

## Chapter 4

# Competition Policy For 3G Wireless Services

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### 1. INTRODUCTION

Third-generation or “3G” wireless telecommunications is the term commonly used to describe the next step in the evolution of mobile communications networks. Mobile wireless systems have gone from analog cellular technology to digital networks and, it is predicted, are moving next to 3G. As defined by the Federal Communications Commission, 3G services will support data transport rates of at least 144 kilobits per second and up to 2 megabits per second; will be provided over systems with a high degree of global compatibility and interoperability; and will support a wide range of voice and data applications.<sup>1</sup> One commentary refers to 3G services as “melding two popular innovations: the Internet and mobile technologies.”<sup>2</sup>

The development of 3G networks raises a number of technological, economic, and legal questions. One challenge that lies at the intersection of those three forces is the design of a framework for evaluating and protecting competitive performance of the 3G market. The purpose of this chapter is to ask: what, looking forward, is the appropriate competition policy for the 3G

<sup>1</sup> [www.fcc.gov/3G](http://www.fcc.gov/3G) (visited October 21, 2002).

<sup>2</sup> Martin Baily, et al., “An Economic Analysis of Spectrum Allocation and Advanced Wireless Services,” Study Commissioned by the Cellular Telecommunications and Internet Association (October 2001).

wireless industry? The answer depends on the policy makers' objectives. The various debates over deployment of advanced wireless services raise several, potentially inconsistent, goals that might affect a country's choice of antitrust regime for the industry. Consider just the following possible objectives: national leadership in the world market for wireless services; a highly competitive domestic market to maximize long-run economic benefits to subscribers; speeding deployment of 3G networks; or, ensuring the development and deployment of the best possible technology for 3G networks. That these goals would co-exist uneasily is evident. For example, if speed of deployment is paramount, then measures to facilitate rapid construction of networks using today's most quickly deployable technology should be taken. Yet such measures run the risk of locking in, for a period of time, a technology that is not the best one currently or imminently available. If a country deems global leadership in the sector to be a priority, then collaboration among domestic service providers might be tolerated notwithstanding its impact on domestic competition. The point, in brief, is that optimal policy depends on what one wants to maximize.

The discussion that follows will assume that the objective of competition policy for the 3G wireless industry is to maximize long-run consumer welfare, which is essentially the objective of modern antitrust (or competition) law in the United States, the European Union, and increasingly in other jurisdictions. The selection of a competition policy objective does not, however, lead inexorably to a clear and specific set of policies themselves, particularly in an emerging network industry like 3G wireless services. To see why, consider first the factors that a welfare-maximizing competition policy must encompass: (1) proper, forward-looking definition of the relevant market; (2) analysis of industry-specific barriers to entry; (3) determination of whether standards competition or cooperative standard-setting should be pursued; and (4) assessment of whether fostering innovation in the particular industry at issue has implications for market structure that differ from the structural assumptions for promoting allocative efficiency in the relevant market. In addition, the administrative question of what kinds of institutions—e.g. general competition authorities or sector specific regulators—should be responsible for enforcing and implementing the policies must be decided.

This chapter will discuss each of the above questions in the context of 3G wireless services. The purpose of this discussion is not to present an exhaustive or definitive set of policy prescriptions but instead to describe the central dimensions of competition policy for the 3G wireless market, to examine important and distinguishing features of the industry that affect the applicable antitrust regime, to analyze the tradeoffs among feasible policy choices and, finally, to present the important features and institutional

framework that competition policy for the 3G wireless industry should incorporate.

## **2. CENTRAL DIMENSIONS OF COMPETITION POLICY FOR 3G WIRELESS SERVICES**

This section will address four important dimensions of competition policy for an evolving network industry and discuss how they apply to 3G services. It will first address the conventional questions of market definition and competitive benchmarking for 3G services. It will then address two issues particularly relevant to the dynamic technological environment of 3G, which are the questions of tradeoffs between competition and innovation and of standard setting in the advancing wireless marketplace.

### **2.1 Market Definition for Advanced Wireless Services**

In designing competition policy for an industry, the first step is to define the relevant market(s) in which that industry operates. Only then can market structure be determined and prospects for exercise of market power assessed. So what is the product or service that 3G operators will compete to provide? Third-generation wireless networks will provide voice telephony but, more importantly, high-speed data services. If one were to define the market as “mobile voice and high-speed data” services, then the relevant market structure would depend only on the number of 3G networks operating in the relevant geographical territory. A difficult initial question for 3G market definition is, however, whether the market definition should be limited to mobile services or be expanded to include wire-line voice and broadband telecommunications services.

If they meet performance expectations, 3G wireless services will provide direct competition to wire-line services like cable modem and DSL connections.<sup>3</sup> This does not mean that fixed and mobile broadband services should be considered to be in the same market, however. The reciprocal competitive effect of fixed services on mobile wireless services need not be symmetric, and in fact is unlikely to be. For, to the extent that mobility has value to consumers, wire-line voice and broadband services will not substitute for mobile wireless ones.

Indeed, although the existence of fixed, wire-line access technologies certainly creates some competitive pressure and pricing discipline for

<sup>3</sup> Jerry Hausman, *Competition and Regulation for Internet-Related Services: Current Competition and 3G in the Future?* Working Paper (October 2001).

prospective 3G service providers, competition policy makers have several reasons to presume against defining the 3G market to include wire-line service providers. First, as mentioned, mobility itself has value to consumers. There is casual yet strong evidence of this proposition in the fact that most subscribers to wireless telephony in the United States already have land-line telephone service. Thus, all other features (e.g. speed, quality, reliability) equal, 3G services would have an intrinsic advantage over wire-line services that would enable 3G operators to raise prices on their service without losing material numbers of customers to providers of fixed broadband services. Second, 3G and wire-line broadband options might be imperfect substitutes because their distinct comparative advantages may lead them to be used for differing sets of applications in ways that limit substitutability. For example, mobile 3G services might be quite useful for businesses that involve employees in the field who have particular data and applications needs—for example the ability quickly to relay and process order information and to provide confirmation of product inventory or the ability to fill service orders from remote locations. Hardware and software tailored to such applications might be developed to work over 3G networks but not for fixed broadband technologies. Thus not only the difference in mobility, but also the difference in the availability of complementary applications might limit substitutability between mobile 3G and land-line technologies like DSL or cable modem services.

The above considerations thus suggest a strong presumption against including non-mobile services in the same market as mobile 3G services. A related question is whether less advanced forms of mobile services—e.g. narrowband PCS services—should be included in the 3G market. This question may be harder to answer. On one hand, much will depend on what consumers actually use 3G networks for. If consumers use 3G mostly for voice and simple text messaging, then 2G networks might provide some level of substitution. A stronger reason for including 2G services in the relevant market, however, is that those networks are likely entrants into 3G services. One of the accepted 3G standards (the EDGE standard, discussed below) is in fact geared specifically to transitioning 2G networks to 3G capability. Because 2G networks might therefore be sources of supply elasticity that limits the market power of any 3G networks, there is a good argument for including 2G networks in the 3G market. But in the end, a careful analysis of subscriber switching costs and of the timeline for 2G conversion will have to be undertaken to make a conclusive judgment about whether the 3G market should be defined to include remaining 2G networks. A weaker initial presumption might attach to restricting the market definition to existing or imminent 3G providers and excluding 2G networks. That presumption should be rebuttable by evidence that 2G substitutes substitute

for 3G services or that 2G networks could convert to 3G within a reasonably short time frame.<sup>4</sup>

## 2.2 Defining “Competitive” in the Context of the 3G Wireless Market

Once the market definition exercise discussed above is completed, the next step in the competitive analysis is to consider what, given the particular technological and economic characteristics of 3G service, would constitute a “competitive” market. How many 3G networks can potentially enter the market? What barriers to entry arise for later potential competitors? In this regard the most salient aspect of 3G wireless is its need for spectrum to be allocated the service. At present, there exist about 180 MHz of commercial mobile radio spectrum (CMRS) in each geographical market nationwide. In addition to this spectrum, the FCC has plans to auction additional spectrum in the 700 MHz UHF bands (UHF channels 60-69), which would add 30 MHz of spectrum usable for CMRS services into the market. The Commission is also, in conjunction with NTIA, investigating the feasibility of allocating additional spectrum in the 2500-2690 MHz, 1755-1850 MHz and 1710-1755 MHz bands specifically for 3G use.<sup>5</sup> These studies have been conducted in response to Congress’s mandate that an additional 200 MHz of spectrum be made available for advanced wireless telecommunications. Assuming existing CMRS spectrum can be harvested for 3G purposes, and adding the prospective 200 MHz of new spectrum, there may be a total of roughly 400MHz available for 3G and other advanced wireless services in the next few years. Although it is unclear how much spectrum a 3G operator needs to provide service, the possibly available spectrum could support a number of substantial rivals. The market for 3G wireless services therefore has potential to be reasonably competitive, although it will not likely approach the idealized competition among atomized, price-taking firms that in theory leads to marginal cost pricing.

Economic factors like economies of scale or network externalities might further limit the competitiveness that the above discussion suggests is technologically feasible. But there is no evidence that 3G networks would have cost structures that approach natural monopoly or that, in the end, would be substantially different in shape than those for conventional wireless networks now in place. To be sure, there will likely be economies of scale over a certain range of demand. The economic limits on the number of

<sup>4</sup> The U.S. Department of Justice/Federal Trade Commission Horizontal Merger Guidelines at Section 3.2 define as “timely” and competitively significant entry that could occur within 2 years.

<sup>5</sup> See [www.fcc.gov/3G](http://www.fcc.gov/3G) (visited October 21, 2002).

firms the 3G market can efficiently support will thus depend on the ultimate market demand for 3G services and the number of efficient-scale firms that such demand can support. To the extent that the feasible number of efficient firms is less than the number of licenses the FCC allocates, consolidation will occur in the 3G industry. Before presuming against mergers among 3G providers, competition officials should take account of scale efficiencies and be careful to adopt a realistic benchmark for competition in the industry.

The above discussion is not intended to suggest that competition policy should, *ex ante*, target any particular number of firms as desirable in the 3G market. Nor is it meant to cast doubt on the viability of competition among providers of 3G services. Indeed, the analysis presumes sufficient competitiveness in the market that general antitrust principles are likely to apply meaningfully in the 3G market place. In the past the Federal Communications Commission has prejudged the minimum, acceptable level of competition in wireless telecommunications. The Commission imposed a “spectrum cap” that prohibited any single firm from holding licenses to more than 45 MHz of the 180 MHz of commercial mobile radio services (CMRS) spectrum available in a given geographical market, thus assuring the existence of at least four competitors. The Commission in 2001 eliminated the cap effective in 2003, and raised the cap to 55MHz in the interim.<sup>6</sup> Part of the motivation for lifting the cap was concern that it artificially constrained firms from obtaining the spectrum they might find necessary for 3G services, and thereby might deter investment in developing 3G networks.

Although antitrust policies such as the U.S. Department of Justice and Federal Trade Commission Horizontal Merger Guidelines provide provides no such rigid limits on concentration as the spectrum cap, they do provide a set of useful presumptions about acceptable changes in market concentration through merger and acquisition. Application of those guidelines always depends to some extent on the specific market context and specific industry factors. In an evolving network industry like 3G wireless communications, this more flexible approach of antitrust policy has advantages over the categorical limits of rules like the spectrum cap because the benchmarks for assessing market performance can be more easily adjusted as the industry develops and competition authorities learn more about the economics of the relevant market.

<sup>6</sup> FCC, Report and Order, 2000 Biennial Regulatory Review, 16 FCC Rcd. 22668 (2001).

### 2.3 Innovation and Competition in 3G: Assessing Claims of Dynamic Tradeoffs

Related to the above discussion of establishing the right benchmarks against which to assess economic performance of the 3G market is the question of the relationship between static and dynamic market performance. Participants in regulatory and antitrust proceedings affecting telecommunications have, with increasing frequency, asserted that policy decisions designed to promote or preserve competition will have unintended, negative consequences for technological change. The perceived role of technological change in the growth of the U.S. economy during the 1990's caused policy makers and consumers alike to pay greater attention to how innovation can increase economic welfare. One manifestation of this attention to innovation has been heightened sensitivity to whether the goals or presumptions of existing public policies might conflict with the goal of technological progress.<sup>7</sup> Whether regulators must sometimes make tradeoffs between innovation tomorrow and efficient resource allocation today has been debated in such diverse contexts as environmental regulation and antitrust policy.<sup>8</sup> The ways in which antitrust law might interfere with cooperative approaches to innovation has been a particularly intense area of inquiry since the late 1980's.<sup>9</sup>

The question of how policy affects technological innovation is especially salient in the telecommunications sector. Several kinds of policy arguments hinge on innovation. The most common form of the argument, made by participants in recent proceedings at the FCC and the Department of Justice, is that innovation may suffer if regulators focus too narrowly on preserving or improving competition in existing markets. The debate that surrounded the spectrum cap is a good example. In the FCC's 1999 proceedings on whether to retain the 45 MHz cap,<sup>10</sup> several carriers argued that consolidation of competing licenses was a necessary condition for the development of 3G services.<sup>11</sup> Those carriers argued that without consolidation, they would be uncertain of having sufficient spectrum capacity for the new services and hence would find it too risky to invest in developing the new technology. As another example, in the FCC's 1999 rulemaking proceeding that limited the number of subscribers a single cable company could serve, some cable

<sup>7</sup> 1999 Economic Report of the President, 173-193 (GPO 1999).

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

<sup>9</sup> See, e.g., Thomas M. Jorde and David J. Teece (eds.), *Antitrust, Innovation and Competitiveness* (Oxford 1992).

<sup>10</sup> See FCC Notice of Proposed Rulemaking, WB Dkt. No. 98-308.

<sup>11</sup> See, e.g., CTIA Comments, 13 FCC Rcd. 25132, 25157 (1998).

operators similarly argued that the introduction of broadband and telephone services on cable networks requires large-scale systems.<sup>12</sup>

The Federal Communications Commission addressed the above challenges in a case-by-case manner and in each case at least initially maintained its emphasis on competition and static efficiency. In the 1999 spectrum cap proceeding, the Commission retained the 45 MHz limit in the interests of preserving current competition. But it also pledged to revisit the cap in two years. In the interim, it invited waiver requests from carriers that could show they were moving forward with new services that require additional spectrum. As already mentioned, when the Commission did revisit the spectrum cap in 2001, it ordered the cap to be fully repealed by 2003 and to be raised to 55 MHz during the transition period.<sup>13</sup> In the cable ownership proceedings, the Commission imposed a subscriber limit.<sup>14</sup> But the FCC also said it would not attribute to an operator's subscriber count any customers to whom it provided only telephone or broadband, but not conventional cable video, services.

The effort in both of the cases above was to preserve competition without blunting incentives to invest in the development and deployment of new technology. The balance is an important one. If regulators or enforcement officials focus too rigidly on competition and the immediate benefits of lower prices and higher output, they might in some cases place at risk longer-term benefits of innovation. If, on the other hand, they too readily exchange actual competition for promised innovation, they risk creating market power without deriving any compensating benefit.

Striking the right policy balance is especially challenging where, as with wireless telecommunications, the pace of innovation makes predictions of technological change unusually plausible. The wireless market may be quite susceptible to what James Utterback has described as “waves” of innovation that transform not just individual firms, but an industry as a whole.<sup>15</sup> But, although maintaining or increasing existing market competition might have costs for innovation in specific cases, it is far less clear that such costs will often be at stake, even in the dynamic environment of 3G wireless services. Indeed, the available evidence suggests that competition policy for 3G should hold a rebuttable presumption against claims that competition today must be sacrificed for deployment of innovative services tomorrow. The

<sup>12</sup> In the Matter of Implementation of the Cable Television Consumer Protection and Competition Act of 1992, CS Dkt. No. 98-82, 26 (1999).

<sup>13</sup> FCC, Report and Order, 2000 Biennial Regulatory Review, 16 FCC Rcd. 22668 (2001).

<sup>14</sup> FCC, Report and Order, Implementation of Section 11 (c) of the Cable Act of 1992, 14 FCC Rcd. 19098 (1999).

<sup>15</sup> James Utterback, *Mastering the Dynamics of Innovation: How Companies Can Seize Opportunities in the Face of Technological Change* (Harvard Business School Press, 1994).



general empirical evidence on the relationship between market structure and innovation, and between firm size and innovation, is ambiguous. The data show no systematic relationship between the degree of market power of firms in an industry and the amount of innovative activity they undertake. A study focused specifically on the U.S. telecommunications industry, however, suggests a positive correlation between the speed with which firms deploy new technology in their networks and the amount of competition they face.<sup>16</sup> This evidence supports at least a starting presumption against allowing otherwise anticompetitive levels of consolidation in the name of innovation in the advanced wireless services market.

## **2.4 Standard Setting in the 3G Industry: Competing versus Common Platforms**

The question of policy towards standardization in 3G wireless has several dimensions. Importantly, there is a global aspect to 3G standard setting that transcends the regulatory power of any national competition policy. The European Telecommunications Standards Institute (ETSI) has made the adoption of a uniform wireless standard in Europe a principal policy goal. It was ETSI that adopted and then mandated implementation of Europe's second generation GSM standard. ETSI has moved away from the underlying TDMA architecture of GSM for 3G services, but has nonetheless backed a single 3G standard known as the Universal Mobile Telecommunications Services (UMTS) standard. This W-CDMA based standard was originally proposed by Nokia and Ericsson to ETSI, which subsequently adopted it. The convergence to a single 3G standard in Europe could have substantial consequences for 3G standard setting elsewhere. For example, if the European market developed rapidly and a wide range of UMTS compatible handsets became available, then there might be incentives for 3G providers in the United States or Asia to join the UMTS standard. To be sure, no such "tipping" towards a single network standard is necessary or inevitable, but under proper economic conditions it is possible. The likelihood of tipping to a single standard increases to the extent there are markets in which that standard is mandated, particularly if strong economic interests support regulatory perpetuation of the standard even as alternatives become available. Indeed, the prospects of anticompetitive results from a

<sup>16</sup> Howard A. Shelanski, "Competition and Deployment of New Technology in U.S. Telecommunications," 2000 *University of Chicago Legal Forum* 85 (2000).

mandatory regional standard have been a central concern in the debate over standards policy for 3G wireless.<sup>17</sup>

At the global level, then, there is a competition policy question about whether any governmental, or de facto governmental, body should mandate a standard. As things now stand, a variety of standards remain in global competition. The International Telecommunications Union (ITU) has accepted five standards that meet its criteria for roaming and data transport speed. As a practical matter, three standards are viably competing in the 3G market worldwide. The two major ones are UMTS, leading in Europe and Japan, and CDMA2000, which is strong in Korea and the United States. There is also a technology known as EDGE (Enhanced Data Rates for Global Exchange), that will enable transition of 2G networks to 3G capabilities. Ideally, relative adoptions of these competing technologies should be market driven and not mandated by national or supra-national regulation that might entrench one standard at the expense of another, thereby potentially limiting competition in the handset market and impeding dynamic entry over time of improved wireless standards.

Looking forward, however, there is still an important competition policy issue for national authorities to resolve with respect to advanced mobile telecommunications networks. The fact that the 3G standards race has boiled down to two or three options, and in some markets has converged to a single standard, does not signal the end of technological change in the wireless market. The question going forward for competition policy is how standards should be set as wireless telecommunications evolve within and beyond 3G. There are three principal approaches: (1) government-coordinated standard setting, as with ETSI in Europe, (2) standard setting within private organizations, or (3) standards competition among individual firms. Option 1 amounts to a blocking of standards outside those developed by the centralized body. This strategy might have short-run coordination benefits in the form of faster deployment and immediate compatibility but, as already mentioned above, is subject to a variety of hazards.<sup>18</sup> In particular, if the standards body is effectively controlled by particular interests such as powerful equipment manufacturers or the owners of particular intellectual property, then the centralized process could lead to entrenchment of a suboptimal standard that is, moreover, insulated from the competitive processes that could lead to its ultimate displacement through market forces.

<sup>17</sup> See Peter Grindley, David J. Salant and Leonard Waverman, "Standards Wars: The Uses of Standard Setting as a Means of Facilitating Cartels: Third Generation Wireless Telecommunications Standard Setting," 3 *Int'l J. Comm. L. & Pol'y* 2 (1999).

<sup>18</sup> See, e.g., Mark Lemley, "Standardizing Government Standard-Setting Policy for Electronic Commerce," 14 *Berkeley Tech L. J.* 745 (1999).

The policy choice then reduces to the question of whether or not to allow coordinated standard setting by firms within the wireless industry.

In principle, there is no clear economic basis for an *ex ante* presumption for or against private standard-setting coalitions. Competition among standards spurs firms to innovate, to seek more effective and efficient technologies than their rivals have. Coalition around a sub-optimal standard may be less likely when standards are set competitively rather than cooperatively because multiple standards can be tested in the marketplace. Over time, prices decline and innovation may be encouraged under a competitive standards regime.

On the other hand, standards coalitions can lead to faster development of effective system standards and is more likely to achieve rapid compatibility among competing systems and complementary products. Commentators have attributed such virtues to the process that led to the GSM standard for “2G” wireless networks in Europe.<sup>19</sup> When system interfaces are standardized in an industry and are openly available to all firms at all levels within the industry consumers can benefit from the resulting “mix and match” competition.<sup>20</sup> In addition, when standards are shared among competitors, price competition is likely to be intense as the rival firms will have more similar technologies and hence cost structures than may be the case under competitive standard setting. Standard-setting coalitions therefore have the potential benefit of inducing rapid diffusion of service and intense price competition. At the same time, however, they have the potential to impede competition by restricting membership, limiting access to the standard, and forcing industry adoption of the standard. This will be particularly true where the coalition includes firms with sufficient market power to impose a particular standard and excludes the most notable rivals to those firms.<sup>21</sup>

At a simplified level, one can cast the policy choice for standard setting as being between the short-run, static benefits of competition over a common standard and the dynamic innovation benefits of competition among rival system standards. That tradeoff makes the welfare effects of standards coalitions versus standards competition hard to predict. Indeed, American antitrust doctrine recognizes the potential benefits and ambiguous *ex ante* competitive effects of standard-setting organizations. It thus affords them “rule-of-reason” treatment rather than *per se* illegality under the Sherman

<sup>19</sup> See, e.g., Jaques Pelkmans, “The GSM Standard: Explaining a Success Story,” working paper, Center for European Policy Studies (January 2000).

<sup>20</sup> Jeffrey K. Mackie-Mason and Janet S. Netz, “Manipulating Standards as an Anti-Competitive Strategy,” Working paper, September 2002.

<sup>21</sup> *Ibid.*

Antitrust Act.<sup>22</sup> But the “static benefit versus dynamic benefit” characterization of the standards competition question is ultimately too simplistic. Importantly, standards-based competition does not necessarily result in competing standards. Competition among different standards may end in one technology becoming dominant because of its objective superiority. But a standard may also gain market power because of its proprietary interfaces through which it can create feedback effects from complementary products and/or take advantage of network effects that deter users from switching to an alternative platform. This result could be the worst of all possibilities: a single standard but with only a single firm competing within that standard. A coalition in that case might be preferable as it might yield only a single standard in the marketplace, but there would at least be several firms (the coalition members) competing within that standard.

At the same time, cooperative standard setting need not signal the end of innovation-based competition. There may be rival coalitions within the industry. New entrants may bring new standards into the market or some coalition members may defect to a superior standard. Indeed, even in the presence of strong network effects economic analysis has shown that standards can change and networks can tip from one dominant technology to another.<sup>23</sup> In the end, then, the welfare effects of standard-setting coalitions compared to standards competition are even more difficult to predict than the simple static-versus-dynamic-benefits story suggests.

So what, then, should competition policy be towards standard-setting coalitions among firms that otherwise compete in the relevant market? Antitrust authorities should not presume that private standard-setting consortia can be beneficial and hence should not presume against their legality as a matter of competition law. Enforcement authorities should, however, be vigilant that coalitions do not structure themselves so as to gain power to act anti-competitively in their markets. The likelihood of anticompetitive outcomes from standards coalitions increases where membership is restricted and existing members determine who to admit to the coalition, where the coalition excludes a important actual or potential competitors, and where the members of the coalition have sufficient market power to ensure industry adoption of their standard.<sup>24</sup> Competition policy should thus not be aimed at preventing the emergence of standards coalitions. But it should be applied to prevent standards consortia from operating as covers for group boycotts against certain competitors, or from

<sup>22</sup> See *Allied Tube and Conduit Corp. v. Indian Head*, 486 U.S. 492 (1988).

<sup>23</sup> Michael Katz and Carl Shapiro, “Systems Competition and Network Effects,” *Journal of Econ. Persp.* Vol.8, no.2 (1994).

<sup>24</sup> Mackie-Mason and Netz (2002), *supra*.

serving as mechanisms by which owners of critical patents gain market power by forcing adoption of the standard to which their intellectual property rights are relevant.

An additional and related element of competition policy focuses not directly on standards, but on interconnection among rival networks. Even if competition policy does not take an initial position on how firms in the 3G industry sets system standards, law can have a profound effect on the competitive performance of the industry by requiring that subscribers to one system be able to trade traffic with subscribers on another, or by mandating that hardware devices used with 3G be interoperable across competing technological platforms. Such interconnection policies have a long history in the United States, sometimes because of their absence rather than their presence. It has become conventional wisdom, for example, that the absence of interconnection requirements in the early twentieth century allowed AT&T to squeeze out rival telephone companies and recapture the monopoly it had lost when its patents expired in the 1890's.<sup>25</sup> The Telecommunications Act of 1996 instituted mandatory interconnection among competing carriers, recognizing that without such a requirement new telephone carriers would be unable to attract customers given the vastly superior network externalities of incumbent carriers.

The FCC extended interconnection to the wireless arena, requiring not only that wireless carriers interconnect with each other, but that wire-line and wireless carriers also interconnect for the exchange of customer traffic.<sup>26</sup> The benefits that flow from mandatory interconnection are enormous and the lessons from existing wireless and wire-line interconnection counsel that any competition policy towards 3G wireless services include such a mandate. Such a requirement may, of course, affect how standards are set and tilt the process towards cooperative rather than competitive technological development. But as discussed above, so long as the cooperative standard setting is conducted in a non-exclusive manner and is not misused for the benefit of dominant firms, there is no reason for competition policy to stand in the way of standards coalitions.

## **2.5 Summary**

In each of the four areas of competition policy discussed above, authorities must make difficult predictive judgments. In an evolving network

<sup>25</sup> See Stuart M. Benjamin, Douglas G. Lichtman, & Howard A. Shelanski, *Telecommunications Law and Policy*, Chapter 15 (Carolina 2001).

<sup>26</sup> FCC, *In Re Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, First Report and Order, 11 FCC Rcd. 15499 (1996).

industry like wireless telecommunications, market definition, the feasible scope of competition, the relationship between market structure and innovation, and technological standards can all change rapidly. This section has attempted to anchor competition policy for 3G services in fundamental antitrust principles that are responsive to the dynamic environment in which they are applied but that retain a presumption in favor of preserving the most competitive market structure that is technologically and economically feasible. Therefore, the burden in each of the policy dimensions discussed should fall on parties seeking to engage in cooperative activity to prove that their conduct does not reduce competition or has demonstrable efficiency or innovation benefits that offset the costs of reduced competition.

### **3. INSTITUTIONAL CONSIDERATIONS: WHO SHOULD IMPLEMENT COMPETITION POLICY FOR 3G?**

Once the substantive framework for competition policy in the 3G market is established, the institutional question arises of what kind of agency should implement that policy. Should competitive oversight lie with a general antitrust authority like the U.S. Department of Justice or Federal Trade Commission, or should it lie with a sector specific regulator like the FCC? In the United States, there has been a long history of shared authority between the FCC and the antitrust agencies over competition questions. For decades, the FCC had the greater level of authority and could even exempt mergers from scrutiny by the Federal Trade Commission or the Department of Justice.<sup>27</sup> The 1996 Act removed that exemption authority from the FCC and restored primary antitrust jurisdiction over telecommunications to the general antitrust agencies.

The policy outlined above in this chapter does not inexorably tend towards either a sector-specific telecommunications regulator or a general antitrust agency as the correct institution overseeing competition policy for 3G wireless, although it does on balance favor implementation by the latter. The exercises of market definition, benchmarking, assessing innovation-based arguments, and examining standard-setting are exercises with which antitrust agencies are familiar and that they are well-equipped to handle. Indeed, each of the dimensions of competition policy discussed above are guideline-driven rather than rule-driven. There is no firm rule, like the

<sup>27</sup> See Howard A. Shelanski, "From Sector-Specific Regulation to Antitrust Law for U.S. Telecommunications: The Prospects for Transition," *Telecommunications Policy* (2002).

spectrum cap, for determining the required market structure. There is instead the guideline that the market should not concentrate to the point that firms achieve market power and cause long-run harm to consumers. Assigning competitive oversight to the Justice Department or the FTC would therefore be appropriate and in keeping with a U.S. trend towards moving market structure issues in telecommunications away from the FCC and to the antitrust agencies.<sup>28</sup>

On the other hand, it is likely that some aspects of 3G competition policy would be well governed by a sector-specific regulation. For example, the viability of competition among rival 3G networks depends on interconnection among the networks for the purposes of exchanging calls among each other's subscribers. The oversight of interconnection and its associated pricing issues fits naturally with an agency like the FCC. Similarly, specific issues about standards and about the usability of particular spectrum for entry into the 3G market will also likely be well addressed by an expert agency. Such an agency will have important experience and information relevant to the task of market definition as well and could provide valuable input into questions about market definition and innovation in the industry. Implementation of the policy framework outlined in this chapter could therefore, in principal, afford a continued role to sector specific regulatory authorities. At the same time, however, this chapter proposes an antitrust approach that should, for the most part, fall under the jurisdiction of general competition authorities.

#### **4. CONCLUSION**

This chapter has examined the central dimensions of competition policy for 3G wireless services. The premise of this analysis has been that such policy should focus on ensuring as much as possible an efficient industry that benefits consumer welfare. To that end, the principal dimensions of a competitive policy framework for 3G should include (1) a conservative market definition that presumes inclusion only of 3G mobile networks, but which cautiously takes account of potential substitutes and entrants in the uncertain and changing 3G marketplace; (2) careful assessment of available spectrum and economies of scale to set an appropriate market-structure benchmark against which to assess competitiveness of the 3G industry; (3) a wary approach to claims that dynamic innovation requires sacrifice of static competition, with the burden of persuasion resting with parties seeking market consolidation; and (4) openness to private standard-setting coalitions

<sup>28</sup> Ibid.

coupled with vigilance for, and rigorous enforcement against, features of such organizations that might harm competition and accumulate market power.

Each of the above policy criteria lies squarely within the traditional ambit of antitrust law, suggesting that general antitrust agencies rather than sector-specific regulators should have the principal institutional role in applying competition policy to the 3g industry. The above parameters of competition policy are, of course, broad and susceptible to change given the nascent and dynamic nature of 3G wireless markets. But they constitute sound principles that, even if they must be applied flexibly over time, should provide a framework for fostering and preserving competition and consumer welfare in the evolving wireless marketplace.