TIMING IS EVERYTHING: A REIMAGINED NO-ECONOMIC-SENSE TEST TO CURB PREDATORY INNOVATION

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ABSTRACT

Innovation is the hallmark of the free market system. Without it, society stands still and businesses cannot serve the changing demands of their customers. However, not all businesses innovate with good intentions. Predatory innovation is the practice by monopolists of updating products not to better serve consumers or in the name of technological advancement, but to eliminate competition from the market. Currently, courts lack an administrable legal standard to identify bad actors engaging in the type of conduct prohibited by the Sherman Act, which disallows business practices that restrict competition in order to create a healthy marketplace. This Note proposes the implementation of a reimagined no-economic-sense test with an emphasis on the timing of a monopolist's innovation. This new test will help courts identify and punish bad actors without stifling innovation, while simultaneously being less administratively burdensome than other available tests.

TABLE OF CONTENTS

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I. INTRODUCTION

> "The market, if it can be kept honest and competitive, does provide very strong incentives for work effort and productive contributions. In their absence, society would thrash about for alternative incentives—some unreliable, like altruism; some perilous, like collective loyalty; some intolerable, like coercion or oppression."
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> – Arthur Melvin Okun[1]

When businesses alter technical elements of their product with the purpose of eliminating competition under the guise of innovation, such conduct is described by legal scholars as predatory innovation.[2] Much like predatory pricing,[3] it is an illegal business practice that is profitable

1. Leonard Silk, *Books of the Times*, N.Y. TIMES (Aug. 9, 1975), https://www.nytimes.com/1975/08/09/archives/books-of-the-times-in-praise-of-leaky-buckets.html.

2. *See, e.g.*, Thibault Schrepel, *Predatory Innovation: The Definite Need for Legal Recognition*, 21 SMU SCI. & TECH. L. REV. 19, 22 (2018) [hereinafter Schrepel, *Predatory Innovation*]; Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8, 23 (1981).

3. "In a typical predatory-pricing scheme, the predator reduces the sale price of its product (its output) to below cost, hoping to drive competitors out of business. Then, with competition vanquished, the predator raises output prices to a supracompetitive [pricing above what can be sustained in a competitive market] level." Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., 549 U.S. 312, 318 (2007).

solely due to its effect of pushing out competitors.[4] When Keurig, a manufacturer of single-serve coffee makers and K-Cup coffee pods, introduced its new brewing system that removed the ability to use third-party coffee pods using DRM technology,[5] both consumers and competitors were outraged, resulting in a lawsuit and the eventual discontinuation of the new line.[6] This is just one example of predatory innovation in action in the twenty-first century.

While true innovation is beneficial for both the economy and society as a whole, predatory innovation can hinder economic progress by eliminating cost-efficient businesses from the market due to their inability to keep up with the bad acts of larger players.[7] The Sherman Antitrust Act ("Sherman Act") was enacted by Congress in 1890 for the purpose of prohibiting predatory business practices, such as predatory innovation, that restrict competition in the marketplace.[8] The Sherman Act aimed to achieve two things: (1) it prohibited unreasonable and predatory acts by businesses attempting to monopolize trade; and (2) it labeled certain business practices as so harmful that they were *per se* prohibited.[9]

As an unreasonable and predatory act, predatory innovation clearly falls within the conduct prohibited by the Sherman Act. However, the

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4. *See* Schrepel, *Predatory Innovation*, *supra* note 2, at 22.

5. DRM, which stands for digital rights management, ensured that the new Keurig machines only accepted licensed K-Cups, which were printed with special ink—if a third-party cup was inserted, the brewer would not run. Josh Dzieza, *Inside Keurig's Plan to Stop You From Buying Knockoff K-Cups*, VERGE (June 30, 2014, 12:29 PM), https://www.theverge.com/2014/6/30/5857030/keurig-digital-rights-management-coffee-pod-pirates.

6. *See In re* Keurig Green Mtn. Singleserve Coffee Antitrust Litig., 383 F. Supp. 3d 187, 230–31 (S.D.N.Y. 2019) (finding that defendant's new brewing system with lock-out technology was not for the benefit of consumers, but was intended to lock out competitors in the compatible cup market); Alex Hern, *Keurig Takes Steps Towards Abandoning Coffee-Pod DRM*, GUARDIAN (May 11, 2015, 9:27 AM), https://www.theguardian.com/technology/2015/may/11/keurig-takes-steps-towards-abandoning-coffee-pod-drm; Barry Costello, *Why Was the Keurig 2.0 Discontinued?*, UPTHIRST (Dec. 31, 2022), https://www.upthirst.com/why-was-the-keurig-2-0-discontinued/ (explaining that the Keurig 2.0 was discontinued due to several issues, including "its inability to recognize non-Keurig pods").

7. *See* FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 5–6 (2003), https://www.ftc.gov/sites/default/files/documents/reports/promote-innovation-proper-balance-competition-and-patent-law-and-policy/innovationrpt.pdf.

8. *See* 15 U.S.C §§ 1–7; *see also* Federal Trade Commission Act, 15 U.S.C. §§ 41–58; Clayton Act, 15 U.S.C. §§ 12–27.

9. *The Antitrust Laws*, FED. TRADE COMM'N, https://www.ftc.gov/advice-guidance/competition-guidance/guide-antitrust-laws/antitrust-laws (last visited Jan. 5, 2024).

lack of a clear definition by Congress of what such conduct looks like in the real world has led courts to create their own tests to identify predatory innovation.[10] Unchecked, predatory innovation can be a tool for monopolists to restrict consumer choice by eliminating competitors from the market—if Keurig had succeeded with its new brewing system, third-party cup manufacturers would have eventually gone out of business, leaving consumers with only one product to choose from: Keurig's own K-Cups.[11] That would certainly not be the kind of healthy market competition Congress intended to create with the Sherman Act.

This Note proposes the implementation of a reimagined no-economic-sense test, which considers the timing of when a monopolist releases an innovation. As it stands, the no-economic-sense test is *too* defendant-friendly: a monopolist's anticompetitive conduct is only forbidden if the conduct does not make economic sense, other than helping the monopolist's bottom line by eliminating or restricting competition.[12] The conservative nature of the no-economic-sense test will be appealing to courts hesitant to stifle true innovation, while the timing element will alleviate scholars' concerns about under-enforcement of the law under such a stringent standard.[13] When problems arise in situations where a monopolist tries to justify its anticompetitive conduct economically, perhaps by tailoring its conduct to make economic sense in anticipation of a lawsuit,[14] the timing element will stop it in its tracks. Adding the element of time has already been proposed prior by scholars in product hopping cases.[15] This Note will show that when applied outside of the

10. *See infra* Part II.

11. This introduces yet another predatory practice by monopolists: product tying. This Note does not go into detail about product-tying practices, but for more on the topic, see Kenneth J. Burchfiel, *Patent Misuse and Antitrust Reform: "Blessed Be the Tie?,"* 4 HARV. J.L. & TECH. 1, 2 (1991) ("The sale or lease of a patented invention on the condition that the buyer purchase a separate tied product from the patentee has also constituted a per se violation of the antitrust laws.").

12. *See* Gregory J. Werden, *Identifying Exclusionary Conduct Under Section 2: The "No Economic Sense" Test*, 73 ANTITRUST L.J. 413, 413, 417 (2006) [hereinafter Werden, *Identifying Exclusionary Conduct*]; *see also* Thibault Schrepel, *The "Enhanced No Economic Sense Test": Experimenting With Predatory Innovation*, 7 N.Y.U. J. INTELL. PROP. & ENT. L. 30, 36–37 (2018) [hereinafter Schrepel, *Enhanced No Economic Sense*].

13. Jonathan Jacobson et al., *Predatory Innovation: An Analysis of* Allied Orthopedic v. Tyco *in the Context of Section 2 Jurisprudence*, 23 LOY. CONSUMER L. REV. 1, 28 (2010) ("[T]he test can lead to underenforcement in that it will fail to condemn exclusionary redesign that is virtually (if not entirely) costless.").

14. *See* Schrepel, *Enhanced No Economic Sense*, *supra* note 12, at 41–42.

15. Product hopping is the practice by pharmaceutical companies of reformulating their drugs, encouraging doctors to prescribe this reformulation rather than the original product,

product-hopping framework, the no-economic-sense test with the timing element punishes monopolists engaging in predatory innovation just as efficiently, without unnecessarily burdening the courts or stifling free market competition.

II. TESTS FOR SHERMAN ACT § 2 LIABILITY

In September 2008, the Department of Justice issued a report titled *Competition and Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act* ("the Report").[16] Chapter three of the Report was dedicated to identifying the general standards for exclusionary conduct, including five tests to determine whether potentially prohibited conduct by a monopolist was anticompetitive.[17] One of these tests was the no-economic-sense test.[18] Although the Report was withdrawn a year later due to feedback that it was too forgiving of anticompetitive behavior,[19] the five tests articulated in the Report still provide a good starting place to understand the need for a better test. Other tests that have since been proposed are also included in this section.

A. The Effects-Balancing Test

The effects-balancing test is focused on net consumer welfare, asking whether a particular conduct by a monopolist "reduces competition without creating a sufficient improvement in performance to fully offset these potential adverse effect[s] on prices and thereby prevent consumer harm."[20] Although the test's focus on consumer welfare is at the heart of

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often to extend the drug's patent life and prevent consumers from switching over to generics. Michael A. Carrier & Steve D. Shadowen, *Product Hopping: A New Framework*, 92 NOTRE DAME L. REV. 167, 171, 178 (2016) ("[T]he timing of a product hop is a crucial factor in a brand's ability to switch the market to a reformulated drug. It is therefore critical to incorporate timing into an appropriate antitrust analysis of product hopping."); *see also* Benjamin M. Miller, *Product Hopping: Monopolization or Innovation?*, 22 B.U. J. SCI. & TECH. L. 89, 89 (2016).

16. U.S. DEP'T OF JUST., COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT (2008), https://www.justice.gov/sites/default/files/atr/legacy/2009/05/11/236681.pdf.

17. *Id.* at 33–47.

18. *Id.* at 39.

19. Press Release, Office of Pub. Affs., U.S. Dep't of Just., Justice Department Withdraws Report on Antitrust Monopoly Law (May 11, 2009), https://www.justice.gov/opa/pr/justice-department-withdraws-report-antitrust-monopoly-law.

20. Steven C. Salop, *Exclusionary Conduct, Effect on Consumers, and the Flawed Profit-Sacrifice Standard*, 73 ANTITRUST L.J. 311, 330 (2006).

the Sherman Act,[21] its open-ended inquiry into net harms on consumers can cause problems of administrability. One example is the difficulty in accurately measuring what the net effect of a particular conduct is on consumer welfare.[22] Another problem is the ability of judges and juries to evaluate such evidence.[23] The test also focuses on short-term negative effects of conduct on consumers, not accounting for any long-term benefits, which may end up ultimately harming consumers.[24]

B. The Profit-Sacrifice Test

The profit-sacrifice test was formulated in 1981 by two Professors of Economics.[25] The test focuses on anticompetitive purpose and intent and looks at whether a company that normally aims to maximize profits is engaging in conduct that is economically irrational, if not for the anticompetitive effect of pushing competitors out.[26] Although at first it may seem like the profit-sacrifice test should easily identify bad actors and punish them, it has been criticized for its tendency to create false positives, as true innovation can come at the expense of short-term profits due to large research and development costs.[27] Another criticism of the profit-sacrifice test is that it focuses on profits, largely ignoring

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21. *See id.* at 329–31.

22. Werden, *Identifying Exclusionary Conduct*, *supra* note 12, at 431–32.

23. *See, e.g.*, *id.* at 432. ("Reliance on the jury system assures that the consumer welfare test would result in a high incidence of false positive findings of exclusionary conduct."); Einer Elhauge, *Defining Better Monopolization Standards*, 56 STAN. L. REV. 253, 317 (2003) (concluding that an effects-balancing test performed by antitrust juries and judges "would often be inaccurate . . . and too costly to litigate").

24. *See* Mark S. Popofsky, *Defining Exclusionary Conduct: Section 2, the Rule of Reason, and the Unifying Principle Underlying Antitrust Rules*, 73 ANTITRUST L.J. 435, 451 (2006) ("Consumers obviously are harmed in the short term by the charging of monopoly prices. But the law tolerates [it] . . . because the costs of correcting such 'errors' including deterring other firms from innovating, are just too high.").

25. *See* Ordover & Willig, *supra* note 2, at 8.

26. *See id.* at 48; *see also* Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 610–11 (1985) (finding defendant's "deliberate effort to discourage its customers from doing business with its smaller rival . . . sacrific[ing] short-run benefits and consumer goodwill in exchange for a perceived long-run impact on [that] . . . rival" violated Section 2 of the Sherman Act).

27. *See, e.g.*, Jacobson, *supra* note 13, at 4 ("[T]he profit sacrifice test will generate false positives, because innovation and redesign are themselves profit sacrifices and, of course, should not be punished."); *see also* Salop, *supra* note 20, at 314.

spillover benefits to the consumers now and in the future as a result of the innovation.[28]

C. *The Sham Test*

The sham test considers an innovation to be a sham if its existence is solely for its negative effects on the competition without improving consumer wellbeing in the short or long term.[29] This analysis helps weed out genuine innovations, as they will surely improve consumer wellbeing at some point.[30] However, just as the profit-sacrifice test fails to consider anything except profit, the sham test fails to consider anything but consumer wellbeing. Anticompetitive conduct can simultaneously improve consumer wellbeing while deterring healthy competition. Although some scholars claim such risk is acceptable given the severe cost of punishing beneficial innovation,[31] there must exist a better alternative.

D. *The Equally Efficient Competitor Test*

The equally efficient competitor test first poses an open-ended balancing question: is the monopolist's allegedly prohibited behavior likely to exclude an "equally or more efficient competitor" in the same market?[32] If the answer is yes, the monopolist has an opportunity to rebut the presumption of a Sherman Act violation by proving that, notwithstanding the exclusionary nature of its behavior, it still acted efficiently and therefore, should not be penalized.[33] However, efficiency can be hard to measure, and what constitutes an equally efficient competitor can be a mystery in markets where products differ and firms are not homogenous.[34] For example, a large, diversified company can be more efficient in its production of one product when it produces many others and shares facilities and marketing teams, while another company might be less efficient in comparison if its entire business is producing

28. *See* Richard J. Gilbert, *Holding Innovation to an Antitrust Standard*, 3 COMPETITION POL'Y INT'L 47, 59 (2007).
29. *Id.* at 61–62.
30. *See id.* at 62.
31. *Id.* at 47.
32. RICHARD A. POSNER, ANTITRUST LAW 194–95 (2d ed. 2001).
33. *Id.* at 195; *see also* Herbert Hovenkamp, *Exclusion and the Sherman Act*, 72 U. CHI. L. REV. 147, 154 (2005).
34. A. Douglas Melamed, *Exclusive Dealing Agreements and Other Exclusionary Conduct – Are There Unifying Principles?*, 73 ANTITRUST L.J. 375, 388 (2006).

that one product.[35] Therefore, this test is only applicable in specific scenarios: for example, in predatory pricing cases.[36]

E. Disproportionality/Rule of Reason Test

The rule of reason test, also referred to as the balancing test, the disproportionality test, or the *Microsoft* test, was created against the backdrop of debates around whether exclusionary conduct in emerging technological markets deterred or encouraged innovation.[37] An answer to this question would have helped the D.C. Circuit Court of Appeals decide if highly technical innovations and their implications within "dynamic technological markets" would rise to the level of Sherman Act violations in *United States v. Microsoft*.[38] Unfortunately, a clear answer did not yet exist, leading the *Microsoft* court to find one for themselves.[39]

The court thereby articulated the elements of the *Microsoft* test, which can be enumerated as: (1) the defendant has a monopoly on the market; (2) the defendant's conduct has an anticompetitive purpose, which harms the competitive process and therefore harms consumers, not just competitors; (3) the defendant's conduct has an anticompetitive effect which harms consumers, not just competitors; and (4) the defendant's procompetitive justifications for the conduct do not outweigh its anticompetitive harms.[40] The court did not place great weight on the alleged monopolist's intent; in fact, the defendant's intent was only relevant to understand the effects of its anticompetitive conduct.[41] This

35. U.S. DEP'T OF JUST., COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT 44 (2008), https://www.justice.gov/atr/public/reports/236681.pdf.

36. *See id.* at 43–45.

37. *Compare* Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards, and Microsoft*, 7 GEO. MASON L. REV. 617, 654–55, 663–64 (1999) (arguing exclusionary conduct deters innovation), *with* Ronald A. Cass & Keith N. Hylton, *Preserving Competition: Economic Analysis, Legal Standards and Microsoft*, 8 GEO. MASON L. REV. 1, 36–39 (1999) (arguing exclusionary conduct encourages innovation).

38. *See* United States v. Microsoft Corp., 253 F.3d 34, 49 (D.C. Cir. 2001).

39. "[W]e note that there is no consensus among commentators on the question of whether, and to what extent, current monopolization doctrine should be amended to account for competition in technologically dynamic markets characterized by network effects." *Id.* at 50.

40. *Id.* at 58–59.

41. *Id.*

test urged courts to examine all the circumstances within a case, including what competition looked like within the relevant market.[42]

The second and third prongs of the *Microsoft* test constituted the consumer welfare standard, focusing on the effect of anticompetitive conduct on the competitive process and consumers.[43] These two prongs could also be characterized as an incorporation of the effects-balancing test.[44] To satisfy the consumer welfare standard, plaintiffs alleging predatory innovation had to prove that consumers would suffer harm due to the defendant's prohibited conduct.[45] This harm would then be weighed against any procompetitive justifications given by the defendant for engaging in said prohibited behavior.[46] The consumer welfare standard emphasized the importance courts placed on how consumers were affected by the actions of alleged monopolists.[47]

This balancing of mixed conduct (that is, conduct that is both harmful and beneficial) from monopolists was difficult, leading courts to start utilizing a less-restrictive-alternative test within the rule-of-reason structure.[48] This test posed one question: could the benefits from the conduct have been achieved just as well in a less harmful manner?[49] If the court answered yes, then the conduct was prohibited.[50] This addition to the rule-of-reason test arose from the difficulty of quantifying the harms and benefits of mixed conduct[51], such as in the case of predatory innovation. However, the less-restrictive-alternative test also had one significant limitation: since the alternative conduct had to be equally as effective as the possibly prohibited conduct, it had to be practical and just as profitable for the monopolist—a high burden in the real world.[52]

The promise of the rule-of-reason test to balance justifications against harms has not played out in practice. By 1999, ninety-six percent

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42. *Id.* at 81. By defining the relevant market, courts can establish "a context for evaluating the defendant's actions as well as for measuring whether the challenged conduct presented a dangerous probability of monopolization." *Id.* (citing Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 455–56 (1993)).

43. *See* Salop, *supra* note 20, at 331.

44. *See* discussion *supra* Section II.A.

45. *See Microsoft*, 253 F.3d at 58–59.

46. *See id.* at 59.

47. Salop, *supra* note 20, at 336.

48. C. Scott Hemphill, *Less Restrictive Alternatives in Antitrust Law*, 116 COLUM. L. REV. 927, 927 (2016).

49. *Id.* at 929.

50. *Id.*

51. *Id.*

52. *See id.* at 931, 969–70.

of courts that used the rule-of-reason test in their analysis never balanced anything.[53] The use of the test has also resulted in a circuit split. In *New York v. Actavis*, the Second Circuit found defendant-appellant Actavis PLC guilty of antitrust violations for discontinuing an old drug at the end of its patent life and simultaneously releasing a slightly modified version in order to bar generic drug manufacturers from competing within the same drug market.[54] Once monopoly power was established, the *Actavis* court, in this case of first impression, applied the *Microsoft* test to find possible violations of the Sherman Act by Actavis PLC.[55] Under the *Microsoft* test, the court first had to establish that Actavis PLC's conduct was anticompetitive, and then weigh any procompetitive justifications provided by Actavis PLC for its conduct against any of the resulting anticompetitive harms.[56] Accordingly, the Second Circuit considered the effect of withdrawing a product while simultaneously releasing a similar substitute, which had the overall effect of coercing consumers, to establish anticompetitive conduct.[57] The *Actavis* court specifically emphasized how Actavis PLC's conduct harmed competition and consumers, and concluded that Actavis PLC's actions, within the nuances of the specific drug market in which their anticompetitive conduct took place, violated the Sherman Act.[58]

On the other hand, in *Mylan v. Warner Chilcott*, the Third Circuit decided in favor of brand-name drug manufacturer Warner Chilcott, finding that a similar instance of product hopping was not anticompetitive.[59] The barring factor, the court held, was that Warner Chilcott did not hold monopoly power over its relevant market to begin with, and therefore could not be held liable.[60] In trying to determine the relevant market for Warner Chilcott's acne treatment drug "Doryx," the Third Circuit discussed the interchangeability of products and the cross-elasticity of demand.[61] Since there was high interchangeability between Doryx and other acne-treatment medications (namely, oral

53. Michael A. Carrier, *The Real Rule of Reason: Bridging the Disconnect*, 1999 BYU L. REV. 1265, 1267–68, 1268 n.2 (1999).
54. New York *ex rel.* Schneiderman v. Actavis PLC, 787 F.3d 638, 642–43 (2d Cir. 2015).
55. *Id.* at 643, 652.
56. *Id.* at 652; *see also* United States v. Microsoft Corp., 253 F.3d 34, 58–59 (D.C. Cir. 2001).
57. *Actavis*, 787 F.3d at 653–54.
58. *See id.* at 643.
59. Mylan Pharms., Inc. v. Warner Chilcott Pub. Ltd., 838 F.3d 421, 438 (3d Cir. 2016).
60. *Id.* at 435–39.
61. *Id.*

tetracyclines), and since price increases in Doryx led to the increase of sales of these other oral tetracyclines, the Third Circuit found that the relevant market was the oral tetracycline market.[62] Given this conclusion, Warner Chilcott's market share of eighteen percent was not enough to show that it maintained a monopolistically large market share.[63] Without this monopoly power, petitioner's Section 2 monopolization claims under the Sherman Act fell flat.[64] Notwithstanding, the Third Circuit went on to find a lack of anticompetitive conduct by Warner Chilcott, taking into account the ability of generic manufacturers to engineer their own oral tetracyclines for over twenty years, petitioner's generous profits due to an agreement with defendant, and evidence of non-pretextual justifications for the modification of Doryx.[65]

In *Mylan*, upon a finding of no monopoly power, the court never got to the balancing at the heart of the rule-of-reason test.[66] Furthermore, the lack of a finding of monopoly power by the court was questionable.[67] Scholars have found that when the no-economic-sense test with a timing element is applied to *Actavis* and *Mylan*, both defendants are found in violation of Section 2 as their conduct makes no economic sense, reconciling the different results in these two similar cases from two different circuits.[68]

F. The No-Economic-Sense Test

The no-economic-sense test regards a monopolist's conduct as anticompetitive if that conduct only makes economic sense because it eliminates or restricts competition in the monopolist's market.[69] Unlike in the profit-sacrifice test, however, significant short-term economic sacrifices are not *per se* condemned, but instead, the test focuses on *why*

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62. *Id.*

63. *Id.* at 437–38. The court also stated that it reviewed other factors in determining market share, such as the ability of the consumers to obtain substitutes and consumer demand. *See* United States v. Dentsply Int'l, Inc., 399 F.3d 181, 187 (3d Cir. 2005).

64. *Mylan*, 838 F.3d at 438; 15 U.S.C. § 2.

65. *Mylan*, 838 F.3d at 439.

66. *Id.* at 441–42 ("[W]e need not reach these additional factors [referring to the balancing of procompetitive justifications with anticompetitive harms] because we are not presented with such a close call.").

67. *See* Carrier & Shadowen, *supra* note 15, at 197 n.158 (discussing the "fundamental errors" in the *Mylan* court's finding of a lack of monopoly power).

68. *See id.* at 227–29.

69. Werden, *Identifying Exclusionary Conduct*, *supra* note 12, at 413, 417; Schrepel, *Enhanced No Economic Sense*, *supra* note 12, at 36–37.

the monopolist decided to bear such a loss, and whether that decision made economic sense.[70] Yet problems can arise in situations where a monopolist can justify its anticompetitive conduct economically or tailor its conduct to make economic sense to escape liability.[71] This Note addresses these problems by introducing a timing element.

This Note is not the first time an enhanced version of the no-economic-sense test has been suggested. One legal scholar has proposed a version where monopolists must provide economic justifications for all updates to their product, and if there are any made in bad faith, they will not be allowed to escape liability.[72] This enhancement hopes to avoid the pitfall of fake justifications, since anything can be innovative if framed well enough.[73] However, the administrative implications of having to provide economic justifications for all updates to a product are severe—frivolous lawsuits by weak competitors could prove to be an issue, especially in an age where technological progress happens by the minute.

Other scholars have proposed a narrowly tailored version with a timing element as applied to product-hopping cases.[74] This Note applies the same principle of timing more broadly to predatory innovation cases, expanding the scope of the idea that *when* an innovation is introduced is just as important as *what* that innovation is.

III. THE REIMAGINED NO-ECONOMIC-SENSE TEST

The reimagined no-economic-sense test utilizes a two-pronged approach that first questions whether the monopolist's conduct makes economic sense, and then considers whether the timing of that conduct is suspicious in its analysis to look for a Sherman Act Section 2 violation. The first prong of the test might ask whether the allegedly anticompetitive conduct improves the monopolist's bottom line other than by removing competition from the market. If it is a close call, the second prong might consider whether the conduct happened around the time when a competing product was set to enter the market or had just entered the market.

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70. *See* Schrepel, *Enhanced No Economic Sense*, *supra* note 12, at 37.
71. *Id.* at 41–42.
72. *Id.* at 49–50.
73. *Id.* at 50; *see also* Gregory J. Werden, *The "No Economic Sense" Test for Exclusionary Conduct*, 31 J. CORP. L. 293, 305 (2006).
74. *See* Carrier & Shadowen, *supra* note 15, at 171–72.

The test's appeal lies in its simplicity: there is no question of subjective intent, nor are courts forced into discussing the sufficiency of the innovation in question. The conservative inquiry of whether the conduct makes economic sense remains unchanged, while the investigation into the timing of the release of an innovation assists courts in identifying prohibited behavior without being too defendant friendly.

A. The Timing Element in Product-Hopping Cases

The timing element's inquiry starts off with a simple question: when was the updated product released to consumers? It then gets much more complicated: what does that timing *mean* for the alleged monopolist's bottom-line?

In product-hopping cases within pharmaceutical markets, the product is the drug, the update is the reformulation, and the relevant timeframe is when generic drugs are bound to enter the market.[75] The window of generic entry is vital to the analysis, because as generics enter the market, the price of a brand name drug "falls to a fraction of" what it once was.[76] The longer a brand name company can successfully forestall the entry of generics into the market, the better off it will be.[77] In fact, if the brand name company can (1) reformulate its drug before the generics enter the market; (2) release it; and (3) convince doctors to switch consumer-patients to this new reformulation before the entry of generics, then there will be no consumer-patients left to switch over to the generics to begin with.[78]

Critics of adding such a timing element to antitrust analyses suggest that it unnecessarily complicates the otherwise simple no-economic-sense test, as there is nothing stopping consumer-patients from switching back to the old formulations to take advantage of generics even after a reformulation (in the absence of a withdrawal of the original

75. *See id.* at 176.
76. *Id.*
77. *See id.*
78. *Id.*

product),[79] yet we do not know if that would be the case in reality given a lack of empirical data.[80]

B. Incorporating the Timing Element into Predatory Innovation Cases

The timing element works in product-hopping cases because it is easy to identify the product (the drug), the update (the reformulation), and the relevant timeframe (the entry of generics).[81] When incorporating timing into predatory innovation cases, the product and the update are still easily identifiable: the product is whatever the monopolist is updating and the update is the redesign of that product (the "innovation"). Unfortunately, the relevant timeframe is harder to identify.

For purposes of this Note, the patent cliff will be the relevant timeframe for predatory innovation cases, just as in product-hopping cases.[82] Instead of reformulating drugs before generic entry, brand name companies in non-pharmaceutical markets may redesign and release new products prior to the expiration of an important patent.[83] In terms of how long the timeframe must be before it can be considered "suspicious" by courts, there are two options. First, a threshold test can indicate a specific timeframe, like three years, after which the timing will no longer be considered suspicious by the courts. This is not a great option, however, as one set timeframe will most likely prove to be arbitrary given the specifics of different relevant markets. Depending on the market, three years could be an incredibly long time, like in high technology markets where updates are released daily.[84] On the other hand, in some markets, three years could be no time at all, such as in the case of medical devices

79. Such a withdrawal would be called a "hard switch," where the monopolist releases a new formulation of its brand name drug and removes the old formulation, giving consumer-patients, doctors, and health insurers no choice but to switch. *Id.* at 168. On the other hand, monopolists can leave the old formulation on the market, constituting a "soft switch," but employ other tactics to get consumer-patients to switch. *Id.* at 168, 219.

80. Daniel A. Crane, *Provigil: A Commentary*, 3 HASTINGS SCI. & TECH. L.J. 453, 454 (2011) (stating that the possibility of consumer-patients switching back to old formulations "is an empirical question that has not yet been tested").

81. *See* Carrier & Shadowen, *supra* note 15, at 176.

82. When a patent expires, there is an almost immediate decline in revenue for the company holding the patent, which is referred to as a "patent cliff." *See* Joseph Jimenez, *The CEO of Novartis on Growing After a Patent Cliff*, HARV. BUS. REV. (Dec. 2012), https://hbr.org/2012/12/the-ceo-of-novartis-on-growing-after-a-patent-cliff.

83. *See, e.g.*, Jacobson et al., *supra* note 13, at 5.

84. For example, the Windows operating system automatically checks for updates "every 17 to 22 hours." Tim Fisher, *Windows Updates & Patch Tuesday FAQ*, LIFEWIRE (Jan. 23, 2023), https://www.lifewire.com/windows-updates-patch-tuesday-faq-2625777.

that are tested for a long time before being released to the public in multiple research and development phases.[85]

The second option would be a more case-by-case analysis, where courts consider the relevant market, the efficiency of a company,[86] and how long an average redesign might take for a specific type of product (like a software update versus the complete redesign of a medical device). Of course, one obvious problem with option two is administrability: in any case-by-case analysis, courts will have to take more time to consider the facts of a case and use judicial discretion, increasing the time cases may take to be resolved and lengthening the size of the court's overall docket.

The timing of predatory innovations can be extremely telling. Coffeemaker Keurig once again provides a great illustration of how timing can play into the monopolistic goals of companies. In February 2012, Keurig released its updated Vue brewing system, complete with a new set of patents.[87] Its timing was suspiciously close to when two of its important K-Cup patents were due to expire in September 2012, following a twenty-year run.[88] Unsurprisingly, consumers had to buy K-Vue coffee pods to use the new system, as the old K-Cups were

85. *What is the Medical Device Development Process?*, TWI, https://www.twi-global.com/technical-knowledge/faqs/what-is-the-medical-device-development-process (last visited Jan. 5, 2024 ("Studies show that it takes three to seven years to bring a device from concept to approval [which] includes the entire device lifecycle, including research, development and testing.").

86. There are many ways to calculate the efficiency of a business, such as by using an efficiency ratio, which divides an entity's current liabilities and assets by its total assets. Ben McClure, *Measuring Company Efficiency to Maximize Profits*, INVESTOPEDIA (June 23, 2021), https://www.investopedia.com/investing/measuring-company-efficiency/. If the ratio is higher, it means the company is using its assets efficiently to generate revenue. *Id.* Efficiency can also be calculated by looking at how much of a company's money is tied up in inventory and how quickly it is turning over that inventory into cash to pay its bills. *Id.* On top of these more mechanical calculations, looking at a company's size, revenue, profits, date that it entered the market, market share history, and prevalence of its brand name may also prove to be helpful.

87. *Green Mountain Coffee Roasters, Inc. Introduces Smart Technology to Small Office Brewers with Launch of Keurig® Vue® Brewing System with RFID Technology*, BUS. WIRE (Sept. 12, 2012, 10:57 AM), https://www.businesswire.com/news/home/20120912006304/en/ ("The design of the new, patented, single-serve Vue® pack accommodates varying grind volume and packing requirements so that GMCR can offer a variety of packs that meet each consumer's beverage needs, including coffee, tea, hot cocoa, iced, fruit-based, and frothy café beverages.").

88. *See* Ali Sternburg, *Patent Expiration Doesn't Prevent Green Mountain Coffee from Maintaining Its Buzz*, PAT. PROGRESS (Feb. 4, 2013), https://www.patentprogress.org/2013/02/patent-expiration-doesnt-prevent-green-mountain-coffee-from-maintaining-its-buzz/; U.S. Patent No. 5,840,189 (filed Aug. 20, 1997); U.S. Patent No. 5,325,765 (filed Sept. 16, 1992).

incompatible with the Vue brewing system.[89] Two years later, employing tactics similar to what is called a "hard switch" in pharmaceutical markets,[90] Keurig withdrew its Vue brewing system,[91] setting the stage to debut its new Keurig 2.0 brewing system in August 2014.[92] Consumers had no choice but to switch over—the Vue machines and the pods were discontinued.[93]

In the case of Keurig, the situation corrected itself following consumer outrage and a lawsuit.[94] However, that may not always be the case in situations where brand-name companies follow similar steps to introduce and withdraw multiple products, get new patents, and essentially get away with predatory behavior. If Keurig could show its redesigns made economic sense, it would not violate Section 2 under the original no-economic-sense test.[95] However, if the timing of Keurig's actions were also considered in such an analysis, its conduct would suddenly appear much more suspicious and be worth a deeper look into.

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89. Danijela Stupar, *A Complete Guide to Keurig Vue: Vue Cups, Cleaning Routine, How to Use*, COFFEESTYLISH.COM (2013), https://coffeestylish.com/keurig-vue-review/ ("Keurig Vue works exclusively with Keurig Vue cups.").

90. *See* Carrier & Shadowen, *supra* note 15, at 168, 219.

91. Bryan De Luca, *Keurig Vue Discontinued: Let's Look at the Single Serve Giant's Product Release Timeline*, COFFEE MAVEN (Jan. 20, 2022), https://www.thecoffeemaven.com/guides/keurig-vue-discontinued.

92. Hayley Peterson, *Keurig's New Coffee Machine Got a Ton of Hype, But Customers Seem to Hate It*, INSIDER (Nov. 25, 2014, 12:28 PM), https://www.businessinsider.com/keurig-20-scathing-reviews-2014-11.

93. De Luca, *supra* note 91 ("[O]nce the Keurig 2.0 line hit the market, the Vue series was completely redundant . . . [although] Vue brewers still can be purchased online. I wouldn't recommend purchasing a Vue brewer because it's very difficult to find K-Vue pods, and the ones you do find will be old and stale.").

94. *See In re* Keurig Green Mountain Singleserve Coffee Antitrust Litig., 383 F. Supp. 3d 187, 230–31 (S.D.N.Y. 2019) (denying a motion to dismiss a Sherman Act Section 2 claim because plaintiffs had convincing evidence that the 2.0 Brewer was intended to harm competition in the relevant market); Annie Gasparro, *Keurig Stumbles with New K-Cup Brewer*, WALL ST. J. (Feb. 4, 2015, 7:47 PM), https://www.wsj.com/articles/keurig-warns-currency-to-hurt-full-year-results-1423087615 ("In an interview, [Chief Executive Brian] Kelley said the brewers didn't sell as well as he hoped because consumers were frustrated that the devices don't work with their old single-serve portion packs, called K-Cups.").

95. *See* Werden, *supra* note 12, at 413.

C. *Potential Issues*

1. Trademark Protection in Place of Patents

A no-economic-sense test with a timing element does not address the issue of monopolists taking advantage of trademark protection when they can no longer use their patents to protect their market power. Although trademarks cannot be granted for product features that are essential to the product's use or purpose, or anything that affects its cost or quality,[96] courts have not been able to come up with a unanimous, coherent description of "functionality" other than to say that its definition remains unclear.[97]

Although a trademark is not meant to protect a product's functional features, which would be the province of patent law, trademarked products perform better with consumers than their generic counterparts due to a placebo effect that transforms "seemingly inert names and logos into measurable product enhancements."[98] This could mean that the brand name of a product *is* functional, as it affects the perceived quality of the product by the consumers.

The "K-Cup" name has been trademarked since 2001.[99] Since trademarks have no expiration period as long as they are in commercial use,[100] when a Keurig competitor releases an alternative to the K-Cup,

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96. 15 U.S.C. § 1125(a)(3) ("[T]he person who asserts trade dress protection has the burden of proving that the matter sought to be protected is not functional."); Inwood Lab'ys, Inc. v. Ives Lab'ys, Inc., 456 U.S. 844, 850 n.10 (1982); Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 164 (1995) ("The functionality doctrine prevents trademark law, which seeks to promote competition by protecting a firm's reputation, from instead inhibiting legitimate competition by allowing a producer to control a useful product feature."); *see also* TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23, 29 (2001) ("[It is a] well-established rule that trade dress protection may not be claimed for product features that are functional.").

97. *See, e.g.*, Eppendorf-Netheler-Hinz GMBH v. Ritter GMBH, 289 F.3d 351, 355 (5th Cir. 2002) ("It is clear that functional product features do not qualify for trade dress protection. However, the definition of 'functionality' has not enjoyed such clarity.").

98. Matthew G. Sipe, *A Fragility Theory of Trademark Functionality*, 169 U. PA. L. REV. 1825, 1827 (2021). Sipe discusses that in a randomized study, test subjects were more likely to think that a placebo pill performed better if they thought it was name brand than if it was generic, even though it was the same sugar pill. *Id.* at 1826–27. This phenomenon was not limited to medications, but extended to golf putters, earplugs, powdered drinks, and turkey meat. *Id.* at 1827.

99. K-CUP, Registration No. 2,431,816.

100. *See Keeping Your Registration Alive*, USPTO, https://www.uspto.gov/trademarks/maintain/keeping-your-registration-alive (last visited Jan. 5, 2024); *Does a Trademark Expire?*, KAUFHOLD & DIX PAT. L. (Jan. 21, 2021), https://www.kaufholdpatentgroup.com/does-a-trademark-expire/ ("A utility patent lasts for

they will not be able to describe their product using "K-Cup" without a licensing agreement, even though Keurig's patent is no longer active.[101] This seems to go against the core policy reasons for protecting trademarks: reducing search costs for consumers; helping them get the product they want easily and efficiently; and incentivizing companies to improve their products to keep their good reputation.[102] If a customer wants a K-Cup alternative, he or she cannot simply browse for "K-Cup" and pick the non-Keurig brand product—the customer must instead search for "coffee cartridge" or "coffee pod,"[103] leading to a higher search cost, as it will undoubtedly take longer to find an alternative product than if one could just search for "K-Cup."

One solution to this problem could be to argue that K-Cup, like aspirin,[104] cellophane,[105] or thermos,[106] has achieved "generic term" status.[107] There is no trademark protection for generic terms, and

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20 years, while a design patent lasts for 15 years. Unlike patents, trademarks can last indefinitely and do not expire.").

101 Kurt Leyendecker, *The K-Cup Story*, LEYENDECKER & LEMIRE, LLC (July 3, 2014), https://www.coloradoiplaw.com/the-k-cup-story/ ("Even if successful in developing a suitable K-cup alternative, competitors don't have a word or phrase to describe their coffee cartridges . . . [i]f a competitor stays clear of the Keurig marks, it faces the monumental and uncertain task of educating the public about a new single serving cartridge without reference to the original – all at great expense and huge risk of failure. Ultimately, most of the industry players have or will decide to go the certain and predicable route of licensing Keurig's technology and trademarks adding even more money to its $4 billion-a-year revenues.").

102. Sipe, *supra* note 98, at 1829–30 ("It is bedrock legal theory that trademarks act to reduce search costs for consumers as well as provide a reputational incentive for producers to improve and maintain product quality.").

103. The K-CUP trademark registration defines the product as "[p]lastic cartridges each containing coffee and a filter, for use in coffee brewing machines." K-CUP, Registration No. 2,431,816.

104. Bayer Co. v. United Drug Co., 272 F. 505, 514 (S.D.N.Y. 1921) ("Among consumers generally the name [aspirin] has gone into the public domain.").

105 DuPont Cellophane Co. v. Waxed Prods. Co., 85 F.2d 75, 82 (2d Cir. 1936) ("The defendant should be allowed to use the word cellophane unconditionally in dealing with those to whom it means no more than the product and should be able to fill orders for cellophane received from such persons . . . .").

106. King-Seeley Thermos Co. v. Aladdin Indus., 321 F.2d 577, 579, 581 (2d Cir. 1963) (holding that the word "thermos" has become part of the public domain and a restriction of its use would be unfair, so long as it was not capitalized).

107. *See* Mary Beth Quirk, *15 Product Trademarks That Have Become Victims of Genericization*, CONSUMER REPS. (July 19, 2014), https://www.consumerreports.org/consumerist/15-product-trademarks-that-have-become-victims-of-genericization/.

trademarks can lose their protection over time if the name starts being used to refer to a category of products.[108]

This would allow competitors to use the term "K-Cup" to describe their alternative coffee cartridges. This, combined with the no-economic-sense test with a timing element, would provide ultimate protection for consumers. However, this is unlikely—for example, Google still enjoys trademark protection although "to google" has become synonymous with searching for something on the internet.[109] Other trademarks, like Kleenex, Jell-O, and Play-Doh, still enjoy trademark protection by using the strategy of combining their brand name with a descriptor to emphasize that their brand should not be used in place of a generic name of a product (for example, Kleenex tissues instead of just Kleenex).[110] Courts are unlikely to find "K-Cup" any more generic than any of these examples, and trademark protection is one issue that deserves more consideration in the realm of predatory innovation.

2. Consumer Welfare

With any version of the no-economic-sense test, the issue of consumer welfare comes up. To properly consider the effects of a monopolist's allegedly prohibited conduct on consumers, courts must first correctly identify who the consumers are. For example, in product-hopping cases, the victims of predatory conduct are not only the patients taking the medication (the product in question), but also the doctors prescribing the medication to the patients, and the insurance companies paying for the medication.[111] For example, in both *Actavis* and *Mylan*, the courts correctly identified that consumer-patients, prescribing doctors, and health insurers were all relevant to the inquiry of whether there was

108. Park N' Fly, Inc. v. Dollar Park & Fly, Inc., 469 U.S. 189, 194 (1985) ("Generic terms are not registrable, and a registered mark may be canceled at any time on the grounds that it has become generic."); *see also* Mil-Mar Shoe Co. v. Shonac Corp., 75 F.3d 1153, 1156 (7th Cir. 1996) ("[G]eneric terms receive no trademark protection.").

109. Elliot v. Google Inc., 45 F. Supp. 3d 1156, 1175 (D. Ariz. 2014) (holding that although "a majority of the public uses google-as-verb to refer to the act of searching on the internet," Google's mark was not generic because the public meant searching on the internet using the Google search engine specifically).

110. *See Generic Trademark: Everything You Need to Know*, UPCOUNS., https://www.upcounsel.com/generic-trademark (last visited Jan. 4, 2024) ("Pairing your trademark with a descriptive term/phrase can protect your brand by making clear that the brand name shouldn't be used as the generic name for the product.").

111. *See* Carrier & Shadowen, *supra* note 15, at 183 n.72 ("The consumer-patient today is removed in large part from the economics of the prescription decision. The physician mainly decides what drug is used, and the third-party insurer, whether private or public, pays most of the bill.").

coercion.[112] The *Actavis* court went one step further, considering the reluctance of doctors to switch medication in the relevant market of Alzheimer's patients, who were "especially vulnerable to changes in routine," as well as the general reluctance of healthcare insurers to require patients to change their medication, in their analysis of consumer coercion.[113]

Most courts competently identify the true victims of coercion in both product hopping and predatory innovation cases. For example, in *In re Suboxone*, another product-hopping case, the court stated that in the pharmaceutical market, physicians rather than consumers were the victims of coercion, as consumer-patients were not the ones deciding what drugs they would be prescribed.[114] However, once the correct consumer and the relevant market are identified, how can we make sure that courts keep consumer welfare at the center of their analysis when the no-economic-sense test is so focused on economic justifications, especially outside the realm of product-hopping cases?

Fortunately, this problem fixes itself when the timing element of the reimagined no-economic-sense test is introduced. If a monopolist withholds an innovation from the market for a certain amount of time, it will fail the no-economic-sense test because it makes no economic sense to withhold an innovation from the market (other than for predatory reasons).[115] Withholding true innovations from the market ultimately reduces consumer welfare as well.[116] A no-economic-sense test with the timing element therefore addresses one of the biggest critiques of itself: that it ignores effects of conduct on consumers.

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112. *See* New York *ex rel.* Schneiderman v. Actavis PLC, 787 F.3d 638, 645–46 (2d Cir. 2015); Mylan Pharms., Inc. v. Warner Chilcott Pub. Ltd., 838 F.3d 421, 428 (3d Cir. 2016).

113. *Actavis*, 787 F.3d at 656.

114. *See In re* Suboxone (Buprenorphine Hydrochloride and Naloxone) Antitrust Litig., 64 F. Supp. 3d 665, 683–84 (E.D. Pa. 2014) (using the *Microsoft* test but following precedent set by the Second Circuit rather than the Third Circuit by ruling against defendant).

115. *See* Carrier & Shadowen, *supra* note 15, at 203 n.202 ("If the value of the 'innovation' to consumers were greater than the value to the manufacturer of impairing generic competition, the manufacturer would immediately introduce the innovation in order to reap the increased gains.") (citations omitted).

116. *See id.* at 205 n.215 (citing Gilbert, *supra* note 29, at 52).

IV. THE REIMAGINED NO-ECONOMIC-SENSE TEST IN ACTION

A. Allied Orthopedic

In *Allied Orthopedic*, defendant Tyco Healthcare Group ("Tyco") was a monopolist in the pulse oximetry market, producing sensors and monitors that would attach to a patient's body to display their blood oxygen levels.[117] Before its patent on its R-Cal monitors expired in November 2003, Tyco engaged in a hard switch, discontinuing the R-Cal monitors in February 2003 while releasing its new OxiMax system along with a new patent in March 2002.[118] A suit was brought by hospitals and healthcare providers, who were the consumers in the relevant market.[119]

The *Allied Orthopedic* court was particularly defendant-friendly, emphasizing throughout its opinion that it was unwilling to find coercive conduct even with Tyco's hard switch during a suspicious time—right before an important patent was due to expire.[120] Tyco's admission in its internal documents that it "hoped its new technology would constitute a barrier to entry for generic sensor manufacturers" did not sway the court.[121] Notwithstanding other documents where Tyco said its new patented sensor technology was less valuable than it had initially thought, and that it was "worried that the market would perceive its new technology as nothing more than a way to lock out generics," the court still gave Tyco the benefit of the doubt that it "believed that clinicians would value the new feature set."[122]

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117. *See* Allied Orthopedic Appliances Inc. v. Tyco Health Care Grp. LP, 592 F.3d 991, 994 (9th Cir. 2010). "Pulse oximeters are used routinely, from during regular physicals to surgery." *Pulse Oximetry*, YALE MED., https://www.yalemedicine.org/conditions/pulse-oximetry (last visited Jan. 5, 2024). Although the *Allied Orthopedic* case was decided in 2010, pulse oximeters are an important medical device more relevant now than ever, since COVID-19 can cause "significant drops in blood oxygen saturation" and at-home pulse oximeters have surged in popularity. *Id.* ("A pulse oximeter can quickly detect [a] drop in oxygen saturation, alerting people of the need for medical intervention.").

118. *Allied Orthopedic*, 592 F.3d at 994–95.

119. *Id.* at 993.

120. *Id.* at 1000–02.

121. *Id.* at 1001. In direct conflict with a previous Ninth Circuit decision, the court said that "[s]tatements 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." *Id.*; *cf.* Oahu Gas Serv., Inc. v. Pac. Res., Inc., 838 F.2d 360, 368 (9th Cir. 1988) ("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.").

122. *Allied Orthopedic*, 592 F.3d at 1001.

The reimagined no-economic-sense test with a timing element would work particularly well with defendant-friendly courts like the one in *Allied Orthopedic*, where judges are hesitant to take an unfriendly stance against "innovation."[123] The court's disdain for the rule-of-reason balancing test was striking.[124] In its Section 2 analysis, the Court emphasized that:

> 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.[125]

If the court in *Allied Orthopedic* had instead been able to use a no-economic-sense test with the timing element, it would have been able to punish Tyco's behavior. First, Tyco's behavior made no economic sense; by its own admission, Tyco did not believe its new sensors were as valuable as it initially thought.[126] The research and development efforts, although not included in the court's discussion in *Allied Orthopedic*, had to be substantial for what Tyco thought would be little reward.[127] In fact, Tyco's decision to create its new OxiMax system made no economic sense *but for* the possibility of the benefits it would derive from excluding competitors poised to enter the pulse oximetry market with R-Cal generics upon the expiration of Tyco's patent.[128]

If the court needed any more support to find a Section 2 violation, it could have looked at the timing of Tyco's behavior. Tyco released its new OxiMax system approximately a year before it discontinued R-Cal, and

123. *Id.*
124. *See id.* at 1000 ("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 . . . .") (citations omitted).
125. *Id.*
126. *Id.* at 1001.
127. *See id.*
128. *See id.*

less than two years before its R-Cal patent was due to expire.[129] Considering that patents last twenty years,[130] and that there was evidence that (1) the new OxiMax sensors were not more accurate than their R-Cal counterparts, and (2) physicians did not find the new functions of the sensors useful,[131] Tyco should have been found in violation of Section 2 of the Sherman Act.[132]

B. Apple iPod iTunes

Apple launched its portable music player, iPod, in 2001,[133] and iTunes, its music store, in 2003.[134] To protect the digital music files it was selling through iTunes from hackers, it implemented a "FairPlay" security system to encrypt songs on iPod devices.[135] In July 2004, computer company and competitor RealNetworks announced its Harmony technology, which allowed consumers to play music they have purchased from RealNetworks on their iPods.[136] Three months later, in October 2004, Apple released a security update (iTunes 4.7) which ended the interoperability of Harmony on iPods.[137] Apple claimed this change was introduced to make it more difficult for hackers, who had circumvented the prior anti-piracy software, to crack the system.[138] Plaintiffs contended that Apple introduced this change to end the RealNetworks interoperability instead.[139] Later, in September 2006, Apple released another update (iTunes 7.0), which made it impossible for "any source other than iTunes itself to write on the iPod's database."[140]

The court found that iTunes 4.7 was a "genuine improvement," because the new software was more resistant to hacker attacks.[141] This was despite RealNetworks showing four separate occasions of Apple

129. *Id.* at 994–95.
130. 35 U.S.C. § 154(a)(2).
131. *Allied Orthopedic*, 592 F.3d at 1001.
132. 15 U.S.C. § 2.
133. Press Release, Apple Inc., Apple Presents iPod (Oct. 23, 2001), https://www.apple.com/newsroom/2001/10/23Apple-Presents-iPod/.
134. *In re* Apple iPod iTunes Antitrust Litig., 796 F. Supp. 2d 1137, 1139–40 (N.D. Cal. 2011).
135. *Id.* at 1140.
136. *Id.*
137. *Id.*
138. *Id.* at 1143.
139. *Id.*
140. *Id.* at 1140.
141. *See id.* at 1144.

engaging in anticompetitive conduct.[142] For example, RealNetworks had proof that Apple only began redesigning FairPlay for the release of iTunes 4.7 a month after it refused to license the FairPlay technology to RealNetworks.[143] Another example was that Apple had released statements cautioning their customers that it would be updating its software shortly and that "it is highly likely that [the] Harmony technology will cease to work with current and future iPods."[144]

The court then moved on to whether iTunes 7.0, which ended all interoperability on iPods,[145] was a genuine improvement.[146] Apple contended its reason for preventing all third-party applications via FairPlay was to prevent corruption of the iPod's internal database.[147] RealNetworks once again showed that this was not true: iTunes 7.0 did not actually prevent any corruption, and instead made the software *worse*.[148] This was enough for the court to deny summary judgment as to iTunes 7.0, but not enough to rule in favor of RealNetworks as a matter of law.[149]

The court seemed to struggle with the conflicting evidence from Apple and RealNetworks in finding anticompetitive conduct, or a lack thereof. If the court had instead utilized the no-economic-sense test with the timing element, it would not have to identify "anticompetitive conduct" or utilize a balancing test.[150] Instead, it would ask whether Apple's conduct made economic sense.[151] With regards to iTunes 4.7, Apple could have made an argument that its redesign was a genuine improvement based on the evidence that the system had been hacked before,[152] and

142. *See id.*
143. *Id.*
144. *Id.*
145. *Id.* at 1140.
146. *Id.* at 1146.
147. *Id.*
148. *See id.* at 1146–47 ("iTunes 7.0 did not guard against the risk of corruption, but actually made the software worse, because it transformed small errors in the database that did not meaningfully interfere with the user experience into enormous errors that treated the database as devoid of all data.").
149. *See id.* at 1147.
150. The court, citing to *Allied Orthopedic*, claimed that if it had found anticompetitive conduct, then the next step would have been to balance the benefits of the redesigned product against its anticompetitive effects. *See id.* at 1144–45 (citing Allied Orthopedic Appliances Inc. v. Tyco Health Care Grp. LP, 592 F.3d 991, 1000 (9th Cir. 2010)).
151. *See* Werden, *supra* note 12, at 415–17.
152. *See* In re *Apple iPod iTunes Antitrust Litig.*, 796 F. Supp. 2d at 1143–44 ("Plaintiffs do not contend that earlier versions of Defendant's software had not been hacked.").

this new system was harder to hack.[153] Its conduct therefore made economic sense because with less hacking, Apple is more likely to keep the business of record labels and keep its market share in the portable music player market.[154]

However, the timing element makes Apple's conduct a bit more suspicious. Even though Apple claimed its contractual obligations to the record labels it worked with were what made it redesign FairPlay for iTunes 4.7,[155] it received their demand to fix the system in "late 2003 and early 2004,"[156] but did not start redesigning the system until May 2004.[157] It would have made economic sense for Apple to begin its redesign of FairPlay when the record labels demanded a change—so why did Apple wait five months until May 2004, a month after it refused to license FairPlay to RealNetworks?[158] The answer to this question could help a court decide whether Apple was in violation of Section 2 of the Sherman Act better than an analysis of whether the conduct was "anticompetitive." If the answer is that Apple was trying to get rid of competition from RealNetwork, which saw an "immediate and dramatic increase" in its market share when it launched Harmony, while Apple's market share "fell below 70%" since its launch of iTunes,[159] then Apple would clearly be in violation of Section 2.

Regarding iTunes 7.0, the court was more open to finding an antitrust violation, but could not decide for sure given the conflicting evidence.[160] If the court had used the reimagined no-economic-sense test, it would have found that Apple's conduct in releasing iTunes 7.0 did not make economic sense other than improving its bottom line by removing third-party interoperability on its iPods. Since the new iTunes 7.0 was worse than the previous software, but completely removed third-parties

153. *See id.* at 1143–44 ("Plaintiffs' expert presents testimony that iTunes 4.7 'introduced a radically different' encryption technology which was 'much more resistant to attack' than previous versions of the software.") (citation omitted).

154. *See id.* Record labels who were selling their music on the iTunes Store demanded that Apple stop the hacking in late 2003 to early 2004. *Id.* Apple did just that by improving its FairPlay system, making it harder to crack by hackers. *Id.* at 1144.

155. *Id.* at 1144 ("In accord with its contractual obligations with the record labels, Defendant improved its FairPlay security system . . . .").

156. *Id.* at 1143–44. ("In late 2003 and early 2004, attacks by hackers on Defendant's software increased in frequency, leading the record labels whose music was sold on iTS to demand that Defendant take steps to prevent the hacking.").

157. *Id.* at 1144 ("Defendant began its redesign of FairPlay, which would be released in iTunes 4.7, in May 2004.").

158. *Id.*

159. *Id.*

160. *Id.* at 1147.

from being used on an iPod,[161] the only way it would improve Apple's bottom line would be by removing third-party competition. The court did not discuss the timing of iTunes 7.0's release, but it does not matter for this analysis—Apple's redesign is so clearly predatory that a finding of suspicious timing would only support the obvious conclusion that it is in violation of Section 2.

C. Xerox

Xerox Corporation ("Xerox") was a manufacturer of color printers and solid ink sticks.[162] Competitor Media Sciences International, Inc. ("MS") also manufactured solid ink sticks that could be used in Xerox printers.[163] Xerox sued MS for patent infringement of their redesigned solid ink sticks, to which MS responded with antitrust violation counterclaims.[164] Namely, MS claimed that Xerox had updated their printers to no longer accept non-infringing solid ink sticks that MS was producing, preventing healthy competition in a market Xerox already had a ninety percent market share in.[165] MS also claimed that Xerox had applied for the new patents specifically to bar MS from making compatible solid ink sticks for Xerox printers.[166] MS claimed that Xerox's redesigns did not benefit consumers—the new patent fixed a "problem" that already had a fix in the previous design.[167]

The Southern District of New York used a test requiring a private plaintiff bringing a Section 2 claim to "prove antitrust injury."[168] This was difficult for MS to prove, as it continued to produce solid ink sticks knowing it would infringe Xerox's patent, and its sales increased.[169] The court said it was "unclear what injury [was] actually being alleged," pointing out that the cost of defending against non-frivolous litigation

161. *Id.* at 1146–47.
162. Xerox Corp. v. Media Scis. Int'l, Inc., 511 F. Supp. 2d 372, 378 (S.D.N.Y. 2007).
163. *Id.*
164. *Id.*
165. *Id.* at 378–79.
166. *Id.*
167. *Id.* at 379 ("The only benefit to consumers of the feed channels and corresponding solid ink sticks—preventing the insertion of the wrong color of ink into the wrong channel—was already served by key plates in previous models of Xerox phase change color printers.").
168. *Id.* at 380 (citing Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc., 429 U.S. 477, 489 (1977)).
169. *Id.* at 381.

was not an antitrust injury.[170] The court then identified a *threatened* injury of MS being driven out of the market with no other competitors able to enter because of the patent.[171] If Xerox was the only manufacturer left, consumers would be left with "fewer choices and potentially higher prices."[172] The court did not directly address that this threatened injury had not yet occurred, so there was no real injury at the time of this case: MS was still in the market and its sales of solid ink sticks were increasing.[173] The court also did not give a directed verdict—it said that if Xerox could present evidence to justify its conduct, that would have to be weighed against the anticompetitive effect of that same conduct.[174]

If the court had instead used the reimagined no-economic-sense test, it would not have to base its entire decision on a threatened injury to a competitor. The court had evidence that Xerox's new patent on solid ink sticks meant no competitors could produce competing sticks to be used in Xerox printers, and that this patented redesign served no benefit to consumers.[175] Therefore, Xerox's redesign made no economic sense but for removing competition from the solid ink stick market—a market which, after the patented redesign, it would own almost one-hundred percent of.[176] The timing was also relevant—Xerox's design changes were frequent, and its latest patented color printer came out after MS introduced its new, non-infringing replacement solid ink sticks as an alternative to the Xerox-brand ones.[177] Therefore, the court would have found Xerox to be in violation of Section 2 without having to send the issue to a jury for a weighing of anticompetitive effects and procompetitive justifications if it had used the new test.

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170. *Id.*
171. *Id.*
172. *Id.*
173. *See id.* at 388–89.
174. *Id.* at 389.
175. *Id.*
176. *Id.* at 378 ("[Xerox] is also the primary supplier of replacement solid ink sticks for such printers, with a market share of over 90%. MS is the only other significant supplier of replacement color ink sticks, in direct competition with Xerox . . . .") (citations omitted).
177. Third Amended Answer ¶ 47, *Xerox*, 511 F. Supp. 2d 372 (No. 06 Civ. 4872(RJH)). Xerox released its Phaser 8400 printer and replacement solid ink sticks, and MS subsequently designed around the patents of 8400 and released its own replacements to compete with Xerox. *Id.* Xerox then introduced its Phaser 8500 printer, making MS's 8400 replacement solid ink sticks obsolete. *Id.*

D. IBM

In *IBM*, defendant IBM, a computer systems supplier, was sued by competitor Transamerica Computer Company, Inc. ("Transamerica") for releasing its 370 System in 1970.[178] This new system removed the interoperability of certain Transamerica products within the system, and Transamerica contended IBM had violated Section 2.[179] In its analysis of IBM's design conduct, the court acknowledged that equipment redesigns could have both pro- and anti-competitive aspects,[180] but chose to use a standard that found a Sherman Act violation only if a design choice was "unreasonably restrictive of competition."[181]

The first product redesign by IBM was the 3803 Control Unit ("3803"), which did not allow certain PCM tape drives to fit, making them obsolete.[182] Transamerica contended that IBM's creation of 3803 was not a technological innovation, but was solely intended to preclude PCM competition.[183] The court disagreed, finding that the new control unit was a superior product.[184] The second product redesign, however, was "truly minimal," adding five wires and removing two.[185] Yet, the court still found the change to be "purposeful" and not impacting PCMs significantly.[186] However, IBM's next redesign was more complicated: its research and development phase was hidden under a code name, and the interoperability of certain PCM products was removed with the intent of buying time.[187] PCMs could not copy IBM's new interface before

178. *In re* IBM Peripheral EDP Devices Antitrust Litig., 481 F. Supp. 965, 971–72 (N.D. Cal. 1979).

179. *Id.* at 973. Plug-compatible manufacturers ("PCMs") produced third-party tapes, disks, and printers that would work with IBM's central processing units ("CPUs"). *Id.* The PCMs enjoyed tremendous success, offering "equivalent or better performance at a substantial discount." *Id.* When IBM introduced its 370 System, their lucrative business came to an end. *Id.*

180. *Id.* at 1003.

181. *Id.*

182. *See id.* at 1003–04.

183. *Id.* at 1004.

184. *Id.* The court found the product to be superior because "[i]t had fewer wires and connectors," which made it simpler to switch between control units and tapes, "eliminat[ing] the need for a costly and bulky separate switching device." *Id.* The wires also allowed for more information to be transmitted, improving diagnostics and maintenance. *Id.*

185. *Id.*

186. *Id.*

187. *Id.* at 1004–05.

becoming obsolete.[188] However, the court still found this new interface, nicknamed "Mallard," to be superior and therefore acceptable.[189]

The reimagined no-economic-sense test does not concern itself with intent, even if it is to remove competitors from the market. Still, if the court had asked itself whether IBM's multiple redesigns, all released in late 1970, made economic sense if not for precluding PCMs from competing with its products,[190] it would likely have answered that it did not. Even with the redesigns, "IBM continued to lose business to the PCMs at an alarming rate."[191] Desperate, IBM tried implementing premature cancellation fees for customers trying to install PCM products, which were cheaper, in an effort to take consumer choice away.[192] IBM's suspiciously quick redesigns, released in quick succession one after another, did not make economic sense other than its hope to rid itself of PCM competition, especially as these redesigns did not actually improve IBM's sales.[193] Therefore, IBM should have been found in violation of Section 2. Even without a patent cliff, the timing of redesigns can and should be relevant in looking for predatory conduct.

V. CONCLUSION

Courts should employ a nuanced approach when treading the fine line between monopolistic predation and true innovation. The reimagined no-economic-sense test provides such an approach by giving special consideration to *when* an innovation is introduced. Through this nuance, courts can continue to avoid analyses of monopolists' intent and remain pro-innovation without allowing bad actors to harm healthy market competition under the guise of true advancement. An administrable legal standard to protect against predatory innovation can serve multiple purposes of antitrust law. A reimagined no-economic-sense test can help establish clear boundaries of what vigorous competition may look like within the confines of the law for established market participants, while incentivizing a new generation of innovators to enter markets without fear of illegal barriers of entry by monopolists.

188. *Id.* ("If the PCMs could be sufficiently delayed, their market might even be limited to the point that the expense and trouble of duplicating the [new] interface would no longer be worth it.").
189. *Id.* at 1004–05.
190. *See id.* at 1008.
191. *Id.*
192. *See id.* at 1008–09.
193. *See id.* at 1008 ("IBM was losing ground in a growth market, suffering negative net placements while the PCM installation rate continued to climb.").

This new test can also relieve courts of the administrative burden of analyzing Section 2 cases from the ground up with a variety of legal standards to choose from, a burden that has added to the time it takes to litigate these costly and fact-intensive cases. Although this Note does not propose that a reimagined no-economic-sense test will solve every problem associated with identifying predatory conduct in technological markets, it can serve as a standard point in the pursuit of creating and maintaining competitive markets.