IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

TAKADU LTD., Plaintiff; v. INNOVYZE, INC., Defendant.	Civil Action No. 21-291-RGA

MEMORANDUM OPINION

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ANDREWS, U.S. DISTRICT JUDGE:

Before me is Defendant's motion to dismiss. (D.I. 8). For the following reasons, defendant's motion is DENIED.

I. BACKGROUND

TaKaDu Ltd. sued Innovyze, Inc. for infringement of U.S. Patent Nos. 7,920,983 ("the '983 Patent"), 8,341,106 ("the '106 Patent"), 9,053,519 ("the'519 Patent"), and 9,568,392 ("the '392 Patent"). (D.I. 1). The patents "relat[e] to methods and systems for monitoring a water utility network." (*Id.* ¶ 1). Innovyze argues that the patents claim patent ineligible subject matter under 35 U.S.C. § 101. (D.I. 9).

The '983 and '392 patents share a common specification. Claim 1 of the '983 patent states:

> A computerized method for monitoring a water utility network, the water utility network comprising at least a network of pipes for delivering water to consumers and a plurality of meters positioned within the water utility network, the method comprising:
>
> receiving meter data, the meter data representing a plurality of parameters measured by the meters, the parameters including at least flow or pressure of the water through the pipes;
>
> receiving secondary data from one or more sources external to the meters, the secondary data representing one or more conditions affecting flow or consumption of water in a region serviced by the water utility network;
>
> analyzing the meter data by statistically predicting meter data for a first meter based on second meter data from the water utility network and secondary data, wherein the second meter data comprises meter data other than the received first meter data, and comparing the received first meter data with the predicted meter data for the first meter to identify one or more water utility network events comprising at least one or more leakage events by detecting an anomaly if the received first meter data deviates from the predicted meter data for the first meter by a statistical deviation; and
>
> reporting the one or more water network events to a user via a user interface.

Claim 1 of the '392 patent states:

A computerized method for analyzing resource distribution throughout a network, the method comprising:

receiving meter data, the meter data representing a plurality of parameters measured by a plurality of meters positioned within a resource distribution network;

receiving secondary data from one or more sources external to the meters, the secondary data representing one or more conditions affecting a condition of network assets in a region serviced by the resource distribution network;

statistically predicting meter data for at least one meter based on secondary data;

comparing the received meter data with the likely distribution of predicted values to detect one or more anomalies if the received meter data deviates from the likely distribution of predicted values;

identifying a resource distribution network event on the basis of the detected anomalies wherein identifying the resource distribution network event comprises identifying a faulty meter event by:

receiving a first data set representative of a first meter to be analyzed,

receiving a reference data set representative of a physically separate second meter,

correlating the first data set with the reference data set,

determining a time shift based on the correlation of the first data set with the reference data set, and

issuing a faulty meter event based on a statistical significance of the time shift; and

reporting the resource distribution network event.

The '519 is titled "System and Method for Analyzing GIS Data to Improve Operation and Monitoring of Water Distribution Networks." Claim 1 recites:

A computer-implemented method for modeling a utility network, the method comprising:

retrieving geographical information system (GIS) data and asset management data of one or more assets of the utility network, wherein the GIS data and asset management data do not indicate connections between the one or more assets and wherein the GIS data includes coordinate data associated with the one or more assets;

generating, via a processing device, one or more mathematical graph elements from the one or more assets;

creating, via the processing device, probable connections between the one or more mathematical graph elements based on the GIS and asset management data, wherein creating probable connections comprises snapping a plurality of junctions based on coordinate data;

generating, via the processing device, a mathematical graph based on the probable connections, the mathematical graph including one or more asset characteristics of the one or more assets;

analyzing, via the processing device, the determined junctions, wherein analyzing comprises determining if an analyzed junction appears between only two other junctions and merging the two other junctions if the analyzed junction appears between only two other junctions;

identifying, via the processing device and by analyzing the mathematical graph, one or more flow monitoring zones (FMZs) in the utility network, wherein identifying one or more FMZs is based upon analyzing junction locations; and

storing the mathematical graph data for use by one or more systems.

The '106 patent is titled "System and Method for Identifying Related Events in a Resource Network Monitoring System." Claim 1 states:

A computerized method performed using a processor for identifying related events in a water network monitoring system, the events represented by stored event data derived from data received from one or more sources including sensor data received from a plurality of sensors in the water network, each event data comprising data identifying an event and one or more characteristics of the event, the method comprising:

retrieving event data from an event database, the event data representing a plurality of events which have been processed from anomalies received from the water network monitoring system and which each contain a plurality of data fields including event start time and event magnitude;

identifying at least two events from the event data as being candidate events that are likely to constitute parts of a composite event, the identified candidate events each being determined by the water network monitoring system not to be statistically significant enough to be reported as events by themselves;

selecting an event combination rule, the event combination rule including one or more tests to determine whether the candidate events are related and can be combined to form a composite event of a given event type;

comparing one or more event characteristics between the at least two candidate events based on the event combination rule;

determining, based at least in part on the comparison, that at least two candidate events are related to one another and are processible as a single event of the given event type; and

reporting the determination of the at least two candidate events as being related and as the single event of the given event type to a user via a user interface.

Innovyze argues that claim 1 of each patent is representative. (D.I. 9 at 2–5). TaKaDu disagrees. (D.I. 13 at 7). Because I agree with TaKaDu that the claims are directed to patent eligible subject matter, I will focus my analysis on the claims Innovyze believes are representative.

II. LEGAL STANDARD

Patentability under 35 U.S.C. § 101 is a threshold legal issue. *Bilski v. Kappos*, 561 U.S. 593, 602 (2010). Accordingly, the § 101 inquiry is properly raised at the pleading stage if it is apparent from the face of the patent that the asserted claims are not directed to eligible subject matter. *See Cleveland Clinic Found. v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360 (Fed. Cir. 2017), *cert. denied*, 138 S. Ct. 2621 (2018). The inquiry is appropriate at this stage "only when there are no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law." *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1125 (Fed. Cir. 2018).

Section 101 of the Patent Act provides: "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. The Supreme Court recognizes three categories of ineligible subject matter—laws of nature, natural phenomena, and abstract ideas. *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). The purpose of these exceptions is to protect the "basic tools of scientific and technological work." *Mayo Collaborative Servs. v. Prometheus Lab'ys, Inc.*, 566 U.S. 66, 71 (2012).

In *Alice*, the Supreme Court reaffirmed the framework laid out in *Mayo* "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." 573 U.S. at 217. First, the court must determine whether the claims are drawn to a patent-ineligible concept. *Id.* If the answer is yes, the court must look to "the elements of the claim both individually and as an ordered combination" to see if there is 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." *Id.* at 217-18 (cleaned up). "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.* at 221 (cleaned up). Further, "the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment." *Id.* at 222 (alteration in original) (quoting *Bilski*, 561 U.S. at 610–11). Thus, "the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *Id.* at 223.

III. DISCUSSION

At *Alice* step one, Innovyze argues that the claims are directed to the abstract idea of "collecting information, analyzing it, and displaying (or storing) the results." (D.I. 9 at 1). This is an oversimplification. Claim 1 of the '983 patent, for example, recites a way to identify water leakage events. The method does so by comparing data received from a water meter with statistically predicted values. If the received data differs from the statistically predicted values by a statistical deviation, then it is considered an anomaly and a leakage event is logged. The '392 patent is similar. Claim 1 of the '392 patent mirrors claim 1 of the '983 patent but adds steps for determining when there is a faulty meter event. Innovyze's formulation that the claim

is directed to "collecting information, analyzing it, and displaying the results" neglects the most important part of these claims—detecting water leakage or similar events. Thus, I find TaKaDu's argument that the claims of the '983 and '392 patents are "directed to improved monitoring methods of water utility networks and resource distribution of said networks" more persuasive.

The other patents are similarly directed to improved methods of monitoring utility networks. The claims of the '106 patent are directed to an improved method of identifying two or more anomalies or events as related. As the specification explains, "Monitoring systems often report on many different events at once . . . . Some of these events, though reported separately, may actually be caused by or otherwise related to the same real-world events, though such information is not provided by or clear from the event data being reported." '106 Patent, 1:43–49. The specification provides the example of a breached valve, which "typically manifests itself as a simultaneous flow increase in one and corresponding flow decrease in the other, both of which would be detected and reported as events, though as separate events." '106 Patent, 1:57–60. "Moreover, for a sufficiently small event, individual component anomalies may be statistically insignificant, if viewed separately, but stand out if correctly considered together." 1:61–63. Claim 1, for instance, identifies two or more events that are "not statistically significant enough to be reported as events by themselves." As TaKaDu explains, "By combining event data, one may be able to detect a significant anomaly that was untraceable previously." (D.I. 13 at 14).

The claims of the '519 patent are "directed to methods and systems for analyzing and using geographical information system (GIS) data, asset management data, and sen[s]or archive data of one or more assets to improve resource network operation and monitoring." (D.I. 13 at

9). The '519 patent analyzes GIS data to gain insight into the performance of a utility network. Cl. 1. The specification explains that prior art systems made limited use of GIS data: "Often times, GIS data is merely displayed and not used for automated analysis and functions." '519 Patent, 2:35–37. In contrast, the claimed methods and systems incorporate GIS data into an analysis that reports useful information such as warnings, suggested maintenance, and optimal meter locations. *See* '519 Patent, 3:10–49. In the process, the GIS data is "enriched" by a "structural analysis system." "The structural analysis system links or integrates information that is difficult to associate through any other means, and analyses this information to improve the quality of GIS data and gain new insight into network structure, not readily available through any other means." '519 Patent, 6:7–10.

In its arguments that the asserted claims are directed to abstract ideas, Innovyze relies heavily on *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1351 (Fed. Cir. 2016). (*See* D.I. 9 at 8–20). The representative claim in *Electric Power Group* recited "A method of detecting events on an interconnected electric power grid in real time over a wide area and automatically analyzing the events on the interconnected electric power grid . . . ." *Id.* at 1351. The method involved gathering data from various sources, "detecting and analyzing events in real-time," and displaying the results. *Id.* at 1352.

The similarities between the *Electric Power Group* patent and TaKaDu's patents are superficial. Both involve gathering and analyzing data for utility networks. The *Electric Power Group* claims, however, "do not go beyond requiring the collection, analysis, and display of available information in a particular field, stating those functions in general terms, without limiting them to technical means for performing the functions that are arguably an advance over

conventional computer and network technology." *Id.* at 1351. The analysis step, for instance, recited:

> detecting and analyzing events in real-time from the plurality of data streams from the wide area based on at least one of limits, sensitivities and rates of change for one or more measurements from the data streams and dynamic stability metrics derived from analysis of the measurements from the data streams including at least one of frequency instability, voltages, power flows, phase angles, damping, and oscillation modes, derived from the phasor measurements and the other power system data sources in which the metrics are indicative of events, grid stress, and/or grid instability, over the wide area.

Id. This step merely instructs the user to analyze the data. That is an abstract idea. TaKaDu's claims teach ways of analyzing the data. The '983 and '392 patents teach a comparison between predicted and actual values to determine anomalous events. The '106 patent teaches methods of relating two previously unrelated events though use of event combination rules. The '519 patent teaches a way of enriching GIS data and then analyzing the enriched data to gain insights into the utility system. There is an "important common-sense distinction between ends sought and particular means of achieving them, between desired results (functions) and particular ways of achieving (performing) them." *Elec. Power Grp.,* 830 F.3d at 1356. TaKaDu's patents teach particular ways of achieving data analysis.

I agree with TaKaDu that *CardioNet, LLC v. InfoBionic, Inc*, 955 F.3d 1358 (Fed. Cir. 2020) is a more apt comparison. In *CardioNet*, the patent described "cardiac monitoring systems and techniques for detecting and distinguishing atrial fibrillation and atrial flutter from other various forms of cardiac arrythmia." *Id.* at 1362. The Federal Circuit held, "The claims are drawn to a device for detecting and reporting the presence of atrial fibrillation or atrial flutter in a patient. Specifically, the device detects beat-to-beat timing of cardiac activity, detects premature ventricular beats (irregular beats that interrupt the normal heart rhythm), and determines the relevance of the beat-to-beat timing to atrial fibrillation or atrial flutter, taking into account the

variability in the beat-to-beat timing caused by premature ventricular beats." *Id.* at 1364–65. TaKaDu's patents similarly use data to detect abnormalities in a utility network and report events such as leakage events. On one level, the claims involve collecting, analyzing, and reporting data. A careful consideration of the claim requirements in light of the written description, however, shows that the claims are directed toward a technological improvement. *See id.* at 1371.

Innovyze argues that the claims do not improve computer technology. (D.I. 9 at 11–12, 16, 19). TaKaDu responds, "the claims improve the capabilities of modeling, operating, and monitoring a water / resource distribution utility network in totality by incorporating a specific implementation of a solution that addresses express technical problems." (D.I. 13 at 16). I agree. "Abstraction is avoided or overcome when a proposed new . . . computer-implemented function is not simply the generalized use of a computer as a tool to conduct a known or obvious process, but instead is an improvement to the capability of the system as a whole." *Trading Techs. Int'l, Inc. v. CQG, INC.*, 675 F. App'x 1001, 1005 (Fed. Cir. 2017). TaKaDu's patents teach improved computer systems that use specific modes of data analysis. This contrasts with, for example, the patents at issue in *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089 (Fed. Cir. 2016). There, the patent claimed methods detecting fraudulent access to a patient's personal health information. *Id.* at 1092. The method involved collecting and analyzing data according to certain rules. *Id.* The Federal Circuit explained,

> The claimed rules ask whether accesses of [personal health information] are 1) "by a specific user," 2) "during a pre-determined time interval," or 3) "in excess of a specific volume." These are the same questions (though perhaps phrased with different words) that humans in analogous situations detecting fraud have asked for decades, if not centuries. Although FairWarning's claims require the use of a computer, it is this incorporation of a computer, *not* the claimed rule, that purportedly 'improve[s] [the] existing technological process' by allowing the automation of further tasks."

Id. at 1094–95 (citations omitted). Here, in contrast, it is the method of analysis itself (that is, the claimed rule) that improves the existing technological process.

Innovyze argues that the claims recite mental processes that can be performed by a human. (D.I. 9 at 11, 15, 18). TaKaDu responds that the methods and systems recited by the patents "are highly complicated and are not traditional tasks that an individual can perform with just pen and paper to meet the goals of the claimed inventions." (D.I. 13 at 16). Given that the patents involve statistical analysis and manipulation of GIS data, I agree with TaKaDu. At this stage in the proceedings there is no clear and convincing evidence that these patents merely recite steps that can be performed in a human mind. *See Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1364 (Fed. Cir. 2018) ("A patent is presumed valid, and the burden of establishing invalidity of a claim rests on the party asserting invalidity by clear and convincing evidence.").

Because I find that the patents are not directed to an abstract idea at *Alice* step one, I do not need to consider whether the claims recite an inventive concept at *Alice* step two. *CardioNet*, 955 F.3d at 1371.

IV. CONCLUSION

An appropriate order will issue.

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Plaintiff,

v.

INNOVYZE, INC.,

Defendant.

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ORDER

For the reasons stated in the accompanying memorandum opinion, IT IS HEREBY ORDERED that Defendant's motion to dismiss (D.I. 8) is DENIED.

Entered this 8th day of March, 2022.

United States District Judge