

## UNITED STATES V. MICROSOFT CORP.

*By Mark Geier*

The dawn of the information age,<sup>1</sup> where markets are characterized by strong economies of scale,<sup>2</sup> network effects,<sup>3</sup> and rapid innovation, has created new challenges for antitrust law and policy. Strong economies of scale and network effects lead to markets dominated by one firm. Although such markets often have efficiencies and benefits, antitrust law must be able to control abuses of this naturally acquired power without damaging the competitive structure of the market.

Microsoft, the world's largest software company and one of the leaders of the information economy, has held a dominant position in the personal computer operating system market for more than a decade. Microsoft used its power aggressively to maintain its supremacy in current markets and expand into new ones, prompting the government to bring an antitrust suit. As the first major case of its kind to be fully litigated, this case will likely structure the nation's antitrust policy as applied to information markets.

This Note begins by summarizing the factual and legal issues in *United States v. Microsoft Corp.*<sup>4</sup> It then addresses the difficulty of litigating complex antitrust cases involving rapidly evolving markets and concludes by discussing the appropriate role of antitrust enforcement in the information age.

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1. Information in this context is broadly defined as "anything that can be digitized." CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* 3 (1999).

2. Economies of scale occur where a firm's average total costs decrease as its level of production increases. *Id.* at 21. In information products, economies of scale result from high initial research and development (fixed) costs combined with very low per unit (marginal) costs of production thereafter. *Id.* at 20-21.

3. Network effects result from the presence of a network of users and make a particular information product more attractive to buyers as more people possess it. *Id.* at 175. There are two types of networks: virtual networks, where consumers are not actually connected to each other (e.g., operating systems), and real networks, where consumers are connected (e.g., fax machines). *See id.* at 174.

4. 87 F. Supp. 2d 30 (D.D.C. 2000).

## I. BACKGROUND

### A. Factual Background

The U.S. government and nineteen states brought suit against Microsoft in May 1998, alleging violations of sections 1 and 2 of the Sherman Antitrust Act.<sup>5</sup> The crux of the government's case was that Microsoft used its dominant market position in the personal-computer ("PC") operating system market to attempt to monopolize the Internet browser market and to limit the development of middleware technologies.<sup>6</sup> The government contended that Microsoft acted to protect a barrier to entry<sup>7</sup> into the operating system market and maintain its monopoly position.<sup>8</sup>

#### 1. Relevant Technologies

The government's case revolves around the interactions between operating system, Internet browser,<sup>9</sup> and middleware technologies. An operating system supports software functions through its exposure of interfaces called "application programming interfaces" ("APIs").<sup>10</sup> APIs allow developers to access blocks of code that perform important tasks for the application.<sup>11</sup> In performing this function, the operating system acts as a platform for applications.<sup>12</sup>

Middleware is non-operating-system software that supplies its own set of APIs.<sup>13</sup> Middleware has the potential to serve as an operating-system-independent platform, allowing developers to write one version of an ap-

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5. Government's Complaint at 1, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (Nos. 98-1232, 98-1233), *available at* <http://www.usdoj.gov/atr/cases/f1700/1763.htm> (last visited Feb. 2, 2001) [hereinafter Government's Complaint]; 15 U.S.C. §§ 1-7 (1994).

6. Government's Complaint, *supra* note 5, at 1-2. Middleware is defined *infra* Part I.A.1.

7. A barrier to entry is a market characteristic that prevents firms from entering a market. The height of barriers depends on objective factors (e.g., scale economies, product differentiation, capital requirements, and ability of established firms to block access), as well as anticipated reactions of market participants. PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS*, ¶ 114, at 18 (5th ed. 1997).

8. Government's Complaint, *supra* note 5.

9. Internet browsers are software programs that enable a users to retrieve and view resources on the Internet. *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 14 (D.D.C. 1999).

10. *Id.* at 12 ("[APIs] are synapses at which the developer of an application can connect to invoke pre-fabricated blocks of code in the operating system.").

11. *Id.*

12. The operating system also controls the allocation and use of the computer's resources. *Id.*

13. *Id.* at 17.

plication that is able to function on several operating systems.<sup>14</sup> Sun Microsystems' ("Sun") Java technologies and Netscape's Communicator are examples of middleware.<sup>15</sup> Middleware requires an underlying operating system, but it makes the consumer's choice of an operating system less dependent on the availability of applications.<sup>16</sup> This is important because the number of applications available is a major factor in consumers' choice of operating systems.<sup>17</sup> Thus, by removing this factor, middleware lowers a barrier to entry into the operating system market.<sup>18</sup>

## 2. *Microsoft's Response to the Development of Middleware and Rise of the Internet*

In May 1995, Sun introduced its Java programming language.<sup>19</sup> Sun developed Java to enable applications to run on a variety of platforms with minimal porting.<sup>20</sup> To become a cross-operating-system platform, Sun needed a Sun-compliant Java runtime environment<sup>21</sup> to be present on computers running Windows.<sup>22</sup> To accomplish this goal, Sun contracted with Netscape to include a Java runtime environment with Netscape's Internet browser, Navigator.<sup>23</sup>

Microsoft's alleged misconduct began in May 1995, soon after Netscape released Navigator.<sup>24</sup> Microsoft executives, fearing that Netscape

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14. Currently, middleware is not able to support full-featured applications, and it is not clear that it will in the future. *Id.* at 17-18.

15. Netscape's Communicator is a group of related programs that includes its Internet browser, Navigator. Other examples include Apple's QuickTime Media Player, the RealNetworks' multimedia playback technologies, and Intel's Native Signal Processing software. *Id.* at 30.

16. *Id.* at 17.

17. *See id.* at 18. *But see* Richard McKenzie, *Microsoft's 'Application Barrier to Entry': The Missing 70,000 Programs*, available at <http://www.cato.org/pubs/pas/pa380.pdf> (questioning the number of applications necessary to make an operating system viable in the eyes of consumers).

18. *See Microsoft*, 84 F. Supp. 2d at 19-22.

19. *Id.* at 29.

20. *Id.* Porting is the process of adapting an application written for one platform to run on another. *Id.*

21. Sun's Java contains four elements: (1) the Java programming language; (2) the Java class libraries, which expose APIs; (3) the Java compiler, which converts code into Java "bytecode"; and (4) "Java virtual machines," which convert Java bytecode into instructions understandable to the operating system. *Id.* at 29. A Java runtime environment consists of the Java virtual machines and the Java class libraries. *Id.*

22. *Id.* at 30.

23. *Id.*

24. *Id.* at 29.

would develop Navigator as a competing platform,<sup>25</sup> proposed to split the browser market with Netscape.<sup>26</sup> After Netscape refused, Microsoft delayed release of technical information to Netscape,<sup>27</sup> thereby preventing Netscape from having a compatible version of Navigator available when Microsoft released Windows 95.<sup>28</sup>

In July 1995, Microsoft released the first version of its Internet Explorer browser ("Explorer").<sup>29</sup> Thereafter, Microsoft engaged in a multi-front strategy to accelerate Explorer's attainment of usage share.<sup>30</sup> Microsoft devoted substantial resources to the technical development of Explorer<sup>31</sup> and gave Explorer away by bundling it with Windows and by providing free copies to software developers and Internet access providers ("IAPs").<sup>32</sup> Microsoft also exchanged various inducements for agreements to distribute and promote Explorer and to inhibit the distribution of Navigator.<sup>33</sup>

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25. *Id.*

26. *Id.* at 31-32. Microsoft made the proposal on June 21, 1995 during a meeting with James Barksdale, Netscape's CEO. *Id.* This agreement would have effectively given Microsoft control over the standards employed by web or network based applications. *Id.* at 33.

27. *See id.* at 33.

28. *Id.* at 33. Microsoft exhibited similar conduct in dealing with several other companies that were developing middleware technologies. In each case Microsoft's conduct inhibited middleware technology from becoming widely used. *See id.* at 34-36 (describing conduct to dissuade Intel from developing its Native Signal Processing Software); *id.* at 36-37 (reciting conduct towards Apple's QuickTime multimedia software); *id.* at 37-38 (explaining conduct towards RealNetworks' "streaming" software); *id.* at 38-43 (relating conduct towards IBM's SmartSuite software).

29. *Id.* at 14.

30. *Id.* at 44. Usage share is the percent of users working on a given company's browser. SHAPIRO & VARIAN, *supra* note 1, at 290. This is the relevant measure for this product because many users have multiple browsers on their computer but use only one. *Id.*

31. *See Microsoft*, 84 F. Supp. 2d at 43-44. Microsoft spent \$100 million dollars a year from 1995 to 2000 to develop Explorer. *Id.*

32. *Id.* at 44. Microsoft made this decision even though it knew that Netscape was receiving substantial revenue from licensing Navigator. *Id.* In addition, Microsoft's efforts to maximize Explorer usage severely limited possible profits derived from Explorer. *Id.* at 46. Further, internal Microsoft e-mails and memoranda indicate a motive to gain browser usage in order to protect its leadership on the desktop. *Id.*

33. *Id.* at 45. Microsoft encouraged developers to utilize Microsoft's Internet technologies. *Id.*; *see also id.* at 49-53 (including Explorer with every copy of Windows); *id.* at 58-66 (preventing OEMs from modifying the Windows desktop); *id.* at 66-68 (offering preferential prices and treatment to OEMs who agreed not to install Navigator); *id.* at 69-72 (offering free complementary services facilitating the use of Explorer by IAPs); *id.* at 72-76 (exchanging favorable placement on Window's Internet Connection Wizard in

Among these exchanges were contracts requiring companies to distribute or promote Explorer exclusively. The most important contracts were those with original equipment manufacturers (“OEMs”)<sup>34</sup> and IAPs,<sup>35</sup> which provide the most efficient means of distributing browser software.<sup>36</sup> Microsoft entered into similar contracts with Internet content providers,<sup>37</sup> independent software vendors,<sup>38</sup> and Apple Computer.<sup>39</sup> From early 1996 to late 1998, Explorer’s usage share rose from five percent to forty-five to fifty percent, while Navigator’s share fell from eighty percent to approximately fifty-five percent.<sup>40</sup>

Aside from promoting Explorer, Microsoft also directly hindered the success of Sun’s Java programming language. After Microsoft received a license to distribute Java, Microsoft modified the version of Java included with Windows.<sup>41</sup> Microsoft’s modifications made Java easier for developers to use and made Java programs run faster.<sup>42</sup> The modifications, however, made it more difficult to port applications, frustrating Sun’s goal of developing Java as a cross-operating-system platform.<sup>43</sup> In response, Sun filed a separate suit alleging violation of the license terms and trademark infringement,<sup>44</sup> which was recently settled.<sup>45</sup>

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return for a fee, promotion and distribution of Explorer, and inducing customers to switch from Navigator to Explorer); *id.* at 77-86 (trading favorable placement on Window’s desktop and other considerations for agreements to distribute and promote Explorer to the exclusion of Navigator); *id.* at 77-85 (including an agreement with AOL).

34. Examples of OEMs are Compaq and Gateway.

35. Examples of IAPs are America Online and the Microsoft Network (“MSN”).

36. *Microsoft*, 84 F. Supp. 2d at 46-48.

37. *See id.* at 87-93. Microsoft engaged in a campaign to encourage Internet content providers (“ICPs”) to feature links and advertisements for Explorer, to distribute Explorer with their software, and to utilize Microsoft’s technologies when creating their content. *Id.*

38. *See id.* at 93-94. Microsoft encouraged independent software vendors (“ISVs”) to use Windows-specific technologies rather than Navigator’s. *Id.*

39. *See id.* at 94-98. To induce Apple to pre-install and promote Explorer, Microsoft threatened to stop porting MS Office to Apple’s Macintosh operating system. *Id.*

40. *Id.* at 98-99. Further, the court estimated that Explorer’s share would grow to between sixty and sixty-five percent by late 2000. *Id.* at 102.

41. *Id.* at 106.

42. *Id.*

43. *Id.* Microsoft also engaged in other practices that limited Java’s development as a cross-operating-system platform. *See id.* at 107-10.

44. *See Sun Microsystems, Inc. v. Microsoft Corp.*, 87 F. Supp. 2d 992 (N.D. Cal. 2000) (reinstating a preliminary injunction requiring Microsoft to stop selling all non-Sun compliant products bearing the Java trademark).

45. Matt Richtel, *Microsoft to Pay \$20 Million to Settle Lawsuit Over Java*, N.Y. TIMES, Jan. 23, 2001, at C4. The settlement terminated the licensing contract that sparked

### 3. *The Nature and Structure of Information Markets*

The dynamic nature of information markets is important to the discussion of *Microsoft*, as it affects the ability of litigation to correct market problems. The two most important characteristics are strong supply-side economies of scale<sup>46</sup> and network effects.<sup>47</sup> Markets characterized by these effects tend to “tip” because once a firm reaches a certain market share, network effects will help push its share towards one hundred percent.<sup>48</sup> This occurs because the “[a]doption of new technologies follow[s] an S-shaped curve with three phases: (1) flat during launch, then (2) a steep rise during takeoff as positive feedback kicks in, followed by (3) leveling off as saturation is reached.”<sup>49</sup>

Additionally, users of information products frequently face switching costs in adopting a new standard.<sup>50</sup> Switching costs for information products frequently rise with time because users become increasingly familiar with specific systems.<sup>51</sup> When these costs are high, users may become locked-in to a standard because the cost of switching is greater than the perceived benefit of the switch.<sup>52</sup> Lock-ins are common with information products “because information is stored, manipulated, and communicated using a ‘system’ consisting of multiple pieces of hardware and software and because specialized training is required to use specific systems.”<sup>53</sup> This may result in “‘path dependence’: an industry may be stuck with an inferior technology because of the cost advantage of the existing network.”<sup>54</sup>

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the suit, prohibited Microsoft from using Sun’s latest version of Java or the “Java compatible” trademark with its products, and mandated that Microsoft pay twenty million dollars to Sun. *Id.*

46. *Id.* at 20; *supra* text accompanying note 2.

47. *Id.* at 174; *supra* text accompanying note 3.

48. *Id.* at 176.

49. *Id.* at 178.

50. *Id.* at 103.

51. *Id.* at 121.

52. *Id.* at 104.

53. *Id.* at 116.

54. Richard Posner, *Antitrust in the New Economy*, Address at a conference on anti-trust sponsored by the American Law Institute-American Bar Association Committee on Continuing Professional Education (Sept. 14, 2000), *available at* <http://www.techlawjournal.com/atr/20000914posner.asp>; *see also* Daniel Rubinfeld, *Competition, Innovation, and Antitrust Enforcement in Dynamic Network Industries*, Address at Software Publishers Association 1998 Spring Symposium (March 24, 1998), *available at* <http://www.usdoj.gov/atr/public/speeches/1611.htm> (“Dynamic markets are often characterized by path dependence, i.e., the path of innovation is often determined by historical events that may or may not be tied to efficient pro-competitive behavior.”).

Another important characteristic of information markets is strong economies of scale. The combination of demand- and supply-side economies of scale results in very strong positive feedback because “growth on the demand-side both reduces cost on the supply-side and makes the product more attractive to other users—accelerating the growth in demand even more.”<sup>55</sup> This strong effect causes “entire industries to be created or destroyed far more rapidly than during the industrial age.”<sup>56</sup> These market dynamics, along with rapid technological innovation,<sup>57</sup> lead the information economy to be populated by temporary monopolies.<sup>58</sup> In these markets a new entrant with superior technology will very likely surpass the current dominant standard.<sup>59</sup>

These market characteristics make *Microsoft* an important and controversial case. The operating system market exhibits many of the traits discussed above, including strong network effects, high switching costs, and strong economies of scale.<sup>60</sup> This dynamic makes the application of anti-trust law particularly difficult in *Microsoft* and in information markets generally.

## B. The Sherman Act and Antitrust Policy

*Microsoft* implicates sections 1 and 2 of the Sherman Act.<sup>61</sup> Section 1 prohibits “every contract, combination . . . or conspiracy, in restraint of trade or commerce.”<sup>62</sup> Section 2 states that it is unlawful to “monopolize . . . any part of the trade or commerce among the several States, or with

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*But see* STAN LIEBOWITZ & STEPHEN E. MARGOLIS, DISMAL SCIENCE FICTIONS: NETWORK EFFECTS, MICROSOFT, AND ANTITRUST SPECULATION (Cato Inst. Policy Analysis No. 324, 1998) (questioning an inferior standard’s ability to achieve and maintain market dominance), at <http://www.cato.org/pubs/pas/pa324b.pdf>.

55. SHAPIRO & VARIAN, *supra* note 1, at 182.

56. *Id.* The combination of supply- and demand-side economies of scale is new and different from anything present in other industries. *Id.*

57. *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 25-26 (D.D.C. 1999).

58. SHAPIRO & VARIAN, *supra* note 1, at 173.

59. *Id.*

60. *Microsoft*, 84 F. Supp. 2d at 19-20. In addition, the court found that these market dynamics gave rise to a concerted action problem among developers. *Id.* at 20-21. Developers know there will be a demand if there are a significant number of applications available for a new operating system; but it is very risky to be the first one, so no one acts. *Id.* This is countered by a first mover advantage, as the first developer to enter can earn high profits by being first in the category of software for an operating system. *Id.* at 21.

61. Government’s Complaint, *supra* note 5.

62. 15 U.S.C. § 1 (1994).

foreign nations.”<sup>63</sup> Because the statutory language is vague, courts have played a central role in shaping antitrust law and policy.<sup>64</sup>

Two competing economic frameworks shape current antitrust law and policy.<sup>65</sup> The Chicago school believes that antitrust law should try to maximize allocative efficiency<sup>66</sup> without impairing productive efficiency<sup>67</sup> such that it lowers consumer welfare.<sup>68</sup> The Chicago school’s influence is apparent in many of the major antitrust opinions of the last twenty-five years.<sup>69</sup> The traditional school, on the other hand, asserts that antitrust law should have broader goals.<sup>70</sup> These goals include promotion of efficiency but also include protection of competition, promotion of innovation, and prevention of market concentration.<sup>71</sup>

The Justice Department’s current policy is closest to the traditional view.<sup>72</sup> The government’s concern in *Microsoft*, and in information mar-

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63. *Id.* § 2.

64. See LAWRENCE SULLIVAN & WARREN GRIMES, *THE LAW OF ANTITRUST: AN INTEGRATED HANDBOOK* 8 (2000).

65. A third discipline is the post-Chicago school, which asserts that antitrust should have two goals: maximizing efficiency and preventing wealth transfer from consumers to firms with market power. *Id.* at 9.

66. The Pareto and Kaldor-Hicks definitions of allocative efficiency are widely accepted. 1 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* ¶ 112(b)(1), at 119-20 (1996). A situation is Pareto efficient when “no change could make at least one person better off without simultaneously making at least one person worse off.” *Id.* at 119 n.3. Kaldor-Hicks efficiency occurs where “those who gain from the change gain enough so that they could fully compensate all losers from the change and still be better off themselves; that is net gains, measured by willingness to pay, exceed net losses.” *Id.* at 120 n.4.

67. Productive efficiency is “the ratio between the amount of a firm’s inputs and the amount of its outputs.” Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 238 (1985). Thus, a firm is more efficient if it can make the same product with lower costs or resources than another. *Id.*

68. *Id.* at 215, (citing ROBERT BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 91 (1978)).

69. See, e.g., *State Oil v. Khan*, 522 U.S. 3 (1997); *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.* 509 U.S. 209 (1993); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984); *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977).

70. SULLIVAN & GRIMES, *supra* note 64, at 9-16.

71. *Id.* at 11-16. Other goals are the protection of individual firms and the prevention of wealth transfer from consumers to firms with market power. *Id.*

72. Joel I. Klein, *Rethinking Antitrust Policies for the New Economy*, Address at the Haas/Berkeley New Economy Forum (May 9, 2000), available at <http://www.usdoj.gov/atr/public/speeches/4707.pdf> (stating that the “core principles of antitrust” are “that free and competitive markets result in maximum economic develop-

kets generally, is that companies might “use their substantial market power to harm innovation, to retard technological progress, and ultimately to harm consumers.”<sup>73</sup>

### C. Legal Background

The government charged Microsoft with four violations of the Sherman Act.<sup>74</sup>

#### 1. Maintenance of Monopoly Power by Anticompetitive Means

To establish this section 2 violation, the government must prove: “(1) the possession of monopoly power and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.”<sup>75</sup>

Monopoly power is “the power to control prices or exclude competition.”<sup>76</sup> To determine whether monopoly power exists, a court defines the relevant market and then assesses the defendant’s power to control prices or to exclude competition from that market.<sup>77</sup> The relevant market includes all possible substitutes for the defendant’s product viewed from the buyer’s perspective.<sup>78</sup> The court considers both geographic limitations on the market (e.g., tariffs or transportation costs) and limitations imposed by supply- and demand-side product substitution.<sup>79</sup> A finding of a dominant

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ment, wealth creation, and consumer welfare”). Whether this policy continues under the new Bush administration remains to be seen.

73. Rubinfeld, *supra* note 54, at 18-19.

74. See Government’s Complaint, *supra* note 5.

75. *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 480 (1992) (quoting *United States v. Grinell Corp.*, 384 U.S. 563, 570-71 (1966)).

76. *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956).

77. *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 36 (D.D.C. 2000).

78. See *Eastman Kodak*, 504 U.S. at 481-82 (“The relevant market for antitrust purposes is determined by the choices available to Kodak equipment buyers.”); *Grinell*, 384 U.S. at 572 (stating that the relevant market is determined by the “commercial realities” of the market); *Du Pont*, 351 U.S. at 391 (The relevant “[m]arket is composed of products that have reasonable interchangeability for the purposes for which they are produced—price, use, and qualities considered.”).

79. See *Rothery Storage & Van Co. v. Atlas Van Lines, Inc.*, 792 F.2d 210, 218 (D.C. Cir. 1986). Supply-side substitutability is a producer’s or manufacturer’s ability to convert facilities to produce a similar product. *Id.* Demand-side substitutability is a consumer’s ability to find a similar product. *Id.*

market share and a barrier to entry<sup>80</sup> creates a presumption of monopoly power.<sup>81</sup>

If a court finds monopoly power, the plaintiff must also demonstrate that the defendant acquired or maintained that power by anticompetitive means.<sup>82</sup> The primary issue in this determination is whether the defendant's conduct has an exclusionary effect.<sup>83</sup> Predatory behavior is a type of exclusionary conduct that occurs when a firm with monopoly power consciously makes its products less attractive or incurs costs with no prospect of compensation other than building or maintaining a barrier against competition.<sup>84</sup> Once the defendant's conduct is deemed anticompetitive, liability attaches, unless the defendant can offer procompetitive justifications for the conduct.<sup>85</sup>

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80. Defined *supra* text accompanying note 7.

81. See *S. Pac. Communications Co. v. AT&T Co.*, 740 F.2d 980, 1001-02 (D.C. Cir. 1984); *United States v. AT&T Co.*, 524 F. Supp. 1336, 1347-48 (D.D.C. 1981).

82. See *Grinell*, 384 U.S. at 570-71; *Eastman Kodak*, 504 U.S. at 488 (Scalia, J., dissenting) (stating that section 2 is "directed to discrete situations" in which the behavior of firms with monopoly power "threatens to defeat or forestall the corrective forces of competition").

83. *Eastman Kodak*, 504 U.S. at 488 (Scalia, J., dissenting) (Exclusionary conduct is conduct that "has restricted significantly, or threatens to restrict significantly, the ability of other firms to compete in the relevant market on the merits of what they offer customers."). The defendant's intent in engaging in the conduct may be a secondary consideration. The Supreme Court in *United States v. Gypsum Co.* stated that "[c]onsideration of intent may play an important role in divining the actual nature and effect of the alleged anticompetitive conduct." 438 U.S. 422, 436 (1978). Other cases, however, state that subjective intent should not be a factor in the court's determination. *E.g.*, *Barry Wright Corp. v. ITT Grinell Corp.*, 724 F.2d 227, 232 (1st Cir. 1983) (stating that "intent to harm offers too vague a standard"); see also 3 AREEDA & HOVENKAMP, *supra* note 66, ¶ 651(a), at 74. ("The crucial point is that the nature and consequences of a particular practice are the vital consideration, not the purpose or intent.").

84. *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 38 (D.D.C. 2000); *Neumann v. Reinforced Earth Co.*, 786 F.2d 424, 427 (D.C. Cir. 1986). Predatory behavior is patently anticompetitive and exclusionary. *Microsoft*, 87 F. Supp. 2d at 38; *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 610-11 (1985). Predatory pricing is found where (1) pricing is below some measure of cost and (2) the defendant will be able to recoup those losses through future supra-competitive prices. *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 222-24 (1993).

85. See *Eastman Kodak*, 504 U.S. at 483 (declining to grant summary judgment because there were factual questions as to whether defendant's justifications were sufficient or were merely pretextual); see also *Aspen Skiing Co.*, 472 U.S. at 605 (defining predatory behavior as "behavior that not only (1) tends to impair the opportunities of rivals, but also (2) either does not further competition or does so in an unnecessarily restrictive way").

## 2. *Attempt to Monopolize*

Section 2 of the Sherman Act also makes it unlawful to “attempt to monopolize . . . any part of the trade or commerce among the several States, or with foreign nations.”<sup>86</sup> The defendant is liable where the plaintiff demonstrates “(1) that the defendant has engaged in predatory or anti-competitive conduct with (2) a specific intent to monopolize and (3) a dangerous probability of achieving monopoly power.”<sup>87</sup>

Courts define anticompetitive and predatory conduct in this context as they do in other section 2 violations.<sup>88</sup> The second element requires that the defendant intend to monopolize the market or “to control prices or unreasonably restrict competition.”<sup>89</sup> The court may infer intent where the plaintiff proves the defendant engaged in predatory tactics.<sup>90</sup>

To satisfy the third element, the plaintiff must show that there is a dangerous probability that the defendant would acquire monopoly power through predatory tactics.<sup>91</sup> The plaintiff can make such a showing by pointing to a possible agreement between the defendant and another party that would have given the defendant monopoly power<sup>92</sup> or by demonstrating that the defendant has a high and rising market share.<sup>93</sup>

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86. 15 U.S.C. § 2 (1994).

87. *Spectrum Sports Inc. v. McQuillan*, 506 U.S. 447, 456 (1993).

88. *See id.* at 37; *see also supra* Part II.C.1.

89. *Conoco Inc. v. Inman Oil Co.*, 774 F.2d 895, 905 (8th Cir. 1985); *see also General Indus. Corp. v. Hartz Mountain Corp.*, 810 F.2d 795, 801 (8th Cir. 1987) (stating that “[t]he specific intent element requires that the defendant intended his acts to produce monopoly power”); *Ass’n for Intercollegiate Athletics for Women v. NCAA*, 735 F.2d 577, 585 (D.C. Cir. 1984) (asserting that “. . . specific intent in this context refers to a purpose to acquire monopoly power by driving one’s rival from the market by exclusionary or predatory means”).

90. *See Spectrum Sports*, 506 U.S. at 459 (Such proof “. . . may be sufficient to prove the necessary intent to monopolize, which is something more than an intent to compete vigorously.”); *see also 3A AREEDA & HOVENKAMP, supra* note 66, ¶ 805(b), at 324 (1996).

91. *See Colorado Interstate Gas Co. v. Natural Gas Pipeline Co. of Am.*, 885 F.2d 683, 693 (10th Cir. 1989).

92. *See United States v. Am. Airlines, Inc.*, 743 F.2d 1114, 1118-19 (5th Cir. 1984).

93. *See M & M Medical Supplies & Serv., Inc. v. Pleasant Valley Hosp., Inc.* 981 F.2d 160, 168 (4th Cir. 1992) (en banc) (“[C]laims involving greater than 50% share should be treated as attempts at monopolization when the other elements for attempted monopolization are also satisfied.”); *see also 3A AREEDA & HOVENKAMP, supra* note 66, ¶ 807(d), at 354-55 (1996). What constitutes a significantly high share is not clear, but shares below 50% generally are not sufficient. *See U.S. Anchor Mfg., Inc. v. Canadian Indus., Ltd.*, 7 F.3d 986, 1001 (11th Cir. 1993); *see also Barr Labs., Inc. v. Abbott Labs.*, 978 F.2d 98, 112-14 (3d Cir. 1992) (51% insufficient); *Bacchus Indus., Inc. v. Arvin Indus., Inc.*, 939 F.2d 887, 894-95 (10th Cir. 1991) (60% insufficient); *Indiana Grocery v.*

### 3. *Tying*

Tying is per se illegal<sup>94</sup> as an unreasonable "contract in restraint of trade or commerce" under section 1 of the Sherman Act.<sup>95</sup> Tying is, in essence, a contract between buyer and seller that conditions the purchase of one product (the tying product) on the purchase of another (the tied product). Tying violations are found where (1) two separate products are involved; (2) the defendant forces its customers to take the tied product to obtain the tying product; (3) the arrangement affects a substantial volume of interstate commerce; and (4) the defendant has market power in the tying product market.<sup>96</sup>

### 4. *Exclusive Dealing Contracts*

Section 1 of the Sherman Act also prohibits exclusive dealing contracts that unreasonably restrain commerce.<sup>97</sup> Courts apply a rule of reason<sup>98</sup> to claims of exclusive dealing contracts.<sup>99</sup> Courts look at several factors to evaluate the anticompetitive effects of such agreements, but at the threshold, courts focus on whether the percentage of the market foreclosed is substantial enough to largely exclude rivals from competition.<sup>100</sup> Con-

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Super Valu Stores, Inc., 864 F.2d 1409, 1414 (7th Cir. 1989) (50% insufficient); *United States v. Waste Mgmt. Inc.*, 743 F.2d 976, 983-84 (2d Cir. 1984) (48.8% insufficient); *Broadway Delivery Corp. v. United Parcel Serv. of Am., Inc.*, 651 F.2d 122, 129 (2d Cir. 1981) (below 50% insufficient); *Nifty Foods Corp. v. Great Atl. & Pac. Tea Co.*, 614 F.2d 832, 841 (2d Cir. 1980) (54.5% insufficient); *United States v. Empire Gas Corp.*, 537 F.2d 296, 305-07 (8th Cir. 1976) (47-50% insufficient).

94. Per se rules allow few, if any, efficiency arguments to be taken into account, and do not require a deep inquiry into the actual effects of the defendant's conduct. 7 AREEDA & HOVENKAMP, *supra* note 66, ¶ 1500, at 361-62. "[I]t is only after considerable experience with certain business relationships that courts classify them as per se violations." *United States v. Topco Assocs.*, 405 U.S. 596, 607-08 (1972).

95. 15 U.S.C. § 1 (1994).

96. *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 47 (D.D.C. 2000); *see also Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 461-62 (1992); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 12-18 (1984).

97. 15 U.S.C. § 1 (1994).

98. A rule of reason is a deeper inquiry into an accused practice allowing the conduct to be justified by efficiencies it produces.

99. *See Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 724-26 (1988); *Jefferson Parish*, 466 U.S. at 44-45 (O'Connor, J., concurring); *Continental T.V., Inc., v. GTE Sylvania Inc.*, 433 U.S. 36, 49 (1977).

100. *E.g.*, *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 327 (1961). Other factors include the degree of exclusivity and the line of commerce implicated; the agreement's actual anticompetitive effect; the existence of pro-competitive justifications; the length and irrevocability of the contract; and the ability to achieve the same benefits using alternative means. *Id.*

tracts must exclude more than forty percent of a market to constitute a “substantial share.”<sup>101</sup>

## II. CASE SUMMARY

### A. The District Court’s Analysis and Conclusions

#### 1. *Maintenance of Monopoly Power in the Operating Systems Market by Anticompetitive Means*

The district court defined the relevant market as the worldwide licensing of Intel-compatible PC operating systems.<sup>102</sup> There were no viable substitutes on the demand-side, as all possibilities either lacked similar functionality or required users to incur substantial costs to switch to them from Windows.<sup>103</sup> Similarly, no supply-side substitutability existed, because it would be prohibitively expensive for a new operating system to gain acceptance into a market dominated by Microsoft.<sup>104</sup>

Next the court determined that Microsoft had a dominant, persistent, and increasing share of the relevant market.<sup>105</sup> Furthermore, the number of applications available for an operating system created a barrier to entry ensuring that no Intel-compatible PC operating system other than Windows could attract significant demand.<sup>106</sup> The presence of a barrier to entry and dominant market share created a presumption of monopoly power.<sup>107</sup>

Microsoft attempted to rebut the presumption of monopoly power on two fronts.<sup>108</sup> First, it asserted that the nature of the market constrained its

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101. See *United States v. Microsoft Corp.*, Nos. CIV.A.98-1232, 98-1233, 1998 WL 614485, at \*19 (D.D.C. Sept. 14, 1998) (and cases cited therein).

102. *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 36 (D.D.C. 2000); *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 14-18 (D.D.C. 1999).

103. *Microsoft*, 87 F. Supp. 2d at 36; see also *Microsoft*, 84 F. Supp. 2d at 14-15, 17 (ruling out server operating systems); *id.* at 15 (excluding non-Intel operating systems (e.g., Apple)); *id.* at 15-16 (declining to include information appliances (e.g., hand-held computers, wireless telephones)); *id.* at 16-17 (excepting network computers (e.g., server workstations)); *id.* at 17-18 (excluding middleware).

104. *Microsoft*, 87 F. Supp. 2d. at 36; see also *Microsoft*, 84 F. Supp. 2d at 14, 18-19 (explaining how the applications barrier to entry would make it costly to create enough demand for a new operating system).

105. *Microsoft*, 87 F. Supp. 2d. at 36 (finding that Microsoft’s share exceeded ninety-five percent); *Microsoft*, 84 F. Supp. 2d at 19.

106. *Microsoft*, 87 F. Supp. 2d. at 36; *Microsoft*, 84 F. Supp. 2d at 19-24.

107. *Id.*

108. *Microsoft*, 87 F. Supp. 2d. at 36-37.

ability to exercise monopoly power.<sup>109</sup> Second, it claimed that its technical innovation and pricing behavior were inconsistent with possession of monopoly power.<sup>110</sup> The court, however, stated that neither of these considerations affected Microsoft's ability to set prices above competitive levels and sustain them for extended periods without erosion of its monopoly power.<sup>111</sup> In addition, Microsoft's behavior was rational only if it knew it had monopoly power and if it was motivated by a desire to protect a barrier to entry to preserve such power.<sup>112</sup>

The court found that Microsoft engaged in anticompetitive conduct.<sup>113</sup> Specifically, Microsoft used its power to influence customers to terminate development of middleware,<sup>114</sup> to undermine Sun's Java technology,<sup>115</sup> and to take market share away from Netscape in the browser market.<sup>116</sup> Microsoft's conduct lacked a procompetitive motivation and was not justified by the federal copyright protection of its software.<sup>117</sup> In addition, Microsoft's actions viewed in their totality showed a strong anticompetitive effect and evinced its predacious nature.<sup>118</sup> Finding each element, the court held Microsoft liable for maintenance of monopoly power by anticompetitive means under section 2 of the Sherman Act.<sup>119</sup>

## 2. *Attempt to Obtain Monopoly Power in the Browser Market by Anticompetitive Means*

The district court found that Microsoft's 1995 proposal to Netscape and its subsequent efforts to decrease Netscape's market share constituted anticompetitive conduct.<sup>120</sup> The proposal also demonstrated Microsoft's

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109. Microsoft asserted that the market structure forced them to act, in essence, as they would have under competition. Defendant Microsoft's Proposed Conclusions of Law at 45-54, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (Nos. 98-1232, 98-1233), available at <http://www.microsoft.com/presspass/trial/p-col/col.asp>. See *supra* Part I.A.3 for a more detailed discussion of this market structure.

110. *Microsoft*, 87 F. Supp. 2d at 37.

111. *Id.*

112. *Id.*

113. *Id.* at 43-44.

114. *Id.*; see also *Microsoft*, 84 F. Supp. 2d at 107, 108-110.

115. *Microsoft*, 87 F. Supp. 2d at 43-44; see also *Microsoft*, 84 F. Supp. 2d at 105-106.

116. *Microsoft*, 87 F. Supp. 2d at 38-39; see also *Microsoft*, 84 F. Supp. 2d at 44, 53-54, 57, 58, 103.

117. *Microsoft*, 87 F. Supp. 2d at 39, 40-41. Microsoft argued that its copyrights permitted them to prevent licensees from shipping modified versions of its product. *Id.*

118. *Id.* at 44. The court looked at Microsoft's tying, exclusive dealing, and attempt to monopolize as a singular course of conduct. *Id.*

119. *Id.*

120. *Id.* at 45.

specific intent to monopolize the browser market because Microsoft knew or should have known that the proposal would have given it monopoly power.<sup>121</sup> Microsoft's subsequent course of conduct to protect the applications barrier similarly evinced its intent to monopolize.<sup>122</sup>

The court stated that a dangerous probability of monopoly existed in two respects.<sup>123</sup> First, the proposal to Netscape would have given Microsoft monopoly power.<sup>124</sup> Second, Microsoft had a high and growing market share in the current browser market.<sup>125</sup> Finding each element, the court held Microsoft liable for attempting to monopolize the browser market under section 2 of the Sherman Act.<sup>126</sup>

### 3. *Tying of Explorer to Windows*

The district court applied the Supreme Court's market test<sup>127</sup> for two products and found that consumers viewed browsers and operating systems as separate products with separate demands.<sup>128</sup> The court stated that consumers were forced to take Explorer to get Windows because Microsoft conditioned its licenses to distribute Windows on the purchase of Explorer and because Microsoft refused to offer Windows without Ex-

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121. *Id.*; see also *Microsoft*, 84 F. Supp. 2d at 30-33.

122. *Microsoft*, 87 F. Supp. 2d at 45 (finding that although it was never an expressed goal, Microsoft's executives "knew, or should have known, that the tactics they actually employed were likely" to result in monopoly power).

123. *Id.* at 46.

124. *Microsoft*, 87 F. Supp. 2d at 46.

125. *Id.*; *Microsoft*, 84 F. Supp. 2d at 101-02.

126. *Microsoft*, 87 F. Supp. 2d. at 45-46, 57.

127. See *Eastman Kodak Co. v. Image Tech. Servs, Inc.*, 504 U.S. 451, 482 (1992) ("The proper market definition in this case can be determined only after a factual inquiry into the 'commercial realities' faced by consumers." (citing *United States v. Grinnell Corp.*, 384 U.S. 563, 572 (1966)); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 19 (1984) (The question "turns not on the functional relation between [the two items], but rather on the character of the demand for the two items.")). The D.C. Circuit took a different view in interpreting a consent decree from a case involving Microsoft's tying of Explorer to Windows. *United States v. Microsoft Corp.*, 147 F.3d 935 (D.C. Cir. 1998). The consent decree prohibited Microsoft from conditioning the license of any of its products on the license of another one. *Id.* at 939. The decree expressly allowed, however, the licensing of "integrated" products. The court distinguished relevant Supreme Court precedent because those cases involved services rather than two products—which are at issue here. *Id.* The court stated that an integration is a single product if there are "facially plausible benefits to [the] integrated design" and noted that courts and juries are not equipped to inquire deeply into computer design. *Id.* at 950. The court tempered its decision by stating that "[w]hether or not this is the appropriate test for antitrust law generally, we believe it is the only sensible reading of [the consent decree]." *Id.*

128. *Microsoft*, 87 F. Supp. 2d 49; *Microsoft*, 84 F. Supp. 2d at 48.

plorer.<sup>129</sup> In addition, the large drop in Netscape's revenues constituted a substantial effect on commerce because it was not "de minimis."<sup>130</sup> Finally, Microsoft had sufficient market power in the tying product market, as it had monopoly power in the operating system market.<sup>131</sup> Finding all required elements, the court held Microsoft liable for unlawful tying under section 1 of the Sherman Act.<sup>132</sup>

#### 4. *Exclusive Dealing Contracts to Promote Explorer to the Exclusion of Navigator*

The district court found that Microsoft did not foreclose Netscape from a "substantial share" of the market.<sup>133</sup> Netscape retained retail outlets, Internet downloads, and mass mailings as distribution channels.<sup>134</sup> Accordingly, the court did not hold Microsoft liable for use of exclusionary contracts under section 1 of the Sherman Act.<sup>135</sup>

### B. **Remedy and Epilogue**

The district court held Microsoft liable under sections 1 and 2 of the Sherman Act and under similar state antitrust laws.<sup>136</sup> As a remedy, the court ordered Microsoft to divest either its operating systems or its applications business.<sup>137</sup> As of publication, the case is pending appeal in the U.S. Court of Appeal for the District of Columbia, which will hear the case en banc.<sup>138</sup>

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129. *Microsoft*, 87 F. Supp. 2d at 50; see also *Microsoft*, 84 F. Supp. 2d at 49-51, 58-59. The court stated that consumers were effectively forced to purchase Explorer because they could not remove it from the Windows desktop and Windows would not respect users' decision to choose another browser as their default. *Microsoft*, 87 F. Supp. 2d at 52-50.

130. *Microsoft*, 87 F. Supp. 2d at 49; see *Fortner Enters., Inc. v. United States Steel Corp.*, 394 U.S. 495, 501 (1947).

131. *Microsoft*, 87 F. Supp. 2d at 49. Courts have not delineated a specific percentage of market share required, but market power must be "appreciable" and monopoly power is sufficient. See *Eastman Kodak* 504 U.S. at 464, 481.

132. *Microsoft*, 87 F. Supp. 2d at 47-51, 57.

133. *Id.* at 53; *Microsoft*, 84 F. Supp. 2d at 103.

134. *Microsoft*, 87 F. Supp. 2d at 53; *Microsoft*, 84 F. Supp. 2d at 103. These channels enabled Netscape to more than double its user base from 1996 to 1998. *Id.*

135. *Microsoft*, 87 F. Supp. 2d at 53.

136. *Id.* at 56.

137. *United States v. Microsoft Corp.*, 97 F. Supp. 2d. 59, 64 (D.D.C. 2000). There are also conduct restrictions that will apply before divestiture occurs and that apply to the operating system business thereafter. *Id.* at 66-70.

138. Chief Judge Edwards, and Circuit Judges Williams, Ginsburg, Sentelle, Randolph, Rogers, and Tatel will hear the case en banc. Order of the D.C. Circuit, *United States v. Microsoft Corp.*, No. 00-5212 (D.C. Cir. Filed June 13, 2000), available

### III. DISCUSSION

The *Microsoft* case presents a myriad of legal and factual issues.<sup>139</sup> Assuming that Microsoft violated antitrust law, this discussion examines the difficulties inherent in litigating complex cases in rapidly changing markets and posits that antitrust litigation has a vital role to play in maintaining competition in information markets.

#### A. The Pace of Antitrust Litigation

The process of adjudication is necessarily lengthy.<sup>140</sup> In particular, antitrust cases involving information markets have the potential to be long, because the distinctions between pro and anticompetitive behaviors are extremely complex.<sup>141</sup> For instance, in the case of monopoly power, “the combination of intellectual property, network externalities, and rapid growth in consumer demand creates difficult questions.”<sup>142</sup> Additionally, information market cases pose “unusually difficult questions of fact because of the technical complexity of the products and services produced.”<sup>143</sup>

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at <http://ecfp.cadc.uscourts.gov/MS-Docs/1476/0.pdf>. Final briefs in the case were filed February 9, 2001. See Brief for Appellees (Final Version), *Microsoft* (D.C. Cir. Sept. 26, 2000) (Nos. 00-5212, 00-5213), available at <http://ecfp.cadc.uscourts.gov/MS-Docs/1693/0.pdf>; Brief for Defendant-Appellant (Final Version), *Microsoft* (D.C. Cir. Sept. 26, 2000) (Nos. 00-5212, 00-5213), available at <http://ecfp.cadc.uscourts.gov/MS-Docs/1696/0.pdf>; Reply Brief for Defendant-Appellant (Final Version), *Microsoft* (D.C. Cir. Sept. 26, 2000) (Nos. 00-5212, 00-5213), available at <http://ecfp.cadc.uscourts.gov/MS-Docs/1699/0.pdf>.

139. See, e.g., DAVID S. EVANS ET AL., DID MICROSOFT HARM CONSUMERS? TWO OPPOSING VIEWPOINTS (2000), available at <http://www.aei.brookings.org/publications/books/consumers.pdf>; John E. Lopatka & William H. Page, *Antitrust on Internet Time: Microsoft and the Law and Economics of Exclusion*, 7 SUP. CT. ECON. REV. 157 (1999).

140. See Posner, *supra* note 54, at 8 (“The law is committed to principles of due process that limit the scope for summary proceedings, and the fact that litigation is conducted by lawyers before tribunals that are not technically trained or experienced inevitably slows the process.”); see also AREEDA & KAPLOW, *supra* note 7, ¶ 154, at 94 (1997) (noting that private antitrust cases are, on average, almost twice as long as federal litigation generally).

141. See David J. Teece & Mary Coleman, *The Meaning of Monopoly: Antitrust Analysis in High-Technology Industries*, ANTITRUST BULL. 801, 845 (1998). “Many actions that harm competitors have valid justifications or are strongly related to competitive motivations. Distinguishing between these effects is frequently very difficult, and the politics of the process gives considerable advantage to the competitors.” *Id.* at 845.

142. Posner, *supra* note 54, at 8; see also AREEDA & KAPLOW, *supra* note 7, ¶ 154, at 94 (1997) (“Antitrust cases are often more complex than average cases, and a number assume truly immense proportions.”).

143. Posner, *supra* note 54, at 7.

The Microsoft trial proved that the judiciary can effectively hasten the process,<sup>144</sup> as it moved faster than previous major antitrust cases.<sup>145</sup> The presiding judge in *Microsoft*, Thomas Penfield Jackson, took several procedural measures to expedite litigation of the case.<sup>146</sup> In addition, Judge Jackson appointed a mediator to facilitate a settlement<sup>147</sup> and allowed direct appeal to the Supreme Court.<sup>148</sup> As a result, the trial took only nineteen months.<sup>149</sup> The appellate process will, however, delay final resolution. Microsoft appealed the case to the D.C. Circuit, and a subsequent appeal to the Supreme Court is likely. In light of these appeals, final resolution is not likely for another two years, bringing the total length of the case to just under four years.<sup>150</sup>

## B. The Role of Antitrust Enforcement in Information Markets

Full adjudication of an antitrust trial will likely take several years.<sup>151</sup> This lag complicates the application of antitrust law to dynamic information markets. *Microsoft*, however, illustrates the potential benefits of enforcement in certain situations. First, the development of new technological paradigms is not always as rapid as many claim; thus it is possible for

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144. See Andrew I. Gavil, *The End of Antitrust Trench Warfare?: An Analysis of Some Procedural Aspects of The Microsoft Trial*, 13 ANTITRUST 7, 9 (1999).

145. For example the government's cases against IBM and AT&T each lasted more than eight years. See generally FRANKLIN M. FISHER ET AL., FOLDED, SPINDLED, AND MUTILATED: ECONOMIC ANALYSIS AND U.S. V. I.B.M. (1983) (discussing the government's case against IBM and noting that the case lasted thirteen years before the suit was dropped); STEVE COLL, THE DEAL OF THE CENTURY: THE BREAKUP OF AT&T (1986) (discussing the government's case against AT&T).

146. Gavil, *supra* note 144, at 9. For example, Judge Jackson limited each side to twelve live witnesses at trial and ordered direct testimony to be submitted in writing. *Id.*

147. See Evan Hansen & Joe Wilcox, *Boldness, Pace Define Jackson's Rule*, CNET NEWS.COM, June 7, 2000, at <http://news.cnet.com/news/0-1003-200-2031600.html>.

148. Order of June 20, 2000, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (No. 98-1233), available at <http://www.dcd.uscourts.gov/98-1232v.pdf>. The Supreme Court declined direct review and sent the case to the D.C. Circuit. *United States v. Microsoft Corp.*, 121 S. Ct. 25 (2000).

149. One must also consider the time required to investigate possible offenses, which may be substantial where detailed inquiries into market structure and dynamics are required.

150. The Software and Information Industry Association ("SIIA") asserts that an intermediate appeal means that the Supreme Court will not decide the case until Spring 2003. See Brief of Software and Information Industry Association and Computer and Communications Industry Association as Amici Curiae Supporting Jurisdiction at 12 n.5, *U.S. v. Microsoft Corp.*, 121 S. Ct. 25 (2000) (No. 00-139), available at <http://www.sii.net/sharedcontent/govt/issues/compete/amicus8-15-00.pdf> [hereinafter SIIA Brief].

151. Posner, *supra* note 54, at 8.

antitrust litigation to expedite a return to competition on the merits.<sup>152</sup> Second, a laissez-faire approach allows a monopolist to engage in anti-competitive conduct to entrench and insulate its dominant position, which can diminish innovation incentives.<sup>153</sup>

### 1. *New Technological Paradigms*

Rapid innovation in the software industry can result in new technological paradigms supplanting existing technologies.<sup>154</sup> This would render a litigated matter moot, as the defendant would either lose monopoly power or maintain monopoly power over an outdated industry or product.<sup>155</sup>

The efficacy of such litigation therefore depends on how long it will take for a new technology to develop and displace the defendant's product. Although this determination will be difficult in most cases, a close examination of the market can provide indications of how long it will take a new paradigm to displace a product. High barriers to entry and difficulty in bringing an innovation to market lower the probability of displacement of the defendant's product, suggesting that litigation will be effective. On the other hand, if there are no barriers and the innovation can rapidly enter the market, there will be a higher probability of displacement and ineffective litigation.

On balance, *Microsoft* presents a situation that is redressable by anti-trust litigation. First, the *Microsoft* court made detailed findings on the dynamics and realities of the market.<sup>156</sup> The court found that although the rate of innovation in the industry remained rapid, developing technologies would not supplant Microsoft's operating system in the near future.<sup>157</sup> Such an inquiry reduced the probability of superfluous antitrust enforcement against a displaced product.

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152. David A. Balto, *Networks and Exclusivity: Antitrust Analysis to Promote Network Competition*, 7 GEO. MASON L. REV. 523, 557 (1999) (stating that "radical change[s] to the competitive environment based on technological change are frequently made in antitrust investigations . . . [b]ut are frequently exaggerated").

153. See SIIA Brief, *supra* note 150, at 9.

154. See Teece & Coleman, *supra* note 141, at 804.

155. This problem is not new, and previously prompted the government to withdraw its complaint in the IBM case. See FISHER ET AL., *supra* note 145, at 1.

156. *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 14-18 (D.D.C. 1999).

157. *Id.* Microsoft claims it faces current or imminent competition from several sources, including middleware. See Defendant Microsoft's Revised Proposed Findings of Fact at ¶¶ 199-239, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (Nos. 98-1232, 98-1233), available at <http://www.microsoft.com/PressPass/trial/r-fof/default.asp> (last visited Feb. 2, 2001).

Second, the *Microsoft* court stated that a barrier to entry existed and that Microsoft acted to protect that barrier.<sup>158</sup> Artificial maintenance of a barrier to entry may delay a new technological paradigm from displacing an old paradigm (such as Microsoft's operating system) in two ways. First, allowing a dominant firm to maintain a barrier to entry reduces the incentive of competing firms to innovate and attempt to supplant the dominant firm's technology.<sup>159</sup> Second, even if new technology develops, a barrier to entry may allow a dominant firm to exclude new entry, thus avoiding displacement from the market. In this case, litigation would be especially worthwhile, as a judicial remedy can free the market to erode the barrier, preventing a dominant firm from maintaining its supremacy by blocking innovation and innovative products.<sup>160</sup>

## 2. *Maintenance of Barriers to Entry, Deterrence, and Innovation*

A laissez-faire approach to antitrust in information markets will allow a monopolist to utilize its market power to leverage itself into new markets.<sup>161</sup> If a dominant firm is able to gain market power in complementary markets, it could have the effect of insulating its initial monopoly.<sup>162</sup> This

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158. *Microsoft*, 84 F. Supp. 2d at 26.

159. Direct Testimony of Franklin M. Fisher, *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000) (No. 98-1232) at 107, at <http://www.usdoj.gov/atr/cases/f2000/2057.pdf> [hereinafter Testimony of Fisher]. Fisher states that Microsoft's conduct is "likely to send a message to all software developers: Microsoft will impede any innovation that threatens Microsoft's monopoly in operating systems. This will lessen developers' incentives to develop products that provide alternatives to the Windows platform." *Id.*; see also Jonathan B. Baker, *Promoting Innovation Competition Through the Aspen/Kodak Rule*, 7 GEO. MASON L. REV. 495, 514 (1999). "By controlling compatibility and interoperability of rivals' programs, and by implementing exclusive relationships that deny rivals' access to certain technologies, it is more difficult for competitors to offer new and superior programs and technologies." Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards, and Microsoft*, 7 GEO. MASON L. REV. 617, 623 (1999); see also Balto, *supra* note 152, at 536-37 (discussing issues involving exclusivity and networks and stating that "exclusivity can deter innovation . . . by controlling critical inputs to the development of new products"). An example of this in *Microsoft* is the delay of release of necessary technical information to certain competitors. See, e.g., *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 34 (D.D.C. 1999).

160. See, e.g., Teece & Coleman, *supra* note 141, at 813 (noting that a determination of whether a dominant company is acting to delay a paradigm shift may be a relevant standard in determining if its actions should be challenged).

161. See *supra* Parts I.A.2 and II.A.2.

162. Salop & Romaine, *supra* note 159, at 635. Chicago school economists contend that a monopolist has no incentive to leverage one monopoly into another because it will not increase the monopolist's profits. *Id.* at 624-25. Post-Chicago analysis suggests that this theory does not apply where this behavior serves "to raise barriers to competition that can preserve or enhance its monopoly power in the first product." *Id.* at 625. "For exam-

is possible in information markets because switching costs increase as the monopolist has more time to take advantage of positive feedback effects,<sup>163</sup> increasing the likelihood of tipping and lock-in.<sup>164</sup>

In its amicus brief submitted to the Supreme Court, the Software and Information Industry Association (“SIIA”)<sup>165</sup> argued that software market characteristics<sup>166</sup> lead to a geometric increase in the harms that flow from anticompetitive conduct, making it “imperative to rapidly adjudicate and effectively remedy antitrust violations while competition can still be restored.”<sup>167</sup> The SIIA estimated that in another year “Microsoft is likely to lock up, or at least to ‘tip,’ additional markets to insulate its monopoly.”<sup>168</sup>

There is empirical evidence that Microsoft is leveraging into the Internet browser market and into other markets as well.<sup>169</sup> The SIIA brief cites Microsoft’s “.NET” initiative, for example, as an attempt by Microsoft to set a Windows-specific standard<sup>170</sup> using the Windows monopoly to foreclose competition in the Internet server and applications markets.<sup>171</sup> There

ple, a new operating system entrant’s need to be able to change the expectations and behavior of a diverse set of both applications developers and users creates a difficult coordination problem.” *Id.* at 637.

163. See *supra* Part I.A.3; see also SHAPIRO & VARIAN, *supra* note 1, at 121; Testimony of Fisher, *supra* note 159, at 26 (noting that “network effects increase the risk that [anticompetitive] conduct will further entrench Microsoft’s monopoly”).

164. SHAPIRO & VARIAN, *supra* note 1, at 104.

165. SIIA is a trade association that represents the interests of greater than 1,000 firms in the software, information, and Internet Industries. See SIIA Brief, *supra* note 150, at 1.

166. See *supra* Part I.A.3.

167. SIIA Brief, *supra* note 150, at 9.

168. *Id.* at 9.

169. See *supra* parts I.A.2 and II.A.2.

170. *Id.* at 11 (citing Markoff, *Microsoft Plans to Shift Product Focus to the Internet*, N.Y. TIMES, June 23, 2000, at C1). Microsoft’s .NET initiative is a plan to eventually replace local storage of data on PCs with storage and programming on the Internet. See Microsoft, *Microsoft.NET Home Page*, at <http://www.microsoft.com/net/default.asp> (last visited Feb. 8, 2001). Microsoft also recently announced its Java User Migration Plan (“JUMP”) to Microsoft .NET, which facilitates the use of Java and Microsoft Visual J++ with Microsoft’s .NET platform. Press Release, Microsoft Corp., *Microsoft Announces Java User Migration Path to Microsoft .NET* (January 25, 2001), at <http://www.microsoft.com/presspass/press/2001/jan01/01-25JavaUpgradePR.asp>.

171. SIIA Brief, *supra* note 150 (citing Schlender, *Damn the Torpedoes! Full Speed Ahead*, FORTUNE, July 10, 2000, at 98, 110). “By taking control of a standard and making it proprietary, Microsoft can design the standard to reduce rather than increase interoperability.” Salop & Romaine, *supra* note 159, at 634. “This conduct also can further entrench Microsoft’s desktop operating system monopoly. If Microsoft gains monopoly power in servers, then a new entrant into desktop operating systems will face potential interoperability with server programs.” *Id.* at 635.

is also evidence that Microsoft is entering into the Linux market with its strategic agreement with Corel.<sup>172</sup>

The possibility of further entrenchment dictates not only that courts should intervene but also that they should make efforts to speed the final resolution of a case. Speed is essential because once a market has tipped, "it may be difficult or even undesirable to undo any anticompetitive effects that have arisen."<sup>173</sup> Anticompetitive behavior in network industries must therefore be "treated quickly and seriously."<sup>174</sup> The mandatory use of procedural devices to expedite litigation will help prevent a monopolist from taking advantage of prolonged proceedings, thus improving the effectiveness of enforcement.<sup>175</sup> The use of these devices will help to lower the social costs involved in enforcement, for the more rapidly the problem is dealt with, the less likely it is that users will be locked-in.

Another reason to litigate cases such as *Microsoft* is to deter future transgressions and positively affect innovation incentives.<sup>176</sup> To effectively deter similar anticompetitive conduct, the punishment must be severe enough to make the expected net costs of the practice greater than the expected benefits.<sup>177</sup> Prosecuting and sufficiently punishing<sup>178</sup> Microsoft

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172. Press Release, Corel Corp., *Corel and Microsoft Announce Strategic Alliance to accelerate delivery of applications for Microsoft's .NET Platform* (Oct. 2, 2000), at <http://www3.corel.com/cgi-bin/gx.cgi/AppLogic+FTContentServer?pagename=Corel/PressRelease/Details&id=CC100K16H9C>. Microsoft also purchased 24 million shares of non-voting Corel stock. *Id.* Corel is a software company that develops applications and a version of Linux. *Id.*

173. Rubinfeld, *supra* note 54, at 12. That is, it can be "socially costly to move from a less to a more efficient standard," making successful intervention difficult once switching costs reach a certain magnitude." *Id.* at 18. Additionally, "[o]nce the point is passed at which expectations in the marketplace have been significantly affected, it will be more difficult to intervene successfully." *Id.* at 16.

174. *Id.* at 12.

175. One obvious device is the Antitrust Expediting Act, 15 U.S.C. § 29(b) (1994), which allows direct appeal to the Supreme Court when the trial court certifies that "immediate consideration of the appeal by the Supreme Court is of general public importance in the administration of justice." *Id.* Indeed, the SIIA advocates use of this in its amicus brief. See SIIA Brief, *supra* note 150, at 2. The devices used by Judge Jackson in *Microsoft* are also plausible methods of speeding adjudication of a case. See Gavil, *supra* note 144.

176. See Baker, *supra* note 159, at 516.

177. See HERBERT HOVENKAMP, *ECONOMICS AND FEDERAL ANTITRUST LAW* § 15.3, at 387-88 (1985); Warren F. Schwarz, *An Overview of the Economics of Antitrust Enforcement*, 68 GEO. L. J. 1075, 1075 (1980).

178. The appropriate remedy is a separate issue not addressed in this Note.

will create a credible threat of antitrust scrutiny across the industry, deterring companies from engaging in similar conduct.<sup>179</sup>

The efficiency of a deterrence approach depends on whether its benefits outweigh its costs,<sup>180</sup> which in information markets essentially depends on its effect on aggregate industry innovation.<sup>181</sup> Antitrust enforcement will create a positive incentive to innovate by assuring new entrants that products will compete on their merits, as the law will limit dominant firm misconduct.<sup>182</sup> This positive incentive is countered by a disincentive to innovate resulting from a decrease in expected profits for dominant companies<sup>183</sup> and the risk of penalizing procompetitive, efficient conduct.<sup>184</sup>

Enforcement creates a plausible risk of overdeterrence in information markets. This is due, in part, to the difficulties in distinguishing between pro and anticompetitive conduct, which make it possible that lawful conduct will be litigated.<sup>185</sup> In addition, enforcement will reduce expected

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179. See Baker, *supra* note 159, at 516. Deterrence occurs because enforcement creates a credible threat that “the antitrust prohibition on monopolization would operate in practice by limiting the dominant firm’s use of such tools to exclude.” *Id.*

180. Teece & Coleman, *supra* note 141, at 838. Innovation is “the most fundamental factor driving competition and insuring superior products and competitive prices for the consumer.” *Id.* at 839. One can also view this as balancing the possible harms that can flow from false acquittals and false convictions. Salop & Romaine, *supra* note 159, at 653-54.

181. Teece and Coleman define aggregate innovation as the sum of the incumbents and new entrant innovation. Teece & Coleman, *supra* note 141, at 839.

182. Fisher, *supra* note 159, at 107; see also *supra* text accompanying note 159. “In fact, it has been claimed that Microsoft’s reputation [as a predator] has led venture capitalists and potential competitors to avoid investing in products or markets in which Microsoft has an existing stake or has plans to invest.” Salop & Romaine, *supra* note 159, at 642.

183. The law decreases expected profits by limiting practices a dominant firm can use to extend its monopoly and acquire new monopolies. See Teece & Coleman, *supra* note 141, at 809. This effect can be particularly strong in information markets because of the high risk involved in developing products. *Id.*

184. Rubinfeld, *supra* note 54, at 16. Overdeterrence occurs where intervention “penalizes dominance that is the result of innovative efforts . . . . Such a policy will ‘have the effect of taxing technological improvements’ . . . . (To be sure, ill-considered intervention can also be inefficient even in the short run, to the extent that it prevents even a dominant firm from responding aggressively, but fairly, to competition).” *Id.*; see also Teece & Coleman, *supra* note 141, at 803 (stating that “[t]he opportunities for the agencies to harm competition are far greater than their opportunities to improve competition in sectors where there is rapid innovation”).

185. See *supra* note 184 and accompanying text.

profits for all successful companies, which is important given the high risk involved in developing information products.<sup>186</sup>

Overdeterrence, however, is unlikely to develop from *Microsoft*.<sup>187</sup> Given the possibility of becoming a standard setter, the decrease in expected net profits as a result of fruitful innovation is not likely to cause information companies to view innovation as unprofitable.<sup>188</sup> In winner-take-all competition, the reward to the resulting dominant firm is likely to be large and "it is unlikely that small reductions in the expected return . . . would make much difference to that firm's innovative effort."<sup>189</sup> In addition, the government was appropriately wary of the pitfalls of attacking procompetitive conduct when it brought charges against Microsoft.<sup>190</sup> Further, the fact that Microsoft exploited its dominant position to exclude rivals and insulate its monopoly, increases the positive effect enforcement will have on rivals' incentives to innovate after an antitrust intervention.<sup>191</sup>

Thus, the positive incentive resulting from antitrust enforcement will be greater than the disincentive resulting from decreased profits and the possibility of being penalized for procompetitive conduct.<sup>192</sup> This is true

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186. See Teece & Coleman, *supra* note 141, at 809; William J. Kolasky, *Network Effects: A Contarian View*, 7 GEO. MASON L. REV. 577, 596-97 (1996) ("Especially in network industries where large fixed costs need to be incurred to build the network, the prospect of earning economic rents once the natural monopoly has been captured is what provides the incentive to innovate and invest.").

187. See Teece & Coleman, *supra* note 141, at 845; *supra* text accompanying note 141.

188. See Baker, *supra* note 159, at 514-15.

189. See *id.* at 514-15. But see William J. Kolasky, *supra* note 186, at 596-97. With selective enforcement against only egregious conduct, however, this incentive will remain largely intact. See Baker, *supra* note 159, at 514-15.

190. Rubinfeld, *supra* note 54, at 1-2. Although this does not rule out the possibility of overdeterrence, the fact that the government considered possible pitfalls is apparent to industry participants, likely lowering the expectation of being punished for being successful. See *id.* at 2-17.

191. See Teece & Coleman, *supra* note 141, at 813. The authors state that "[i]n some cases it may be relevant to ask whether an incumbent's actions are designed to delay or prevent a paradigm shift that [offers significant improvement]." *Id.* They go on to argue, however, that because such behavior by a dominant firm is unlikely to be effective, it is not a real problem for antitrust enforcement. *Id.*; see also Joel I. Klein, *International Antitrust Enforcement in the Computer Industry*, 41 VILL. L. REV. 173, 178 (1996) ("The government must be especially vigilant to ensure that a de facto standard setter or monopolist does not . . . erect artificial barriers to entry that serve to maintain or to extend a naturally derived monopoly.").

192. Baker, *supra* note 159, at 514-15. "Enforcement of antitrust's prohibition against monopolization thus can be expected to encourage fringe firm innovation . . . without markedly discouraging dominant firm innovative effort when innovation compe-

because of the winner-take-all nature of information markets and the weight of the evidence in *Microsoft*. Therefore, under the facts in *Microsoft*, enforcement will be efficient because it will increase aggregate innovation.<sup>193</sup>

#### IV. CONCLUSION

Although antitrust litigation has inherent shortcomings that make its application to information markets problematic, it can still perform valuable functions where used thoughtfully. Overactive enforcement can cause serious disruptions to the market,<sup>194</sup> but a laissez-faire approach has its own shortcomings. By carefully scrutinizing market conditions and the nature and effect of the alleged anticompetitive conduct, the courts can strike a middle ground and thus optimize incentives.<sup>195</sup> The challenge for antitrust law is to determine which cases should be challenged and which should be left to self-correction.<sup>196</sup> *Microsoft* demonstrates characteristics to look for in making this determination. Litigation can restore competition in markets with high barriers to entry and where new technological paradigms arise relatively slowly. Litigation will likely prove particularly

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tition is winner-take-all and the dominant firm takes advantage of a complementary or collaborative relationship to exclude." *Id.* at 514.

193. See Baker, *supra* note 159, at 516. Deterrence occurs because enforcement creates a credible threat that

the antitrust prohibition on monopolization would operate in practice by limiting the dominant firm's use of such tools to exclude . . . Under such circumstances, Sherman Act § 2 would plausibly operate surgically: to remove an important inhibition on fringe firm innovation without interfering with the primary determinant of the dominant firm's incentive to innovate, the winner-take-all 'prize.' *Id.*

194. Kolasky, *supra* note 186, at 598, 615; see also Teece & Coleman, *supra* note 141, at 843 (stating that misguided "antitrust action might produce severe disincentive affects throughout the entire economy").

195. See Kolasky, *supra* note 186, at 598. Salop and Romaine explore this point by examining possible legal standards for monopolization cases. Salop & Romaine, *supra* note 159, at 655-65. In advocating the use of a standard that focuses on the necessity of the monopolist's restrictive conduct, the authors are in essence advocating a middle ground approach where only certain conduct is challenged in a manner that balances incentives to maximize consumer welfare. *Id.* at 660-61.

196. It is vital that we develop analytic tools that will help identify when we can expect antitrust intervention in network industries to be beneficial, and limit intervention accordingly. It is especially important that we take care to appreciate how the market itself can promote the realization of beneficial network effects and prevent antitrust law from interfering with this process.

Kolasky, *supra* note 186, at 584.

effective where a dominant firm acts to suppress innovation and maintain barriers to entry in attempt to delay displacement by a new paradigm. Enforcing antitrust laws in cases with the characteristics noted above, like *Microsoft*, will deter anticompetitive conduct by other companies, thereby increasing aggregate innovation incentives in information markets.