THE COSTS OF REGULATING MICROSOFT

by Robert W. Hahn

AS A FORMER MACINTOSH USER, I confess to a bias against Microsoft. I was dragged from the Mac world, kicking and screaming, only because my office would not support Macs anymore. This confession is made all the worse by what I am about to say. Whatever the weaknesses of the Microsoft operating system may be, the case brought by the Justice Department against the corporate titan is weaker still. The basic problem is that most of the proposed policy cures are likely to be worse than the alleged disease.

Few things in life are perfect outside of the classroom. The markets in which Microsoft operates are no exception. Microsoft has achieved dominance in the market for operating systems in part because it is a fierce competitor with a good product. But that dominance has also resulted from the nature of the market itself. A common operating system benefits all users—for example, by providing on-line capabilities that make it possible to send files via e-mail, share printers, or access the company's network from a hotel room. It also benefits producers of software who need to make their products compatible with a single system. Consumers and businesses might naturally gravitate towards using a single system to take advantage of such positive "network externalities," as happened with videocassette recorders (VCRs) and telephones. When the Mac disappeared from my desk, one of the unexpected benefits was the ease with which I could read files sent by my colleagues, because they were in a common language.

Of course, a dominant player in the operating system market could impose significant costs on consumers—for example, by making it difficult for competitors to market related software products successfully or to develop alternative operating systems. Thus, the Department of Justice (DOJ) argues that Microsoft has used its dominant position in the operating system market to attack the Netscape Navigator internet browser and to favor its own Internet Explorer browser. The DOJ attorneys believe that Netscape, along with other rivals, has the potential to change the nature of the operating system market and thereby reduce Microsoft's dominance. Some industry analysts suggest that the Netscape browser combined with Java—a programming language that permits applications written in it to be run on different operating systems—could change the nature of competition by providing an alternative platform for accessing software. The DOJ argues that Microsoft, fearing this competition to the operating system, has attempted to eliminate its principal competitor by offering its browser for free. The recent announcement that America Online (AOL), the largest provider of internet access, will purchase Netscape Communications Corp., the owner of the browser that competes with Microsoft's product, shows that competition indeed is alive and well.

But the proposed antitrust remedies for limiting Microsoft's dominance carry costs that are likely to be more significant than policymakers or the public suspect. Those remedies would create other, more serious problems that would harm consumers and create major challenges for policymakers in the future. It is the purpose of this article to point out those costs and potential problems, some of which are not apparent to even sophisticated observers of the computer world.

THE JUSTICE DEPARTMENT v. MICROSOFT

While the current case against Microsoft focuses on the Windows 98 software, that company has been through several previous rounds of antitrust scrutiny concerning earlier versions of Windows. The Federal Trade Commission initially investigated Microsoft's practices in the early 1990s but the Commissioners deadlocked and no action was taken. The DOJ picked up the investigation and the eventual result was a consent decree between the Department of Justice and Microsoft in 1995. In that decree Microsoft promised not to condition the purchase of an operating system license upon the licensing of another Microsoft product—most importantly by computer manufacturers that wished to install those systems on the equipment they were selling to their customers.

In 1997 the DOJ accused Microsoft of violating the consent decree by "tying" the Microsoft Explorer to its operating system as part of a later version of Windows 95. The U.S. Court of Appeals, D.C. Circuit, ruled in favor of Microsoft in that

Robert W. Hahn is director of the AEI-Brookings Joint Center for Regulatory Studies and a research associate at the John F. Kennedy School of Government, Harvard University. *The author has benefited from suggestions provided by Christopher DeMuth, Tom Hazlett, Albert Nichols, Irwin Stelzer, and especially Robert Kneuper. The views expressed in this piece are his own and do not necessarily represent the views of the institutions with which he is affiliated.*

matter on 23 June 1998. Now, armed with a number of disturbing e-mails between high-level Microsoft employees, the DOJ and various state attorneys general have pursued a much broader and more aggressive action against Windows 98.

A central issue in DOJ's latest case against Microsoft is how to regulate the operating system. In *United States of America v. Microsoft Corporation* (Civil Action No. 98-1232, 18 May 1998), the DOJ maintains that the company should not be able to

- restrict the right of any person to modify the functions of any Microsoft operating system product to add additional software, so long as such addition or substitution does not materially "impair" the performance of the operating system product;
- include its browser with its operating system for three years, unless it includes the most current version of the Netscape browser and allows computer manufacturers to delete the software that provides the Microsoft browser;
- charge the same price for the Microsoft operating system with the browser and without the browser unless Microsoft makes it easy for computer manufacturers to delete its browser and deduct the approximate cost of deletion from the price charged to the computer manufacturer.

MICROSOFT IS ACCUSED OF "COERCIVELY" PROMOTING ITS BROWSER.

The DOJ's proposed remedies primarily involve regulating the browser market and the associated operating systems market. Essentially the DOJ would like to coerce Microsoft into offering at least Netscape's browser with its operating system or no browser at all. The benefits and costs of those actions are at the core of this issue.

From the DOJ's perspective, such remedies would increase competition in browsers by putting the Netscape browser on an equal footing with Microsoft's browser. More important, the remedies would increase potential competition against Microsoft's operating systems by other application platforms, such as browsers in combination with the programming language Java. The DOJ also argues that its proposed remedies would deter Microsoft and other "monopolists" from engaging in anticompetitive practices and would increase software innovation, as developers of new software products are less likely to be thwarted by Microsoft and more likely to profit from their innovations. The DOJ sees no loss in efficiencies because it sees little or no benefit in bundling the browser and the operating system. Moreover, it does not believe its actions will deter competitive, innovative behavior by Microsoft or others.

Not surprisingly, Microsoft sees the benefits and costs differently. It argues that users can already easily and cheaply substitute Netscape for its browser. Further, it maintains that IBM and numerous other firms threaten its supposed dominance of the operating system market. Thus it must offer the most attractive product possible to hold off those competitors. In addition, it claims that its integrated operating system promotes innovation by giving software providers the ability to make their programs compatible with that single system.

Microsoft also believes there are substantial costs to the DOJ's proposed remedies. First, those remedies would diminish the incentive for competitive, innovative activity, as Microsoft is being penalized for being successful. Second, the remedies would result in a loss of significant integration efficiencies between the operating system and the browser. And third, perhaps the most significant cost from Microsoft's perspective, the DOJ's remedies would set the precedent that the government could "redesign" a company's operating system at any time, even forcing it to include a competitor's product. That power would drastically reduce the incentive for (and profit from) creating or refining an innovative, integrated operating system.

TENUOUS TYING CONTENTION

The DOJ's concerns about Microsoft "tying" its operating system to its browser are the weakest part of its antitrust case. Microsoft is not accused of keeping Netscape from offering its own browser to manufacturers, but only of "coercively" promoting its browser. The DOJ has alleged that Microsoft has engaged in a series of anticompetitive practices to thwart browser competition. The practices include Microsoft's giving its browser away, not allowing computer manufacturers to delete the Explorer icon from the Microsoft operating system, and various other practices that allegedly favor the Explorer. The DOJ points to the strong gains of the Explorer, claiming that its share of browsers has gone from "3 to 4 percent in early 1996 to approximately 50 percent or more in early 1998."

But each of the alleged anticompetitive practices has a straightforward efficiency rationale. Giving away browsers is a good way of investing in future profits if, as the DOJ alleges, browsers could form the backbone of new operating systems. Additionally, giving away browsers can make financial sense if it increases potential advertising revenues. In fact, other browser producers, including Netscape, also give away the product. And while computer manufacturers cannot delete the Explorer icon from the desktop screen, they can add the Navigator icon at no additional cost. Finally, the Explorer's gain in share of the browser market, even if it is as significant as the DOJ contends, coincides with substantial quality improvements in the Explorer browser.

The heart of DOJ's case involves not the browser market but the operating systems market. That is the turf that Microsoft is allegedly trying to protect through its browser practices. It is the gate that the DOJ would like to see opened, or at least not locked and sealed. But can the government effectively regulate an operating system? The answer requires some understanding of the characteristics of operating systems.

DEFINING AN OPERATING SYSTEM

Microsoft's operating system has been described in a variety of ways. In *New York et al. v. Microsoft* (Civil Action No. 98-1232, 18 May 1998), the states attorneys generals suing Microsoft described the operating system as the "command center of the personal computer" that "controls the interaction between the computer system's microprocessor(s), memory, and peripheral devices such as keyboards, display screens, disk drives and printers." In "Integration Has Benefited Consumers and Developers," published on its website, Microsoft countered that the primary role of an operating system is simply to "provide a common platform of services that allows third parties to create new software applications and hardware devices that are compatible with the operating system and that give consumers continually more powerful computing tools." While viewpoints differ on the exact definition, most observers would agree that operating systems provide a means for users to gain access to various software applications.

In the early 1980s Microsoft produced the operating system, MS-DOS, that was used in IBM-configured personal computers. Those personal computers (PCs) were competing with the Apple MacIntosh, which had its own operating system. (Starting in the late 1980s, Microsoft produced various versions of Windows to make the operating system easier to use.)

The operating system has gone through tremendous change over the past decade. Consider what a personal computer can do now compared with its capacity in 1985. Back then, users might have worked off the C: drive, making cumbersome shifts from program to program, trying not to overload a 640K memory. Users also worked largely on their own, with limited networking or on-line capabilities. But now users can move from program to program and document to document like chameleons changing colors. There are memory management capabilities that allow users to work quickly with vast amounts of information. Built-in network capabilities allow users to share files and printers and do things such as send faxes via e-mail. Integrated modem support gives users quick access to the Internet and to other online capabilities such as PC banking.

Regardless of whether or not one is fond of Bill Gates, there can be little doubt that the power that computer users now command is at least partly attributable to his entrepreneurial vision. Moreover, Microsoft's advances form the backdrop for a computing sector that has played a vital role in America's economic growth over the past decade. Conversely, antitrust actions against Microsoft may not only dampen that company's ability to innovate but have a similar effect on other firms in the computer industry as well. Indeed, a recent study by George Bittlingmayer and Thomas Hazlett entitled "DOS Kapital: Has Antitrust Action Against Microsoft Created Value in the Computer Industry?" (Working Paper, 2 June 1998) found that between 1991 and 1997 stock market returns for both Microsoft and the computer industry (excluding Microsoft) tended to be negatively correlated with antitrust enforcement events. One explanation would be that antitrust activities increase the likelihood for government intervention into the computer industry and will thus raise costs and dampen innovative activity. In other words, antitrust enforcement actions against Microsoft were bad not only for Microsoft's profitability but for the computer industry as a whole.

ANTITRUST ENFORCEMENT ACTIONS AGAINST MICROSOFT WERE BAD NOT ONLY FOR MICROSOFT'S PROFITABILITY BUT FOR THE COMPUTER INDUSTRY AS A WHOLE.

One of the most significant operating system developments came in the late 1980s when Microsoft integrated MS-DOS and other software products into the Windows platform to create Windows 3.1 and, later, Windows 95 and 98. Instead of signing on to DOS and then typing in "WIN," the user had the benefit of one integrated system. And there were clear and significant integration efficiencies from combining DOS and Windows. For example, before Windows was introduced it was often difficult to debug computer problems and to identify the source of a system problem. Software such as Norton Utilities was introduced to facilitate the process. With Windows, debugging was greatly simplified.

The development of Windows, as well as other innovations by Microsoft, created great benefits for consumers, Microsoft shareholders, and Bill Gates. But Microsoft's increasing integration of its operating system with its own applications raised the ire of the DOJ. Of particular concern was Microsoft's integration of its browser with its operating system, which occurred soon after the introduction of Windows 95 and continues with the recent introduction of Windows 98.

EFFECTIVE OPERATING SYSTEM REGULATION?

The basic rationale for regulating the operating system is that the economics of some networks naturally leads to the dominance of a single system that is essential both for using a computer and for developing software. In simple terms, the network benefits of operating systems enjoyed by consumers and software makers are sufficiently strong to lead to one overriding standard. Thus, the winner of the competition over the operating system could have the upper hand in dealing with other market participants.

Some legal scholars have argued that Microsoft's operating system is a kind of common carrier for software applications, much like transmission pipelines for oil and gas or railroad track for rail traffic. Richard Epstein of the University of Chicago Law School in a 6 July 1998, *Wall Street Journal* oped called Microsoft's operating system "the gate through which all other market participants must pass." Others have argued that Microsoft's alleged market power in operating systems is greatly overstated because computer manufacturers and users have a great deal of flexibility in changing the contents of the operating system.

The real question is whether that "gate" should be regulated

by government. Unfortunately, government does not have a great track record of regulating dynamic industries with quickly-evolving technologies. For example, the DOJ's antitrust suit against IBM was originally filed in 1969 and finally abandoned thirteen years later in 1982 by the government. Like Microsoft, IBM was accused of illegally leveraging its "dominant" position through bundling and other practices that allegedly erected entry barriers against competing computer manufacturers. But by the time the IBM case was over, the company was no longer dominant, as personal computers were rapidly entering the marketplace. The costs of that ultimately fruitless case were substantial. As James DeLong wrote on 6 March, 1998, in the *Wall Street Journal*, that case involved "13 years of litigation, 726 trial days, 17,000 exhibits, 950 witnesses and at least $200 million in direct expenses to IBM and the taxpayers."

WHAT WOULD HAVE BEEN THE POINT OF DEVELOPING JAVA IF THE GOVERNMENT ENFORCED WHAT WOULD HAVE AMOUNTED TO A MS-DOS/DR-DOS DUOPOLY?

Effectively regulating an industry as dynamic as computer software systems is a daunting task. To illustrate the regulatory challenge, consider what the operating system would look like today if the government had previously attempted to regulate it. For example, what if the DOJ had limited the Windows/MS-DOS integration in the same way it is proposing to limit the browser integration? Interestingly, Novell, the marketer of DR-DOS, a competitor to MS-DOS, complained to the DOJ in its initial investigation about the Windows/MS-DOS integration. What would have happened if the DOJ had forced Microsoft to carry DR-DOS in Windows? No doubt that requirement would have reduced Microsoft's incentive to innovate because it would have been forced to share the benefits of its Windows/MS-DOS integration with a competing manufacturer. Other innovative breakthroughs would have been less likely because their profits potentially would have been shared with others.

Of course, one could argue that forced competition might have led to more innovation in particular software applications, but the development of an operating system likely would have suffered. Given the nature of the industry at the time, a dominant operating system probably would have emerged anyway.

On the other hand, the potential challenge to Microsoft from a Netscape Navigator/Java combination might never have materialized. What would have been the point of developing Java if the government enforced what would have amounted to a MS-DOS/DR-DOS duopoly? Similar problems could arise today if the DOJ chooses to "lock in" Netscape/Java as the sole competitor to Microsoft's operating system.

Indeed, the DOJ's argument that competition must be "managed" is undercut by AOL's purchase of Netscape Communications Corp., the owner of the browser that competes with Microsoft's browser. Further, AOL will be cooperating, and perhaps merging, with Sun Microsystems, the owner of Java. AOL supplies internet access to sixteen million customers and has 60 percent of the market. The very fact that AOL is making such deals indicates that competition is alive and well. Indeed, now Microsoft could face a real competitive challenge to its operating system.

This reasoning is not meant to give Microsoft carte blanche over its operating system. The issues might be different if Microsoft had refused to offer reasonable standards of compatibility to other software makers or had offered such standards only to certain preferred producers. Likewise, the issues might be different if Microsoft had forbidden computer manufacturers to add "nonapproved" software applications to the Microsoft operating system. Those types of situations deny or inhibit access to the operating system with no compelling efficiency rationale. They should be scrutinized closely.

But the DOJ's allegations against Microsoft concern actions that have clear efficiency rationales. For example, the operating system/browser integration offers clear benefits to the consumer, such as faster access to files for printing and e-mail. In such situations, government regulators need to be aware of the difficulties in regulating a product as amorphous and as rapidly changing as an operating system. In operating systems there are significant economic benefits to allowing the evolution of a common standard or of whatever systems emerge in accordance with changing technology. Government attempts to micromanage operating systems put the courts in a position of making a delicate cost/benefit tradeoff in a rapidly changing marketplace. And if any lesson should be drawn from the government's case against IBM, it is that the legal process is expensive, time-consuming, and uncertain.

COURT-DEFINED OPERATING SYSTEMS

The idea that the government should show restraint in regulating operating systems is consistent with the 23 June 1998, U.S. Appeals Court, D.C. Circuit, decision in favor of Microsoft. The main issue in the case involved a 1995 consent agreement between the DOJ and Microsoft that prohibited Microsoft from entering into any license agreement conditioned upon "the licensing of any other Covered Product, Operating System Software product or other product (provided, however, that this provision in and of itself shall not be construed to prohibit Microsoft from developing integrated products)." The key words in this agreement are "integrated products." Computer users have long demanded integrated products because they are easier to use and to debug. Microsoft has responded accordingly. But had Microsoft gone too far by incorporating products, such as the browser, into its operating system, especially if there were little or no integration benefits?

The Appeals Court gave an interesting answer to this question that is consistent with the regulatory concerns outlined above. It suggested that the browser integration was analogous to the integration of Windows/MS-DOS, "If the Windows 95/IE [Internet Explorer] combination is like "that MS-

"The best thing about the Information Age is, we lawyers are still in charge!"

DOS/graphical interface combination" that comprises Windows 95 itself, then it must be permissible. The Court went on to define an integrated product as "a product that combines functionalities (which may also be marketed separately and operated together) in a way that offers advantages unavailable if the functionalities are bought separately and combined by the purchaser." Because the Court considered the Windows/Explorer integration to meet this test, it found that Microsoft had not violated the consent agreement.

Critics will point out that the Appeals Court focused just on the consent decree and not on the broader antitrust issues in play in the current DOJ case. Nevertheless, the Court's perspective was consistent with an understanding of the limits of regulation. Indeed, one might reasonably take from the opinion the implication that the government should be in the business of regulating operating systems only in those situations where the integration at issue is clearly a sham.

That Appeals Court decision has raised the ire of those who strongly believe in the importance of using the antitrust laws as a tool to discipline dominant firms. After all, one can argue that the DOJ is not really regulating operating systems, but is only doing piecemeal intervention into ancillary markets in which Microsoft has clearly overstepped its bounds. This is what most monopolization cases are all about. A company does not break the law by competing to become a monopolist; it breaks the law when it erects artificial barriers to protect its monopoly power. By focusing on ancillary markets, antitrust regulators can attempt to ensure that there remains at least a fair potential to compete and unseat the monopolist while also not intruding directly on the monopolist's territory.

This again raises the question of government effectiveness. Can the DOJ regulate operating systems by regulating ancillary markets to operating systems, such as browsers? In making this determination, it is important to remember that the DOJ's interest in browsers is based largely on the assumption that browsers could potentially compete with Windows as platforms for software programs, either on their own or in conjunction with new programming languages like Java. By putting Netscape s browser on the same playing field as Microsoft's browser, the DOJ can supposedly preserve Netscape as a potential operating system competitor.

But the browser may or may not be the key to the future of operating systems. Its potential to serve as an applications platform is largely speculation at this point. Thus, the benefits to consumers of this type of DOJ intervention are unclear. Further, it is not clear what distinguishes an operating system from an application like the browser. The addition of the browser to the operating system is not simply a matter of adding razor blades to razors. As the Appeals Court decision found, there are clear integration efficiencies from the operating system/browser combination. Indeed, every operating system today carries a browser. Thus the notion of a discrete mar-

ket for browsers is questionable.

Finally, there are likely to be hidden, long-term costs of the DOJ's case. The argument for piecemeal antitrust regulation of Microsoft's operating system assumes that it is just that—a one-shot deal limited to judicial interpretation of the antitrust laws. But history shows that it is far from that. The DOJ began its latest foray by exploring the potential monopoly of Microsoft Network (an Internet service provider), but then switched theories and went after Microsoft's browser after being lobbied by Netscape. Thus, the Microsoft case appears to have led to a blossoming of political involvement and lobbying by Microsoft, Netscape, and others—the classic rent-seeking activities of public choice theory. This could easily become more pronounced in future cases.

RENT-SEEKING COSTS

In assessing the cost of regulating Microsoft, it is important to consider the full range of costs and benefits. One potential cost appears to have received short shrift—the effect this case could have on political rent seeking. The DOJ's focus on giving a competitor access to the operating system (e.g., requiring Microsoft to offer Netscape's browser on its operating system) could give rise to a new rent-seeking industry. Firms such as Netscape wishing to have their products distributed more widely, and even for free, will make greater use of the political process. And dominant firms such as Microsoft will be forced to respond accordingly, thus putting greater effort into developing political influence rather than better products.

Indeed, early indications are that the rent-seeking effects of the DOJ's interest in computer software are already beginning to blossom. Initially, the efforts involved a cadre of Microsoft's competitors, including Netscape and Sun Microsystems. Netscape's president James Barksdale has been a frequent visitor to Congress and former Senator and Republican presidential candidate Robert Dole and former Carter White House operative Jody Powell have formed an "anti-Microsoft" lobbying coalition. The Congress recently convened hearings to address the state of competition in the computer industry, particularly the concerns raised about Microsoft.

Though slow to respond to these political pressures, Microsoft has begun to enter the political fray. For example, a 20 May 1998, *Wall Street Journal* article points out that Microsoft gave $300,000 in contributions in the 1996 political cycle (according to the Center for Responsive Politics). That made Microsoft the leading political donor among computer companies, up from sixteenth in the 1992 election cycle.

Moreover, state as well as federal authorities are drawn into the politicized process. Twenty states have joined the battle against Microsoft and their positions fit their political interests. The state of Washington, home of Microsoft, is absent from the list. Utah has joined in the battle against Microsoft, hoping that its participation will attract other computer and software companies that have had problems with Microsoft to locate there. The Texas attorney general also investigated Microsoft, but withdrew just before the case was filed as objections were raised by Dell, Compaq, and Computer City—all major Texas computer firms.

Whether at the state or federal level, it is clear that the government's antitrust case against Microsoft has intensified political lobbying in the computer industry. The danger is that actions like those against Microsoft can be expected to give rise to an expanded role for rent-seeking in the computer industry.

IS THERE A LOGICAL ENDPOINT?

Microsoft has already been through several rounds of regulation concerning its operating system. Bill Gates thus must naturally be asking the question; When does this all end? Because Microsoft currently has the dominant operating system and because it also has significant involvement in applications software, the answer is that there is no clear endpoint and no final solution. Thus the DOJ's concern over the browser is not a one-time intervention but is part of a long-term ongoing regulatory process.

The reason that there is no endpoint is that operating systems will continue to be dominated by one or at most a few firms as long as there remain significant economic benefits to having a standard operating system. Suppose, for example, that the government prevails in its case against Microsoft and the gate is opened. Suppose further that Netscape, perhaps in combination with Java, goes on to reduce Microsoft's share not only of the browser market but of the operating systems market. Would that end the government's interest in regulating operating systems or their successors?

As long as there continues to be market dominance by a single or perhaps a few operating system producers, government antitrust regulators will have a continuing interest in those systems and related markets. As operating systems evolve toward additional integration, piecemeal antitrust actions likely will be necessary to ensure that competitors have sufficient access.

This reality points to the government's regulatory conundrum concerning operating systems. Targeted remedies focusing on things such as the browser do not get at the core issue, that is, Microsoft's control of the operating system. But more extreme solutions are fraught with difficulties.

For example, one could break up Microsoft into two units—one for operating systems and one for other applications. There are several problems with this approach. One is how to distinguish between an operating system and an application. Is the browser an application or part of the operating system? How about the e-mail program or the other online programs? Should a distinction be made between operating systems and applications based on today's operating system or should the DOJ consider what tomorrow's operating system might look like (something impossible to predict today)? After all, there have been various versions of the MS-DOS/graphics interface combination known as Windows. Which operating system would be considered the stripped-down baseline beyond which anything added would be considered a new application?

Another problem with a separation of the operating system from applications is that it deters the effective development of

integrated operating systems. After all, there are integration efficiencies from combining operating systems with applications. How would government officials separate and do a cost-benefit tradeoff between integrated and separated systems? Such a tradeoff is especially difficult because many of the benefits and potentials of both technology and software are discovered only as users work on the integrated systems.

Another proposed way to "ensure competition" would be to appoint a neutral body to develop standards for the interaction between the operating system and software applications. Microsoft would then have to follow those standards in its design of the operating system and Microsoft applications. The advantage of this solution would be that it puts other computer companies on the same competitive plane with Microsoft. However, the main disadvantage would be that a political entity would be trying to set standards for a rapidly developing product. It is hard to imagine that the result would be an improvement on the existing situation.

Of course, Microsoft already published standards that allow software companies to write programs compatible with its operating system. But it has an advantage in the process because it has advanced knowledge of its next version of its own operating system. One suggestion made by Microsoft critics is to force the company to disclose its standards to other software makers as soon as it knows what they are. Of course, that solution raises a whole set of regulatory problems and would reduce Microsoft's incentive to develop new standards.

CONCLUSION

The Department of Justice's concerns about Microsoft's domination of the operating systems market are misplaced and thus, not surprisingly, its proposed remedies concerning Microsoft's browser are cures likely to be worse than the disease. It is difficult to quantify the benefits and costs of the proposed remedies, particularly when there is no logical endpoint to such intervention. But an understanding of regulatory history—especially regulatory history in dynamic markets—teaches that the regulatory costs of the Microsoft case are likely to be significant.

The Microsoft-DOJ-Netscape skirmish needs to be understood in the broader context of using antitrust regulatory tools to rein in dominant firms. Given the government's reasons for attacking Microsoft, more of these cases are likely in the future. And to the extent that government officials embark on a holy war, there is a real danger that such initiatives will reduce innovation, increase rent-seeking, and harm consumers.

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