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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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QUANTUM STREAM INC.,

Plaintiff,

-v-

CHARTER COMMUNICATIONS, INC. and
SPECTRUM MANAGEMENT HOLDING COMPANY,
LLC, *formerly known as* TIME WARNER CABLE, INC.,

Defendants.
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17 Civ. 1696 (PAE)

OPINION & ORDER

PAUL A. ENGELMAYER, District Judge:

Plaintiff Quantum Stream Inc. (“Quantum”) brings this patent infringement action against defendants Charter Communications, Inc. and Spectrum Management Holding Company, LLC (together, “Charter”). Quantum alleges infringement of three of its patents that relate to the pairing of “secondary” advertising content based upon a user’s real-time selection of “primary” content or upon other data, so as to result in a customized presentation of content and dependent advertising to the user.

Before the Court now is Charter’s motion to dismiss this action for failure to state a claim under Federal Rule of Civil Procedure 12(b)(6). Charter argues that Quantum’s three patents are drawn to patent-ineligible subject matter and are thus invalid under § 101 of the Patent Act, 35 U.S.C. § 101. For the following reasons, the Court holds that Quantum’s three patents at issue claim as their inventions no more than the abstract idea of custom advertising, including when advertising is directed to a user based upon qualities of the user, such as the user’s selection of other content. The Court therefore grants Charter’s motion to dismiss.

I. Background¹

A. The Parties

Quantum is a Delaware corporation with its principal place of business in New York City. Relevant here, it owns, by assignment, the three patents at issue, possessing “the exclusive right to sue and to recover damages for infringement of” each of them. Complaint ¶¶ 1, 9–14. Defendant Charter Communications, Inc., is a Delaware corporation with its principal place of business in St. Louis, Missouri. Defendant Spectrum Management Holding Company, LLC is a Delaware corporation based in New York City and Stamford, Connecticut. *Id.* ¶ 3. Together, the defendants provide “digital entertainment services under the Spectrum, Charter Spectrum, and Time Warner Cable brand names to customers in New York” and elsewhere. *Id.* ¶ 4.

B. The Patents

1. Overview of the Three Patents

The three patents at issue in this case are U.S. Patent No. 9,047,626 (the “ ‘626 Patent”), U.S. Patent No. 9,117,228 (the “ ‘228 Patent”), and U.S. Patent No. 9,349,136 (the “ ‘136 Patent”). *See* Complaint, Exs. A–C. Each was issued by the U.S. Patent and Trademark Office to inventor Tayo Akadiri, on the following dates: the ’626 Patent on June 2, 2015; the ’228 Patent on August 25, 2015; and the ’136 Patent on May 24, 2016.

Each patent has the same specification and each is entitled, “Content Distribution System and Method,” although the claims of each patent are different. In describing how the patents

¹ In ruling on Charter’s motion to dismiss for failure to state a claim under Rule 12(b)(6), the Court considered Quantum’s complaint, Dkt. 1 (“Complaint”) as well as the three patents at issue in this case, attached to the Complaint as Exhibits A–C. These materials are cognizable on the instant motion because they are attached to the complaint as exhibits and are thereby deemed included as components of the complaint. *See Chambers v. Time Warner, Inc.*, 282 F.3d 147, 152–53 (2d Cir. 2002). The Court has accepted all factual allegations in the Complaint as true and has drawn all reasonable inferences in favor of the plaintiff. *Id.*

relate to the pairing of secondary advertising content based upon the user's own selection of primary content or upon other data, the patents elaborate in their specification that they "relate[] generally to content distribution systems and, more particularly, to a system for distributing digital content associated with a container based on a relationship between attributes associated with the digital content and attributes associated with a defined region of the container." '136 Patent at 1:28–32.² The "container," in turn, is "any digital transmission," into which primary content and secondary content may be added, which the specification goes on to describe as something that "may constitute, or be included in, any digital transmission, such as television or radio programming, web pages, and the like." *Id.* at 1:33–35.

The specification elaborates that containers contain "vacancies," particular spaces that are reserved to be filled with secondary advertising content yet to be determined. *See id.* at 3:1–2 (defining "vacancies" as follows: "designated regions ('vacancies') which are reserved to be filled by other secondary digital content"). The patents thus state that they "provid[e] a means for creating units of content which can fill the vacancies, and by providing an automated broker that responds to real-time notifications of vacancies that need content, selects appropriate units of content for each vacancy, and transmits in real-time the content unit information to fill each vacancy." *Id.* at 3:2–7.

The basis by which secondary content is selected to fill each "vacancy" is accomplished by reference to "attributes" that correspond to both the vacancies themselves and the content units that could be selected to occupy them. *Id.* at 3:8–16 ("Both the vacancies and the content units that fill them have attributes that may be used to determine how and when a vacancy will

² Because all three patents share identical specifications, the Court, for ease of reference, quotes the column and line numbers from the '136 Patent, as did the parties in their briefing.

be filled by a unit of content, or how and when a unit of content can be used.”); *see also id.* at 3:30–37 (“A vacancy is a designated region within digital content which is reserved to be filled by other (secondary) digital content. Each vacancy has attributes that can be used to determine how and when that vacancy will be filled by secondary content. At different times, a single vacancy may be filled with a variety of types of different content from any source—thus making the vacancy also a method for assembling on-the-fly, mix-and-match content.”). The specification then describes potential conceptual bases for how attributes would be evaluated and used to pair secondary content with a vacancy, such as through “marketplace (trading) mechanisms to determine the matching and selection of content.” *Id.* at 3:12–13.

The container, vacancies, and secondary content units are described in the patents as not limited to any particular format or information medium, other than analog information forms. Instead, the specification states that “[a] vacancy may be included in any digital medium such as digital video or digital audio, web pages, email, and the like. Correspondingly, the unit of content that fills a vacancy can constitute any digital medium.” *Id.* at 3:13–16. The end result described by the patents is a customized presentation of content to the user, with selection of the secondary content based upon some evaluation of the attributes of that content and the attributes of the vacancies contained within the primary content the user has selected or upon other attributes, such as attributes relating to the user. *Id.* at 3:17–27 (“At different times, a single vacancy may be filled with a variety of types of different content from any source. Conversely, a single vacancy in content that is distributed to multiple consumers may be filled with different content for each consumer at the same time—thus making the vacancy also a method for seamlessly assembling multi-sourced, mix-and-match content, on-the-fly. Trading and placing content units within vacancies for content enables both primary content owners and secondary

content owners to obtain the full commercial and consumer benefit of their content.”). The specification notes that this may be accomplished via various implementations “consistent with an embodiment of the present invention,” such as by providing “a method . . . for notifying a broker (or service provider) in real-time of a vacancy opening that needs to be filled with content. The notification may be transmitted across a network such as the Internet, and may include vacancy information, such as the attributes of the open vacancy, and other information including data on the consumer of the digital content that contains the vacancy.” *Id.* at 3:62–4:2.

Quantum alleges infringement of “at least” claim 1 of each of the three patents. *See* Complaint ¶¶ 34 (’626 Patent, cl. 1), 38 (’228 Patent, cl. 1), and 42 (’136 Patent, cl. 1). These claims disclose as follows:

As to the ’626 Patent:

1. A system for providing secondary content for inclusion in video content, the system comprising:
 - a consumer device comprising:
 - at least one network connector for receiving secondary content selected based on targeted criteria and for receiving (a) video content having at least one vacancy, and (b) information relating to the video content, wherein the information relating to the video content includes one or more attributes associated with the at least one vacancy;
 - at least one storage device for storing the secondary content and information relating to the secondary content, wherein the information relating to the secondary content includes one or more attributes; and
 - at least one processor for inserting the secondary content to fill the at least one vacancy of the video content, wherein the insertion is based on matching the one or more attributes associated with the at least one vacancy with the one or more attributes of the information relating to the secondary content; and
 - at least one server interface for transferring the video content and the secondary content to the consumer device;wherein the consumer device outputs the secondary content within the at least one vacancy of the video content.

’626 Patent, cl. 1.

Claim 1 of each of the other two patents, the '228 Patent and the '136 Patent, are quite similar, with the '228 Patent being a narrower invention subsumed by the '136 Patent.³ The narrowing is accomplished by the use of two servers in the '228 Patent, one for the storage and selection of secondary digital video advertisements and another for the transmission of a primary content digital video program. The '136 Patent differs in that while it could utilize the same configuration of two servers as described in the '228 Patent, it does not require precisely two servers, but instead could use additional servers. Both patents use a “network” and “network connectors” to connect the servers to a “consumer device,” which inserts the secondary advertising into the vacancies contained within the primary content.

As such, both patents differ from the '626 Patent in that the “consumer device” in the '228 and '136 Patents does not contain a “storage device” for storing secondary advertising content. In the '626 Patent, the “processor” of the consumer device draws from such a device to select secondary advertising content based upon attributes evaluated in a selection function and inserts that secondary content into primary content vacancies. Instead, in the '228 Patent, the secondary advertising content is delivered to the consumer device over a network from a “second server,” in which a “storage device” of secondary advertising content is located. And in the '136 Patent, it is delivered over a network from at least one “second server” that transmits the selected secondary advertising content to the consumer device. In both the '228 and '136 Patents, the selection of the particular secondary advertising content is accomplished in the “second server” (the '228 Patent discloses a “processor” in the second server for this function), while the

³ At argument, counsel for Quantum agreed with this characterization of the '228 Patent. Tr. 29.

processor in the consumer device in both the '228 and '136 Patents is used for insertion of the already selected secondary advertising content into the primary content vacancies.

Claim 1 of the '136 Patent is thus broader and discloses:

1. A system for targeting digital video advertisements to consumers, the system comprising:
 - at least one first server comprising a first network connector, wherein the at least one first server is connected to at least one consumer device over a network and is configured to transmit a digital video program, having at least one vacancy, to the at least one consumer device through the first network connector and over the network;
 - at least one consumer device comprising:
 - at least one second network connector, wherein the at least one consumer device is configured to receive, through the at least one second network connector, the digital video program from the at least one first server and the digital video advertisements from at least one second server, wherein at least one of the digital video advertisements is selected for transmission to the at least one consumer device based on comparing targeted criteria to at least one attribute of the at least one of the digital video advertisements;
 - and
 - at least one processor configured to insert the selected at least one of the digital video advertisements into the at least one vacancy of the digital video program.

'136 Patent, cl. 1.

Finally, claim 1 of the '228 Patent discloses:

1. A system for targeting digital video advertisements to consumers, the system comprising:
 - at least one first server comprising a first network connector, wherein the at least one first server is connected to at least one consumer device over a network and is configured to transmit a digital video program to the at least one consumer device through the first network connector and over the network, wherein at least one vacancy is associated with the digital video program;
 - at least one second server comprising:
 - at least one storage device for storing a plurality of digital video advertisements, wherein at least one digital video advertisement has at least one attribute;
 - at least one processor configured to select at least one digital video advertisement from the plurality of digital video advertisements, wherein the selection is based on comparing targeted criteria to the

at least one attribute of the at least one digital video advertisements;
and
a second network connector, wherein the at least one second server is
connected to the at least one consumer device over the network
and is configured to transmit the selected advertisement to the at
least one consumer device through the second network connector
and over the network; and
at least one consumer device comprising:
a third network connector, wherein the at least one consumer device is
configured to receive the digital video program and the selected
advertisement through the third network connector and over the
network; and
at least one processor configured to insert the selected advertisement into
the at least one vacancy as the consumer is viewing the digital video
program.

'228 Patent, cl. 1.

In addition to these three claims, there are six other independent claims across the
patents, for a total of nine independent claims. (There are various dependent claims as well.)
The independent claims are as follows: '626 Patent cl. 1; '228 Patent cls. 1, 14, 23; '136 Patent
cls. 1, 18, 43, 45, 60.

The patents utilize various forms of generic computers or devices. These include a
“consumer device” to deliver the content to the user, which includes various types of devices,
such as computers, '136 Patent at 9:44–46, televisions and radios, *id.* at 15:29–31, and other
devices, “such as pagers, cellular phones, or PDAs,” *id.* at 6:34–35. The patents also repeatedly
refer to “servers,” often connected to each other and a consumer device through a “network” and
“network connectors,” and which are simply defined as a computer “provider of data.” *Id.*
at 2:24–27.

The patents also state that the arrangements described as potential implementations of
their inventions are not limited to those that the patents particularly articulate. Instead, the
specifications state that the example of a means of implementation is given “for purposes of

illustration and description” and “is not exhaustive and does not limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teaching or may be acquired from practicing the invention.” *Id.* at 15:51–56. The specification further states that the invention is not limited to the particular generic implementations, but can comprise a variety of forms, as “the described implementation includes software but the present invention may be implemented as a combination of hardware and software or in hardware alone. The invention may be implemented with both object-oriented and non-object-oriented programming systems.” *Id.* at 15:58–63.

The independent claims thus set out systems of generic components that together constitute a process of matching secondary advertising content to a user’s selection of primary content. The dependent claims, in turn, provide at most additional specificity as to the potential attributes of the content, or of the methods of moving such content through generic components. For example, in the ’136 Patent, which has the greatest number of dependent and independent claims, claim 2 provides that the consumer device in the system of claim 1 is a “set top box;” and claims 3–5 provides that the “targeted criteria,” upon which matching the attributes of secondary advertising content and user-selected content would be based, are “consumer profiles,” “contextual content,” and “demographic information.” ’136 Patent, cls. 2–5. Other dependent claims specify other categories of the “demographic information” mentioned in claim 5, such as “at least one of a network address of the consumer and a profile of the consumer.” *Id.* at cl. 6. Claim 7, in turn, specifies that the “demographic information” in claim 6 “includes at least one of age and physical location” of the consumer, *id.* at cl. 7, and claim 8 provides that the system of claim 6 “is configured to use the demographic information for selecting the at least one digital video advertisement,” *id.* at cl. 8. Other dependent claims provide that the “processor” of the

“consumer device” would be configured “to insert the selected at least one of the digital video advertisements into the at least one vacancy in real time as the consumer is viewing the digital video program.” *Id.* at cl. 14; *see also* ’626 Patent, cl. 15 & ’228 Patent, cl. 7 (both providing for “real time” selection of the secondary advertising content into primary content vacancies). A “processor” can be a generic component of a server and also of a consumer device, such as in claim 2 of the ’626 Patent, in which the processor is a part of a server and is “for selecting the secondary content to transmit to the consumer device based on targeted criteria.” ’626 Patent, cl. 2.

2. Use of Claim 1 as Representative

Although the Court has reviewed all the claims—independent and dependent—in each of the three patents, the Court agrees with defendants that claim 1 of each patent may be treated as representative claims for purposes of the § 101 inquiry. That is because there is no “distinctive significance of any claim limitations other than those included” in claim 1 of each patent, *see Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1256 n.1 (Fed. Cir. 2016) (quotation omitted), and because it is clear the claims do not “differ in any manner that is material to the patent-eligibility inquiry,” *Mortgage Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324 n.6 (Fed. Cir. 2016), namely whether they are directed at a patent-ineligible subject matter or disclose an inventive concept. Instead, as here, when “the claims are substantially similar and linked to the same law of nature, analyzing representative claims is proper.” *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360 (Fed. Cir. 2017) (quotation omitted).

To be sure, Quantum argues that no particular claim can be treated as representative, because “each system has its own architecture and advantages over prior ad insertion systems.”

Pl. Br. at 14. But the Court’s evaluation of the claims reveals that, beyond claim 1 of each patent, they do not differ meaningfully in manners relevant to the § 101 inquiry. For example, the dependent claims at most recite additional specified arrangements of types of generic attributes that might be considered in the selection of secondary content. *See, e.g.*, ’136 Patent, cls. 7–8 (providing for use of “age and physical location of the consumer” as part of the “demographic information for selecting the at least one digital video advertisement”). Nor are the differences among the representative claims meaningful within the context of the § 101 inquiry. All—albeit through seemingly differing arrangements of types of generic devices—implement the same idea of customizing advertising based upon other criteria, such as a user’s selection of primary content.

Quantum notes, for example, that claim 1 of the ’136 Patent “calls for comparing targeted criteria to attributes of the ads, which is not in claim 1 of the ’626 Patent,” which calls for “insertion based on matching of attributes of [the] vacancy with attributes ‘of the information relating to the secondary content,’ which is not in claim 1 of the ’136 or ’228 Patent.” Pl. Br. at 14–15 (quoting ’626 Patent, cl. 1). But this purported distinction does not supply a persuasive basis to treat the claims as meaningfully different. Each in substance calls for the comparing of various types of criteria to either (in Quantum’s words) “attributes of the ads” (the ’136 Patent) or “information relating to the secondary content” (the ’626 Patent). The Court considers these claims to be “substantially similar and”—for the reasons developed below—“linked to the same abstract idea” because they “recite little more than the same abstract idea,” *Content Extraction and Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014), namely the customized pairing of advertising content to a user’s selection of primary content, and therefore may be treated as representative in the § 101 inquiry.

C. Procedural History

On March 7, 2017, Quantum filed its Complaint. Dkt. 1. On May 26, 2017, Charter filed the instant motion to dismiss, and included a memorandum of law and a Declaration of Daniel L. Reisner in support. Dkts. 20–22. On May 31, 2017, the Court issued an order advising Quantum of its right, under Rule 15(a)(1)(B), to file an amended complaint as a matter of course, and, in the alternative, setting a deadline for Quantum’s opposition to Charter’s motion to dismiss. Dkt. 26. On June 16, 2017, Quantum filed a memorandum of law in opposition to the motion to dismiss. Dkt. 27 (“Pl. Br.”). On June 23, 2017, Charter filed a reply. Dkt. 29.

On June 29, 2017, the Court held an initial conference, and, on June 30, 2017, the Court approved the parties’ proposed case management plan and scheduling order. Dkt. 34. On July 19, 2017, the Court held argument on the instant motion. *See* Dkt. 37 (“Tr.”).⁴

II. Applicable Legal Standards

To survive a motion to dismiss under Rule 12(b)(6), a complaint must plead “enough facts to state a claim to relief that is plausible on its face.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007). “A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged.” *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009). “Where a complaint pleads facts that are ‘merely consistent with’ a defendant’s liability, it ‘stops short of the line between possibility and plausibility of entitlement to relief.’” *Id.* (quoting *Twombly*, 550 U.S. at 557).

⁴ On December 13, 2017, the parties filed a joint claim construction statement. Dkt. 41. On January 26, 2018, Quantum filed its claim construction brief and a Declaration of Jonathan A. David in support. Dkts. 42–43. On February 26, 2018, Charter filed its claim construction brief, and a declaration of Daniel L. Reisner in support, which attached, among other things, a slightly edited joint claim construction statement. Dkts. 48–49. As discussed below, the parties’ claim construction statement and briefs have proven unnecessary to resolving this motion to dismiss.

In considering a motion to dismiss, a district court must “accept[] all factual claims in the complaint as true, and draw[] all reasonable inferences in the plaintiff’s favor.” *Lotes Co. v. Hon Hai Precision Indus. Co.*, 753 F.3d 395, 403 (2d Cir. 2014) (quoting *Famous Horse Inc. v. 5th Ave. Photo Inc.*, 624 F.3d 106, 108 (2d Cir. 2010) (internal quotation marks omitted)). However, this tenet is “inapplicable to legal conclusions.” *Iqbal*, 556 U.S. at 678. “Threadbare recitals of the elements of a cause of action, supported by mere conclusory statements, do not suffice.” *Id.* “[R]ather, the complaint’s [f]actual allegations must be enough to raise a right to relief above the speculative level, *i.e.*, enough to make the claim plausible.” *Arista Records, LLC v. Doe 3*, 604 F.3d 110, 120 (2d Cir. 2010) (quoting *Twombly*, 550 U.S. at 555, 570) (internal quotation marks omitted) (emphasis in *Arista Records*). A complaint is properly dismissed where, as a matter of law, “the allegations in [the] complaint, however true, could not raise a claim of entitlement to relief.” *Twombly*, 550 U.S. at 558.

III. Discussion

In moving to dismiss, Charter argues that the three patents are invalid under § 101 of the Patent Act because their claims are drawn to patent-ineligible subject matter, and that claim construction is not required because the patents are invalid under any reasonable construction of their claims. The Court agrees that the three patents at issue claim as their invention the abstract idea of customizing a selection of secondary content based upon the selection of primary content or other qualities, and are thus invalid under § 101, and that this is so under any reasonable construction of their claims.

A. Section 101 of the Patent Act

“Whether a claim is drawn to patent-eligible subject matter under § 101 is a threshold inquiry[.]” *In re Bilski*, 545 F.3d 943, 950 (Fed. Cir. 2008) (“*Bilski I*”), *affirmed by Bilski v.*

Kappos, 561 U.S. 593 (2010) (“*Bilski I*”). When a claim is not drawn to patent-eligible subject matter, it “must be rejected even if it meets all of the other legal requirements of patentability.” *Id.* Whether a claim is drawn to patent-eligible subject matter presents a “pure question of law.” *Lumen View Tech. v. Findthebest.com, Inc.*, 984 F. Supp. 2d 189, 204 (S.D.N.Y. 2013); *see also Bilski I*, 545 F.3d at 951 (determination of a patent’s validity under § 101 is an “issue of law”). The Patent Act provides that all patents are “presumed valid,” and “[e]ach claim of a patent (whether independent, dependent, or multiple dependent form) [is] presumed valid independently of the validity of other claims.” 35 U.S.C. § 282(a). In light of this presumption of validity, “[t]he party challenging the validity of a patent bears the burden of proving invalidity by clear and convincing evidence.” *Lumen View*, 984 F. Supp. 2d at 194; *see also* 35 U.S.C. § 282(a) (“The burden of establishing invalidity of a patent or any claim thereof . . . rest[s] on the party asserting such invalidity.”).

Section 101 of the Patent Act sets out the categories of inventions that are eligible for patent protection. It 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. In reciting the four categories of patent-eligible subject matter—processes, machines, manufactures, and compositions of matter—§ 101 is subject to implicit exceptions. Specifically, the Supreme Court has held there are “three specific exceptions to § 101’s broad patent-eligibility principles: ‘laws of nature, physical phenomena, and abstract ideas.’” *Bilski II*, 561 U.S. at 601 (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980)). Although these exceptions are not recited in the text of § 101, they follow, the Court has explained, from the foundational precept that “a patentable process must be ‘new and useful.’” *Id.* at 601–02. The

Court has construed § 101 and its predecessors in light of these implicit exceptions for more than 150 years, and addressed them most recently in *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2353–54 (2014).

The Court there explained the reason for excluding “laws of nature, physical phenomena, and abstract ideas” from protection under § 101 as driven by a concern that innovative work could otherwise be deterred. *Id.* at 2354. “Laws of nature, natural phenomena, and abstract ideas are ‘the basic tools of scientific and technological work,’” *id.* (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)), and “‘monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it,’ thereby thwarting the primary object of the patent laws,” *id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012)). As the Court has memorably illustrated the point: “[A] new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that $E=mc^2$; nor could Newton have patented the law of gravity. Such discoveries are ‘manifestations of . . . nature, free to all men and reserved exclusively to none.’” *Chakrabarty*, 447 U.S. at 309 (quoting *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

At the same time, the Court has recognized, “too broad an interpretation of this exclusionary principle could eviscerate patent law. For 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. As such, “[a]pplications’ of such concepts ‘to a new and useful end’ . . . remain eligible for patent protection.” *Alice*, 134 S. Ct. at 2534 (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). When applying the § 101 exceptions, a court thus “must distinguish between

patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more . . . thereby transforming them into a patent-eligible invention.” *Id.* (quotation omitted).

To guide the § 101 inquiry into whether a patent is drawn from patent-eligible subject matter, the Supreme Court has established a two-step framework, sometimes referred to as the *Mayo/Alice* inquiry.

First, a court must determine “whether the claims at issue are directed to one of [the] patent-ineligible concepts.” *Alice*, 134 S. Ct. at 2355 (citing *Mayo*, 566 U.S. at 77–78). This is a “meaningful” inquiry that contemplates that “a substantial class of claims are *not* directed to a patent-ineligible concept.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). This “‘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.’” *Id.* (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)); *see also Internet Patents Corp.*, 790 F.3d at 1348 (step one of the *Mayo/Alice* inquiry begins by “ascertaining the basic character of the subject matter”). Claims that “‘purport to improve the functioning of the computer,’” or those that “‘improve an existing technological process,’ might not succumb to the abstract idea exception.” *Enfish*, 822 F.3d at 1335 (quoting *Alice*, 134 S. Ct. at 2358–59) (alterations omitted). As such, when claims focus on computer capabilities, whether they are directed at patent-eligible subject matter is evaluated by “whether the focus of the claims is on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335–36.

Relevant to the first step inquiry, “an abstract idea does not become non-abstract by limiting the invention to a particular field of use or technological environment, such as the Internet.” *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2358). Courts have recognized numerous categories of abstract ideas, such as “methods of organizing human activity,” *see id.* at 1367, or “a fundamental economic practice long prevalent in our system of commerce,” *Alice*, 134 S. Ct. at 2356. The Supreme Court has not defined a specific rule for determining what constitutes an abstract idea within the meaning of step one of the *Mayo/Alice* inquiry. Instead, the Court (and the Federal Circuit) “have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases.” *Enfish*, 822 F.3d at 1334; *see also Intellectual Ventures*, 792 F.3d at 1367 (“The abstract idea here is not meaningfully different from the ideas found to be abstract in other cases before the Supreme Court and [the Federal Circuit].”). In addition, courts have often held processes that can be accomplished mentally or within the human mind as drawing upon abstract ideas. That is because the “application of only human intelligence to the solution of practical problems is no more than a claim to a fundamental principle.” *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371–72 (Fed. Cir. 2011) (quoting *Bilski I*, 545 F.3d at 965) (alterations omitted).

If the first step of the inquiry reveals that the patent is directed to a patent-ineligible concept, the Court turns to the next step, which directs a court to evaluate whether the patent, despite its patent-ineligible subject matter, nevertheless claims a patent-eligible application. As the Supreme Court framed that inquiry in *Alice*, “we then ask, ‘what else is there in the claims before us?’” by considering “the elements of each claim both individually and ‘as an ordered combination’ to determine whether the additional elements ‘transform the nature of the claim’

into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 77–78). Put differently, this second step of the analysis is a search for an “inventive concept,” meaning “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.* (quoting *Mayo*, 566 U.S. at 72–73).

Addressing this step in the context of computers, the Federal Circuit has emphasized: “A simple instruction to apply an abstract idea on a computer is not enough.” *Intellectual Ventures*, 792 F.3d at 1367 (citing *Alice*, 134 S. Ct. at 2358). And, it has held, a patent does not constitute a sufficient inventive concept by “claiming the improved speed or efficiency inherent with applying the abstract idea on a computer.” *Id.* An inventive concept is also unlikely to exist when the processes or calculations claimed in a patent could be accomplished within the human mind or through mental processes, or by “using pencil and paper,” or even when assisted with a simple device or accomplished in real time with variable inputs being affected. *See id.* at 1368–69. Similarly, “to salvage an otherwise patent-ineligible process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations and computations could not.” *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012).

B. Applying the *Mayo/Alice* Inquiry to the Three Patents at Issue

Charter argues that the three patents at issue are beyond the scope of § 101 because they are drawn to the abstract idea of pairing secondary content with primary content based upon criteria. Quantum, in contrast, argues that its patents constitute a “paradigm shift, causing ad systems to behave in an unconventional manner” by providing for real-time insertion of advertisements, selected on attributes or other criteria, instead of “preinserted” ads that result in

all consumers viewing the same advertising content. Quantum contends that this constitutes a patent-eligible “improvement in computer systems.” Pl. Br. at 1. Applying the *Mayo/Alice* inquiry, the Court concludes that the patents are patent-ineligible because they are directed at the abstract idea of custom advertising and lack an inventive concept.

1. *Mayo/Alice* Step One: Abstract Idea

The Court first inquires whether the claims in the ’626 Patent, the ’228 Patent, and the ’136 Patent are directed toward a patent-ineligible concept. *Alice*, 134 S. Ct. at 2355.

Guided by Supreme Court and Federal Circuit precedent, the Court concludes at step one of the *Mayo/Alice* inquiry that the claims of the three patents are directed to an ineligible abstract idea: specifically, custom advertising based upon consumer qualities or other data. The patents claim processes for creating a customized flow of content in which the ads that fill the primary content’s vacancies for such ads are selected based on various criteria, whether related to the user’s selection of primary content itself or to qualities about the user, such as physical location. The different patents and claims envision different arrangements of generic computers to implement this concept in different ways. But, at bottom, they do not represent or describe improvements in computing systems, specific new software or hardware or technology, or some other type of computing method that improves the computer’s functionality or makes it more efficient, such as an information “structure designed to improve the way a computer stores and retrieves data in memory,” *Enfish*, 822 F.3d at 1339. Rather, as Quantum itself notes in its brief, the claims do not claim to invent actual software, hardware, or technology. Instead, they identify categories of generic devices, and thus do no more than “provide specific *types* of equipment that provide specific *types* of video signals with vacancies, and digital video ads with attributes, and specific hardware for receiving, storing, and inserting the video ads” Pl. Br. at 18

(emphasis added). Because customized advertising will always require a comparison of different attributes, along with a method for selecting the advertisements based on user-specific attributes and a means for presenting them to the user, Quantum’s claims capture nothing more than a recitation of the abstract idea of customizing secondary advertising content based on user or other criteria.

Indeed, Quantum’s patents claim ideas that are strikingly similar to abstract ideas relating to customization of products that the Federal Circuit and the Supreme Court have held to be non-patentable. *See Alice*, 134 S. Ct. at 2356 (idea of risk hedging is a “fundamental economic practice long prevalent in our system of commerce”).

The Federal Circuit’s decision in *Intellectual Ventures* is particularly apposite. There, the Federal Circuit held that a patent that “generally relates to customizing web page content as a function of navigation history and information known about the user,” was drawn to an ineligible abstract idea. 792 F.3d at 1369. The Federal Circuit noted that tailoring content based upon “information known about the user” is “a fundamental practice long prevalent in our system.” *Id.* (quoting *Alice*, 134 S. Ct. at 2356). It observed, as an example, that “[t]here is no dispute that newspaper inserts had often been tailored based on information known about the customer—for example, a newspaper might advertise based on the customer’s location. Providing this minimal tailoring—e.g. providing different newspaper inserts based upon the location of the individual—is an abstract idea.” *Id.* The Federal Circuit also found that the tailoring of content based upon a user’s navigation data, such as based upon the time of day of viewing, “is also an abstract, overly broad concept long-practiced in our society. There can be no doubt that television commercials for decades tailored advertisements based on the time of day during which the advertisement was viewed.” *Id.*

Other cases have found similar processes involving the bare customization of content, including the customized presentation of content, to embody abstract ideas and thus to be unpatentable. For example, the Federal Circuit has held that a “customized user interface” in which “a user may elect to have a customized interface such as a radio dial, a playlist, or targeted advertising based on demographic information provided by the user” is an unpatentable abstract idea. *Affinity Labs of Tex., LLC v. Amazon.com Inc.*, 838 F.3d 1266, 1271 (Fed. Cir. 2016). This was so even though the patent at issue recited claim terms like a “network based media management system” and a “graphical user interface” as part of the customized interface. As the Federal Circuit noted, those components “are simply generic descriptions of well-known computer components” that “merely provide a generic environment in which to carry out the abstract idea.” *Id.* at 1270 (quoting *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016)). Instead, the Federal Circuit concluded, “[l]ike the basic concept of tailoring content to a user, as in *Intellectual Ventures*[,] the basic concept of customizing a user interface is an abstract idea.” *Id.* at 1271.

This Court, too, in fact, has held that customizing content based on user preferences or other data is an abstract idea and is therefore, without more, patent-ineligible. In one of the first decisions applying *Alice*, this Court held that a meal planning process that could be used to design customized meals based upon the user’s preferences was drawn to an abstract idea and was thus unpatentable. *DietGoal Innovations LLC v. Bravo Media LLC*, 33 F. Supp. 3d 271, 284 (S.D.N.Y. 2014), *aff’d*, 599 F. App’x 956 (Fed. Cir. 2015). The patent at issue described “a computerized method of selecting meals that align with the user’s individual preferences and nutritional goals (for example, by planning out dinners for the week that accord with a low-calorie diet) and calculating the dietary impact of the addition or subtraction of certain foods (for

example, by determining how many calories you will save by swapping out French fries for broccoli).” But that process, the Court held, merely implemented the patent-ineligible and age-old abstract idea of a person’s own customized meal planning. *Id.*

As another example, in *Lumen View*, Judge Cote concluded that the patent there for “computer assisted matchmaking” was drawn to a patent-ineligible abstract idea. *Lumen View*, 984 F. Supp. 2d at 191. Much like matching the attributes of secondary advertising content to the attributes of vacancies in primary content based upon a user’s selection of primary content, or based upon other attributes about the user, the patent in *Lumen View* contemplated “having each party disclose desired attributes, and intensity of preferences with respect to those attributes, and then having a computer match employees and employers whose desired attributes and intensities of preferences mutually align.” *Id.* at 192. This, Judge Cote held, was an abstract idea that could not be patented. *Id.* at 205.

Similarly here, the three patents at issue claim computerized methods of pairing secondary content with a user’s selection of primary content. The criteria disclosed in the claims are broad. They include criteria very similar to criteria held abstract in *Intellectual Ventures*, such as selections of ad content based on the user’s “age and physical location,” ’136 Patent, cl. 7; *see also* ’626 Patent, cls. 15, 17 (disclosing that “age and physical location” are part of the “demographic information,” which is used “for identifying the secondary content for insertion into the at least one vacancy”), on “time and date qualifications for the vacancy,” and on other “[s]tatic attributes” such as “required secondary content type (such as teenage advertising, sales opportunity, syndicated news, an audio stream), the physical size and location of the vacancy . . . or classification of the vacancy,” ’136 Patent at 6:46–50. This task of customization has been performed—as the Federal Circuit recognized in *Intellectual Ventures*—in numerous contexts.

These include outreach to potential consumers or users by a wide range of entities. For example: an advertising company or a content provider that utilizes sophisticated and complex formulae to customize advertisements to numerous particular consumers. Or a college radio station that runs different advertisements shortly before or during a sporting event than during final exam period. The three patents, notably, do not recite any specialized formulae or specific methods of selecting content. Instead, they merely recite potential types of attributes that could be harnessed as part of such a selection function. And they then recite generic types of equipment that interact with each other in various arrangements to create a customized presentation of content, whether in real time or otherwise.

The arrangements described in Quantum's patents do not themselves affect and are not designed to improve the functioning of a computer process. Rather, fairly captured, they describe the familiar and unremarkable process of matching secondary advertising content with primary content so as to provide a unified (tailored) presentation to the particular user. And the system arrangements in each of the three patents, which are cast at a very general level, at most, "provide[] a new and presumably better method," *Parker v. Flook*, 437 U.S. 584, 595 (1978), for pairing and presenting, in real time, such secondary advertising and primary content. Because these patents are directed at the abstract idea of customized advertising, they do not describe the kind of "discover[y]" that § 101 was designed to protect. *Id.* at 593.

The Court therefore concludes that the three patents, despite their slight differences, are drawn to the patent-ineligible abstract idea of customized advertising, in which a unification of primary content and secondary advertising content is delivered to a consumer based upon various potential functions.

2. *Mayo/Alice* Step Two: Inventive Concept

Having determined that the claims at issue are directed to an abstract idea, the Court now considers, at step two of the *Mayo/Alice* inquiry, whether the claims or elements of the claim contain an “inventive concept” that transforms the otherwise patent-ineligible abstract idea into a patent-eligible application of that idea. *See Alice*, 134 S. Ct. at 2357.

Quantum mainly argues that its patents’ claims set forth specific implementations of customizing advertising content through the pairing of secondary content with primary content that renders its claims patentable. Quantum argues, for example, that “the independent claims include: (1) a system with a specific arrangement of servers, network connectors, and consumer devices that are performing specific operations; (2) delivery of video programs to the consumer device separately from targeted video ads; and (3) a processor in the customer device that inserts a targeted video ad into the video program as the video program is viewed by the consumer.” Pl. Br. at 17. It notes that other independent claims describe additional elements: “(4) video content including a vacancy into which video ads are inserted; and (5) using attributes associated with the video content/vacancy and video ads to identify available video ads for insertion into the video content.” *Id.* The end result, Quantum states, is “delivery of video ads to a consumer device that are targeted to a particular consumer and inserted and displayed by the consumer device at a moment in time when the consumer is likely to be interested in the ads.” *Id.*

These claims do not introduce an inventive concept. As the Federal Circuit has held, the straightforward implementation of the benefits of an abstract idea does not itself give rise to an inventive concept, including when it is to be accomplished through generic computer equipment that performs the implementation of the abstract idea. Rather, an inventive concept requires that “the claims do significantly more than simply describe that abstract method.” *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014). Here, the claims described in Quantum’s

three patents are straightforward, conventional applications of the concept of custom advertising and the selection of advertising content as a function of the selection of primary content or other data. And while Quantum notes that its patents anticipate that the customized advertisements would be inserted in “real time,” that is inadequate to make the abstract idea here patent-eligible. *See id.* at 716 (“Adding routine additional steps . . . does not transform an otherwise abstract idea into patent-eligible subject matter.”).

Significant in this regard, the implementation described in the patents entails the use of various generic devices, without more. The patents describe, at a high-level, the application by a computer of the abstract idea of customization—for example, the delivery of the primary content to the consumer and the insertion, by a “processor” in a “consumer device,” of the customized secondary advertising content that had been selected into the vacancies in the customer’s primary content. These, however, are “[s]teps that do nothing more than spell out what it means to ‘apply it on a computer’ [and] cannot confer patent-eligibility.” *Intellectual Ventures*, 792 F.3d at 1370 (quoting *Alice*, 134 S. Ct. at 2359); *see also id.* at 1371 (“Requiring the use of a ‘software’ ‘brain’ ‘tasked with tailoring information and providing it to the user’ provides no additional information beyond applying an abstract idea, restricted to the Internet, on a generic computer.”). Even if the patents’ system arrangements envision a more elegant or efficient system for creating custom advertising—and here, the arrangement is described at such a highly generic level to make any characterization by the patents wishful—the relevant “precedent is clear that merely adding computer functionality to increase the speed or efficiency of the process does not confer patent eligibility.” *Id.* The system arrangements disclosed in the patents’ claims simply describe generic equipment performing the straightforward, conventional tasks of assembling custom advertising. Embodying as they do mere applications of the abstract idea by means of

generically described computer systems, the patents do not entail an inventive concept sufficient to confer patent eligibility.

Notably, too, the claims of the three patents here disclose steps that could be performed by a human operator or in the human mind. This too weighs against Quantum at step two. A human mind could evaluate attributes or other criteria (*e.g.*, the user's age), derive from these tailored secondary advertising content, and implement these selections by using a simple device that inserts digital advertising content into the stream of primary content. *See Cybersource*, 654 F.3d at 1373 (“[A] method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101.”). As the Federal Circuit has recognized, tasks that are implemented by generic computer system arrangements but that a human operator, even with a pencil and paper, can also perform in real-time with the assistance of a device to implement the human's commands typically do not, without more, entail an inventive concept and thus are unpatentable. *See Intellectual Ventures*, 792 F.3d at 1368–69 (“[T]he budgeting calculations at issue here are unpatentable because they could still be made using a pencil and paper with a simple notification device, even in real time as expenditures were being made.” (quotation omitted)); *see also Tranxition, Inc. v. Lenovo (United States) Inc.*, 664 F. App'x 968, 971–72 (Fed. Cir. 2016).⁵ The three patents thus do not disclose an inventive concept beyond the unpatentable abstract idea they seek to implement.

⁵ The Court in *Tranxition* held that patents claiming the “automatic migration” of individualized user settings across a computer system upgrade, from the old computing system to the new one, were drawn to an abstract idea and did not contain an inventive concept. This was so even though “a manual process would not necessarily capture all the configuration settings in a computer.” 664 F. App'x at 972. The Court explained that the claims only required “one or more configuration settings” and that “it is not relevant that a human may perform a task differently from a computer.” *Id.* It added: “It is necessarily true that a human might apply an abstract idea in a different manner from a computer. What matters is the application. . . . [The patent's claims] merely describe a generic computer implementation, using routine, conventional

The Court therefore holds that Quantum's three patents at issue, regardless of the slight differences among them, do not contain an inventive concept sufficient to make them a patentable application of the abstract idea of customized advertising.

3. Claim Construction Is Not Required

Opposing the motion to dismiss, Quantum argues that it would be premature for the Court to invalidate the patents at the threshold, and that the Court should first engage in claim construction. But, because the system arrangements disclosed in the claims of the three patents would be invalid under § 101 under any reasonable construction, claim construction would not aid the Court in resolving the § 101 claim of invalidity, or elucidate any dispositive legal issue, and thus is not required in order to rule on the patents' validity under § 101. *See, e.g., DietGoal*, 33 F. Supp. 3d at 289.

Claim construction "is not an inviolable prerequisite to a validity determination under § 101." *Bancorp Servs.*, 687 F.3d at 1273; *see also, e.g., Bilski II*, 561 U.S. at 611–12 (finding patent's subject matter ineligible for patent protection without undertaking claim construction). "While claim construction may sometimes be helpful in resolving a Section 101 motion where detailed explication of the claims in a patent would reveal material legal issues," claim construction is not required in every case involving a § 101 inquiry. *See Lumen View*, 984 F. Supp. 2d at 205.

Here, the claims of the three patents are straightforward such that formal claim construction is unnecessary to define or illuminate their content or clarify any uncertain legal determination. The subject matter of the three patents and their claims is simply a series of

activities, of the abstract idea, which is insufficient to transform the patent-ineligible abstract idea into patent-eligible subject matter." *Id.* (quotation omitted).


generic computer system arrangements for implementing the abstract idea of customized advertising, including customization in real time, by filling “spaces” in primary content with secondary advertising content. Under any reasonable construction, the claims of the three patents are drawn to patent-ineligible subject matter, obviating any need for claim construction.⁶

Accordingly, the Court concludes that the '626 Patent, the '228 Patent, and the '136 Patent are each invalid under § 101.

CONCLUSION

For the foregoing reasons, the '626 Patent, the '228 Patent, and the '136 Patent are drawn to patent-ineligible subject matter, and Charter's motion to dismiss for failure to state a claim is therefore granted. The Clerk of Court is respectfully directed to terminate all motions currently pending, and to close this case.

SO ORDERED.



Paul A. Engelmayer
United States District Judge

Dated: March 1, 2018
New York, New York

⁶ The Court has nevertheless examined the parties' preliminary claim construction materials to confirm this conclusion. *See* Dkt. 41 (Joint Claim Construction Statement); Dkts. 42–43 (Quantum's opening claim construction brief and declaration in support); Dkts. 48–49 (Charter's claim construction brief and declaration in support, with a slightly edited joint claim construction statement attached as Exhibit A). Neither the claims whose constructions are undisputed nor the disputed claims as construed by Quantum supply any basis to disturb the Court's determination the three patents are drawn to patent-ineligible subject matter. Quantum's proposed constructions as to the disputed claim terms adopt straightforward constructions of those terms; indeed, for many, Quantum argues that claims should be construed according to their “plain and ordinary meaning.” *See* Dkts. 41 & 49, Ex. A (arguing “attribute” should be construed as a “characteristic”; arguing “static attributes” should be construed as “attributes that are fixed”; arguing “targeted criteria” should be construed as “criteria associated with one or more consumers”; seeking the “plain and ordinary meaning” for 11 claim terms (out of 17 total claim terms in construction)).