

## ANTITRUST MERGER ANALYSIS IN HIGH-TECHNOLOGY MARKETS

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### A. INTRODUCTION

High-technology merger analysis often focuses on two seemingly contradictory ideas about the nature of technology. On the one hand, the rapid pace of development can result in the sudden and complete overhaul of existing technologies and the displacement of an existing monopolist. On the other hand, high-tech markets may be significantly more durable, enabling early innovators to become firmly entrenched as market leaders.

In some markets, therefore, the possibility of radical technological innovation calls into question the accuracy of existing market share as a means of determining market power and future market performance. Depending on the pace of innovation, the fact that two merging technology firms will accumulate a substantial share in a statically defined market may have minimal bearing on the market power that the merged company may actually exercise one or two years after the merger. As the DC Circuit noted in *United States v Microsoft*, “[r]apid technological change leads to markets in which firms compete through innovation for temporary market dominance, from which they may be displaced by the next wave of product advancements.”<sup>1</sup>

This explanation from the *Microsoft* court illustrates a set of principles first set forth by Joseph Schumpeter some 70 years ago, and describes conditions present in a number of technology markets.<sup>2</sup> Schumpeter explains that often in technology markets a few firms (or even one firm) may dominate, but even though there is only one participant (or just a few), that does not mean that the firm has antitrust market power.<sup>3</sup> Why not? As explained by William Baumol,

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<sup>1</sup> *United States v Microsoft Corp*, 253 F 3d 35, 49 (DC Cir 2001).

<sup>2</sup> JB Baker, “Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation” (2007) 74 *Antitrust Law Journal* 575, 578.

<sup>3</sup> WJ Kolasky, “What is Competition? A Comparison of US and European Perspectives” (April 2004) *Antitrust Bulletin* 32, available at <http://www.wilmerhale.com/files/Publication/2216380d->

expanding on Schumpeter's conclusions, a phenomenon he refers to as the "Red Queen Game" prevents the exercise of market power in such markets.<sup>4</sup>

The Red Queen Game describes the situation where market participants must run as fast as they can just to stand still.<sup>5</sup> In such markets, although prices often are substantially above marginal cost, they are not set at the level that one would expect a firm with market power to demand. Why is that? According to Baumol, such markets demand substantial expenditures to support continued innovation, and these investments in R&D result in only a normal return on capital.<sup>6</sup> Moreover, if a firm in such a market were to set prices at a high level, that high price would induce entry by others.<sup>7</sup> The threat of potential entry constrains the incumbent firm's pricing.<sup>8</sup>

Schumpeter noted that in these markets few participants will persist until the "gales of creative destruction" lead to market displacement.<sup>9</sup> In such industries, leaders persist until they are displaced by another firm that develops a leapfrogging innovation that provides dramatically improved performance or lower costs. In other words, new participants can change the contours of the market and alter the market definition.<sup>10</sup>

The possibility of this radical change necessarily moves merger analysis from an examination of competitors seeking to obtain a leading position in a static market to an attempt to identify the proper definition of the market itself. The danger of over-enforcement in such circumstances is great, in that the antitrust agencies are placed in the unenviable position of predicting the course of

6154-43bf-bfal-e8a9151d3747/Presentation/PublicationAttachment/eb450bbe-3bfe-4223-a81b-d9a9bcc96625/What%20is%20Competition.pdf (all websites were accessed on 1 November 2008).

<sup>4</sup> WJ Baumol, *The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism* (Princeton, NJ, Princeton University Press, 2002), 43.

<sup>5</sup> Kolasky, *supra* n 3, 32.

<sup>6</sup> *Ibid.*, 34.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> JA Schumpeter, *Capitalism, Socialism and Democracy* (New York, Harper & Row, 1975). See also TO Barnett, opening remarks for the Antitrust Division and FTC Hearings Regarding Section 2 of the Sherman Act, "The Gales of Creative Destruction: The Need for Clear and Objective Standards for Enforcing Section 2 of the Sherman Act" (20 June 2006), 6, available at <http://www.ftc.gov/os/sectiontwohearings/docs/Barnett-statement.pdf>.

<sup>10</sup> According to Schumpeter, a mere analysis of short-term pricing competition misses the boat. He noted:

"Economists are at long last emerging from the stage in which price competition was all they saw . . . However, it is still competition within a rigid pattern of invariant conditions, methods of production and forms of industrial organization . . . that . . . monopolizes attention. But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization . . . competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives" (Schumpeter, *ibid.*, 82-5).

technology that has yet to be developed or released before going on to address whether the merger will adversely affect competition in the resulting market.

In other high-tech markets, it is the danger of under-enforcement that is a cause for concern. Where market conditions make it possible for early innovators to become firmly entrenched as market leaders, enforcement can provide a means of achieving desirable long-term change in market structure. As Schumpeter described, in these more durable technology markets, firms can benefit from being the “first movers”, setting the applicable standards, quickly becoming dominant and remaining so for several generations. This first mover advantage is particularly useful in markets susceptible to network effects, path dependency, lock-in effects and patent thickets. These characteristics can create entry barriers that may persist in markets even after the advent of superior technology. Where these conditions are present, regulators cannot count on the likelihood that innovators may create “market displacement”, and must consider the equally real possibility that the technology market may be more durable, so that a merger may create sustained market power.

In 2006, the Portuguese Competition Authority (the Autoridade da Concorrência, or AdC) considered a merger that raised many of the issues discussed in this article.<sup>11</sup> In its decision to clear the transaction, albeit with substantial relief, the AdC discussed many of the competition issues presented by technology mergers.<sup>12</sup>

The merger involved the combination of Sonaecom, the telecommunications subsidiary of a large Portuguese industrial group, SONAE, and Portugal Telecom (to further complicate matters, the transaction was completed via hostile acquisition of Portugal Telecom by Sonaecom).

The parties were two of the largest providers of mobile telephony and services. The other provider, Vodafone, entered and captured a larger share of sales relatively quickly. In looking at the market, the AdC considered this rapid entry as evidence that technological displacement and innovation had rapidly changed market dynamics.<sup>13</sup> This, in turn, made it difficult to suggest that any market power could be realised by means of the merger. Specifically, the AdC considered the rapid development from one platform to the next platform to potentially redefine competition at each generation. Attenborough *et al* summarised this aspect of the decision as follows:

“Technological progress, represented by the speed of innovation, may make it easier for a new entrant to challenge the incumbent. When new technology becomes available, the incumbent will need to switch over to the new technology. Thus,

<sup>11</sup> Summarised in N Attenborough, F Jimenez and G Leonard, “Are Three to Two Mergers in Market with Entry Barriers Necessarily Problematic?” (2007) 28 *European Competition Law Review* 539.

<sup>12</sup> *Ibid.*

<sup>13</sup> *Ibid.*, 543.

although the cost of implementing the technology might be sunk, it is a cost that both the incumbent and the entrant have to bear at approximately the same time. If the incumbent fails to invest in the new technology, the entrant has the opportunity to offer a new product or services that are more attractive than those already available in the market from the incumbent.

The mobile telephone industry is characterized by rapid technological progress, with successive generations of mobile technology becoming available over time. This is why this issue attracted great attention in the discussion of the possible competitive effects of the merger.

For instance, Vodafone had made a substantial investment to deploy a 3G network, and as a result had obtained a share of around 50 per cent of this segment. This fact softened some of the concerns regarding the possible dominant position of the firm resulting from the merger.”<sup>14</sup>

Nevertheless, although the market demonstrated rapid advancement, it was susceptible to high entry barriers, caused by network effects and lock-in characteristics (generated, in large part, by a substantial installed base). Thus, the AdC also analysed the merger’s effect in light of these market conditions. Specifically, the AdC considered the fact that the market exhibited network effects because on-network call prices (those originating and terminating under the same network) were lower than off-network calls. These network effects were substantial, in that “the higher the customer base of an operator, the more attractive it becomes for new customers, as a higher percentage of their calls will be on-net, leading to lower mobile phone bills”.<sup>15</sup>

The AdC also considered substantial switching costs, including, most significantly, the lack of number portability:

“The cost arises from the fact that a customer must change phone numbers when changing service provider, and will face the possibility of losing contact with the people or firms that had his old phone number. Given that the possibility of being contacted is one of the key services provided by mobile telephony, the absence of portability discourages customers from changing service provider.”<sup>16</sup>

Given these substantial market barriers, the AdC demanded relief, even though the merger occurred in a market that exhibited substantial dynamic structural change allowing for new technologies to rapidly displace existing ones.

This article examines how the seemingly diametrically opposed dynamics of high-tech markets, in part as raised by the Sonaecom and Portugal Telecom merger, impact on merger analysis in the US and the European Union. In particular, we review several transactions in which the agencies in both jurisdictions analysed markets that were both susceptible to rapid change yet also

<sup>14</sup> *Ibid.*

<sup>15</sup> *Ibid.*, 542–3.

<sup>16</sup> *Ibid.*, 543.

exhibited substantial entry barriers. These markets include internet products and services, as well as networked software and hardware.

## **B. ON THE ONE HAND: TECHNOLOGY DISRUPTS MARKETS AND OFTEN MAKES “MARKET POWER” TRANSIENT**

### **1. Overview**

#### *(a) United States*

In the US, mergers are generally reviewed under section 7 of the Clayton Act.<sup>17</sup> The Act is broad, prohibiting acquisitions that “may be substantially to lessen competition, or to tend to create a monopoly”.<sup>18</sup> In addition, mergers may be analysed under sections 1 and 2 of the Sherman Act.<sup>19</sup> The Federal Trade Commission may also challenge mergers under section 5 of the Federal Trade Commission Act.<sup>20</sup>

The Department of Justice’s Antitrust Division (DOJ) and the Federal Trade Commission (FTC) are the federal agencies that enforce the nation’s antitrust laws. In a typical merger review, either the DOJ or the FTC will examine the transaction to determine whether (i) the merger “significantly increases concentration and results in a concentrated market, properly defined and measured”; (ii) in light of market concentration and other factors that characterise the market, the merger raises concern about potential adverse competitive effects; (iii) the barriers to entry are so low that entry by competitors would be “timely, likely, and sufficient in its magnitude, character and scope to deter or counteract the competitive effects of concern”; (iv) there are efficiency gains that reasonably cannot be achieved by the parties through other means; and (v) whether, but for the merger, either party to the transaction would be likely to fail.<sup>21</sup> Through these factors, set out in the Horizontal Merger Guidelines (US

<sup>17</sup> 15 USC, s 18.

<sup>18</sup> Section 7 of the Clayton Act, 15 USC, s 18.

<sup>19</sup> 15 USC, ss 1, 2. Section 1 of the Sherman Act prohibits mergers “in restraint of trade” and section 2 prohibits mergers that monopolise or attempt to monopolise a market.

<sup>20</sup> 15 USC, s 45.

<sup>21</sup> DOJ and FTC, Horizontal Merger Guidelines (1992, revised 1997), s I, available at <http://www.usdoj.gov/atr/public/guidelines/hmg.htm>. Note that the failing firm defence rarely results in the approval of a transaction that otherwise would have been blocked by the agency. See I Knable Gotts, WH Rooney and JJ Knoff, “Transactions with Financially Distressed Entities” [2002] *Antitrust* 64, 67. More often, the continuing viability of a firm that is suffering in the marketplace is one factor in the agencies’ determination of whether the merger would create anticompetitive effects. See *United States v Gen Dynamics Corp*, 415 US 486 (1974), 504–5. For a comparative approach, see also I Knable Gotts and D Theophile, “The Impact of Financial Distress on M&A Review—A Comparative Analysis” [May 2003] *Business Law International*.

Guidelines),<sup>22</sup> the agencies ultimately determine whether the proposed merger is likely to substantially lessen competition.

*(b) European Union*

The European Commission (EC) has reviewed mergers since 1990 under its Merger Regulations (EC Regulations).<sup>23</sup> The EC Regulations grant the EC exclusive power to investigate mergers with a “Community dimension” and to prohibit those that create or strengthen a dominant position in the Common Market. In 2004, the EC revised the EC Regulations to prohibit those mergers that constitute “a significant impediment to effective competition”.<sup>24</sup> The EC Regulations specify, however, that such an impediment “generally results from the creation or strengthening of a dominant position”.<sup>25</sup> The EC Regulations were promulgated with an accompanying set of enforcement guidelines on the analysis of horizontal mergers (EC Guidelines).<sup>26</sup> Similar to the US Guidelines, the EC Guidelines provide notice as to “how the Commission assesses concentrations when the undertakings concerned are actual or potential competitors on the same relevant market”.<sup>27</sup>

## **2. A Subtle Shift in Technology Merger Review? A Focus on Long-term Supply-side Substitution**

The US Guidelines recognise that in changing markets, current market share may not be an accurate measure of a firm’s forward-looking competitive significance.<sup>28</sup> However, one important difference between the US Guidelines and the EC Regulations is that while short-term demand constitutes the only considerations in market delineation under the US Guidelines, the EC Regulations expressly consider substitution in both market definition and competitive effects analysis.<sup>29</sup> The US does consider to some extent supply substitution in the identification of firms that participate in the relevant market (including “uncommitted entrants”<sup>30</sup>) and the analysis of

<sup>22</sup> US Guidelines, s 1.0.

<sup>23</sup> Council Regulation (EEC) No 4064/89 (21 December 1989).

<sup>24</sup> Council Regulation (EC) No 139/2004 (20 January 2004) (hereinafter EC Regulations), Recital 25.

<sup>25</sup> EC Regulations, Recital 26.

<sup>26</sup> “Commission Notice—Guidelines on the Assessment of Horizontal Mergers under the Council Regulation on the Control of Concentrations between Undertakings”, DG COMP, 28 January 2004 (hereinafter EC Guidelines).

<sup>27</sup> EC Guidelines, s 5.

<sup>28</sup> US Guidelines, s 1.521.

<sup>29</sup> EC Regulations, Recitals 13 and 20.

<sup>30</sup> According to the US Guidelines, the DOJ and the FTC will consider “uncommitted entrants” in identifying firms that participate in a market through supply response. These are firms that do not currently produce or sell the relevant product in the relevant area, but whose inclusion in the relevant market would more accurately reflect probable supply responses. US Guidelines, s 1.0.

entry.<sup>31</sup> However, consideration of potential suppliers is limited to those whose entry would likely create a supply response within one year.<sup>32</sup> Similarly, while potential new supply is considered in entry analysis, the US agencies will generally consider “only those committed entry alternatives that can be achieved within two years from initial planning to significant market impact”.<sup>33</sup> This means that the US Guidelines’ consideration of supply substitutability is limited to, at most, a two-year period, resulting in a short-term view of potential competition from third parties.

In contrast, under Article 2 of the EC Regulations, the EC expressly indicates that it will consider “the structure of all the markets concerned and the *actual or potential* competition from undertakings located either within or without the Community”, as well as “supply and demand trends for the relevant goods and services”.<sup>34</sup> For example, in its decision regarding the recent Lite-On/PBDS merger, the Commission expressly considered long-term supply-side conditions when evaluating the relevant market, and took notice of the high degree of supply-side substitutability in personal computer optical data-storage disk drives (PC ODDs). Based on the high degree of both supply and demand substitutability, the Commission concluded that the relevant market was the overall market for PC ODDs, rather than different types of PC ODDs.<sup>35</sup> Although ultimately the practical distinction between the actual approach taken by the US agencies and the EC may be minimal (particularly given the DOJ’s approach in XM/Sirius, discussed in greater detail below), the EC’s express consideration of long-term supply-side substitution can have a significant impact on the products included in the relevant market, particularly where the marketplace is susceptible to rapid transformation through dynamic technological innovation. The Commission’s approach permits and may even encourage EC enforcers to consider as part of their analysis the potentially disruptive innovation that fundamentally characterises many high-tech markets.

<sup>31</sup> *Ibid.*

<sup>32</sup> US Guidelines, s 1.32 (“supply responses must be likely to occur within one year and without the expenditure of significant sunk costs of entry and exit, in response to a ‘small but significant and nontransitory’ price increase”).

<sup>33</sup> US Guidelines, s 3.2.

<sup>34</sup> EC Regulations, Art 2(1)(a)–(b) (original emphasis). The full list of consideration also includes,

“the market position of the undertakings concerned and their economic and financial power, the alternatives available to suppliers and users, their access to supplies or markets, any legal or other barriers to entry . . . the interests of the intermediate and ultimate consumers, and the development of technical and economic progress provided that it is to consumers’ advantage and does not form an obstacle to competition.”

<sup>35</sup> EC Decision, Case No COMP/M.4502 *Lite-On/PBDS* (16 February 2007), para 14, available at [http://ec.europa.eu/comm/competition/mergers/cases/decisions/m4502\\_20070216\\_20310\\_en.pdf](http://ec.europa.eu/comm/competition/mergers/cases/decisions/m4502_20070216_20310_en.pdf).

The difference between the US and EU approaches is particularly relevant when evaluating potential competition. The US Guidelines appear to limit competition to existing competitors except in those limited situations in which potential entry into the market is likely, imminent and of meaningful scope (ie sufficient entry within two years).<sup>36</sup> Proponents of a more liberal standard posit that reliance on such short-term views of markets and entry conditions may not correctly account for sudden disruptive changes to a market's structure from innovation.<sup>37</sup> Accordingly, such advocates of industry-specific change to the US Guidelines argue that, because the dynamism of high-tech industries does not fit neatly within the mold of standard market definition and competitive effects analysis, the US Guidelines should be changed to avoid possible over-enforcement in technology markets.

Other commentators, and ultimately the Antitrust Modernization Commission (AMC), reject the charge that the current US Guidelines are deficient in their treatment of high-tech markets, finding that “[n]o substantial changes to merger enforcement policy are necessary to account for industries in which innovation, intellectual property, and technological change are central features”.<sup>38</sup> Such conclusions, however, appear to be premised not on what the US Guidelines expressly state, but rather on how the US agencies operating under the US Guidelines have in practice analysed such mergers.<sup>39</sup>

For example, although the US Guidelines do not expressly discuss the parameters for consideration of future markets that are presently non-existent, the agencies have used the existence of potential “innovation” markets and the potential of leapfrog innovations into new generations of products as the basis for both challenging and clearing transactions.<sup>40</sup> Thus, in 1995, the FTC challenged the acquisition of Orthomet, a potential producer of next-generation

<sup>36</sup> US Guidelines, s 3.

<sup>37</sup> C Ahlborn, V Denicolò, D Geradin and AJ Padilla, DG Comp's Discussion Paper on Article 82: Implications of the Proposed Framework and Antitrust Rules for Dynamically Competitive Industries (31 March 2006), s 5.1 (stating that a focus on

“‘immediate’ competitive constraints and ‘actual’ competitors . . . fails to recognise that product innovation and potential competition play a key role in dynamic, innovative industries . . . [t]he main constraint faced by companies operating in those industries comes from new, superior products whose time of introduction is highly uncertain” (available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=894466#PaperDownload](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=894466#PaperDownload)).

<sup>38</sup> AMC, Report and Recommendations (April 2007), 9, available at [http://govinfo.library.unt.edu/amc/report\\_recommendation/amc\\_final\\_report.pdf](http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf).

<sup>39</sup> Indeed, in the US joint Department of Justice and Federal Trade Commission IP Licensing Guidelines, the agencies specifically set forth a mode of analysis to consider such potential competition and innovation market considerations. DOJ and FTC, ‘Antitrust Guidelines for the Licensing of Intellectual Property’ (1995), reprinted in 4 Trade Reg Rep (CCH), para 13,132, available at <http://www.usdoj.gov/atr/public/guidelines/0558.pdf>.

<sup>40</sup> See I Knable Gotts and RT Rapp, “Antitrust Treatment of Mergers Involving Future Goods” [Fall 2004] *Antitrust* 100; I Knable Gotts, “The ‘Innovation Market’: Competitive Fact or Regulatory Fantasy?” (1998) 44(January) *The Practical Lawyer* 59.



finger implants, by Wright, the leading manufacturer of small-joint orthopaedic implants used in human hands.<sup>41</sup> Wright's implants provided functionality for severely arthritic fingers, but did not provide lifting strength. Orthomet had a license from the Mayo Foundation to develop and commercialise new implants that would restore more strength to the fingers than Wright's implants.<sup>42</sup> These Orthomet products were a long way from successful commercialisation, since they had not yet been produced nor undergone the long US Food and Drug Administration regulatory approval process, much less proven themselves as viable commercial candidates.<sup>43</sup>

The FTC's Complaint nevertheless alleged two product markets: (i) the manufacture and sale of orthopaedic implants used in the human hand; and (ii) research and development of such orthopaedic implants.<sup>44</sup> The FTC thereby framed its analysis expansively both to encompass an existing market for production of orthopaedic implants and to include as competition future versions of the orthopaedic implant.<sup>45</sup> In the consent order, the FTC required Wright either to grant a nonexclusive licence (including patents and trade secrets) for the research assets that Orthomet had obtained through the Mayo Foundation to another company within six months, or to transfer these research assets back to the Mayo Foundation, which had developed the basic technology.<sup>46</sup> In finding that an existing product competes with a future-generation product, the FTC signalled its awareness that long-term, future-generation products could be considered when defining the market—even if that scenario is not contemplated by the US Guidelines.

More recently, the DOJ used the potential introduction of new technology as a basis for declining to challenge the proposed combination of XM Satellite Radio and Sirius Satellite Radio, even though critics characterised the transaction as a “merger to monopoly of the only two US licensed providers of satellite digital audio radio services”.<sup>47</sup> XM and Sirius argued that changing consumer demand for satellite radio and actual and imminent potential substitute technologies negated any potential exercise of market power. Ultimately, the DOJ found that “the evidence did not show that the merger

<sup>41</sup> Wright Med Tech, Inc, *et al*, Proposed Consent Agreement with Analysis to Aid Public Comment (4 January 1995), Fed Reg File No 951-0015, available at [http://bulk.resource.org/gpo.gov/register/1995/1995\\_460.pdf](http://bulk.resource.org/gpo.gov/register/1995/1995_460.pdf).

<sup>42</sup> ML Azcuenaga, Commissioner, FTC, remarks before the American Law Institute—America Bar Association, “Antitrust/Intellectual Property Claims in High Technology Markets” in *Intellectual Property and Antitrust: A Perspective from the FTC* (26 January 1995), available at <http://www.ftc.gov/speeches/azcuenaga/ali-aba.shtm>.

<sup>43</sup> *Ibid.*

<sup>44</sup> *Ibid.*

<sup>45</sup> *Ibid.*

<sup>46</sup> *Ibid.*

<sup>47</sup> See P Shenon, “Justice Dept Approves XM Merger With Sirius”, *New York Times*, 25 March 2008, available at <http://www.nytimes.com/2008/03/25/business/25radio.html>.

would enable the parties to increase profitably prices to satellite radio customers” based on

“a lack of competition between the parties in important segments even without the merger; the competitive alternative services available to consumers; technological change that is expected to make those alternatives increasingly attractive over time; and efficiencies likely to flow from the transaction that could benefit consumers.”<sup>48</sup>

The third of these four factors directly addresses the “dynamic” aspect of high-tech mergers. In recognising dynamism as a basis for its decision not to challenge the merger, the DOJ implicitly acknowledged that long-term supply-side market changes can be considered in determining the scope of the relevant market. The DOJ recognised as significant “the fact that a number of technology platforms are under development that are likely to offer new or improved alternatives to satellite radio”.<sup>49</sup>

Under the US Guidelines, such supply-side substitutability matters, but only to the extent that the analysis focuses on imminent changes to the market. The DOJ’s recognition of potential technology platforms as simply reflecting the presence of uncommitted entrants or lowered barriers to entry would be consistent with a Guidelines-based approach. The DOJ, however, described “the *expected* introduction within *several years* of next-generation wireless networks capable of streaming Internet radio to mobile devices”.<sup>50</sup> This is hardly consistent with the US Guidelines’ consideration of only those potential competitors whose entry into the market meets the timeliness, likelihood and sufficiency test.<sup>51</sup> The inclusion of next-generation technology in its XM/Sirius

<sup>48</sup> DOJ Press Release, “Statement of the Department of Justice Antitrust Division on its Decision to Close its Investigation of XM Satellite Radio Holdings Inc’s Merger with Sirius Satellite Radio Inc” (24 March 2008), available at [http://www.usdoj.gov/atr/public/press\\_releases/2008/231467.htm](http://www.usdoj.gov/atr/public/press_releases/2008/231467.htm).

<sup>49</sup> *Ibid.*

“Most notable is the expected introduction within several years of next-generation wireless networks capable of streaming Internet radio to mobile devices. While it is difficult to predict which of these alternatives will be successful and the precise timing of their availability as an attractive alternative, a significant number of consumers in the future are likely to consider one or more of these platforms as an attractive alternative to satellite radio. The likely evolution of technology played an important role in the Division’s assessment of competitive effects in the longer term because, for example, consumers are likely to have access to new alternatives, including mobile broadband Internet devices, by the time the current long-term contracts [until 2012 and beyond] between the parties and car manufacturers expire.”

<sup>50</sup> *Ibid* (emphasis added).

<sup>51</sup> Under the US Guidelines, the new technology platforms also could not be considered participants in the market. The US Guidelines describe market participants as not only current producers of the products within the relevant market but also firms producing other goods but which, nonetheless, would enter the relevant market rapidly, and without incurring significant sunk costs of entry and exit, in response to a “small but significant and non-transitory” price increase, is inapplicable to the currently non-existent technology platforms described by the DOJ.

analysis may signal the DOJ's willingness to consider long-term supply-side evidence when evaluating high-tech mergers.

Assistant Attorney General Thomas Barnett recently articulated this subtle but notable change in US enforcement priorities when explaining that, notwithstanding the US Guidelines' approach to market definition—testing whether a small but significant non-transitory price increase (SSNIP) could be sustained post-merger—the inquiry must be broader, particularly in technology markets:

“Dynamic efficiency is a particular focus, and helps explain why U.S. antitrust enforcers have devoted so much time to issues surrounding innovation. Recall the work of Robert Solow and subsequent growth theory researchers, who demonstrated that, while static efficiency is important, the greater share of welfare gains—sometimes the much greater share—comes from technical change and the forces of dynamic efficiency. Their work has a clear policy implication: antitrust enforcers must be careful not to pursue immediate, static efficiency gains at the expense of long-term, dynamic efficiency improvements, since the latter are likely to create more consumer welfare than the former. Accordingly, U.S. enforcers approach practices that bear on innovation incentives with something close to the medical principle of ‘first, do no harm.’ I have described this concept as being careful not to kill the goose that lays the golden egg. Frank Easterbrook, a judge on the Court of Appeals for the Seventh Circuit, has stated it more dramatically: ‘[a]n antitrust policy that reduced prices by 5 percent today at the expense of reducing by 1 percent the annual rate at which innovation lowers the cost of production would be a calamity. In the long run a continuous rate of change, compounded, swamps static losses.’”<sup>52</sup>

Thus, while the US Guidelines continue to hew closely to determining whether a merger would result in a SSNIP when considering whether the transaction should survive antitrust scrutiny, in practice, in some markets, other considerations—such as dynamic changes in technology and supply-side substitutability—have a real place in merger analysis. Viewed in historical context, the XM/Sirius decision may be neither an anomaly nor an exploration of uncharted territory, since the DOJ employed a similar analysis four years earlier, when deciding to clear the merger of the two then-dominant paging system firms, Arch and Metrocall:

“The Division also concluded that harm from unilateral conduct by the merged firm is also unlikely, despite the parties' large combined market share . . . [S]ome former paging customers have begun to use emerging technologies, such as wireless local area networks to meet their local paging needs; as the quality of these services improves and their cost declines, these may become increasingly attractive to users.”<sup>53</sup>

<sup>52</sup> TO Barnett, Assistant Attorney General, Presentation to the George Mason University Law Review, “Maximizing Welfare Through Technological Innovation” (31 October 2007), available at <http://www.usdoj.gov/atr/public/speeches/227291.htm>.

<sup>53</sup> DOJ Press Release, “Department of Justice Antitrust Division Issues Statement on the Closing of its Investigation of Arch Wireless' Acquisition of Metrocall Holding” (16 November 2004), 3, available at [http://www.usdoj.gov/atr/public/press\\_releases/2004/206339.pdf](http://www.usdoj.gov/atr/public/press_releases/2004/206339.pdf).

Note, in its closing statement, the DOJ did not conclude that these “emerging” technologies would (i) have an impact within a defined period of years (ie two years, as defined by the US Guidelines) or (ii) counterbalance a potential price increase. Nonetheless, the DOJ approved the transaction. The DOJ likely concluded that enforcement in this market—while possibly making a short-term price increase less likely—would potentially be irrelevant, in light of the development of replacement technologies. In other words, the DOJ recognised that a disruptive technological change would at some point fundamentally change the ability of the merged company to compete.<sup>54</sup>

We will have to await the review of future transactions involving high-tech markets to discover whether the DOJ’s review of the above-described transactions reflects the agency’s move toward including longer-term effects and supply-side considerations as part of merger review, or simply evidences the approach of the latter years of the Bush Administration.

### **C. ON THE OTHER HAND: THE COUNTERVAILING CONSIDERATIONS OF NETWORK EFFECTS, PATH DEPENDENCY, LOCK-IN AND DURABLE INTELLECTUAL PROPERTY RIGHTS**

As described above, in many instances, high-tech markets are characterised by dynamic innovation for merger analysis purposes. Just as often, however, these markets exhibit a seemingly polar opposite technological stasis, resulting in the creation and promotion of a dominant firm. Firms that are the first to develop a technology can gain control over critical patents or standards. This control can then become entrenched due to so-called “network effects” and path dependency, which in turn raise barriers to entry and can ultimately result in consumers being “locked in” to the product or technology of that dominant firm. Then FTC General Counsel Debra Valentine recognised more than a decade ago that technology markets not only are rapidly developing, but also exhibit characteristics that tend to imbue first movers with market power:

<sup>54</sup> The EC considers longer-term supply-side considerations in its relevant product market and competitive effects analyses as well. In *Lite-ON/PBDS*, the EC considered the impact of the development of HD-DVD and Blu-ray technologies, when determining whether the merger of two DVD manufacturers would give rise to competitive concerns. The Commission noted that new technologies “are expected to gain substantial ground in terms of supply volumes” and that “suppliers appear to be able to adapt quickly to any new technology”, without delineating whether these new technologies would have an immediate impact on the demand-side of the market. *Lite-On/PBDS*, *supra* n 35, para 29; see also EC Decision, Case No COMP/M.4217 *Providence/Carlyle/UPC Sweden* (2 June 2006), para 9, available at [http://ec.europa.eu/comm/competition/mergers/cases/decisions/m4217\\_20060602\\_20310\\_en.pdf](http://ec.europa.eu/comm/competition/mergers/cases/decisions/m4217_20060602_20310_en.pdf) (“However it cannot be ruled out that . . . other platforms are already or will in the near future be in competition with cable.”).

“[T]he Internet has a Janus-faced aspect. On the one hand, firms using the Internet incur few sunk costs in reaching consumers worldwide—there is no need for bricks and mortar, no need to develop a costly distributional system. On the other hand, it can be hard for newcomers to gain customer awareness and, if others get there first, they may lock in customers whose loyalty in turn attracts advertisers and dollars in a constantly reinforcing and expanding circle of market power.”<sup>55</sup>

In their entry analysis, the EC Guidelines provide more detail than the US Guidelines regarding the types of barriers that might delay competitor entry. In particular, the EC Guidelines specify “incumbent advantages” that constitute entry barriers, including “technical advantages, such as preferred access to essential facilities”, “essential input materials” and “innovation and R&D, or intellectual property rights”.<sup>56</sup> In that regard, the EC Guidelines also describe some of the factual analyses necessary to determine whether a high-tech merger may affect competition.

We discuss some of the unique attributes of technology markets characterised by incumbent advantages that affect merger analysis below, and detail how EC and US enforcers have dealt with potentially significant entry concerns in such markets.

## **1. Network Effects**

Network effects may increase the concern that a merger may result in anticompetitive exclusion of potential competitors. A “networked” industry is one in which the value of a good or service increases as it is more widely used by others. The telephone exemplifies the impact of network effects—telephones would be of little use if only a few people had them, but are valuable because they are ubiquitous. Social networking sites, such as MySpace or Facebook, provide more recent examples—with the value of the network increasing as the number of people who sign in to use the sites increases.

When networks compete, the larger network can offer consumers a cost or quality advantage, which in turn continues to attract additional consumers. This, in turn, may cause the larger network to grow, while smaller networks shrink. As this effect continues, the market may experience “tipping”.<sup>57</sup> Market tipping occurs when a sufficient number of users choose a particular product such that consumers disproportionately move towards the product, which results in the

<sup>55</sup> DA Valentine, General Counsel, FTC, remarks at American Bar Association, Law Practice Management Section, Women Rainmakers and The Women’s Bar Association of the District of Columbia, “Antitrust in a Global High-Tech Economy” (30 April 1999), available at <http://www.ftc.gov/speeches/other/dvatspeech.shtm>.

<sup>56</sup> EC Guidelines, paras 71(b)–(c).

<sup>57</sup> CK Robinson, Director of Operations and Merger Enforcement, Antitrust Division, DOJ, “Network Effects in Telecommunications Mergers MCI WorldCom Merger: Protecting the Future of the Internet” (23 August 1999), available at <http://www.usdoj.gov/atr/public/speeches/3889.htm>.

product receiving sufficient scale to obtain market power.<sup>58</sup> Not all markets tip: consider the personal computer (PC). IBM had a first-mover advantage in developing the PC, and as it gained market acceptance, the “standard” computer became the “PC standard”, as more users purchased PCs and more developers wrote for the PC operating system (OS). The PC market, however, did not tip to IBM’s flavour, because of the interoperability of the IBM PC with those of other manufacturers. Thus, price, quality and other factors allowed for inter-platform competition among PC vendors.

The same was not true for the OS that ran the PCs: Microsoft’s version of the OS—MS-DOS—quickly became the *de facto* platform, according to the DOJ’s allegations, because Microsoft employed a variety of exclusionary tactics that made MS-DOS the dominant OS—and one that did not interoperate with other OS variants.<sup>59</sup> Once the market tipped to Microsoft’s OS, because of strong network effects, the market was locked in to Microsoft’s version, which has had a dominant position in the market to this day.<sup>60</sup>

Once consumers make their initial choices in technology markets, network effects can reinforce path dependency. Path dependency explains how current and future options are limited by past decisions made, even if the past circumstances are no longer relevant. Thus, a consumer’s present reliance on products may affect future dependence. For example, a consumer in the present market

<sup>58</sup> Tipping is a “natural tendency towards *de facto* standardization, which means everyone using the same system”. Where there are “strong positive-feedback systems”, like systems with network effects, “markets are especially prone to ‘tipping’, which is the tendency of one system to pull away from its rivals in popularity once it has gained an initial edge”. ML Katz and C Shapiro, “Systems Competition and Network Effects” (1994) 8 *Journal of Economic Perspectives* 105–6.

<sup>59</sup> See *United States v Microsoft*, Complaint, paras 19–39 (DDC 15 July 1994), available at <http://www.usdoj.gov/atr/cases/f0000/0046.htm>.

<sup>60</sup> In contradistinction to the market tipping that occurred in many Microsoft markets, the same could not be said for ad intermediation markets, which were examined by the EC in the Google/DoubleClick merger investigation. There, the EC concluded that network effects were not “strong”, finding that:

“The presence of strong indirect network effects lies at the core of most third-party complainants’ theories of harm. These network effects are such that an ad network becomes more attractive to advertisers as the number of publishers increases (and vice versa). The reason put forward is that liquidity is key to success in online ad intermediation and more liquidity is achieved through scale. With a higher number of publishers and advertisers participating in an ad network, the probability and expected value of a match increases. Through the foreclosure strategies described above, if the AdSense network is able to attract additional publishers (or inventory), it will reach a critical size while denying the necessary scale to competing ad networks. According to some complainants, the presence of indirect network effects provides additional incentives to engage in foreclosure strategies as rival networks are more likely to be weakened. While the presence of these network effects is theoretically compelling, the evidence gathered during the investigation suggests that these may not be as strong (or at least, not strong enough to lead to ‘tipping’).” EC Decision, Case No COMP/M.4731 *Google/DoubleClick* (11 March 2008), para 309, available at [http://ec.europa.eu/comm/competition/mergers/cases/decisions/m4731\\_20080311\\_20682\\_en.pdf](http://ec.europa.eu/comm/competition/mergers/cases/decisions/m4731_20080311_20682_en.pdf).

purchasing software will consider not only the quality of the software product, but also whether it reads documents compatible with the previous generation of software. In the technology context, the path dependency theory posits a standard that obtains an initial advantage or lead with a “lock-in” effect, because the switching costs to a competing standard become prohibitive.<sup>61</sup> These switching costs include network effects and investment of time required to learn a new technology. As illustrated by the Microsoft example, once the market tips to a product or standard, it can become extraordinarily difficult for actual or potential competitors to compete with the dominant standard, even if these competitors provide a superior product. Unlike traditional markets, in network markets, the end result tends to be “winner-takes-most” or “winner-takes-all”.<sup>62</sup> As a result of the lock-in, even the introduction of superior technology into the market may not be enough to supplant the established products and standards.

Network status may increase both the incentive and the opportunities for certain kinds of anticompetitive behavior. Because the users of networks place a premium on compatibility, a dominant firm can exclude rivals by creating incompatibilities between the dominant product and the products offered by rivals. However, despite the risk that network effects may ultimately result in an insurmountable dominant standard, mergers that enhance the value of a network are needed, because networks require scale and scope before they become desirable to consumers.

Network effects were at the forefront of the EC’s review of the merger of Vodafone Airtouch, a provider of mobile telecommunication networks and related services, and Mannesmann, a German-based provider of mobile and fixed line telephony.<sup>63</sup> In that merger, the EC concluded that the transaction would provide Vodafone with a pan-European “footprint” offering seamless mobile telecommunication services to corporate customers throughout Europe and, in turn, create high entry barriers because replication of the network would be extremely expensive.<sup>64</sup> Recognising the potentially negative impact of network effects on competition, the Commission required Vodafone to grant other mobile operators access to its network on a non-discriminatory basis.

As referenced above, network effects can result in customer “lock-in”, which renders a customer dependent on a firm for products or services, given its inability to change suppliers without incurring significant switching costs. In technology markets, customer lock-in arises when there is a lack of compatibility or interoperability between components, making switching costs prohibitively

<sup>61</sup> Opinion of the Commission, *In re Rambus, Inc.*, Docket No 9302, 4, available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

<sup>62</sup> JB Baker, “Can Antitrust Keep Up?: Competition Policy in High-Tech Markets” (Winter 2001), available at [http://www.brookings.edu/articles/2001/winter\\_regulation\\_baker.aspx](http://www.brookings.edu/articles/2001/winter_regulation_baker.aspx).

<sup>63</sup> EC Decision, Case No COMP/M.1795 *Vodafone Airtouch/Mannesmann* (4 December 2000), available at [http://ec.europa.eu/comm/competition/mergers/cases/decisions/m1795\\_en.pdf](http://ec.europa.eu/comm/competition/mergers/cases/decisions/m1795_en.pdf).

<sup>64</sup> *Ibid.*, paras 44–8.

high. For example, then-CEO Bill Gates described Microsoft's lock-in advantage in an internal memorandum, cited against Microsoft by the EC:

"The Windows API is . . . so deeply embedded in the source code of many Windows apps that there is a huge switching cost to using a different operating system instead . . . [i]t is this switching cost that has given the customers the patience to stick with Windows through all our mistakes, our buggy drivers, our high TCO, our lack of a sexy vision at times, and many other difficulties . . . Customers constantly evaluate other desktop platforms, [but] it would be so much work to move over that they hope we just improve Windows rather than force them to move . . . In short, without this exclusive franchise called the Windows API, we would have been dead a long time ago."<sup>65</sup>

Many internet-based industries experience network effects and lock-in. Instant Messaging (IM), for instance, is similar to telephone services, with the value of an IM network being directly proportional to the number of users that subscribe to the service because the majority of individual IM networks (eg those owned by AOL and Microsoft) are not interoperable, and it is impossible for a user of one network to "talk" with a user subscribed to another one. Thus, a network with few users has little value to any given user, while a robust network will attract additional users because the universe of potential customers (and therefore friends to chat with) is larger. Moreover, switching may be difficult, thereby creating "lock-in". Users of IM networks have friend lists, contact information, calendar information, etc, stored in an IM network. This information cannot easily be ported to another IM network. The result is that this stored information makes it more difficult to switch to another network—that is, the IM network exhibits characteristics that may cause lock-in.

The US Federal Communications Commission (FCC), in its AOL/Time Warner decision, explained that strong network effects often lead to interoperability when there is no clear market leader, but that the same effects can lead dominant players to resist interoperability:

"Often, in businesses with strong network effects, each of several providers creates its own network that is potentially incompatible with the others'. If each of the networks is of roughly equal size, then no provider dominates the market and each has an incentive to interoperate—to make its service compatible—with the others. In such an equilibrium, interoperability gives each provider's users access to a larger universe of other users and that makes each service more valuable to its users. This equilibrium leads to effective competition and benefits consumers.

A different outcome, and one less beneficial for consumers, can also occur in markets with strong network effects. If one provider achieves a larger market share, either through superior performance or a first-mover advantage, then it may not have an incentive to interoperate. If that provider wants to dominate the market, it can

<sup>65</sup> EC Decision, Case No COMP/C-3/37.792 *Microsoft* (24 March 2004), 126–7, available at <http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/en.pdf>.



adopt a strategy of refusing to interoperate with the other, smaller providers. This, compared to a strategy of interoperation, will make its service less valuable and will hurt its users. But while these ill effects will be relatively slight, because the users will still be able to reach most other users, refusing to interoperate will hurt the smaller providers and their users greatly, because their users will not be able to reach most other users . . . This will continue until the largest provider's network is the dominant one, perhaps yielding the provider monopoly control of the market. From that point onwards, the dominant network remains dominant, not necessarily because it charges the lowest prices, offers the best quality, or innovates fastest with the features that customers want most, but simply because in the past it gained the most users."<sup>66</sup>

As the FCC concluded in its AOL/Time Warner decision, "the market in text-based instant messaging is characterized by strong 'network effects'".<sup>67</sup> At the time, and at Microsoft's urging, the FCC contemplated requiring AOL to interoperate with other IM networks as a condition of the merger, although it ultimately did not do so.<sup>68</sup> During the proceedings, Microsoft argued that the combination of the AOL and Time Warner networks could tip the market to AOL's IM standard:

"[T]emporary growth by new entrants, much of which was gained through extraordinary promotions, does not disprove the fact that the merger will irreversibly tip the market to AOL . . . millions of users will try anything once. But when the IM market matures, absent interoperability among market players, users will ultimately switch to the provider that enables consumers to instant message seamlessly with all of their buddies—here AOL."<sup>69</sup>

Microsoft went on to explain that it is "crucial in the technological marketplace of today and tomorrow that IM applications be able to interface with the full range of competing IM technologies". Failure to take the modest step of requiring AOL to make its IM services interoperable is "a serious threat to the openness, diversity, and innovation of the Internet and the development of competition in the provision of [IM] services".<sup>70</sup> Indeed, one way to resolve concerns with network effects—as the FCC considered in AOL/TimeWarner—is to demand interoperability, thereby preventing tipping to a merged network.

Because of this lock-in effect, the difficulty of competitor entry increases. Consumers who use the internet, like consumers of other products, may prefer

<sup>66</sup> See Memorandum Opinion and Order, "In re Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc, Transferors, to AOL Time Warner Inc, Transferee" (22 January 2001), FCC 01-12, paras 154-5, available at <http://www.fcc.gov/Bureaus/Cable/Orders/2001/fcc01012.pdf>.

<sup>67</sup> *Ibid*, paras 129 and 153.

<sup>68</sup> *Ibid*, para 187.

<sup>69</sup> See "Microsoft Corp Letter re Applications of America Online, Inc and Time Warner Inc for Transfers of Control" (12 December 2000), CS Docket No 00-30, available at [http://www.fcc.gov/transaction/aol-tw/exparte/microsoft\\_exparte121200.pdf](http://www.fcc.gov/transaction/aol-tw/exparte/microsoft_exparte121200.pdf).

<sup>70</sup> *Ibid* (citations omitted).

to stay with the established technology because they are locked in to a particular product by significant investments in that product. Investments can include time spent learning how to use a product or money spent on complementary products.

## 2. Installed Base

Ultimately network effects imply that users make their choices consistent with the choices of others, thereby providing incumbent firms with an installed customer base and potentially providing in network industries a proneness to dominance by a single firm. “[N]etwork market(s) tend to display inertia—that is, once a technology is known to have a substantial lead in its installed base, it is difficult for it to be displaced even by a technically superior and cheaper alternative.”<sup>71</sup>

The FTC considered the significance of the installed base in its decision to require divestitures as a condition to approving the merger between Autodesk and Softdesk in 1997. There, the FTC concluded:

“The Softdesk product, IntelliCADD, if brought to market, would have provided substantial direct competition to AutoCAD because it offered compatibility and transferability with AutoCAD generated files and application software—features other CAD engines do not offer, according to the FTC complaint. The large installed base of AutoCAD users necessitates that any new CAD engine developed and offered in the market offer file compatibility and transferability with AutoCAD in order to be an effective competitor, the complaint alleges. Users of AutoCAD have a large number of drawings in the AutoCAD format and many users must share files they create with others who must be able to read and edit those files using their CAD software. This situation creates barriers to entry to CAD engines that cannot read AutoCAD files without losing data or information.”<sup>72</sup>

Similarly, in its 2001 administrative complaint against MSC.Software, the FTC sought to unwind the previously closed (non-reportable)<sup>73</sup> acquisitions by MSC.Software of its only two advanced Nastran (a sophisticated computer-aided-design software product) rivals.<sup>74</sup> The FTC complaint alleged that entry by

<sup>71</sup> SM Besen and J Farrell, “Choosing How to Compete: Strategies and Tactics in Standardization” (1994) 2 *Journal of Economic Perspectives* 117, 122.

<sup>72</sup> FTC Press Release, “Autodesk, Softdesk Settle FTC Charges; Divest Computer Aided Design Software Agreement Will Bar Acquisition of Competing CAD Engine” (31 March 1997), available at <http://www.ftc.gov/opa/1997/03/autodesk.shtm>. The EC looked at the effect of lock-in in the merger of two banks, Fortis/ABN Amro Assets, where it concluded that lock-in occurs where the cost to switch is particularly high, regardless of the number of fringe players that may have a position in the market.

<sup>73</sup> The value of each transaction was substantially below the HSR reporting threshold (\$8 million and \$10 million).

<sup>74</sup> *In re MSC.Software Corp.*, Docket No 9299, Complaint (9 October 2001), available at <http://www.ftc.gov/os/2001/10/msccomp.htm>.

others would be difficult because of the substantial cost and time needed to develop an advanced version of Nastran, validate the program's simulation results and establish its reputation for reliability. The FTC also alleged that switching costs were high, noting that each Nastran program required unique computer code and file formats that made it difficult for a user to switch after developing files on one platform. The FTC therefore concluded that this lock-in made new entry unlikely, and the combined company would be free to raise prices or slow innovation.<sup>75</sup>

Some commentators argue that firms with a large installed base are less likely to be the source of the "next generation" product. Firms with large installed bases may have a greater fear that dramatic changes to the existing technology will alienate or cannibalise their installed base customers, making them more vulnerable to new entrants. Thus, such firms are purportedly likely to decrease their level of innovation. At the same time, however, the failure of the leading firms to innovate may make the market more susceptible to "leap-frogging" or the development of entirely distinct new technology that supplants pre-existing technology by third parties.

### 3. Patent Blocks

In a February 2002 speech marking the opening of the joint FTC and DOJ hearings on intellectual property (IP) and antitrust, then Assistant Attorney General Charles James alluded to a few of the difficulties that are unique to the analysis of technology mergers, focusing on the considerable influence of patent combinations on increasing entry barriers:

"[S]uppose that significant questions exist about the breadth of a firm's patent position. The patents may not completely block the field, but no one knows for sure. In determining the ease and likelihood of entry into that relevant market, should we assess a potential entrant's risk of infringement and the cost of defending a possible infringement action? Does potential rivalry mean the ability to compete free from risk of infringement liability?"<sup>76</sup>

A merger of technology companies could result in the acquiring company gaining a blocking position so as to deny potential entrants access to the relevant market. One illustration of this concern was highlighted in the June 2001 DOJ challenge to the merger between 3D Systems, Inc and its competitor DTM Corporation.<sup>77</sup> The two parties' combined sales, worldwide, totalled only

<sup>75</sup> *Ibid.*

<sup>76</sup> C James, opening day comments, "Joint DOJ-FTC Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy" (6 February 2002), available at <http://www.ftc.gov/opp/intellect/james.shtm>.

<sup>77</sup> See DOJ Press Release, "Department of Justice Requires 3D Systems Corporation and DTM Corporation to Lift Patent Entry Barriers" (16 August 2001), available at [http://www.usdoj.gov/atr/public/press\\_releases/2001/8810.htm](http://www.usdoj.gov/atr/public/press_releases/2001/8810.htm).

\$150 million, and the value of the transaction was only \$45 million. The DOJ based its challenge on a very small delineated relevant market (rapid prototyping systems that transform computer designs into three-dimensional prototypes or models), and the allegation that the combined patent portfolio of the two companies would render it impossible for existing foreign competitors—not to mention greenfield entrants—to enter into competition in the US. To remedy the entry barrier, the DOJ required the merger parties to grant a third party a perpetual, assignable, transferable and non-exclusive licence to sell and distribute rapid prototyping machines in the US, and precluded the firm from asserting any claims for patent or copyright infringement against the acquirer of this license.

A history of aggressive patent enforcement against current or potential competitors—particularly when successful—could also create entry concerns. Thus, repeated threats by a merging party to enforce its patents against potential entrants can be damaging in the context of a merger between competitors.

The second scenario in which IP issues impact antitrust merger review occurs when one of the parties' competitors might have launched or threatened patent litigation against others in the market which, if successful, could profoundly change the level of concentration and competitive dynamics facing the merging companies. As pondered by Charles James in his 2002 speech: "What weight should the agencies give to existing market conditions in situations where there are numerous firms competing—notwithstanding a claimed IP blocking position?"<sup>78</sup> This is an extraordinarily complicated issue—one that calls into question how the agencies should, in the absence of a final judgment on the ability of one participant to block competitors, an agency treat ongoing patent litigation in a merger review? A forthcoming article in *Antitrust Law Journal* looks at this issue carefully.<sup>79</sup>

Finally, IP issues can impact the merger analysis where the merger accomplishes a settlement of threatened or ongoing patent litigation between the parties, which, if successful, would have eliminated one of the parties—and possibly third parties—from the market. Boston Scientific Corporation's acquisition of Cardiovascular Imaging Systems, Inc (CVIS) and SCIMED Life Systems, Inc in 1995,<sup>80</sup> for example, ended the ongoing patent litigation between Boston Scientific and CVIS and also eliminated potential competitor SciMed, whose IVUS product was in the prototype stage. The parties argued, unsuccessfully, that either Boston Scientific or CVIS would soon be excluded

<sup>78</sup> James, *supra* n 76.

<sup>79</sup> See S Creighton and SA Sher, "Resolving Patent Disputes Through Merger: An Analytical Approach" *Antitrust Law Journal* (forthcoming).

<sup>80</sup> CA Varney, "Reforming and Strengthening the Merger Enforcement Process at the FTC" (7 August 1995), available at <http://www.ftc.gov/speeches/varney/varnaba.shtml>.

from the market anyway, due to legitimate patent enforcement. In a consent decree, the parties were required to divest—ie license—sufficient relevant IVUS technology to create a new competitor.<sup>81</sup> This issue is becoming incredibly important in merger analysis, as merger becomes an important mode of resolving patent disputes.

<sup>81</sup> See FTC Press Release, “Department of Justice Sues Boston Scientific Corp Seeking Civil Penalties and Other Relief for Violations of 1995 FTC Order” (31 October 2000), available at <http://www.ftc.gov/opa/2000/10/bscfinal.shtm>.