UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

ALIVECOR, INC.,

  Plaintiff - Appellant,

v.

APPLE INC.,

  Defendant - Appellee.

No. 24-1392

D.C. No.
4:21-cv-03958-
JSW

OPINION

Appeal from the United States District Court
for the Northern District of California
Jeffrey S. White, District Judge, Presiding

Argued and Submitted May 21, 2025
San Francisco, California

Filed January 8, 2026

Before: Marsha S. Berzon, Michelle T. Friedland, and
Salvador Mendoza, Jr., Circuit Judges.

Opinion by Judge Friedland

SUMMARY[*]

Antitrust

The panel affirmed, on different grounds, the district court's summary judgment in favor of Apple Inc. in medical-technology company AliveCor's antitrust action alleging monopolization in violation of Section 2 of the Sherman Act.

AliveCor created a software feature called SmartRhythm to detect episodes of atrial fibrillation using the Apple Watch. SmartRhythm relied on heart rate data that Apple calculated with an algorithm while the Watch was in the "Workout Mode" setting. The year after AliveCor created SmartRhythm, Apple adopted a Watch operating system update that used a different algorithm to calculate heart rate data. Apple shared the new algorithm's data with third-party app developers and stopped sharing the old algorithm's data, meaning that SmartRhythm could no longer confidently detect atrial fibrillation. Apple also added its own software feature to detect irregular heart rhythms. This feature, called Irregular Rhythm Notification, used a third algorithm to calculate heart rate data. Apple also shared that data with app developers.

AliveCor claimed that Apple violated Section 2 by denying third-party app developers access to the original heart rate algorithm's data. AliveCor alleged that Apple did so for the purpose of disabling software, like SmartRhythm, that would have competed with Irregular Rhythm

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[*] This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

Notification, thereby monopolizing the market for heart rhythm analysis apps on the Apple Watch.

The district court granted summary judgment to Apple on the ground that its changes to the Watch operating system improved Workout Mode and therefore constituted a per se lawful product improvement under *Allied Orthopedic Appliances, Inc. v. Tyco Health Care Grp. LP*, 592 F.3d 991 (9th Cir. 2010).

The panel affirmed on the ground that, even assuming AliveCor was correct that Apple's refusal to continue sharing the old heart rate algorithm's data with third-party app developers was distinct from Apple's improvement to Workout Mode, that conduct was properly classified as a refusal to deal. AliveCor would therefore need to establish an exception to the "general rule that there is no antitrust duty to deal" to succeed under Section 2. AliveCor did not do so both because it did not argue that the exception laid out in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985) applied, and because it did not show that, under the essential-facilities doctrine, Apple had a duty to share data from its original heart rate algorithm with its competitors. AliveCor's Section 2 claims therefore failed as a matter of law.

COUNSEL

Adam Wolfson (argued), Quinn Emanuel Urquhart & Sullivan LLP, Los Angeles, California; David M. Cooper, Quinn Emanuel Urquhart & Sullivan LLP, New York, New York; Sean S. Pak, Quinn Emanuel Urquhart & Sullivan LLP, San Francisco, California; Andrew B. Holmes, Holmes Athey Cowan & Mermelstein LLP, Los Angeles, California; Philip C. Ducker and Valarie C. Williams, Alston & Bird LLP, San Francisco, California; for Plaintiff-Appellant.

Thomas G. Hungar (argued) and Cynthia Richman, Gibson Dunn & Crutcher LLP, Washington, D.C.; Matt A. Getz, Patrick J. Fuster, Nicola T. Hanna, Daniel G. Swanson, Jason C. Lo, and Jennifer J. Rho, Gibson Dunn & Crutcher LLP, Los Angeles, California; Julian W. Kleinbrodt and Caeli A. Higney, Gibson Dunn & Crutcher LLP, San Francisco, California; for Defendant-Appellee.

David W. Kesselman, Amy T. Brantly, and Wesley A. Sweger, Kesselman Brantly Stockinger LLP, Manhattan Beach, California, for Amici Curiae Physicians.

Mark W. Brennan, J. Ryan Thompson, and Thomas B. Veitch, Hogan Lovells US LLP, Washington, D.C.; Kerry M. Sheehan, Chamber of Progress, McLean, Virginia; Christopher J. Marchese and Paul D. Taske, NetChoice, Washington, D.C.; Stephanie A. Joyce and Krisztian Katona, Computer & Communications Industry Association, Washington, D.C.; for Amici Curiae Chamber of Progress, Computer & Communications Industry Association, and NetChoice.

Gregory J. Dubinsky, Holwell Shuster & Goldberg LLP, New York, New York, for Amici Curiae NightWare Inc., Breakpoint Studio LLC, and Empirical Health Inc.

OPINION

FRIEDLAND, Circuit Judge:

AliveCor is a medical-technology company that in 2017 created a software feature called SmartRhythm to detect episodes of atrial fibrillation ("Afib") using the Apple Watch. SmartRhythm relied on heart rate data that Apple calculated with an algorithm while the Watch was in the "Workout Mode" setting. The following year, Apple adopted a Watch operating system ("watchOS") update that improved the exercise-monitoring capabilities of Workout Mode by using a different algorithm to calculate heart rate data. Apple shared that new algorithm's data with third-party app developers and stopped sharing the old algorithm's data. SmartRhythm could no longer confidently detect Afib using that new data, so AliveCor discontinued SmartRhythm. Around the same time it updated its watchOS, Apple also added its own software feature to detect irregular heart rhythms. Apple's feature, called Irregular Rhythm Notification ("IRN"), uses yet a third algorithm to calculate heart rate data. Apple also shares that data with app developers.

AliveCor filed an antitrust suit, claiming that Apple had violated Section 2 of the Sherman Act, 15 U.S.C. § 2, by denying third-party app developers access to the original heart rate algorithm's data. AliveCor alleges that Apple did so for the purpose of disabling software, like SmartRhythm, that would have competed with IRN, thereby monopolizing the market for heart rhythm analysis apps on the Apple Watch.

In a motion for summary judgment, Apple argued that its changes to watchOS improved Workout Mode and therefore

constituted a per se lawful product improvement under *Allied Orthopedic Appliances Inc. v. Tyco Health Care Grp. LP*, 592 F.3d 991 (9th Cir. 2010). The district court agreed and granted summary judgment to Apple. We affirm, although on different grounds than those offered by the district court. Even assuming AliveCor is correct that Apple's refusal to continue sharing the old heart rate algorithm's data with third-party app developers is distinct from Apple's improvement to Workout Mode, that conduct is properly classified as a refusal to deal. AliveCor would therefore need to establish an exception to the "general rule that there is no antitrust duty to deal" to succeed under Section 2. *Fed. Trade Comm'n v. Qualcomm Inc.*, 969 F.3d 974, 993 (9th Cir. 2020). Because AliveCor has not done so here, AliveCor's Section 2 claims fail as a matter of law.

I.

A.

In 2015, Apple created the Apple Watch, which contains a sensor that collects measurements used to calculate the wearer's heart rate. Apple stores the heart rate data calculated by the Apple Watch in a database called HealthKit. Through licensing agreements with Apple, third-party app developers can access HealthKit via application program interfaces ("APIs").

The Watch reports heart rate data in two relevant ways. First, when a user is sufficiently still, the Watch records tachograms, which are sequences of a user's heart beats. Third-party app developers can access those recordings through the Tachogram API, but they cannot prompt Tachogram API to record at more frequent intervals.

Second, while in Workout Mode, the Watch takes sensor measurements and uses an algorithm to calculate the user's average heart rate approximately every five seconds. In Workout Mode, the Watch displays the user's heart rate along with various other metrics. Third-party app developers can prompt the Watch to enter Workout Mode and can access Workout Mode's heart rate readings through the Workout Mode API.

The original algorithm Apple developed for Workout Mode was called the Heart Rate Path Optimizer ("HRPO"). HRPO calculated a heart rate based on the Watch user's selection of a specific workout activity from a list of options in the Watch (such as "outdoor run" or "pool swim"). Apple's engineering team continued to adjust HRPO to improve its accuracy and to try to optimize it for each separate exercise activity supported by Workout Mode.

B.

One of the most common forms of irregular heart rhythms is Afib, which can cause dizziness and, in severe cases, stroke or sudden death. Afib is often undetected in its early stages because it can be "paroxysmal," meaning that Afib episodes can be infrequent and last less than a minute. Because a patient may not experience an Afib episode during an examination, it can be difficult for a doctor to diagnose Afib in a traditional clinical setting.

AliveCor offered technology to address this difficulty in detecting paroxysmal Afib. In 2017, two years after Apple invented the Apple Watch, AliveCor released KardiaBand, a replacement band for the Watch that was FDA-approved to take electrocardiograms ("ECGs"). ECGs are useful for identifying potential anomalies in heart functions to diagnose cardiovascular disorders. When using KardiaBand

in conjunction with AliveCor's app called Kardia, Apple Watch users could take ECGs at any time to share with their doctors.

AliveCor also used the Watch's HRPO data from Workout Mode to develop a software feature available on the Kardia app called SmartRhythm. SmartRhythm could continuously monitor a user's heart rate, detect when that user was experiencing an Afib episode, and notify the user to take an ECG using KardiaBand. SmartRhythm's effectiveness at detecting Afib episodes in people with a history of Afib was documented in a peer-reviewed medical journal.

Another company, Cardiogram, was working to develop a feature similar to SmartRhythm that would also detect Afib using the Apple Watch's heart rate data.

C.

In September 2018, Apple added a new algorithm called the Heart Rate Neural Network ("HRNN") to Workout Mode. Like HRPO, HRNN calculated a user's heart rate approximately every five seconds. But, unlike HRPO, HRNN could accurately calculate a user's heart rate even when that user did not select a specific workout activity. Apple's testing showed that HRNN consistently produced more accurate heart rate readings during exercise than HRPO.

Apple also found that HRNN was sometimes slower to produce an initial heart rate reading than HRPO. To mitigate that delay, Apple continued to run HRPO in Workout Mode even after Apple added HRNN. If HRPO calculated a heart rate reading before HRNN, Workout Mode would report HRPO's readings to users and HealthKit either until HRNN

had calculated its first reading or until the first minute of Workout Mode had elapsed, whichever occurred earlier. The rest of the time, Workout Mode reported only HRNN data. For a few years after the introduction of HRNN, HRPO ran simultaneously with HRNN for the full Workout Mode session even though the Watch would report only at most the first minute of HRPO data. But after Apple made further improvements to HRNN, Apple fully removed HRPO from the Watch.

After Apple launched HRNN, AliveCor observed that SmartRhythm could no longer accurately recognize Afib episodes. AliveCor's subsequent attempts to fix SmartRhythm failed, and AliveCor ultimately discontinued SmartRhythm and KardiaBand in 2019. AliveCor's Kardia app remained available for use on Apple devices and could still function with AliveCor's other mobile ECG products to record and analyze ECGs for irregular heart rhythms. But, without SmartRhythm, Kardia could no longer continuously monitor a user's heart rhythms.

Around the same time that Apple introduced HRNN, Apple also released IRN, its own feature to detect irregular heart rhythms. IRN relies on the Watch's intermittent tachogram recordings, rather than HRNN or HRPO. IRN was cleared by the FDA to detect irregular heart rhythms suggestive of Afib only in adults without a history of Afib, and Apple accordingly warns users that IRN is not intended for people diagnosed with Afib.

D.

In 2021, AliveCor sued Apple in the United States District Court for the Northern District of California, asserting claims for monopolization and attempted monopolization in violation of Section 2 of the Sherman Act,

15 U.S.C. § 2.[1]   According to AliveCor, Apple removed third-party app developers' access to HRPO data to "break" software that would compete with IRN, such as AliveCor's SmartRhythm and Cardiogram's similar nascent feature. AliveCor alleges that, as a result of Apple's anticompetitive conduct, Apple gained 100 percent of the relevant market, which AliveCor defines as the watchOS heart rhythm analysis app market.   According to AliveCor, a watchOS heart rhythm analysis app is "watchOS software capable of performing passive, background monitoring to detect the presence of a medically defined heart condition." AliveCor contends, and Apple does not presently contest,[2] that the market for such apps is an aftermarket distinct from the foremarket for smartwatches.

AliveCor moved for partial summary judgment, seeking a ruling that *Allied Orthopedic Appliances Inc. v. Tyco Health Care Grp. LP*, 592 F.3d 991 (9th Cir. 2010), did not preclude its Section 2 claims and arguing that a jury could find that Apple's decision to remove third-party developers' access to HRPO data violated Section 2 of the Sherman Act. In support, AliveCor relied on internal Apple documents

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[1] AliveCor also asserted a claim under California Business & Professions Code section 17200. The district court granted summary judgment to Apple on that claim, and AliveCor has not appealed that ruling. We therefore do not address that claim here.

[2] In ruling on Apple's motion to dismiss, the district court concluded, despite Apple's arguments to the contrary, that AliveCor plausibly alleged a distinct single-brand "watchOS heart rate analysis app" aftermarket. *AliveCor, Inc. v. Apple Inc.*, 592 F. Supp. 3d 904, 916-17 (N.D. Cal. 2022). Apple did not renew at summary judgment its arguments challenging that market definition, nor has it done so on appeal. We therefore assume for purposes of our analysis that the definition is appropriate.

suggesting that Apple could benefit from exclusively owning both the Watch and the heart-monitoring software that operates on the Watch because Apple could potentially sell that combination to future healthcare partners. AliveCor also pointed to evidence of internal Apple discussions recognizing that changes to HRPO could harm Apple's competitors' features.

Apple cross-moved for summary judgment, arguing primarily that replacing HRPO with HRNN was a per se lawful product improvement under *Allied Orthopedic*. Apple also argued that, even if its conduct were not protected under *Allied Orthopedic*, its conduct should be characterized as a refusal to deal, and that AliveCor could not satisfy the demanding requirements to establish a refusal-to-deal claim.

The district court agreed with Apple that replacing HRPO with HRNN was per se lawful conduct under *Allied Orthopedic* and therefore granted summary judgment in Apple's favor on AliveCor's Section 2 claims, without reaching Apple's other arguments. AliveCor timely appealed.

II.

We review de novo the district court's decision on cross-motions for summary judgment. *JL Beverage Co., LLC v. Jim Beam Brands Co.*, 828 F.3d 1098, 1104 (9th Cir. 2016). We "may affirm the district court's holding on any ground raised [in the district court] and fairly supported by the record." *Columbia Pictures Indus., Inc. v. Fung*, 710 F.3d 1020, 1030 (9th Cir. 2013) (quoting *Proctor v. Vishay Intertechnology Inc.*, 584 F.3d 1208, 1226 (9th Cir. 2009)). "Summary judgment is proper when, viewing the evidence in the light most favorable to the non-moving party, 'there is no genuine dispute as to any material fact and the movant is

entitled to judgment as a matter of law.'" *Brown v. Stored Value Cards, Inc.*, 953 F.3d 567, 575 (9th Cir. 2020) (quoting Fed. R. Civ. P. 56(a)).

III.

Section 2 of the Sherman Act "targets independent anticompetitive conduct," *Optronic Techs., Inc. v. Ningbo Sunny Elec. Co.*, 20 F.4th 466, 481 (9th Cir. 2021) (quoting *Fed. Trade Comm'n v. Qualcomm Inc.*, 969 F.3d 974, 989-90 (9th Cir. 2020)), and "makes it illegal to 'monopolize, or attempt to monopolize, . . . any part of the trade or commerce,'" *id.* (quoting 15 U.S.C. § 2). "The mere possession of monopoly power" is not unlawful, however, because "[t]he opportunity to charge monopoly prices . . . induces risk taking that produces innovation and economic growth." *Verizon Commc'ns Inc. v. Law Offs. of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004).

Accordingly, "[a] Section 2 monopolization claim 'has two elements: (1) the possession of monopoly power in the relevant market *and* (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.'" *Epic Games, Inc. v. Apple, Inc.*, 67 F.4th 946, 998 (9th Cir. 2023) (emphasis added) (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966)). The second element requires that the plaintiff "show that the defendant acquired or maintained its monopoly through 'anticompetitive conduct.'" *Id.* (quoting *Trinko*, 540 U.S. at 407). An attempted monopolization claim similarly requires proof that the defendant engaged in anticompetitive conduct. *Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 893 (9th Cir. 2008). "Anticompetitive conduct consists of acts that 'tend[ ] to

impair the opportunities of rivals' and 'do[ ] not further competition on the merits or do[ ] so in an unnecessarily restrictive way.'" *Dreamstime.com, LLC v. Google LLC*, 54 F.4th 1130, 1137 (9th Cir. 2022) (alterations in original) (quoting *Cascade Health*, 515 F.3d at 894).

Apple does not dispute that it has monopoly power in the relevant market for heart rhythm analysis apps on the Apple Watch. The only issue here is therefore whether a reasonable jury could find that Apple engaged in anticompetitive conduct. AliveCor theorizes that Apple eliminated competition in the market for heart rhythm analysis apps on the Apple Watch "by denying third parties access to HRPO-generated data (even while Apple continued to use it), and then by removing HRPO from the Apple Watch entirely." Apple argues that AliveCor's theory fails as a matter of law to establish anticompetitive conduct in violation of Section 2. We agree with Apple.

A.

As an initial matter, the parties dispute whether Apple's conduct was per se lawful under *Allied Orthopedic Appliances Inc. v. Tyco Health Care Grp. LP*, 592 F.3d 991 (9th Cir. 2010).

In *Allied Orthopedic*, the defendant, Tyco, manufactured pulse oximetry products, including both sensors and monitors. 592 F.3d at 994. Tyco had a monopoly in the pulse oximetry sensor market and "an installed base of monitors greatly exceeding that of its competitors." *Id.* at 994, 998. Initially, Tyco's patents prevented generic manufacturers from producing sensors compatible with Tyco's monitors. *Id.* at 994. Anticipating that its competitors would produce such sensors once those patents expired, Tyco designed a new patented pulse oximetry

system called OxiMax. *Id.* OxiMax moved certain parts—such as the "digital memory chip" and "calibration coefficients"—from the monitors into the sensors, enabling new features for the sensors. *Id.* at 994-95. But because the old type of sensors did not contain the calibration coefficients, those sensors, including their generic equivalents, could not be used with the new OxiMax monitors. *Id.* at 994. Only the new patented OxiMax sensors, which contained those necessary parts, were compatible with the OxiMax monitors. *Id.* After launching its OxiMax system, Tyco discontinued its old monitors. *Id.* at 995, 998. The plaintiffs argued that Tyco's conduct—designing its new OxiMax monitors to be incompatible with the old kind of sensors and discontinuing its old monitors—violated Section 2 of the Sherman Act by unlawfully maintaining Tyco's monopoly in the sensor market. *Id.* at 998.

We held that Tyco was entitled to summary judgment. *Id.* at 1002-03. First, we explained that "a design change that improves a product by providing a new benefit to consumers does not violate Section 2 absent some associated anticompetitive conduct." *Id.* at 998-99; *see also id.* at 999-1000 ("[P]roduct improvement by itself does not violate Section 2, even if it is performed by a monopolist and harms competitors as a result."). We then held that Tyco's OxiMax system was undisputedly a genuine product improvement because it facilitated the creation of sensors with new features and reduced costs for consumers. *Id.* at 1000-02.

We noted that "Tyco may still have violated Section 2 if any of its *other* conduct constitutes an anticompetitive abuse or leverage of monopoly power, or a predatory or exclusionary means of attempting to monopolize the relevant market." *Id.* at 1002 (emphasis added) (quotation

marks omitted). But we held that the plaintiffs failed to provide any evidence of such conduct. *Id.* We rejected the plaintiffs' argument that Tyco forced the adoption of its OxiMax system by making its new OxiMax monitors incompatible with old sensors, reasoning that the incompatibility was "the necessary consequence" of "the product improvement at issue," rather than "some associated conduct by Tyco." *Id.* In other words, we held that the incompatibility in that case was "caused" by, not separate from, the product improvement. *Id.*

We also rejected the plaintiffs' argument that Tyco violated Section 2 by discontinuing its old monitors. *Id.* We implicitly accepted the premise that Tyco's discontinuation of its old monitors was separate conduct from Tyco's product improvement. *See id.* But we held that the discontinuation did not force consumers to adopt its OxiMax system, because other manufacturers were still competing for monitor sales and Tyco's share of new monitor sales was declining. *Id.* Without evidence that "Tyco used its monopoly power to coerce adoption of OxiMax," we concluded, "the only rational inference that can be drawn from some consumers' adoption of OxiMax is that they regarded it to be a superior product." *Id.* at 1002-03.

Apple contends that *Allied Orthopedic* forecloses AliveCor's Section 2 claims. Apple argues that AliveCor's theory implicates Apple's improvement of Workout Mode, in which it switched the algorithm primarily responsible for reporting heart rate data from HRPO to HRNN. According to Apple, HRNN undisputedly provides a new benefit to consumers by improving the performance of Workout Mode, and because removing access to HRPO data was part of that improvement, there is no other "associated conduct" here. AliveCor, on the other hand, argues that even if

introducing HRNN improved Workout Mode, removing access to HRPO data was separate from the product improvement because that removal was not necessary to the improvement—Apple could have designed Workout Mode to allow third-party app developers to continue accessing HRPO data even after it added HRNN. AliveCor contends that the removal of access to HRPO data therefore should be considered associated conduct that is not per se lawful under *Allied Orthopedic*.

We need not decide whether Apple's decision to stop sharing HRPO data with third-party app developers was separate from its product improvement and thus should be evaluated as associated conduct under *Allied Orthopedic*. Even if it were associated conduct, to prevail under Section 2 AliveCor would still need to prove that Apple's withholding of HRPO data was anticompetitive. *See id.* at 998-99 ("[A] design change that improves a product by providing a new benefit to consumers does not violate Section 2 absent some associated *anticompetitive* conduct." (emphasis added)); *Epic Games*, 67 F.4th at 998 ("[T]he plaintiff must show that the defendant acquired or maintained its monopoly through 'anticompetitive conduct.'" (quoting *Trinko*, 540 U.S. at 407)). As we explain next, the undisputed evidence shows as a matter of law that Apple's refusal to share HRPO data was not anticompetitive.

B.

Determining whether a monopolist's conduct is anticompetitive "'can be difficult' because 'the means of illicit exclusion, like the means of legitimate competition, are myriad.'" *Trinko*, 540 U.S. at 414 (quoting *United States v. Microsoft Corp.*, 253 F.3d 34, 58 (D.C. Cir. 2001) (en

banc) (per curiam)); *see also Novell, Inc. v. Microsoft Corp.*, 731 F.3d 1064, 1072 (10th Cir. 2013) ("It's been said that anticompetitive conduct comes in too many forms and shapes to permit a comprehensive taxonomy."). To assist that inquiry, courts have devised some specific categories for "various types of conduct that have the potential to harm competition." *Viamedia, Inc. v. Comcast Corp.*, 951 F.3d 429, 452 (7th Cir. 2020). "In cases where the alleged conduct falls within such well-defined categories," courts evaluate whether that conduct is anticompetitive using the applicable framework for that category. *Duke Energy Carolinas, LLC v. NTE Carolinas II, LLC*, 111 F.4th 337, 354 (4th Cir. 2024), *petition for cert. docketed*, No. 24-917 (U.S. Feb. 25, 2025); *see also Pac. Bell Tel. Co. v. linkLine Commc'ns, Inc.*, 555 U.S. 438, 457 (2009) (explaining that, where the plaintiffs did not state a refusal-to-deal claim or a predatory pricing claim under the applicable frameworks for those kinds of claims, the plaintiffs could not "alchemize" their claims "into a new form of antitrust liability"); *N.M. Oncology & Hematology Consultants, Ltd. v. Presbyterian Healthcare Servs.*, 994 F.3d 1166, 1173 (10th Cir. 2021) ("[C]ourts have been able to adapt the general inquiry of what is anticompetitive conduct into particular circumstances, [which] has allowed the creation of specific rules for common forms of alleged misconduct.").

One of the categories of allegedly anticompetitive conduct for which courts have developed specific rules is a refusal to deal with competitors. *See Trinko*, 540 U.S. at 408; *Duke Energy*, 111 F.4th at 354. AliveCor's central theory—that Apple "sought to break" competing technology by "denying third parties access to HRPO-generated data"— falls within that category.

Although there are limited exceptions, "as a general matter, the Sherman Act 'does not restrict the long recognized right of [a] trader or manufacturer engaged in an entirely private business[] freely to exercise his own independent discretion as to parties with whom he will deal.'" *Trinko*, 540 U.S. at 408 (first alteration in original) (quoting *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919)).   The Supreme Court in *Trinko* explained three primary justifications for that general rule. First, compelling firms "to share the source of their advantage is in some tension with the underlying purpose of antitrust law, since it may lessen the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities." *Id.* at 407-08. Second, "[e]nforced sharing also requires antitrust courts to act as central planners, identifying the proper price, quantity, and other terms of dealing—a role for which they are ill suited." *Id.* at 408. Third, "compelling negotiation between competitors may facilitate the supreme evil of antitrust: collusion." *Id.* For those reasons, "the Supreme Court has exercised considerable caution in recognizing exceptions" to the general principle that firms have no duty to deal with competitors. *Aerotec Int'l, Inc. v. Honeywell Int'l, Inc.*, 836 F.3d 1171, 1183 (9th Cir. 2016).

AliveCor, at bottom, seeks a ruling that Apple was obligated to provide its HRPO data to its competitors, both before and after it stopped generating HRPO data. Such a ruling would implicate the same concerns regarding incentives to innovate and judicial competency that the Supreme Court articulated in *Trinko* in explaining why the antitrust laws generally impose no duty to deal with competitors.   AliveCor therefore needs to establish an exception from that general rule to succeed on its Section 2 claims. *See Qualcomm*, 969 F.3d at 995-97. It cannot do so.

1.

AliveCor resists the notion that its claims should be analyzed as a refusal to deal, contending that its theory is more analogous to the plaintiffs' Section 2 claim in *Allied Orthopedic*. Because we did not characterize the plaintiffs' claim in *Allied Orthopedic* as a refusal to deal, AliveCor argues, we should not do so here either. We disagree.

To begin, AliveCor's argument rests on an overreading of *Allied Orthopedic*. There, analyzing the only allegedly anticompetitive conduct that was separate from the product improvement, we reiterated the principle that "[a] monopolist's discontinuation of its old technology may violate Section 2 if it effectively forces consumers to adopt its new technology." *Allied Orthopedic*, 592 F.3d at 1002. But we held that the plaintiffs had "provided no evidence that" the defendant, Tyco, "used its monopoly power to force consumers" to adopt its new technology. *Id.* We therefore had no occasion to determine which category of anticompetitive conduct, if any, would have best fit the claim.

Even if the allegedly anticompetitive conduct in *Allied Orthopedic* would have been analyzed as a type of conduct other than a refusal to deal, material factual differences between the relevant products in this case and those in *Allied Orthopedic* place this case firmly within the refusal-to-deal framework. As explained above, *Allied Orthopedic* involved two separate pulse oximetry products: monitors and sensors. *Id.* at 994. The plaintiffs alleged that Tyco took steps to unlawfully maintain its monopoly in the sensor market by discontinuing the old line of monitors that were compatible with generic sensors. *Id.* at 998. AliveCor argues that its claim is analogous because "Apple's

discontinuation of HRPO effectively forced consumers to adopt" Apple's heart rhythm analysis feature, IRN. But in *Allied Orthopedic*, Tyco was selling monitors to its *customers*—hospitals and other healthcare providers—and then discontinued those monitors, to the disadvantage of competing sellers of sensors. *Id.* at 993-95. By contrast, here, HRPO data was never a separate product that Apple sold to consumers. Rather, HRPO data was an input to Workout Mode that Apple shared with third-party developers of heart monitoring apps—in other words, Apple's *competitors*—so that it could be an input into those competitors' products too. Thus, Apple's "discontinuation of HRPO" is just another way of saying that Apple stopped providing HRPO data to its competitors, which is essentially a refusal to deal with competitors with regard to that data.

In pressing its argument that the refusal-to-deal framework does not apply here, AliveCor contends that "the Apple Watch is a platform designed to interoperate with third-party apps" and that "changing a product" that functions as an "interoperable complement to other products in a way to kill competition is analyzed as its own form of potentially anticompetitive conduct." But AliveCor simultaneously maintains that it is *not* challenging the product change itself—the incorporation of HRNN data— but instead the denial of access to HRPO data once the change was made. So our focus has to be on the refusal to continue to provide HRPO data—which, as we have explained, maps perfectly onto the refusal-to-deal doctrine.

Moreover, AliveCor's argument about lack of interoperability makes little sense when AliveCor's Kardia app, which had housed SmartRhythm, continues to be available for use on Apple devices, including the Watch, for recording and analyzing ECGs. Understood in context,

AliveCor's argument that Apple must provide access to HRPO data to restore SmartRhythm's functionality is squarely a refusal-to-deal theory.[3]

Indeed, because AliveCor's competing feature fundamentally relies on Apple's sharing of HRPO data, AliveCor's claims raise the exact free-riding concerns animating the general rule that there is no duty to deal with competitors. *See Trinko*, 540 U.S. at 407-08 (noting that requiring "firms to share the source of their advantage . . . may lessen the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities"); *see also* Erik Hovenkamp, *The Antitrust Duty to Deal in the Age of Big Tech*, 131 Yale L.J. 1483, 1539-42 (2022) (explaining that some refusals to deal can be economically similar to tying—another recognized category of anticompetitive conduct—but that the analogy fails when a competitor "is effectively asking the defendant to help it build a product that it is unable to build on its own" because that "creates a free-riding concern" not present in tying cases). AliveCor cannot avoid "the hard road of refusal to deal doctrine" by attempting to "recast" Apple's conduct as something else when the substance of that conduct is a refusal to deal.

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[3] Not all claims involving product design changes will fall within the refusal-to-deal category. Rather, as explained *supra* pp. 16-17, whether alleged conduct fits into a well-defined category of anticompetitive conduct, and what category that may be, is highly fact-dependent. AliveCor notes that the D.C. Circuit in *United States v. Microsoft Corp.*, 253 F.3d 34, 65 (D.C. Cir. 2001) (en banc) (per curiam), and the Second Circuit in *New York ex rel. Schneiderman v. Actavis PLC*, 787 F.3d 638, 652-54 (2d Cir. 2015), did not apply the refusal-to-deal framework to claims involving product design changes. But AliveCor does not explain how the facts of this case are analogous to the facts in those cases, so its reliance on those cases is unpersuasive.

Novell, 731 F.3d at 1078. "Traditional refusal to deal doctrine is not so easily evaded." *Id.* at 1079.

2.

Determining that AliveCor's Section 2 claims challenge Apple's refusal to deal does not end our inquiry. "Under certain circumstances, a refusal to cooperate with rivals can constitute anticompetitive conduct and violate § 2." *Trinko*, 540 U.S. at 408.

Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585 (1985), is "[t]he leading case for § 2 liability based on refusal to cooperate with a rival." *Trinko*, 540 U.S. at 408. In *Aspen Skiing*, the defendant owned three out of the four ski mountains in Aspen and had long cooperated with the plaintiff, the owner of the fourth mountain, to offer a joint ticket for skiers to use all four mountains. 472 U.S. at 588-90; *Trinko*, 540 U.S. at 408. After the plaintiff rejected the defendant's demands to increase its share of the joint ticket proceeds, the defendant stopped participating in the joint ticket arrangement. *Aspen Skiing*, 472 U.S. at 592-93. When the plaintiff attempted to recreate a multi-mountain ticket, the defendant refused to sell tickets for its mountains to the plaintiff even at retail price. *Id.* at 593-94. The Supreme Court upheld a jury verdict for the plaintiff on its monopolization claim because the defendant's "unilateral termination of a voluntary *(and thus presumably profitable)* course of dealing suggested a willingness to forsake short-term profits to achieve an anticompetitive end." *Trinko*, 540 U.S. at 409 (citing *Aspen Skiing*, 472 U.S. at 608, 610-11). Moreover, "the defendant's unwillingness to renew the ticket *even if compensated at retail price* revealed a distinctly anticompetitive bent." *Id.*

Aspen Skiing's "profit sacrifice" analysis, *Novell*, 731 F.3d at 1079, is the "one, limited exception" that the Supreme Court itself has recognized to the "general rule that there is no antitrust duty to deal," *Qualcomm*, 969 F.3d at 993.   AliveCor does not argue that the *Aspen Skiing* exception applies here.

Instead, AliveCor argues that a jury could find that Apple's refusal to deal violates Section 2 under the "essential facilities doctrine," which is "a variation on a refusal to deal claim" that "imposes liability where competitors are denied access to an input that is deemed essential, or critical, to competition."[4] *Aerotec*, 836 F.3d at 1184.   The Supreme Court has never endorsed such a doctrine. *Trinko*, 540 U.S. at 411 (rejecting an essential-facilities argument without either "recogniz[ing]" or "repudiat[ing]" the doctrine).   Our court has, however, recognized the essential-facilities doctrine "as having a basis in § 2 of the Sherman Act" separate from the *Aspen Skiing* exception. *Aerotec*, 836 F.3d at 1185; *see also MetroNet Servs. Corp. v. Qwest Corp.*, 383 F.3d 1124, 1129-34 (9th Cir. 2004) (analyzing the plaintiff's "essential facilities claim" separately from the plaintiff's refusal-to-deal claim under *Aspen Skiing*); *Image Tech. Servs. v. Eastman Kodak Co.*, 125 F.3d 1195, 1209-11 (9th Cir. 1997) (explaining that a defendant's refusal to deal can violate Section 2 "under an 'essential facilities' theory" or under *Aspen Skiing*).

An "essential facility" is "a facility . . . to which access is necessary if one wishes to compete." *Fishman v. Est. of*

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[4] The parties dispute whether AliveCor expressly disclaimed any essential-facilities theory earlier in this litigation. We need not resolve whether AliveCor waived an essential-facilities theory because, for the reasons we explain, that theory fails on its merits.

Wirtz, 807 F.2d 520, 539 (7th Cir. 1986); *see also Aerotec*, 836 F.3d at 1184 ("The essential facilities doctrine is one of the circumstances in which plain English and antitrust lingo converge."). To establish a Section 2 violation under the essential-facilities doctrine, AliveCor must show: (1) that Apple "is a monopolist in control of an essential facility"; (2) that AliveCor, as Apple's competitor, "is unable reasonably or practically to duplicate the facility"; (3) that Apple "has refused to provide [AliveCor] access to the facility"; and (4) that "it is feasible for [Apple] to provide such access." *Aerotec*, 836 F.3d at 1185. Moreover, to be "essential," the facility must be "otherwise unavailable." *Id.*; *see also MetroNet*, 383 F.3d at 1129 ("[W]here access exists, the doctrine serves no purpose." (quoting *Trinko*, 540 U.S. at 411)). AliveCor argues that "HRPO (or equivalent) data" is an essential facility that Section 2 requires Apple to continue to provide.

No reasonable jury could find, however, that the data that AliveCor seeks is an essential facility. It is undisputed that Apple's own heart rhythm analysis feature, IRN, which AliveCor alleges competes in the market for heart rhythm analysis apps on the Apple Watch, does not use HRPO data. IRN instead uses data produced by a different algorithm, and Apple shares that data with third-party app developers through Tachogram API. Because IRN is competing in the market without using HRPO data, no reasonable jury could find that the HRPO data is essential for competition. Even if access to some form of heart rate data is essential to compete in the market, AliveCor's claim would still fail because Apple provides app developers, including AliveCor, with access to the same Tachogram API data that Apple's IRN feature uses. *See* Areeda & Hovenkamp, Antitrust Law: An Analysis of Antitrust Principles and Their Application

¶ 771a (5th ed. Supp. 2025) ("[T]he essential facility claim is about the duty to deal of a monopolist who is able to supply an input *for itself* in a fashion that is so superior to anything else available that others cannot succeed unless they can access this firm's input as well." (emphasis added)).

AliveCor contends that because access to Tachogram API enables competitors to offer only "a worse version" of the monitoring provided by Apple's IRN, Tachogram API is insufficient to enable competition in the market, as evidenced by the fact that no competitors have developed an alternative to Apple's IRN using Tachogram API. But AliveCor seeks something more than the essential-facilities doctrine provides. That doctrine solely "imposes on the owner of a facility that cannot reasonably be duplicated and which is essential to competition in a given market a duty to make that facility available to its competitors on a nondiscriminatory basis." *MetroNet*, 383 F.3d at 1128 (quoting *Ferguson v. Greater Pocatello Chamber of Com., Inc.*, 848 F.2d 976, 983 (9th Cir.1988)). The essential-facilities doctrine does *not* impose a duty on a monopolist to provide whatever the competitor believes would allow it to provide a superior product to the monopolist's own and so to compete most effectively. *See id.* at 1130 ("The doctrine does not guarantee competitors access to the essential facility in the most profitable manner."); *City of Anaheim v. S. Cal. Edison Co.*, 955 F.2d 1373, 1381 (9th Cir. 1992) (noting that an essential-facilities claim seeking to impose a duty to deal because of "the extent to which a competitor might benefit if it had unlimited access to the monopolist's facility," rather than because of "the harm that would result to competition from the monopolist's refusal," turns "the essential facility doctrine on its head" (quotation marks omitted)). HRPO data is plainly not essential to compete

because Apple does not use it in its own competing feature. Even if a jury found that access to HRPO data was necessary for AliveCor to create a *better* heart rhythm analysis app, that alone would not establish a Section 2 violation under the essential-facilities doctrine.

* * *

Because AliveCor has failed to establish a violation of the essential-facilities doctrine and does not argue that *Aspen Skiing* applies, AliveCor has failed to show that Apple had a duty to share HRPO data with its competitors. AliveCor's Section 2 claims accordingly fail as a matter of law even assuming that Apple's conduct was not per se lawful under *Allied Orthopedic*.[5]

IV.

For the foregoing reasons, we affirm the district court's order granting summary judgment to Apple.

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[5] In light of our holding, we do not reach Apple's other arguments for affirmance.