customer data (browsing, purchasing) at the website. We agree with the Examiner that to the extent these activities merely involve collecting data, analyzing data, and displaying the result of the data analysis, they can be performed mentally or with pen and paper, as in *Electric Group*, and thereby involve a mental process. Ans. 3–4. Likewise, we agree with the Examiner that to the extent that the cited functions merely involve using the analysis of a commercial interaction or transaction between a consumer and a merchant to determine whether to provide a customized survey to the consumer, the claim also falls within the category of certain methods of organizing human activity. *Id.* at 4. Accordingly, we agree with the

Examiner that independent claim 6 recites the judicial exceptions of a mental process and a method of organizing human activity. *Id.* Because independent claim 10 recites similar limitations, claim 10 likewise recites the cited judicial exceptions.

Having determined that the claims recite a judicial exception, our analysis under the 2019 PEG (prong 2 of revised step 2A) turns now to determining whether there are "additional elements that integrate the judicial exception into a practical application." *See* MPEP § 2106.05(a)–(c), (e)–(h). "Integration into a practical application" requires an additional element or a combination of additional elements in the claim to 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 exception. 84 Fed. Reg. 53–55. In particular, we determine whether the claimed invention provides a technological improvement to the prior art process either by improving the technology itself, by improving the functionality of the computer in performing not previously performable functions. As detailed in the steps set forth above, Appellants' independent claim 6 recites a processor generating a customized survey as correlated with the predicted customer intent. Appellants' Specification discusses problems arising in the context of static hard-coded surveys that offer to each customer the same questions, the same look, and feel resulting in low survey participation. Spec. 2:1–11. The Specification discusses the need to provide an improved type of survey tailored uniquely for each particular customer based on the specific interactions of the customer with the website as well as other factors (e.g., customer journey, browsing/purchase history, shopping interests and preferences) that are unique to the customer. *Id.* at 2:17–22. We find these computer-related

limitations of independent claim 6, as set forth above, capture the improvement discussed in the Specification, and are thereby sufficient to integrate the judicial exception into a practical application. In particular, the claim recitation of a computer's utilization of a machine learning or statistical model to analyze a customer's browsing and purchasing activities at a vendor's website to derive a numerical assessment, which is correlated with the customer's predicted intent when compared to a predetermined threshold, to tailor a survey around the specific purchasing and browsing patterns of the customer integrates the judicial exception into a practical application. While statistical modeling can be performed with pen and paper, we agree with Appellants that the processor transforming the collected customer data into customer's predicted intent to devise a specific survey that varies from customer to customer is an improvement over the prior art. App. Br. 9–11. As such, we agree with Appellants that the claim recitation of "the processor generating a customized survey having maximum weighted correlation with the predicted customer intent" is directed to a technological improvement. *Id.* at 11 (citing *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313-14 (Fed. Cir. 2016), *See* MPEP § 2106.05(a); 84 Fed. Reg. 55.

Because claim steps 1–3, outlined above, provide a technical solution to a technical problem as required by *DDR Holdings*;[5] we are persuaded by

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[5] *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014). The Federal Circuit found *DDR's* claims are patent-eligible under§ 101 because *DDR 's* claims: (1) do not merely recite "the performance of some business practice known from the pre-Internet world" previously disclosed in *Bilski* and *Alice*; but instead (2) provide a technical solution to a technical problem unique to the Internet, i.e., a "solution .. . . necessarily rooted in

Appellants' argument that claims 6–13 are directed to an abstract idea that is integrated into a practical application. App. Br. 12. Accordingly, we do not address Step 2B of the Revised Guidance (corresponding to step two of the *Alice/Mayo* test). We, therefore, determine claims 6–13 are directed to patent eligible subject matter.

For the foregoing reasons, we do not sustain the § 101 rejection of claim 6. We, likewise, do not sustain the rejection of claims 7–13, which recite similar limitations.

DECISION

For the above reasons, we reverse the Examiner's patent ineligibility rejection of claims 6–13.

<u>REVERSED</u>

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computer technology in order to overcome a problem specifically arising in the realm of computer networks." *DDR*, 773 F.3d at 1257.