

**United States Court of Appeals  
for the Federal Circuit**

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**PERSONALWEB TECHNOLOGIES LLC,**  
*Plaintiff-Appellant*

v.

**GOOGLE LLC, YOUTUBE, LLC,**  
*Defendants-Appellees*

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2020-1543

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Appeal from the United States District Court for the  
Northern District of California in No. 5:13-cv-01317-EJD,  
Judge Edward J. Davila.

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**PERSONALWEB TECHNOLOGIES LLC,**  
*Plaintiff-Appellant*

v.

**FACEBOOK, INC.,**  
*Defendant-Appellee*

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2020-1553

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Appeal from the United States District Court for the Northern District of California in No. 5:13-cv-01356-EJD, Judge Edward J. Davila.

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**PERSONALWEB TECHNOLOGIES LLC,**  
*Plaintiff-Appellant*

**LEVEL 3 COMMUNICATIONS LLC,**  
*Plaintiff*

v.

**EMC CORPORATION, VMWARE, INC.,**  
*Defendants-Appellees*

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2020-1554

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Appeal from the United States District Court for the Northern District of California in No. 5:13-cv-01358-EJD, Judge Edward J. Davila.

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Decided: August 12, 2021

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LAWRENCE MILTON HADLEY, Glaser Weil Fink Howard Avchen & Shapiro LLP, Los Angeles, CA, argued for plaintiff-appellant. Also represented by JOEL LANCE THOLLANDER, McKool Smith, PC, Austin, TX.

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PERSONALWEB TECHNOLOGIES LLC v. GOOGLE LLC

3

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Before LOURIE, PROST\*, and REYNA, *Circuit Judges*.

PROST, *Circuit Judge*.

PersonalWeb Technologies appeals a decision by the United States District Court for the Northern District of California granting judgment on the pleadings for appellees Google LLC, YouTube, LLC, Facebook Inc., EMC Corporation, and VMware, Inc. That decision held various claims of U.S. Patent Nos. 7,802,310 (“the ’310 patent”), 6,415,280 (“the ’280 patent”), and 7,949,662 (“the ’662 patent”) ineligible for patenting, and therefore invalid, under 35 U.S.C. § 101.<sup>1</sup> *PersonalWeb Techs. LLC v. Google LLC*, No. 5:13-CV-01317, 2020 WL 520618, at \*14 (N.D. Cal. Jan. 31, 2020). We affirm.

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\* Circuit Judge Sharon Prost vacated the position of Chief Judge on May 21, 2021.

<sup>1</sup> The claims are: ’310 patent claims 24, 32, 81, 82, and 86; ’280 patent claims 15, 16, 31, and 32; and ’662 patent claim 33.

## BACKGROUND

## I

PersonalWeb’s asserted patents, which share a specification and drawings, claim priority from an application filed in 1995. We assume general familiarity with the patented subject matter, as we have discussed the ’310 patent in prior opinions.<sup>2</sup> See *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987 (Fed. Cir. 2017); *PersonalWeb Techs., LLC v. Apple, Inc.*, 917 F.3d 1376 (Fed. Cir. 2019). In brief, the patents relate to data-processing systems that assign each data item a substantially unique name that depends on the item’s content—a content-based identifier. ’310 patent col. 1 l. 44–col. 2 l. 5, col. 3 ll. 50–58, col. 6 ll. 20–24. These identifiers are generated by a mathematical algorithm, such as a cryptographic hash or “message digest” function. *Id.* at col. 12 l. 21–col. 13 l. 9. The identifier changes when the data item’s content changes. *Id.* at col. 35 ll. 55–63. The patents claim using such identifiers to perform various data-management functions. Claim 24 of the ’310 patent, for example, sets forth a method for using content-based identifiers to control access to data. The method generally proceeds in three steps: (1) receiving a request containing a content-based identifier for a data item, (2) comparing the content-based identifier to a plurality of values, and (3) granting or disallowing access to the data item based on the comparison:

24. A computer-implemented method implemented at least in part by hardware comprising one or more processors, the method comprising:

(a) using a processor, receiving at a first computer from a second computer, a request regarding a particular data item, said request including at least a

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<sup>2</sup> For simplicity, all citations to the shared specification are to the ’310 patent.

content-dependent name for the particular data item, the content-dependent name being based, at least in part, on at least a function of the data in the particular data item, wherein the data used by the function to determine the content-dependent name comprises at least some of the contents of the particular data item, wherein the function that was used comprises a message digest function or a hash function, and wherein two identical data items will have the same content-dependent name; and

(b) in response to said request:

(i) causing the content-dependent name of the particular data item to be compared to a plurality of values;

(ii) hardware in combination with software determining whether or not access to the particular data item is unauthorized based on whether the content-dependent name of the particular data item corresponds to at least one of said plurality of values, and

(iii) based on said determining in step (ii), not allowing the particular data item to be provided to or accessed by the second computer if it is determined that access to the particular data item is not authorized.

'310 patent claim 24.

The relevant '280 and '662 patent claims reflect a similar pattern but are geared toward different data-management functions. Specifically, the '280 patent claims use content-based identifiers to retrieve data items, and the '662 patent claims use content-based identifiers to mark duplicate data items for deletion. *E.g.*, '280 patent claim 31; '662 patent claim 33. The disclosed systems are "intended to work with an existing operating system." '310 patent col. 6 ll. 25–32.

## II

PersonalWeb sued the appellees for patent infringement in the Eastern District of Texas. After claim construction, the cases were transferred to the Northern District of California. That court stayed the cases pending resolution of several inter partes reviews (“IPRs”) at the Patent Trial and Appeal Board (“Board”), which challenged various claims. In six IPRs filed by EMC and VMware, the Board held all challenged claims unpatentable (including ’280 patent claims 26 and 38, as well as ’662 patent claim 30). In doing so, the Board found that using hash-based identifiers for data management was disclosed in the prior art. J.A. 3426 (addressing ’280 patent); J.A. 3462–63 (addressing ’662 patent). We affirmed all six Board decisions. *Pers. Web Techs., LLC v. EMC Corp.*, 612 F. App’x 611 (Fed. Cir. 2015). The Board also held various ’310 patent claims unpatentable in a separate IPR filed by Apple Inc. On appeal, we affirmed the Board’s claim construction but remanded for it to reassess obviousness under proper procedural constraints. *PersonalWeb Techs.*, 848 F.3d at 994. Along the way, we noted that a prior-art reference “discloses a system for using content-based identifiers in performing file-management functions, such as backing up files.” *Id.* at 989. On review of the Board’s remand decision, we reversed the Board’s finding that a particular limitation was inherently disclosed in the prior art, but we did not disturb our earlier observation that content-based identifiers were known. *PersonalWeb*, 917 F.3d at 1380–83 (reiterating that “none of the parties disagreed” that the prior-art identifier “corresponded to the claimed content-based identifier”).

After the stay was lifted, the appellees moved for judgment on the pleadings that the remaining asserted claims were ineligible under 35 U.S.C. § 101. The district court granted the motion. *PersonalWeb*, 2020 WL 520618,

at \*14.<sup>3</sup> PersonalWeb appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

#### DISCUSSION

The Patent Act defines patent-eligible subject matter as “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that “this provision contains an important implicit exception: [l]aws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). This exception reflects the “concern that patent law not inhibit further discovery by improperly tying up the future use of these building blocks of human ingenuity.” *Id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 85 (2012)). To assess patent eligibility, we apply the two-step framework set forth in *Mayo* and further detailed in *Alice*. At step one, we “determine whether the claims at issue are directed to a patent-ineligible concept” such as an abstract idea. *Alice*, 573 U.S. at 218. At step two, “we consider 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.” *Id.* at 217 (cleaned up).

Patent eligibility is a question of law that may involve underlying questions of fact. *Simio, LLC v. FlexSim Software Prods., Inc.*, 983 F.3d 1353, 1358–59 (Fed. Cir. 2020). But “not every § 101 determination contains genuine

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<sup>3</sup> The district court also declined to convert the motion into one for summary judgment. *PersonalWeb*, 2020 WL 520618, at \*7. PersonalWeb does not challenge that aspect of the district court’s decision.

disputes over the underlying facts material to the § 101 inquiry.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018). Indeed, that inquiry “may be, and frequently has been, resolved on a Rule 12(b)(6) or (c) motion where the undisputed facts, considered under the standards required by that Rule, require a holding of ineligibility under the substantive standards of law.” *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1166 (Fed. Cir. 2018) (collecting cases). We apply the procedural law of the regional circuit, here the Ninth Circuit, which reviews Rule 12(c) motions de novo. *Allergan, Inc. v. Athena Cosms., Inc.*, 640 F.3d 1377, 1380 (Fed. Cir. 2011) (citing *Or. Nat. Desert Ass’n v. U.S. Forest Serv.*, 550 F.3d 778, 782 (9th Cir. 2008)). The governing standard is “functionally identical” to that for a motion to dismiss. *Dworkin v. Hustler Mag. Inc.*, 867 F.2d 1188, 1192 (9th Cir. 1989). The standard is “whether the complaint at issue contains ‘sufficient factual matter, accepted as true, to state a claim of relief that is plausible on its face.’” *Harris v. Cnty. of Orange*, 682 F.3d 1126, 1131 (9th Cir. 2012) (quoting *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009)). We review the district court’s ultimate patent-eligibility conclusion de novo. *Simio*, 983 F.3d at 1359.

## I

We start at step one. Because “all inventions embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas,” *Alice*, 573 U.S. at 217 (cleaned up), we must decide “whether that patent-ineligible concept is what the claim is ‘directed to,’” *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 765 (Fed. Cir. 2019) (quoting *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1349 (Fed. Cir. 2017)). To do so, we evaluate “the ‘focus of the claimed advance over the prior art’ to determine if the claim’s ‘character as a whole’ is directed to excluded subject matter.” *Intell. Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1325 (Fed. Cir. 2017) (quoting *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d



1253, 1257 (Fed. Cir. 2016)). Here, the answer is yes. The claims are directed to an abstract idea.

PersonalWeb contends that the claims are directed to “a substantially unique, algorithm-derived, content-based identifier for all data items in a networked computer, which allows a computer within a network containing diverse computing and storage systems to locate and distribute data without knowing either the file system of any device within the network or the conventional name of any data item.” Appellant’s Br. 23. The district court, on the other hand, concluded that the patents are directed to a three-step process: “(1) using a content-based identifier generated from a ‘hash or message digest function,’ (2) comparing that content-based identifier against something else, [that is,] another content-based identifier or a request for data; and (3) providing access to, denying access to, or deleting data.” *PersonalWeb*, 2020 WL 520618, at \*10. We adopt the district court’s view, which closely tracks the claim language. See *ChargePoint*, 920 F.3d at 769 (“[T]he § 101 inquiry must focus on the language of the Asserted Claims themselves . . . .” (quoting *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016)); *Alice*, 573 U.S. at 219 (“*On their face*, the claims before us are drawn to the concept of intermediated settlement . . . .” (emphasis added)). The district court’s description, for example, mirrors the progression of ’310 patent claim 24 (reproduced above), on which PersonalWeb relies, Appellant’s Br. 24.

Although PersonalWeb criticizes the district court’s “summary of the asserted claims into a three-step process,” Appellant’s Br. 31 (internal quotation marks omitted), this formulation is not meaningfully distinguishable from what PersonalWeb said in opposing the § 101 motion:

The asserted claims all recite (1) dividing the data into sequences of bits, (2) calculating content-based identifiers using the data in the data items, . . .

(3) comparing the identifiers against a plurality of other identifiers in the network, and (4) using the results to identify, access, authorize access, or manage the number of copies of data items within the network.

...

Each asserted claim recites using content-based values as a name or identifier for a data item: in the '310 patent, to control access to data items; in the '280 patent, to retrieve and deliver copies of data items; and in the '662 patent, to mark copies of data items for deletion.

J.A. 6572, 6581. Because we must “focus here on whether the *claims* of the asserted patents fall within the excluded category of abstract ideas,” we agree with the district court. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014) (emphasis added). We therefore conclude that the claims are directed to the use of an algorithm-generated content-based identifier to perform the claimed data-management functions, which across the three patents include controlling access to data items (the '310 patent), retrieving and delivering copies of data items (the '280 patent), and marking copies of data items for deletion (the '662 patent).

These functions are mental processes that “can be performed in the human mind” or “using a pencil and paper.” *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371–72 (Fed. Cir. 2011) (cleaned up) (quoting *Parker v. Flook*, 437 U.S. 584, 586 (1978))—a telltale sign of abstraction. Appellees’ “library” example is instructive: “Librarians often locate books based on a ‘call system’ where they assign books unique identifiers based on call numbers, which change dependent on a book’s volume, etc.” *PersonalWeb*, 2020 WL 520618, at \*12. Such content-based identifiers may be used to control access to books (e.g., authorize borrowing depending on book content), retrieve

books (e.g., locate books on shelves based on their content), or purge duplicate books (e.g., discard duplicates identified by their content). The claims do this in a computer environment, but that doesn't transfigure an idea out of the realm of abstraction. See *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348 (Fed. Cir. 2016) (“An abstract idea on ‘an Internet computer network’ . . . is still an abstract idea.”). The claims' focus, therefore, is abstract. And our cases confirm this. As explained below, each component of the claims' three-step progression reflects a concept we have already described as abstract.

First is the use of a content-based identifier. We said that was abstract in *Erie*. There, we addressed claims to “search [a] database using an index,” in which “every record in the database is associated with one or more descriptive terms” organized using “category tags” for “grouping of similar terms” and “domain tags” for “grouping of similar categories.” *Erie*, 850 F.3d at 1326. We noted the same pen-and-paper analogue: “a hardcopy-based classification system (such as library-indexing system)” in which “classifiers organize and cross-reference information and resources (such as books, magazines, or the like) by certain identifiable tags, e.g., title, author, subject.” *Id.* at 1327. We similarly described content-based identifiers as abstract in *Secured Mail Solutions LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 910–11 (Fed. Cir. 2017) (abstract idea of using a “unique identifier . . . to communicate information about the mail object, i.e., the sender, recipient, and contents of the mail object”), and *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1313 (Fed. Cir. 2016) (abstract idea of “receiving e-mail (and other data file) identifiers, characterizing e-mail based on the identifiers, and communicating the characterization”). The claims' use of content-based identifiers, therefore, is abstract.

Generating such identifiers via a known algorithm is no less abstract. “[W]e have treated analyzing information

by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (collecting cases)). For instance, the identifiers claimed in *Symantec* were created “using a mathematical algorithm.” 838 F.3d at 1313. And in *RecogniCorp, LLC v. Nintendo Co.*, we explained that “[a] process that started with data, added an algorithm, and ended with a new form of data was directed to an abstract idea.” 855 F.3d 1322, 1327 (Fed. Cir. 2017). That, too, holds true here.

Second is the step of comparing the content-based identifier against other values. That is also abstract. For example, the *Symantec* claims required “determining . . . whether each received content identifier matches a characteristic of other identifiers.” 838 F.3d at 1313. There, as here, this is the “abstract idea of 1) collecting data[] [and] 2) recognizing certain data within the collected data set.” *Id.* at 1314–15 (quoting *Content Extraction*, 776 F.3d at 1347). That’s a mental process.

Third is the data-management function, which varies across the three patents. Each such function is abstract. Controlling access to data items (the ’310 patent) is abstract, as “[c]ontrolling access to resources is exactly the sort of process that ‘can be performed in the human mind, or by a human using a pen and paper,’ which we have repeatedly found unpatentable.” *Ericsson Inc. v. TCL Commc’n Tech. Holdings Ltd.*, 955 F.3d 1317, 1327 (Fed. Cir. 2020) (quoting *CyberSource*, 654 F.3d at 1372); *id.* (noting that “[t]he idea . . . is pervasive in human activity,” for example, “in libraries (loaning materials only to card-holding members)”). So is retrieving data items (the ’280 patent). *E.g.*, *Erie*, 850 F.3d at 1327 (“abstract idea of creating an index and using that index to search for and retrieve data” (internal quotation marks omitted)); *Content Extraction*, 776 F.3d at 1347 (“abstract idea of . . . collecting data”). So too is marking data for deletion (the ’662

patent), which is just another way to “classify[] data.” *Erie*, 850 F.3d at 1327; e.g., *Symantec*, 838 F.3d at 1314 (“[I]t was [a] long-prevalent practice for people . . . to look at an envelope and discard certain letters . . . based on characteristics of the mail.”). These are all mental processes and are all abstract.

True, the step-one inquiry “looks to the claim[s] ‘character as a whole’ rather than evaluating each claim limitation in a vacuum.” *Ericsson*, 955 F.3d at 1326 (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016)). But these claims “are clearly focused on the combination of those abstract-idea processes.” *Elec. Power*, 830 F.3d at 1354. Stringing together the claimed steps by “[a]dding one abstract idea . . . to another,” *RecogniCorp*, 855 F.3d at 1327, amounts merely to the abstract idea of using a content-based identifier to perform an abstract data-management function—whether controlling access to data, retrieving data, or marking data for deletion. See, e.g., *Secured Mail*, 873 F.3d at 911 (“[E]ach step of the process uses an identifier . . . to communicate information about a mail object.”).

Some of our cases are particularly analogous and instructive. One of the *Symantec* claims included three steps like the claims here (and in the same order): (1) “creating file content IDs using a mathematical algorithm,” (2) “determining . . . whether each received content identifier matches a characteristic of other identifiers,” and (3) “outputting . . . an indication of the characteristic of the data file based on said step of determining.” 838 F.3d at 1313. Likewise, one of the *Erie* claims required (1) “identifying a first XML tag that is associated with the first term,” followed by (2) “determining whether a first metafile corresponds to the first XML tag,” followed by (3) several data-management functions, including “combining the first set of XML tags into a key” used to “locate records” and “deliver[] the records.” 850 F.3d at 1327. There’s no relevant difference in the claims here. The claims as a whole, then,

are directed to a medley of mental processes that, taken together, amount only to a multistep mental process.

PersonalWeb asserts that the claims are not abstract because they offer a solution “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.” Appellant’s Br. 24 (quoting *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014)). Not so. Both the solution (names based on content) and the problems (access to, retrieval of, and redundancy control of information) have long predated computers. PersonalWeb contends that the claims are not abstract because they claim “a new way of locating and distributing data in a computer network” that promises efficiency benefits, Appellant’s Br. 24, but “[t]he fact that an identifier can be used to make a process more efficient . . . does not necessarily render an abstract idea less abstract,” *Secured Mail*, 873 F.3d at 910. Here, the asserted efficiency improvements are not different in kind from those that would accrue in the library analogue—for example, using content-based identifiers to purge duplicate books.

Ultimately, “the focus of the claims is not on . . . an improvement in computers as tools, but on certain independently abstract ideas that use computers as tools.” *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017). In other words, the claims focus on “mere automation of manual processes using generic computers.” *Id.* That fails step one.

## II

Onward to step two. Here we undertake “a search for an inventive concept—i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.” *Alice*, 573 U.S. at 217–18 (cleaned up). According to PersonalWeb, the claims contain an inventive concept because they “recite an application that

makes inventive use of cryptographic hashes—a use that was neither conventional nor routine prior to the patents.” Appellant’s Br. 12; *see also id.* at 38–39 (describing “using content-dependent cryptographic hashes in place of conventional names”). But that’s not something “more,” let alone anything “significantly more,” than the abstract idea itself. *Alice*, 573 U.S. at 218.

Indeed, the purported improvements that PersonalWeb sets forth just restate the abstract ideas discussed above. *See* Appellant’s Br. 43 (“[T]he claims of the ’310 patent capture the improvement of using the content-based identifier to ‘enforce[] use of valid licenses . . . by refusing to provide access to a file without authorization.’” (third alteration in original) (quoting ’310 patent col. 31 ll. 9–12)); *id.* (“The claims of the ’280 patent capture the improvements of ‘provid[ing] transparent access to any data item by reference only to its identity’ and ‘verify[ing] that data retrieved from another location is the desired or requested data, using only the data identifier.’” (alterations in original) (quoting ’280 patent col. 4 ll. 10–45)); *id.* (“The claims of the ’662 patent capture the improvements of ‘stor[ing] at most one copy of the data item’ and ‘maintain[ing] a desired level of redundancy of data items.’” (alterations in original) (quoting ’662 patent col. 4 ll. 4–21)). That is all abstract. And even accepting PersonalWeb’s view that these particular uses are not well-known, routine, or conventional, “[a] claim for a *new* abstract idea is still an abstract idea.” *SAP*, 898 F.3d at 1163 (quoting *Synopsys*, 839 F.3d at 1151).

So, “[w]hat else is there in the claims before us?” *Mayo*, 566 U.S. at 78. As to the subject-matter question, not much. The district court had it right: there is “nothing ‘inventive’ about any claim details, individually or in combination, that are not themselves abstract ideas.” *PersonalWeb*, 2020 WL 520618, at \*13. The district court was also right that “[u]sing a generic hash function, a server system, or a computer does not render these claims non-abstract.” *Id.* “[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.” *Intell. Ventures I LLC v. Cap. One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015); *e.g.*, *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (“[R]elying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.”). PersonalWeb’s claims merely “automate or otherwise make more efficient traditional . . . methods.” *OIP*, 788 F.3d at 1363. “[T]heir innovation is an innovation in ineligible subject matter.” *SAP*, 898 F.3d at 1163. That fails step two.

Last, PersonalWeb argues also that “fact questions created by the specification’s disclosure” made judgment on the pleadings “improper.” Appellant’s Br. 51 (quoting *Berkheimer*, 881 F.3d at 1370). While we agree that “the most relevant and dispositive evidence before the district court was the set of patents themselves,” Appellant’s Br. 50, we disagree that this could have precluded judgment on the pleadings here. “What is needed is an inventive concept in the non-abstract application realm.” *SAP*, 898 F.3d at 1168. None of PersonalWeb’s “improvements in the specification” fit that bill. Appellant’s Br. 51. Instead, they “lie[] entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm.” *SAP*, 898 F.3d at 1163. Judgment on the pleadings, therefore, was appropriate.

#### CONCLUSION

We have considered PersonalWeb’s remaining arguments and find them unpersuasive. The claims are ineligible for patenting. We therefore affirm the judgment of invalidity.

**AFFIRMED**