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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* DINGXI QIU and WEI LIU<sup>1</sup>

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Appeal 2017-009385  
Application 14/292,539  
Technology Center 3600

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Before BRADLEY W. BAUMEISTER, JASON V. MORGAN, and  
ADAM J. PYONIN, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner’s  
Final Rejection of claims 1–9 and 21–23. App. Br. 3.<sup>2</sup> We have jurisdiction  
under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> Appellants list CoreLogic Solutions, LLC as the real party in interest.  
Appeal Brief filed February 27, 2017 (“App. Br.”) 1.

<sup>2</sup> Rather than repeat the Examiner’s positions and Appellants’ arguments in  
their entirety, we refer to the above-mentioned Appeal Brief, as well as the  
following documents, for their respective details: the Final Action mailed  
September 14, 2016 (“Final Act.”); the Examiner’s Answer mailed April 21,  
2017 (“Ans.”); and the Reply Brief filed June 20, 2017 (“Reply Br.”).

## THE INVENTION

Appellants describe the present invention as follows:

A computer model of tax delinquency risk is generated by analyzing historical data, including mortgage loan data, associated with real estate properties that have become property tax delinquent. The model is used to generate property-specific scores representing the likelihood that the corresponding properties will become tax delinquent (absent lender or servicer intervention) within a selected time period, such as six months. The scores may, for example, be used by a mortgage lender or servicer to identify loans/properties for which to take preemptive action to avoid tax delinquency.

Abstract.

Independent claim 1, reproduced below, illustrates the claimed invention:

1. A system, comprising:

a data repository that stores loan-level data corresponding to each of a plurality of mortgage loans, said loan-level data including payment performance data and including identifiers of corresponding real estate properties; and

a computer system comprising one or more computing devices, the computer system programmed to generate tax delinquency risk scores, each of which corresponds to a different respective real estate property of a plurality of real estate properties, using at least the loan-level data, each tax delinquency risk score being an indication of a likelihood that the respective real estate property will become tax delinquent within a defined time period, and being based at least partly on a mortgage payment history of a corresponding borrower, said mortgage payment history corresponding to a mortgage payment schedule having a higher payment due date frequency than a property tax payment schedule for the corresponding real estate property;

wherein the computer system is programmed to generate the tax delinquency risk scores using a computer model that

correlates specific loan-level attributes with tax delinquency risk based on loan-level data corresponding to real estate properties that have entered into tax delinquency, and is programmed to use the tax delinquency risk scores to rank the plurality of real estate properties.

#### THE REJECTION AND CONTENTIONS

Claims 1–9 and 21–23 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 2–3.

The Examiner finds that the claims are

directed to the abstract idea of [a] fundamental economic practice, in particular storing loan-level data, generat[ing] tax delinquency risk scores, each of which corresponds to a different respective real estate property of a plurality of real estate properties, using at least the loan-level data, each tax delinquency risk score being an indication of a likelihood that the respective real estate property will become tax delinquent within a defined period of time and being based at least partly on a mortgage payment history of a corresponding borrower, said payment history corresponding to a mortgage payment schedule having a higher payment due date frequency than a property tax payment schedule for the corresponding real estate property and generating tax delinquency risk scores using a model that correlates specific loan-level attributes with tax delinquency risk based on loan-level data corresponding to real estate properties that have entered into tax delinquency and use the tax delinquency risk scores to rank the plurality of real estate properties. The specific type of scores, period of time, and payment history used are further details of the abstract idea and not significantly more.

Final Act. 2–3.

The Examiner finds that the concept to which the claims are directed is similar to other concepts the courts have found to constitute abstract ideas. *Id.* at 3. For example, the Examiner compares the presently claimed subject

matter to that of *SmartGene, Inc. v. Advanced Biological Laboratories, SA*, 555 F. App'x 950 (Fed. Cir. 2014) (claiming subject matter directed to comparing new and stored information and using rules to identify options); *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) (claiming subject matter directed to mitigating settlement risk); *Bilski v. Kappos*, 561 U.S. 593 (2010) (claiming subject matter directed to hedging financial risks); *Cyberfone Systems, LLC v. CNN Interactive Group, Inc.*, 558 F. App'x 988 (Fed. Cir. 2014) (claiming subject matter directed to using categories to organize, store and transmit information); *Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014) (claiming subject matter directed to organizing information through mathematical correlations). Final Act. 3. The Examiner additionally finds that “[a]ll the limitations recited in the depending claims ([f]or example, generating, estimating, determining, uploading, obtaining) are further details of the abstract idea and not significantly more.” *Id.*

The Examiner then finds that “[t]he claim[s] recite[] the additional limitations of [] ‘computer devices’ to perform the recited steps” of the abstract idea. *Id.* The Examiner finds that “the ‘devices’ are recited at a high level of generality and are recited as performing generic computer functions routinely used in computer applications.” The Examiner takes notice that the acts of “exchanging communications, transmitting and receiving information over a network, presenting interfaces and applying decision rules by a computer” constitute “generic computer functions that are well-understood, routine, and conventional activities previously known to the pertinent industry.” *Id.* The Examiner therefore determines that the additional elements of the claims other than the abstract idea amount to no

more than mere instructions to implement the idea on a computer and the recitation of generic computer structure that serves to perform generic computer functions. *Id.* Based on this reasoning, the Examiner then concludes that the claims are directed to patent-ineligible subject matter. *Id.*

Appellants present multiple arguments on appeal in relation to independent claim 1 and dependent claims 22 and 23. App. Br. 3–9; Reply Br. 1–8. We address these arguments below *seriatim*.

### PRINCIPLES OF LAW

We review the appealed rejections for error based upon the issues identified by Appellants, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

Regarding the question of patent eligibility under 35 U.S.C. § 101, a patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” The Supreme Court has “long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice*, 134 S. Ct. at 2354 (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). Accordingly, in applying the § 101 exception, the Supreme Court cautioned:

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, thereby “transform[ing]” them into a patent-eligible invention. The former “would risk disproportionately tying up the use of the underlying” ideas, and are therefore ineligible for patent protection. The latter pose no

comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.

*Alice*, 134 S. Ct. at 2354–55 (alterations in original) (internal citations omitted).

In *Alice*, the Supreme Court has set forth an analytical “framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Id.* at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71–73 (2012)). In the first step of the analysis, we determine whether the claim at issue is “directed to” a judicial exception, such as an abstract idea. *Alice*, 134 S. Ct. at 2355. If not, the inquiry ends. *Thales Visionix Inc. v. U.S.*, 850 F.3d 1343, 1346 (Fed. Cir. 2017); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016). If the claim is determined to be directed to an abstract idea, then we consider under step two whether the claim contains an “inventive concept” sufficient to “transform the nature of the claim into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (quotations and citation omitted).

In considering whether a claim is directed to an abstract idea under step one, we acknowledge, as did the Supreme Court, that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*, 566 U.S. at 71. We therefore look to whether the claim focuses on a specific means or method that improves the relevant technology or is instead directed to a result or effect that, itself, is the abstract idea and merely invokes generic processes and machinery. *See Enfish*, 822 F.3d at 1336.

In the second step of the *Alice* analysis, if applicable, we must consider whether the claim contains an element or a combination of

elements that is sufficient to transform the nature of the claim into a patent-eligible application. *Ulramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 714 (Fed. Cir. 2014); *Alice*, 134 S. Ct. at 2355.

In applying step two of the *Alice* analysis, we must “determine whether the claim[] do[es] significantly more than simply describe [the] abstract method” and thus transform the abstract idea into patentable subject matter. We look to see whether there are any “additional features” in the claim[] that constitute an “inventive concept,” thereby rendering the claim[] eligible for patenting even if [it is] directed to an abstract idea. Those “additional features” must be more than “well-understood, routine, conventional activity.”

*Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1328 (Fed. Cir. 2017) (citations omitted). A claim that “merely require[s] generic computer implementation[] fail[s] to transform [an] abstract idea into a patent-eligible invention.” *Alice*, 134 S. Ct. at 2357.

Central to our analysis herein is the fundamental principle that the *Alice* framework must be applied to the claims, as properly construed. As our reviewing court has stated, “[t]he § 101 inquiry must focus on the language of the Asserted Claims themselves.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016); *see also Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) (admonishing that “the important inquiry for a § 101 analysis is to look to the claim”); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014) (focusing on “whether the *claims* of the asserted patents fall within the excluded category of abstract ideas”) (emphasis added)).

These principles are based on long-established jurisprudence that “[i]t is the claims [that] define the metes and bounds of the invention entitled to

the protection of the patent system.” *In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994) (citing *Zenith Lab. Inc. v. Bristol–Myers Squibb Co.*, 19 F.3d 1418, 1424 (Fed. Cir. 1994)).

#### ANALYSIS

Appellants argue that “[t]he Office Action does not . . . cite any evidence to suggest that the subject matter of claim 1 is fundamental.” App. Br. 3. Appellants more specifically argue that “the Office Action cites no evidence to suggest that it was known—much less fundamental—to *program a computer system to use the mortgage payment history corresponding to a borrower to assess the risk that an associated property will become tax delinquent, as described in claim 1.*” *Id.* (emphasis added). Appellants similarly argue that the Office Action does not cite evidence to show that it was a fundamental idea “to generate tax delinquency risk scores ‘*using a computer model that correlates specific loan-level attributes with tax delinquency risk based on loan-level data corresponding to real estate properties that have entered into tax delinquency*’ as recited in claim 1.” *Id.* at 3–4 (emphasis added).

Appellants’ arguments are unpersuasive because they do not address the Examiner’s rejection. The Examiner does not reject the claims under a theory that the programmed computer constitutes part of the abstract idea to which claim 1 is directed. *See* Final Act. 2–3. The Examiner instead determines that the claimed computer devices constitute additional elements beyond the abstract idea that are used to perform the underlying abstract idea. *Id.* at 3.

Appellants argue

the Office Action at page 3 makes the conclusory assertion that the “concept” recited in the claims is “very similar” to the following concepts found to be abstract by the courts: (1) comparing new and stored information and using rules to identify options; (2) mitigating settlement risk, (3) hedging; (4) using categories to organize, store and transmit information; and (5) organizing information through mathematical correlations. But the claimed subject matter is not similar to any of these concepts, and the Office Action does [sic] makes no attempt to explain why the claimed subject matter can be viewed as similar to any of these concepts.

App. Br. 4.

This argument is unpersuasive. We understand the Examiner’s position to be that Appellants’ claimed subject matter is similar to that of the cited cases because the limitations of the appealed claims are analogous to the claims of the cited cases. *See* Ans. 6–7. We agree. The claimed steps of generating a tax delinquency risk score and using the scores to rank the real estate properties, for example, can be characterized as at least (1) comparing new and stored information and using rules to identify options, and (2) organizing information through mathematical correlations. Appellants present insufficient reasoning or factual bases to demonstrate otherwise. We note “mere statements of disagreement . . . do not amount to a developed argument.” *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1320 (Fed. Cir. 2006).

Appellants argue that the court in *McRO*<sup>3</sup> supports a finding that the present claims are not directed to an abstract idea. App. Br. 5. More

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<sup>3</sup> *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016).

specifically, Appellants argue that “[l]ike the claims found eligible in *McRO*, the present claims involve a technological process that improves computer-related technology by allowing computer performance of a function that could not previously be performed by a computer.” *Id.*

This argument is unpersuasive. The present claims are not directed to an improvement in computer-related technology. They instead are directed to an improved abstract idea that uses conventional computer technology to perform the abstract idea more efficiently. “[T]he fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.”

*Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012). Relying on a “processor” to “perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015).

Appellants argue that the claims recite significantly more than an abstract idea under step two of the *Alice* inquiry. App. Br. 5–7. For example, Appellants point out that “claim 1 states that the computer system is ‘programmed to generate the tax delinquency risk scores using a computer model that correlates specific loan-level attributes with tax delinquency risk based on loan-level data corresponding to real estate properties that have entered into tax delinquency.’” *Id.* at 6. Appellants argue that “[t]he use of such a computer model extends well beyond, and represents significant more than, any fundamental economic practice or other abstract idea that could possibly be recited in claim 1.” *Id.*

This argument is unpersuasive. Appellants are conflating the claim language that is directed to the additional elements with the language that is directed to the underlying abstract idea. “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 that ineligible concept.” *BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018).

Appellants argue

A finding that the claims recite “significantly more” is consistent with the Federal Circuit’s decision in *DDR Holdings, LLC v. Hotels.com L.P.*, [773 F.3d 1245 (Fed. Cir. 2014)]. Like the claims found patent-eligible (under the “significantly more” prong) in *DDR Holdings*, the subject matter of claim 1 “does not merely involve the use of a computer or the Internet to perform a pre-Internet world business practice.” Indeed, the operations described in claim 1 are not analogous to any business practice that is, or reasonably can be, performed without the use of a computer.

App. Br. 6.

This argument is unpersuasive. We agree with the Examiner that all of the steps of the recited abstract idea “(for example, storing data, generating scores, ranking properties, determining actions, generating coefficient, providing and obtaining scores) can be carried out by a human using pen and paper.” Final Act. 4.

In this regard, Appellants further argue that

it would be highly impractical, if even possible, to implement the subject matter of claim 1 via pencil and paper. This is because, among other reasons, a very large quantity of loan data and tax delinquency data would need to be (manually) analyzed to generate a model that reliably correlates specific loan level attributes with tax delinquency risk.

App. Br. 7.

This argument is unpersuasive. First, because claim 1 places no objective limits on the amount of data that needs to be analyzed, one cannot reasonably conclude that performing the calculations with pen and paper necessarily would be highly impractical. Second, even if we assume for the sake of argument that it would be highly impractical to perform the calculations with pen and paper, such a condition would not make the idea less abstract. “[R]elying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Techs.*, 788 F.3d at 1363; *see also Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) (“[O]ur precedent is clear that merely adding computer functionality to increase the speed or efficiency of the process does not confer patent eligibility on an otherwise abstract idea”).

In relation to step one of the *Alice* inquiry, Appellants argue that the Examiner has found the claims to be novel and non-obvious, and that this fact indicates the claimed subject matter was not a fundamental economic practice as of the Application’s filing date. App. Br. 4. In relation to step two of the *Alice* inquiry, Appellants similarly argue that by finding the claims are “novel and non-obvious, the Office acknowledge that the claims recite features that were not well-understood, routine or conventional activities.” *Id.* at 7.

These arguments are unpersuasive. “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). A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90.

For the foregoing reasons, Appellants have not persuaded us of error in the Examiner’s determination that independent claim 1 is directed to patent-ineligible subject matter. Accordingly, we sustain the Examiner’s rejection of that claim, as well as the rejection under § 101 of claims 2–9 and 21, which Appellants do not argue separately. *See App. Br. 7.*

Appellants separately argue the patentability of dependent claim 22. *Id.* at 7–8. Claim 22 reads as follows:

22. The system of claim 1, wherein the computer system is programmed to generate the model using a model generation component that generates, for each of a plurality of explanatory variables, a respective coefficient specifying a strength of a correlation between the explanatory variable and tax delinquency risk.

App. Br. 11.

Appellants argue

the feature recited in claim 22 is not merely a detail of the alleged abstract idea or an instruction to implement an abstract idea on a computer. Rather, the claim recites specific, technical details of how the recited computer model is generated. Nothing in the record suggests that these details are abstract, or that they are well-understood, routine and conventional activities previously known to the pertinent industry.

App. Br. 8.

This argument is unpersuasive. We agree with the Examiner (Ans. 9) that the language of claim 22 “merely further details [the] abstract idea,” rather than reciting additional elements that conceivably could make claim 22 more than the underlying abstract idea. It is immaterial whether

the underlying abstract idea was well-understood, routine, or conventional. No matter how worthy and groundbreaking—how novel and non-obvious—a disclosed invention might be, merely claiming an improved *abstraction* is not sufficient to result in patent-eligible subject matter. “Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Myriad*, 569 U.S. at 591.

Appellants also separately argue the patentability of dependent claim 23. App. Br. 8. Claim 23 reads as follows:

23. The system of claim 1, wherein the computer system further includes an interactive user interface that provides functionality for a user to upload a list of real estate properties and to obtain the tax delinquency risk scores for the real estate properties on the list.

*Id.* at 11.

Appellants argue that “the interactive user interface recited in claim 23 is not merely a detail of an abstract idea or an instruction to implement an abstract idea on a computer.” *Id.* at 9. We agree that the language of claim 23 is not directed to the underlying abstract idea. However, claim 23 additionally merely recites the additional computer functionality of an interactive user interface for retrieving data to be analyzed and manipulated. Based on the record before us, we agree with the Examiner that the recited computer components for collecting data are conventional and do not add significantly more than the underlying abstract idea. *Ans. 9; see also Spec.* ¶¶ 41–42.

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DECISION

The Examiner's decision rejecting claims 1–9 and 21–23 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED