

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CORELOGIC, INC.,
Petitioner,

v.

BOUNDARY SOLUTIONS, INC.,
Patent Owner.

Case IPR2015-00222
Patent 8,065,352 B2

Before LYNNE E. PETTIGREW, PETER P. CHEN, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

PETTIGREW, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, CoreLogic, Inc. (“CoreLogic”) challenges the patentability of claims 1–23 of U.S. Patent No. 8,065,352 B2 (Ex. 1001, “the ’352 patent”), owned by Boundary Solutions, Inc. (“BSI”). We have jurisdiction under 35 U.S.C.

§ 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, CoreLogic has shown by a preponderance of the evidence that claims 1–23 of the ’352 patent are unpatentable.

A. Procedural History

CoreLogic filed a Petition for *inter partes* review of claims 1–23 of the ’352 patent. Paper 2 (“Pet.”). BSI filed a Corrected Preliminary Response. Paper 6 (“Prelim. Resp.”). On May 21, 2015, we instituted an *inter partes* review of claims 1–23 of the ’352 patent on asserted grounds of unpatentability. Paper 7 (“Dec.”).

After institution, BSI filed a Patent Owner Response, Paper 23 (“PO Resp.”), and CoreLogic filed a Reply to the Patent Owner Response, Paper 35 (“Reply”). CoreLogic filed a Motion to Exclude Evidence, Paper 37 (“Mot. Excl.”), BSI filed an Opposition to the Motion to Exclude, Paper 41, and CoreLogic filed a Reply in support of its Motion to Exclude, Paper 42.

An oral hearing was held on February 11, 2016.¹ A transcript of the hearing has been entered into the record. Paper 47 (“Tr.”).

B. Related Matters

The parties state that BSI has asserted the ’352 patent against CoreLogic in *Boundary Solutions, Inc. v. CoreLogic, Inc.*, No. 3:14-cv-00761 (N.D. Cal.) (filed Feb. 19, 2014). Pet. 59; Paper 4 (Patent Owner’s Mandatory Notices). BSI also has asserted related U.S. Patent No.

¹ A consolidated oral hearing was held for this proceeding and Cases IPR2015-00219, IPR2015-00226, and IPR2015-00228. See Paper 40.

7,499,946 (“the ’946 patent”) and U.S. Patent No. 7,092,957 (“the ’957 patent”) in that proceeding. Pet. 59; Paper 4. The ’946 patent and the ’957 patent are the subject of *inter partes* reviews in Cases IPR2015-00226 and IPR2015-00228, respectively, based on petitions filed by CoreLogic.

CoreLogic filed two additional petitions for *inter partes* review of the ’352 patent. In Case IPR2015-00219, claims 12–15 and 17–21 of the ’352 patent are the subject of an *inter partes* review based on an asserted anticipation ground. *CoreLogic, Inc. v. Boundary Solutions, Inc.*, Case IPR2015-00219 (PTAB May 21, 2015) (Paper 6). In Case IPR2015-00225, we did not institute an *inter partes* review because the information presented in the petition did not establish a reasonable likelihood CoreLogic would prevail. *CoreLogic, Inc. v. Boundary Solutions, Inc.*, Case IPR2015-00225 (PTAB May 21, 2015) (Paper 7).

CoreLogic also has filed petitions for covered business method patent review of the ’957 patent, ’946 patent, and ’352 patent, which are pending in Cases CBM2015-00016, CBM2015-00017, and CBM2015-00018, respectively.

C. The ’352 Patent

The ’352 patent relates generally to Geographic Information Systems (“GIS”) and, in particular, to a National Online Parcel-Level Map Data Portal (“NPDP”) that provides online delivery of parcel-level map data. Ex. 1001, Abstract, 1:22–37. The ’352 patent describes the NPDP as an electronic repository for parcel-level maps and linked attribute data acquired from public and private entities. *Id.* at 2:41–53. Databases from different jurisdictions are assembled and stored in a standard format, with each jurisdictional database placed in an individual directory. *Id.* at 4:8–10, 7:22–

30. Information is normalized to a single universal spatial protocol. *Id.* at 3:16–19, 7:33–54. Parcel-level information includes parcel boundaries and geocodes, which are linked using a parcel identifier to a non-graphic database containing property tax records. *Id.* at 1:60–64, 4:10–17, 8:14–25.

The '352 patent describes retrieving a parcel-level map based on the address of a parcel requested by an end user. *Id.* at 1:65–2:1, 4:52–56. A jurisdictional lookup table is searched to identify, for example, the jurisdiction in which the requested parcel is located. *Id.* at 8:26–30. The non-graphic database for that jurisdiction is searched for a record matching the address, and the parcel identifier for that record is used to access a graphic database containing the selected parcel. *Id.* at 3:56–63. The selected parcel and surrounding parcels may be displayed, with the selected parcel shown as a highlighted polygon. *Id.* at 4:61–63. The parcel's linked data (e.g., tax record) also may be displayed. *Id.* at 4:63–64.

D. Illustrative Claims

Claims 1, 9, and 12 of the '352 patent are independent. Claims 2–8 depend from claim 1, claims 10 and 11 depend from claim 9, and claims 13–23 depend from claim 12. Claims 1, 9, and 12 are illustrative of the claimed subject matter:

1. A method for retrieving and displaying geographic parcel boundary polygon maps comprising:

- receiving, by a server, a request for a parcel boundary polygon map for a selected parcel;

- searching, by the server, using a jurisdictional identifier, a multi-jurisdictional digital parcel map database for the selected parcel boundary polygon and the boundary polygons of adjacent and surrounding parcels, the database having information about individual land parcels normalized to a common spatial data protocol, including polygon data used to describe the boundaries

of a plurality of properties, wherein the multi-jurisdictional digital parcel map database includes a plurality of records arranged in separate service area directories corresponding to multi-jurisdictional service areas within two or more states;

transmitting the parcel boundary polygon map data for the selected parcel along with the adjacent and surrounding parcels to a client computer for display, wherein the transmitted parcel boundary polygon map includes the selected parcel polygon along with adjacent and surrounding parcel boundary polygons around the selected parcel.

9. A method for retrieving and displaying geographic parcel boundary polygon[] maps comprising:

receiving, by a server, a request for a parcel boundary polygon map for a selected parcel;

retrieving, by the server, a jurisdictional identifier associated with the selected parcel from an index of a multi-jurisdictional digital parcel map database[;]

searching, by the server using the jurisdictional identifier, a portion of the multi-jurisdictional database in which the selected parcel boundary polygon and the parcel boundary polygons [o]f adjacent and surrounding parcels are located, the database containing information about individual land parcels normalized to a common spatial data protocol, including polygon data used to describe the boundaries of a plurality of properties; and,

transmitting the parcel boundary polygon map data for the selected parcel along with the adjacent and surrounding parcels for display, wherein the parcel boundary polygon map includes the selected parcel polygon along with adjacent and surrounding parcel boundary polygons around the selected parcel, with the selected parcel highlighted.

12. A method for retrieving and displaying geographic parcel boundary polygon maps comprising:

receiving, by a server, a request for a parcel boundary polygon map for a selected parcel;

searching, by the server, using a jurisdictional identifier a multi-jurisdictional digital parcel map database for the selected parcel boundary polygon and the parcel boundary polygons of adjacent and surrounding parcels, the database having information about individual land parcels normalized to a common spatial data protocol, including polygon data used to describe the boundaries of a plurality of properties; and,

transmitting the parcel boundary polygon map data for the selected parcel along with the adjacent and surrounding parcels for display, wherein the parcel boundary polygon map includes the selected parcel polygon along with adjacent and surrounding parcel boundary polygons around the selected parcel.

Ex. 1001, 15:66–16:21, 16:51–17:5, 17:13–30.

E. Asserted Grounds of Unpatentability

We instituted an *inter partes* review of claims 1–23 of the ’352 patent on the following grounds of unpatentability:

References	Basis	Challenged Claims
Harder ² and Du ³	35 U.S.C. § 103(a)	9, 10, and 12–22
Harder, Du, and MacDonald ⁴	35 U.S.C. § 103(a)	1–8, 11, and 23
Harder and Longley ⁵	35 U.S.C. § 103(a)	1–23

² Christian Harder, SERVING MAPS ON THE INTERNET (1998) (Ex. 1003, “Harder”).

³ U.S. Patent No. 6,732,120 B1, issued May 4, 2004 (Ex. 1018, “Du”).

⁴ Andrew MacDonald, BUILDING A GEODATABASE (1999) (Ex. 1020, “MacDonald”).

⁵ Paul A. Longley et al., GEOGRAPHIC INFORMATION SYSTEMS AND SCIENCE (2001) (Ex. 1015, “Longley”).

II. DISCUSSION

A. Claim Construction

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015), *cert. granted sub nom. Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016). Consistent with the broadest reasonable construction, claim terms generally are given their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

In accordance with these principles, we construe certain claim terms to the extent set forth below. No other claim terms require express construction.

1. “multi-jurisdictional database”

Each independent claim recites a “multi-jurisdictional digital parcel map database,” and some claims refer back to the term using the shorthand “multi-jurisdictional database.” *E.g.*, Ex. 1001, 16:56–57, 16:59 (claim 9). In our Institution Decision, we adopted CoreLogic’s proposed construction of “multi-jurisdictional database” as “a collection of data relating to two or more jurisdictions.” Dec. 6–7; *see* Pet. 9. As we noted there, the ’352 patent does not provide a definition of the term “multi-jurisdictional

database.” Dec. at 6–7. Indeed, the term appears only in the claims. *Id.* at 7. Based on the record at that time, we agreed with CoreLogic’s proposed construction, which CoreLogic argued was based on a plain and ordinary meaning of “database” and was consistent with the written description of the ’352 patent. Pet. 9.

BSI submits in its Patent Owner Response that “multi-jurisdictional parcel boundary map database” means “a database including multiple jurisdictional databases, wherein a jurisdictional database is a collection of data representing the boundaries of parcels from a jurisdiction.” PO Resp. 9. In support of its proposed construction, BSI expands on the argument made in its Preliminary Response that a “multi-jurisdictional database” must have been formed from multiple jurisdictional databases supplied by sponsoring organizations. PO Resp. 9–16; *see* Prelim. Resp. 11. For example, BSI contends that “[t]he central problem addressed by the patent is the assembly and use of a map database compiled from the digital maps being prepared by local governments.” PO Resp. 9; *see also id.* at 11 (“The patent describes the digital parcel map databases acquired from multiple local government sources as the ‘center’ of the NPDP design.”). BSI also cites applicant remarks from the prosecution history of the related ’957 patent. *Id.* at 13–15.

We remain unpersuaded by BSI’s arguments. As we explained in the Institution Decision, although the ’352 patent describes assembling a national parcel-level map database from data provided by various sponsoring agencies, the claims themselves do not require assembling the multi-jurisdictional database using any specific method or obtaining the information in the database from any particular sources. Dec. 7 (citing

Ex. 1001, 1:41–48, 4:8–11). Moreover, BSI’s reliance on the prosecution history of the ’957 patent does not support its position, as the claims at issue there did not recite a “multi-jurisdictional database.” See Ex. 2006, 132–37, 141, 193–200).

For these reasons, we maintain our construction of “multi-jurisdictional database” as “a collection of data relating to two or more jurisdictions.”

2. “*jurisdictional identifier*”

This claim term appears in all the independent claims of the ’352 patent. In the Institution Decision, we construed “jurisdictional identifier” to mean “a number or other name, code, or description that identifies a jurisdiction.” Dec. 6. In doing so, we rejected BSI’s contention in its Preliminary Response that the claim term means “a code for identifying a jurisdictional database.” *Id.* (citing Prelim. Resp. 11–12, 23). We based our construction on the only appearance of “jurisdictional identifier” in the written description of the ’352 patent, which states:

FIG. 3 illustrates a USA County Boundary Map (USACM). This is a public domain boundary file of each and every of the 3140 counties within the United States. Each of these polygons is geocoded with its county name and FIPS number, a numerical *jurisdictional identifier*, as illustrated in the figure.

Ex. 1001, 8:48–53 (emphasis added).⁶

BSI does not challenge our construction of “jurisdictional identifier” in its Patent Owner Response, see PO Resp. 8, nor does CoreLogic challenge

⁶ According to the ’352 patent, the Federal Information Processing Standards (“FIPS”) number “is used nationally to numerically identify specific county jurisdictions.” Ex. 1001, 7:27–30.

the construction in its Reply, *see* Reply 6–10. For this Final Written Decision, after considering the complete record, we maintain our construction of “jurisdictional identifier” as “a number or other name, code, or description that identifies a jurisdiction.”

3. *“the database having/containing information about individual land parcels normalized to a common spatial data protocol”*

Each of the independent claims requires a multi-jurisdictional database having or containing “information about individual land parcels normalized to a common spatial data protocol.” BSI contends this limitation should be construed to mean “the individual land parcels polygon data has been received from a jurisdiction and modified, transformed, amended or converted by a set of one or more processes applied to data and updates from . . . each of the individual jurisdictional databases making up the multi-jurisdictional database.” PO Resp. 16–17. BSI further argues that the specification of the ’352 patent “does not permit an interpretation which suggests that normalization can occur even before the data is compiled into the jurisdictional databases.” *Id.* at 19. CoreLogic urges us to reject BSI’s proposed construction because it is “unwieldy and unreasonable [and] adds unclaimed and unsupported features to the claims.” Reply 4.

We agree with CoreLogic. First, BSI’s proposed construction requires that parcel information has been received “from a jurisdiction.” As explained above, however, the claims do not require the data in the multi-jurisdictional database to be obtained from any particular sources. *See supra* Section II.A.1. Second, BSI’s proposed construction assumes that the multi-jurisdictional database is composed of individual jurisdictional databases. We also rejected that proposition in our construction of “multi-jurisdictional

database.” *See id.* In addition, BSI’s suggestion that normalization cannot occur before the data is compiled into jurisdictional databases is inconsistent with the claim language because the claims do not recite when or where the data is normalized. *See* Reply 5–6. Indeed, the challenged claims are method claims that do not recite a “normalizing” step, but instead require searching a database having information that already has been normalized.

Thus, we do not adopt BSI’s proffered construction of a database having or containing “information about individual land parcels normalized to a common spatial data protocol” because it is premised on an incorrect construction of “multi-jurisdictional database” and reads additional limitations into the claim language. CoreLogic does not propose a construction of its own, and we determine that no express construction is necessary beyond our explanation here of what the claim language does not require.

4. *“separate service area directories corresponding to multi-jurisdictional service areas”*

In independent claim 1 and dependent claims 11 and 23, the multi-jurisdictional digital parcel map database includes a plurality of records or files arranged in “separate service area directories corresponding to multi-jurisdictional service areas” within two or more states. CoreLogic argues we should construe the quoted claim language, which appears only in the claims and not in the written description, as “subsets of a database for service areas (e.g., jurisdictions),” where database is given its plain and ordinary meaning as a “collection of data.” Pet. 8. BSI proposes a different construction—“multiple directories each containing records/files covering a jurisdiction’s geographic extent, the jurisdictions being within two or more states and

included in the multi-jurisdictional digital parcel map database.” PO Resp. 22.

We agree with CoreLogic that BSI’s construction includes limitations that are already in the language of the claims (i.e., “within two or more states” and “multi-jurisdictional digital parcel map database”), so they should not be incorporated into the meaning of the term “separate service area directories corresponding to multi-jurisdictional service areas.” See Reply 7. Nevertheless, we also agree with BSI that CoreLogic’s proposed construction is unreasonably broad, as it equates directories with subsets of a database. See PO Resp. 23. In support of its proffered construction, CoreLogic argues that the ’352 patent “describes ‘directories’ as files, folders, or other subsets or parts of its NPDP database.” Pet. 8 (citing Ex. 1001, 7:24–8:25, 8:30–33, 9:26–28, 9:57–59, 10:16–26, 12:15–19, 12:24–35). Although the ’352 patent refers to files that make up a database, CoreLogic has not pointed to any description indicating that directories are simply files or subsets of a database. Rather, the ’352 patent uses the term “directory” in a manner consistent with its ordinary meaning in the computer context, e.g., a catalog or way of organizing and grouping files and other directories, sometimes referred to as a folder.⁷

The remaining aspects of the parties’ proposed constructions generally coincide. For the foregoing reasons, we construe “separate service area directories corresponding to multi-jurisdictional service areas” as

⁷ See MICROSOFT COMPUTER DICTIONARY 162 (5th ed. 2002) (defining “directory” in part as: “A catalog for filenames and other directories stored on a disk. A directory is a way of organizing and grouping the files so that the user is not overwhelmed by a long list of them. . . . In [certain] operating systems, directories are called ‘folders.’”) (Ex. 3001).

“directories for service areas (e.g., jurisdictions),” where directory has its plain and ordinary meaning, e.g., a catalog or way of organizing and grouping files and other directories.

B. Principles of Law

To prevail in challenging BSI’s claims, CoreLogic must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The level of ordinary skill in the art is reflected by the prior art of record. See *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

C. Level of Ordinary Skill in the Art

CoreLogic proposes that a person having ordinary skill in the art at the time of the invention of the ’352 patent would have had “at least a bachelor’s degree in geographic information science, survey engineering, geomatics, or similar education, and two years of experience in a relevant field (e.g., land or geographic information science), or six years of experience in the relevant field.” Ex. 1006 ¶ 12 (Declaration of Dr. Michael

F. Goodchild). BSI has proposed that one of ordinary skill in the art would have possessed “a Bachelor’s degree or higher in[] GIS engineering with at least 5 years of academic or industry experience in GIS database design.”

Ex. 2006 ¶ 13 (Declaration of Mr. William Huxhold).

We determine that an express definition of the level of ordinary skill is not required. The level of ordinary skill in the art can be reflected in the cited prior art references. *See Okajima*, 261 F.3d at 1355 (“[T]he absence of specific findings on the level of skill in the art does not give rise to reversible error where the prior art itself reflects an appropriate level and a need for testimony is not shown.” (internal quotations omitted)); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In this case, we find the level of ordinary skill in the art to be reflected in the cited references.

D. Asserted Obviousness over Harder and Du

CoreLogic contends claims 9, 10, and 12–22 are unpatentable under 35 U.S.C. § 103(a) over the combination of Harder and Du. Pet. 13–30; Reply 8–15. Relying on the testimony of Dr. Goodchild, CoreLogic explains how the references allegedly teach or suggest the claim limitations and provides a rationale for combining the references. Pet. 13–30 (citing Ex. 1006). BSI contests CoreLogic’s arguments. PO Resp. 32–40. Having considered the parties’ contentions and supporting evidence, we determine that CoreLogic has demonstrated by a preponderance of the evidence that claims 9, 10, and 12–22 are unpatentable over Harder and Du.

1. Overview of Harder

Harder is a book titled “Serving Maps on the Internet,” published by the Environmental Systems Research Institute (“ESRI”). Harder “presents case studies of a dozen different private and public organizations that are

delivering geographic information” online. Ex. 1003, vii.⁸ According to Harder, “[t]he convergence of geographic information systems (GIS) and the World Wide Web has changed mapmaking forever.” *Id.* at 1.

Harder generally describes web-based GIS systems implemented using a client/server architecture, with parcel information stored in a relational database on a server. *Id.* at 12–14. Harder also describes specific applications of web-based GIS, including an application developed for Cabarrus County, North Carolina, to provide the public with access to the county’s parcel and tax data. *Id.* at 19–24. A user of the application can query the system for a parcel map by entering an address or parcel ID number of a desired parcel. *Id.* at 21. Once a unique parcel has been selected, map data of the immediate area is retrieved and transmitted to a client computer for display, with the selected parcel highlighted. *Id.* at 21–22. A parcel information table containing information about the selected parcel, including parcel owner, tax value, and property value data, can be displayed with the parcel map. *Id.* at 22. The system keeps data current by receiving updated parcel information and tax records, joining the tax records table to the parcel information, converting data into shapefiles, and indexing key fields to speed up user-defined searches. *Id.* at 24. Harder also describes another application in which “the user selects the data and controls the geographic area to be displayed (from statewide down to the town level).” *Id.* at 7.

⁸ Citations herein are to page numbers in the original underlying references, rather than to the exhibit page numbers affixed by CoreLogic.

2. Overview of *Du*

Du is a U.S. patent titled “System and Method for Processing and Display of Geographical Data.” Ex. 1018. *Du* describes a system in which geographic information is stored in a hierarchical data structure that includes map data for national, regional, local, and parcel levels. *Id.* at 6:40–55, Fig. 3. *Du* describes partitioning each map into cells using, for example, jurisdiction boundaries, township boundaries, or legal land descriptions. *Id.* at 2:12–23. Each cell is assigned a unique identifier, such as a number. *Id.* at 2:24–26. *Du* also describes grouping spatial objects by the cells in which they are located, and storing the grouped objects as a long binary field in a column of a table in a relational database along with a column containing the unique cell identifiers. *Id.* at 2:47–54, 7:20–37, 8:28–9:56. The column of unique cell identifiers serves as a spatial index. *Id.* at 2:25–26, 9:16–56. In one example, a user may request map data for lot boundaries within a block, which may correspond to one or more land parcels. *Id.* at 9:5–6. In response to the request, the system finds the unique cell identifiers associated with the block, and retrieves each cell record to obtain the spatial objects within the cells. *Id.* at 9:16–21.

3. Claim 9

CoreLogic contends that Harder teaches most of the limitations of independent claim 9. Pet. 14–20. First, CoreLogic argues that Harder teaches a method for retrieving and displaying geographic boundary polygon maps, *id.* at 14 (citing Ex. 1003, 3, 12–17, 19–25), and a server receiving a request for a parcel boundary polygon map for a selected parcel, *id.* (citing Ex. 1003, 7, 8, 13, 19–25). CoreLogic also argues that Harder teaches the last limitation of claim 9—transmitting the parcel boundary polygon map for

the selected parcel and adjacent and surrounding parcels for display, with the selected parcel highlighted. *Id.* at 19–20 (citing Ex. 1003, 21–25, 105–11). BSI does not dispute that Harder teaches these limitations, and we find the evidence supports CoreLogic’s contentions.

Claim 9 also recites limitations involving a “multi-jurisdictional digital parcel map database,” which CoreLogic contends is taught by a combination of Harder and Du. *Id.* at 14–17. Harder discloses searching, by a server, a digital parcel map database for a selected parcel and adjacent and surrounding parcels. Ex. 1003, 7, 8, 13, 19–25. Although Harder discloses an example of a parcel database that contains data for one county, elsewhere Harder suggests it was well known in GIS systems to retrieve and display information spanning multiple jurisdictions. *Id.* at 19–25 (Cabarrus County example); *id.* at 7 (map displaying multiple jurisdictions); see Ex. 1006 ¶ 48. Moreover, CoreLogic relies on Du’s description of a GIS system that includes a database with map data for national, regional, local, and parcel levels. Pet. 16; Ex. 1018, 6:40–55, Fig. 3.

Claim 9 further requires the database to “contain[] information about individual land parcels normalized to a common spatial protocol, including polygon data used to describe the boundaries of a plurality of properties.” CoreLogic asserts that Harder teaches this limitation because it describes examples of datasets stored in a database “in the industry-standard shapefile (.shp) format” and discloses, with respect to the Cabarrus County example, “convert[ing] the data into shapefiles.” Pet. 19 (citing Ex. 1003, 24, 106). Further, CoreLogic submits that the Cabarrus County example in Harder uses ESRI ArcView technologies to convert parcel data into shapefiles,

similar to the ESRI shapefiles used in the '352 patent as an example of normalized data. Reply 10 (citing Ex. 1003, 24, 25; Ex. 1001, 7:33–64).

The first of two steps in claim 9 involving the multi-jurisdictional database is “retrieving, by the server, a jurisdictional identifier associated with the selected parcel from an index of a multi-jurisdictional digital parcel map database.” Regarding this limitation, CoreLogic first asserts that Harder discloses indexing key fields of GIS data “to speed up user-defined searches.” Pet. 15 (quoting Ex. 1003, 24). CoreLogic then turns to Du’s system in which a map is partitioned into cells. *Id.* at 16. According to CoreLogic, when the map is divided into cells defined by jurisdiction boundaries, which Du expressly teaches, the unique cell identifier is a “jurisdictional identifier” as required by the claim. *Id.*; *see* Ex. 1018, 2:12–26; Ex. 1006 ¶ 38. Du also describes grouping spatial objects by the cells in which they are located, and storing the grouped objects as a long binary field in a record in a relational database table, along with the unique cell identifier stored in another column, which serves as an index. Ex. 1018, 2:47–54, 7:20–37, 8:28–9:56. CoreLogic, with support from Dr. Goodchild, contends that Du’s column of unique cell identifiers (jurisdictional identifiers) is an index of different cells (jurisdictions) and the spatial data (parcel data) associated with each cell (jurisdiction). Pet. 16 (citing Ex. 1018, 7:20–37, 9:15–57; Ex. 1006 ¶ 38).

Du discloses an example in which a user may request map data for a block, which, according to CoreLogic and Dr. Goodchild, may correspond to a single parcel, such as a requested parcel in Harder. Ex. 1018, 9:5–6; *see* Pet. 16; Ex. 1006 ¶ 38. CoreLogic further explains that based on the requested block (parcel), Du’s system finds one or more unique cell

identifiers (jurisdictional identifiers) associated with the block (parcel), where the unique cell identifiers serve as an index of cells (jurisdictions), and retrieves each cell record to obtain the spatial objects (parcels) within those cells (jurisdictions). Pet. 16 (citing Ex. 1018, 9:16–21; Ex. 1006 ¶¶ 38–39).

Claim 9 further recites “searching, by the server using the jurisdictional identifier, a portion of the multi-jurisdictional database in which the selected parcel boundary polygon and the parcel boundary polygons [o]f adjacent and surrounding parcels are located.” Building on its argument addressing the previous limitation, CoreLogic submits that Du teaches searching, using a unique cell identifier (jurisdictional identifier), a portion of the database in which a selected spatial object (parcel) and surrounding spatial objects (parcels) are located when Du’s system uses the unique cell identifier (jurisdictional identifier) to search a portion of the database to obtain the record for that unique cell identifier, which contains the spatial data (parcels) in the particular cell (jurisdiction), including the selected parcel and adjacent and surrounding parcels. *Id.* at 18; see Ex. 1006 ¶ 41.

Based on the teachings of Harder and Du, CoreLogic submits it would have been obvious to one of ordinary skill in the art to modify Harder’s system to use an index to retrieve a jurisdictional identifier associated with a selected parcel, like that taught in Du, to allow the system to identify data in the database efficiently. Pet. 17. As CoreLogic points out, Harder and Du both relate to GIS systems, Harder discloses indexing key fields of GIS data to speed up user-defined searches, and Du’s configurations seek to improve the speed and effectiveness of such systems. *Id.* (citing Ex. 1003, 24;

Ex. 1018, 1:64–66, 9:28–31). Relying on the testimony of Dr. Goodchild, CoreLogic contends that arranging Harder’s database as a multi-jurisdictional database with subsets of data associated with jurisdictions, and linking those subsets with identifiers that may be searched using an index, similar to that disclosed in Du, “would have been a common sense and predictable modification to the configuration and access functionalities of [Harder’s] database that was within the realm of knowledge of one skilled in the art” and “would have yielded the predictable result of searching and locating data in such systems.” *Id.* (citing *KSR*, 550 U.S. at 401, 417); *see* Ex. 1006 ¶ 40. CoreLogic further contends it would have been obvious to use the jurisdictional identifier retrieved from the index of the combined system of Harder and Du to search the portion of the database in which data for the selected parcel and adjacent and surrounding parcels are located, as this would have been “a predictable and common sense application of the indexing features implemented in the combined system” of Harder and Du. Pet. 19; *see* Ex. 1006 ¶ 42.

BSI presents several arguments as to why the combination of Harder and Du does not render obvious claim 9, or any of claims 10 and 12–22. PO Resp. 32–40. We have considered BSI’s contentions and find them to be unpersuasive.

Among BSI’s arguments is its contention that Harder does not teach a database with data from multiple jurisdictions. *Id.* at 32–33. CoreLogic, however, relies on a combination of Harder and Du for teaching the recited multi-jurisdictional digital parcel map database. Pet. 14–16. Nonobviousness cannot be established by attacking references individually when the asserted ground of unpatentability is based on a combination of

references. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981); *see also In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012) (“[T]he test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.”).

BSI also argues Du does not disclose assembling a multi-jurisdictional parcel map database using parcel information collected and maintained by jurisdictions. PO Resp. 35, 37. As explained in our section on claim construction, however, the claims do not require a multi-jurisdictional database to have been assembled from multiple databases provided by various jurisdictions. *See supra* Section II.A.1. Thus, BSI’s argument is unavailing, and we are persuaded the combination of Harder and Du teaches or suggests searching a multi-jurisdictional parcel map database for a selected parcel and adjacent and surrounding parcels.

Next, BSI contends Harder does not disclose data “normalized to a common spatial data protocol.” PO Resp. 33–35. BSI’s argument, however, depends on its proposed claim construction, which we have rejected. *See supra* Section II.A.3; Reply 9. Moreover, we agree with CoreLogic that BSI’s argument that storing data in shapefile format is not within the meaning of the ’352 patent is inconsistent with the disclosure in the ’352 patent of shapefiles as an example of normalized data. *See* Reply 10 (citing PO Resp. 34; Ex. 1001, 7:33–64). Accordingly, we find that Harder teaches or suggests a database having information that has been normalized to a common spatial data protocol.

BSI also argues that Du does not teach or suggest a jurisdictional identifier. Specifically, BSI contends that Du’s unique cell identifier cannot meet that claim limitation because its significance is to identify a cell, not a

jurisdiction. PO Resp. 35–36. This argument disregards Du’s disclosure that partitioning of a geographic space into cells can be based on jurisdiction boundaries, a disclosure that BSI acknowledges. *See* Ex. 1018, 2:14–24; PO Resp. 35. BSI’s expert, Mr. Huxhold, confirms his understanding that a cell identifier may refer to a jurisdiction such as a state, a municipality, or a country. Ex. 1034, 111:4–14 (deposition testimony of Mr. Huxhold). We find the evidence supports CoreLogic’s assertion that Du’s unique cell identifier teaches a jurisdictional identifier when the map is partitioned into cells based on jurisdictional boundaries. *See* Pet. 22; Reply 11.

Finally, BSI argues there would be no “reasonable likelihood of success”⁹ in combining Harder and Du because Du would not be used to maintain data for jurisdictions with a large number of parcels, and the visibility of parcels would be diminished in a map with so many parcels. PO Resp. 38. We do not find this argument to be persuasive because, as CoreLogic notes, Du discloses that cells can correspond to different types of jurisdictions and that any geographic areas can be searched and displayed. *See* Reply 14 (citing Ex. 1018, Fig. 3, 3:21–32, 4:38–40, 6:31–38, 9:5–6, 9:16–44). BSI also argues that a county identified as a cell in Du would include a huge amount of parcel data, and data for the entire cell would be transmitted to a client computer in the system described in Du, thereby defeating a purpose of Du’s system—the speedy display of maps. PO Resp. 38–39. CoreLogic, however, relies on Du for teaching an index of

⁹ We understand BSI’s use of the phrase “reasonable likelihood of success” to be an argument that there would be no “reasonable expectation of success” in the combination of references, rather than a reference to the reasonable likelihood standard for instituting an *inter partes* review.

jurisdictional identifiers used to search a portion of a multi-jurisdictional database, not the transmission of parcel data, and has shown sufficiently that a person of ordinary skill in the art would have combined Du's teaching of an index with Harder's system for retrieving and transmitting parcel boundary polygon map data. *See* Reply 15. We have reviewed the parties' arguments and evidence on this issue, and we agree with and adopt CoreLogic's reasoning for modifying Harder's single-county example in view of Du to retrieve a jurisdictional identifier from an index and use it to search a portion of a multi-jurisdictional database for a selected parcel.

In sum, we find that the combination of Harder and Du teaches or suggests the limitations of claim 9 and that CoreLogic has provided articulated reasoning supported by rational underpinnings for combining the references in the manner asserted. Therefore, we conclude CoreLogic has shown by a preponderance of the evidence that claim 9 would have been obvious over Harder and Du.

4. Claim 12

Independent claim 12 is similar to claim 9, except that instead of the "retrieving" and "searching" steps discussed above, claim 12 recites "searching, by the server, using a jurisdictional identifier a multi-jurisdictional digital parcel map database for the selected parcel boundary polygon and the parcel boundary polygons of adjacent and surrounding parcels." For this limitation, CoreLogic relies on a combination of teachings from Harder and Du. Pet. 21–22. Harder discloses searching for and retrieving parcel information using, for example, a parcel identifier or street address. *See* Ex. 1003, 21–25. CoreLogic contends it would have been obvious to modify Harder to search a multi-jurisdictional database "using a

jurisdictional identifier” in view of the knowledge of one of ordinary skill in the art and the teachings of Du. Pet. 22–23. In particular, CoreLogic relies on Du’s description of a map that is partitioned into cells. *Id.* at 16, 22. As discussed above in connection with claim 9, Du teaches using a unique cell identifier (i.e., jurisdictional identifier) in searching a relational database table for map data requested for a spatial region that includes spatial objects (e.g., parcel boundaries) within the cell (jurisdiction). Ex. 1018, 2:35–37, 9:5–6, 9:16–21; *see* Pet. 23; Ex. 1006 ¶ 49.

CoreLogic contends it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the example described in Harder in view of Du to include a multi-jurisdictional database and to use a jurisdictional identifier to search the database for a selected parcel and adjacent and surrounding parcel data. Pet. 23; *see* Ex. 1006 ¶¶ 49–50. Specifically, CoreLogic asserts that both Harder and Du disclose providing parcel boundary polygon data for display, including a selected parcel and adjacent and surrounding parcels, and Du’s database configurations, which can be searched using a unique cell identifier (i.e., jurisdictional identifier), seek to improve the speed and effectiveness of such systems. Pet. 23 (citing Ex. 1018, 1:64–66); *see* Ex. 1006 ¶ 50. Thus, according to CoreLogic, a person of ordinary skill in the art would have been motivated to modify Harder in such a way “in order to improve the efficiency of locating the data in the database for subsequent display in a timely fashion.” Pet. 23; *see* Ex. 1006 ¶ 50. Furthermore, CoreLogic argues that such a modification “would have been a predictable and common sense application of database access operations, which would have yielded the predictable result of

providing parcel data for display in an efficient and timely manner.” Pet. 23 (citing *KSR*, 550 U.S. at 401, 417); *see* Ex. 1006 ¶ 50.

BSI presents no arguments regarding claim 12 beyond those already addressed with respect to claim 9. For the reasons discussed above, we are not persuaded by BSI’s contentions regarding the combination of Harder and Du. We agree with and adopt CoreLogic’s reasoning for why the limitations of claim 12 are taught or suggested by Harder and Du and find CoreLogic has provided articulated reasoning supported by rational underpinnings for combining the references in the manner asserted. Therefore, we conclude CoreLogic has shown by a preponderance of the evidence that claim 12 would have been obvious over Harder and Du.

5. Dependent Claims

Claim 10 depends from independent claim 9 and further recites that “the index comprises a look-up table associated with the multi-jurisdictional parcel map database.” CoreLogic argues that arranging an index as a look-up table would have been obvious at the time of the invention to a person of ordinary skill in the art because it was known that an index could operate as a look-up table, and implementing such an index would have yielded the predictable result of finding locations of data in a database in an efficient and timely manner. Pet. 20–21 (citing Ex. 1006 ¶ 45). BSI asserts that a look-up table is not taught in any prior art reference but provides no specific argument directed to the limitation. *See* PO Resp. 25–26. We agree with and adopt CoreLogic’s reasoning presented in its Petition and the declaration of Dr. Goodchild.

Claims 13–18 depend directly or indirectly from independent claim 12. With respect to these claims, CoreLogic explains how the subject

matter would have been obvious in view of Harder and Du. Pet. 24–27. BSI does not rebut CoreLogic’s arguments and evidence regarding these claims, separate from its arguments for claim 12. Upon reviewing the arguments in the Petition and supporting evidence, we agree with and adopt CoreLogic’s reasoning for why the additional limitations of claims 13–18 are taught or suggested by Harder and why one of ordinary skill in the art would have combined Harder and Du in the manner asserted.

Claim 19 depends from independent claim 12 and further recites that “the server first searches an index of the multi[-]jurisdictional digital parcel map database to identify a portion of the multi[-]jurisdictional database in which the selected parcel boundary polygon and the parcel boundary polygons of adjacent and surrounding parcels are located.” Claim 20 depends from claim 21 and further recites that “searching the index of the multi[-]jurisdictional database includes locating a jurisdictional identifier for the identified portion of the database.” CoreLogic’s analysis for these claims is similar to that presented for independent claim 9, which includes similar limitations. See Pet. 27–29.

First, CoreLogic asserts that Harder discloses an index of key fields of parcel data to speed up searches of land parcels in the database. *Id.* at 27 (citing Ex. 1003, 24). CoreLogic also argues that Du teaches searching an index to locate a jurisdictional identifier (a unique cell identifier in Du) used to identify the portion of the database in which a selected parcel and adjacent parcels are located (the portion of Du’s database containing the cell record that includes the selected parcel and surrounding parcels). *Id.* at 27–29 (citing Ex. 1006 ¶¶ 59–61). CoreLogic further contends it would have been obvious to modify the combined system of Harder and Du, as applied to

claim 12, to search an index first, as recited in claim 20, “because it would improve the speed at which the system could locate the requested information from the database.” *Id.* at 28. Furthermore, CoreLogic contends one skilled in the art at the time of the invention would have known that an index was a common database feature known to speed up access, and using such an index to locate parcels would have yielded the predictable result of locating parcel data in an efficient manner. *Id.* (citing Ex. 1006 ¶¶ 59–60).

Claim 21 also depends from claim 19 and further requires “searching the identified portion for the selected parcel.” For this limitation, CoreLogic relies on the combination of searching for a requested parcel, as taught by Harder, and identifying a portion of the database containing the selected parcel and adjacent and surrounding parcels, as taught by Du. *Id.* at 30.

BSI presents no arguments regarding the combination of Harder and Du as applied to claims 19–21 beyond those already addressed with respect to claim 9. We agree with and adopt CoreLogic’s reasoning for why the limitations of claims 19–21 are taught or suggested by Harder and Du and why one of ordinary skill in the art would have combined the references in the manner asserted.

Claim 22 depends from claim 19 and recites the same “look-up table” limitation as claim 10. We agree with and adopt CoreLogic’s reasoning, which is similar to its reasoning for claim 10. *See id.* at 30; Ex. 1006 ¶ 63.

For the foregoing reasons, we conclude CoreLogic has shown by a preponderance of the evidence that each of claims 10 and 13–22 would have been obvious in view of Harder and Du.

E. Asserted Obviousness over Harder, Du, and MacDonald

CoreLogic contends claims 1–8, 11, and 23 are unpatentable under 35 U.S.C. § 103(a) over the combination of Harder, Du, and MacDonald. Pet. 30–39; Reply 15–17. Relying on the testimony of Dr. Goodchild, CoreLogic explains how the references allegedly teach or suggest the claim limitations and provides a rationale for combining the references. Pet. 30–39 (citing Ex. 1006). BSI contests CoreLogic’s arguments. PO Resp. 40–42. Having considered the parties’ contentions and supporting evidence, we determine CoreLogic has demonstrated by a preponderance of the evidence that claims 1–8, 11, and 23 are unpatentable over Harder, Du, and MacDonald.

1. Overview of MacDonald

MacDonald is a book titled “Building a Geodatabase” and, like Harder, is an ESRI publication. See Ex. 1020. MacDonald describes processes and systems for building a GIS geodatabase. *Id.* at 1. The database can include records for parcel polygon data and attribute data associated with a particular jurisdiction. *Id.* at 14, 17, 27. MacDonald teaches configuring a database with tables or other subsets of data having records relating to geographic-based data (e.g., parcels) and separate tables for attribute data. *Id.* at 51–57, 90. The reference also describes arranging datasets for the geodatabase in file directories associated with the jurisdictions to which the datasets pertain. *Id.* at 16 (“data is accessed through folder connections,” each of which contains folders and data sources); *id.* at 20–21 (exemplary directory of parcel data for Montgomery, Alabama); *id.* at 78, 107 (exemplary directories for Maine (“maine.Landbase”) and Kansas (“D:\working\arckansas\data”)).

2. Claim 1

Independent claim 1 recites limitations similar or identical to those in independent claim 12 and further requires the multi-jurisdictional database to include “a plurality of records arranged in separate service area directories corresponding to multi-jurisdictional service areas within two or more states.” For this limitation, CoreLogic relies on MacDonald’s teaching of arranging datasets in different file directories, or folders, associated with different states, such as Alabama, Kansas, and Maine. Pet. 32–33 (citing Ex. 1020, 14, 16, 21, 78, 107). CoreLogic contends one of ordinary skill would have understood, based on Harder, Du, and MacDonald, that GIS databases at the time of the invention were known to include data associated with parcels that span different jurisdictions, including parcel data for counties of two different states. *Id.* at 33 (citing Ex. 1006 ¶¶ 68–70). CoreLogic further contends it would have been obvious to configure the multi-jurisdictional database of the combined system of Harder and Du to include directories corresponding to jurisdictions that span multiple states, such as the county parcel data described in Harder and MacDonald. *Id.* at 34 (citing Ex. 1006 ¶¶ 68–70).

According to CoreLogic, modifying the combined system of Harder and Du in this way based on MacDonald “would have been an expected modification that was within the realm of knowledge of one skilled in the art at the time of the alleged invention that would have yielded the predictable result of arranging information in [an] organized manner to improve data management, access, and retrieval.” *Id.* (citing *KSR*, 550 U.S. at 417; Ex. 1006 ¶¶ 68–70)). Moreover, CoreLogic submits that one of ordinary skill in the art would have known the configuration of databases in GIS

systems was not limited, and that a database could be created with directories to meet the needs and applications of such systems. *Id.* (citing Ex. 1006 ¶¶ 68–70; Ex. 1020, 51–57, 98). Finally, CoreLogic asserts that one skilled in the art would have been motivated to look to MacDonald to supplement the system of Harder because they both describe features of similar ESRI systems. *Id.* (citing Ex. 1006 ¶¶ 68–70).

BSI, in addition to arguments made with respect to the combination of Harder and Du that we already have addressed, contends that MacDonald does not describe a multi-jurisdictional database arranged in separate service area directories. PO Resp. 40. Directing attention to the state directories in MacDonald cited by CoreLogic, BSI argues they cannot be in the same database because one is on the C drive and the other is on the D drive of a computer. *Id.* at 41. BSI's expert, however, agrees MacDonald teaches that its geodatabases can be configured with directories for different counties and states. *See* Ex. 1034, 120:8–122:14; *see also* Reply 16–17 (discussing Mr. Huxhold's testimony). In any event, CoreLogic's position is not that MacDonald discloses a multi-jurisdictional database, but that it would have been obvious to configure the multi-jurisdictional database of the combined Harder and Du system with directories corresponding to different jurisdictions that span multiple states in view of MacDonald's teaching of datasets arranged in different file directories associated with different states. *See* Pet. 31–34; Reply 17. We agree with and adopt CoreLogic's reasoning for why one of ordinary skill in the art would have combined the references in the manner asserted.

Having reviewed the parties' arguments and evidence, we find that the combination of Harder, Du, and MacDonald teaches or suggests the

limitations of claim 1 and that CoreLogic has provided articulated reasoning supported by rational underpinnings for combining the references in the manner asserted. Therefore, we conclude CoreLogic has shown by a preponderance of the evidence that claim 1 would have been obvious over Harder, Du, and MacDonald.

3. Claims 2–8, 11, and 23

Claims 2–6 depend directly or indirectly from independent claim 1. Claims 11 and 23 depend from claims 9 and 12, respectively, and both recite the “separate service area directories” limitation, similar to claim 1. With respect to claims 2–6, 11, and 23, CoreLogic explains how the subject matter would have been obvious in view of Harder, Du, and MacDonald. Pet. 35–37, 39. BSI does not rebut CoreLogic’s arguments and evidence regarding these claims, separate from its arguments for claims 1, 9, and 12. Upon reviewing the arguments in the Petition and supporting evidence, we agree with and adopt CoreLogic’s reasoning for why the limitations of claims 2–6, 11, and 23 are taught or suggested by Harder, Du, and MacDonald, and why one of ordinary skill in the art would have combined Harder, Du, and MacDonald in the manner asserted.

Claim 7 depends from claim 1 and further recites that “the server first searches an index of jurisdictional databases to identify the portion of the multi-jurisdictional database in which the selected parcel is located.” Claim 8 depends from claim 7 and further requires searching the identified portion for the selected parcel. CoreLogic cites Harder for these limitations. Pet. 38–39. We are persuaded that in view of Harder’s description of indexing key fields to speed up user-defined searches, a person of ordinary skill in the art would have used an index to identify a portion of the

database, e.g., a separate service area directory, which then could be searched to find the selected parcel. *See* Ex. 1003, 24. BSI's contention that MacDonald does not disclose the index recited in claim 7 is not persuasive because CoreLogic does not rely on MacDonald for teaching that limitation. *See* PO Resp. 42.

For the foregoing reasons, we conclude CoreLogic has shown by a preponderance of the evidence that claims 2–8, 11, and 23 would have been obvious over Harder, Du, and MacDonald.

F. Asserted Obviousness over Harder and Longley

CoreLogic contends that claims 1–23 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Harder and Longley. Pet. 41–58; Reply 17–24. Relying on the testimony of Dr. Goodchild, CoreLogic explains how the references allegedly teach or suggest the claim limitations and provides a rationale for combining the references. Pet. 41–58 (citing Ex. 1006). BSI contests CoreLogic's arguments. PO Resp. 43–52. Having considered the parties' contentions and supporting evidence, we determine that CoreLogic has demonstrated by a preponderance of the evidence that claims 9, 10, and 12–22 are unpatentable over Harder and Longley, but has not done so for claims 1–8, 11, and 23.

1. Overview of Longley

Longley is a book titled "Geographic Information Systems and Science." Ex. 1015. Longley describes features and technologies relating to server-based GIS systems that search and retrieve data from a database of parcel data that may span multiple jurisdictions. *Id.* at 2–5, 10–11, 13–14, 17–18, 28–31, 35–37, 80, 83–86, 164–172, 194–198, 226–44. Among other things, Longley describes various ways of configuring and formatting data

for storage in a database, *id.* at 226–29, linking collections of data based on state FIPS identifiers, *id.* at 229–30, searching and accessing such data by indexing, *id.* at 237–39, and maintaining geographic data in common formats, *id.* at 220–22.

2. Claim 9

Referring back to its explanations regarding Harder in the asserted grounds based on Harder and Du, CoreLogic contends that Harder teaches a method for retrieving and displaying geographic boundary polygon maps, a server receiving a request for a parcel boundary polygon map for a selected parcel, and transmitting the parcel boundary polygon map for the selected parcel and adjacent and surrounding parcels for display, with the selected parcel highlighted, as recited in independent claim 9. Pet. 49, 52. BSI does not dispute that Harder teaches these limitations, and we find the evidence supports CoreLogic’s contentions.

Claim 9 also recites limitations involving a “multi-jurisdictional digital parcel map database,” which CoreLogic contends is taught by a combination of Harder and Longley. *Id.* at 49; *see id.* at 41–44 (analysis of same limitation in claim 1). Harder discloses searching, by a server, a digital parcel map database for a selected parcel and adjacent and surrounding parcels. Ex. 1003, 8, 13, 19–25. Although Harder discloses an example of a parcel database that contains data for one county, elsewhere Harder suggests it was well known in GIS systems to retrieve and display information spanning multiple jurisdictions. *Id.* at 19–25 (Cabarrus County example); *id.* at 7 (map displaying multiple jurisdictions); *see* Ex. 1006 ¶ 87. CoreLogic also relies on Longley’s teaching of a database with tables relating to multiple jurisdictions, such as states and sub-regions of the

United States comprising multiple states. Pet. 42 (citing Ex. 1015, 229–30). We agree with CoreLogic that a person having ordinary skill in the art would have been motivated to modify Harder’s system to arrange parcel information in a multi-jurisdictional database of tables or organized sets of data, similar to that disclosed in Longley, for the reasons set forth in the Petition and Dr. Goodchild’s declaration, e.g., to more easily manage parcel information across multiple jurisdictions and make searching parcel data more efficient. *See id.* at 43; Ex. 1006 ¶ 90.

Claim 9 further requires the database to “contain[] information about individual land parcels normalized to a common spatial protocol, including polygon data used to describe the boundaries of a plurality of properties.” CoreLogic argues that Harder teaches this limitation through its description of datasets stored in shapefile format and converting data into shapefiles. Pet. 19, 52; Ex. 1003, 24–26, 106. For the same reasons explained above with respect to obviousness based on Harder and Du, we are not persuaded by BSI’s arguments regarding this limitation, *see* PO Resp. 43–45, and we find that Harder teaches or suggests a database having information that has been normalized to a common spatial data protocol.

The first of two steps in claim 9 involving the multi-jurisdictional database is “retrieving, by the server, a jurisdictional identifier associated with the selected parcel from an index of a multi-jurisdictional digital parcel map database.” CoreLogic contends this limitation is taught or suggested by a combination of Harder and Longley. Pet. 49–50. First, CoreLogic asserts that Harder discloses indexing key fields in database tables for faster user-defined searches. *Id.* at 49; *see* Ex. 1003, 24. CoreLogic also cites Longley’s descriptions of indexing geographic databases and organizing

geographic information in database tables with jurisdictional identifiers, e.g., state FIPS code identifiers. Pet. 50 (citing Ex. 1015, 228–29, 231, 237–38). CoreLogic argues that, to a person of ordinary skill in the art, the combination of these disclosures would have taught or suggested indexing the multi-jurisdictional database of the combined system of Harder and Longley using jurisdictional identifiers. *Id.* at 50 (citing Ex. 1006 ¶¶ 106–08).

Claim 9 further recites “searching, by the server using the jurisdictional identifier, a portion of the multi-jurisdictional database in which the selected parcel boundary polygon and the parcel boundary polygons [o]f adjacent and surrounding parcels are located.” As CoreLogic points out, both Harder and Longley disclose locating parcel boundary polygon data for a selected parcel and adjacent and surrounding parcels in a database, and providing the data for display. *Id.* at 51; see Ex. 1003, 21, 22, 105–11; Ex. 1015, 2–5, 10–11, 13–14, 17–18, 28–31, 35–37, 80, 83–86, 164–172, 194–198, 226–44. In view of the disclosures in Longley and Harder of using indexes for the purpose of speeding up search processes for retrieving parcel data from databases, CoreLogic submits it would have been obvious to a person skilled in the art to use the jurisdictional identifier (e.g., state FIPS identifier) retrieved from an index to identify a portion of the database (e.g., corresponding to a jurisdiction) in which the selected parcel and adjacent and surrounding parcels are located. Pet. 51; Ex. 1006 ¶¶ 109–11.

BSI presents several arguments as to why the combination of Harder and Longley does not render the claims of the ’352 patent obvious.

PO Resp. 43–52. We have considered these arguments and find them to be unpersuasive as they apply to claim 9.

In addition to arguments we have addressed in our earlier discussion, BSI contends that Longley does not teach the use of a jurisdictional identifier as an index because the FIPS identifier in Longley relied on by CoreLogic is used to join tables. *Id.* at 45–47; *see* Ex. 1015, 229. According to BSI, joining tables creates a larger table, which has the opposite effect of indexing, the purpose of which is to identify and narrow categories of interest. PO Resp. 49. BSI’s argument, however, focuses on this teaching in Longley in isolation. CoreLogic’s obviousness argument cites the FIPS identifier in Longley as an example of a jurisdictional identifier used as a key in database tables. *See* Pet. 50; Reply 21–22. BSI acknowledges this, agreeing that the state FIPS code in Longley is used as a key for finding records. *See* PO Resp. 46–47. CoreLogic then relies on that teaching in combination with Harder’s teaching that indexing key fields can speed up searches and Longley’s disclosure of the benefits of indexing geographic databases. *See* Pet. 50; Reply 21–22; Ex. 1003, 24; Ex. 1015, 237–38. Thus, we are not persuaded by BSI’s contention, and we agree with CoreLogic that the combination of Harder and Longley teaches or suggests retrieving a jurisdictional identifier from an index and using it to search a portion of the database, as recited in claim 9.

BSI also argues that CoreLogic has not shown a motivation to combine Harder and Longley. PO Resp. 49–50. We disagree. With support from Dr. Goodchild, the Petition explains why one of ordinary skill in the art would have combined the references to achieve the invention recited in claim 9. *See* Pet. 50–52 (citing Ex. 1006 ¶¶ 106–11). For instance,

CoreLogic contends that combining Harder and Longley to meet the limitations directed to an index and searching a portion of the multi-jurisdictional database using a jurisdictional identifier “would improve the effectiveness and speed of searching the database and rendering results.”

Id. at 50. The Petition continues:

One skilled in the art would have realized that using an index in the combined system of [Harder] and [Longley] in such a way would have been a predictable and common sense modification to the system, that was within the realm of knowledge of one skilled in the art at the time of the ’352 patent and would have yielded the foreseeable result of searching and locating data in such systems. One skilled in the art would have been motivated to combine the references given that they both disclose features of GIS systems and the known use of indexed for improving data access management.

Id. (internal citations omitted). Furthermore, CoreLogic contends that using the jurisdictional identifier to search for parcel data in a portion of the database “would have been a predictable and common sense application of the indexing features in the combined system of [Harder] and [Longley], which would have yielded the predictable result of providing parcel data for display in an efficient and timely manner.” *Id.* at 51–52.

Finally, as CoreLogic indicates, both Harder and Longley disclose features relating to GIS systems, database configurations, and ESRI systems. Reply 19; *see* Ex. 1003, 21, 24–25; Ex. 1015, 170–72. We note further that Harder was published by ESRI, and Longley expressly acknowledges the contributions of ESRI to the GIS industry. Ex. 1003, ii; Ex. 1015, xv, 12, 362. ESRI’s involvement and influence in both references further supports CoreLogic’s contention that one of ordinary skill in the art would have combined the references.

BSI alleges that CoreLogic's proffered motivation to combine amounts to nothing more than "the two references are both about searching for information." PO Resp. 50. As explained above, CoreLogic has provided substantially more than that. We agree with and adopt CoreLogic's reasoning set forth in the Petition, Reply, and Dr. Goodchild's declaration, and we conclude CoreLogic has provided articulated reasoning with rational underpinning for combining Harder and Longley.

For the foregoing reasons, we conclude CoreLogic has shown by a preponderance of the evidence that claim 9 would have been obvious over Harder and Longley.

3. *Claim 12*

Independent claim 12 is similar to claim 9, except that instead of the "retrieving" and "searching" steps discussed above, claim 12 recites "searching, by the server, using a jurisdictional identifier a multi-jurisdictional digital parcel map database for the selected parcel boundary polygon and the parcel boundary polygons of adjacent and surrounding parcels." CoreLogic relies on a combination of Harder and Longley for teaching or suggesting this limitation. *See* Pet. 53; *id.* at 41–44 (analysis of the same limitation in claim 1). BSI does not present any arguments directed to this claim beyond those addressed with respect to claim 9. Having reviewed the arguments in the Petition and supporting evidence, we agree with and adopt CoreLogic's reasoning for why the limitations of claim 12 are taught or suggested by the combination of Harder and Longley and why one of ordinary skill in the art would have combined Harder and Longley in the manner asserted. Thus, CoreLogic has shown by a

preponderance of the evidence that claim 12 would have been obvious in view of Harder and Longley.

4. *Claim 1*

Independent claim 1 recites limitations similar or identical to those in independent claim 12 and further requires the multi-jurisdictional database to include “a plurality of records arranged in separate service area directories corresponding to multi-jurisdictional service areas within two or more states.” CoreLogic asserts that Longley suggests that “a parcel database can be configured as a multi-jurisdictional database that stores parcel information in tables corresponding to multi-jurisdictional service areas within two or more states.” Pet. 45. CoreLogic further argues that Longley discloses “tables, directories, and similar subsets of the database may be created to meet the needs and applications of [GIS] systems.” *Id.* (citing Ex. 1006 ¶¶ 92–94; Ex. 1015, 226–37). CoreLogic, however, fails to direct us to any part of Longley that discloses configuring a database with separate “directories” as we have construed that term. *See supra* Section II.A.4. Instead, CoreLogic’s argument depends on its overly broad construction of “directory” as a subset of a database, a construction we have rejected. *See* Pet. 45. Thus, we are not persuaded CoreLogic has shown that the combination of Harder and Longley teaches or suggests this limitation. Accordingly, we conclude CoreLogic has not shown by a preponderance of the evidence that claim 1 would have been obvious over Harder and Longley.

5. *Dependent Claims*

Claims 2–8 depend directly or indirectly from independent claim 1. Claims 11 and 23 depend from claims 9 and 12, respectively, and both recite

the “separate service area directories” limitation, similar to claim 1. For the reasons explained with respect to claim 1, CoreLogic has not shown by a preponderance of the evidence that claims 2–8, 11, and 23 would have been obvious over Harder and Longley.

Claim 10 depends from independent claim 9, and claims 13–22 depend from independent claim 12. With respect to these claims, CoreLogic explains how the subject matter would have been obvious in view of Harder and Longley. Pet. 52–58. BSI makes no separate arguments for these claims beyond those already addressed with respect to claims 9 and 12. Having reviewed the arguments in the Petition and supporting evidence, we agree with and adopt CoreLogic’s reasoning for why the limitations of claims 10 and 13–22 are taught or suggested by Harder and Longley and why one of ordinary skill in the art would have combined Harder and Longley in the manner asserted. Thus, CoreLogic has shown by a preponderance of the evidence that each of claims 10 and 13–22 would have been obvious in view of Harder and Longley.

G. CoreLogic’s Motion to Exclude Evidence

CoreLogic moves to exclude the redirect testimony of BSI’s expert, Mr. William Huxhold, on the ground that it was provided in response to leading questions. Mot. Excl. 1 (citing Ex. 1034, 150:6–153:8). The redirect testimony relates to a portion of Mr. Huxhold’s cross-examination testimony. *Id.* at 1–2 (citing Ex. 1034, 72:5–22). Because we do not rely on the cited redirect testimony or the cited cross-examination testimony, CoreLogic’s motion is dismissed as moot.

III. CONCLUSION

Based on the evidence and arguments, CoreLogic has demonstrated by a preponderance of the evidence that (i) claims 9, 10, and 12–22 of the '352 patent would have been obvious over Harder and Du; (ii) claims 1–8, 11, and 23 would have been obvious over Harder, Du, and MacDonald; and (iii) claims 9, 10, and 12–22 would have been obvious over Harder and Longley. CoreLogic has not shown by a preponderance of the evidence that claims 1–8, 11, and 23 would have been obvious over Harder and Longley.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1–23 of the '352 patent have been shown to be unpatentable;

FURTHER ORDERED that CoreLogic's Motion to Exclude is dismissed; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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