FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

ALLIED ORTHOPEDIC APPLIANCES INC., on behalf of itself and all others similarly situated; BROOKS MEMORIAL HOSPITAL INC.; DEBORAH HEART AND LUNG CENTER; NORTH BAY GENERAL HOSPITAL INC.; SOUTH JERSEY HOSPITAL INC., *Plaintiffs-Appellants,* v. TYCO HEALTH CARE GROUP LP, a Delaware partnership; MALLINCKRODT INCORPORATED, a Delaware corporation, *Defendants-Appellees.*	No. 08-56314 D.C. No. 2:05-cv-06419-MRP-AJW

ALLIED ORTHOPEDIC APPLIANCES INC., on behalf of itself and all others similarly situated,
Plaintiff,

and

NATCHITOCHES PARISH HOSPITAL SERVICE DISTRICT,
Plaintiff-Appellant,

v.

TYCO HEALTH CARE GROUP LP, a Delaware partnership; MALLINCKRODT INCORPORATED, a Delaware corporation,
Defendants-Appellees.

No. 08-56315

D.C. No. 2:05-cv-06419-MRP-AJW

OPINION

Appeal from the United States District Court
for the Central District of California
Mariana R. Pfaelzer, District Judge, Presiding

Argued and Submitted
December 8, 2009—Pasadena, California

Filed January 6, 2010

Before: David R. Thompson and Barry G. Silverman, Circuit Judges, and Susan R. Bolton,* District Judge.

Opinion by Judge Silverman

*The Honorable Susan R. Bolton, United States District Judge for the District of Arizona, sitting by designation.

COUNSEL

Herbet E. Milstein, Cohen Milstein Sellers & Toll PLLC, Washington, DC; and Bruce E. Gerstein and Joseph Opper, Garwin Gerstein & Fisher LLP, New York, New York, for the plaintiffs-appellants.

Theodore B. Olson, Christopher D. Dusseault, and Margaret A. Farrand, Gibson Dunn & Crutcher LLP, Los Angeles, California, for the defendants-appellees.

OPINION

SILVERMAN, Circuit Judge:

Plaintiffs in this antitrust suit are a group of hospitals and other health care providers that purchased pulse oximetry sensors from Tyco Healthcare Group LP after November 2003. They allege that they overpaid for the sensors because Tyco used two kinds of marketing agreements to foreclose competition from generic sensor manufacturers in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1. They also allege that by introducing OxiMax, a patented pulse oximetry system that is incompatible with generic sensors, Tyco unlawfully maintained its monopoly over the sensor market in violation of Section 2 of the Sherman Act, 15 U.S.C. § 2.

The district court denied Plaintiffs' motion for class certification and later granted Tyco's motion for summary judgment on the Section 1 and 2 claims. We agree with the district court that Tyco's agreements do not violate Section 1; there is no evidence that they foreclosed competition in a substantial share of the sensor market. We also agree that there is no Section 2 violation; the undisputed evidence shows that the patented OxiMax design is an improvement over the previous design. Innovation does not violate the antitrust laws on its

own, and there is no evidence that Tyco used its monopoly power to force customers to adopt its new product. Accordingly, we affirm the district court's judgment on the merits and have no need to reach the class certification issue.

BACKGROUND

The pulse oximetry products at issue in this litigation include sensors and monitors. Sensors attach to a patient's body. A monitor receives and interprets the signal from a sensor and then displays the patient's level of blood oxygenation. Stand-alone monitors measure only blood oxygenation. Multiparameter monitors measure various patient diagnostics in addition to blood oxygenation. Monitors are more expensive than sensors on a unit basis, but the volume of sensor sales is much larger than the volume of monitor sales.

Tyco was an early entrant in the pulse oximetry market and was able to establish an installed base of monitors greatly exceeding that of its competitors. Its technology was initially protected by its "R-Cal" patent, which prevented competitors from selling sensors compatible with its installed base of monitors. Tyco anticipated that upon expiration of the R-Cal patent in November 2003, competitors would begin to produce generic sensors compatible with its installed base of monitors. It thus set about creating a new proprietary oximetry technology.

Tyco's plan matured into what became known as the "OxiMax Strategy." Tyco created a new patented sensor design that contained a writable memory chip. Moving the digital memory chip from the monitor to the sensor allowed Tyco to add new features to the OxiMax sensors, such as the ability to store the patient's oxygen saturation history in the sensor itself (the "sensor event reporting" feature) and the ability to inform a physician of possible causes of and solutions for signal interruption (the "sensor messaging" feature).

The digital memory chip also allowed Tyco to move essential calibration coefficients from the monitors into the sensors themselves. Because the new OxiMax monitors do not contain any calibration coefficients, they are incompatible with generic sensors. However, OxiMax monitors are compatible with new types of sensors that Tyco develops. Previously, when Tyco introduced a new sensor, customers either had to buy a new monitor or reprogram their entire installed base of stand-alone and multiparameter monitors with the appropriate calibration coefficients. With the OxiMax system, customers can adopt new types of sensors without affecting their installed base of monitors because the necessary coefficients are contained in the sensors themselves. This reduces costs for customers and frees sensor designers from having to use the predefined coefficients programmed into the installed base of monitors. Moving the calibration coefficients into the sensors therefore facilitates the development and introduction of new types of sensors.

For example, Tyco developed the Max-Fast Adhesive Forehead Sensor for use with the OxiMax system. According to Tyco, the Max-Fast sensor "has a more efficient and spectrally different [Light Emitting Diode]" than previous versions of the sensor. "Because the MAX-FAST sensor is calibrated specifically for use on the forehead, its calibration differs from the existing RCAL curve set," and consequently it can only be used with the new OxiMax system.

Tyco launched OxiMax in March 2002 and notified equipment manufacturers that all remaining R-Cal boards were being discontinued in February 2003. It used two kinds of marketing agreements to help sell the OxiMax system: "market-share discount" agreements and "sole-source agreements." Market-share discount agreements allowed customers, typically small hospitals or groups of small hospitals, to purchase Tyco's products at discounts off list prices if they committed to purchase some minimum percentage of their pulse oximetry product requirements from Tyco. The greater

the percentage of the customer's requirements purchased from Tyco, the greater the discount Tyco gave. The agreements did not contractually obligate Tyco's customers to buy anything from Tyco. The only consequence of purchasing less than the agreed upon percentage of Tyco's products was loss of the negotiated discounts.

Sole-source agreements existed between Tyco and group purchasing organizations or "GPOs." GPOs are consortiums of healthcare providers that negotiate purchasing contracts with healthcare equipment vendors, like Tyco. Members of a GPO may purchase equipment from a vendor at negotiated prices. Under Tyco's sole-source agreements, a GPO agreed that it would not enter into a purchasing contract with any other vendor of pulse oximetry products, and Tyco in return offered a deeper discount. Like Tyco's market-share discount agreements, the sole-source agreements at issue here did not contractually obligate GPO members to purchase anything from Tyco.

After expiration of Tyco's R-Cal patent in November 2003, a number of companies, including Masimo and GE, began manufacturing generic R-Cal sensors. Masimo planned to price its generic sensors between $5.75 and $7.50 each. GE priced its sensors at $6.50. In contrast, the average price for Tyco's branded sensors was just over $10. By March of 2004, Tyco estimated that 44% of the installed base of stand-alone monitors and 24% of the installed base of multiparameter monitors used OxiMax technology. From 2002 to 2005, Tyco's share of stand-alone pulse oximetry monitor sales in the U.S. was between 62% and 64%. In 2006, its market share dropped to 35%. In October 2007, Masimo estimated that its share of new monitor sales in the U.S. was roughly 40% to 45%.

Plaintiffs brought this suit alleging that Tyco's introduction of OxiMax and its use of market-share discount and sole-source agreements violate Sections 1 and 2 of the Sherman

Act, 15 U.S.C. §§ 1, 2. The district judge granted Tyco's motion for summary judgment on Plaintiffs' claims. The court held that Tyco's market-share discount agreements and sole-source agreements did not create an unreasonable restraint on trade under Section 1 because hospitals' commitments under the agreements were "voluntary and [could] be ended at any time, and hospitals [were] thus free to switch to more competitively priced generics." It further held that Tyco's introduction of OxiMax, both alone and in combination with its other business practices, was not unreasonably restrictive of competition under Section 2. The OxiMax design was a "superior and more sophisticated offering than the previous generation R-Cal system" and Tyco "did nothing to force OxiMax monitors on its customers." Plaintiffs timely appealed the district court's final judgment. We affirm.

DISCUSSION

We have jurisdiction pursuant to 28 U.S.C. § 1291. A district court order granting summary judgment is reviewed de novo. *See Padfield v. AIG Life Ins. Co.*, 290 F.3d 1121, 1124 (9th Cir. 2002). Summary judgment is proper if the record, viewed in the light most favorable to the non-moving party, shows "that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c); *see also Universal Health Servs., Inc. v. Thompson*, 363 F.3d 1013, 1019 (9th Cir. 2004).

I. *Tyco's Market-Share Discount and Sole-Source Agreements Did Not Violate Section 1 of the Sherman Act*

Section 1 of the Sherman Act, 15 U.S.C. § 1, prohibits "[e]very contract, combination . . . or conspiracy, in restraint of trade or commerce among the several States." Plaintiffs premise their Section 1 claim on just one theory of liability: exclusive dealing. As the district court noted, Plaintiffs do not

include Tyco's introduction of OxiMax within their Section 1 claim. They have not advanced any legal theory that Tyco used its marketing agreements to tie its sensor sales to sales of its OxiMax monitors.

[1] Exclusive dealing involves an agreement between a vendor and a buyer that prevents the buyer from purchasing a given good from any other vendor. There are "well-recognized economic benefits to exclusive dealing arrangements, including the enhancement of interbrand competition." *Omega Envtl., Inc. v. Gilbarco, Inc.*, 127 F.3d 1157, 1162 (9th Cir. 1997). Consequently, "an exclusive-dealing arrangement does not constitute a per se violation of section 1." *Twin City Sportservice, Inc. v. Charles O. Finley & Co., Inc.*, 676 F.2d 1291, 1303-04 (9th Cir. 1982). Under the antitrust rule of reason, an exclusive dealing arrangement violates Section 1 only if its effect is to "foreclose competition in a substantial share of the line of commerce affected." *Omega*, 127 F.3d at 1162 (quoting *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 327 (1961)).[1]

It is significant that the market-share discount and sole-source agreements in this case did not contractually obligate Tyco's customers to purchase anything from Tyco. Rather, the agreements provided only for substantial discounts to customers that actually purchased a high percentage of their sen-

[1]*Omega* and *Tampa* involved alleged violations of Section 3 of the Clayton Act, 15 U.S.C. § 14, which also prohibits exclusive dealing arrangements. Our circuit has held that "a greater showing of anticompetitive effect is required to establish a Sherman Act violation than a section three Clayton Act violation in exclusive-dealing cases." *Twin City*, 676 F.2d at 1304 n. 9. Accordingly, although a Clayton Act violation may be found where an agreement has the probable effect of foreclosing competition, *Omega*, 127 F.3d at 1162, in a case under Section 1 of the Sherman Act, the plaintiff must prove that the exclusive dealing arrangement actually foreclosed competition, *McGlinchy v. Shell Chemical Co.*, 845 F.2d 802, 811 (9th Cir. 1988) ("To establish a section 1 violation under the Sherman Act, a plaintiff must demonstrate . . . [that the agreement] actually causes injury to competition.").

sor requirements from Tyco. Plaintiffs' expert, Professor H.E. Frech III, nevertheless testified that Tyco's agreements foreclosed a substantial share of the U.S. sensor market by providing "an incentive as opposed to a requirement for exclusivity."

[2] As the district court correctly observed, Frech's expert report ignored a key fact: R-Cal compatible generic sensors that cost less than Tyco's sensors entered the market upon the expiration of the R-Cal patent. Frech's opinion did not take that into account. He never explained why price-sensitive hospitals would adhere to Tyco's market-share agreements when they could purchase less expensive generic sensors instead. He postulated that if a hospital chose to purchase a competitor's monitor, that hospital could lose Tyco's discounts on the sensors it continued to need for its installed base of Tyco monitors. Nonetheless, even such a hospital could simply begin to purchase less expensive generic sensors for its remaining Tyco monitors. We thus agree with the district court that on the facts of this case, something more than the discount itself is necessary to prove that Tyco's market-share discount agreements forced customers to purchase its sensors rather than generics.

[3] Any customer subject to one of Tyco's market-share discount agreements could choose at anytime to forego the discount offered by Tyco and purchase from a generic competitor. The "easy terminability" of an exclusive dealing arrangement "negate[s] substantially [its] potential to foreclose competition." *Omega*, 127 F.3d at 1163-64 (citing *Roland Mach. Co. v. Dresser Indus., Inc.*, 749 F.2d 380, 394-95 (7th Cir.1984), and other cases); *see also* XI PHILIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW, ¶ 1807a at 129 (2d ed. 2000) ("Discounts conditioned on exclusivity in relatively short-term contracts are rarely problematic."). The market-share discount agreements at issue here did not foreclose Tyco's customers from competition because "a competing manufacturer need[ed] only offer a better product or a

better deal to acquire their [business]." *Omega*, 127 F.3d at 1164.

[4] The sole-source agreements did not foreclose competition for the same reason. At any time, a GPO member could simply forego the negotiated discounts with Tyco and purchase less expensive generics instead. Tyco's sole-source agreement with HealthTrust is somewhat more problematic than the others because it prevented its members from belonging to any other GPO. This meant that HealthTrust members that decided to purchase pulse oximetry products from vendors other than Tyco could not access discounts by joining other GPOs. There is no evidence, however, that HealthTrust members were unable to access less expensive generic senors through other means. "If competitors can reach the ultimate consumers of the product by employing existing or potential alternative channels of distribution, it is unclear whether such restrictions foreclose from competition *any* part of the relevant market." *Id.* at 1163.[2]

[5] Plaintiffs did not present evidence that Tyco's market-share and sole-source contracts foreclosed competition in a substantial share of the market for pulse oximetry sensors. Vendors of generic sensors remained able to compete for Tyco's customers by offering their products at better prices. The agreements therefore did not constitute unreasonable restraints on trade under Section 1.

[2]In a previous antitrust suit against Tyco, we affirmed the same district court's holding that the trial evidence supported the jury's finding that Tyco's market-share discount and sole-source agreements violated Sections 1 and 2 of the Sherman Act. *Masimo Corp. v. Tyco Health Care Group*, No. 07-55960, 2009 WL 3451725, 2009 U.S. App. LEXIS 23765 (9th Cir. Oct. 28, 2009). As the district court correctly ruled, *Masimo* is distinguishable from this case. The R-Cal patent was still in effect during the time period at issue in *Masimo*, so owners of Tyco's R-Cal monitors had no choice but to purchase Tyco's sensors for use with those monitors. Furthermore, the sole-source agreements in that case contractually obligated GPO members to purchase a set percentage of their pulse oximetry requirements from Tyco.

II. *Tyco's Introduction of OxiMax Did Not Violate Section 2 of the Sherman Act*

"There are three essential elements to a successful claim of Section 2 monopolization: (a) the possession of monopoly power in the relevant market; (b) the willful acquisition or maintenance of that power; and (c) causal 'antitrust' injury." *Cal. Computer Prods., Inc. v. Int'l Bus. Mach. Corp.*, 613 F.2d 727, 735 (9th Cir. 1979) ("*CalComp*"). For purposes of Tyco's motion and this appeal, the parties agree that Tyco is a monopolist in the U.S. pulse oximetry sensor market. The focus of the dispute is whether Tyco unlawfully maintained its monopoly power in that market by introducing OxiMax.

Plaintiffs contend that Tyco maintained its monopoly by (1) designing its new patent-protected OxiMax senors to be compatible with its new OxiMax monitors and the installed base of R-Cal monitors, but designing its new OxiMax monitors to be incompatible with the old R-Cal sensors; and (2) allegedly forcing customers and OEMs to adopt the new OxiMax monitors by discontinuing its R-Cal monitors and implementing other exclusionary business practices. Plaintiffs argue that the district court erred in rejecting these arguments because it did not balance the benefits of Tyco's alleged product improvement against its anticompetitive effects. They further argue that the district court impermissibly decided disputed issues of material fact regarding the sufficiency of Tyco's innovation and the competitive effect of its overall OxiMax strategy. We agree with the district court.

A. Product Improvement Alone Does Not Violate Section 2

[6] "Section 2 of the Sherman Act proscribes 'monopolization'; it does not render unlawful all monopolies." *Foremost Pro Color, Inc. v. Eastman Kodak Co.*, 703 F.2d 534, 543 (9th Cir. 1983). "A monopolist, no less than any other competitor, is permitted and indeed encouraged to compete aggressively

on the merits, and any success it may achieve solely through 'the process of invention and innovation' is necessarily tolerated by the antitrust laws." *Id.* at 544-45 (quoting *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 281 (2d Cir. 1979)). Accordingly, "[a]s a general rule, courts are properly very skeptical about claims that competition has been harmed by a dominant firm's product design changes." *United States v. Microsoft Corp.*, 253 F.3d 34, 65 (D.C. Cir. 2001).

[7] However, changes in product design are not immune from antitrust scrutiny and in certain cases may constitute an unlawful means of maintaining a monopoly under Section 2. *Foremost*, 703 F.2d at 545. For example, in *United States v. Microsoft*, the plaintiffs showed that Microsoft harmed competition by integrating its Web browser, Internet Explorer, into the Windows 98 operating system. 253 F.3d at 65-66. Microsoft provided no "procompetitive justification," *id.* at 59, for having integrated Internet Explorer into Windows. Having failed to show "that its conduct serve[d] a purpose other than protecting its operating system monopoly," the D.C. Circuit held that Microsoft had violated Section 2 of the Sherman Act. *Id.* at 66-67.

[8] In contrast, a design change that improves a product by providing a new benefit to consumers does not violate Section 2 absent some associated anticompetitive conduct. *See CalComp*, 613 F.2d at 735-36 (holding that a design change must not be "unreasonably restrictive of competition"). In *CalComp*, a manufacturer of peripheral computer devices argued that "IBM made design changes on certain of its CPUs, disk drives and controllers of no technological advantage and solely for the purpose of frustrating competition" from peripheral device manufacturers. *Id.* at 739. However, there was uncontroverted evidence that IBM's changes allowed it to reduce manufacturing costs and prices to the consumer and also improved performance of the product. *Id.* at 744. We thus held:

> IBM, assuming it was a monopolist, had the right to redesign its products to make them more attractive to buyers whether by reason of lower manufacturing cost and price or improved performance. It was under no duty to help CalComp or other peripheral equipment manufacturers survive or expand. IBM need not have provided its rivals with disk products to examine and copy, nor have constricted its product development so as to facilitate sales of rival products. The reasonableness of IBM's conduct in this regard did not present a jury issue.

Id. (citation omitted).

Following *CalComp*, we decided *Foremost Pro Color, Inc. v. Eastman Kodak Co.*, 703 F.2d 534 (9th Cir. 1983). Kodak, a monopolist in photographic film and amateur still cameras, had introduced a new line of smaller cameras and related film products. *Id.* at 537. The new film could not be processed with previously used photographic paper and chemicals, so photofinishers had to buy all new paper and chemicals from Kodak. One such photofinisher, Foremost, brought suit alleging that Kodak had introduced its new system to maintain its monopoly in violation of Section 2. *Id.*

Foremost made no allegation that Kodak's new film was not an improvement over previous films. Rather, it simply alleged that Kodak had unlawfully maintained its monopoly by "continually researching and developing new photographic products . . . that are incompatible with then existing photographic products and photofinishing equipment" and then introducing those products "in such a manner that [Foremost] was required to purchase new paper, chemistry and photofinishing equipment." *Id.* at 543 (alteration in original).

We held that such an allegation does not state a claim for relief under Section 2. It was "of no legal import" that Foremost had characterized Kodak's activities "as a form of tech-

nological predation" because a monopolist has "the right to redesign its products to make them more attractive to buyers." *Id.* at 545 (citing *CalComp*, 613 F.2d at 744). We acknowledged, however, that introduction of a new and improved product design could constitute a violation of Section 2 where "some associated conduct . . . supplies the violation." *Id.* (quoting *Berkey Photo*, 603 F.2d at 286 n.30). Specifically, we held that to state a claim for relief under Section 2,

> product introduction must be alleged to involve some associated conduct which constitutes an anticompetitive abuse or leverage of monopoly power, or a predatory or exclusionary means of attempting to monopolize the relevant market, rather than aggressive competition on the merits.

Id. at 545-46.

[9] *CalComp* and *Foremost* therefore stand for the uncontroversial proposition that product improvement by itself does not violate Section 2, even if it is performed by a monopolist and harms competitors as a result. *See* IIIB AREEDA & HOVENKAMP ¶ 776a at 285-86 (3d ed. 2006) ("At the very least, as all courts recognize, product improvement without more is protected and beyond antitrust challenge."). There is no violation of Section 2 unless plaintiff proves that some conduct of the monopolist associated with its introduction of a new and improved product design "constitutes an anticompetitive abuse or leverage of monopoly power, or a predatory or exclusionary means of attempting to monopolize the relevant market." *Foremost*, 703 F.2d at 545-46.

There is no room in this analysis for balancing the benefits or worth of a product improvement against its anticompetitive effects. If a monopolist's design change is an improvement, it is "necessarily tolerated by the antitrust laws," *id.* at 545, unless the monopolist abuses or leverages its monopoly power in some other way when introducing the product. To hold oth-

erwise "would be contrary to the very purpose of the antitrust laws, which is, after all, to foster and ensure competition on the merits." *Id.* at 544. "Antitrust scholars have long recognized the undesirability of having courts oversee product design, and any dampening of technological innovation would be at cross-purposes with antitrust law." *United States v. Microsoft Corp.*, 147 F.3d 935, 948 (D.C. Cir. 1998).

To weigh the benefits of an improved product design against the resulting injuries to competitors is not just unwise, it is unadministrable. There are no criteria that courts can use to calculate the "right" amount of innovation, which would maximize social gains and minimize competitive injury. A seemingly minor technological improvement today can lead to much greater advances in the future. The balancing test proposed by plaintiffs would therefore require courts to weigh as-yet-unknown benefits against current competitive injuries. Our precedents and the precedents we have relied upon strongly counsel against such a test. *See CalComp*, 613 F.2d at 744; *Foremost*, 703 F.2d at 545-46; *Berkey Photo*, 603 F.2d at 286-87. Although one federal court of appeals has nominally included a balancing component in its test, it has not yet attempted to apply it. *See United States v. Microsoft Corp.*, 253 F.3d 34, 59, 66-67 (D.C. Cir. 2001) (including balancing as the last step of its test but not applying that step, either because the defendant had provided no justification for its product change or because the plaintiff had not rebutted the justification provided). Absent some form of coercive conduct by the monopolist, the ultimate worth of a genuine product improvement can be adequately judged only by the market itself. *Berkey Photo*, 603 F.2d at 287.

B. Undisputed Evidence that OxiMax Was an Improvement

[10] In this case, it is undisputed that by placing a digital memory chip in the sensor and moving the calibration coefficients from the monitor to the sensor, Tyco made its new Oxi-

Max system incompatible with generic sensors and harmed generic sensor manufacturers. We must therefore decide whether there remains a genuine issue that the OxiMax sensor design provided some new benefit to consumers and thus constituted an improvement.

[11] First, the United States Patent and Trademark Office found the OxiMax sensor design to be sufficiently innovative over the prior art to deserve a patent, and there is no allegation, much less proof, that the patent is invalid. Although, as the district court properly noted, there is not a per se rule barring Section 2 liability on patented product innovation, the existence of a patent on a new product design is some evidence that the change is an improvement over previous designs. After all, "the proper amount of gains to innovation are left to Congress, who has the authority to vary the terms of patent protections, the point in time from which the protections run, or the scope of patentable innovations." IIIB AREEDA & HOVENKAMP ¶ 777d at 311.

[12] Second, it is undisputed that Tyco's new sensor design allows it to introduce new types of sensors without requiring its customers to purchase new monitors or reprogram their installed base of monitors. This added flexibility promotes the introduction of new types of sensors, such as Max-Fast, and reduces costs for consumers of pulse oximetry equipment. It also allows new functions, such as sensor event reporting and sensor messaging, to be included in the sensors themselves. Plaintiffs have provided evidence that Max-Fast is no more accurate than previous forehead sensors and that physicians have not found the sensor event reporting or messaging features very useful. But even if Tyco has not yet been able to successfully utilize the new flexibility provided by the OxiMax platform, that in no way contradicts that the platform facilitates the introduction of new types of sensors and sensor functions and will reduce costs for consumers in the long run.

Tyco's internal documents show that from the very earliest stages of its development of OxiMax, it aimed to produce a

new technology that both served as "a new, flexible platform for future oximetry innovation" and added customer value by improving performance. To ensure that the new feature set enabled by OxiMax would help to differentiate its new sensors from generics, Tyco surveyed clinicians and initially received positive feedback. Plaintiffs focus on statements showing that Tyco hoped its new technology would constitute a barrier to entry for generic sensor manufacturers. However, even legitimate product improvement can have the effect of harming or even destroying competitors. Statements of an innovator's intent to harm a competitor through genuine product improvement are insufficient by themselves to create a jury question under Section 2. *Cf. Oahu Gas Serv., Inc. v. Pac. Res., Inc.*, 838 F.2d 360, 368-69 (9th Cir. 1998) ("Where a monopolist's refusal to aid a competitor is based partially on a desire to restrict competition, we determine antitrust liability by asking whether there was a legitimate business justification for the monopolist's conduct.").

Likewise, Plaintiffs mistakenly focus on documents showing that, sometime in 2001, Tyco began to realize that the sensor messaging and sensor event reporting features were less valuable than it initially believed and worried that the market would perceive its new technology as nothing more than a way to lock out generics. These documents do not create a genuine issue of material fact about whether OxiMax represented an improvement over previous sensor designs. Since technological innovation "is accompanied by tremendous uncertainty as to cost, technical success, and eventual market success . . . *ex post* realizations are rarely a useful indicator of *ex ante* expectations." IIIB AREEDA & HOVENKAMP ¶ 775c at 284. Evidence of an innovator's initial intent may be helpful to the extent that it shows that the innovator knew all along that the new design was no better than the old design, and thus introduced the design solely to eliminate competition. But the documents here show that Tyco initially believed that clinicians would value the new feature set. Moreover, the documents show that Tyco continued to believe that the flexi-

bility of the new OxiMax platform would appeal to consumers at the point that it introduced OxiMax.

[13] In sum, Plaintiffs have presented no evidence to refute that the patented OxiMax sensor design facilitates the introduction of new types of sensors with added capabilities at less cost to consumers. The district court properly concluded that Plaintiffs had not created a genuine issue of material fact on whether OxiMax was a genuine improvement.

C. Tyco Did Not Use Its Market Power to Force Adoption of OxiMax

Although it is undisputed that the OxiMax sensor design is an improvement over previous designs, 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." *Foremost*, 703 F.2d at 545-46.

[14] Plaintiffs argue that Tyco forced consumers to adopt OxiMax by discontinuing the older R-Cal technology. A monopolist's discontinuation of its old technology may violate Section 2 if it effectively forces consumers to adopt its new technology. *Berkey Photo*, 603 F.2d at 287 n.39. Here, however, there was uncontroverted evidence that Masimo was effectively competing for pulse oximetry monitor sales during the relevant time period. By 2006, Tyco's share of new monitor sales in the U.S. had dropped to 35%, and by 2007, Masimo's share had grown to 40% to 45%. Masimo and GE were also selling generic sensors compatible with Tyco's R-Cal monitors, and Masimo was able to make its own proprietary sensors compatible with Tyco's R-Cal monitors by employing a simple cable. Given all these alternatives, Tyco did not force consumers to purchase its OxiMax monitors simply by discontinuing its support of the R-Cal technology.

[15] Plaintiffs' argument that Tyco could have made its monitors compatible with the old sensors also fails. Our pre-

cedents make clear that a monopolist has no duty to help its competitors survive or expand when introducing an improved product design. *Foremost*, 703 F.2d at 545 (citing *CalComp*, 613 F.2d at 744, and other cases). The evidence shows that the OxiMax monitors' incompatibility with R-Cal sensors was the necessary consequence of moving the calibration coefficients from the monitor into the sensor. Thus, the product improvement at issue in this case, not some associated conduct by Tyco, caused the incompatibility.

As already discussed, Tyco's market-share discount and sole-source agreements did not force consumers to purchase Tyco's pulse oximetry products. Further, Tyco's use of an equipment financing program to induce hospitals to adopt its new OxiMax monitors was upheld by the jury in the *Masimo* case, and Plaintiffs do not argue here that it independently violates the antitrust laws. Plaintiffs' only remaining argument, that Tyco exploited hospitals' desire to standardize on a single brand of sensors, says nothing about why the hospitals chose to adopt OxiMax sensors over competing sensors in the first place.

[16] In sum, Plaintiffs have provided no evidence that Tyco used its monopoly power to force consumers of pulse oximetry products to adopt its new OxiMax technology. Absent evidence of such compulsion, the only rational inference that can be drawn from some consumers' adoption of OxiMax is that they regarded it to be a superior product. *Berkey*, 603 F.2d at 287. The district court therefore properly concluded that Plaintiffs had failed to create a genuine issue of material fact regarding Tyco's introduction of OxiMax and properly granted summary judgment on the Section 2 claim.

CONCLUSION

[17] Plaintiffs have presented no evidence to refute Tyco's evidence that its OxiMax sensor design facilitates the introduction of new types of sensors with added capabilities at less

cost to consumers. Nor have Plaintiffs presented any evidence that Tyco used its monopoly power to coerce adoption of Oxi-Max. Tyco's market-share discount agreements and sole-source agreements did not prevent consumers from choosing to purchase the less expensive generic sensors that existed in the market. The district court therefore properly granted Tyco summary judgment on the claims under Sections 1 and 2 of the Sherman Act.

AFFIRMED.