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APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 23-16065

TERADATA CORPORATION, ET AL.,
PLAINTIFFS-APPELLANTS

v.

SAP SE, ET AL.,
DEFENDANTS-APPELLEES

Filed: December 19, 2024

Before: MILLER, BADE, and VANDYKE, Circuit Judges.

OPINION

MILLER, Circuit Judge.

Teradata Corporation sued SAP SE, alleging that SAP illegally conditioned sales of its business-management software on sales of its back-end database engine in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, and misappropriated Teradata's trade secrets in violation of the California Uniform Trade Secrets Act, Cal. Civ.

Code § 3426. The district court granted summary judgment to SAP. Because material factual disputes preclude summary judgment as to each claim, we reverse and remand for further proceedings.

I.

SAP sells enterprise resource planning (ERP) software, which allows companies to manage data required to conduct day-to-day business activities such as finance, project management, and supply-chain operations. ERP applications operate on transactional databases, which are designed to process large numbers of simple transactions and to ensure that all of the application's users have access to a uniform set of data so that queries will yield consistent results.

Teradata sells enterprise data and warehousing (EDW) software. An EDW is a type of analytical database that is designed to integrate and store data from various sources—including from transactional databases—and restructure it for analysis. Teradata's flagship product is the Teradata Database, an EDW that employs highly scalable computing architecture to process and analyze vast amounts of data. Central to the Teradata Database is the "batched merge" method, a technique for efficient aggregation of large batches of data.

In 2008, SAP and Teradata began the "Bridge Project," a joint venture to develop software integrating SAP's front-end applications with the Teradata Database's back-end computing architecture. The companies entered two agreements to protect their intellectual property: a software development cooperation agreement, which restricted disclosures of each party's confidential information, and a mutual non-disclosure agreement,

which specified how to maintain the confidentiality of information that each party shared to further the venture.

During the course of the joint venture, the Bridge Project encountered technical difficulties, and Teradata's senior engineer, John Graas, proposed incorporating the batched merge method into the Bridge Project software. To that end, he sent SAP a design document, labeled "Teradata Confidential," that discussed the batched merge method.

The Bridge Project ultimately yielded a product called Teradata Foundation, which resolved the technical difficulties by bridging the "language gap" that was preventing SAP's front-end application and Teradata's back-end computer architecture from communicating with each other. While the project was underway, SAP had been developing its own EDW product called SAP HANA. In 2011, two months after releasing HANA, SAP terminated the Bridge Project and stopped supporting, selling, and marketing Teradata Foundation.

In 2015, SAP released an updated version of its ERP application, S/4HANA, and it combined that application with HANA in a single sales offering. In other words, customers seeking to purchase the S/4HANA application must purchase HANA as well—either with a full-use license that has no restrictions on how they can use HANA's data or with a cheaper "runtime" license that restricts their ability to export HANA's data for use with third-party products. Since SAP released S/4HANA, 88 percent of SAP's customers have purchased HANA with a runtime license.

In 2018, Teradata brought this action against SAP in the Northern District of California. As relevant here, it alleged that SAP (1) unlawfully tied sales of S/4HANA to

purchases of HANA and (2) misappropriated Teradata's trade secrets involving the batched merge method. SAP counterclaimed, alleging that Teradata had infringed various SAP patents.

To support its antitrust claims, Teradata presented a report from Dr. John Asker, a Professor of Economics at the University of California, Los Angeles. Asker opined that the relevant antitrust product market for S/4HANA was "core ERP products for large enterprises," while HANA was part of a market defined as "EDW solutions with [online analytical processing] capabilities for large enterprises." Using those definitions of the relevant markets, he concluded that SAP had market power in the former market and that its conduct harmed competition in the latter.

SAP moved for summary judgment on Teradata's claims and sought to exclude portions of Asker's testimony. The district court granted summary judgment to SAP on both of Teradata's claims that are at issue here. The court excluded portions of Asker's testimony on market definition, market power, and harm to competition, finding his methodology unreliable and his opinion contradicted by undisputed facts. Without Asker's testimony, the court determined that Teradata failed to create a material dispute on its tying claim. The court also concluded that the trade secret claim failed because Teradata had not designated the batched merge method as confidential in its communications with SAP and, in any event, the parties' agreements granted SAP the right to use the method in its own products.

The district court's order did not fully resolve the patent counterclaims. But having rejected all of Teradata's claims, the court entered partial final judgment under Federal Rule of Civil Procedure 54(b).

Teradata appealed to the United States Court of Appeals for the Federal Circuit, which has exclusive jurisdiction over any appeal "in any civil action arising under, or in any civil action in which a party has asserted a compulsory counterclaim arising under, any Act of Congress relating to patents." 28 U.S.C. § 1295(a)(1). The Federal Circuit determined that it lacked jurisdiction because SAP's patent infringement counterclaims did not arise out of the same "transaction or occurrence" as Teradata's claims, so they were not compulsory counterclaims. Fed. R. Civ. P. 13(a); *Teradata Corp. v. SAP SE*, No. 2022-1286, 2023 WL 4882885, at *13 (Fed. Cir. Aug. 1, 2023). It therefore transferred the appeal to this court. *See* 28 U.S.C. § 1631.

II.

Section 1 of the Sherman Act prohibits "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce." 15 U.S.C. § 1. "Notwithstanding the apparent breadth of that provision, the Supreme Court has long interpreted it 'to outlaw only *unreasonable* restraints.'" *Flaa v. Hollywood Foreign Press Ass'n*, 55 F.4th 680, 688 (9th Cir. 2022) (quoting *Ohio v. American Express Co.*, 585 U.S. 529, 540 (2018) (*Amex*)).

This case involves an alleged tying arrangement—that is, an arrangement in which "the seller conditions the sale of one product (the tying product) on the buyer's purchase of a second product (the tied product)." *Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 912 (9th Cir. 2008). According to Teradata, SAP unlawfully required customers of S/4HANA (the alleged tying product) to purchase either a runtime or full-use license for HANA (the alleged tied product). We evaluate that claim under two different analytical frameworks: the per se rule and the rule of reason.

Restraints with "predictable and pernicious anticompetitive effect[s]" and "limited potential for procompetitive benefit" are per se unreasonable. *State Oil Co. v. Khan*, 522 U.S. 3, 10 (1997). Under the per se approach, restraints may be "conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use." *Northwest Wholesale Stationers, Inc. v. Pacific Stationery & Printing Co.*, 472 U.S. 284, 289 (1985) (quoting *Northern Pac. Ry. Co. v. United States*, 356 U.S. 1, 5 (1958)).

"Typically only 'horizontal' restraints—restraints 'imposed by agreement between competitors'—qualify as unreasonable *per se*." *Amex*, 585 U.S. at 540-41 (2018) (quoting *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 730 (1988)). But certain tying arrangements are also subject to per se condemnation. *See Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 15 (1984), *abrogated on other grounds by Illinois Tool Works Inc. v. Independent Ink, Inc.*, 547 U.S. 28, 31 (2006); *Cascade Health Sols.*, 515 F.3d at 913. When a seller has market power in the tying market, a tying arrangement could allow "the seller [to] leverage this market power . . . to exclude other sellers of the tied product" and thereby extend its market power to the tied product market. *Cascade Health Sols.*, 515 F.3d at 912. Accordingly, a "tie is *per se* unlawful if (1) the defendant has market power in the tying product market, and (2) the 'tying arrangement affects a "not insubstantial volume of commerce" in the tied product market.'" *Epic Games, Inc. v. Apple, Inc.*, 67 F.4th 946, 997 (9th Cir. 2023) (quoting *Blough v. Holland Realty, Inc*, 574 F.3d 1084, 1089 (9th Cir. 2009)). A "not insubstantial" volume of commerce is merely a "not '*de minimis*'" amount. *Id.* (quoting *Datagate, Inc. v. Hewlett-Packard Co.*, 60 F.3d 1421, 1426 (9th Cir. 1995)).

Even when a tie is not per se illegal, it may still be unreasonable under the rule of reason. The rule of reason requires courts to determine whether "a particular contract or combination is in fact unreasonable and anticompetitive," *California ex rel. Harris v. Safeway, Inc.*, 651 F.3d 1118, 1133 (9th Cir. 2011) (quoting *Texaco Inc. v. Dagher*, 547 U.S. 1, 5 (2006)), by "conduct[ing] a fact-specific assessment of 'market power and market structure,'" *Amex*, 585 U.S. at 541 (quoting *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 768 (1984)). Under the rule of reason, courts apply a "three-step, burden-shifting framework" in which "the plaintiff has the initial burden to prove that the challenged restraint has a substantial anticompetitive effect that harms consumers in the relevant market"—that is, in the tied market. *Amex*, 585 U.S. at 541 (citing Phillip E. Areeda & Herbert Hovenkamp, *Fundamentals of Antitrust Law* § 15.02[B] (4th ed. 2017)). "If the plaintiff carries its burden, then the burden shifts to the defendant to show a procompetitive rationale for the restraint." *Id.* at 541. "If the defendant makes this showing, then the burden shifts back to the plaintiff to demonstrate that the procompetitive efficiencies could be reasonably achieved through less anticompetitive means." *Id.* at 542.

Under either the per se rule or the rule of reason, an essential first step is identifying relevant markets "within which significant substitution in consumption or production occurs." *Amex*, 585 U.S. at 543 (quoting Areeda & Hovenkamp, *Fundamentals of Antitrust Law* § 5.02); *see FTC v. Qualcomm Inc.*, 969 F.3d 974, 992 (9th Cir. 2020) ("A threshold step in any antitrust case is to accurately define the relevant market . . . ."). A relevant market encompasses "the group or groups of sellers or producers who have actual or potential ability to deprive each other of significant levels of business." *Thurman Indus., Inc. v.*

Pay 'N Pak Stores, Inc., 875 F.2d 1369, 1374 (9th Cir. 1989).

"The principle most fundamental to product market definition is 'cross-elasticity of demand,'" or "the extent to which consumers view two 'products [as] be[ing] reasonably interchangeable' or substitutable for one another." *Coronavirus Rep. v. Apple, Inc.*, 85 F.4th 948, 955 (9th Cir. 2023) (alterations in original) (first quoting *Kaplan v. Burroughs Corp.*, 611 F.2d 286, 291 (9th Cir. 1979); and then quoting *Gorlick Distrib. Ctrs., LLC v. Car Sound Exhaust Sys., Inc.*, 723 F.3d 1019, 1025 (9th Cir. 2013)). Cross-elasticity of demand helps determine the boundaries of a market: When products are "reasonably interchangeable," they are "considered as being in the same market for the purpose of an antitrust claim." *Id.*; *see Olin Corp. v. FTC*, 986 F.2d 1295, 1298 (9th Cir. 1993). One standard approach to analyzing cross-elasticity of demand is the hypothetical monopolist test. Under this approach, products form a relevant market if a seller could profitably impose a small but significant and non-transitory increase in price—often of five percent—over a group of products. *Saint Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 784 (9th Cir. 2015); U.S. Department of Justice & Federal Trade Commission, Merger Guidelines § 4.3.B (2023) ("When considering price, the Agencies will often use a [small but significant and non-transitory increase in price] of five percent of the price charged by firms for the products or services to which the merging firms contribute value. The Agencies, however, may consider a different term or a price increase that is larger or smaller than five percent."). If a seller could not profitably impose such a price increase, then substitute products must exist, so the market definition must be expanded to include them. *Id.*

III.

With those principles in mind, we consider Teradata's tying claim. But before assessing the merits of the claim, we must review the district court's exclusion of Asker's testimony on market definition, market power, and harm to competition. We review a district court's decision to exclude expert testimony for abuse of discretion. *Hardeman v. Monsanto Co.*, 997 F.3d 941, 960 (9th Cir. 2021).

Under Federal Rule of Evidence 702, expert testimony must be "not only relevant, but reliable." *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993). "[D]istrict courts are vested with 'broad latitude' to 'decid[e] how to test an expert's reliability' and 'whether or not [an] expert's relevant testimony is reliable.'" *Murray v. Southern Route Mar. SA*, 870 F.3d 915, 923 (9th Cir. 2017) (emphasis omitted) (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152-53 (1999)). The court may "assess the [expert's] reasoning or methodology, using as appropriate such criteria as testability, publication in peer reviewed literature, and general acceptance." *Primiano v. Cook*, 598 F.3d 558, 564 (9th Cir. 2010). While evidence that "suffer[s] from serious methodological flaws . . . can be excluded," *Obrey v. Johnson*, 400 F.3d 691, 696 (9th Cir. 2005), courts are not permitted to "determine the veracity of the expert's conclusions at the admissibility stage," *Elosu v. Middlefork Ranch Inc.*, 26 F.4th 1017, 1026 (9th Cir. 2022). "Shaky but admissible evidence is to be attacked by cross examination, contrary evidence, and attention to the burden of proof, not exclusion." *Primiano*, 598 F.3d at 564.

The district court determined that Asker's testimony about market definition and harm to competition was premised on unreliable methodologies. The court also held that because Asker's "methodology for defining the

relevant tying market [was] unreliable, his conclusions that SAP has market power in his proposed market should also be excluded." We disagree and conclude that the court abuse its discretion in excluding Asker's testimony.

A.

Asker defined the relevant markets primarily based on a qualitative analysis of SAP's business documents and other evidence. He "corroborate[d]" his results using various quantitative methodologies, including an aggregate diversion ratio analysis employing customer relationship management data from SAP and Oracle (SAP's main competition in the tying market) that measured the number of times sales-representative reports mentioned certain competitors. Because Asker employed reasonable methodologies in defining the relevant markets, the district court abused its discretion in excluding his market-definition testimony and his conclusions about SAP's market power in the tying market.

1.

Asker defined the tying market as "core ERP products for large enterprises." He defined large enterprises as "those with high annual revenues, a large number of staff, high data volume and complexity, and many ERP users." Recognizing that "[t]he exact definition . . . varies slightly across industry participants," he explained that "'large enterprises' are generally companies with over 1,000 or 1,500 employees and over 125 users of the ERP product" because those enterprises have ERP needs that differ from those of smaller enterprises.

The district court excluded the "large enterprises" portion of Asker's tying-market-definition testimony because it determined that Asker's qualitative approach to

defining "large enterprises" was unreliable. The court faulted Asker for failing to "reconcile" his "distinct separate market with the broad continuum of customers and varied and flexible approach to customer size taken by the industry." Specifically, the court expressed concern that "there is no clear line separating [large] companies or the products they buy from others."

The district court's decision appears at least implicitly to reflect a substantive rule of antitrust law—namely, that "large enterprises" is too imprecise to describe a properly defined market. That rule is legally erroneous because an antitrust plaintiff need not specify a market by precise "metes and bounds." *Times-Picayune Pub. Co. v. United States*, 345 U.S. 594, 611 (1953). Instead, antitrust law recognizes that "some artificiality" and "fuzziness [are] inherent in any attempt to delineate the relevant . . . market." *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 360 n.37 (1963); *accord Oahu Gas Serv., Inc. v. Pacific Res., Inc.*, 838 F.2d 360, 364 (9th Cir. 1988) ("The issue of product definition [is] always an inexact science often requiring distinctions in degree rather than kind . . . .").

Alternatively, the district court's decision can be read not as demanding a clear line distinguishing "large" enterprises from other companies, but merely requiring Asker to explain how he selected the specific definition he offered. *See United States v. Hermanek*, 289 F.3d 1076, 1094 (9th Cir. 2002) ("As a prerequisite to making the Rule 702 determination that an expert's methods are reliable, the court must assure that the methods are adequately explained."). SAP attempts to defend the court's analysis on that basis, arguing that Asker did not explain why he defined "large enterprises" as those with "1,000 to 1,500 employees and over 125 users" when the documents

on which he relied lacked common metrics or numerical thresholds distinguishing "large enterprises" from others.

Even assuming that the district court's analysis rested on Asker's failure to explain how he arrived at his more precise definition of "large enterprises," its *Daubert* analysis was still flawed. In this context, "large" is a sufficiently intuitive concept that even if Asker's selection of a particular numerical cutoff was somewhat arbitrary, we cannot say that his failure to explain the choice cast doubt on the reliability of his methodology. *Cf. Pacific Choice Seafood Co. v. Ross*, 976 F.3d 932, 943 (9th Cir. 2020). Asker's more general definition of "large enterprises" as "those with high annual revenues, a large number of staff, high data volume and complexity, and many ERP users" provides grounding for his more precise definition, assuring us that it was not based on "mere subjective belief[] or unsupported speculation." *Millenkamp v. Davisco Foods Int'l, Inc.*, 562 F.3d 971, 979 (9th Cir. 2009). Inconsistencies in how "large" is quantified across Asker's sources merely illustrate that "the relevant competitive market is not ordinarily susceptible to a 'metes and bounds' definition," *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 331 (1961), which, as we have already explained, is an insufficient basis for rejecting a proposed market definition.

The district court also found unreliable Asker's quantitative analyses, which he used to corroborate his conclusion that large enterprises form a separate market. Because those analyses were merely confirmatory, any flaws they might have would not be a sufficient basis to exclude his tying-market testimony. *See Wendell v. GlaxoSmithKline LLC*, 858 F.3d 1227, 1233 (9th Cir. 2017) (explaining that district courts must "tak[e] into account the broader picture of the experts' overall methodology");

Obrey, 400 F.3d at 695 ("[O]bjections to a study's completeness generally go to 'the weight, not the admissibility of the statistical evidence,' and should be addressed by rebuttal, not exclusion." (quoting *Mangold v. California Pub. Utils. Comm'n*, 67 F.3d 1470, 1476 (9th Cir. 1995))). The district court therefore abused its discretion in excluding Asker's tying-market definition and the market-power conclusions that followed from it.

2.

Asker defined the tied market as "EDW products with [online analytical processing] capabilities for large enterprises." The district court excluded Asker's testimony about the tied-market definition, finding that Asker's use of an aggregate diversion ratio analysis based on customer relationship management data made his methodology unreliable.

One way to implement the hypothetical monopolist test is to compare two values known as the critical loss threshold and the aggregate diversion ratio. *United States v. H & R Block, Inc.*, 833 F. Supp. 2d 36, 63 (D.D.C. 2011); *see FTC v. Wilh. Wilhelmsen Holding ASA*, 341 F. Supp. 3d 27, 57 (D.D.C. 2018). Typically, an increase in the price of a product leads to a decrease in sales. The critical loss threshold is the largest percentage decrease in sales that the hypothetical monopolist could experience before the price increase would no longer be profitable. *See H & R Block, Inc.*, 833 F. Supp. 2d at 63; *see also FTC v. Swedish Match N. Am., Inc.*, 131 F. Supp. 2d 151, 160 (D.D.C. 2000). "The aggregate diversion ratio for any given product represents the proportion of lost sales that are recaptured by all other firms in the proposed market as the result of a price increase." *H & R Block*, 833 F. Supp. 2d at 63. "Since these lost sales are recaptured within the pro-

posed market, they are not lost to the hypothetical monopolist." *Id.* If the aggregate diversion ratio exceeds the critical loss threshold, then the hypothetical monopolist will recapture enough sales to make a small but significant and non-transitory increase in price profitable across the monopolist's entire business. The products controlled by the hypothetical monopolist thus form a relevant market. *See id.*; *FTC v. IQVIA Holdings Inc.*, 710 F. Supp. 3d 329, 371 (S.D.N.Y. 2023); Louis Kaplow & Carl Shapiro, *Antitrust*, *in* 2 The Handbook of Law and Economics 1073, 1174 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

To the extent the district court's ruling was premised on a general rejection of aggregate diversion ratio analysis as a market-definition tool, it was unreasonable. Such analysis "is commonly used" by economists to "frame the empirical estimation of demand responsiveness for the purpose of delineating relevant product markets." Michael L. Katz & Carl Shapiro, *Critical Loss: Let's Tell the Whole Story,* 17 Antitrust 49, 49-50 (2003); *see also* Merger Guidelines § 4.3.C & n.85 (explaining the use of aggregate diversion ratio analysis to implement the hypothetical monopolist test).

The district court more specifically faulted Asker's analysis because it used customer relationship management data, which captures the firms that competed for a given sales opportunity. The court believed that such data "cannot measure . . . cross-elasticity of demand" because it "does not measure customer responses to changes in price." Asker acknowledged the limitations of customer relationship management data as a measure of expected substitution effects, noting that such data "may not always be a reliable indicator of the actual competitors faced by a company," so "it is appropriate to be cautious in using the data." But as he explained, such data still "can

be informative for market definition." *See FTC v. Tapestry, Inc.*, 2024 WL 4647809, at *30-31 (S.D.N.Y. Nov. 1, 2024) (rejecting argument that expert's [aggregate diversion ratio] analysis "is unreliable because the survey data did not ask consumer[s] about switching their purchase . . . in response to a price increase," and noting that "[e]conomists regularly estimate diversion ratios using non-price-response data") (internal quotation marks omitted).

Asker's methodology did not fall "outside the range where experts might reasonably differ." *Kumho Tire*, 526 U.S. at 153. The hypothetical monopolist test does not require showing actual diversion in response to price changes, only *likely* diversion. Although Asker's data may not have captured actual transactions, it showed that other companies viewed SAP as a primary competitor, suggesting that customers would substitute SAP's products for rival products in response to price increases.

The few courts to have considered the issue have endorsed the use of customer relationship management and other non-price data to calculate the aggregate diversion ratio. *See Wilhelmsen*, 341 F. Supp. 3d at 57-58 (endorsing expert's reliance on various sources of data, including customer relationship management data, to calculate aggregate diversion); *FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 35-37 (D.D.C. 2015) (relying on customer relationship management and other data that did not capture customer responses to price); *H & R Block, Inc.*, 833 F. Supp. 2d at 63-65 (relying on IRS switching data showing taxpayers who left a particular company's tax-preparation product in a given tax year). Data recording actual customer responses to price changes is frequently unavailable, so a categorical rule requiring such data would be unrealistic.

See Merger Guidelines § 4.1 (explaining that federal agencies "take into account . . . the availability or quality of data or reliable modeling techniques," recognizing "that the goal of economic modeling is not to create a perfect representation of reality, but rather to inform an assessment of the likely change in firm incentives").

The district court also reasoned that Asker's methodology was "inconsistent with his methodology when defining the relevant [tying] market." In his tying-market aggregate diversion ratio analysis, Asker included the minimum number of market participants and concluded that the relevant market consisted of only Oracle and SAP. But in his tied-market aggregate diversion ratio analysis, he included more than just the minimum number of market participants to bring SAP into the market definition. That difference in methodology was grounded in economic logic and well-established market-definition principles. Looking to a narrower set of market participants is appropriate when analyzing the tying market because "the competitive significance of the parties may be understated by their share when calculated on a market that is broader than needed to satisfy the [hypothetical monopolist test], particularly when the market includes products that are more distant substitutes." Merger Guidelines § 4.4. By contrast, broadening the number of market participants is appropriate when analyzing the tied market, where the purpose is to determine the tied-product competitors harmed by the tie. Including more market participants ensures that competitors that may be harmed are not excluded from the analysis. As Asker put it, market definition "must be relevant to the theory of harm at issue," which in this case was "via a tie." Therefore, to exclude SAP from the tied market even though "documentary evidence clearly links Teradata and SAP as competi-

tors in the EDW market," and a market definition including SAP "passes the [hypothetical monopolist test], would run counter to common sense and good economic practice." Of course, a trier of fact would not have to accept Asker's ultimate conclusions. But his approach was explained sufficiently to satisfy Rule 702. *See Hermanek*, 289 F.3d at 1094.

More fundamentally, the district court abused its discretion by narrowly focusing on Asker's aggregate diversion ratio methodology as its sole justification for excluding his tied-market testimony. *See Wendell*, 858 F.3d at 1233 (holding that the district court abused its discretion when it ignored a variety of evidence supporting the expert's conclusion). As with the tying-market definition, the "primary foundation" for Asker's tied-market definition was not his aggregate diversion ratio analysis, but rather his qualitative analysis of "the deposition testimony and documentary record." The district court *rejected* SAP's challenges to Asker's qualitative analysis, determining that Asker's conclusions were consistent with the evidence. The court therefore seems to have excluded Asker's testimony based solely on its determination that his aggregate diversion ratio analysis was unreliable. That was an abuse of discretion.

B.

As to harm to competition in the tied market, Asker opined that by "causing sales of HANA that otherwise would not have occurred," the tie "distorts purchasers' choices of EDW products, which harms purchasers and competitors competing for those sales." In reaching that conclusion, Asker analyzed SAP business documents and sales data to understand SAP's use of S/4HANA as leverage to sell HANA, HANA's market gains, the effects of HANA's "runtime" and "full use" licenses, and barriers to

entry and fixed costs in the tied market. The district court found Asker's harm-to-competition testimony unreliable on two grounds, neither of which was reasonable.

First, the district court faulted Asker for failing to analyze how SAP's tie affected several major competitors in the relevant EDW market, including Oracle, Microsoft, IBM, and Amazon. But an expert may extrapolate harm to competition on a market-wide level based on the volume of "tied-product sales covered by tying arrangements" and the "coercion of particular customers." 9 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶1729h (4th ed. 2018). Here, Asker provided evidence of both, estimating the percentage of SAP's large-enterprise HANA sales attributable to customers who also purchased its ERP products and analyzing the ways in which SAP conditions access to S/4HANA on customers' purchases of HANA. Although he did not quantitatively analyze the tie's impact on other major EDW competitors, he did provide qualitative evidence of its impact on their market shares. As "long as the evidence is relevant and the methods employed are sound, neither the usefulness nor the strength of statistical proof determines admissibility under Rule 702." *Obrey*, 400 F.3d at 696.

Second, the district court rejected, as "unwarranted," Asker's assumption that HANA—whether sold with a runtime or a full-use license—"is necessarily always sold as an EDW." The court reasoned that HANA purchased with a runtime license is not an EDW because customers cannot import data from other sources or use HANA to support non-S/4HANA applications. As to HANA purchased with a full-use license, the district court acknowledged its EDW capabilities but faulted Asker for failing to identify specific customers who use full-use HANA as an EDW.

A jury could infer, however, that consumers use both runtime and full-use HANA as EDWs. Runtime customers might not use HANA directly with third-party products, but nothing precludes them from using HANA with complementary SAP applications. Indeed, SAP documents suggest that when HANA is used with SAP's Business Warehouse application, a data reporting tool, it offers traditional EDW functionality. Teradata also points to evidence suggesting that when paired with Business Warehouse, runtime HANA can use data from third-party applications to perform advanced analytics. SAP embeds Business Warehouse into all of its ERP systems, including S/4HANA, and it offers a version of the application specifically designed to operate with HANA to deliver "real-time enterprise-wide analytics."

Asker's claim that customers actually use both runtime and full-use HANA as EDWs was a "reasonable extrapolation[]" from the evidence. *Murray*, 870 F.3d at 923. SAP business documents describe the company's strategy to use HANA to displace other EDW providers. And SAP's procompetitive justifications for the tie centered on HANA's ability to simultaneously leverage transactional and analytical capabilities. If customers did not use HANA as an EDW, the tie would not further SAP's purported strategic or procompetitive objectives. Given SAP's stated objectives, it was reasonable for Asker to conclude that customers use HANA as an EDW.

As with Asker's other conclusions, a trier of fact might disagree. But at this stage, it is not our role to determine "the veracity of the expert's conclusions." *Elosu*, 26 F.4th at 1026. Asker's assumption that runtime HANA provides analytical functionality is sufficiently plausible to constitute a "competing version[] of the evidence." *Id.*

In an effort to defend the district court's exclusion of Asker's testimony, SAP argues that Asker failed to distinguish between tied and non-tied HANA sales. But Asker addressed that issue in concluding that the tie "is causing sales of HANA that otherwise would not have occurred." Asker found, for example, that "the overwhelming majority of HANA sales have been made to S/4HANA customers." He also provided evidence that customers were concerned that the tie would force them to forgo investments in their preferred databases. Asker reasonably inferred from this evidence that tied sales, not standalone sales, drove HANA's market share. *See Kennedy v. Collagen Corp.*, 161 F.3d 1226, 1230 (9th Cir. 1998) ("[C]ausation need not be established to a high degree of certainty for expert testimony to be admissible under Rule 702.").

IV.

Having determined that the district court abused its discretion in excluding Asker's market-definition and harm-to-competition testimony, we turn to whether summary judgment was proper on Teradata's tying claim. "We review a district court's grant of summary judgment de novo and, viewing the evidence in the light most favorable to the nonmovant, determine whether there are any genuine issues of material fact and whether the district court correctly applied the relevant substantive law." *Honey Bum, LLC v. Fashion Nova, Inc.*, 63 F.4th 813, 819 (9th Cir. 2023) (quoting *Social Techs. LLC v. Apple Inc.*, 4 F.4th 811, 816 (9th Cir. 2021)).

As a preliminary matter, we must determine whether to evaluate Teradata's tying claim under the per se approach or the rule of reason. SAP argues that because tying arrangements are vertical restraints, they must, "like nearly every . . . vertical restraint," be evaluated under the rule of reason. *Amex*, 585 U.S. at 541. The "vertical

restraint" label applies to a wide array of agreements between sellers and buyers. The classic type of vertical restraint is an "agreement between firms at different levels of distribution," such as between a manufacturer and its dealers. *Id.* (quoting *Business Elecs. Corp.*, 485 U.S. at 730). Ties are different: They are not agreements between multiple firms, but "arrangement[s] where a supplier agrees to sell a buyer a product (the tying product), but 'only on the condition that the buyer also purchases a different (or tied) product.'" *Brantley v. NBC Universal, Inc.*, 675 F.3d 1192, 1199 (9th Cir. 2012) (quoting *Northern Pac. Ry. Co.*, 356 U.S. at 5). And although other kinds of vertical arrangements are subject to the rule of reason, tying arrangements—or at least some of them—have long been subject to per se condemnation. *See International Salt Co. v. United States*, 332 U.S. 392, 396 (1947), *abrogated on other grounds by Illinois Tool Works Inc.*, 547 U.S. at 31; *Jefferson Par.*, 466 U.S. at 9 (noting that the per se tying rule "has been endorsed by this Court many times").

To be sure, tying arrangements are subject to a "modified" per se approach under which a tie is unlawful only "if (1) the defendant has market power in the tying product market, and (2) the 'tying arrangement affects a "not insubstantial volume of commerce" in the tied product market.'" *Epic Games*, 67 F.4th at 996-97 (quoting *Blough*, 574 F.3d at 1089); *see Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 462 (1992). In other words, unlike the per se rule for horizontal restraints, under which "a restraint is presumed unreasonable without inquiry into the particular market context," the tying per se rule incorporates an inquiry into market power. *National Collegiate Athletic Ass'n v. Board of Regents of Univ. of Okla.*, 468 U.S. 85, 100 (1984); *see Epic Games*,

67 F.4th at 997. But the fact remains that tying arrangements meeting the requirements of the modified per se rule are deemed unreasonable as a matter of law. Nothing in *Amex*—a case that did not involve tying arrangements—disturbs that long-settled rule.

SAP urges us to depart from the per se approach because, it says, Teradata's tying claim "is predicated on innovative conduct within a technology market." In *Epic Games*, we adopted the District of Columbia Circuit's reasoning in *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001), to conclude that the per se approach is inappropriate when (1) a tie "involv[es] software that serves as a platform for third-party applications," (2) the tied good is "technologically integrated with the tying good," and (3) the tie presents "purported procompetitive benefits that could not be achieved by adopting quality standards for third-party suppliers of the tied good." *Epic Games*, 67 F.4th at 997 (quoting *Microsoft*, 253 F.3d at 89-90).

SAP claims that this case fits under *Epic Games* and *Microsoft*'s narrow exception to the per se rule. According to SAP, HANA is "platform software" because it "make[s] available to ERP applications thousands of functions . . . from data storage and retrieval to mathematical computations." But unlike in *Epic Games* and *Microsoft*, the tying and the tied products here are not technologically or physically integrated. In *Epic Games*, Apple's in-app payment processor was integrated with its app distribution platform because both were built into the iPhone operating system. *See* 67 F.4th at 967-68, 997. *Microsoft* also involved "an integrated physical product," in which Internet Explorer's application programming interfaces were embedded into the Windows operating system. 253 F.3d at

90. HANA, on the other hand, is not a software functionality that is technologically or physically integrated with SAP's ERP application, but a standalone EDW product that SAP can and does sell independently of S/4HANA. In that sense, this case is more akin to standard contractual tie cases, which courts regularly evaluate under the per se framework. *See, e.g.*, *Northern Pac. Ry. Co.*, 356 U.S. at 5-8 (conditioning lease of land on agreement to ship products on defendant's railroad).

We appreciate SAP's concern that the per se rule for ties, especially as applied to software markets, sits uneasily with the rationale courts have articulated for the per se rule in other contexts—that a class of practices can be declared unreasonable because judicial experience has shown that they are almost always anticompetitive and lack redeeming value. *See Qualcomm Inc.*, 969 F.3d at 990-91 ("[N]ovel business practices—*especially* in technology markets—should not be 'conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use.'" (quoting *Microsoft*, 253 F.3d at 91)); *Epic Games*, 67 F.4th at 998 (expressing concern that when applied in inappropriate contexts, the per se rule risks "dampening innovation and undermining the very competitive process that antitrust law is meant to protect"). But as the Supreme Court has made clear, "[i]t is far too late in the history of our antitrust jurisprudence to question the proposition that certain tying arrangements"—those in which a seller uses its tying-market power to capture a non–de minimis volume of commerce—"are unreasonable 'per se.'" *Jefferson Par.*, 466 U.S. at 9. We have no basis for expanding *Epic Games*'s narrow exception to that rule to cover software markets generally. *See Microsoft*, 253 F.3d at 95.

Regardless, with Asker's testimony, Teradata has raised a material dispute under either approach. Under the per se approach, Asker's testimony creates a triable question as to market power in the tying market—the only element in dispute. Asker opined that SAP has economically significant market power in the core ERP market for large enterprises based on SAP's sizable market share, high profit margins, and high barriers to entry and switching costs. As Asker explained, high switching costs make it more expensive to switch to an alternative ERP provider than to adopt S/4HANA, and high barriers to entry inhibit new competitors that might reduce SAP's power in the ERP market. SAP's high profit margins on core ERP products for large enterprises, combined with other evidence of coercion, provide another "strong indication of market power." *FTC v. Actavis, Inc.*, 570 U.S. 136, 157 (2013). A trier of fact could determine from that evidence that SAP had enough market power in the core ERP market to coerce large enterprises into purchasing HANA.

Under the rule of reason, Asker's testimony also raises a triable dispute as to whether the tie has substantial anticompetitive effects in the tied market. With Asker's testimony, Teradata has presented a viable tied-market definition—EDW products with analytical capabilities for large enterprises—and raised a triable dispute as to whether the tie has substantial anticompetitive effects in that market. Asker opined that the tie would eventually foreclose at least 65 percent of the large-enterprise EDW market, well over the level at which the parties agree we should presume foreclosure unreasonable. *See* Areeda & Hovenkamp, *Antitrust Law* ¶1729a (explaining that "foreclosure should be presumed unreasonable when it reaches 30 percent for an individual seller"). Asker derived that estimate from data indicating that 65 percent of

the Forbes Global 2000—which lists the world's largest public companies—relies on S/4HANA. Asker also cited SAP documents describing its ERP customers as "locked in" and predicting that a large share of its customers will eventually adopt S/4HANA. Because we consider all tied-product sales attributable to the tie to be foreclosed, a reasonable juror could find that the tie has substantial anti-competitive effects. *See id.* ¶1729h.

Asker also testified that HANA prices were at supra-competitive levels. High prices alone are weak evidence of market foreclosure, as they can result from procompetitive behavior and increased demand. *See Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 237 (1993) ("[A] jury may not infer competitive injury from price[s] . . . absent some evidence that tends to prove that . . . prices were above a competitive level."); *Amex*, 585 U.S. at 549 (refusing to infer competitive injury from increased prices given that output was expanding at the same time). But here, Asker provided other evidence indicating that HANA's high prices were the result of anti-competitive behavior: that HANA was of lower quality than rival EDWs, and that the "overwhelming majority" of HANA sales were to S/4HANA customers. Absent evidence that demand expanded for procompetitive reasons, such as increased output or quality advantages, a jury could infer that HANA's high prices were a result of substantial market foreclosure.

Asker's differences-in-differences regression analysis quantifying Teradata's lost revenue from the tie further supports his market foreclosure estimations. Contrary to SAP's claim that Asker's regression analysis measured only correlation, differences-in-differences is a standard econometric tool designed to measure causation by isolating the effect of a particular explanatory variable from the

effects of other variables. *See* Joshua D. Angrist & Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion* 169-82 (2008) (explaining how differences-in-differences models can yield estimations of causal effects). In this case, Asker compared changes in spending for customers that adopted S/4HANA to changes in spending for a benchmark group of customers to attribute any differences to the adoption of S/4HANA. And as we explained above, the tie's impact on Teradata's sales is a reasonable indication of broader market foreclosure.

V.

Finally, we consider Teradata's trade secret claim. The district court granted summary judgment to SAP because it determined that "Teradata failed to comply with its contractual obligation to designate information as confidential when it disclosed the alleged Batched Merge Method trade secret to SAP," and that even if Teradata had adequately designated the information, the agreements gave SAP a contractual right to use the batched merge method in its own products. We conclude that disputed issues of material fact preclude summary judgment on both theories.

A.

Teradata has created a triable dispute as to whether it properly designated the batched merge method as confidential information under the parties' agreements. Section 2 of the mutual non-disclosure agreement, which governs the sharing of confidential information during the Bridge Project, specifies that "all information . . . in writing or in other tangible form and clearly identified as confidential or proprietary at the time of disclosure marked

with an appropriate legend indicating that the information is deemed confidential or proprietary" will remain confidential. The parties agree that the 2008 design document that Graas sent to SAP—which mentioned the batched merge method as a solution to the problems facing the Bridge Project—"clearly identified" its contents as confidential, as it was marked "Teradata Confidential" on each page.

SAP contends that the document did not provide enough details about the batched merge method to clearly identify the information it sought to protect. But the mutual non-disclosure agreement nowhere requires that a document marked confidential describe trade secrets in detail to maintain their confidentiality. Notably, the provisions covering *oral* disclosures of trade secrets require that a party "summarize the Confidential Information in writing" within a specified time, a requirement that would make little sense if *written* disclosures had to include all the details of the trade secret. And although SAP suggests that the document merely stated the words "batched merge," it in fact did much more: It detailed the method's essential elements to explain how the method could be used to solve the Bridge Project's performance issues. Whether that level of detail was sufficient is a question for a jury to decide.

B.

Teradata has also created a triable dispute as to whether the parties' agreements gave SAP a license to use the batched merge method in its products. The district court concluded that because the batched merge method was an "input" that Teradata provided during the Bridge Project, SAP gained a right to use it outside of the Bridge Project without breaching the parties' confidentiality agreements. The court relied on section 9.4 of the

software development cooperation agreement, which grants SAP a "license to use . . . any Input submitted by [Teradata] to SAP with respect to any deliverables or other items that SAP provides or shall provide to [Teradata]." It also invoked section 10.1, which gives SAP the rights to the batched merge method because it was "software code . . . necessary to adapt [SAP's] software to" the Teradata Database.

Teradata points out that, notwithstanding those provisions, section 10.2 provides that "Partner Materials" are to "remain vested exclusively in [Teradata]," and it defines "Partner Materials" as "any programs, tools, systems, data or materials utilized or made available by [Teradata] in the course of the performance under this Agreement." The dispositive question, therefore, is whether the batched merge method constitutes a "tool" that is encompassed by the reservation of rights in "Partner Materials."

That is a question for the jury. SAP emphasizes that Graas himself described the batched merge method as not a "tool" but a "technique" that leverages unique aspects of the Teradata Database. But Teradata provided other expert testimony describing the method's central step as a "tool" for sending information to and from a database. If a central step in the batched merge method is a "tool," it follows that the full method is also a "tool"—or so a rational juror could infer. That Graas described the method as a "technique" does not necessarily preclude it from *also* being a "tool."

SAP also contends that the batched merge method is not a "tool" because, in computer science, "tool" refers to an "application program." That may be, but "tool" also has a more general definition: "a thing (concrete or abstract)

with which some operation is performed." 18 *Oxford English Dictionary* 233 (2d ed. 1989). The context favors that broader understanding because the agreement's definition of "Partner Materials" already includes "programs," so if "tool" meant "application program," then the agreement would list "program" twice, rendering part of the definition superfluous. Contradicting its argument about "application programs," SAP also argues that "tool" refers to tangible articles. But that theory is undermined by the words surrounding "tool" in sections 9.2 and 10.2—"programs," "materials," "systems," and "data"—none of which refers to tangible articles.

SAP also argues that it owns the right to use the batched merge method because that method constitutes "Newly Developed Materials," which the software development cooperation agreement assigns to SAP. The agreement defines "newly developed materials" as "software . . . developed by SAP and/or [Teradata] in connection with or as a result of a party's interaction with the other party." A jury could conclude that the batched merge method is not software developed through SAP's interactions with Graas, but instead is preexisting intellectual property that Teradata developed long before the parties began the Bridge Project. That Graas helped SAP implement the batched merge method to solve technical issues does not transform it into software developed "in connection with or as a result of" the Bridge Project.

Finally, a jury could also conclude that the district court's interpretation cannot be reconciled with the implied covenant of good faith and fair dealing under New York law, which governs the parties' agreements. Under the covenant, "neither party shall do anything which will have the effect of destroying or injuring the right of the other party to receive the fruits of the contract." *Dalton*

v. Educational Testing Serv., 663 N.E.2d 289, 291 (N.Y. 1995) (quoting *Kirke La Shelle Co. v. Paul Armstrong Co.*, 188 N.E. 163, 167 (N.Y. 1933)). "[W]hether particular conduct violates or is consistent with the duty of good faith and fair dealing necessarily depends upon the facts of the particular case, and is ordinarily a question of fact to be determined by the jury or other finder of fact." *Tractebel Energy Mktg. v. AEP Power Mktg.*, 487 F.3d 89, 98 (2d Cir. 2007) (quoting 23 *Williston on Contracts* § 63:22 (4th ed. 2006)). A jury could find that the district court's interpretation violated the covenant by allowing SAP to develop a rival EDW product using information that Teradata shared to enable SAP's customers to enjoy fast and efficient interoperation with Teradata's EDW product.

SAP argues that the covenant is inapplicable because Teradata understood that SAP would use the batched merge method outside of the Bridge Project. As evidence of such an understanding, SAP cites statements from Teradata employees, including that "all developments of SAP products [are] owned by SAP (even if made by Teradata)." But interpreting those statements requires resolving disputed factual questions—for example, whether the batched merge method was part of the "development" of an SAP product. Viewing the evidence in the light most favorable to Teradata, a rational jury could conclude that the district court's interpretation would injure Teradata's right to the benefits of the contract.

REVERSED and REMANDED.

APPENDIX B

PUBLIC COPY—SEALED CONTENT REDACTED

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

No. 18-03670

TERADATA CORPORATION, ET AL., PLAINTIFFS,

v.

SAP SE, ET AL., DEFENDANTS

Filed: November 8, 2021

REDACTED—ORDER RE MOTIONS FOR SUMMARY JUDGMENT AND MOTIONS TO EXCLUDE EXPERT TESTIMONY

ORRICK, United States District Judge.

Defendants SAP SE, SAP America, Inc., and SAP Labs, LLC (collectively "SAP") move for summary judgment on plaintiffs Teradata Corporation, Teradata US, Inc., and Teradata Operations, Inc.'s (collectively "Teradata") technical trade secret claims, business trade secret claims, and tying claim. Teradata also moves for summary judgment and argues that counterclaim-plaintiff

SAP SE's U.S. Patent No. 8,214,321 ("'321 Patent") is invalid under 35 U.S.C. § 101. It argues that SAP is not entitled to damages for the alleged infringement of U.S. Patent Nos. 7,617,179 ("'179 Patent"), and 9,626,421 ("'421 Patent") before May 19, 2019. Teradata also moves to exclude portions of four of SAP's expert's opinions: Tim Kraska, Stephen Horn, Gregory Leonard and Ouri Wolfson, and Sharad Mehrotra. SAP moves to exclude portions of one of Teradata's expert's opinions, John Asker.

For the reasons explained below, SAP's motion for summary judgment on Teradata's technical trade secret claims and tying claim is **GRANTED**. Its motion related to Teradata's business trade secret claims under the DTSA is **DENIED** as moot. Its motion to exclude portions of Asker's report is **GRANTED** in part and **DENIED** in part. Teradata's motion for summary judgment on the invalidity of the '321 Patent is **GRANTED**. Its motion for partial summary judgment against an award of damages for infringement of the '179 and '421 Patents before May 21, 2019, is also **GRANTED**. Its motion to exclude portions of Kraska's expert report is **DENIED** as moot. Its motion to exclude portions of Horn's report is **GRANTED** in part and **DENIED** in part. Its motion to exclude portions of the Leonard and Wolfson reports is **DENIED** in part as moot and **DENIED** in part on the merits. Its motion to exclude portions of Mehrotra's report is **DENIED**.[1]

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[1] The parties have also filed 21 motions to seal. Dkt. Nos. 462, 465, 468, 471, 473, 475, 479, 506, 515, 518, 522, 524, 528, 531, 536, 550, 551, 554, 560, 568, 599. I will issue a separate order addressing these motions. Suffice it to say, the parties have sought to seal a great deal of information that does not meet the compelling interest standard that applies to dispositive motions. *See Ctr. for Auto Safety v. Chrysler*

BACKGROUND

I. FACTUAL HISTORY

Teradata conducts research, development, engineering, and other technical operations related to its Enterprise Data Analytics and Warehousing ("EDAW" or "EDW") products. See Dkt. No. 67 ("SAC") ¶ 4. Teradata's flagship product is the Teradata Database, a relational database management system designed for EDW. SAC ¶ 16. Teradata was the first commercial EDW vendor to utilize massively parallel processing ("MPP") through Teradata Database to execute high volumes of analytical queries on massive amounts of data for EDAW customers. Dkt. No. 528-9 ("Walter Decl.") ¶ 3.

SAP is best known for Enterprise Resource Planning ("ERP") software, historically designed to run on transactional databases such as those by Oracle, IBM, and Microsoft. Dkt. No. 462-5 ("Anicich Decl.") ¶ 39. SAP's ERP applications do not, and have never, run on top of Teradata's analytical database. Dkt. No. 467-5 ("Mehrotra Decl.") ¶ 127.

ERP Applications allow companies to manage data required to conduct their day-to-day operations across numerous aspects of the business enterprise and are typically designed around a relational transactional database

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Grp., LLC, 809 F.3d 1092, 1096-99 (9th Cir. 2016), *cert. denied sub nom. FCA U.S. LLC v. Ctr. for Auto Safety*, 137 S. Ct. 38 (2016). While I will address all of the sealing requests in a separate order, what is not sealed in this Order does not meet the applicable standard. Further, with respect to those portions of this Order that are sealed, the parties should not assume that I have concluded that they have provided a sufficient basis to seal the information. These redactions are preliminary and should not be taken as an indication about the merits of sealing.

that can ensure users have access to a uniform and current set of data. *Id.*; Dkt. No. 452-11 ("Stiroh Rep.") ¶ 10; Anicich Decl. ¶¶ 24-28. Transactional databases are also known as "online transactional processing" ("OLTP") databases and are typically "row-based," which is advantageous for processing transactions, such as pay roll data, and running a large number of simple transactions concurrently. Mehrotra Decl. ¶ 53.

In contrast, analytical applications are designed to run on a second type of database, known as an analytics or "OLAP" database. Dkt. No. 463-15 ("Sell Depo.") at 18-19. These databases typically store data in columns to optimize the running of a small number of queries with a large number of complex records. Mehrotra Decl. ¶ 60; Dkt. No. 562-6 ("Kraska Decl.") ¶ 22. There are three different types of analytical databases: (1) data marts; (2) enterprise data warehouses ("EDWs"); and (3) data lakes. Sell Depo. at 14. EDWs are large-structured analytics databases that draw data from different sources, e.g., transactional databases, across an enterprise. *Id.* at 13.

In 2009, SAP and Teradata entered into a partnership referred to as the "Bridge Project" to combine SAP's ERP Applications and SAP BW tool interface with Teradata's MPP architecture that it uses in Teradata Database for EDW. Kraska Decl. ¶ 161. During the Bridge Project, Teradata provided SAP with access to its confidential information. SAC ¶ 35. The parties executed two agreements to formalize the Bridge Project, the Software Development Cooperation Agreement ("SDCA") and the Technology Partner Agreement ("TPA"). SAC ¶ 32. These agreements restricted disclosures of each parties' confidential information. *Id.* The parties also entered into a mutual non-disclosure agreement ("Mutual NDA") in December 2008 and June 2009 ("NDAs"). *Id.*

Through the Bridge Project, SAP and Teradata jointly developed "Teradata Foundation" which enabled SAP's ERP applications to use Teradata for the transactional database and data-analytics for EDW activities. Dkt. No. 528-5 ("Graas Decl.") ¶¶ 6-9. While the Bridge Project was underway, SAP was developing another EDW product called SAP HANA ("HANA"). Dkt. No. 530-39 ("Primsch Depo.") at 362. By June 2011, HANA was commercially available. After nearly three years in the Bridge Project, and two months after HANA was made available, SAP unilaterally terminated the joint venture and stopped supporting, selling, and marketing Teradata Foundation. Dkt. No. 529-25 at 068.

In February 2015, SAP launched its latest version of ERP Application, SAP S/4HANA and combined its ERP Application and EDAW products into a single sales offering. S/4HANA is integrated to operate on top of SAP's HANA database, a translytical database with both transactional and analytical functionalities. Anicich Decl. ¶ 40. Customers can purchase HANA either with a full-use license, with no restrictions on how the data within HANA can be used, or a lower-cost limited-use "runtime" license, with database use limited to supporting S/4HANA. Dkt. No. 467-53 ("Zenus Depo.") at 105-115. In other words, if customers want to export their own data from HANA for use with third-party products, they must pay an additional license fee, i.e., an exit fee. Dkt. No. 532-41 at 583.

II. PROCEDURAL HISTORY

On June 19, 2018, Teradata filed a complaint against SAP alleging, among other things, misappropriation of its trade secrets and violation of antitrust laws.[2] Dkt. No. 1.

[2] This case is related to *Teradata v. SAP*, No. 20-CV-06127-WHO.

On December 12, 2018, I granted in part and dismissed in part SAP's motion to dismiss. Dkt. No. 65 ("MTD Order"). On December 21, 2018, Teradata filed a second amended complaint alleging that SAP disingenuously entered a joint venture with it to steal its trade secrets and develop a competing product, HANA, misappropriating trade secrets, and violating antitrust laws in the process. *See* Dkt. No. 67 ("SAC"). The following claims remain at issue: whether SAP misappropriated Teradata's trade secrets related to the Batched Merge method and whether SAP unlawfully tied its ERP applications to its HANA product.[3] SAP answered on January 11, 2019 and filed counterclaims related to five of its patents on May 29, 2019. *See* Dkt. Nos. 72, 106. SAP's remaining patent infringement counterclaims concern the following patents: the '421 Patent, the '321 Patent, and the '179 Patent. On June 12, 2020, I held a claims construction hearing, and issued an order on July 15, 2020. Dkt. No. 279 ("Claim Construction Order"). On August 25, 2021, Teradata and SAP filed all of the motions at issue.

LEGAL STANDARD

I. SUMMARY JUDGMENT

A party is entitled to summary judgment where it "shows that there is no genuine dispute as to any material fact and [it] is entitled to judgment as a matter of law." FED. R. CIV. P. 56(a). A dispute is genuine if it could reasonably be resolved in favor of the nonmoving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A

[3] The parties dispute whether Teradata asserted a new tying theory during the summary judgment briefing, i.e., that SAP unlawfully tied S/4HANA to HANA's analytical capabilities through licensing. *See infra* Part I.B.3.

fact is material where it could affect the outcome of the case. *Id.*

The moving party has the initial burden of informing the court of the basis for its motion and identifying those portions of the record that demonstrate the absence of a genuine dispute of material fact. *See Celotex Corp. v. Catrett*, 477 U.S. 317, 323-24 (1986). Once the movant has made this showing, the burden shifts to the nonmoving party to identify specific evidence showing that a material factual issue remains for trial. *Id.* The nonmoving party may not rest on mere allegations or denials from its pleadings but must "cit[e] to particular parts of materials in the record" demonstrating the presence of a material factual dispute. FED. R. CIV. P. 56(c)(1)(A); *see also Liberty Lobby*, 477 U.S. at 248. The nonmoving party need not show that the issue will be conclusively resolved in its favor. *Id.* at 248-49. All that is required is the identification of sufficient evidence to create a genuine dispute of material fact, thereby "requir[ing] a jury or judge to resolve the parties' differing versions of the truth at trial." *Id.* (internal quotation marks omitted). If the nonmoving party cannot produce such evidence, the movant "is entitled to . . . judgment as a matter of law because the nonmoving party has failed to make a sufficient showing on an essential element of her case." *Celotex*, 477 U.S. at 323.

On summary judgment, the court draws all reasonable factual inferences in favor of the nonmoving party. *Liberty Lobby*, 477 U.S. at 255. "Credibility determinations, the weighing of the evidence, and the drawing of legitimate inferences from the facts are jury functions, not those of a judge." *Id.* However, conclusory and speculative testimony does not raise a genuine factual dispute and is insufficient to defeat summary judgment. *See Thornhill*

Publ'g Co., Inc. v. GTE Corp., 594 F.2d 730, 738-39 (9th Cir. 1979).

II. FEDERAL RULES

Federal Rule of Evidence 702 allows a qualified expert to provide an opinion where:

> (a) the expert' scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
>
> (b) the testimony is based on sufficient facts or data;
>
> (c) the testimony is the product of reliable principles and methods; and
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

FED. R. EVID. 702.

Expert testimony is admissible under Rule 702 "if it is both relevant and reliable." *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993). "[R]elevance means that the evidence will assist the trier of fact to understand or determine a fact in issue." *Cooper v. Brown*, 510 F.3d 870, 942 (9th Cir. 2007). Under the reliability requirement, expert testimony must "relate to scientific, technical, or other specialized knowledge, which does not include unsubstantiated speculation and subjective beliefs." *Id.* To ensure reliability, the court must "assess the [expert's] reasoning or methodology, using as appropriate such criteria as testability, publication in peer reviewed literature, and general acceptance." *Primiano v. Cook*, 598 F.3d 558, 565 (9th Cir. 2010). These factors are "helpful, not definitive," and a court has discretion to decide how to test reliability "based on the particular circumstances of the particular case." *Id.* (internal quotation marks and footnotes omitted).

The inquiry into the admissibility of expert testimony is "a flexible one" where "[s]haky but admissible evidence is to be attacked by cross examination, contrary evidence, and attention to the burden of proof, not exclusion." *Id.* at 564. "When the methodology is sound, and the evidence relied upon sufficiently related to the case at hand, disputes about the degree of relevance or accuracy (above this minimum threshold) may go to the testimony's weight, but not its admissibility." *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 852 (Fed. Cir. 2010). The burden is on the proponent of the expert testimony to show, by a preponderance of the evidence, that the admissibility requirements are satisfied. FED. R. EVID. 702 advisory committee notes.

"Trial courts must exercise reasonable discretion in evaluating and in determining how to evaluate the relevance and reliability of expert opinion testimony." *United States v. Sandoval-Mendoza*, 472 F.3d 645, 655 (9th Cir. 2006). A district court serves as "a gatekeeper, not a fact-finder." *Id.* at 654.

DISCUSSION

I. SAP'S MOTION FOR SUMMARY JUDGMENT

SAP moves for summary judgment on Teradata's technical trade secret claims, business trade secret claims, attempted monopolization claim, and tying claim. Dkt. No. 467 ("SMSJ"). During the briefing, however, Teradata stipulated to the dismissal of its attempted monopolization claim. Dkt. No. 545. It also voluntarily dropped its federal Defend Trade Secrets Act ("DTSA") claim regarding its business trade secrets. Dkt. No. 542 ("Opp. SMSJ") at 25. It continues to assert claims related to trade secrets 54-56 under the California Uniform Trade Secrets Act ("CUTSA"). *Id.* SAP's motion for summary

judgment related to Teradata's attempted monopolization claim and business trade secret claims under the DTSA is therefore **DENIED** as moot. Teradata opposes SAP's motion related to its technical trade secret claims and its tying claim.

A. Trade Secret Claim

SAP moves for summary judgment on Teradata's technical trade secret claims. SMSJ at 2-12. Over the course of this case, Teradata's trade secret allegations have significantly narrowed and now focus on only one category of technical trade secrets: the Batched Merge method ("Asserted Trade Secret"), [Redacted] Dkt. No. 528-9 ("Walter Decl.") ¶¶ 3-12. SAP asserts that Teradata does not have standing to sue, it failed to mark the Asserted Trade Secret as confidential, as required by its agreements with Teradata, and that SAP is contractually authorized to use the product that incorporates Teradata's Asserted Trade Secret. SMSJ at 2-12.

1. Standing

SAP asserts that Teradata lacks standing to assert its technical trade secret claims because Teradata assigned the claims to Marlin Equity, a third-party firm. SMSJ at 10. On April 22, 2016, Teradata sold to Marlin a portion of its assets related to its "Marketing Execution and Marketing Operations" business, or Teradata's Marketing Applications Business ("TMA Business") as defined in the Asset Purchase Agreement ("APA"). Dkt. No. 543-3 ("APA") at 15. In the APA, Teradata assigned to Marlin contracts that were material to the TMA Business or "Material Contracts" as defined in the APA. *Id.* at 42. Teradata expressly identified the SDCA as a "Material Contract." Dkt. No. 464-26 at ("APA Schedule") at 163. In ad-

dition, Teradata's general counsel wrote to SAP that Teradata was assigning away "all of Teradata's rights, title and interests in, to, and under the" SDCA and that it "should deal solely" with Marlin. Dkt. No. 464-1 ("Lanier Decl., Ex. 58"). Teradata acknowledges that it provided the Asserted Trade Secret to SAP "[d]uring the Bridge Project, subject to the terms of the parties' agreements" such as the SDCA. SAC ¶ 34. SAP asserts that because the SDCA is material to the TMA Business under the APA, Teradata's alleged trade secrets claims are also material to the TMA Business and therefore that Teradata assigned all such claims to Marlin. SMSJ at 11.

Teradata contends that no assignment occurred because (1) any assignment required SAP's consent and SAP never consented and (2) the listing of the SDCA in the APA was a mistake and not part of the assignment. Opp. SMSJ at 11. Section 14.9 of the SDCA states that "Neither party may assign this Agreement . . . except with the express written consent of the other Party." SDCA ¶ 14.9. Similarly, Section 5.5(b) of the APA states, "Notwithstanding anything in this Agreement to the contrary, this Agreement shall not constitute an assignment, sale, transfer, conveyance etc., with respect to any Transferred Asset, or any right thereunder if an assignment, sale, transfer . . . without the Third-Party Consent of, or other action by, any third party, would constitute a breach or other contravention of the terms of such Transferred Asset." APA § 5.5(b); Dkt. No. 596 ("Hearing Tr.") at 6.

It is undisputed that SAP did not consent to the assignment of the SDCA under the APA. Dkt. No. 532-6 ("Weber Depo.") at 81-83. But SAP asserts that its consent is irrelevant to the issue of assignment under the SDCA's choice-of law, New York law. Reply SMSJ at 2-3.

New York courts have "consistently held that assignments made in contravention of a prohibition clause [e.g., a contractual provision prohibiting assignments without the written consent of a party] in a contract are void if the contract contains clear, definite, and appropriate language declaring the invalidity of such assignments." *Sullivan v. Int'l Fid. Ins. Co.*, 465 N.Y.S.2d 235, 237 (1983) (collecting cases); *see also Purchase Partners, LLC v. Carver Fed. Sav. Bank*, 914 F. Supp. 2d 480, 505 (S.D.N.Y. 2012), *on reconsideration in part*, 2013 WL 1499417 (S.D.N.Y. Apr. 10, 2013) (holding that a transfer was valid because even though the agreement prohibited transfers or assignment without the written consent of the other party, it did not state that "any such transfer or assignment would be invalid or void."). The SDCA does not contain clear, definite, and appropriate language declaring the invalidity of an assignment made without SAP's consent. The assignment of the SDCA to Marlin is therefore valid.

Even if SAP had consented and its claims were subject to the assignment, Teradata contends that summary judgment should be denied because whether the SDCA was listed in the APA by mistake is a disputed factual issue and that the APA should be reformed to rectify the mistake. Opp. SMSJ at 11 n.15. It argues that because the SDCA is not related to the TMA Business, its inclusion in the APA was a mistake.

The APA is governed by Delaware law. APA § 11.3(a). "Claims for contract reformation require proof by clear and convincing evidence." *Parke Bancorp Inc. v. 659 Chestnut LLC*, 217 A.3d 701, 710 (Del. 2019). In cases of unilateral mistake, reformation is permissible only when "the other party knew of the mistake but remained silent." *Scion Breckenridge Managing Member, LLC v.*

ASB Allegiance Real Est. Fund, 68 A.3d 665, 680 (Del. 2013). In cases of mutual mistake, reformation is permissible only if the parties "came to a specific prior understanding . . . that differed materially from the written agreement." *Parke Bancorp*, 217 A.3d at 710.

Teradata does not show by clear and convincing evidence that Marlin knew of Teradata's mistake and remained silent or that Marlin and Teradata expressed an intent to agree to terms that differed from the terms in the APA. Instead, it contends that Steven Weber, its Global Head of Deal Management, testified that the SDCA or the Teradata Database "does not have anything to do with the TMA products" and that the letter from Teradata's general counsel was sent in error. Opp. SMSJ at 11. But such self-serving testimony is not evidence that there was either a unilateral or mutual mistake necessary for contract reformation. Reply SMSJ at 3. The APA is unambiguous and so "the writing itself is the sole source for gaining an understanding of intent." *Penton Bus. Media Holdings, LLC v. Informa PLC*, 252 A.3d 445, 461 (Del. Ch. 2018). Because Teradata fails to identify sufficient evidence to create a genuine dispute of material fact, whether the SDCA was listed in the APA by mistake cannot preclude summary judgment.

In contrast, Teradata contends that neither the APA nor the SDCA assigns Teradata's trade secrets to Marlin and "without a clear assignment of the underlying intellectual property," it cannot have assigned its trade secret claims to Marlin. *Id.*at 12. SAP asserts that the question about whether the APA assigned the Asserted Trade Secret itself is irrelevant; the relevant question is whether Teradata assigned the right to sue for misappropriation of the Asserted Trade Secret. Reply SMSJ at 3-4. It argues that Teradata did because it assigned to Marlin "[a]ll

Intellectual Property that is Related to the TMA Business," e.g., "trade secrets and confidential proprietary business information" and Teradata's claim is based on trade secrets purportedly provided subject to the SDCA's terms, which is "primarily related" to the TMA business. APA § 2.1(e); APA at 8. It also assigned to Marlin "[a]ll rights to Any Actions of any nature available to or being pursued by any member of [Teradata] to the extent related to the TMA Business" and "[a]ll goodwill and the going concern value of the TMA Business or the Marks included in the Transferred IP, and the right to sue for and recover for damages and profits for past and future infringements and misappropriations by any third party of any part of any of the Transferred IP owned by any member of [Teradata]." *Id.* §§ 2.1(h), (k). Teradata responds that its trade secret claims are not primarily related to the SDCA because its claims are for misappropriation and not breach of contract. Hearing Tr. at 7-8. It also contends that no actual intellectual property was ever conveyed. *Id.*

At the very least, there is a genuine dispute of whether Teradata's trade secret claims fall outside the scope of the assignment. Teradata has standing to pursue its trade secret claims.

2. Marketing the Asserted Trade Secret Communications as Confidential

SAP asserts that Teradata's Batched Merge method trade secret claims also fail, however, because Teradata never marked as confidential any of the communications that purportedly disclosed the trade secrets as required by the NDAs. SMSJ at 13. The NDAs governed the sharing of confidential information during the Bridge Project and stated that "Confidential Information" shall mean the following:

> "[A]ll information which Disclosing Party protects against unrestricted disclosure to others, furnished by the Disclosing Party . . . to the Receiving Party . . . in writing or in other tangible form and clearly identified as confidential or proprietary at the time of disclosure marked with an appropriate legend indicating that the information is deemed confidential or proprietary by the Disclosing Party . . . Where the Confidential Information has not been reduced to written or other tangible form at the time of disclosure, and such disclosure is made orally or visually, the Disclosing Party agrees to identify it as confidential or proprietary at the time of disclosure and to summarize the Confidential Information in writing and deliver such summary within thirty (30) calendar days of such oral or visual disclosure provided . . . ."

Dkt. No. 463-27 ("Mutual NDA 1") ¶ 2; Dkt. No. 463-28 ("Mutual NDA 2") ¶ 2.

There are two documents at issue, different versions of the same document created by John Graas, a Teradata employee, that were marked confidential ("Marked Document"). See Dkt. Nos. 464-3 (version 1), 463-24 (version 6). Teradata contends that the first version of the Marked Document from July 2008 identifies the Batched Merge method and explained how the method could resolve SAP's problems. Opp. SMSJ at 14. But its witness, Graas, concedes that the first version of the Marked Document "does not contain the details of the overall batched merge method that was conveyed – conveyed to SAP" and only "listed the batched merge method . . . as a reference." Dkt. No. 462-17 ("Graas Depo.") at 106, 109. He explained that "the entire explanation of the batched merge method . . . would not have been in writing" and that he would "have conveyed it verbally within the meeting explaining to

[SAP] what I meant with the [batched merge method] and how it worked." *Id.* at 84, 105.

The sixth version from August 2010, however, explained the manner in which the Batched Merge method was implemented to address deficiencies that prevented SAP from processing large batches of data. Opp. SMSJ at 13; Dkt. No. 463-24 § 4.2. SAP does not dispute that the sixth version contains the details of the Batched Merge method but argues that there is no evidence that Graas ever sent the sixth version to SAP. Graas Depo. at 268 ("Q: Do you have any records, any evidence at all, of version 6 being shared with SAP in any way? A: I don't recall."). It relies on *Prostar Wireless Grp., LLC v. Domino's Pizza, Inc.*, 360 F. Supp. 3d 994 (N.D. Cal. 2018), to argue that because "there was *no* evidence that the defendant had access to the trade secrets" the sixth version of the Marked Document cannot be the basis for a trade secret claim. Reply SMSJ at 6 (citing *Prostar Wireless*, 360 F. Supp. at 1002). Teradata objects and contends that *Prostar Wireless* is distinguishable because SAP does not dispute that it received the five prior versions of the document. Opp. SMSJ at 13 n.17. But Section 4.2 of the sixth version, which conveys how the Batched Merge Method was implemented, is not in any other version. Reply SMSJ at 6 n.3; *see* Dkt. Nos. 530-19 at 224-25, 464-3, 529-27, 529-28, 529-29. The first version of the Marked Document therefore fails to put SAP on notice about the allegedly confidential Batched Merge Method; there is no evidence that SAP received the sixth version.

The question then is whether Teradata's trade secret claims fail because of its failure to mark as confidential the communications that allegedly conveyed the Batched Merge Method. Teradata contends that its claims do not

fail because, as SAP admits, Graas testified that he conveyed the Batched Merge Method orally to SAP employees in relation to the first version of the Marked Document. Opp. SMSJ at 15-17. It argues that the MNDA does not require marking subsequent oral discussion of confidential information already marked as confidential and even if it did, the parties waived this requirement through their conduct. *Id.* at 17. SAP responds that its argument is not that the NDAs require marking subsequent oral discussions of confidential information already marked as confidential but that Graas never disclosed the claimed trade secret in a writing marked as confidential in the first place. Reply SMSJ at 6.

It also asserts that the parties have not waived the marking requirement through their conduct. *Id.* at 7. The NDAs contain no-waiver provisions and therefore "Teradata must prove that SAP intentionally relinquished the marking provision and the no-waiver provision itself." *Id.*; Mutual NDA 1 ¶ 15; Mutual NDA 2 ¶ 15. Under New York law, waiver "'should not be lightly presumed' and must be based on 'a clear manifestation of intent' to relinquish a contractual protection." *Kassab v. Kasab*, 195 A.D.3d 832, 838 (N.Y. App. Div. 2021).

There is no clear manifestation of intent to relinquish either provision here. Teradata contends that there is waiver based on the conduct of its and SAP's employees "that shows that the parties intended that subsequent oral discussions of information already identified as confidential would be treated confidentially." Opp. SMSJ at 17-18. In support, it emphasizes testimony from various SAP employees, including SAP's CTO, where they state that they were required to protect Teradata's confidential information. *See, e.g.*, Dkt. No. 532-1 ("Sikka Depo.") at 58-59 ("Q: So if it turned out that somebody on your team

took Teradata confidential information and used it in the development of NewDB, would that . . . be consistent with your understanding of the confidentiality obligations between SAP and Teradata? [Objection to form] A: No, it would not be consistent with it."); Dkt. No. 530-25 ("Holetke Depo.") at 120 ("Q: So you cannot imagine sharing Teradata's confidential information with other groups at SAP? [Objection to form] A: Yes."); Dkt. No. 530-39 ("Primsch Depo.") at 354-55 ("Q: Employees working on the Bridge Project would not have shared [internal] information outside of SAP or Teradata? A: To — to the extent, yes."). It also emphasizes an email from an SAP employee telling colleagues not to share "internal information of TD [Teradata]" with IBM. Dkt. No. 529-30 at 437. These are not evidence of a clear manifestation of SAP's intent to relinquish either provision in the Mutual NDAs. As SAP points out, it is not apparent from the testimonies what information was "confidential" under the Mutual NDAs, only that information reduced to writing and marked confidential is confidential. Reply SMSJ at 7-9.

SAP asserts that Teradata's trade secret claims therefore necessarily fail because Teradata failed to comply with its contractual obligation to designate information as confidential when it disclosed the alleged Batched Merge Method trade secret to SAP. It requests that I reconsider my analysis of *PQ Labs, Inc. v. Yang Qi*, No. 12–CV–0450–CW, 2014 WL 334453, at *4 (N.D. Cal. Jan. 29, 2014) in the prior MTD Order, where I rejected SAP's arguments that failure to satisfy the contractual marking requirement requires the dismissal of Teradata's claims because I concluded that there may be other ways for Teradata to have disclosed its trade secrets to SAP. MTD Order at 8-9. For example, the Mutual NDAs "were only two of four contracts involved in the Bridge Project to ensure that Teradata's proprietary information would not be

misappropriated or reverse engineered." *Id.* at 9. But with the record on summary judgment, it is clear that *PQ Labs* case is distinguishable from this case.

In *PQ Labs*, the court held that the marking requirement was irrelevant because PQ Labs had "presented evidence that it used other means to notify its employees and agents that its technological and customer information was confidential." *PQ Labs*, 2014 WL 334453, at *4. But unlike this case, there was no contractual marking requirement in *PQ Labs;* instead, the marking requirement derived from non-precedential Tenth Circuit case law. *Id.*

In contrast, a case like *Convolve Inc. v. Compaq Computer Corp.,* 527 F. App'x 910 (Fed. Cir. 2013) is more analogous. In *Convolve*, there was a contractual marking requirement "to confirm in writing, within twenty (20) days of the disclosure, that the information was confidential." *Id. at* 923. The Federal Circuit affirmed the district court's decision that there was no misappropriation of trade secrets because the appellant had failed to protect the confidentiality of its information. *Id.* at 921-22. It also held that there was no waiver or modification of the marking requirement because "the testimony of a single Seagate employee that he believed that all disclosures were confidential . . . is not indicative of the mutual intent of both parties." *Id.* at 924.

Likewise, Teradata's technical trade secret claims fail because it failed to protect the confidentiality of its information. Even if *PQ Labs* was analogous to this case, there is no evidence that Teradata notified SAP of the confidentiality of the Batched Merge method through other means. Reply SMSJ at 8-9.

3. Contractual Right to Use the Asserted Trade Secret in Any SAP Product

Even if Teradata had sufficiently protected the confidentiality of the Batched Merge method, SAP asserts that it is contractually authorized to use any "Confidential Information" under the NDAs in any product. SMSJ at 16. Teradata has sued SAP for "using the proprietary information conveyed by John Graas pertaining to Teradata's batched merge method." Dkt. No. 464-14 ("Lanier Decl., Ex. 72") at 8. The Batched Merge method "is alleged to have been incorporated into the Bridge Project software (the MaxDB Bridge, also called the Teradata Foundation)—and then allegedly into the interface between SAP applications and HANA ("Native FAE")," also known as the conceptual design. Id. at 17.

According to SAP, both the software and its conceptual design are SAP property. *Id.* Section 10 of the SDCA outlines the "Proprietary Rights of the Parties." SDCA § 10. It states that SAP owns all rights to "the Conceptual Design [and] the SAP Interface in the form originally supplied by SAP as well as any modified versions," and the "software code that is necessary to adapt its software to" Teradata's database, including SAP's Interface. *Id.* § 10.1. The "Conceptual Design" is defined as "the description of the functional specifications of the SAP Interface or any other architecture, guideline or specification developed by or with SAP concerning or related to the integration of the [Teradata Database] with the [SAP BW product]." *Id.* § 1.2. "SAP Interface" is defined as "an application interface developed by or with SAP that resides on or in the SAP Software and which, when activated will give access to the Partner's Solution [i.e., Teradata's database]." *Id.* § 1.11. And section 10.3 states that "any and all Intellec-

tual Property Rights to or arising out of any Newly Developed Materials shall belong to SAP" and "Newly Developed Materials" is defined as "any software . . . developed by SAP and/or [Teradata] in connection with or as a result of a party's interaction with the other party within the context of this Agreement." *Id.* §§ 1.8, 10.3.

Teradata responds that SAP's arguments depend on the Batched Merge method falling under certain SDCA provisions, but resolving which provision applies depends on disputed factual issues. Opp. SMSJ at 21. It argues that the Batched Merge trade secrets are not part of SAP's Interface or Conceptual Design but rather Partner Materials under the SDCA, and therefore when SAP ended the Bridge Project, its license to use the Batched Merge method terminated. *Id.* The SDCA defines "Partner Materials" as "any and all Intellectual Property Rights in any programs, tools, systems, data or materials utilized or made available by Partner [Teradata] in the course of the performance under this Agreement," which "shall remain vested exclusively in [Teradata]" but "[s]ubject to any rights expressly granted to SAP hereunder." SDCA § 10.2. Section 9.2 of the SDCA limits use of Teradata's Partner Materials to five specific purposes, none of which include the development of SAP's HANA product; therefore, SAP was only allowed to use these materials "during the Term" of the SDCA. Opp. SMSJ at 21-22. Section 9.2 provides SAP a limited license to "the Partner Solution, related Documentation, and any other programs, tools, or other materials provided by Partner to SAP under a Project Plan." SDCA § 9.2.

SAP points out that Teradata does not and cannot explain how Graas's suggestions are any of the above. Reply SMSJ at 11. Graas's suggestions are not the Partner So-

lution, which is defined as only the Teradata Database itself, not the Database, not the documentation related to the database such as manuals, not a program and not a tool. *See* SDCA § 1.9. As SAP asserts, Graas's suggestions do not fall under section 9.2, the purpose of which is to prevent SAP from using Teradata's Database itself. *Id.* Instead, section 9.4 encompasses Graas's input, as explained below.

Teradata argues that the Batched Merge method was neither developed in connection with or as a result of the parties' interactions within the context of the SDCA, nor developed by or with SAP as the Conceptual Design. Opp. SMSJ at 22; see SDCA § 10.03. Accordingly, Section 10.3 ("Newly Developed Materials") could not apply because those intellectual property rights existed prior to the Bridge Project. But whether Teradata owned the Batched Merge method and incorporated it into its own software before the Bridge Project is irrelevant. SAP does not argue that it owns the Batched Merge method but rather that "it owns the new software that includes the optimizations based on SAP's interactions with Graas." *Id.* at 10.

Section 10.2, which provides an exception to the rights expressly granted to SAP under the SDCA, does not change the fact that Section 10.1 expressly licenses to SAP the right to use Graas's input—i.e., his conversation with SAP employees—in any product. SMSJ at 18. Both the SDCA and the Mutual NDAs permit SAP to use any Teradata feedback or input regarding SAP's products, even if such information was marked confidential. *Id.* (citing SDCA §§ 9.4, 12; Mutual NDA 1 § 7, Mutual NDA 2 § 7).

For example, Section 9.4 of the SDCA provides,

> "Partner [Teradata] grants to SAP a worldwide, non-exclusive, royalty-free fully paid up, perpetual and irrevocable license to use, reproduce, display, distribute, create derivative works, or sublicense any Input submitted by Partner [Teradata] to SAP with resect to any deliverables or other items that SAP provides or shall provide to the Partner . . . To the extent that any such Input is incorporated into an SAP product, any inherent disclosure of Confidential and/or trade secret Information of Partner through the exercise of the license grants set forth in this Section 9.4 shall not constitute a breach of this Agreement including, but not limited to, any agreement between the Parties with respect to such Confidential or trade secret information referenced herein."

SDCA § 9.4. The SDCA states that "Input" means "suggestions, comments, and feedback (whether in oral or written form), including any included ideas and know-how, voluntarily provided by one Party to the other Party with respect to the work performed under this Agreement." *Id.* § 1.6. Similarly section 7 of the Mutual NDAs state,

> "During the course of this Agreement, Company [Teradata] may provide or SAP may solicit Company's input regarding SAP's Software, products, services, business or technology plans, including, without limitation, comments or suggestions regarding the possible creation, modification, correction, improvement or enhancement of SAP Software, products and/or services . . . (collectively, 'Company Feedback') . . . In order for SAP to utilize such Company Feedback Company grants to SAP a non-exclusive, perpetual, irrevocable, worldwide, royalty-free license . . . SAP shall be entitled to use Company Feedback for any purpose

> without restriction or remuneration of any kind with respect to Company."

Mutual NDA 1 § 7, Mutual NDA 2 § 7.

According to SAP, Graas's suggestions to SAP engineers about how to approach a command/query coming from SAP applications to work more efficiently with the Teradata database qualifies as "Input" under the SDCA and "Company Feedback" under the Mutual NDAs. SMSJ at 18-19. Teradata does not dispute that Graas's disclosures fall within "input," but it argues that the Batched Merge method was not mere "Input." Opp. SMSJ at 23; Reply SMSJ at 10. It argues that the trade secret is a proprietary method developed over many years, is something that could not be fixed through a mere "thought" or "offhand comment," and took SAP more than a year to understand that it was necessary and months more to implement it. Opp. SMSJ at 23. As SAP points out, however, the license is not limited to thoughts or offhand comments but rather distinguishes Teradata software, which SAP could only use for the purposes of the Bridge Project, and changes made to SAP software, which could be used in any SAP product under section 9.3 of the SDCA. Reply SMSJS at 10-11. As a result, SAP has the right under the agreements to use the alleged Batched Merge method in its products outside of the Bridge Project. SMSJ at 19.

Finally, the parties dispute whether SAP's interpretation of the SDCA contradicts the implied covenant of good faith and dealing. "In every contract there is an implied covenant that neither party shall do anything which will have the effect of destroying or injuring the right of the other party to receive the fruits of the contract, which means that in every contract." *Kirke La Shelle Co. v. Paul Armstrong Co.*, 263 N.Y. 79, 188 N.E. 163, 164 (1933). But

it cannot be used "to add contract terms that contradict the unambiguous provisions of the written contracts." *Atlas Equity, Inc. v. Chase Bank USA, N.A.*, 403 F. App'x 190, 192 (9th Cir. 2010). Teradata contends that the SDCA's purpose was to develop a joint solution that connects its hardware and software with SAP Business solutions and jointly promote the solution. SDCA, Preamble. According to Teradata, "SAP's interpretation of SDCA's license provisions—that it could use what it took from Teradata to develop and sell a competing product simultaneously—would destroy these benefits." Opp. SMSJ at 24. SAP responds that Teradata's argument contradicts its intent when it entered into the SDCA. Reply SMSJ at 12. Teradata knew that SAP was not working exclusively with Teradata on updates to its MaxDB database and knew that under the SDCA, all developments of SAP products would be owned by SAP even if made by Teradata. *See* SDCA § 2.3 ("This Agreement is not exclusive. SAP or Partner may enter into similar agreements with other partners."); SDCA § 10.1.

Accordingly, there is no genuine dispute of fact that Teradata not only failed to protect the confidentiality of its alleged trade secrets but also that SAP has a contractual right to use the alleged Batched Merge method in its own product. SAP's motion for summary judgment on Teradata's technical trade secret claims related to the Batched Merge method are **GRANTED**.

4. Related Motions to Exclude Expert Testimony

Two of Teradata's motions to exclude expert testimony relate to its trade secret claims. The first is Teradata's motion to exclude ten paragraphs in the report of SAP's computer science expert Tim Kraska. Dkt. Nos.

466, 495 at 1. Teradata asserts that Kraska improperly offers opinions regarding his interpretation of the SDCA and the Mutual NDAs. *Id.* Because none of Teradata's technical trade secret claims survive, I **DENY** Teradata's motion to exclude portions of Kraska's testimony as moot.

The second motion relates to Teradata's business trade secrets and seeks to exclude certain paragraphs in the report of SAP's data management expert Stephen Horn. Dkt. No. 474 ("Horn Mot.") at 1. Horn is SAP's rebuttal expert to Teradata's damages expert, Paul Meyer. Specifically, Teradata moves to exclude Horn's opinions on whether the allegedly stolen Teradata confidential information includes trade secrets, whether use of the confidential information contributed to any sales of SAP HANA, whether Teradata took reasonable measures to protect its confidential information, and what examples are of "reasonable" measures taken by data management companies to protect confidential information. *Id.* (citing Dkt. No. 473-4 ("Horn Reb. Rep.") ¶¶ 19, 21, 51-57, 63-84, 97-105).

First, Teradata asserts that Horn relies in part on documents that he and SAP refuse to produce, which Horn claims show that Teradata's trade secrets were publicly available. Horn Mot. at 4; *see* Dkt. No. 473-5 ("Horn Tr.") at 74 ("Q: Did you do any investigation to see if that information was publicly available in 2011? A: Yes. Actually I was able to use some of my own folders of information . . . Q: But your materials in your folders are not cited in this report; right? A: Correct, because I wanted to keep them confidential."). Teradata seeks to exclude Horn's opinions based on these documents in paragraphs 63-84. SAP responds that Horn bases his opinion on materials he referenced in his report as well as publicly available documents

such as articles, websites, industry reports, laws, and statutes. Dkt. No. 523 ("Horn Opp.") at 2, 9. Further, SAP points out that under the parties' stipulation (Dkt. No. 235 ¶ 3), the parties are only required to produce materials underlying the expert report rather than all materials an expert ever considered and therefore Horn is not required to produce the documents at issue. *Id.* at 10. It contends that Horn does not and will not offer any opinion based on documents that are not available to Teradata. *Id.* at 2. With this understanding, Teradata's motion to strike paragraphs 63-84 because they allegedly include Horn's opinions based on unproduced documents is **DENIED**. Teradata may question Horn about this issue during cross examination as it goes to the weight of his testimony, but it is not a basis for excluding the testimony.

Second, Teradata argues that I should exclude Horn's opinions that present a legal conclusion based on a fundamental misunderstanding of the law. Horn Mot. at 1. Specifically, Teradata asserts that Horn should not be allowed to testify to what is or is not a trade secret because his understanding of the law is incorrect and to allow his testimony would mislead the jury and confuse the issues at trial. *Id.*

Under the CUTSA, "[c]ombinations of public information from a variety of different sources when combined in a novel way can be a trade secret." *O2 Micro Int'l Ltd. v. Monolithic Power Sys., Inc.*, 420 F. Supp. 2d 1070, 1089-90 (N.D. Cal. 2006), *aff'd*, 221 Fed. Appx. 996 (Fed. Cir. 2007). When asked whether "information that's collected through public sources or is otherwise public, when collected together, can still be [a] trade secret," Horn testified that this standard was "totally incorrect." Dkt. No. 473-5 ("Horn. Depo.") at 24. As a result, Teradata argues that Horn should be precluded from testifying about what

types of information would be considered trade secrets and that the allegedly stolen confidential Teradata information cannot be a trade secret because he purportedly found snippets of information from those documents in various public or customer-facing documents. Horn Mot. at 8.

SAP responds that Horn does not provide any legal conclusions in his report and that he is allowed to challenge the factual issue of whether or not Teradata's alleged trade secrets could be ascertained by others outside Teradata. Horn Opp. at 2. But as Teradata points out, Horn does offer legal opinions that Teradata's information are not trade secrets or proprietary to Teradata. *See* Horn Reb. Rep. ¶¶ 73-74, 77, 82. Horn can address the factual issue of whether Teradata's purported trade secret information was ascertainable to others outside of Teradata, but he cannot testify that Teradata allegedly stolen confidential information are not trade secrets. Teradata's motion to exclude Horn's legal conclusions is **GRANTED**.

Third, Teradata asserts that Horn's opinion that its confidential information did not lead to sales of SAP HANA is insufficiently supported because he admits that he failed to conduct any investigation of the sales. Horn Mot. at 1. SAP contends that Horn is not required to replicate Meyer's investigation and that Horn properly relied on SAP's damages expert Leonard, who examined each of the six sales for purposes of his damages analysis. Horn Opp. at 2, 16. Teradata responds that Horn does not simply rely on Leonard's opinions but endorses them by opining that they "are consistent with the commonly prevailing principles in the industry, and with [his] experience and expertise." Horn Reb. Rep. ¶¶ 101-02. It asserts that in the cases on which SAP relies, the "courts have

been careful to either require independent investigation or to strictly limit their testimony to critiquing methodology or assumptions of an opposing expert." Horn Opp. at 7 (citing *TCL Comm'cns. Tech. Holdings Ltd. v. Telefonaktenbologet LM Ericsson*, 2016 WL 7042085, at *5 (C.D. Cal. Aug. 17, 016) (holding "it is proper for [rebuttal] experts to utilize their own independent analyses and methodologies to" rebut expert opinions); *Cmty. Ass'n for Restoration of the Env't, Inc. v. Cow Palace, LLC*, 80 F. Supp. 3d 1180, 1215 (E.D. Wash. 2015) ("recogniz[ing] the limited bases for [rebuttal expert's] rebuttal opinions" given the lack of independent investigation)). Teradata's motion to exclude paragraphs 21, 99-105 of Horn's report is **DENIED** because Horn properly relies on Leonard's analysis, but Horn may not otherwise endorse or offer any affirmative opinions about Leonard's analysis.

Finally, Teradata argues that Horn is not qualified to opine on industry standards regarding the protection of confidential information. Horn Mot. at 1. According to Teradata, Horn has no experience drafting or developing protocols for the protection of confidential information, and therefore cannot base his opinions on what reasonable measures are taken by data management companies. *Id.* at 11. SAP responds that Horn has decades of experience implementing, applying, and working with confidentiality policies of data management companies and, based on that experience, has conducted a more than sufficient review to rebut Meyer's assumptions regarding the alleged confidentiality of Teradata's purported business trade secrets. Horn Opp. at 17-18. Even if Horn did not have the experience, lack of particularized expertise goes to weight rather than admissibility. Teradata's motion to exclude paragraphs 51-57 and 97 is **DENIED**.

B. Tying Claim

SAP moves for summary judgment on Teradata's tying claim. Before I address SAP's motion, I will address two motions to exclude expert testimony and Teradata's objections to SAP's reply evidence.

1. Motion to Exclude Asker Testimony

SAP moves to strike the opinions of Teradata's liability and damages expert, Dr. Asker. Dkt. No. 470 ("Asker Mot.") at 1. Asker opines that the relevant product market for the tying market is "core ERP products for large enterprises." Dkt. No. 468-20 ("Asker Rep.") ¶ 46. Market participants include SAP and Oracle, with Workday and Microsoft appearing as leaders of a fringe of participants. *Id.* He defines the tied market as "EDW products with OLAP capabilities for large enterprises" with market participants such as [Redacted] *Id.* ¶ 78. He opines that SAP has economically significant market power in the tying market, that SAP has caused harm to competition in the tied market, and that there are no procompetitive benefits of the alleged tie. *Id.* ¶¶ 12, 105, 171. Finally, he asserts that Teradata has lost significant profits and will experience significant future losses due to the alleged tying arrangement. *Id.* ¶¶ 181, 192.

a. Tying Product Market

SAP argues that Asker's methodology for defining the tying product market is unreliable because instead of showing cross-elasticity, Asker's primary methodology is "to interpret ordinary course documents produced in the case" and "buttress this qualitative approach with a quantitative 'aggregate diversion analysis'" of the Customer Relationship Management ("CRM") data from SAP and Oracle. Asker Mot. at 5-6; *see* Asker Rep. ¶¶ 63, 64, 70.

In a tying arrangement the seller conditions one product, the tying product, on the buyer's purchase of another product, the tied product, to extend its market power in a distinct product market. *See Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 912 (9th Cir. 2008). A tying arrangement is "forbidden on the theory that, if the seller has market power over the tying product, the seller can leverage this market power through tying arrangements to exclude other sellers of the tied product." *Id.*

i. Cross-Elasticity of Demand

First, SAP asserts that Asker's methodology is flawed because he failed to calculate the cross elasticities for demand among various ERP products. Asker Mot. at 5. As the Supreme Court has instructed, "The outer boundaries of a product market are determined by the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it." *Brown Shoe Co. v. United States*, 370 U.S. 294, 325 (1962). The Ninth Circuit has recognized that "[t]he principle most fundamental to product market definition is 'cross-elasticity of demand' for certain products or services. Commodities which are 'reasonably interchangeable' for the same or similar uses normally should be included in the same product market for antitrust purposes." *Kaplan v. Burroughs Corp.*, 611 F.2d 286, 291-92 (9th Cir. 1979). Cross-elasticity of demand occurs where "an increase in the price of one product leads to an increase in demand for another"; in that circumstance, "both products should be included in the relevant product market." *Olin Corp. v. F.T.C.*, 986 F.2d 1295, 1298 (9th Cir. 1993). As I have previously acknowledged, "[n]umerous cases have recognized the importance of cross-elasticity to determining what products should be included in or excluded from the relevant antitrust market." *United Food & Com. Workers*

Loc. 1776 & Participating Emps. Health & Welfare Fund v. Teikoku Pharma USA, 296 F. Supp. 3d 1142, 1167 (N.D. Cal. 2017) (collecting cases).

Teradata contends that Asker was not required to measure cross-elasticity of demand, especially where, as here, it was not possible to calculate cross-elasticities. Dkt. No. 537 ("Asker Opp.") at 7. It points to three district court cases where the court relied on an expert's methodology that did not use cross-elasticities and instead used "practical indicia" as outlined by the Supreme Court in *Brown Shoe* to determine the boundaries of a product market. *See Epic Games, Inc. v. Apple Inc.*, No. 20-CV-05640-YGR, 2021 WL 4128925, at *85 (N.D. Cal. Sept. 10, 2021); *In re Live Concert Antitrust Litig.*, 863 F. Supp. 2d 966, 984-86 (C.D. Cal. 2012); *Nobody in Particular Presents, Inc. v. Clear Channel Comm'ns, Inc.*, 311 F. Supp. 2d 1048, 1082 (D. Colo. 2004). Teradata's reliance on these three cases, however, is misplaced.

In *Epic Games*, the court focused on practical indicia and not cross-elasticities when determining the submarket. *Epic Games*, 2021 WL 4128925, at *85. This is proper under *Brown Shoe* and Ninth Circuit precedent. "In limited settings . . . the relevant product market may be narrowed beyond the boundaries of physical interchangeability and cross-price elasticity to account for identifiable submarkets or product clusters." *Thurman Indus., Inc. v. Pay 'N Pak Stores, Inc.*, 875 F.2d 1369, 1374 (9th Cir. 1989). "The boundaries of such a submarket may be determined by examining such practical indicia as industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors." *Brown Shoe*, 370 U.S. at 325. Here, Asker is not

defining a submarket but the tying product market. He also does not address the practical indicia under *Brown Shoe.*[4]

In *In re Live Concert*, the court held that "while calculating the cross-elasticity of demand (and supply) is the preferred methodology, it is not an absolute requirement" and found that "it is usually necessary to consider other factors that can serve as useful surrogates for cross-elasticity data" because "it is ordinarily quite difficult to measure cross-elasticities of supply and demand accurately." *In re Live Concert*, 863 F. Supp. at 984. Likewise, in *Clear Channel*, the court found "that a plaintiff may, through sufficient evidence of other indicia of market definition, define a relevant market without economic study of cross-elasticity of demand, especially when economic analysis of cross-elasticity of demand is infeasible based on pricing data." *Clear Channel*, 311 F. Supp. at 1082. Both courts then evaluated the sufficiency of the expert's methodology that was based on the *Brown Shoe* practical indicia factors. *See, e.g.*, *Clear Channel*, 311 F. Supp. at 1083 (finding that the expert's methodology is sufficient). The

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[4] During the hearing, Teradata's counsel asserted for the first time that Asker's methodology was proper because market definition can be determined based on practical indicia. Hearing Tr. at 31. Its counsel expressly identified one factor, industry or public recognition of the market, as a separate economic entity. *Id.* But the case on which Teradata relies holds that, "[t]he existence of three or four of these indicia has been held 'sufficient to delineate a submarket,'" not one. *In re Live Concert Antitrust Litig.*, 863 F. Supp. at 989. As explained in the subsequent sections, there is no evidence of three or four of these practical indicia. *See Brown Shoe*, 370 U.S. at 325 (practical indicia are "industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors.").

court in *In re Live Concert* recognized that the Ninth Circuit "has never expressly held that . . . a plaintiff's expert economist[] can define the relevant product market exclusively by reference to these 'practical indicia.'" *In re Live Concert*, 863 F. Supp. at 986, 985. But for the purposes of the motion, it assumed that an expert economist could and found that the expert's purported market definition was "neither sufficiently reliable nor sufficiently helpful to the trier of fact to warrant admission under Rule 702" because the expert's analysis (1) fails to comport with his "chosen methodology (i.e., the "SSNIP" methodology); (2) is effectively predicated on the analysis of a single *Brown Shoe* factor; and (3) fails to consider the cross-elasticity of supply." *Id.* at 994.

Teradata contends that it was "not possible to calculate cross-elasticities" here because third parties such as Oracle, IBM, and Microsoft were not "ordered to produce the type of granular data required to calculate cross-elasticities of demand." Asker Opp. at 7. It also argues that SAP's expert, Dr. Stiroh, admits that such data is unavailable. *Id.* at 8; *see* Dkt. No. 541-33 ¶ 62 ("Econometric methods include the estimation of the cross-price elasticity of demand. However, I have not seen data in this case that can be used to reliably estimate actual lost sales and diversion ratios in response to price changes of different ERP products."). SAP responds that Teradata did not request any data from third parties that would have permitted analysis of cross-elasticity of demand. Dkt. No. 555 ("Asker Reply") at 2.

Regardless, Teradata contends that Asker does, in fact, analyze cross-elasticity of demand. Hearing Tr. at 29. According to Teradata, although Asker does not have an econometric estimation of cross-elasticity, he looks at

cross-elasticity, i.e., substitutability, from a quantitative and qualitative standpoint. *Id.*

ii. Qualitative Analysis

SAP asserts that Asker's qualitative approach is unreliable because it is based on "his own subjective interpretation of ordinary course documents" and his inconsistent use of evidence. Asker Mot. at 5, 7. In particular, it criticizes Asker's definition of "core ERP" and "large enterprises" ("LEs") in his tying product market definition of "core ERP products for large enterprises," composed of SAP and Oracle. Asker Opp. at 9.

For "core ERP," SAP asserts that Asker changes its definition to fit his needs. *Id.* at 7. For example, Asker defines "core ERP" as products that "are identified with reference to the finance modules of ERP software." Asker Rep. ¶ 9. According to Exhibit 2 in Asker's initial report, however, only 30% of "core EP" is finance and the other 70% is human resources, procurement, R&D sales, supply chain, and travel. *See id.* at 33, Ex. 2. But Asker mainly focuses on finance when defining "core ERP." He explains that "[w]hile there are various core ERP definitions, a consistent feature of core ERP is that it includes finance." *Id.* ¶ 48. And none of SAP's three economic experts dispute Asker's relevant market definition. *See, e.g.*, Dkt. No. 532-3 ("Stiroh Depo.") at 108-09 ("Q: And you don't dispute in your report that Dr. Asker's opinion that the relevant product market for S/4HANA is limited to core ERP products; is that right? A: I don't take that on. . . . The opinions that I have in my report are not dependent on a specific definition of what is included or excluded in core ERP.").

Moreover, Asker's focus on finance in his definition of "core ERP" is supported by SAP's own witness testimony. SAP's Vice President for competitive market insights for business applications and industries testified that the solutions included within "core ERP" are "general ledger and some of the other financial—you know, financial close, that type of activity you start to—I'd also say that master data governance types of products are—may be considered part of digital core." Dkt. No. 530-16 ("Dover Depo.") at 30. Likewise, SAP's Senior Vice President of S/4HANA testified that when SAP decided to build S/4HANA it "obviously started in the finance area because that's the center of every ERP system." Dkt. No. 530-22 ("Grigoliet Depo.") at 24. Teradata's industry expert, Paul Pinto also opined that "large enterprises build their systems around their financial ERP, which is why it is often referred to as 'core ERP.'" Dkt. No. 528-8 ("Pinto Decl.") ¶ 31.

SAP also objects to Asker's use of applications such as "treasury management" "when it is expedient to do so" because it is outside his definition of core finance. Asker Mot. at 7 (citing Asker Rep. ¶ 122 (mentioning that SAP [Redacted]). The column titled "core ERP" in Exhibit 2 in Asker's report does not mention "treasury management." Asker Rep. at 33, Ex. 2. Teradata's own expert also testified that "treasury management" is not part of "core ERP." *See* Dkt. No. 555-3 ("Pinto Depo.") at 83 ("Q: What about cash and treasury management, would you consider that part of core ERP? A: I would not."). That said, column 1 in Exhibit 2 in Asker's report, titled "Digital Core" includes "Treasury Management" under "Core Finance." Asker Rep. at 33, Ex. 2. Asker also testified that he considered treasury management part of "core ERP." Dkt. No. 536-6 ("Asker Depo.") at 20-22 ("[T]he left-hand side column it – this is labeled . . . 'Digital Core.' It says 'Core

Finance plus Enterprise Risk & Compliance, Treasury Management, Real Estate Management, Indirect Tax.' I interpret that as incorporating the articulation of "Core Finance" that's located in the middle column."). In addition, SAP's own documents include "treasury management" in its definition of "core ERP." Dkt. No. 536-12 at 69-70. As a result, contrary to SAP's assertion, Asker's definition of "core ERP" is proper.

Next, SAP argues that Asker's definition of "large enterprises" is problematic. Asker Mot. at 8. Asker defines "large enterprises" as "companies with over 1,000 or 1,500 employees and over 125 users of the ERP product"; his own sources, such as SAP's internal documents, show that there is no commonly accepted categorization of SAP's customers. *See, e.g.*, Asker Rep. ¶ 50 n.110-11 (SAP internal presentation defining large enterprise as "Revenue: €250 [million] + Size 250 employees"); *id.* ¶ 50 n.111 (SAP presentation defining large enterprises as companies with "over 1000, 5000, or 10K"); *id.* ¶ 38 n.84 (large enterprises: over 500 employees, $1 billion in annual revenue, and an ERP user count of over 250); *id.* ¶ 20 n.24 (large enterprise: companies with over $1 billion in revenues in North America and over $250 million or $500 million in Latin America).

Further, according to SAP, Asker testifies that there are approximately 100,000 companies in his proposed relevant market but he does not sufficiently explain why he then focuses only on documents discussing the largest 500 or 2,000 companies in the world, e.g., companies in Forbes Global 2000, Global Fortune 500, DAX stock index, and MDAX index. Asker Mot. at 8; *see* Dkt. No. 512-2 ("Asker Depo.") at 32 ("Q: And global . . . is fewer than 100,000 companies would qualify as large enterprises? A: It may be a little more than that . . . Q: So best estimate is, give

or take, somewhere around a hundred thousand? A: [A]s I sit here today, that would be my sense, but I want to be very clear that it may be a fair bit less, it may be somewhat more."). Teradata responds that SAP mischaracterizes Asker's testimony and that he repeatedly testified that SAP does not count its own customers. Dkt. No. 536-6 ("Asker Depo.") at 30 ("I note that even in their own documents, SAP doesn't count customers; but, rather, they talk about total market opportunities). It also highlights SAP's own documents to its investors, which show that SAP relies on the Forbes Global 2000 index and the DAX stock index to assess and report its market position. *See* Dkt. No. 537-8 at 7 ("S/4 is further gaining market share, and we see positive software license growth and high double-digit cloud revenue growth. 80% of the DAX companies and 65% of the Forbes' Global 2,000 companies already rely on SAP S/4HANA.").

SAP also relies on *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Cal. 2004) to argue that a product market limited to "large" ERP customers is improper. Asker Reply at 3. In *Oracle*, the court evaluated evidence after a two-week trial and rejected the plaintiffs' product market that only included products sold by Oracle, PeopleSoft, and SAP, and did not include mid-market products. *Oracle*, 331 F. Supp. at 1158. The court rejected the proposed product market in part because there was "no 'quantitative metric' that could be used to determine the distinction between a high function product and a mid-market product." *Id.* For example, it found that Microsoft would be a viable substitute after examining its entry into the high function product market. *Id.* at 1160. Today, however, Microsoft [Redacted] Dkt. No. 543-44 at 7. Teradata asserts that the case is therefore distinguishable because the ERP market has changed since *Oracle*, e.g., mid-market competitors that the *Oracle* court relied on have now

been acquired by larger ERP vendors or disappeared from the market. Asker Opp. at 11 (citing *Oracle*, 331 F. Supp. at 1159-61).

SAP contends that the case is persuasive for rejecting a proposed product market where, as here, "there is no clear line separating those companies or the products they buy from others." Asker Reply at 3. Despite Asker's admission that there is no common definition of "large enterprises," even among SAP's own internal documents, he concludes, without further explanation, that "'large enterprises' are generally companies with over 1,000 or 1,500 employees and over 125 users of the ERP product." Asker Rep. ¶ 50. He bases his conclusion on two SAP documents that show that it markets different ERP products based on customer size, namely S/4HANA to large enterprises that have over 1,000 employees. *See* Dkt. No. 537-6 at 572. But he ignores the other SAP documents that indicate otherwise. As a result, Asker's limitation of the product market to "large enterprise" customers "stands on infirm ground" because Teradata "makes no other effort to reconcile Dr. Asker's distinct separate market with the broad continuum of customers and varied and flexible approach to customer size taken by the industry." Asker Reply at 3.

iii. Quantitative Analysis

More importantly, Asker's quantitative analysis, which he uses to corroborate his qualitative analysis, is flawed because contrary to his claims, Asker does not apply a "hypothetical monopolist" test ("HMT") as contemplated in the Department of Justice and the Federal Trade Commission's ("FTC") Horizontal Merger Guidelines (the "Guidelines").[5] Asker Mot. at 9. This test asks

[5] In its opposition to SAP's motion for summary judgment, Teradata asserts that SAP's argument—"that a product market must

whether a hypothetical monopolist over a group of products could profitably impose a small but significant and non-transitory increase in price ("SSNIP") of 5%; if a significant number of customers respond to a SSNIP by purchasing substitute products, then the SSNIP would not be profitable and the market definition must be expanded to include those substitute products. *See Saint Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 784 (9th Cir. 2015).

Asker states that he conducts a quantitative hypothetical monopolist test using aggregate diversion ("ADR") analysis of "Customer Relationship Management" ("CRM") data from SAP and Oracle, based on the number of times competitors are mentioned in sales representatives' sales report.[6] Asker Rep. ¶¶ 63, 64, 71. He opines that "CRM databases can be informative for market definition to the extent that they provide some information on how frequently a business encounters various potential

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include economic substitutes, i.e., products that would see increased demand in response to a price increase in another product"—contravenes established economic principles. Dkt. No. 542 at 30. It argues that the Guidelines "make clear that even if a significant number of customers (even two thirds) would switch to other suppliers' products in response to a price increase, that does not require their inclusion in a properly defined relevant market." *Id.* (citing Dkt. No. 543-64 ("Guidelines") § 4.1). But the Guidelines do not say this. Instead, Section 4.1 of the Guidelines make clear that although a product market need not include every competitor, it must "contain enough substitute products" to satisfy the SSNIP test. Guidelines § 4.1; *see* Dkt. No. 552 at 20.

[6] "Aggregate diversion analysis finds the threshold where a hypothetical monopolist imposing a [SSNIP] would lose enough sales ('actual loss') compared the "critical loss" such that the SSNIP would be unprofitable for the hypothetical monopolist. When the estimated actual loss due to a SSNIP is smaller than the critical loss, the candidate market is considered a relevant antitrust market." Asker Rep. ¶ 71.

competitors." Asker Rep. ¶ 65. But he admits that CRM data "may not always be a reliable indicator of the actual competitor faced by a company because the data is often incomplete or the salesperson may have only a limited view into competition." *Id.* He concedes that, "CRM databases may also lack detail that allow precise evaluations of specific markets" and that "this is the case in this matter, where every CRM data set [he has] examined has limitations." *Id.* As a result, he explains that he views the CRM data " as merely providing a way to corroborate the patterns that are present in the deposition testimony and documentary evidence on the record" and expresses caution about using the data to form conclusions. *Id.* That said, he concludes that the results of his analysis is "consistent with the deposition testimony and documentary record that is my primary foundation for concluding that SAP and Oracle are each other's primary competitors for core ERP opportunities for large enterprises. Asker Rep. ¶ 71.

SAP's expert, Stiroh, asserts that the ADR analysis is flawed because "[s]uch an analysis requires data and inputs that can be used to reliably estimate actual lost sales and diversion ratios in response to price changes of different ERP products" but such data was not available in this case. Dkt. No. 554-9 ("Stiroh Rep.") ¶ 58. Moreover, "[t]he CRM data that Asker uses to calibrate his ADR model do not show actual diversion from one company to another, do not reflect changes in purchasing patterns in response to price changes, and do not account for the competitive effects of emerging competitors and technologies or potential changes to SAP's expected competitive significance over the decade." *Id.* ¶ 59.

Teradata contends that ADR analysis is an accepted methodology and that disputes concerning an expert's decision about what data to use in their analysis "bear on the weight, not the admissibility, of expert testimony." *In re Qualcomm Antitrust Litig.*, 328 F.R.D. 280, 305 (N.D. Cal. 2018) (collecting cases). Although courts often conclude that "'experts' decisions about what data to use' in their analysis bear on the weight, not the admissibility, of expert testimony," *id.*, ADR analysis has rarely been accepted by courts.

Teradata only cites to two district court cases that allowed an expert to use this methodology to determine a product market. Asker's ADR analysis, however, is distinguishable because the experts in those cases relied on data sets that measured a customer's response to changes in price, e.g., actual win/loss data or bidding data, when using ADR analysis. In *Federal Trade Commission v. Sysco Corp.*, 113 F. Supp. 3d 1 (D.D.C. 2015), the FTC moved to enjoin a potential merger between two food distribution companies. *Sysco*, 113 F. Supp. at 15. FTC's expert had "calculated the actual aggregate diversion based on three different data sets" and "built a database for each company that tracked, for each bidding opportunity, the incumbent distributor, the winning distributor, and the competing bidders." *Id.* at 35. Like SAP in this case, the defendants had objected to the expert's methodology in part because the data on which he relied did not describe whether the two companies "lost a customer for a price-based reason or some reason having nothing to do with price." *Id.* at 36. The court expressed its hesitancy to rely on the expert's findings but concluded that "when evaluated against the record as a whole" the expert's "conclusions are more consistent with the business realities of the food distribution market than" the defendants' expert. *Id.* at 37.

Similarly, in *Federal Trade Commission v. Wilh. Wilhelmsen Holding ASA*, 341 F. Supp. 3d 27 (D.D.C. 2018), the FTC moved to block a potential merger between two large providers of marine water treatment chemicals. *Wilh. Wilhelmsen*, 341 F. Supp. at 39. FTC's expert "used three kinds of data—revenue information provided by marine suppliers, [] salesforce data, and [the providers'] win-loss data." *Id.* at 57. The court accepted the FTC expert's market definition in part because the defendants' expert did not contest that the FTC's expert's methodology was flawed, did not present any alternative calculations or HMT results, and "the gap between critical loss and aggregate diversion in every trial was so large as to ensure the stability of the HMT's qualitative result against any but the gravest of statistical errors." *Id.*

Teradata asserts that like both cases, Asker's methodology "confirmed the market realities evident in the record" and his findings ensured "the stability of the HMT's qualitative result against any but the gravest of statistical errors." Asker Opp. at 12 (citing Dkt. No. 468-21 ("Asker Reb. Rep.") ¶ 89) (opining that "the CRM data would have to overstate aggregate diversion by a factor of 2.5 to 3.2 for the conclusions for the aggregate diversion ratio analysis to change."). But Asker's methodology is less reliable than those of the FTC experts because unlike the FTC experts, Asker did not build a database of the type prices or rely on the price ultimately paid by the customer. *See* Asker Depo. at 66-67 ("My recollection is that the final pricing is not available in Oracle's CRM data, and my recollection is that it's not available in SAP's CRM data.); *id.* at 67 ("Q: And in instances in which a competitor is listed, neither SAP's nor Oracle's CRM data indicate the pricing offered by competitors; right? A: As I sit here today,

that's my recollection of those data sets.").[7] His evaluation of CRM data did not and cannot consider pricing because the CRM data does not measure customer responses to changes in price. *Id.* at 68-69. As a result, Asker's ADR analysis of SAP's CRM data cannot measure the most fundamental principle in defining a market: cross-elasticity of demand.[8]

Teradata also contends that Asker conducts a robust quantitative analysis of SAP's pricing data to analyze price discrimination, which corroborates his conclusion that large enterprises form a separate market. Asker Opp. at 10. As the Guidelines state, "[t]he possibility of price discrimination influences market definition [], the measurement of market shares [], and the evaluation of competitive effects." Guidelines at 6. Teradata argues that even SAP's expert admits that there is price discrimination between large and small enterprises. *Id.* For pricing discrimination to exist there must be (1) differential pricing; and (2) limited arbitrage. Guidelines at 6. According to Teradata, Stiroh's pricing analyses [Redacted], and she does not dispute that there is limited arbitrage. Asker

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[7] In fact, as opposed to the "hundreds of thousands" of entries in the CRM data used by the expert in Sysco, Asker relied on fewer than 7,700 entries in SAP's CRM data because almost 85% of the data lacked any competitor information. Asker Rep. at 46, Exhibit 14; *see Sysco*, 113 F. Supp. at 35.

[8] Teradata contends that SAP's expert, Murphy confirmed the proprietary of Asker's methodology. Asker Opp. at 3 n.9; Hearing Tr. at 29. But Asker relied on CRM data, which addresses the "relative frequency with which those firms compete for Core ERP sales opportunities," whereas Murphy confirmed the methodology of looking at "win/loss" data to indicate substitutability. Asker Opp. at 3; see Dkt. No. 530-36 ("Murphy Depo.") at 44-45. SAP also points out that Murphy does not use the CRM data to define any antitrust markets. Hearing Tr. at 56.

Rep. ¶ 79; Dkt. No. 532-3 ("Stiroh Depo.") at 109. But SAP points out that its differential pricing is unrelated to customer size. Asker Reply at 4. "Per-unit and per-user pricing confirm that SAP charges equivalent prices for large, mid-sized, and small companies."[9] *Id.* (citing Stiroh Rep. ¶¶ 48-57). Further, Teradata's argument that Asker does not need to demonstrate that SAP currently charges higher prices of large customers and only needs to demonstrate that future price discrimination is "feasible" and "reasonably likely" undermines its argument. Asker Reply at 4. If SAP can charge higher prices to larger customers in the future because SAP negotiated different prices with customers in the past, it could also charge higher prices to small customers. *Id.* But this does not make them antitrust markets; in the absence of evidence of actual current price discrimination against large customers there is no basis to assume that future price discrimination is feasible or likely. Stiroh Rep. ¶ 57.

Asker's methodology in defining the tying market is unreliable. Contrary to Teradata's assertion, he does not measure the cross-elasticity of demand or the substitutability of products based on reliable quantitative and qualitative analyses. Because his methodology for defining the relevant tying market is unreliable, his conclusions that

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[9] SAP points out that in his initial report, Asker also analyzes "per-unit prices" for large customers, based on the "'size' of installation (number of users)," and concludes that they vary. *See* Asker Rep. ¶ 76; *id.*, Ex. 7. Stiroh responded that the per user prices paid by small and mid-sized customers also vary, but tend to be higher than those paid by large customers, and therefore there is no evidence of price discrimination against large customers. Stiroh Rep. ¶¶ 51-57. In his reply report, Asker criticizes Dr. Stiroh for using "per-user" prices and claims that the appropriate measure is "total spend." Asker Reb. Rep. ¶ 77. According to SAP, "neither Dr. Asker nor Teradata explain this flip-flop." Asker Reply at 5.

SAP has market power in his proposed market should also be excluded.

b. Tied Product Market

Asker's proposed tied market is "EDW products with OLAP capabilities for large enterprises." Asker Rep. ¶ 10. For the same reasons as above, SAP objects to this definition; his qualitative analysis fails to consider the appropriate universe of documents and his quantitative analysis is not a result of any reliable methodology. Asker Mot. at 14.

First, SAP asserts that Asker fails to consider all of the relevant documents when determining the tied market. *Id.* For example, Asker excludes an EDW vendor Snowflake from the market because he found it did not compete for EDW use cases for large enterprises. Asker Rep. ¶ 91. But Teradata's documents show that Snowflake was one of Teradata's primary competitors, if not the largest competitor, in 2019. *See* Dkt. No. 468-22 at 8-9 [Redacted]; Dkt. No. 468-23 at 4, 5-7 [Redacted]. But to claim that Asker ignored evidence regarding Snowflake is incorrect. Teradata responds that this one document is contrary to the testimony of SAP's competitive intelligence team and SAP documents which characterize Snowflake as a [Redacted] Opp. Asker at 17 (citing Dkt. No. 536-10 at 548; Dkt. No. 530-46 at 147-48 [Redacted]. Asker also analyzed the CRM data himself and recognized that Snowflake was not a significant competitor. Asker Depo. at 97-100.

SAP also asserts that Asker's conclusion that SAP's HANA is in his tied market is inconsistent with Teradata's own admissions. *Id.* at 15. Its Senior Vice President of Global Marketing, Chris Twogood, testified that Teradata does not compete frequently against HANA for

sales of EDW because HANA was not "designed to be an enterprise data warehouse," and Teradata does not consider SAP to be a primary competitor in the EDW space. Dkt. No. 468-17 ("Twogood Depo.") at 20-22. Teradata points out that Twogood clarified, however, that once SAP tied HANA to S/4HANA, SAP was able to "leverage[] all their ERP customers to grow market share." Dkt. No. 543-38 ("Twogood Depo.") at 312, 315-16. But Twogood's testimony describes HANA being used as a transactional database under SAP ERP applications and S/4HANA, not as an EDW. Twogood Depo. at 314-15 ("[T]hey weren't successful with HANA only or HANA alone in the marketplace. So they bundled it in with their ERP solution and to really ride a leverage for (verbatim) install base and force people to the HANA platform.").

Teradata also emphasizes that SAP omits the testimony of Teradata witnesses and ordinary course documents identifying SAP as a key EDW competitor. *See, e.g.*, Dkt. No. 530-9 ("Boerger Depo.") at 303 ("IBM, Oracle, and SAP HANA compete for large enterprise data warehousing types of customers"); Dkt. No. 543-26 ("Lea Depo.") at 59 ("Q: Who are the primary competitors to Teradata Vantage, based on your experience today, with large enough customers looking for an EDW solution? A: It is more our traditional vendors, Oracle, IBM with Netezza and with Db2, and HANA"); Dkt. No. 543-37 ("Susag Depo.") at 20 ("Q: Who do you consider to be Teradata's main competitors in the enterprise data warehouse space? A: IBM, Oracle, SAP, Microsoft at the lower end of the enterprise data warehouse space."). As a result, Asker's conclusions are not inconsistent with Teradata's own admissions.[10]

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[10] Further, Teradata asserts that SAP's contention that HANA does not compete with Teradata contradicts its prior statements.

Asker's methodology is once again unreliable because he conducts an ADR analysis on CRM data. Asker Rep. ¶ 95. His methodology is further problematic because it is inconsistent with his methodology when defining the relevant ERP market. Asker Reply at 8. For the ERP market, Asker applied his ADR analysis to determine the minimum number of market participants and concluded that the relevant market consisted of only Oracle and SAP. *Id.* But under this same approach, the tied market would have excluded SAP and therefore Asker included more than the minimum number of participants to bring SAP into the market definition. As a result, and for the same reasons above, Asker's testimony regarding the tied market should be excluded as unreliable and unhelpful to a jury.[11]

c. Alleged Harm to Competition and Benefits of Tie

Finally, SAP opposes Asker's claims that its alleged conduct caused harm to competition in his proposed tied market because it lacks support in the record and is based

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Hearing Tr. at 38-39; see, e.g., Dkt. No. 543-54 at 367 (a technical textbook explaining to customers how to use HANA as an EDW). SAP responds that the relevant question is not whether SAP tried to sell HANA as an EDW but whether customers purchase and use HANA for this purpose. It asserts that Asker's "false assumption that, because SAP tried to market SAP as an EDW, customers necessarily use it as an EDW, runs throughout Asker's EDW-related opinions and renders them unreliable." Reply at 8.

[11] Teradata cites two internal SAP documents but neither suggests Dr. Asker's proposed market is properly limited to just SAP and one competitor. Asker Reply at 20; *see, e.g.*, Dkt. 539-5 at 688-90 (concerns cloud competition and shows that while SAP considers Oracle its "main" competitor, it also loses business to Microsoft and Workday); Dkt. 543-44 at 7 (includes additional competitors like Infor, Sage, and Microsoft on the slide).

on a series of unwarranted assumptions. Asker Mot. at 16. Asker's opinion is the following: "In this case, the data and documents indicate that SAP's tie is causing sales of HANA that otherwise would not have occurred. That is, SAP's conduct distorts purchasers' choices of EDW products, which harms purchasers and competitors competing for those sales." Asker Rep. ¶ 12.

First, SAP asserts that Asker presents no evidence of harm to competition. *Id.* Notably, he has not analyzed the impact of SAP's alleged conduct on the major competitors in his purported market for EDW products with OLAP capabilities. *Id.* at 17. He ignores the issue of harm to competition generally. He does not dispute that Oracle accounts for [Redacted] of database sales, Microsoft accounts for about [Redacted], IBM accounts for [Redacted], and Amazon accounts for [Redacted] Asker Reply at 10. In other words, despite the undisputed fact that [Redacted] Asker Mot. at 17.

Teradata responds that Asker is not required to quantify damages for every participant in the relevant market in order to opine that there are anticompetitive effects due to the tie. Asker Opp. at 21-22. It points to SAP's own economist, Murphy, who admits that database vendors like Oracle and IBM are losing sales for database products that include OLAP/EDW capabilities as a result of SAP's tie and that SAP's licensing restrictions have an anticompetitive effect, as they reduce customers' demand for using Teradata. Dkt. No. 530-36 ("Murphy Depo.") at 145-46; Dkt. No. 541-31 ("Murphy Rep.") ¶ 224. But Murphy's statement concerned transactional databases, not products that include OLAP/EDW capabilities. Asker Reply at 11.

Teradata asserts that "Tying arrangements are forbidden on the theory that, if the seller has market power

over the tying product, the seller can leverage this market power through tying arrangements to exclude other sellers of the tied product." *Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 912 (9th Cir. 2008). It argues that "the injury caused by an unlawful tying arrangement is 'whether a total amount of business, substantial enough in terms of dollar-volume so as not to be merely *de minimis*, is foreclosed to competitors by the tie.'" *Datagate, Inc. v. Hewlett-Packard Co.*, 60 F.3d 1421, 1425 (9th Cir. 1995) (internal citations omitted). For example, Asker relies on SAP revenue data [Redacted] as evidence of a distortion due to a tie and "not simply the result of competition on the merits. Asker Rep. ¶¶ 145,147. Asker reviewed evidence that also showed that customers are not allowed "to use S/4HANA and a third-party EDW without also purchasing HANA. In particular, the customer must still purchase the 'full use' HANA license in order for it to use a competing third-party EDW." *Id.* ¶ 158. He opined: "If a condition of purchasing a product is the simultaneous purchase of a product of a competitor, economic reasoning indicates that the product's competitive position is weakened." *Id.* Teradata therefore argues that Asker's opinions about the alleged harm to competition are proper.

There needs to be a showing of "substantial" harm; de minimis harm is not enough under rule of reason analysis.[12] *See Qualcomm*, 969 F.3d at 991 (Under § 1, "the plaintiff has the initial burden to prove that the challenged restraint has a substantial anticompetitive effect that harms consumers in the relevant market."). Asker failed to show this; he presented no evidence of harm.

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[12] *See infra* Part I.B.4.a for discussion on the application of either the rule of reason or per se analysis to this case.

In addition, SAP asserts that Asker relies on a series of unwarranted assumptions, specifically that because HANA has OLAP capabilities, it is necessarily always sold as an EDW. Asker Reb. Rep. ¶ 127. When HANA is "sold together with S/4HANA, [it] is almost always bundled with S/4HANA under a runtime license," which precludes use of HANA as an EDW. SMSJ at 28. With a runtime license, HANA can be used only to support the SAP application running on top of it; in other words HANA is the transactional database that supports the application, S/4HANA. Stiroh Decl. ¶ 176. It cannot be an EDW, as defined by Teradata, because it does not bring data from multiple sources across an enterprise and then use sophisticated analytics tools to conduct analysis of that combined data. *See* SAC ¶ 16.

Teradata does not dispute that approximately 88% of SAP's customers have purchased HANA with a runtime license. SMSJ at 29. And it does not present any evidence that a single customer has taken S/4HANA together with HANA pursuant to a full use license and used that HANA installation as an EDW. *Id.* Teradata does not provide any instance where a customer who used Teradata Database replaced it with HANA for the same purpose. Because these undisputed facts render Asker's opinion unreasonable and because Teradata's opposition is based on an incorrect legal standard, SAP's motion to exclude portions of Asker's opinions related to alleged harm to competition is **GRANTED**.

SAP also objects to Asker's opinions that HANA's adoption is not being driven by any procompetitive benefits of the alleged tie. Asker Mot. at 4. According to SAP, Asker lacks the expertise necessary to evaluate evidence of the design benefits of S/4HANA and admits that he did not understand much of the relevant evidence. *Id.*; *see*

Asker Rep. ¶ 171 ("I do not have the expertise to evaluate whether there is a technical benefit from combining S/4HANA with HANA."). Teradata responds that Asker is not opining that there are no technical benefits for the integration of S/4HANA and HANA but rather that the "documentary and deposition evidence indicates that there is no technical reason for the tie and that the decision to tie was made by SAP's board of directors on business grounds." Asker Opp. at 22-23. SAP replies that this distinction is nonsensical because if S/4HANA is designed to work with HANA such that S/4HANA "is wholly incompatible with other transactional databases" as Teradata alleges, then this is the technical reason why customers must license S/4HANA and HANA together. Asker Reply at 12.

Teradata asserts that no SAP witness or expert has provided a technical justification—or any justification—for tying S/3HANA to HANA's analytical capabilities.[13] Asker is qualified to assess the economic realities of SAP's business decisions to tie S/4HANA to the OLAP capabilities of HANA. Asker Depo. at 226. His testimony related to the alleged lack of procompetitive benefits should not be excluded.[14]

2. Motion to Exclude Mehrotra Testimony

Teradata's moved to exclude three out of four of SAP's expert, Dr. Sharad Mehrotra's opinions in sections VI and VII of his report, which rebut the opinions of Teradata's

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[13] The reason for this lack of evidence, however, is Teradata's allegation of a new tying theory during the summary judgment briefing. *See infra* Part I.B.3.

[14] Because Teradata's tying claim fails, *see infra* Part I.B.4, I will not address SAP's motion to exclude Asker's analysis of lost profits due to the alleged tying arrangement.

technical expert Hosagrahar Jagadish: (1) that SAP could achieve significant benefits by designing S/4HANA for its HANA database product; (2) that SAP could not have achieved these same or similar benefits by designing S/4HANA to run on other databases; and (3) that "porting" S/4HANA to third-party databases would be challenging. Dkt. No. 472 ("Mehrotra Mot.") at 1. It contends that Mehrotra lacks the necessary factual foundation for these opinions and that he did not follow any reliable methodology in reaching them. *Id.* It argues that Mehrotra never reviewed any of the source code for S/4HANA or HANA, has never used or examined the products, has never used or examined the third-party database products he compares to HANA, disregarded testimony from SAP executives, and relies on cherry-picked documents for sweeping conclusions. *Id.* at 2. SAP responds that Mehrotra's methodology is reliable, and that the rest of Teradata's arguments go to the weight and not the admissibility of evidence. Dkt. No. 533 ("Mehrotra Opp.") at 1.

First, Teradata argues that Mehrotra's opinion in section VI of his report—that SAP was able to realize multiple technical and practical benefits by designing S/4HANA to work closely with HANA—should be excluded because it is unsupported and unreliable. Mehrotra Mot. at 2. Mehrotra admits that he has never used or even examined the S/4HANA or HANA software, any SAP ERP applications, or source code. Dkt. No. 483-4 ("Mehrotra Depo.") at 42-44 ("Q: Have you ever used S/4 Hana? A: Personally, no . . . Q: Have you ever used any part of SAP's Business Suite? A: No, I have not. Q: Have you ever used SAP's HANA database? A: I have personally not used SAP HANA database. It's not an open source database. So it's not free."). When asked whether he had ever used any SAP ERP software, he responded, "No. I am an academic. We normally do not deal with the

operational aspect of the problem, so where companies sort of run these things." *Id.* at 43-44. Teradata contends that SAP "is silent on the issue" and "cites no case where an expert was allowed to opine on the design, capabilities, performance, and compatibility of products without ever having even looked at them." Dkt. No. 551-4 ("Mehrotra Reply") at 1.

SAP does not respond directly to the argument that Mehrotra did not use any of the SAP products. It does assert, however, that Mehrotra reviewed the architecture and design of S/4HANA, relying on a series of 28 architectural guidelines of all of the versions starting with the first in May 2014 through March 2019. Mehrotra Opp. at 18. It also asserts that it was unfeasible and not useful for Mehrotra to review all 300 million lines of source code. *Id.* at 10. Teradata responds that the argument that Mehrotra "cannot look at everything does not mean it is proper to look at little to nothing" and at the very least, he "should have identified some representative queries in S/4HANA that would require porting to third-party database." Mehrotra Reply at 1.

Mehrotra did not have to review the source code because he reviewed the architecture and design of S/4HANA instead. Mehrotra Depo. at 147. For example, he stated that he is "intimately aware" of the "architectural aspects of things, but [] not [as] aware of the exact software implementation." *Id.* But he testified that source code is simply "one aspect of the system analysis" and that he understood "the system and its properties" by the architectural diagrams. *Id.* SAP contends that reviewing S/4HANA and HANA at a design and architectural level is "a common and accepted method of software analysis," as evidenced by the academic and expert works that Mehrotra cites in Appendix B of his report, which "rely on

exactly this architectural level of analysis." Mehrotra Opp. at 11 (citing Dkt. No. 483-3 ("Mehrotra Rep."), Appendix B). Teradata responds that SAP does not point to any specific methodologies that are supposedly found in any of these works. Mehrotra Reply at 2. It asserts that "[t]he reality is that the cited works provide only general software background, not any methodology for the sort of software analysis required in this case." *Id.* SAP also, however, contends that Mehrotra's reliance on the architecture and design of S/4HANA is proper as evidenced by Teradata's expert Jagadish also relying on architecture-level analyses. Mehrotra Opp. at 11 (citing Dkt. No. 531-21 ("Jagadish Rep.") ns. 290-92, 306, 319-33, 336, 341-45, 357-60, 365-70). Teradata does not respond to this argument.[15]

The following cases provide a helpful analysis of whether Mehrotra's approach is proper. Teradata relies on a Seventh Circuit case in support of its argument that Mehrotra's approach is flawed, but the case is distinguishable. In *Autotech Tech. Ltd. P'ship v. Automationdirect.com*, 471 F.3d 745 (7th Cir. 2006), an expert testified "[b]ased on his 26 years of experience in software development, review of the EZTouch software, and review of advertisements about C–More . . . that the features of C–More could not be developed independently of EZTouch"

[15] Teradata does assert that unlike Mehrotra, Jagadish examined the source code and software. Mehrotra Mot. at 10. SAP responds that nowhere in the sections of Jagadish's report, to which Mehrotra responds, does Jagadish refer to S/4HANA source code. Mehrotra Opp. at 13-14. Instead, Jagadish discusses the source code only in relation to trade secrets. *Compare* Jagadish Rep. § X.C ¶¶ 247-75 (discussing trade secrets) *with* Jagadish Rep. § X.E ¶¶ 336-77 (discussing antitrust opinions).

but he had "never conducted tests on the product." *Autotech*, 471 F.3d at 749. The Seventh Circuit affirmed the district court's decision that this methodology was unreliable because "computer experts must do more than read advertisements." *Id.* The court held that "[t]o qualify as an expert on software, an expert should, at a minimum, examine the product and software upon which the expert bases his opinion." *Id.* In this case, while Mehrotra did not use the product or examine the source code, he reviewed the architecture and design of S/4HANA over the course of five years.

Iconics, Inc. v. Massaro, 266 F. Supp. 3d 461 (D. Mass. 2017) is more factually analogous to the case here. In *Iconics*, the court declined to exclude the expert's testimony regarding the "core architecture" of the software products, which was based on "three architectural diagrams," even though the expert failed to inspect the software code or review technical documents. *Iconics*, 266 F. Supp. at 470. The court held that because the expert "illuminates aspects of the core architecture trade secret" any challenge went to the credibility of the testimony and not admissibility. *Id.* Teradata contends that *Iconics* is distinguishable because there the expert relied on the same architecture documents that the plaintiff cited to whereas here Mehrotra relies on "hand-selected" documents by SAP's counsel and not Teradata's materials. Mehrotra Mot. at 4-5. But in *Iconics* the product at issue belonged to the plaintiff whereas here the S/4HANA product belongs to SAP. It is unclear why it is improper for Mehrotra to rely on technical documents from SAP itself when reviewing its product. Mehrotra Opp. at 18. As the *Iconics* court held, "[r]egardless of the benefits of any alternative approaches," for example those found in Jagadish's report, Mehrotra's opinion is sufficiently reliable. *Iconics*, 266 F. Supp. at 470. "Any questions on the comparative

weight or credibility of these two analyses are questions for a jury to resolve." *Id.*

As for Teradata's other objections—"that Mehrotra could not identify with sufficient specificity the academic literature he relied on, did not cite to the particular documents that Teradata thinks he should have, and did not interview the individuals that Teradata thinks he should have"—all go to the weight of his testimony are not grounds for excluding his opinions. Mehrotra Opp. at 16; *In re Korean Ramen Antitrust Litig.*, 281 F. Supp. 3d 892, 931 (N.D. Cal. 2017) (holding that an expert's failure to "address (or review) deposition testimony where defendants' employees testified to matters that purportedly undermine some of his opinions or assumptions does not make his testimony excludable. Those are grounds for cross-examination."). For example, Teradata asserts that Mehrotra's opinions are flawed in part because he did not interview the SAP employees that Rudolf Hois spoke with in preparation for his 30(b)(6) deposition. Mehrotra Mot. at 4. SAP responds that Mehrotra did not have to speak with the individuals that Hois spoke with because Hois's experience is in the area of ERP applications whereas Mehrotra's experience is in databases. Mehrotra Opp. at 23. SAP also points out that Mehrotra had the deposition transcripts of Hois and other SAP employees related to the interface of S/4HANA with HANA. *Id.* (citing Mehrotra Rep., Appendix B). Its argument is well-taken: Teradata's motion to exclude Section VI of Mehrotra's expert report is **DENIED**.

Finally, Teradata moves to exclude section VII of Mehrotra's report which opines that SAP could not have realized the same benefits by designing S/4 for multiple databases and that porting S/4HANA to another database

would be challenging and unpredictable because it is unsupported and unreliable. Mehrotra Mot. at 8. Teradata asserts that in support of his opinions, Mehrotra could and should have reviewed some of the analytical queries in S/4HANA in order to provide at least one specific example of a query that purportedly requires the use of HANA, and not another database. Mehrotra Reply at 5-6.

SAP contends that it is unclear how Mehrotra was supposed to do this or what purpose it would serve. Mehrotra Opp. at 14. Mehrotra and Jagadish do not dispute that [Redacted] *Id.* at 7; Mehrotra Reply at 5. But [Redacted] Mehrotra Opp. at 14 (citing Dkt. No. 531-8 ("Hois Depo.") at 14-16, 70-74. [Redacted] Mehrotra Depo at 131-32. SAP points out that review of this code is unnecessary because both Jagadish and Mehrotra agree that the key issue is not how much code must be ported to another database but how difficult it would be. Mehrotra Opp. at 16 (citing Mehrotra Depo. at 186-88; Dkt. No. 531-14 ("Jagadish Depo.") at 227).

To determine how difficult porting would be, Mehrotra relies on "SAP's past experience porting Business Suite optimizations to Oracle and IBM databases, the more integrated design and architecture of S/4HANA on HANA compared to Business Suite on HANA, and the differences in the architectures and technologies of other databases" such as those of Oracle and IBM, to conclude that trying to port S/4HANA to a database other than HANA would be difficult, time-consuming, and unpredictable. Mehrotra Opp. at 7 (citing Mehrotra Rep. ¶¶ 177-98). Teradata objects to Mehrotra's reliance on SAP documents and testimony, arguing that SAP's counsel "cherry-picked" these documents for him. Mehrotra Reply at 7. But Teradata "provides no basis for its insinuation that the SAP documents upon which Dr. Mehrotra

relied are in any way biased." Mehrotra Opp. at 18. Mehrotra explained that he relied primarily on technical documents, not marketing documents. Mehrotra Depo. at 153-54, 156-57. Teradata responds that SAP's technical documents "can be biased or inaccurate" but such arguments go to weight and not admissibility of the opinions.

Teradata also asserts that Mehrotra's analysis is flawed because he improperly relied on "SAP's alleged experience porting its prior ERP applications (not S/4HANA) to databases prior to 2015 (not databases that exist today or even in the last five years)." *Id.* (citing Mehrotra Rep. ¶¶ 168, 177-78). Mehrotra admits that he has not used IBM's or Oracle's database software since 2006 and 1998 respectively and that he has not examined the current database products. Mehrotra Depo. at 44, 45, 47. According to Teradata, he also misunderstood capabilities of these third-party databases, e.g., misstating that HANA [Redacted] and wrongly assuming that IBM and Oracle's products were released after the development of S/4HANA. Mehrotra Rep. ¶ 9.c. SAP responds that Mehrotra correctly testified about the dates on which the IBM and Oracle databases were released because it is undisputed that Oracle did not release its database until six months after SAP began development of S/4HANA. Mehrotra Opp. at 20. Although IBM released a version of its database in the summer of 2013, Mehrotra relied on SAP documents that explained that [Redacted]. *Id.* at 21. Teradata makes the same objection that I rejected above—that this "is not Mehrotra's conclusion but SAP's allegation, parroted from SAP documents selected by SAP's counsel." Mehrotra Reply at 12. It also points out that Mehrotra failed to reconcile this allegation with results of [Redacted] as noted in Jagadish's opening report. *Id.* (citing Jagadish Rep. ¶¶ 342, 372). But again, Mehrotra's failure to consider contrary evidence goes to weight

and not admissibility. Teradata's motion to exclude portions of Mehrotra's expert report is therefore **DENIED**.

3. Teradata's Objections to SAP's Reply Evidence

The final preliminary matter I must address is Teradata's objections to SAP's reply evidence, namely its declaration of Rudolph Hois, Dkt. No. 552-1 ("Hois Declaration"). Dkt. No. 568-4 at 1. Teradata asserts that I should strike the declaration because it is impermissible and highly prejudicial. *Id.* The Hois Declaration concerns a key issue underlying Teradata's theory—that SAP's requirement that S/4HANA customers license HANA's analytical capabilities violates federal antitrust law. *Id.* Teradata argues that even if it were true that SAP first heard of this theory from Asker's reply report, as it claims, SAP should have submitted the Hois declaration with its motion, a full month after Asker's reply report. *Id.* Instead, it asserts that SAP improperly waited until its reply brief to submit the evidence. *Id.*

SAP responds that the Hois Declaration was necessary because it was not aware of Teradata's new theory until its opposition to SAP's summary judgment motion. Dkt. No. 585 at 1. There, Teradata abandoned the tying theory pleaded in its complaint and asserted a new one, after the close of fact discovery. Dkt. No. 585 at 1. In the SAC, Teradata alleged that SAP tied S/4HANA to HANA by making it "wholly incompatible with other transactional databases," forcing customers that purchase S/4HANA to also adopt HANA. SAC ¶¶ 89, 132. But in SAP's summary judgment motion, SAP showed how it and other leading vendors achieved procompetitive benefits by integrating their ERP applications with their databases. Dkt. No. 585 at 1. Then, in its opposition, Teradata argued that the tie was different; it was between

S/4HANA and HANA's analytical capabilities, which offer EDW functions. Dkt. No. 542 at 26. As a result, the mechanism at issue is no longer a technological incompatibility but licensing terms that SAP allegedly forces upon its customers. *Id.* at 31. Teradata asserts that SAP has failed to show procompetitive justifications for the licensing practices that tie S/4HANA to HANA's analytical capacities. *Id.* at 27.

In support of its argument that Teradata changed its tying theory, SAP points to Asker's opening expert report that expressly and repeatedly defined the "tied product" to mean HANA, not its analytical capabilities. Asker Rep. ¶¶ 5-6, 35. But in his reply report, Asker suggests that SAP should have to justify the tie of S/4HANA to the EDW capabilities of its HANA database. Asker Reb. Rep. ¶ 4. SAP contends that "this shift did not put SAP on notice that Teradata had changed its legal theory regarding the alleged tie" and therefore it did not file the Hois Declaration with its summary judgment motion. Dkt. No. 585 at 2.

Teradata maintains that its theory has not changed. It emphasizes paragraph 95 of the SAC, which states:

> "SAP's Top-Tier ERP Applications customers were free to choose how to manage their data needs, those locked-in customers will now be forced to adopt HANA. Given the costs of licensing, implementing, and maintaining EDAW products, the vast majority of large-scale customers will have no choice but to abandon their prior EDAW providers because they cannot support dual EDAW providers. Thus, because *HANA purports to offer some or all of the functionality offered by Teradata*, SAP is effectively coercing its customers into leaving Teradata and adopting the full stack of SAP products (including HANA)."

Dkt. No. 599 (quoting SAC ¶ 95) at 1. Teradata explains that throughout its complaint, the "functionality offered by Teradata" that HANA purports to offer to replace Teradata's products is HANA's *analytical* (or EDAW) functionality. *Id.*; *see, e.g.*, SAC ¶ 45 (HANA purports to provide "EDAW functionality that SAP claims can enable enterprise analytics similar to those offered by Teradata" and "[t]hus, with HANA . . . SAP now positions itself as a direct competitor in the EDAW market"). It contends that it has never alleged that HANA's transactional functionality competes with EDAW products. Dkt. No. 467 at 4.

Teradata's arguments do not address SAP's point—that Teradata initially challenged the technological integration of the ERP application and HANA, not the licensing practice. Teradata asserts that its allegation that SAP's "sales practice" is "directly contrary to the practices of other ERP applications" is regarding its licensing. But in actuality, the alleged "sales practice" in the SAC does not refer to licensing but a design change, i.e., "tying upgrades of customers' ERP Applications to customers' adoption of HANA (while ending support for older versions of ERP Applications)." SAC ¶ 58. Furthermore, references to "licensing" in the SAC concern the exit fee, not the licensing of HANA's analytical capabilities. *See, e.g.*, SAC ¶ 90 ("SAP's licensing agreements further restrict the ability of customers to read and copy S/4HANA ERP data to any other database); *id.* ¶ 151 ("This rate will only rise more rapidly as more customers upgrade to S/4HANA and are foreclosed from either licensing alternative EDAW products or accessing their SAP ERP data for use with Teradata's EDAW products.").

Teradata also claims that Hois Declaration contradicts his deposition as a corporate witness and should be struck

as undisclosed expert testimony. Dkt. No. 568-4 at 3-5. It asserts that in his declaration, Hois explains HANA's capabilities as unique and opines about the comparisons between HANA and other databases. Hois Decl. ¶¶ 4-6. But during his deposition he repeatedly claimed that he lacked the requisite knowledge or expertise to compare the databases and deferred to other experts. Dkt. No. 568-6 ("Hois Depo.") at 64; Dkt. No. 568-8 ("Hois Depo.") at 12, 14, 18. In the his declaration, however, Hois is not comparing databases; instead, he explains a feature of Oracle databases in a manner that is consistent with his deposition testimony. *Compare* Hois Decl. ¶ 6 *with* Hois Depo. at 34-35. Moreover, Hois's high-level opinions are based on his personal knowledge and therefore are proper. Hois Decl. ¶¶ 2-3.

SAP contends that "Teradata cannot oppose summary judgment on the basis of an unpled, and prejudicially-late change in theory." Dkt. No. 552 at 13 (citing *Navajo Nation v. U.S. Forest Serv.*, 535 F.3d 1058, 1080 (9th Cir. 2008) ("where . . . the complaint does not include the necessary factual allegations . . . raising such a claim in a summary judgment motion is insufficient to present the claim to the district court")). I agree. The Hois Declaration is proper, even though it is new evidence, as a "reasonable response to the opposition." *Hodges v. Hertz Corp.*, 351 F. Supp. 3d 1227, 1249 (N.D. Cal. 2018).

4. Motion for Summary Judgment

I will now turn to SAP's motion for summary judgment on Teradata's tying claim. To state a sufficient tying claim under Section 1 of the Sherman Act, Teradata must prove: (1) a contract, combination or conspiracy among two or more persons or distinct business entities; (2) by which the persons or entities intended to harm or restrain

trade or commerce []; (3) which actually injures competition." *Kendall v. Visa U.S.A., Inc.*, 518 F.3d 1042, 1047 (9th Cir. 2008).

a. Per Se or Rule of Reason Analysis

The first dispute between the parties is whether the per se rule or rule of reason test applies in this case. To determine whether a practice unreasonably restrains trade, courts sometimes apply a "rule of reason" analysis. *Bhan v. NME Hosps., Inc.*, 929 F.2d 1404, 1410 (9th Cir. 1991). Under the rule of reason test, courts "analyze the degree of harm to competition along with any justifications or pro-competitive effects to determine whether the practice is unreasonable on balance. The focus is on the actual effects that the challenged restraint has had on competition in a relevant market." *Id.* "Some practices, however, are so likely to interfere with competition that they violate the Sherman Act per se. In these cases, [courts] do not require evidence of any actual effects on competition because [they] consider the potential for harm to be so clear and so great." *Id.* Under the per se test, Teradata must prove: (1) that the defendant tied together the sale of two distinct products or services; (2) that the defendant possesses enough economic power in the tying product market to coerce its customers into purchasing the tied product; and (3) that the tying arrangement affects a "not insubstantial volume of commerce" in the tied product market. *Cascade Health*, 515 F.3d at 913.

"Restraints that are not unreasonable per se are judged under the 'rule of reason.'" *Fed. Trade Comm'n v. Qualcomm Inc.*, 969 F.3d 974, 989 (9th Cir. 2020). "[N]ovel business practices—especially in technology markets—should not be conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business

excuse for their use." *Id.* at 990-91 (internal quotation marks omitted). "Because innovation involves new products and business practices, courts['] and economists' initial understanding of these practices will skew initial likelihoods that innovation is anticompetitive and the proper subject of antitrust scrutiny." *Id.* at 991. In this case, the rule of reason applies because this is not a case that "has so little redeeming virtue, and that there would be so very little loss to society from its ban, that an inquiry into its costs in the individual case [can be] considered [] unnecessary." *United States v. Microsoft Corp.*, 253 F.3d 34, 94 (D.C. Cir. 2001) (internal quotation marks and citations omitted).

Contrary to Teradata's argument, there are procompetitive justifications from SAP's design of S/4HANA to run on HANA rather than on multiple databases. Reply SMSJ at 14. For example, under Teradata's original theory, SAP's expert, Mehrotra, explains how SAP achieved efficiency gains such as improved performance and functionality with S/4HANA by designing it for only HANA. Mehrotra Rep. ¶¶ 138-98. Under its new theory, Teradata implies that there is no reason SAP could not separately license HANA's analytical capabilities, SMSJ Opp. at 35, but SAP explains that unlike Oracle and Microsoft, SAP lacks the ability to license analytical and transactional functionalities separately because they operate on the same set of data and are intertwined. Hois Decl. ¶¶ 5-6. It asserts that SAP "achieved procompetitive benefits by designing S/4HANA to run on all of HANA, including its analytical capabilities." SMSJ Reply at 15. That Teradata contends that the design of S/4HANA has no efficiency gains is irrelevant to the question of whether the rule of reason applies. Instead, these "purported efficiencies suggest that judicial 'experience' provides little basis for be-

lieving that" SAP's S/4HANA "lacked any redeeming virtue and therefore should be presumed unreasonable." *Microsoft*, 253 F.3d at 90-91. Rule of reason applies in this case.

b. Failure to Properly Define a Tied or Tying Market

That said, under either test, Teradata's tying claim fails. As established above, because Teradata has failed to properly define a tied market, there is no triable issue of fact whether the alleged tying arrangement harmed competition in the tied market under the rule of reason analysis. Likewise, because Teradata has failed to properly define a tying market, there is no triable issue of fact whether SAP has market power in a properly-defined tying market. *See Truck-Rail Handling Inc. v. BNSF Ry. Co.*, 2005 WL 8178364, at *8 (N.D. Cal. Mar. 8, 2005) (granting defendants' motion for summary judgment on market definition because plaintiff's evidence did not "assist in evaluating cross-elasticity of supply and demand").

Teradata contends that the issue of market definition should be decided by a jury. Opp. SMSJ at 32; *see High Tech. Careers v. San Jose Mercury News*, 996 F.2d 987, 990 (9th Cir. 1993) ("The process of defining the relevant market is a factual inquiry for the jury."). But where there is an absence of evidence to support Teradata's claim that SAP competes in the purported tying or tied market, summary judgment is appropriate. In *Rebel Oil Co. v. Atl. Richfield Co.*, 51 F.3d 1421 (9th Cir. 1995), the Ninth Circuit acknowledged "that the definition of the relevant market is a factual inquiry for the jury, and the court may not weigh evidence or judge witness credibility." *Rebel Oil*, 996 F.2d at 1435. It held, however, "that an issue is factual does not necessarily preclude summary judgment.

If the moving party shows that there is an absence of evidence to support the plaintiff's case, the nonmoving party bears the burden of producing evidence sufficient to sustain a jury verdict on those issues for which it bears the burden at trial." *Id.* It also noted that when, as here, "an expert opinion is not supported by sufficient facts to validate it in the eyes of the law, or when indisputable record facts contradict or otherwise render the opinion unreasonable, it cannot support a jury's verdict" and therefore summary judgment is appropriate. *Id.* at 1436 (quoting *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 242 (1993)). Accordingly, SAP's motion for summary judgment on Teradata's tying claim is **GRANTED**.[16]

II. TERADATA'S MOTION FOR SUMMARY JUDGMENT

Teradata moves for summary judgment against SAP's counterclaims, which contend that Teradata infringes its '321 Patent,'179 Patent, and '421 Patent. Dkt. No. 472 ("TMSJ") at 1. Teradata asserts that the claims of the '321 Patent are invalid because they are directed to patent-ineligible subject matter under 35 U.S.C. § 101. *Id.* Teradata also asserts that SAP is not entitled to damages for the alleged infringement of the '179 and '421 Patents before May 19, 2019, when it first informed Teradata of its infringement allegations because SAP had failed to give notice to the public that its products practice the claims of these patents prior to then. *Id.*; *see* 35 USC § 287. SAP

[16] Moreover, even if the tied market definition was proper, summary judgment would still be appropriate because Teradata cannot show that SAP has caused actual injury to competition in a market for "EDW products with OLAP capabilities for large enterprises." *See supra* Part I.B.1.b.

does not oppose Teradata's motion for summary judgment against an award of damages for infringement of the '179 and '421 Patents before May 21, 2019. Dkt. No. 520 ("Opp. TMSJ") at 1. SAP does, however, contend that the '321 Patent is valid. *Id.*

A. Legal Standard

Under Section 101 of the Patent Act, "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor . . . . ." 35 U.S.C. § 101. The Supreme Court "has long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). The reason for the exception is clear enough—"such discoveries are manifestations of . . . nature, free to all men and reserved exclusively to none." *Mayo Collaborative Servs. v. Vometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) (internal quotation marks and citations omitted). The boundaries of the exception, however, are not so clear.

The *Alice* court highlighted "the concern that drives this exclusionary principle as one of pre-emption." *Alice*, 573 U.S. at 216 (noting the delicate balance inherent in promoting progress, the primary object of patent law, and granting a monopoly, the means for accomplishing that goal). In other words, patents that seek to wholly preempt others from using a law of nature or an abstract idea—"the basic tools of scientific and technological work"—are invalid. *Id.* "Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the buildin[g] block[s] of human ingenuity and those that integrate the building blocks into something more, thereby

transform[ing] them into a patent-eligible invention." *Id.* at 217 (internal quotation marks and citations omitted).

In evaluating whether claims are patent-eligible, I must first "determine whether the claims at issue are directed to one of those patent-ineligible concepts." *Alice*, 573 U.S. at 217. "[T]he 'directed to' inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether their character as a whole is directed to excluded subject matter." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (internal quotation marks omitted). Although there is no bright-line rule for determining whether a claim is directed to an abstract idea, courts have articulated some guiding principles. When evaluating computer-related claims, courts look to whether the claims "improve the functioning of the computer itself," *Alice*, 573 U.S. at 225, or whether "computers are invoked merely as a tool" to implement an abstract process. *Enfish*, 822 F.3d at 1336.

If the claims are directed to a patent-ineligible concept, I must then "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 1334 (internal citations omitted). This step entails the "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 (internal quotation marks and citations omitted). An inventive concept "cannot simply be an instruction to implement or apply the abstract idea on a computer" and "must be significantly more than the abstract idea itself." *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

"For the role of a computer in a computer-implemented invention to be deemed meaningful in the context of this analysis, it must involve more than performance of well-understood, routine, [and] conventional activities previously known to the industry." *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347-48 (Fed. Cir. 2014). "[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *Id.* at 1348. However, "an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces." *BASCOM*, 827 F.3d at 1350.

B. Whether the '321 Patent Is Invalid Under 35 U.S.C. § 101

The '321 Patent is titled "Systems and Methods for Data Processing." Dkt. No. 124-1 ("'321 Patent"). SAP alleges that Teradata infringes at claims 1, 2, and 4 of the '321 Patent. Dkt. No. 461 at 1. Independent claim 1 and dependent claim 2 recite:

> "**1.** A data processing method comprising:
> providing a set of database tables in a data warehouse, each database table being assigned to an entity type and storing entities of its entity type;
> providing a set of online analytical processing cubes in a data warehouse, each online analytical processing cube specifying a layout for transactional data storage;
> providing at least one application program for processing at least one class of database tables and at least one class of online analytical processing cubes;
> mapping a sub-set of the set of database tables to the at least one class of database tables, the sub-set of

database tables comprising database tables of one or more entity types;

mapping a sub-set of the set of online analytical processing cubes to the at least one class of online analytical processing cubes;

invoking an online analytical processing component to fill the online analytical processing cubes with transactional data;

processing the entities stored in the sub-set of database tables and the transactional data stored in the sub-set of online analytical processing cubes by the application program; and

providing analysis of the entities and the transactional data the application program to a user.

2. The method of claim 1, comprising providing a set of application programs, whereby each application program of the set of application programs is adapted to process a set of classes of database tables and online analytical processing cubes."

'321 Patent at 7:12-42.

Independent claim 4 is a system claim that is similar to claim 1:

"**4.** A data processing system comprising:

a relational database of a data warehouse for storing a set of database tables, each database table being assigned to an entity type and storing entities of its entity type;

a relational database of a data warehouse for storing a set of online analytical processing cubes, each online analytical processing cube specifying a layout for transactional data storage;

at least one application program for processing at least one class of database tables and at least one class of online analytical processing cubes;

a mapping table for mapping a sub-set of the set of database tables to the at least one class of database tables, the sub-set of database tables comprising database tables of one or more entity types;

a mapping table for mapping a sub-set of the set of online analytical processing cubes to the at least one class of online analytical processing cubes;

means for invoking an online analytical processing component to fill the online analytical processing cubes with transactional data;

means for processing the entities stored in the sub-set of database tables and the transactional data stored in the sub-set of online analytical processing cubes with the application program; and

means for providing analysis of the entities and the transactional data processed by the application program to a user."

Id. at 7:46-8:18. Claim 1 is representative because it is "substantially similar" to claim 4. TMSJ at 5; *see Content Extraction*, 776 F.3d at 1348 (concluding that a claim is representative of other claims when they are "substantially similar and linked to the same abstract idea"). SAP does not oppose that claim 1 is representative.

1. The '321 Patent Is Directed to the Abstract Idea of "Organizing Information into Logical Groups"

Teradata asserts that the '321 Patent is directed to the abstract idea of "associating ('mapping') database tables

and OLAP cubes with respective classes for use with application programs."[17] TMSJ at 7. When evaluating computer-related claims, the first step in the *Alice* inquiry "asks whether the focus of the claims is on the specific asserted improvement in computer capabilities" or "instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Enfish*, 822 F.3d at 1335-36. Teradata argues that the "'mapping' to classes at the heart of the '321 patent is simply a practice of organizing information, a type of activity that courts have held to be abstract and ineligible for patent protection." TMSJ at 7. For example, even SAP's expert, Dr. David Maier, explains,

> "The '321 patent relates to ways to organize the tables and cubes used in databases so that they can be more easily and efficiently recognized and accessed. At a high level this organization is accomplished by assigning a table or cube to a particular class. These classes serve to group data structures storing related data, so an application can access the structures together."

Dkt. No. 472-2 ("Maier Reb. Rep.") ¶ 683.

SAP contends that "if there is an abstract idea, it is organizing information into logical groups." Opp. TMSJ at 3-6. Although its opposition assumes *arguendo* that the claims are directed to an abstract idea, SAP does not dispute that the claims are directed to an abstract idea. It "does not contest that the claims are directed to this idea

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[17] In the Claim Construction Order, I rejected Teradata's proposal to construe "mapping" as "associating or assigning." Claim Construction Order at 14-15. Instead I construed "mapping" as "[c]reating and storing, in computer system memory or secondary storage for a computer system, an association between data elements in the computer system such that a computer can locate a data element using that association." *Id.*

of 'organizing information into logical groups' and that it is abstract." *Id.* at 4. Instead, it disputes Teradata's assertion that the claims are directed to the narrower abstract idea of "associating ('mapping') database tables and OLAP cubes with respective classes for use with application programs." TMSJ at 7.

SAP takes the unusual position as a patentee of asserting a broader definition of the abstract idea in order to contend that the physical-realm claim elements—i.e., database tables, OLAP cubes, application programs, and mapping—and their combination should be analyzed under *Alice* step two to determine that there is an inventive concept. *See* Opp. TMSJ at 6; Hearing Tr. at 60-61. An inventive concept "reflects something more than the application of an abstract idea using well-understood, routine, and conventional activities previously known to the industry. It must be enough to transform an abstract idea into a patent-eligible invention." *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1316 (Fed. Cir. 2019), *cert. denied sub nom. Garmin USA, Inc. v. Cellspin Soft, Inc.*, 140 S. Ct. 907 (2020) (internal quotation marks and citations omitted).

In *Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018), the Federal Circuit held that "[w]hether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination." *Berkheimer*, 881 F.3d at 1369. The court held that the claims at issue were directed to the abstract ideas of parsing, comparing, storing, and editing data. *Id.* at 1366. The patentee argued that the specification described "an inventive feature that stores parsed data in a purportedly unconventional manner" which "eliminates redundancies, improves system efficiency, [and] reduces storage requirements" among other things. *Id.* at 1369. The Federal

Circuit therefore held that the "improvements in the specification, to the extent they are captured in the claims, create a factual dispute regarding whether the invention describes well-understood, routine, and conventional activities." *Id.*

In contrast, in *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281 (Fed. Cir. 2018), the Federal Circuit held that the dispute about whether the claims recited "unconventional features that provides benefits over conventional prior art databases" was irrelevant because "a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept." *BSG*, 899 F.3d at 1289-91. The court held that the claims at issue were directed to the abstract idea of "considering historical usage information while inputting data." *Id.* at 1286. The only alleged unconventional feature of the claims was "the requirement that users are guided by summary comparison usage information or relative historical usage information." *Id.* at 1291. The Federal Circuit held that "this simply restate[d]" what it had already determined was an abstract idea and therefore the question about whether this requirement was non-routine or unconventional was irrelevant. *Id.* "As a matter of law, narrowing or reformulating an abstract idea does not add 'significantly more' to it." *Id.* The Federal Circuit affirmed the district court's determination that the asserted claims lacked an inventive concept. *Id.*

In this case, Teradata asserts that the abstract idea is "associating ('mapping') database tables and OLAP cubes with respective classes for use with application programs" because then SAP's purported inventive concept is simply a restatement of the abstract idea and arguably fails. In

contrast, SAP contends that the abstract idea is "organizing information into logical groups" because then the combined elements of the database, OLAP cubes, application programs, and mapping arguably create an inventive concept and a genuine dispute of fact of whether the combination of these elements is non-routine or unconventional. I will now address which abstract idea the claims are directed towards.

SAP argues that "mapping" database tables and OLAP cubes with respective classes for use with application programs is not an abstract idea because database tables, OLAP cubes, and application programs are computer structures, not mere concepts, and "mapping" requires the creation of computer data structures. Opp. TMSJ at 4. Teradata cites no precedent holding that a database, OLAP cube, or application program is an abstract idea. *See id.* For "mapping," however, Teradata points to *Autodesk*, where the district court held that "it would be difficult to conceive of a more abstract concept than 'mapping,' when that concept is not tied to any particular object or method." *East Coast Sheet Metal Fabricating Corp. v. Autodesk, Inc.*, 2015 WL 226084, at *6 (D.N.H. Jan. 15, 2015), *amended in part*, 2015 WL 925614 (D.N.H. Mar. 3, 2015), *and aff'd*, 645 F. App'x 992 (Fed. Cir. 2016). Although SAP does not directly address *Autodesk*, it contends that "mapping" as construed by the Claim Construction Order is not abstract because it requires the creation of computer data structures: "[c]reating and storing, in computer system memory or secondary storage for a computer system, an association between data elements in the computer system such that a computer can locate a data element using that association." Claim Construction Order at 15. According to SAP, "[t]here is nothing abstract about a data structure that an application program running on a computer uses to locate particular data

stored in other data structures in the computer system." Opp. TMSJ at 4.

Teradata responds that despite the claim construction, "mapping" is an abstract idea because "there is nothing in the claim language or specification that would materially distinguish a computerized mapping table from one that could be created with a pen and paper." TMSJ at 11. I agree. In *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307 (Fed. Cir. 2016), the Federal Circuit held that the patent at issue was directed to the abstract idea of "receiving e-mail (and other data file) identifiers, characterizing e-mail based on the identifiers, and communicating the characterization—in other words, filtering files/e-mail." *Symantec Corp.*, 848 F.3d at 1313. It held that the patent was invalid because "with the exception of generic computer-implemented steps, there is nothing in the claims themselves that foreclose them from being performed by a human, mentally or with pen and paper." *Id.* at 1318. In this case, SAP's expert, Maier, opined that "[a] folder or directory structure stored on a computer system [that] groups objects and allows them to be located . . . can be considered a mapping table." Dkt. No. 472-3 ("Appendix 3 to Maier Report") at 32. Because a computer folder "originated as a metaphor for paper folders," "mapping" is an abstract idea. TMSJ at 12.

Moreover, the claims are not focused on how "mapping" improves computer functionality. SAP's expert explains that the "ways to organize the tables and cubes used in databases," e.g., "assigning a table or cube to a particular class," makes the database tables and OLAP cubes "more easily and efficiently recognized and accessed." Maier Reb. Rep. ¶ 683. But the specification expressly states that the improvement is simplifying the "selection of database tables as input parameters and the

selection of OLAP cubes" to make it "more *user* friendly." '321 Patent at 5:63-65 (emphasis added); *see also id.* at 2:40-44; 3:61-64; 4:8-19; 5:27-30; 5:35-44; 6:11-16 (references to how the value from "mapping" is a result of a human's choice to associate particular tables or cubes with classes, not from a new data structure or technological improvement). Further, neither the claims nor the specification recites any specific algorithms for mapping tables and cubes to classes, collecting data into OLAP cubes, processing the data, or analyzing the data. TMSJ at 14. Consequently, SAP only "conclusorily claims an improvement, but never identifies what the specific improvement is, despite the Federal Circuit's requirement that claims assert a 'specific asserted improvement.'" *MyMail, Ltd. v. OoVoo, LLC*, No. 17-CV-04487-LHK, 2020 WL 2219036, at *15 (N.D. Cal. May 7, 2020), *aff'd*, 2021 WL 3671364 (Fed. Cir. Aug. 19, 2021) (quoting *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314-15 (Fed. Cir. 2016)). As a result, "mapping" is an abstraction.

Teradata also asserts that the presence of physical components—i.e., the computer data structures composed of the database, OLAP cubes, and application programs—do not save the claims from being directed to an abstract idea. Dkt. No. 559 ("Reply TMSJ") at 5-6. For example, in *In re TLI Commc's LLC Pat. Litig.*, 823 F.3d 607 (Fed. Cir. 2016), the Federal Circuit determined that the claim at issue was directed to an abstract idea even though the claims required "concrete, tangible components such as 'a telephone unit' and a 'server,'" because "the specification makes clear that the recited physical components merely provide a generic environment in which to carry out the abstract idea." *TLI*, 823 F.3d at 611.

But SAP does not dispute that the claims are directed to an abstract idea; instead it disputes the scope of the abstract idea. SAP persuasively contends that, contrary to Teradata's narrow characterization of multiple Federal Circuit decisions, the Federal Circuit "resists conflating a claim's abstract idea with its physical-realm elements." Opp. TMSJ at 6. For example, Teradata characterized the Federal Circuit's conclusion in *Capital One* as stating that the claims were directed to the abstract idea of "[s]ystems for manipulating XML documents by organizing data components into data objects and records and responding to modifications of the data." TMSJ at 8. Instead, the Federal Circuit concluded that "the patent claims are, at their core, directed to the abstract idea of collecting, displaying, and manipulating data." *Capital One*, 850 F.3d at 1340. Similarly, Teradata characterized the decision in *Electric Power Group* to hold that the claims at issue were directed to the abstract idea of "[s]ystems and methods for performing real-time monitoring of an electric power grid by collecting data from multiple data sources, analyzing the data, and displaying the results." TMSJ at 8. But the Federal Circuit held that the claims were focused on the following abstract idea: "a process of gathering and analyzing information of a specified content, then displaying the results." *Elec. Power Grp.*, 830 F.3d at 1354.

Teradata points to *Intellectual Ventures I LLC v. Erie Indemnity Co.*, 850 F.3d 1315 (Fed. Cir. 2017) as an example of the Federal Circuit including a physical-realm element in its articulation of the abstract idea. Reply TSMJ at 4. There, the Federal Circuit held that "the invention is drawn to the abstract idea of 'creating an index and using that index to search for and retrieve data.'" *Erie*, 850 F.3d at 1327. An "index" was a known structure in the field of database technology. The Federal Circuit, however, was not discussing the specific index in the field

of database technology in its definition of the abstract idea, but indexes generally. *See id.* (explaining that "[t]his type of activity, i.e., organizing and accessing records through the creation of an index-searchable database, includes longstanding conduct that existed well before the advent of computers and the Internet. For example, a hardcopy-based classification system (such as library-indexing system) employs a similar concept as the one recited by" the patent).

Accordingly, I agree with SAP that the claims are directed to the abstract idea of "organizing information into logical groups".[18] But for the reasons explained below, the claims are patent-ineligible because they fail to encompass an inventive concept.

2. The '321 Patent Does Not Contain an Inventive Concept

Teradata asserts that the '321 Patent lacks an inventive concept because it "recites well-known, routine, and conventional database elements" and "uses these elements to perform well-understood, routine, and conventional functions of collecting, organizing, processing, or analyzing data." TMSJ at 13. An inventive concept "cannot simply be an instruction to implement or apply the abstract idea on a computer" and "must be significantly more than the abstract idea itself." *BASCOM*, 827 F.3d at 1350. "If a claim's only 'inventive concept' is the application of an abstract idea using conventional and well-understood techniques, the claim has not been transformed into a patent-eligible application of an abstract idea."

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[18] Teradata asserts that whether I adopt SAP's or its articulation of the abstract idea, the Section 101 analysis does not change because its articulation "is simply a form of organizing information into logical groups." Reply TMSJ at 7.

BSG, 899 F.3d at 1290-91 (Fed. Cir. 2018). But "an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces." *BASCOM*, 827 F.3d at 1350.

At the summary judgment stage, Teradata, as the movant, has the burden of showing that there is no genuine dispute as to any material fact and that it is entitled to judgment as a matter of law. FED. R. CIV. P. 56(A). "[W]hether a claim limitation or combination of limitations is well-understood, routine, and conventional is a factual question." *BSG*, 899 F.3d at 1290. Because such a fact is "pertinent to the invalidity conclusion" it "must be proven by clear and convincing evidence." *Berkheimer*, 881 F.3d at 1368. "When there is no genuine issue of material fact regarding whether the claim element or claimed combination is well-understood, routine, conventional to a skilled artisan in the relevant field, this issue can be decided on summary judgment as a matter of law." *Id.* And if the only alleged unconventional feature is the abstract idea itself, summary judgment is appropriate. *BSG*, 899 F.3d at 1291.

a. Inventive Concept Identified During the Hearing

Notably, SAP did not assert what the inventive concept is in its opposition. When asked during the hearing, its counsel explained that the inventive concept is composed of three elements in claim 4:[19] (1) a relational database that stores both database tables and OLAP cubes ('321 Patent at 7:47-53); (2) an application program that accesses and processes those database tables and OLAP cubes, not individually, but as a class ('321 Patent at 7:54-

[19] SAP only addresses claim 4 but Teradata addresses the parallel elements of claims 1 and 4 together. Reply TMSJ at 9.

56); and (3) the two mapping tables, which are data structures inside the computer, which associate the database tables and the OLAP cubes with a particular class ('321 Patent at 8:1-7). Hearing Tr. at 60-61. Its counsel contended that combining these elements constituted an improved database technique that simplified "the selection of database tables as input parameters and the selection of OLAP cubes" and made it "more user friendly." *Id.* at 62 (citing '321 Patent at 5:63-67). According to the '321 Patent, the improved database technique also "may enable non-expert users to perform complex transactional data processing and to integrate expert knowledge in the class definitions." *Id.*

Teradata's counsel responded that these elements do not create an inventive concept. For the first element, under the agreed claim construction, "a relational database of a data warehouse for storing a set of [OLAP] cubes" is "a database that stores information in tables of rows and columns of data located in a data warehouse that can store at least one [OLAP] cube." Dkt. No. 206 ("Joint Claim Construction Statement") at 2. In other words, the OLAP cube is not stored in the relational database as SAP's counsel explained, but in the data warehouse. Hearing Tr. at 64; *see also* '321 Patent at 4:58-60, Fig. 3 (showing that the data warehouse contains a set of OLAP cubes and not a relational database). And the specification admits that the storage of OLAP cubes in data warehouse systems is well-understood, routine, and conventional. *Id.* at 1:26-27 ("An OLAP cube is a multi-dimensional representation of a set of data. Such a cube is the basis for transaction data storage in prior art data warehouse systems.").

For the second element, Teradata's counsel pointed out that SAP admitted that application programs were

well-known in the prior art. *See* Dkt. No. 211 ("SAP Opening Claim Construction Brief") at 20 ("Application programs were well-known to the POSITA at the time the '321 patent was filed."). And for the third element, Teradata's counsel asserted that "mapping" is "merely an abstraction" for the reasons explained above, e.g., there is nothing in the specification that would distinguish the mapping tables from what a person could do on pen and paper. Hearing Tr. at 66; *see supra* Part II.B.1.

SAP's counsel conceded that application programs, database tables, and OLAP cubes were well-known. Hearing Tr. at 68. But he argued that nothing in the specification or the record suggested that any of the three elements it identified were well-known or conventional in 2003, the patent's effective filing date. *Id.* This does not address, however, Teradata's argument that "mapping" is an abstraction. Because "mapping" simply restates what I have determined is an abstract idea, i.e., organizing information into logical groups, the question of whether the claim element is well-understood, routine, and conventional, is irrelevant. *BSG*, 899 F.3d at 1291.

SAP's response also does not address Teradata's argument that application programs, database tables, and OLAP cubes are generic software components that cannot supply an inventive concept. Reply TMSJ at 11; *see Content Extraction*, 776 F. at 1348 ("[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention."). The specification does not identify any specific advancement over prior art. Instead, it explains that these physical elements were well-understood, routine, and conventional features of databases. As SAP's counsel explained, "mapping" is how the application program accesses the data in

the database tables and OLAP cubes as a class and therefore because "mapping" is an abstraction, none of these elements can provide an inventive concept. *See* Hearing Tr. at 60-61.

Even though the question of conventionality is irrelevant, Teradata also points to examples in the prior art to argue that "mapping" is a well-understood, routine, and conventional element. *Id.* at 14-15. Some prior art patent applications contained the same process of classifying or assigning tables or cubes to logical groupings or classes, each associated with applications for processing. *See, e.g.*, Dkt. No. 472-4 ("'061 Colossi Reference") (U.S. Patent Application Publication No. US 2004/0139061) (Figure 3 showing a grouping of tables related to the measurement of sales by time, product, and region); Dkt. No. 472-5 ("Bakalash Reference") (U.S. Patent No. 6,385,604") (Figure 4A showing a grouping of tables by supplier, time period, part, and supplied parts); Dkt. No. 472-6 ("Colossi Article" or "Colossi Reference") (Figure 1 showing a class of OLAP cubes related to finance, market share, employees, and customers).

SAP contends that Teradata has not shown an absence of a genuine dispute of material fact because "[w]hether a particular technology is well-understood, routine, and conventional goes beyond what was simply known in the prior art. The mere fact that something is disclosed in a piece of prior art, for example, does not mean it was well-understood, routine, and conventional." *Berkheimer*, 881 F.3d at 1369. It argues that the prior art references do not support Teradata's argument because Teradata "cites no evidence that these references were widely read and understood by 2003, or adopted by others so widely that they became routine and conventional." Opp. TMSJ at 10. For

example, the Colossi '061 reference was not published until 2004, after the '321 Patent's effective filing date and therefore "it cannot possibly show that others adopted its teachings to such an extent that they became conventional in 2003." *Id.* As for the other Colossi reference, it contends that Figure 1 of the 2002 Colossi article was simply a proposal and Teradata cites to no evidence showing that anyone adopted the proposal so that it became routine and conventional by 2003. *Id.* Similarly, it argues that there is no evidence that the Bakalash reference was widely read or understood by 2003. *Id.*

Further, SAP contends that Teradata has not met its burden of showing that the patent claims' combination of physical-realm elements was conventional, routine, and well-understood. *Id.* at 11. According to SAP, the prior art references show different claimed inventions than the one at issue in the '321 Patent. *Id.* For example, both the Colossi '061 reference and the Bakalash reference describe the claimed invention as a "star schema," a way to represent the logical structure of a relational base, which is not the claimed invention at issue here. *Id.* at 17; *see* Bakalash Reference at 3:54-57 ("An exemplary star schema is illustrated in FIG. 4A"); '061 Colossi Reference ¶ 0075 ("FIG. 3 illustrates a sample star-join schema"). Teradata does not contend that either reference shows any of the other '321 claim elements, e.g., any system in which both tables and cubes are mapped to classes, as required by the '321 Patent. *Id.* at 11-12. Similarly, SAP's expert opines that Figure 1 in the Colossi Reference describes cubes that are different from the construed definition of OLAP cubes in this case. Dkt. No. 520-2 ("Maier Reb. Rep.") ¶¶ 746-48.

These arguments are irrelevant, however, because under a Section 101 analysis, as opposed to a Section 102 or 103 analysis, Teradata does not have to compare each '321

claim to the prior art. Reply TMSJ at 10. As the Federal Circuit has explained,

> "The appropriate question is not whether the entire claim as a whole was 'well-understood, routine [and] conventional' to a skilled artisan (i.e., whether it lacks novelty), but rather, there are two distinct questions: (1) whether each of the [elements] in the claimed [product] (apart from the natural laws themselves) involve well-understood, routine, conventional activity previously engaged in by researchers in the field, and (2) whether all of the steps as an ordered combination add[ ] nothing to the laws of nature that is not already present when the steps are considered separately."

Chamberlain Grp., Inc. v. Techtronic Indus. Co., 935 F.3d 1341, 1348-49 (Fed. Cir. 2019), *cert. denied*, 141 S. Ct. 241 (2020) (internal citations and quotation marks omitted). Teradata explains that it was relying on the prior art references to show that "mapping" and "mapping tables," under my construction and as interpreted by SAP's expert, were well-known in the art. Reply TMSJ at 10-11. SAP does not address Teradata's arguments that the Colossi '061 and Bakalash references show mappings of tables to classes. Further, SAP's expert undermines its argument that there is no clear and convincing evidence that the Colossi and Bakalash references were widely circulated or understood by 2003; Maier opines that a POSITA would have understood how to implement certain claim elements at the time based on these three references. *See infra* Part II.B.2.b; *see* Maier Reb. Rep. ¶¶ 704, 715. SAP's argument that these three elements create an inventive concept fails.

b. Remaining Claim Elements

SAP's counsel clarified that SAP was not abandoning the seven physical-realm elements outlined in its opposition by focusing on the elements above. Hearing Tr. at 63. According to SAP, "even if each of the [] seven claim elements individually were known, Teradata submits no clear and convincing evidence that this particular combination of structural, physical-realm elements was conventional by 2003": the elements above and (1) "an OLAP component filling the OLAP cubes with transactional data and [a particular] means for invoking that component to perform that function; (2) "a [particular] means for processing with the application program the entities stored in the sub-set of database tables and the transactional data stored in the sub-set of OLAP cubes; and (3) "a [particular] means for providing analysis of those entities and transactional data processed by the application program." Opp. TMSJ at 9.

But these remaining claim limitations—"filling cubes with data, processing data, and providing analysis"—are also abstract and cannot provide an inventive concept. TMSJ at 14. Contrary to SAP's addition of the word "[particular]" in the elements,[20] these limitations are purely functional because the claims do not recite any specific algorithms for performing these steps; instead they simply claim a result and reflect abstract ideas. TMSJ at 14; *see Affinity Labs of Texas, LLC v. Amazon.com Inc.*, 838

[20] Teradata asserts that SAP's rewriting of claim 4 underscores that the ordered "combination" of elements in claim 4 cannot survive *Alice* step two. Reply TMSJ at 9. It argues that SAP (1) combines the first two elements; (2) moves the "mapping" limitations to follow the filling, processing, and providing analysis limitations; and (3) adds the word "[particular]" to make three claim elements seem less generic. *Id.*

F.3d 1266, 1269 (Fed. Cir. 2016) ("The purely functional nature of the claim confirms that it is directed to an abstract idea, not to a concrete embodiment of that idea."). SAP does not respond to this argument. The question of whether these elements are well-understood, routine, and conventional is therefore irrelevant because these elements are abstract ideas and therefore cannot supply an inventive concept. *See BSG*, 899 F.3d at 1290-91.

In any event, Teradata argues that all of these steps are also well-understood, routine, and conventional, as SAP admits. *Id.* SAP's expert admits that filling cubes with data, processing data, and providing analysis are all well-known elements and would be familiar to a skilled artisan. *See, e.g.*, Maier Reb. Rep. ¶ 704 (arguing that the "Colossi and Colossi '061 references . . . further demonstrate that a POSITA would have been well aware of applications that utilized RDBMS components to fill OLAP cubes."); *id.* ¶ 715 (arguing that the "Colossi reference . . . further demonstrate[s] that a POSITA would have been well aware of applications that processed the entities stored in the sub-set of database tables and the transactional data stored in the sub-set of online and analytical processing cubes with the application program."); *id.* ¶ 719 (arguing that the structures for "providing analysis of the entities and the transaction data processed by the application program to a user" were "familiar to a skilled artisan"). Maier pointed to business intelligence tools such as "Microsoft Excel, BusinessObjects and Tableau" as examples of applications that were well-known that filled cubes with data, processed data, and provided analysis of data. *Id.* ¶¶ 701, 712, 719.

Furthermore, the specification is silent as to any purported improvement provided by the claimed combination. *See MyMail*, 2020 WL 2219036, at *19 (invalidating

claims under § 101 in part because the specification was "entirely silent as to . . . how any inventive feature, alone or in an ordered combination, is used in an unconventional manner.") (internal quotation marks omitted). Because the claim elements simply apply the abstract idea of organizing information into logical groups using well-understood, routine, and conventional activities previously known to the industry, the claims do not make the abstract idea patent eligible. *Cellspin Soft*, 927 F.3d at 1316.[21] SAP's claims are directed to the abstract idea of organizing data into logical groups. There is no inventive concept that provides something more than the abstract idea itself. Teradata's motion for summary judgment is **GRANTED**.

III. MOTION TO EXCLUDE LEONARD AND WOLFSON TESTIMONY

Teradata's final motion to exclude expert testimony seeks to exclude portions of Dr. Wolfson and Dr. Leonard's reports. Dkt. No. 480 ("L&W Mot.") at 1. Teradata asserts that I should exclude Wolfson's apportionment opinions because they do not satisfy Rule 702 and Leonard's Profit Apportionment Method with respect to the '321 Patent, which relies on Wolfson's apportionment factors. *Id.* Because I conclude that the '321 Patent is invalid, any arguments related to it are **DENIED** as moot. Te-

[21] SAP also contends that Teradata has not shown a lack of genuine dispute that there are no other ways to implement the alleged abstract idea. Opp. TMSJ at 15-16. But Teradata does not have to show that SAP has preempted an entire idea for the '321 claims to be patent-ineligible. "While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility." *FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016) (citation omitted).

radata also moves to exclude certain alternative calculations for reasonable royalties, such as damages before May 21, 2019 for the '421 and '179 Patents and damages related to an exhibit labeled as "Scenario 2." *Id.* SAP does not dispute these issues and therefore Teradata's motion in relation to these is **GRANTED**. *See* Dkt. No. 525 ("L&W Opp.") at 12, 15. As for the antitrust damages, Teradata moves to exclude Leonard's opinion that certain Teradata business decisions caused the damages. L&W Mot. at 2. Because I conclude that Teradata's tying claim fails, any argument about antitrust damages is **DENIED** as moot. The remaining issues, then, are whether Wolfson's apportionment analysis of the '421 and '179 Patents is unreliable and therefore whether Leonard's Profit Apportionment Method for the '421 and '179 Patents is unreliable.

Teradata asserts that Wolfson's apportionment analysis is flawed. *Id.* at 5. SAP explains that Wolfson "was tasked with estimating the value of Teradata's infringing technology by drawing on his more than 35 years of experience as a computer science professor and the president of a startup company in the data science field." L&W Opp. at 1 (citing Dkt. No. 488-6 ("Wolfson Rep.") ¶¶ 4-18). Teradata points out that Wolfson admits that he has never conducted an apportionment analysis before, and he could not provide examples of others apportioning revenues in the manner he did or any third-party resources that could guide his efforts. Dkt. No. 488 ("Wolfson Depo.") at 42-43, 46, 77-78.

Wolfson's analysis follows the same methodology affirmed by the Federal Circuit in *Summit 6, LLC v. Samsung Elecs. Co. Ltd.*, 802 F.3d 1283, 1296-98 (Fed. Cir. 2015). *Id.* at 2-3. There, the expert determined the smallest salable patent-practicing unit for which revenue data

is available and further apportioned the value of the claimed invention to take into account only those features that infringed. *Summit 6*, 802 F. 3d at 1297. In this case, Wolfson identified the smallest salable unit for each patent, e.g., the Teradata Columnar feature for the '421 Patent and the Teradata Database for the '179 Patent, and then undertook a "multi-step, quantitative apportionment specific to each patent." *Id.* at 1297. Teradata asserts that *Summit* 6 is distinguishable because there, an economist, not a technical expert, made opinions based on his careful quantitative review of objective financial and customer usage data. Dkt No. 561 ("L&W Reply") at 4. Here, Wolfson repeatedly confirmed that he had no data on customers' usage of the specific features. *See* Dkt. No. 560-6 ("Wolfson Depo.") at 98-110.

But Wolfson explains that he does not use such data because Teradata claims that it does not possess or maintain information about how its customers deploy or configure features such as the Teradata Columnar, for example. Wolfson Rep. ¶ 49. Instead, Wolfson "had information about how certain Teradata employees who are in direct contact with customers value various features that are related to '421 . . . ." Wolfson Depo. at 110. Like the expert in *Summit 6*, for the '421 Patent he determined the proportion of customers who would be expected to configure Teradata Columnar in an infringing manner based on Teradata's documentation and publications and then subtracted non-infringing configuration options. Wolfson Rep. ¶¶ 48-69. For the '179 Patent, he approximated the value of Teradata's "complex query" processing components of the Teradata Database based on Teradata's internal spreadsheets. *Id.* ¶¶ 97-108. Wolfson then excluded use cases that do not involve the infringing subquery processing. *Id.* ¶¶119-22. His methodology is proper.

Teradata asserts that when asked how he came to determine or know what the alleged infringing conduct was, Wolfson responded that he did not "exactly recall how" he identified the exact piece that infringes and that "some of it is a hunch." Wolfson Depo. at 77-78. But the full context of his statement was that apportionment is not an "exact science," which has been acknowledged by courts. L&W Opp. at 4; *see Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1315, 1319 (Fed. Cir. 2014), *overruled on other grounds by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015) (recognizing that estimating a "reasonable royalty" for example "is not an exact science" and holding that an expert's method of apportionment was admissible even if other reliable methods of estimating a reasonable royalty existed). Wolfson testified that he did not analyze the infringement, or the claim construction order himself and he never spoke to SAP's expert on infringement, Dr. Maier. *Id.* at 34, 84. But his analysis of the relative value of the infringing technology relies on Maier's opinions on patent infringement, which is common and appropriate. *Fujifilm Corp. v. Motorola Mobility LLC*, No. 12-cv-03587-WHO, 2015 WL 1737951, at *4 (N.D. Cal. Apr. 8, 2015) (It is "reasonable to expect that experts will rely on the opinion of experts in other fields as background material for arriving at an opinion."). When asked when he received Maier's report, he stated that the earliest copy he had was from the same day that he signed his own report, but he testified that it was his impression that he had received something similar beforehand. *Id.* at 162-63. In addition, Wolfson testified that he relied upon SAP's infringement contentions, which were the basis of Maier's report, before finalizing his report. *See* Wolfson Depo. at 67-68, 157-61.

Teradata also emphasizes that "Wolfson's views on the patents are confused and plainly omit key elements of the

claimed invention." L&W Mot. at 7. According to Teradata, he ignored the existence of a limitation in the '179 Patent that subqueries be optimized "without transformation" and only focused on whether there were subqueries to the queries being processed. *See* Dkt. No. 491-15 ("'179 Patent") at 39:3-5; *see* Wolfson Depo. at 126-27 (stating that he believed the question of "transformation" was "completely tangential" to his report and confirming that the word "transformation" was "not even in" his report). Because Wolfson "values only the prevalence of subqueries rather than subqueries that are optimized 'without transformation,'" Teradata asserts that his approach is inappropriate. L&W Mot. at 7. SAP responds that it is appropriate that Wolfson only considered the prevalence of subqueries because according to Maier, the "without transformation" limitation is met when a query contains a subquery. L&W Opp. at 5 (citing Dkt. No. 524-11 ("Appendix 4 of the Maier Expert Rep.") at 82-84). It contends that Teradata has cited no evidence otherwise and therefore Wolfson did not need to account for the "without transformation" limitation. *Id.* These arguments go to the weight and not the admissibility of Wolfson's opinions.

Finally, Teradata asserts that Wolfson's calculations "reflect a host of allegedly quantitative assumptions that do not connect to the qualitative documents on which he relies." L&W Mot. at 8. For example, Teradata argues that he assumes that 50-100% of Teradata's customers use a certain configuration of Columnar solely because Teradata "recommends" the configuration, but he has no basis for this assumption. *Id.* SAP points out that this is a rational analysis given that some customers may not follow Teradata's recommendation and therefore would be expected to choose both options equally (the 50% endpoint of the range). *Id.* at 5. And because customers are likely

to follow a manufacturer's recommendation, this would result in the upper endpoint of the range (100%). *Id.* Teradata also argues that with the '179 Patent, Wolfson relied on a 50% estimate for the prevalence of queries containing subqueries "solely on a third-party paper," but SAP contends that the paper "analyzed a well-established industry performance benchmark, was peer-reviewed, [] was presented at a prestigious computer science conference," and Wolfson analyzed the benchmark independently. L&W Mot. at 8-9; L&W Opp. at 5-6; *see* Wolfson Rep. ¶ 121. These arguments go to the weight and not the admissibility of Wolfson's opinions.

Wolfson's apportionment analysis was based on reliable principles and guided by Federal Circuit case law. Leonard's Profit Apportionment Approach for the '421 and '179 Patents should not be excluded either.

CONCLUSION

For the reasons above, SAP's motion for summary judgment on Teradata's trade secret claims is **GRANTED**. Its motion related to Teradata's business trade secret claims under the DTSA is **DENIED** as moot. Its motion related to Teradata's tying claim is **GRANTED**. Teradata's motion for summary judgment on the invalidity of the '321 Patent is **GRANTED**. Its motion for partial summary judgment against an award of damages for infringement of the '179 and '421 Patents before May 21, 2019, is **GRANTED**. Its motion to exclude portions of Kraska's expert report is **DENIED** as moot. Its motion to exclude portions of Horn's report is **GRANTED** in part and **DENIED** in part. Its motion to exclude portions of the Leonard and Wolfson reports is **DENIED** in part as moot and **DENIED** in part on the merits. Its motion to exclude portions of Mehrotra's report is **DENIED**. SAP's motion to exclude portions of

Asker's report is **GRANTED** in part and **DENIED** in part.

IT IS SO ORDERED.

Dated: November 8, 2021

s/William H. Orrick
WILLIAM H. ORRICK
UNITED STATES DISTRICT JUDGE

APPENDIX C

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 23-16065

TERADATA CORPORATION, ET AL.,
PLAINTIFFS-APPELLANTS

v.

SAP SE, ET AL.,
DEFENDANTS-APPELLEES

Filed: March 4, 2025

Before: MILLER, BADE, and VANDYKE, Circuit Judges.

ORDER

The panel has unanimously voted to deny appellee's petition for rehearing en banc. *See* Dkt. No. 74. The full court has been advised of the petition for rehearing en banc and no judge has requested a vote on whether to rehear the matter en banc. Fed. R. App. P. 40. The petition for rehearing en banc is **DENIED**.