

DID CONGRESS ACTUALLY CREATE INNOVATION MARKETS?

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ABSTRACT

The antitrust enforcement agencies claim that they protect competition in markets in which innovation is itself the “product.” Congress seems to support the agencies’ attempts to regulate competition in these innovation markets. When, in 1984, Congress enacted the National Cooperative Research Act, it told the agencies and courts to protect competition in “properly defined, relevant research, development ... markets.”

Yet, as this article shows, the agencies have actually protected competition, not in innovation markets, but rather in future goods markets. In other words, the agencies have identified markets in which the relevant firms probably will compete in the future. In the appropriate cases, the agencies have acted to protect competition in these future markets. The agencies have, for example, required merging firms to license technology. The agencies hope that competitors will use this technology to stop the merging firm from monopolizing the future market.

The antitrust enforcement agencies explain how they define an innovation market most importantly in their 1995 Intellectual Property Licensing Guidelines, and in a law review article written by two then-high ranking DOJ officials. This article analyzes the agencies’ innovation market methodology. The article shows that this methodology allows the agencies to find, not innovation markets, but rather future goods markets.

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I. IN 1984 CONGRESS ENDORSED THE IDEA OF RESEARCH AND DEVELOPMENT MARKETS

A. Introduction: The National Cooperative Research Act

According to some,¹ the National Cooperative Research Act² (the Act) created a concept of “research and development markets” (R&D markets). To encourage firms to work together, the Act lowers the antitrust liability of certain joint ventures. The Act also requires courts to apply the rule of reason to appropriate joint ventures. Finally, the Act defines the rule of reason which courts should apply to these joint ventures.

The Act incorporates what it calls research and development markets into its definition of the rule of reason. It says that when analyzing appropriate joint ventures, courts should: “tak[e] into account ... competition in properly defined, relevant research, development ... markets.”³

The NCRA incorporated R&D markets into American law in 1984. Since then the United States Department of Justice (the DOJ or Department) and the Federal Trade Commission (the FTC, and, together, the agencies) claim to have found R&D markets in many cases.⁴ In these cases the agencies have thus developed the concept which the NCRA created. And since the agencies have taken many years to develop this concept, it is now appropriate to examine how the agencies have in fact de-

1. See, e.g., Christine A. Varney, *Antitrust and the Drive to Innovate: Innovation Markets in Merger Review Analysis*, 9 ANTITRUST 16, 17 n.7 (1995).

2. National Cooperative Research and Production Act of 1993, 15 U.S.C. §§ 4301-05. (1993) (formerly National Cooperative Research and Production Act, 15 U.S.C. §§ 4301-05 (1984)).

3. *Id.* § 4302.

4. See *infra* parts IV-V.

veloped this concept. In particular, it is now appropriate to see if, and how, the agencies have actually defined an R&D market.

The agencies claim that they have found R&D markets when examining many kinds of transactions in addition to joint ventures.⁵ Yet, for three reasons, the agencies' attempts to find R&D markets when examining these other transactions will greatly influence how the agencies define R&D markets when examining joint ventures subject to the Act. First, the agencies must apply the same market definition policies when examining different types of transactions. Second, unlike in some other contexts, the agencies and the courts clearly have the authority to find an R&D market when examining a joint venture subject to the Act. Third, in its report accompanying the Act, Congress endorsed the idea that firms compete in R&D markets—and endorsed it broadly. Thus, the legislative history implies that the agencies are implementing the will of Congress when they find R&D markets in contexts beyond joint ventures. For all of these reasons, the way the agencies define an R&D market in contexts other than joint ventures will have a direct impact on how the agencies define an innovation market when interpreting the NCRPA.

B. Structure and Conclusion of the Article

1. Congress Supports Agencies' Policy of Finding Innovation Markets.

This article first examines how the National Cooperative Research Act incorporated into American law the idea that firms compete in R&D markets. The article shows that, regarding joint ventures subject to the Act, the statute clearly gives the agencies, and courts, authority to find R&D markets. And since Congress instructed the agencies to find R&D markets when analyzing these joint ventures, the agencies could reasonably conclude that Congress also supports their attempts to find R&D markets when they examine other types of transactions.

2. Agencies' Methodology

Second, the article analyzes the methodology the agencies have developed to allow them to find R&D markets. The article shows that this methodology allows the agencies to actually find, not R&D markets, but rather future goods markets. In other words, the agencies have developed a methodology which only allows them to identify a future market for goods which do not yet exist. They have not developed a methodology which allows them to find the broad R&D market which the NCRPA

5. *Id.*

seems to authorize the agencies to find, and which, using the term "innovation market," they themselves claim to find.

3. *Cases Applying Methodology*

Third, the article analyzes representative cases in which the agencies claim to have found innovation markets. The article shows that, consistent with the limited methodology which the agencies have actually developed, the agencies have in fact not found innovation markets in these cases. They have, by contrast, found future goods markets.

4. *Officials' Statements*

Lastly, the article reviews officials' statements regarding innovation markets. While these officials have certainly given the impression that the agencies find broad innovation markets, close examination of their statements reveals that even these officials acknowledge that the agencies find future goods markets rather than innovation markets.

5. *Conclusion: Agencies Have Not Been Able to Define an R&D Market*

The agencies are correct when they say that firms compete on innovation as well as price. But, this article concludes, the agencies have not been able to use this broad economic concept to define an innovation market. The article shows that while the agencies have tried to do this, they have developed a methodology which actually only allows them to find a future goods market. Yet, because firms do compete to innovate, this article does not criticize the agencies' attempts to regulate competition in future goods markets.

The article further shows that the agencies have not been able to define a market in which innovation is itself the "product." Firms' innovation efforts only compete against each other if the firms are trying to develop the same future good. To analyze the firms' innovation efforts, the agencies must define the goods the firms are trying to produce. Thus, they must determine if the firms will compete in the future when they both sell this good. Thus, this article concludes, while the agencies have coined the appealing term "innovation market," they have in reality only regulated future goods markets.

Finally, this article examines how the agencies should interpret the NCRPA provision which allows them to find R&D markets. It therefore does not examine other legal theories, such as potential competition, which may allow the agencies to find future goods markets in other contexts. This article simply reaches the narrow conclusion that the agencies

should acknowledge that they have not been able to find innovation markets and that they have only found future goods markets.

II. THE NATIONAL COOPERATIVE RESEARCH ACT: CONGRESSIONAL SUPPORT FOR RESEARCH AND DEVELOPMENT MARKETS

A. Congress' Broad Endorsement of the Concept of R&D Markets

When enacting the National Cooperative Research Act, Congress clearly endorsed the idea that, in the appropriate case, the agencies should regulate competition in innovation markets. The Act says that when analyzing the appropriate joint venture, the authorities should apply a rule of reason which "tak[es] into account all relevant factors affecting competition, including, but not limited to, effects on competition in properly defined, relevant research, development, product, process, and service markets."⁶

Further, the Act's legislative history broadly supports the idea that firms compete in innovation markets. Congress enacted the Senate version of the relevant bill. The Senate report accompanying the Act endorsed the idea that the authorities should regulate competition to innovate. The report says:

Competition is as important in R&D as it is in any other commercial endeavor. Indeed, in many industries, particularly those that are based on rapidly evolving technology, competition in R&D may be crucial to success. Motivated by the benefits of getting ahead of one's competitors as well as the threat of falling behind, firms in such industries have strong incentives to be the first to develop new processes and products.⁷

The Senate report also tries to help courts define an R&D market. The report states that

[T]o be included in the relevant R&D market, firms must have the ability and incentive, either individually or in collaboration with one another, to undertake R&D comparable to that of the joint program in question. In this context, "incentive" is measured by an objective standard. Firms need not currently compete with one another at the production or marketing stage. Market shares in current markets or in projected future markets will not

6. 15 U.S.C. § 4302 (1993).

7. S. REP. NO. 98-427 § 202 (1984).

be determinative of a firm's ability and incentive to compete in a relevant R&D market. Rather, what is crucial to evaluating R&D competitiveness are the facilities, technologies, and other assets to which firms have access.⁸

B. Neither the Act Nor the Legislative History Define an R&D Market

The Act, however, does not define an R&D market. Indeed the Act seems to implicitly recognize that Congress could not define an R&D market. The Act says that the courts should analyze *properly defined* research and development markets, but never, itself, provides any such definition. This broad endorsement, without an accompanying definition, implies that Congress could not define an innovation market. Indeed, the agencies have also been unable to define an innovation market.

III. THE AGENCIES' UNSUCCESSFUL ATTEMPTS TO DEFINE A RESEARCH AND DEVELOPMENT MARKET

In their 1995 Joint Intellectual Property Licensing Guidelines (I.P. Guidelines) the agencies explain how they analyze intellectual property licensing agreements.⁹ The I.P. Guidelines also explain, rather briefly, how they define an innovation market. Also in 1995, two high-ranking DOJ officials, Richard Gilbert and Steven Sunshine, wrote an influential law review article on innovation markets. In their article these authors explained that the agencies will find innovation markets when examining transactions in addition to license agreements. In their article the authors explained why the agencies try to find innovation markets, and also developed a methodology which, the authors claim, allows the agencies to find these innovation markets.¹⁰ The following year two FTC attorneys wrote yet another law review article, in which they endorsed Gilbert and Sun-

8 *Id.* § 202.

9. See *Department of Justice and Federal Trade Commission Antitrust Guidelines for the Licensing of Intellectual Property*, 4 Trade Reg. Rep. (CCH) ¶ 13, 132 (1995) [hereinafter *I.P. Guidelines*].

10. Richard J. Gilbert & Steven C. Sunshine, *Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets*, 63 ANTITRUST L.J. 569 (1995). When the authors wrote this article they were Deputy Assistant Attorney Generals for, respectively, Economics and Mergers. Further, Dr. Gilbert headed the task force that drafted the *I.P. Guidelines*, and Mr. Sunshine participated actively in this effort. The authors, therefore, to some extent, wrote on behalf of the DOJ. See Robert J. Hoerner, *Innovation Markets: New Wine in Old Bottles?*, 64 ANTITRUST L.J. 49, 52 n. 14 (1995).

shine's innovation market analysis.¹¹ Together, the I.P. Guidelines and Gilbert and Sunshine's law review article explain how the agencies define an innovation market.

A. Intellectual Property Guidelines

The I.P. Guidelines define an innovation market, but do so only to a very limited extent. According to these Guidelines, firms compete in a separate innovation market to make better products or provide better services. Clearly, firms compete in markets for goods and services. Just as clearly, firms compete in technology markets, by, for example, licensing comparable technologies. The I.P. Guidelines say that, in addition to these markets, the market to develop better products is itself a separate market which antitrust authorities can identify.¹² Innovation, say the I.P. Guidelines, is itself the "product" of this innovation market. Furthermore, they say, firms must not monopolize this innovation market.

The I.P. Guidelines build on the market definition policies of the agencies' 1992 Horizontal Merger Guidelines (Merger Guidelines).¹³ These Merger Guidelines state that a firm has market power if it can raise the price of a good without causing a significant number of customers to buy other goods instead.¹⁴ Similarly, the I.P. Guidelines say that a firm has market power in an innovation market if it can lower its R&D spending without causing other firms to correspondingly increase their R&D investments.¹⁵ The I.P. Guidelines also require the agencies to consider other factors, such as the unique research capabilities of the relevant firms, before concluding that they have market power.¹⁶ Finally, the I.P. Guidelines require the agencies to consider how the transaction may improve innovation efficiencies.¹⁷

11. Thomas N. Dahdoun & James F. Mongoven, *The Shape of Things to Come: Innovation Market Analysis in Merger Cases*, 64 ANTITRUST L.J. 405 (1996). When they wrote this article, the authors were staff attorneys with the Office of Policy and Evaluation of the Bureau of Competition of the FTC. The authors therefore, to some extent, wrote on behalf of the FTC.

12. *I.P. Guidelines*, ¶ 20, 738.

13. See 1992 *Department of Justice and Federal Trade Commission Horizontal Merger Guidelines*, 4 Trade Reg. Rep. (CCH) ¶ 13,104 [hereinafter *Merger Guidelines*].

14. *Id.*

15. *I.P. Guidelines*, *supra* note 9, § 3.2.3.

16. *Id.*

17. *Id.*

B. Gilbert and Sunshine's Attempt to Define an Innovation Market

Gilbert and Sunshine wrote their influential law review article in the same year that the agencies issued their I.P. Guidelines. In their article the author expanded upon the I.P. Guidelines. The authors further explained how the agencies protect competition in innovation markets. In their article Gilbert and Sunshine developed a five-step methodology which, the authors say, allows the agencies to find an innovation market. These five steps are: (1) to identify the R&D which is the product of the innovation market; (2) to identify competition in the R&D product market, (3) to analyze competition from downstream goods; (4) to analyze increase in R&D concentration and firms' incentives innovate; and (5) to assess R&D efficiencies. This section analyzes each of these five steps and shows that this methodology does not actually allow the agencies to find an innovation market. Instead it allows the agencies to find no more than a future goods market.

To find an innovation market the agencies must identify "innovation." Innovation is the product of the innovation market, but is also intangible. Because innovation is intangible, Gilbert and Sunshine use tangible surrogates to represent innovation. More specifically, Gilbert and Sunshine use R&D programs to represent innovation. However, as these authors recognize, to identify the appropriate specific type of innovation the agencies must identify the appropriate specific R&D program. Yet, as this section will show, by requiring the agencies to identify these specific R&D programs, the authors have actually limited the agencies to regulating the future markets for the goods these programs are trying to develop.

1. Step 1: Identify the R&D which is the Product of the Innovation Market

Gilbert and Sunshine say that when defining an innovation market the agencies should first identify the specific product which the firms' R&D programs are trying to develop.¹⁸ As the authors explain:

1. Identify the Overlapping R&D Activities of the Merging Firms. The definition of a relevant R&D product market begins with the identification of the set of overlapping R&D activities of the merging firms. Such activities are economically relevant only if they may lead to improved products or processes. Thus, it is necessary to establish that the outcome of a proposed set of R&D activities can have a significant impact in one or more

18. See Gilbert & Sunshine, *supra* note 10, at 594.

relevant downstream product markets as a precondition for including the R&D activities in a relevant innovation market.¹⁹

To identify these overlapping R&D activities, the agencies must: (1) identify the products or processes the firms are trying to develop; and (2) determine either that the products to be developed will compete in a future goods market, or that the processes to be developed will change the nature or price of products which will compete in a future goods market²⁰

This conclusion follows because the authors say that the relevant R&D activities will only raise antitrust concerns if they impact at least one downstream product market.²¹ This implies that the agencies will only examine R&D programs which are trying to create new or improved products. The authors also say that the agencies should only define an innovation market if these programs "overlap." R&D programs will only overlap if they are both trying to develop the same new or improved product.

2. *Step Two: Identify Actual and Potential Competition in the R&D Product Market*

a) *Actual Competition*

Gilbert and Sunshine's second step requires the agencies to analyze other firms' R&D programs. These are R&D programs which other firms either are performing or could perform. This is the logical second step, and is an extension of the previous step. The agencies must look to see if other firms are performing the "same" R&D (which is R&D to make the same future good). If many other firms are performing the same R&D, then these firms make the innovation market competitive, and, the transaction will therefore probably not raise antitrust concerns. As the authors say:

2. *Identify Alternative Sources of R&D.* The purpose of this step is to identify the R&D activities that are reasonable substitutes for the activities of the merging firms. This corresponds to the evaluation of demand substitution in the Merger Guidelines. In the case of innovation, the "product" is R&D directed to particular new products and processes, which entails a set of activities including the required scientific skills and equipment. Because the product is a set of activities, rather than a particular good or service, it is both analytically and practically easier to

19. *Id.* at 595.

20. A "future goods market" includes a market in which firms sell the same goods at a lower price.

21. See Gilbert & Sunshine, *supra* note 10, at 595-96.

identify the firms that possess the capabilities to supply these activities, rather than attempt to categorize each activity separately.²²

Perhaps unintentionally, the authors, in reality, ask the agencies to analyze a future goods market. The authors cannot help but do this. In this paragraph the authors ask the agencies to perform analysis equivalent to the demand substitution analysis which the 1992 Merger Guidelines require regarding traditional goods markets.²³ This step requires the agencies to identify other firms which are making the same product as are the firms involved in the relevant transaction.²⁴ If enough other firms are also selling the relevant product, then the agencies can approve the relevant transaction.

This paragraph also states that R&D programs are the “product” of an innovation market. As the authors acknowledge, the agencies cannot identify this “product” directly. The authors therefore establish an awkward system of surrogates, in which one item stands for another. After establishing this system of surrogates the authors develop a methodology which allows the agencies to find no more than a future goods market.

Because R&D is the “product” of the innovation market, say the authors, the quantity and quality of firms’ R&D assets represent the R&D which firms can “produce.” The authors define R&D assets to include both physical and mental assets. Most importantly, the authors say that, if firms have the same R&D assets, then they produce the same R&D “product.”

According to the authors, firms produce the same R&D “product” if they have the same R&D assets. They also say that firms have the same R&D assets if they can use these assets to make the same future goods. Thus, the authors imply, firms compete against each other in an innovation market if they both have assets which will probably allow them to make the same future good.

Yet if the authors say that the relevant firms compete against each other because the firms will probably both be able to make the same future good, then the authors are actually saying that the firms compete against each other because they both will compete against each other in the same future goods market. The authors have therefore developed a awkward methodology which actually only allows the agencies to find a future goods market.

22. *Id.* at 595.

23. See *Merger Guidelines*, *supra* note 13, § 1.3.

24. See *Gilbert & Sunshine*, *supra* note 10, at 595.

b) Supply Substitution and Potential Competition

In their second step Gilbert and Sunshine are not only trying to identify firms which currently compete in an innovation market, but also firms which may do so in the future. In the second paragraph of this step, therefore, the authors ask the agencies to perform analysis equivalent to the Horizontal Guidelines' supply substitution and potential entry analyses. As the authors expand in their description of the second step:

A reduction in R&D by a monopolist in the assumed set of activities may be unprofitable because there are many alternative sources of R&D, so that a firm would not want to risk losing the R&D race, or because other firms would respond by increasing their R&D activities, with the result that the monopolist would be less likely to succeed in introducing new or cheaper products. Evaluating these alternatives parallels the evaluation of alternatives available to consumers in the delineation of downstream product markets. As in that analysis, it would be reasonable to include not only those firms that currently possess the necessary specialized assets for R&D, but also those firms that could be expected to acquire those assets within a reasonably short time period in response to a small but significant and nontransitory reduction in R&D. This corresponds to the evaluation of supply substitution and entry in the Merger Guidelines.

In many market circumstances there is so much serendipity in research and development that it is impossible to predict the sources of innovation with reasonable certainty. It is unlikely that combining the R&D activities of the merging firms would have a significant impact on innovation in these circumstances. The delineation of innovation markets should be limited to markets in which R&D directed towards particular new products or processes requires specific assets that are possessed by identified firms. If innovation directed to particular products or processes does not require specific assets, entry into R&D would be easy and the innovation market would be competitive. If such innovation does require specific assets, it may nonetheless be inappropriate to delineate an innovation market if the firms that possess those assets cannot be reliably identified to provide sufficient certainty as to the proper boundaries of the innovation market.

In their footnote 63, the authors add the following:

Evaluating competitive effects necessarily requires a forecast into the future which becomes more uncertain with a longer time

horizon. These uncertainties are likely to be overwhelming for forecasts of competitive effects from innovation that extend beyond several years. In estimating whether a firm would be able to acquire the assets necessary to engage in R&D, a two-year horizon would be consistent with the analysis of entry in the Merger Guidelines.²⁵

c) Analysis: Agencies Cannot Identify Firms Which Offer Alternative Sources of Supply, or Potential Competitors

Gilbert and Sunshine base their definition of an innovation market on the 1992 Horizontal Merger Guidelines.²⁶ These Merger Guidelines require the agencies to identify firms which could, in response to the appropriate price rise, readily produce alternative sources of supply, usually within one year.²⁷ The Merger Guidelines also require that the agencies analyze barriers to entry, and thereby determine whether potential competitors could enter the market, usually within two years.²⁸ In the paragraph above, Gilbert and Sunshine require the agencies to perform an equivalent analysis.

In this step Gilbert and Sunshine combine what the 1992 Merger Guidelines divide into two analytical steps.²⁹ The authors ask the agencies to determine if the relevant transaction will harm competition in an innovation market.³⁰ To do this the agencies must determine the level of competition in the innovation market. And to determine this level of competition, the agencies must, among other things, determine whether enough firms, which are not currently performing the relevant R&D, could perform this R&D in the future. If these firms could perform the R&D, then either the threat that they may do so will restrain a firm from exercising monopoly power in the innovation market, or, if the firm does exercise such power, then these other firms will perform the relevant R&D and enter the market. In either case, Gilbert and Sunshine believe, these firms will keep the innovation market competitive.

Since the authors are trying to develop an innovation market methodology, they appropriately combine supply substitution and entry analysis. Innovation is such an unusual product that the agencies will find it difficult enough to determine which firms may, in the future, perform the relevant

25. *Id.*

26. *See generally Merger Guidelines, supra* note 13.

27. *Id.* § 1.3.

28. *Id.* § 3.2.

29. *See Gilbert & Sunshine, supra* note 10, at 595.

30. *Id.*

R&D. The agencies certainly will not be able to determine whether these firms will enter the R&D market within one or two years, as the Merger Guidelines ask the agencies to do regarding currently existing goods. By combining these analyses the authors allow the agencies to avoid making this very difficult determination.

Because the authors combine the two steps of the Merger Guidelines into one, they make it as easy as possible for the agencies to identify potential competitors in the innovation market.³¹ Yet, as easy as the authors make this analysis, they still ask the agencies to do what the agencies cannot do. The agencies cannot define potential competitors who may enter an innovation market.

Potential competitors in an innovation market are firms which could, in the future, try to develop the relevant good. Firms compete in a current innovation market, not when they produce the relevant good, but when they invest in the appropriate R&D and try to produce that good. Thus firms trying to produce the relevant good are already competing in the innovation market.

A potential competitor into an innovation market is a firm which may invest in the appropriate R&D, and which therefore may try to produce the relevant good. Firms enter innovation markets when they invest in the appropriate R&D. Therefore, any firm which may, in the future, invest in the appropriate R&D is an potential competitor into the relevant innovation market.

In this step Gilbert and Sunshine's methodology breaks down. Just about any firm may, in the future, try to produce just about any good. Firms which do not even currently exist may, in the future, try to produce a particular good. The agencies cannot practicably identify firms which may, in the future, try to produce particular goods. Thus, the agencies cannot identify potential competitors of an innovation market.

Furthermore, a firm may also be a potential competitor in an innovation market even if it never intends to produce the relevant good. The firm may intend only to develop the technology which would allow a manufacturer to produce the relevant good. Specifically, it may intend to develop, and then license, the relevant technology. Indeed, many so-called R&D firms develop technology and then license this technology to manufacturers or other firms. Any number of these R&D firms may, in the future, decide to perform the relevant R&D. Thus, such firms may decide,

31. The Merger Guidelines require the agencies to analyze only the barriers to entry to a market. In the usual case, therefore, the agencies do not identify potential competitors. See *Merger Guidelines*, *supra* note 13, § 3.1.

in the future, to enter the relevant innovation market. Almost all of these R&D firms are therefore potential competitors of an almost infinite number of innovation markets.

Gilbert and Sunshine implicitly recognize that the agencies cannot identify potential competitors of an innovation market. While the authors require the agencies to identify firms which could enter an innovation market, in which R&D is the "product," the authors also recognize that the agencies cannot actually identify this R&D "product." The authors therefore use as a surrogate for the R&D "product" the physical and knowledge assets which firms need to perform R&D. Thus, to identify potential entrants into an R&D "product" market, the authors ask the agencies to identify firms which could acquire the physical and knowledge assets they would need to perform the relevant R&D.³²

Gilbert and Sunshine recognize that the agencies will not normally be able to identify such firms. As they say, "there is so much serendipity in research and development that it is impossible to predict the sources of innovation with reasonable certainty."³³ Thus, they continue, "[t]he delineation of innovation markets should be limited to markets in which R&D directed toward particular new products or processes requires specific assets that are possessed by identified firms."³⁴

Gilbert and Sunshine therefore acknowledge that the agencies will usually not be able to identify potential entrants into an imagined R&D "product" market. The authors only require the agencies to find an innovation market if the agencies can identify the specific firms which possess the assets they need to develop the relevant goods. Thus Gilbert and Sun-

32. See Gilbert & Sunshine, *supra* note 10, at 595.

33. *Id.* at 596.

34. *Id.* In this passage, therefore, the authors acknowledge that the barriers to entry to an innovation market are so low that the number of potential competitors of the innovation market will always be infinite. If it is impossible to predict the sources of innovation, then it is impossible to predict which firms will successfully innovate. And if it is impossible to predict which firms will successfully innovate, then it certainly is impossible to predict which firms will even try to innovate.

Thus, even if Gilbert and Sunshine did not require the agencies to identify potential competitors, the agencies still could not use the authors' methodology. Even if, consistent with the 1992 Merger Guidelines, the authors only asked the agencies to identify the likelihood of entry into the innovation market, the agencies still could not find innovation markets. Because the agencies will never be able to say which firms, or even how many firms, may even try to innovate, the agencies will never be able to say that entry into the innovation market is so unlikely that they can conclude that the market is not sufficiently competitive. In other words, because an infinite number of firms may try to develop a given innovation, an innovation market will always have an infinite number of potential competitors.

shine ask the agencies to identify the firms which can or will be able to develop the relevant goods.

By limiting their analysis to firms which could manufacture the relevant goods, Gilbert and Sunshine have defined, not an innovation market, but a future goods market. To repeat, a firm competes in an innovation market when it invests in R&D which would allow a manufacturer to make the relevant good. To compete in an innovation market a firm does not need to produce any good. And a potential competitor in an innovation market is a firm which may, in the future, invest in the relevant R&D. Gilbert and Sunshine's potential competition analysis, however, does not require the agencies to identify firms which may invest in the relevant R&D. Instead it requires the agencies to identify firms which have the relevant assets and may therefore be able to produce the relevant goods. Thus Gilbert and Sunshine's methodology actually requires agencies to identify potential competitors who may enter, not an innovation market, but rather a future goods market.

In some cases the agencies fear that the relevant firms may control intellectual property rights, or standards, which may allow the firms to keep other firms out of the relevant market. In these cases the agencies may be able to identify the potential competitors of the innovation market, because the potential competitors of the future goods market may also be the potential competitors of the innovation market.

If firms, not competing in a particular goods market, realize that the firms already in this market could use intellectual property rights or standards to keep others out of the market, then the currently non-competing firms will not try to enter the goods market. Because they will not try to enter the appropriate goods market, they will not invest in the appropriate R&D to try to develop the good. These firms will therefore not be potential competitors of either the future goods market or the innovation market.

In these patent or standard cases however, although the agencies can identify the potential competitors of the innovation market, the agencies still cannot apply Gilbert and Sunshine's innovation market methodology. First, Gilbert and Sunshine do not limit their methodology to cases involving patents or standards. Second, the agencies cannot analyze firms' incentives to innovate, as Gilbert and Sunshine also ask the agencies to do.³⁵ Third, as the discussion of *Sensormatic Elecs. Corp.*³⁶, and *Ciba*

35. See *infra* notes 55-59 and accompanying text.

36. *Sensormatic Elecs. Corp.*, 60 Fed. Reg. 5428 (F.T.C. 1995). For discussion of the case, see *infra* text accompanying notes 104-119.

*Geigy/Sandoz*³⁷ explains in greater detail, other principles of antitrust law (not innovation market analysis) already give the agencies authority to stop firms from acquiring intellectual property rights, or from developing standards in ways which may harm competition, including competition to innovate.

In conclusion, Gilbert and Sunshine's methodology actually requires the agencies to find, not an innovation market, but rather a future goods market. The authors know that, in reality, the agencies cannot identify a market in which innovation is the "product." The authors therefore develop a complex series of surrogates. They first use R&D programs as a surrogate for innovation itself. They then use the assets firms need to perform this R&D as a surrogate for these R&D programs. Finally, Gilbert and Sunshine say that the agencies should only find an innovation market if the agencies can identify all the firms which will, for the foreseeable future, be able to obtain the assets they need to perform the relevant R&D.

The authors ask the agencies to identify firms which are investing in R&D programs which will allow them to make the same future products. The authors are therefore asking the agencies to identify firms which compete in the same future goods market. Since this is what the authors are actually asking the agencies to do, then this is what the authors should say they are asking the agencies to do.

Nonetheless, the agencies should analyze future goods markets. The agencies should ensure that a current transaction will not harm future competition. The simple, direct, and clear way to protect future competition is to protect competition in future goods markets. In fact, because this is the simple and appropriate way of protecting future competition, it is in fact the method Gilbert and Sunshine themselves actually use.

d) Timing of Market Entry

As a post-script, it bears emphasis that, when the agencies analyze possible future market developments, they must do so within a specific period of time. If the agencies are, for example, trying to determine if a firm will enter a future goods market, then they must determine whether the firm will enter the market, if at all, then within a specific period of time. Since the further into the future the agencies look the more speculative their analysis becomes, the agencies must limit the number of years into the future in which they will try to anticipate whether firms will, for example, try to enter the future goods market.

37. *Ciba Geigy Ltd.*, FTC File No. 961-0055 (Dec. 5, 1996). For discussion of the case, see *infra* text accompanying notes 120-127.

Gilbert and Sunshine say that the agencies should only look two years into the future. The authors borrow this time limit from the 1992 Horizontal Merger Guidelines. These Guidelines say that when trying to determine whether barriers to entry will keep potential entrants out of a given market, they agencies will generally try to determine if these possible potential entrants would enter the market within two years.

When analyzing future goods markets, however, the agencies actually look more than two years into the future. In *Upjohn-Pharmacia*, for example, the FTC anticipated market developments seven years into the future.³⁸ Because market conditions vary widely from case to case, and, in particular, the Federal Government subjects pharmaceutical products to a long and cumbersome approval process which does allow the agencies to reasonably anticipate future market developments more than two years into the future,³⁹ the agencies correctly ignore Gilbert and Sunshine's two year time limit.

3. *Step Three: Competition from Goods*

Gilbert and Sunshine's third step requires the agencies to analyze the actual and potential competition from what Gilbert and Sunshine call downstream markets. As the authors continue:

3. *Evaluate Actual and Potential Competition from Downstream Products.* In addition to competition from alternative technologies, a second reason why a reduction in R&D may be unprofitable for a hypothetical monopolist is actual and potential competition from downstream products. Innovation permits the hypothetical monopolist to increase its share of downstream markets and be more profitable. A downsized R&D program would make it more difficult for the R&D monopolist to enter new markets where it does not presently compete. If the resulting loss of competitive opportunities would exceed any savings in R&D expenditures so that a reduction in R&D would not be profitable, a merger or acquisition would not have an adverse impact on the level of R&D effort. In this circumstance, a merger or other combination would not adversely affect incentives to invest in R&D. This may be true even if the firm were a monopolist in all of the substitutes for the R&D activities of the merging firms.⁴⁰

38. *Upjohn Co.*, 60 Fed. Reg. 56,153 (F.T.C. 1995) (complaint at "5").

39. See Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 321.

40. Gilbert & Sunshine, *supra* note 10, at 596.

In this third step, the authors ask the agencies to analyze the relevant firms' incentives to perform R&D. In particular, they ask the agencies to determine whether a combined firm, which would presumably enjoy monopoly power in an innovation market, would maintain its previous level of R&D investments because it wanted to enter "downstream markets."

Gilbert and Sunshine do not define these downstream markets. Though the authors clearly use this term to refer to markets for goods which already exist, they do not make clear whether downstream markets are markets for goods which the firms are trying to enter directly, or are other markets which the new technology may also allow the firms to enter. This article will therefore examine both of these markets. For the sake of clarity, the article will call the markets which the new technology may also allow the firms to enter, "opportunistic markets."

a) Markets for Goods the Firms are Trying to Enter Directly

Markets for goods which the firms are trying to enter directly are future goods markets. Even if another firm is making the good, one or both of the firms involved in the relevant transaction may not currently produce the good. These firms may be investing in R&D with the hope of one day entering the market.

b) Opportunistic Markets: Markets for Goods Other Than the Markets the Firms are Trying to Enter Directly

For the following reasons the authors may, in this step, want the agencies to analyze markets for goods other than the markets the firms are trying to enter directly:

First, in an earlier section of their law review article, before explaining their innovation market methodology, the authors explained that innovation market analysis allows the agencies to analyze the effects of R&D on opportunistic markets. The authors hypothesized that two merging firms were developing a new smelting process, which, if successful, would allow them to lower the cost of making aluminum ingot, and thereby lower the cost of the lawn furniture they made. The authors used this example to show that if the firms developed this better smelting process, then its invention would allow the firms, not only to improve their aluminum lawn furniture business, but also to enter new markets, such as the market for automobile parts.

Second, this is the only step in the authors' analysis in which the agencies could analyze effects comparable to the automobile parts market in the authors' example. Thus, the authors probably expect the agencies to examine such effects in this step.

Third, the authors want to examine firms' incentives to innovate. By examining the firms' ability to enter these related markets, the authors presumably hope to fully capture the firms' incentive to innovate.

Thus, if the authors expect the agencies to examine opportunistic markets in this step, then they must expect the agencies to perform the following two step analysis. The agencies must be able to: (1) identify the other markets the firms may be able to enter; and (2) analyze the competitive conditions of these markets both currently and in the future. This is an extremely complex analysis. In fact, it is an overly complex analysis. This section will analyze each of these two steps. The section will show that the agencies cannot perform this overly complex analysis.

i) Identifying the Other Markets the Firms May Be Able To Enter

The agencies will have great difficulty identifying other markets the firms may be able to enter. This step requires the agencies to be even more prescient than a firm's own strategic planners. It requires the agencies to identify markets, other than the markets the firm is actually trying to enter, which the relevant technology will also allow the firm to enter. The firms' own strategic planners may not know which markets these are, or, for that matter, whether any such markets exist. And even if strategic planners or agency analysts did identify such opportunistic markets, any conclusion he or she may reach regarding the firm's ability to enter one or more of these opportunistic markets, and its success in these markets, would be speculative at best. The firms could enter an almost infinite number of opportunistic markets, including markets for products which do not yet exist.

Moreover, if the agencies were able to identify any such opportunistic markets, then they would only have identified other future goods markets. Opportunistic markets are markets which the relevant firms may be able to enter after they combine their R&D programs. Because the firms may compete in these markets in the future, these markets are, in fact, future goods markets. Thus when the agencies identify opportunistic markets, they actually identify future goods markets.

Gilbert and Sunshine's methodology already allowed the agencies to identify these opportunistic markets. This article's analysis of their second step showed that when they asked the agencies to find markets in which R&D is the "product," the authors established a system of surrogates which in reality ask the agencies to find future goods markets. The author's second step did not limit the number of future goods markets the agencies could find. If, in a given case, a firm were developing technology

which would allow it to enter more than one future goods market, then the agencies could simply analyze the effects of the transaction on these several future goods markets. In fact, in *Ciba Geigy* the FTC identified four future goods markets.⁴¹

ii) Analyze the Conditions of this Market Both Currently and in the Future

Undertaking an analysis of current (and future) conditions in opportunistic markets seems very complex. Unfortunately, as complex as this part of Gilbert and Sunshine's methodology may seem, it actually adds very little to the authors' overall analysis. This step requires the agencies to analyze the current market conditions of markets which the relevant firm may enter. Because these markets already exist, this part of the analysis clearly relates to markets for already existing goods. Thus this part of the analysis asks the agencies to analyze markets for already existing goods.

In step one, however, the authors implicitly already asked the agencies to analyze markets for already existing goods. At the outset, the authors asked the agencies to analyze markets for goods which the firms' R&D programs were trying to develop. If other firms already made these goods, then, implicitly, this step already asked the agencies to consider these already existing goods when the agencies analyzed the relevant goods market.

On the other hand, this part of the analysis does ensure that the agencies analyze these currently existing markets. It also ensures that the agencies analyze opportunistic markets. Thus, this step guarantees that the agencies will analyze all relevant markets, and, to that extent, adds to Gilbert and Sunshine's methodology. But this rather modest contribution does not lead the agencies to find innovation markets.

With regard to future conditions in the markets, the agencies cannot determine how most markets will develop. If, however, the agencies were able to anticipate how a particular market would probably develop, and they analyzed future competition in this market, then they would simply be analyzing competition in a future goods market.

c) Incentives

Gilbert and Sunshine ask the agencies to identify opportunistic markets because the authors want the agencies to analyze the relevant firms' incentives to innovate. The authors ask the agencies to determine whether

41. See *infra* text accompanying note 121.

opportunistic markets create such a strong incentive to innovate that they will encourage even an innovation market monopolist to invest in R&D. The authors therefore ask the agencies to evaluate the innovation market monopolist's incentives to innovate. However, as the following analysis of step four shows, the agencies cannot determine an innovation market monopolist firm's incentives to innovate.

4. *Step Four: Concentration of R&D, and Incentives to Invest in R&D*

In step four Gilbert and Sunshine ask the agencies to do two things. The authors ask the agencies to: (1) analyze shares of innovation markets, and (2) analyze innovation market monopolists' incentives to invest in R&D. Their methodology, however, does not allow the agencies to achieve either of these goals. The agencies cannot determine a firm's share of an innovation market and also cannot analyze firms' incentives to invest in R&D.

As the authors explain their fourth step:

4. *Assess the Increase in Concentration in Research and Development and Competitive Effects on Investment in R&D.* A relevant innovation market is established when the analysis identifies the set of R&D activities for which a hypothetical monopolist would profit by a small but significant and nontransitory reduction in R&D. Having defined the innovation market, an analysis of a merger involving R&D must consider whether the merged firm's share of R&D is sufficient to affect the total level of R&D in that market, and whether there are any particular factors (in addition to competition from downstream products analyzed in Step 3) that affect the likelihood that the merger may have an impact on competition. The proper measure of the merged firm's share of innovation activity will depend upon individual circumstances. Expenditures on research and development can be used *if the expenditures can be localized to R&D leading to the relevant new products or processes*. In other situations, the level of activity (such as production) or the level of assets may be better correlated with the probability that a firm will be a successful innovator. (For example, production levels, or appropriately weighted past production levels, may be a reasonable measure of a firm's position on a learning curve and thus its ability to introduce new process innovations.) If firms in the identified population of innovators are equally likely to be successful, the proper measure would assign each firm an equal market share.

As discussed in Part V above, adverse impacts on R&D are more likely to occur from the unilateral exercise of market power by a merged firm that controls a large share of an innovation market. Collusion in R&D is difficult, especially if an innovation would be likely to have a significant impact on existing competitive relationships.⁴²

a) Share of Innovation Market

The authors believe that the agencies should only challenge a transaction if it would give a firm market power in an innovation market. To determine if a transaction will give a firm such market power, the agencies must therefore determine the firm's market share in the innovation market. Yet the agencies have difficulty enough determining shares of traditional product markets. The agencies cannot determine shares of markets in which the "product" is intangible innovation.

i) Money Invested in R&D

Gilbert and Sunshine ask the agencies to analyze several criteria which, the authors say, allow the agencies to determine firms' shares of innovation markets. The first criteria the authors ask the agencies to analyze is the amount of money the relevant firms are investing in R&D programs. But, as Gilbert and Sunshine had previously established, the agencies should only consider R&D programs which are directed towards producing the same future good. The authors therefore actually ask the agencies to determine how much money each firm is investing in its efforts to enter the relevant future goods market. The authors say that this level of investment strongly indicates how successful the relevant firms are likely to be in the future goods market.

The authors have once again developed an awkward methodology. The authors ask the agencies to determine how much money the relevant firms are investing in R&D. They say that this reflects the firms' shares of the innovation market. The authors then, in effect, say that the firm's share of the innovation market indicates how successful its innovation efforts are likely to be. Thus, the larger the firm's share of the innovation market, the more likely the firm is to develop and sell the relevant good. In effect, the authors say that the more money the firm spends to develop a future product, the larger the firm's share of the future goods market will be.

42. See Gilbert & Sunshine, *supra* note 10, at 596-97 (footnotes omitted and emphasis added).

This analysis does not add to the author's overall methodology. Step one already required the agencies to analyze the relevant firms' R&D programs. This step four asks the agencies to determine how much money the relevant firms are investing in these R&D programs. But the agencies already should have done this when, pursuant to step one, they analyzed the firm's R&D programs. Thus, in this step, the authors merely ask the agencies to repeat the analysis of step one.

Furthermore, the agencies cannot anticipate future market shares, even of future goods markets. The agencies have difficulty enough anticipating which markets will exist in the future. Neither they, nor firms themselves, can anticipate how much of a good, which does not even yet exist, any firm may eventually sell. The agencies cannot assume that, because a firm is spending a lot of money to develop a good, that it will therefore sell a lot of that good in the future.⁴³

In the cases the agencies have actually decided, they have not been able to determine shares of future goods markets. In these cases the agencies have identified the firms which they believed would probably compete in then future goods markets. The agencies have then, in effect, assumed that these firms would have equal shares of the future market. This was the only reasonable assumption the agencies could make.

ii) Other Criteria for Determining Market Share

The authors list other criteria which, they say, allow the agencies to determine a firms' share of an innovation market. The I.P. Guidelines list other, similar, criteria. The agencies, however, cannot use these criteria to determine a firm's share of an innovation market.

This section first describes the criteria both Gilbert and Sunshine and the I.P. Guidelines say the agencies should use to determine a firm's share of an innovation market. This section will then show that the agencies must apply these criteria narrowly, if at all.

These market share criteria explain which firms are competing in the innovation market. They therefore actually define the innovation market. Just as the previous section showed that the agencies could only analyze R&D programs which were trying to develop the same future products, this section will show the agencies can only apply these criteria narrowly. And yet, by applying these criteria narrowly, the agencies find, not innovation markets, but rather future goods markets.

43. See Richard T. Rapp, *The Misapplication of the Innovation Market Approach to Merger Analysis*, 64 ANTITRUST L.J. 20, 33-36 (1995).

One should note at this point that the I.P. Guidelines and Gilbert and Sunshine use similar, and consistent, market share criteria. In fact, the I.P. Guidelines and the authors develop generally consistent methodologies.⁴⁴ Gilbert and Sunshine were both high DOJ officials when they published their law review article, and when the agencies issued their I.P. Guidelines. Gilbert and Sunshine wrote their article not only to explain why the agencies incorporated innovation market analysis into the I.P. Guidelines, but also to explain why the agencies will find innovation market when analyzing transactions beyond license agreements. Lawyers have therefore correctly come to see Gilbert and Sunshine's article as an important explanation of both the I.P. Guidelines and the agencies' general innovation market policy.

This section will address each of the market criteria in turn: (1) specialized assets; (2) R&D expenditures under the I.P. Guidelines; (3) buyer and seller assessments; and (4) firms' incentives to invest in R&D.

(1) One market share factor is possession of certain specialized assets. To perform the relevant R&D, firms must have the appropriate equipment and other physical assets, and must also have the appropriate knowledge and skills. Gilbert and Sunshine call this equipment and skills "physical and knowledge assets". Gilbert and Sunshine reason that if firms must use these specific physical and knowledge assets to perform the relevant R&D, then only firms which have these specific assets can participate in a particular innovation market. The authors call these specific assets "specialized assets." They believe the agencies can identify these "specialized assets," and, further, that by doing so the agencies can identify all the participants in a particular innovation market.

The authors distinguish between physical and knowledge assets. A firm's physical assets are the buildings, machinery, and related equipment which it owns or controls. Gilbert and Sunshine reason that if firms need specific machinery to develop a new good, or an improved version of an existing good, then only those firms which currently own or control such machinery could participate in the current innovation market. For example, Gilbert and Sunshine reason that only firms which manufacture heavy-duty transmissions are able, not only to make the transmissions they currently sell, but also to even try to make better heavy-duty transmissions. Thus, say the authors, only firms which currently make heavy-duty

44. As another example, both the *I.P. Guidelines* and Gilbert and Sunshine say that they fear that an innovation market monopolist will retard the pace of research and development. See *I.P. Guidelines*, *supra* note 9, § 3.2.3; Gilbert & Sunshine, *supra* note 10, at 590-93.

transmissions participate in the current innovation market to make better heavy-duty transmissions.⁴⁵

Gilbert and Sunshine also apply this reasoning when analyzing what they call "knowledge assets." A firm's knowledge assets are the knowledge and skills it controls. In some cases only certain firms will have the knowledge and skills firms need to make a new or improved version of a good. Only these firms, Gilbert and Sunshine reason, compete in the innovation market. For example, only firms currently making heavy-duty transmissions have the knowledge and skills any firm would need to make better heavy-duty transmissions.

According to the authors, if a firm's market share for products it is currently producing and selling accurately reflects its strength and importance in the industry, then the agencies should consider the firm's current market share when assessing its share of the related innovation market. The firm's current production, the authors reason, usually reflects rather well the specialized machinery and skills which the firm controls. Thus, reason the authors, by examining a firm's current production, the agencies will usually be able to determine the nature and extent of any specialized assets the firm may control, and therefore determine its share of the related innovation market. The authors are in effect asking the agencies to use a firm's share of the current goods market as its share of the innovation market.

(2) Another market share factor under the I.P. Guidelines is R&D expenditures. According to the I.P. Guidelines, when determining a firm's share of an innovation market, the agencies should also consider the firm's "shares of research and development expenditure."⁴⁶ This phrase is ambiguous. The Guidelines may be asking the agencies to consider either the total amount of money the firms are investing in R&D, or they may be asking the agencies to consider only the amount of money the firm is investing in the relevant R&D program.

If the Guidelines mean to ask the agencies to determine how much money, relative to other firms, the firm is spending on total R&D, then the agencies must believe that the total amount of money a firm invests in R&D reflects, to some degree, its general ability to innovate.⁴⁷

The Guidelines may, however, be asking the agencies to determine how much money, relative to other firms, the firm develops for the relevant future good. This is in fact what Gilbert and Sunshine ask the agencies to do.

45. See Gilbert & Sunshine, *supra* note 10, at 588.

46. I.P. Guidelines, *supra* note 9, § 3.2.3.

47. See *id.*

(3) A third market share factor is buyer and seller assessments. The agencies themselves note that when determining shares of an innovation market, they will ask the opinions of buyers, competitors, and others who participate in markets for related goods. The I.P. Guidelines say that the agencies will "seek evidence of buyers' and market participants' assessments of the competitive significance of innovation market participants."⁴⁸ The agencies also say that, if they have difficulty determining how much money the relevant firms invest in R&D, then they will give particular weight to the assessments of these buyers and sellers.⁴⁹

(4) Finally, when estimating a firm's share of the relevant R&D market, the agencies will analyze the firm's incentive to invest in R&D. But since the agencies are analyzing R&D programs which are trying to develop specific future goods, they must analyze the firms' incentives to develop these specific future goods. Gilbert and Sunshine therefore actually ask the agencies to analyze the firms' incentives to develop specific future goods.

iii) Evaluation: Market Share Analysis Relates to Specific Products

When the agencies analyze the amount and quality of a firm's specialized physical and knowledge assets, they are actually analyzing the firm's ability to make a specific good in the future. They are analyzing how well the firm will be able to compete in the future when it develops and sells that good; in other words, they are determining whether a firm will be able to compete in a future goods market, and if so, what market share they expect the firm to achieve.

Thus, when analyzing either a firm's specialized assets or its current share of a market for existing goods, the agencies are determining what share of a future goods market they expect the firm to achieve. The specialized assets are, by definition, specialized, if not unique. Other firms cannot readily purchase these specialized assets. Thus, the firm that possesses such assets has a greater ability to make a specific good in the future.

Similarly, if the agencies can only use a firm's current market share to indicate the firms' future market performance if the agencies are analyzing a future goods markets. If the agencies are measuring a firm's current market share, then they must be counting how much of a specific product the firms are selling. If the agencies believe that this will help them de-

48. *Id.*

49. *See id.*

termine the firm's future market performance, then they must be examining a future market for goods which are at least related to the goods the firm is currently selling. Most likely, the agencies are examining the future market for improved versions of the good the firm is currently selling. This is probably the relevant future goods market.

With regard to the second factor (R&D expenditures, the agencies will not be able to determine how the firm's *total* R&D expenditure effects the firm's likelihood of developing any particular future good. Firms invest in many different forms of R&D. A large firm may, for example, invest vast sums to develop or improve hundreds of different products. The agencies cannot analyze the antitrust implications of all these potential R&D programs. Nor can the agencies assume that, because a firm is trying to develop products other than the products relevant to the transaction it is analyzing, that the firm is therefore more likely to develop the goods relevant to the agencies' analysis. This reasoning implies that large firms always innovate better than small firms which is, of course, not true.

Furthermore, if, when trying to determine a firm's share of an innovation market, the agencies try to determine how much money, relative to other firms, the firm is investing in the relevant R&D program, then the agencies will face two analytical difficulties. First, they will have difficulty determining how much money the firm has actually invested in the relevant R&D program. Many firms invest a great deal in R&D. They spend this money to try to develop many new products and processes. The agencies will have great difficulty deciding how to allocate this possibly large expenditure over all the many R&D programs into which the firms may invest. Second, the agencies cannot assume that a firm which invests more in R&D will innovate faster or better. The correlation between the amount of money a firm spends on R&D and its success as an innovator is, at best, weak.⁵⁰

As discussed above, the agencies also say that, in the appropriate case, they will also ask the appropriate buyers and sellers to assess firms' shares of an innovation market.⁵¹ But to do this, the agencies must assume that they have indeed defined an innovation market. As this article shows, however, the agencies have not been able to define an innovation market. And if, without defining an innovation market, the agencies ask buyers and sellers to evaluate firms' shares of an innovation market, the agencies would merely have passed the problem of defining an innovation market to the buyers and sellers. Further, before the agencies can ask buyers and

50. See Rapp, *supra* note 43, at 33-36.

51. See *I.P. Guidelines*, *supra* note 9, § 3.2.3.

sellers, they must decide which buyers and sellers to ask. The agencies will naturally ask those who buy or sell the appropriate good. The agencies must therefore define the appropriate good, and when they do so they will have defined a future goods market.

That the agencies can only apply these criteria to future goods markets is a needed limit on their application of the definition of an innovation market. If the agencies apply these criteria more broadly, then they must also expand their definition of the innovation market beyond the future goods market. And if the agencies do this, then they cannot limit the definition of an innovation market. No principal or rule of logic will constrain the agencies' definition. The agencies could then include just about any firm in the innovation market. The agencies will then be able to act illogically, and arbitrarily.

Gilbert and Sunshine, and the I.P. Guidelines, actually recognize that the agencies must limit their analysis. They therefore require the agencies to include within the innovation market only specific, narrowly defined, R&D assets. Furthermore, in the I.P. Guidelines the agencies say that the agencies "will delineate an innovation market only when the capabilities to engage in the relevant research and development can be associated with specialized assets or characteristics of specific firms."⁵²

This limited application stands in contrast to the rhetoric of the agencies and the fears of antitrust lawyers. Antitrust lawyers fear innovation markets because the agencies have created the impression that their methodology gives them broad and unrestrained powers.⁵³ Gilbert and Sunshine themselves say that firms may compete in an innovation market even if they "are not likely potential competitors."⁵⁴ And as this article will also show in greater detail, agency officials seem to endorse this view.⁵⁵

But, despite the agencies' rhetoric, they have, for the most part, acted with restraint. They have not exercised the broad powers innovation market analysis seems to give them. This article therefore asks the agencies to state clearly and unequivocally that they will not act arbitrarily. It concludes by asking the agencies to acknowledge that they have not exercised the broad powers innovation market methodology seems to give them, and they will not exercise these broad powers in the future.

With respect to the final factor mentioned above, the agencies cannot analyze an innovation market monopolist's incentives to innovate. Of

52. *Id.*

53. *See infra* notes 130-145 and accompanying text.

54. *See* Gilbert & Sunshine, *supra* note 10, at 570.

55. *See infra* notes 130-145 and accompanying text; *see also* Varney, *supra* note 1.

course the agencies can, and should, assume that firms want to earn profits, and that, to earn profits, they will enter various markets. The agencies therefore should assume that if, to enter a market, a firm must innovate, then it may at least try to do so. But Gilbert and Sunshine ask the agencies to do more than this. These authors ask the agencies to determine if an innovation market monopolist will suppress innovation. Gilbert and Sunshine fear that if firm monopolizes an innovation market, then it will use its monopoly power to cut back on its R&D investments.

But the agencies cannot evaluate a firm's incentives to suppress innovation. Innovation provides benefits which are not only great, but also varied. Because an innovation may offer a firm so many different benefits, the agencies cannot evaluate a firm's incentives to develop this innovation. Indeed, the agencies cannot evaluate the incentives to innovate of either a theoretical innovation market cartel, or of a theoretical individual innovation market monopolist.

A firm may have what Gilbert and Sunshine regard as monopoly power in an innovation market. As mentioned above, the authors fear that this monopoly power will allow the firm to cut back on its R&D investments. According to Gilbert and Sunshine, a firm with monopoly power in an innovation market will not worry that competitors will produce better products, and the innovation market monopolist will therefore not itself try to innovate.

But, equally plausibly, the firm's monopoly power may give it a greater incentive to innovate. No firm may yet sell the good the firm is trying to develop, or no firm may yet sell the improved version of the good which the firm is trying to develop. If the firm develops this product or improvement, then it will presumably enjoy a monopoly in the future market. It will therefore be able to earn monopoly profits in the future goods market. And the opportunity to earn monopoly profits creates a greater, not a lesser, incentive to innovate.

Furthermore, as Gilbert and Sunshine recognize in step two of their methodology, new technology may allow a firm to expand into one or more new markets.⁵⁶ These markets may be completely new; in other words, they may be markets for products which do not yet exist. Or they may be markets which are new to the firm: that is, markets for products which exist, but in which the relevant firm does not yet compete. In either case, the opportunity to expand into these new markets will encourage the firm to invest in the appropriate R&D. These markets provide an incentive to innovate.

56. See Gilbert & Sunshine, *supra* note 10, at 585-86.

To analyze a firm's incentives to innovate, the agencies must therefore determine which new markets the firm may be able to enter. However, as discussed above, the agencies cannot confidently determine which markets successful innovators may enter. In fact, the firm itself may have only a general idea of which markets its new technology may allow it to enter. It may even have only a general idea of what the technology it is trying to develop will be able to do. If the firm itself has only a general idea of what its new technology may be able to do, or what new market it may be able to enter, then the firm will not be sure whether it should try to develop the technology. And if the firm cannot know what it should do, then certainly a federal agency will not know what it should do. The agencies will therefore not be able to determine the firm's incentives to innovate.

Even Gilbert and Sunshine acknowledge that competitors are not likely to agree to uniformly reduce their R&D investments.⁵⁷ Further, Gilbert and Sunshine acknowledge that, even if firms do form such an innovation cartel, the cartel will very likely fall apart. As Gilbert and Sunshine say:

The conditions required to sustain a collusive agreement, however, are particularly difficult to satisfy when the coordinated activity is research and development. Firms are likely to benefit in different ways from a successful R&D program and agreement over the "spoils" of coordinated R&D activity is likely to be difficult. Monitoring will also be difficult since R&D typically involves private information. A firm that succeeds in an R&D program gains a substantial advantage over its competitors and retaliation by its unsuccessful rivals may be difficult or even impossible. In addition, when R&D does not require specialized assets, any collusive agreement to suppress R&D will be vulnerable to entry from innovators that are not members of the agreement.⁵⁸

Still, some firms have suppressed technologies.⁵⁹ Gilbert and Sunshine, and the agencies, legitimately fear that, in the future, other firms may also suppress technology. But the agencies have already acted to stop firms from suppressing technology. The law already gives the agencies power to stop firms from inappropriately suppressing technology. Thus, Gilbert and Sunshine do not need to develop convoluted innovation mar-

57. *Id.* at 591-92.

58. *Id.* at 591.

59. See *United States v. Automobile Manufacturers Assoc.*, 307 F. Supp. 617 (C.D. Cal. 1969); *McDonald v. Johnson & Johnson*, 537 F. Supp. 1282 (D. Minn. 1982).

ket analysis to give the agencies the power to stop firms from suppressing technology.

iv) Research Regarding Process Technologies

This article has so far discussed innovations which would allow a firm to develop new or improved goods. A firm may, however, be trying to develop a new process, which would allow it to make, at lower cost, goods it already sells.

Just as firms usually try to develop new products, so too do they usually try to develop new process technologies. New process technologies allow firms to make the same goods, but at lower cost. New process technologies therefore allow firms to lower their prices, expand their market shares, and increase their profits. Firms therefore usually try to develop new process technologies.

If the agencies should ever hypothesize that, in a particular situation, a firm would not seek to develop a new process technology, then the agencies must believe that the relevant firm cannot use the technology to expand its market share or increase its profits. The agencies must also believe that neither the firm's competitors, nor its potential competitors, will, for the foreseeable future, develop comparable technology. This situation is very unlikely to arise. Thus, even an innovation market monopolist is overwhelmingly likely to try to develop new process technology.

Further, if the agencies should ever fear that a firm is suppressing process technology, then their fears must relate to a current goods market. New process technologies allow firms to make, more efficiently, already existing goods. Thus if a process technology were to affect any market, then it must affect a market for already existing goods. The agencies would therefore fear that the relevant firms were harming competition in a current goods market. Thus, the agencies should respond to their concerns using traditional antitrust law, not innovation market analysis.

5. *Step Five: Efficiencies*

Lastly, Gilbert and Sunshine require the agencies to evaluate any efficiencies the merger may generate. As the authors say:

5. *Assess R&D Efficiencies.* The final step in the analysis of a merger or other combination that might affect investment in R&D is to evaluate the consequences for the efficiency of R&D. It is clearly not sufficient to end the evaluation with a determination only of the likelihood that the combination will reduce R&D effort. The relevant competitive concern is whether the combination will have an adverse impact on innovation, for which

R&D is only an input. The analysis must consider whether the merger or other combination affords efficiency benefits that enhance the likelihood or value of innovation. This requires evaluating the potential for exploiting complementary R&D assets and scale economies in R&D as well as for eliminating redundant R&D programs.⁶⁰

Firms may indeed enter into transactions which improve R&D efficiencies. Gilbert and Sunshine should therefore ask the agencies to examine R&D efficiencies. But, as the agencies themselves acknowledge, the agencies cannot readily assess those R&D efficiencies. The agencies acknowledged this when, in April 1997, they revised the efficiencies section of their 1992 Horizontal Merger Guidelines. The revised efficiencies section states, "Other efficiencies, such as those relating to research and development, are potentially substantial but are generally less susceptible to verification and may be the result of anticompetitive output reductions."⁶¹

When the agencies made this admission they already had great experience analyzing innovation markets, and therefore, presumably, possible R&D efficiencies. The agencies had issued their 1995 I.P. Guidelines two years earlier. The FTC had also already held its hearings on the "New, High-Tech Global Marketplace," at which numerous witnesses discussed innovation markets.⁶² Indeed the FTC staff had issued a report based on these hearings.⁶³ Perhaps most importantly, the agencies issued these revised guidelines after they had decided many cases in which they claim to have found innovation markets.

In these revised efficiency guidelines, therefore, the agencies made an important admission. After they had gained a great deal of experience analyzing innovation markets, the agencies publicly acknowledged that have great difficulty analyzing R&D efficiencies. In other words, the agencies acknowledged that they have great difficulty applying one of the five steps of Gilbert and Sunshine's innovation market methodology.

60. See Gilbert & Sunshine, *supra* note 10, at 597.

61. Department of Justice and Federal Trade Commission, *Revision To Horizontal Merger Guidelines* (Apr. 8, 1997) (available in 1997 WL 166999 (D.O.J.)).

62. Federal Trade Commission, *Hearings on Global and Innovation-Based Competition* (Dec. 13, 1995) <<http://www.ftc.gov/speeches/other/speech.htm>>.

63. See ANTICIPATING THE 21ST CENTURY: COMPETITION POLICY IN THE NEW HIGH-TECH, GLOBAL MARKETPLACE, A REPORT BY THE FEDERAL TRADE COMMISSION STAFF (1996).

C. The Authors' Aluminum Ingot Example

Gilbert and Sunshine offer an example which they believe illustrates why the agencies should use innovation market analysis.⁶⁴ This example, however, actually illustrates why the agencies cannot use the innovation market methodology. Thus, even the example by which the authors attempt to show why the agencies should apply their innovation market methodology actually demonstrates why the agencies cannot, in fact, do so.

To illustrate the value of the innovation market methodology, Gilbert and Sunshine analyze a market with only two integrated producers of aluminum ingot. One producer operates in the United States and the other in Europe. Both produce their own ingot, and each uses this ingot to make both aluminum cable and lawn furniture. Both compete in a world aluminum cable market, but each sells lawn furniture only in its domestic market. Neither firm intends to enter the other's lawn furniture market, nor does either firm believe that the other will expand into its domestic lawn furniture market. No other firms compete in any of these markets. Thus only these two firms compete in the cable market, and each enjoys a monopoly in the lawn furniture market.⁶⁵

1. *Effect of Merger*

a) Products: Only Cable Market Affected

Gilbert and Sunshine say that if these firms were to merge, then, applying standard antitrust analysis, the agencies would only analyze the aluminum cable market, in which both firms competed. But, the authors say, standard antitrust analysis would not lead the agencies to analyze the lawn furniture market. Before the merger, each firm enjoyed a monopoly in this market, and after the merger each firm would still enjoy its monopoly. Standard antitrust law would therefore lead the agencies to conclude that the transaction did not affect the lawn furniture market.

b) Innovation: Cable and Lawn Furniture Markets

Gilbert and Sunshine believe that because standard antitrust analysis does not lead the agencies to analyze the lawn furniture market, it does not lead the agencies to analyze the full affects of this hypothetical merger. To show this, the authors further assume that prior to the merger each firm was performing R&D to develop a new smelting process. This smelting process would lower the cost of producing aluminum ingot. The authors

64. See Gilbert & Sunshine, *supra* note 10, at 581-86.

65. See *id* at 581-82.

then analyze how the merger would affect the new merged firm's incentives to innovate. Further, they analyze how the new incentive structure would affect both the cable market and the lawn furniture market.

The merger, say the authors, would clearly lower the merged firm's incentive to innovate in the cable market. Before the merger, each firm competed against the other, and therefore sought to increase its market share. Each firm therefore sought to lower its price, and its production costs. But, say the authors, this merger would create a monopoly, and the new monopolist would not try to increase its market share. It would therefore not try to develop new low cost production techniques. It would not innovate.

Further, say the authors, if the merged firm faced a lower incentive to innovate, then not only would it not only fail to develop lower priced cable, it would also fail to develop lower priced lawn furniture. If the two firms had invested sufficiently in R&D so they could lower the cost of producing aluminum ingot, then they would produce at lower cost not only aluminum cable, but also lawn furniture. Because they would have lowered the cost aluminum ingot, which is the most important material they use to make lawn furniture, and could also have sold lawn furniture at a lower price. Their innovation would therefore have benefited, not only aluminum ingot consumers, but also lawn furniture consumers.

The authors stress that if the firms had innovated, then, even if the firms had remained monopolists, they still would have lowered the cost of producing lawn furniture. The authors also say that if the two firms did not merge, but had continued to innovate, then they would not only have been able to make aluminum ingot at lower cost, but they would also have been able to expand into other markets. Their lower cost production methods may allow them to sell, for example, auto parts at competitive prices.

Gilbert and Sunshine claim that in this example the two unmerged firms were competing in a current innovation market. The firms were currently competing to develop ways to make less expensive aluminum ingot, say the authors. And only if the agencies analyze this current innovation market will they fully understand all the consequences of the firms' possible merger.

2. *Analysis*

This example does not, however, show that the agencies should use Gilbert and Sunshine's innovation market analysis. The authors offer an unrealistic example, and one which shows that innovation market analysis does not in fact add to conventional antitrust analysis.

The example is unrealistic because it assumes not only that the firms are monopolizing their respective lawn furniture markets, but also but also that they will continue to do so. In reality, many firms sell lawn furniture in both Europe and the United States, and many more firms could enter these markets. Perhaps more importantly, in both Europe and the United States, markets for similar goods are competitive. The authors offer no reason why the agencies will analyze cases in which markets for these similar goods will not be competitive.

If the firms respective lawn furniture markets were competitive, then the firms would have faced a strong incentive to innovate in this market. The firms would want to produce goods a lower cost, and then either underprice their competitors, or increase their profits. Further, the firms would fear that their competitors would either also produce lower cost aluminum ingot, and therefore also lower cost lawn chairs, or would be able to buy lower cost aluminum ingot from producers who had developed a comparable smelting process. In either case, the firms' competitors would have been able to sell lower priced lawn furniture. And, fearing that this might happen, the firms would have an incentive to sell lower priced lawn furniture as soon as possible.

The example implies that the agencies will use innovation market methodology to help them analyze a transaction involving firms which are monopolizing their respective downstream markets. Yet in none of the cases in which the agencies say they found innovation markets have the agencies claimed that firms monopolized downstream markets. The example therefore implies that, in the cases the agencies actually decided they did not need to find innovation markets.

Even if the relevant firms do monopolize markets comparable to the lawn furniture market, this example still shows that innovation market analysis adds nothing to traditional antitrust analysis. Traditional antitrust analysis itself covers the merger the authors describe. The agencies would not allow two firms to merge, and then monopolize a given market.

Traditional antitrust law would require the agencies to challenge this merger, among other reasons, because the law posits that monopolies do not innovate as fast or as well as competitive firms. Traditional antitrust law therefore already requires the agencies to ensure that these firms faced the appropriate incentive to innovate. The agencies did not need Gilbert and Sunshine innovation market methodology to ensure that the firms faced the appropriate incentive to innovate.

Finally, the merger did not necessarily lower the firms' incentive to innovate. Even if the firms had obtained the monopoly in the aluminum cable market, they still may have tried to develop the lower cost smelting

process. If the firms had been able to develop lower cost aluminum ingot, then they would have been able to earn more money in the aluminum cable and lawn furniture markets. They would have been able to either sell the same amount of these goods, but at a greater profit, or, more likely, they would have been able to sell more of these products. They also may have been able to enter new markets, such as the auto parts market. All these opportunities to earn more money gave the merged firm, albeit a monopoly, an incentive to innovate.

IV. CASES

A. Introduction

1. *The Agencies Find a Future Goods Market*

The following section reviews representative cases in which innovation market advocates claim that the agencies found an innovation market. As this analysis will show, however, in none of these cases have the agencies actually find an innovation market. In all of these cases the agencies instead found future goods markets. Thus, rather than find a market in which innovation was itself the "product," the agencies instead analyzed a future market for goods which did not yet exist.

This part divides the cases into three categories. The first section of this part analyzes cases in which both parties already made the relevant good, such as transmissions. Thus, in these cases, the agencies examined the future market for a better version of the existing good, such as the market for better transmissions.

The second section analyzes cases in which one of the parties already made the relevant good. In these cases the agencies feared that the transaction would remove a potential competitor from the market. The agencies believed that the relevant firm would compete in the future goods market, and they would not let the transaction remove this competitor from the future goods market.

The third section analyzes cases in which no firm yet made the relevant good. In these cases as well, the agencies analyzed, not innovation markets, but rather future goods markets. They feared that the transaction would remove competition from the future goods market and that, if the firms were to combine their R&D efforts or to merge, then, rather than compete in the future, the firms could monopolize the future goods market.

2. *Patent Acquisition and Standards*

In two of these cases the agencies also analyzed the intellectual property portfolios the relevant firms would acquire.⁶⁶ In these cases the FTC feared that the transaction would give the relevant firm such a broad portfolio of intellectual property rights that it could stop other firms from entering the relevant market. The FTC thus feared that the combined firm could use its intellectual property rights to monopolize the future market. This section will show that while the FTC may very well have legitimately feared that the combined firm would monopolize the market, it did not find an innovation market in these cases, just as it did not find an innovation market in the other cases. With respect to the cases involving intellectual property, the agencies may have expanded the law regarding how firms acquire intellectual property rights, but they did not find innovation markets.

In one case the FTC may also have feared that the transaction would allow the relevant firms to develop standards which they could then use to keep potential competitors out of the relevant market.⁶⁷ In this case as well, the FTC may indeed have correctly seen an antitrust problem, but to respond to the problem the FTC did not need to, and did not, find an innovation market.

3. *European Decisions*

The European Commission has also analyzed many of the same cases in which the American antitrust authorities found future goods markets. In these cases the European Commission also found future goods markets.⁶⁸ Unlike its American counterparts, however, the European Commission does not even claim it has found innovation markets.

The American agencies should examine the European Commission's decisions. In this area, not only does the European Commission analyze cases similar to those the American agencies analyze, but it has even analyzed many of the same cases. By implication, if the European Commission could not find an innovation market, then: (1) neither can the American authorities; and (2) the European Commission is doing explicitly what the Americans are doing implicitly.⁶⁹

66. See *Ciba Geigy Ltd.*, FTC File No. 961-0055 (Dec. 5, 1996); *Sensormatic Elecs. Corp.*, 60 Fed. Reg. 5428 (F.T.C. 1995).

67. See *Sensormatic Elecs. Corp.*, 60 Fed. Reg. 5428 (F.T.C. 1995).

68. See Lawrence B. Landman, *Innovation Markets in Europe*, 19 EUR. COMPETITION L. REV. 21 (1998).

69. Compare John Temple Lang, *European Community Antitrust Law: Innovation Markets and High Technology Industries*, 20 FORDHAM INT. L. REV. 717 (1997) (the

B. Joining of Two Competitors in the Current Goods Market

1. General Motors—ZF Friedrichshafen⁷⁰

In this case the DOJ opposed ZF Friedrichshafen's (ZF) attempt to buy the Allison transmission division of General Motors (GM).⁷¹ GM and ZF together controlled about 90% of the world's heavy-duty automatic transmission market.⁷² In Europe, the firms were the largest producers of heavy-duty automatic transmissions for commercial and military vehicles.⁷³ In the United States, however, the firms competed in only two small markets, those for automatic transmissions for busses and refuse trucks.⁷⁴

GM had dominated the American heavy-duty automatic transmission market until ZF entered the American market in 1985. When ZF entered the market, it offered customers a better transmission. In response GM invested \$500 million to develop still a better transmission. In this way the firms developed a pattern of competing to innovate. The DOJ did not want the acquisition to eliminate this competition to innovate which clearly benefited American consumers.

The DOJ alleged that the firms competed, not only in the narrow bus and refuse truck transmission markets, but also in a broad innovation market to make better transmissions. The DOJ feared that the transaction would harm competition in markets beyond the two narrow existing goods markets: that the merger would slow the rate at which the firms developed better automatic transmissions. It therefore alleged that the firms competed in the broad innovation market to make better transmissions.

European Commission can and has analyzed incentives to innovate), with Lawrence B. Landman, *The Economics of Future Goods Markets*, 21 WORLD COMPETITION L. & ECON. REV. 63 (1998) (like the Americans, the Europeans too cannot analyze a firm's incentives to innovate in the manner innovation market analysis requires).

70. *United States v. General Motors Corp.*, No. 93-530 (D. Del. filed Nov. 16, 1993).

71. *See id.*

72. *See id.* at 2. Paragraph 42 of the complaint first assigns to each firm the same share of the alleged innovation market that it has of the related goods market. The paragraph then assigns GM over 75% of the innovation market, and ZF 14% of this market.

73. *See Dahdouh & Mongoven, supra* note 11, at 431. These authors and the complaint refer to the market for medium and heavy duty automatic transmissions. For the sake of simplicity, this article will use the term "heavy duty" to mean both "medium and heavy duty."

74. *See United States v. General Motors Corp.*, No. 93-530 (D. Del. filed Nov. 16, 1993) (complaint at ¶ 19-34).

Critics of the innovation market concept question whether the DOJ needed to allege that in this case the parties competed in an innovation market.⁷⁵ According to these critics, DOJ already alleged a sufficiently serious antitrust violation when it alleged that the transaction would harm competition in the two narrow goods markets. These critics say that the Department did not need to also allege that the firms competed in an innovation market.

The DOJ feared, however, that the transaction would not only harm competition in these two narrow markets, but also that it would harm competition in the broad transmission market. Yet if the DOJ had only alleged that the firms competed in these two narrow markets, then ZF would simply have sold GM's businesses in these two narrow markets, and then completed its purchase of GM's division. By alleging that the firms competed in a broad innovation market, the DOJ forced ZF to respond to its broader antitrust concerns.

In this case, as in all the other cases, the antitrust authority actually regulated, not an innovation market, but a future goods market. Yet in this case the firms competed against each other, not only in a future goods market, but also in a current goods market. The firms competed against each other to sell many different types of transmissions.

But while the firms competed against each other to sell these many types of transmissions, they did so in *Europe*.⁷⁶ However an *American* antitrust authority wanted to regulate the transaction. The DOJ therefore used what it claimed to be innovation market analysis to actually regulate a future goods market. By regulating that future goods market, the DOJ actually regulated the related current goods market. Thus, because the current goods market was in Europe, the American agency actually used the innovation market concept to assert jurisdiction over a European current goods market.

- a) ZF and GM Competed in a Current Goods Market, and Therefore Also in a Future Goods Market

In this case DOJ did not have to imagine that the two firms would compete against each other in the future. At the time of the transaction ZF and GM both sold heavy duty transmissions, and tried to sell these transmissions to the same customers. The firms competed against each other in the current goods market for heavy duty automatic transmissions. And if

75. See Rapp, *supra* note 43, at 19-20, 23.

76. See Richard J. Gilbert, Remarks Before the FTC Hearings on Global and Innovation-based Competitions, Washington, D.C. (October 25, 1995) (available at <<http://www.ftc.gov/opp/global/GC102595.htm>>).

these two competitors planned to combine their businesses, then the appropriate antitrust authority should of course ensure that they not do so in a way which would harm competition.

Whenever an antitrust authority ensures that a market is competitive it ensures that firms compete to innovate. While conditions naturally vary from industry to industry, to at least some extent all firms use not only lower prices, but also innovation, as a competitive weapon. Thus all competitive markets to some extent force firms to innovate. Thus even if the antitrust authorities use only the traditional tools of antitrust analysis, and, for example, only measure prices, they will nevertheless, to some extent, also insure that firms compete to innovate. Thus all current competitors to some extent also compete in a future –goods market.

ZF and GM therefore competed against each other in both current and future goods markets. The firms certainly competed in the current heavy-duty automatic transmission market. And because the firms also tried to make better transmissions, the firms also competed in the related future goods market for better heavy-duty automatic transmissions. In fact, ZF and GM's history of competing to innovate shows that the two firms competed in this future goods market.

b) American Authorities Did Not Have Jurisdiction Over the Current Goods Market

If two firms dominate any market, and one tries to buy the other, this potential purchase will naturally raise antitrust concerns. And because all current competitors to some extent also compete against in a related future goods markets, if one dominant firm tries to buy another, this potential purchase may also raise antitrust concerns in the related future goods market. Thus when the appropriate antitrust authority reviews this potential purchase, it may analyze, not only the relevant current goods market, but also the related future goods market.

GM and ZF did compete against each other. They competed against each other, not only in the current goods market, but also in the related future goods market. Thus when the appropriate antitrust authority reviewed ZF's attempt to buy GM's division it would probably have analyzed, not only the relevant current goods market, but also the related future goods market. But, with the exception of the two narrow product markets, these two firms competed in a current goods market in Europe. Thus, while the *appropriate* antitrust authority should indeed have analyzed how ZF's potential purchase of GM could have affected, not only the current goods market, but also the future goods market, that antitrust authority was in Europe.

As this implies, the DOJ should not have asserted jurisdiction over this case. The DOJ, however, wanted to regulate the transaction. DOJ therefore used the innovation market concept so it could plausibly assert jurisdiction. But the Department should not have done so.⁷⁷

The DOJ alleged that innovation spillover effects allowed it to take jurisdiction in this case. While the Department does indeed correctly point out that the transaction may affect the broad American future goods market for automatic heavy duty transmissions, the transaction may affect the broad future goods markets for heavy duty transmissions, not only in the United States, but throughout the world. In fact, almost all transactions affect both the appropriate current goods market and the related future goods market. Such future goods markets are often worldwide. The DOJ's reasoning thus allows almost all antitrust authorities to assert jurisdiction over almost all transactions.

The international antitrust system must appropriately divide jurisdiction over the many transactions in which firms engage throughout the world. Each antitrust authority must therefore regulate transactions which affect current goods markets within its territory. Because GM and ZF competed in the broad current goods market in Europe, the appropriate European antitrust authority, and not an American antitrust authority, should have asserted jurisdiction over both the current goods market, and the related future goods market.

The appropriate European antitrust authority would have ensured that the transaction did not improperly lower competition in both the current goods market and the future goods market. And, by keeping these markets competitive, it would have ensured that market forces drove the relevant firms to innovate. The DOJ should therefore not have used the innovation market concept to assert jurisdiction over this transaction. It should have relied on the European antitrust authority to do the job.

Two FTC attorneys who wrote a law review article endorsing the Gilbert and Sunshine model, Thomas N. Dahdouh and James F. Mon-

77. The European Commission's threat to block Boeing Corp.'s merger with McDonnell Douglas strained relations between the European Union and the United States. At one point the United States seemed on the verge of a trade war with Europe. Vice President Al Gore, for example, threatened to "take whatever action is appropriate" to stop the Commission from blocking the merger. *See EU/US Clash Over Airline Merger*, GLOBAL COMPETITION REVIEW, June/July 1997, at 5. All this occurred in a case where the European Commission clearly had jurisdiction. One shudders when contemplating the White House's reaction if the Europeans had found that Boeing and McDonnell Douglas competed in a global innovation market, and on this basis blocked the transaction.

goven, argued that the DOJ was the appropriate entity to challenge the transaction because of the transaction's effect on the European current goods market, alleging that the sale would have had a spillover effects on "a global innovation market."⁷⁸ But, these authors concluded, "it made sense, both as a matter of comity and of common sense, to challenge the most troubling aspect of the transaction directly."⁷⁹

The DOJ should not, however, have asserted jurisdiction over this case. Regarding comity, because the transaction affected the European goods market much more than it did the American market, the Americans should have let the Europeans analyze this transaction. Regarding common sense, the DOJ should not have used the innovation spillover effects to create a doctrine which gives almost any antitrust authority jurisdiction over almost any transaction.

c) The DOJ Analyzed, Not an Innovation Market, But a Future Goods Market, and, Through it, the Current Goods Market

In this case the DOJ used the innovation market concept to regulate the European current goods market. Had the firms competed in a broad American heavy duty transmission market, then the DOJ would not have needed innovation market analysis to challenge the transaction. The relevant firms dominated their market, and traditional antitrust analysis would therefore have allowed the DOJ to challenge this transaction. But because the firms competed in Europe, and the DOJ did not have jurisdiction over the current goods market, the DOJ could not apply this traditional antitrust analysis.

Because the DOJ wanted to regulate the European current goods market, but could not do so directly, it did so indirectly. It regulated what it called an innovation market. But the innovation market DOJ purported to regulate mirrored the European current goods market. Thus while the DOJ claimed to regulate the innovation market, it actually regulated the European current goods market.

Finally, in this case the DOJ did not, in fact regulate an innovation market. It regulated the future goods market for better automatic transmissions. In this case, as in all the others, it could not find an innovation market. It could not, for example, identify potential competitors who might enter the innovation market.

78. Dahdouh & Mongoven, *supra* note 11, at 431.

79. *Id.*

i) Complaint Uses Market Shares of Current Goods Market As Surrogate for Shares of What it Calls an Innovation Market

The DOJ's complaint simply uses the innovation market as a surrogate for the European current goods market. Most importantly, its complaint assigns to each firm the same share of the innovation market that it finds that firm had of the current goods market. Thus while the complaint found that the combined firm would dominate the innovation market, it does so only because it found that the combined firm would dominate the European current goods market.

Thus while claiming to regulate the innovation market, the DOJ actually regulated the European current goods market. In the typical case, the DOJ would simply analyze the current goods market. But in this case DOJ did not have jurisdiction over the current goods market. It therefore used what it called innovation market analysis to regulate the current goods market.

In the very first paragraph of its complaint, the DOJ expressed its true concerns. In this first paragraph the DOJ said that GM and ZF are "the two largest manufacturers of medium and heavy automatic transmissions in the world ... ZF and Allison [GM] are each other's main competitors" The complaint then concluded by observing that, "market shares in the Innovation Market can be approximated by the number of units produced worldwide by each manufacturer"⁸⁰

ii) What DOJ calls an Innovation Market is Actually a Future Goods Market

In this case the DOJ could not find an innovation market; it in fact regulated the future goods market for better heavy duty automatic transmissions. The complaint said that GM and ZF firms were two of only a small number of firms which could, in the future, make better heavy duty automatic transmissions. The complaint also alleged that no firms could enter the innovation market in the foreseeable future. Thus the complaint actually alleged that GM and ZF were two of only a small number of firms which could compete in the future goods market for better heavy duty automatic transmissions.

When the complaint alleged that no other firm could enter the innovation market in the foreseeable future, it actually alleged that no firm could enter the future goods market in the foreseeable future. As explained

80. *United States v. General Motors Corp.*, No. 93-530 (D. Del. filed Nov. 16, 1993) (complaint at ¶ 42).

above,⁸¹ to enter an innovation market where innovation is itself the “product,” a firm need only be trying to develop the future good. If a firm is investing in R&D, then, even if it is not producing the relevant good, it is still “producing” innovation. It is therefore competing in the innovation market. Thus when the DOJ says that no firm will be able to *make* automatic transmissions in the foreseeable future, it is saying that for the foreseeable future no firm will be able to enter the future goods market. It is not saying that no firm will be able to enter the innovation market.

The DOJ clearly used Gilbert and Sunshine’s innovation market methodology to help it draft its complaint. The Department issued its complaint before the authors had published their methodology, but nevertheless while the authors held a high office in the Department. Unfortunately, as the preceding section showed, the authors’ methodology breaks down, among other reasons, because the agencies cannot identify potential competitors who might enter an innovation market.⁸²

Accordingly, in this case the DOJ could not identify potential competitors who might enter the relevant innovation market. Specifically, the DOJ could not identify the potential competitors who may enter the innovation market to make better heavy duty automatic transmissions. Firms enter an innovation market when they try to make the relevant good. Since innovation is the product of the innovation market, when firms try to make the relevant good they are currently competing in the relevant innovation market. Potential competitors of the innovation market are thus firms which may, in the future, try to develop the relevant good. Accordingly, potential competitors of the transmission innovation market are firms which may, in the future, try to make better the appropriate transmission.

When the DOJ alleges that no firm will enter the automatic transmission innovation market, it implicitly claims that no firm will, within the foreseeable future, even try to make better automatic transmissions. In its complaint the DOJ does not actually make this claim, nor could it plausibly do so. If the market offered high enough returns, or if the current seller were earning high enough monopoly profits, then other firms may try to enter the market. Other firms may also develop technology which would allow them to make either better transmissions, or current quality transmissions at lower cost. If the market offered a sufficient incentive, then other firms, such as other car, truck, or military equipment manufac-

81. See *supra* text accompanying notes 31-32.

82. See *supra* text accompanying notes 42-62.

turers may try to enter the automatic heavy duty transmission market, either separately or jointly.

Given sufficient time, these new competitors might be able to manufacture transmissions.⁸³ Other car, truck, or military equipment firms, for example, own manufacturing equipment, and might be able to use this equipment to produce transmissions. Alternatively, the firms could buy manufacturing equipment from the same firms which supply GM and ZF. These new entrants could hire engineers, including engineers GM or ZF previously employed. These firms could also hire academic researchers familiar with the latest technology. They might also develop entirely new transmission technology, develop a new method of distributing transmissions, or try to compete in only part of GM or ZF's current goods market.

These firms, or other firms, may also try to enter the market in still other ways.⁸⁴ In short, no one, including DOJ analysts, could know which firms, if any, may, in the future, try to enter the relevant market. To review the logic step-by-step: (1) because firms trying to make new transmissions are already competing in the relevant innovation market, firms which may, in the future, try to develop new transmissions are potential competitors of the innovation market; (2) because the DOJ could not know which firms, if any, may, in the future, try to make new transmissions, it could not know which firms, if any, may, in the future try to enter the automatic transmission innovation market; (3) because the DOJ could not know which firms may enter the automatic transmission innovation market, it could not identify the potential competitors of the innovation market; and (4) because the DOJ could not identify the potential competitors of the innovation market, it could not define the innovation market.

d) Conclusion

The DOJ should not have regulated this transaction. While the DOJ did raise legitimate antitrust concerns, it raised concerns which the anti-trust authority holding jurisdiction over the relevant current goods market should have addressed. Because the DOJ did not have jurisdiction over this current goods market, it should not have regulated this transaction.

83. This period could be longer than the two year period the *Merger Guidelines* use, and which Gilbert and Sunshine say the agencies should adopt. In *Upjohn* the FTC anticipated events seven years into the future. See *supra* text accompanying note 38.

84. See *Subway to the Sky: How a Reserved Canadian Turned a Family Snowmobile Firm into the Nearest Challenger to Boeing and Airbus*, THE ECONOMIST, August 23, 1997, at 52; see also Meherdad A. Baghai, et al, *The Growth Philosophy of Bombardier*, 2 MCKINSEY QUARTERLY 4 (1997).

To plausibly assert jurisdiction in this case, the DOJ claimed to regulate, not the current goods market, but rather the related innovation market. But the DOJ's analysis of this innovation market simply reflects its analysis of the current goods market. Therefore, while claiming to regulate the innovation market, the DOJ actually regulated the current goods market. Thus, the American antitrust agency regulated the European current goods market.

Finally, in this case the DOJ did not even regulate an innovation market. It actually regulated the future goods market for better automatic transmissions. The DOJ could not, for example, identify potential competitors of the innovation market. It could not therefore define the innovation market.

2. *Flow International*⁸⁵

Six months after the DOJ challenged ZF's purchase of GM's transmission business, it also challenged Flow International's purchase of Ingersoll-Rand's Waterjet Cutting Systems Division. This case presented the DOJ with facts very similar to those of *GM-ZF*. In this case, as in the *GM-ZF* case, one dominant firm sought to buy another dominant business unit. In this case, however, both firms operated in the United States. Unquestionably, DOJ had jurisdiction in this case.

a) Current Goods Market

As the complaint itself alleged, this transaction would have "combined the nation's only two major manufacturers of ultra-high pressure waterjet intensifier pumps."⁸⁶ Just as in *GM-ZF*, the combined firm would control 90% of the relevant market. The DOJ would not let allow the combined firm to obtain a virtual monopoly. In this case, therefore, the DOJ acted primarily to protect competition in the current goods market.

b) Future Goods Market or Innovation Market

While the DOJ acted primarily to preserve competition in the current goods market, it did to some extent also preserve competition in the future goods market. The future goods market in this case is the market for better ultra-high pressure waterjet pumps. If the two firms did join together, then they would indeed dominate this future market for better pumps.

Yet this observation, while theoretically correct, adds little to the DOJ's case. The law already allowed the DOJ to block a transaction which would give one firm 90% of the relevant current goods market.

85. *United States v. Flow Int'l Corp.*, No. 94-71320 (E.D. Mich. filed Apr. 4, 1994).

86. *Id.* (complaint, at ¶ 1).

Thus while the DOJ may claim that in this case it also preserved the firms' competition to make better ultra-high pressure waterjet pumps, this claim, while theoretically correct, adds very little to the Department's already very strong case.

3. *Shell-Montedison*⁸⁷

In this case the FTC reviewed Shell's and Montedison's plans to combine their polypropylene businesses into a joint venture. Both Shell and Montedison produced polypropylene and licensed polypropylene technology. Shell, through its own businesses, and through its American joint venture with Union Carbide, controlled one of the world's two marketable polypropylene technologies. Montedison, through its own businesses and through a cooperation agreement with Mitsui, controlled the world's other marketable polypropylene technology.

As the firms originally planned their joint venture, Montedison would contribute its entire polypropylene business, but Shell would contribute only its own polypropylene business, and not its interest in its joint venture with Union Carbide. The firms would thus create Europe's, and the world's, leading polypropylene producer. The joint venture would control both of the world's marketable polypropylene technologies.

a) European and American Authorities

This is one of several cases which both the American and European authorities reviewed. By comparing how both of these authorities analyzed these same transactions, one can clearly see how both authorities analyze innovation markets. In this case the European authorities did not find an innovation market, and, as in all the other cases, did not claim to find such a market. But in this case the FTC also did not actually claim that it found an innovation market.

b) Remedies

The European Commission, which issued its decision first, required Montedison to create a separate polypropylene technology licensing business, in which Shell had no interest.⁸⁸ The Commission expected this independent business to compete against both of Shell's two polypropylene joint ventures. The European Commission also required Montedison to invest enough into R&D to ensure that this independent firm would innovate and thus continue to compete against Shell's polypropylene interests.

87. *Montedison S.p.A.*, 60 Fed. Reg. 5,414 (F.T.C. 1995).

88. *Shell-Montecatini*, Case No. IV/M. 269 (June 3, 1994), O.J. L.332/48 (Dec. 22, 1994).

The FTC imposed a stronger remedy.⁸⁹ It ordered Shell to sell all its polypropylene interests aside from its interest in the Montedison joint venture. The FTC therefore, in effect, ordered Shell to sell its interest in its American joint venture with Union Carbide. The FTC also ordered Mitsui to stop cooperating with Montedison and the Shell-Montedison joint venture.

c) Rationale For Authorities' Decisions

In this case the FTC and the European Commission analyzed markets for both polypropylene and polypropylene technology. The FTC alleged that the firms competed in two current markets, one for polypropylene itself, and one for licensing polypropylene technology. Since both the polypropylene and the polypropylene technology already existed, these were both current goods markets. The two authorities alleged that the transaction would improperly allow the joint venture to dominate both of these current goods markets.

Both authorities found that firms in the polypropylene licensing business competed to develop better polypropylene technology. Both authorities therefore found that firms in this market competed to innovate. Yet while both authorities found that the firms competed to innovate, neither alleged that the firms competed in an innovation market.

Even Dahdouh and Mongoven do not claim that in this case the FTC found an innovation market.⁹⁰ Those authors do say that if the FTC had merely analyzed the market to license currently existing technology, then it would not have fully appreciated how this transaction would harm competition. To fully appreciate how the market would develop as the firms improved their polypropylene technology, they argue, the FTC also had to analyze the firms' competition to improve their technologies.

The FTC could, and did, analyze this competition to innovate without finding an innovation market. The market for the improved polypropylene technology is, in this case, the future goods market, or, more accurately,

89. The Commission probably expected the FTC to issue this order. The Commission and FTC had discussed possible remedies in this case, and, at the parties' request, the European Commission reserved the right to change its decision should the FTC issue an order, as it did in fact do, making the Commission's order superfluous. See Robert Pitofsky, *International Antitrust: An FTC Perspective*, TWENTY-SECOND ANNUAL PROCEEDINGS OF THE FORDHAM CORPORATE LAW INSTITUTE 1, 7-8 (B. Hawk ed., 1996); see also Shell-Montecatini, *supra* note 88, at point 121.

In fact, in light of the FTC's decision the Commission did allow Montedison to bring its separate polypropylene business back into its joint venture with Shell. Shell-Montecatini, O.J. No. L.294 (Nov. 19, 1996):

90. Dahdouh & Mongoven, *supra* note 11, at 433.

the future technology market. Dahdouh and Mongoven say that in this case the FTC must analyze this future market. The authors do not say that the FTC should find an innovation market. In fact, as mentioned above, in this case the FTC, like the European Commission, did not find an innovation market.

As this case shows, without finding an innovation market the agencies can analyze future market developments. In this case, the FTC, without finding an innovation market, was able to analyze future market developments. In fact, as this section will show, if the FTC had tried to apply Gilbert and Sunshine's innovation market methodology, it would still have found only a future goods market.

d) The FTC Could not Apply the Gilbert and Sunshine Methodology

i) Identify Overlapping R&D Activities

The relevant firms in this case performed overlapping R&D. Both were trying to improve their polypropylene technology.

ii) Identify Alternative Sources of R&D

In the short run, no other firms were likely to license polypropylene technology. Thus, if the firms combined their technologies, they would then have been able to dominate the current goods market, and probably also the future goods market. In other words, the FTC could legitimately conclude that for the foreseeable future no other firms would enter the future goods market.

However, as the European Commission's decision makes clear, other firms did control other polypropylene technologies.⁹¹ While at the time these firms had only very small market shares, they were presumably trying to improve their technologies. If the incentives were great enough, then, over time, these other firms may have been able to develop licensable polypropylene technologies.

The FTC could therefore identify the potential competitors who might enter the future goods market, but it could not identify potential competitors who might enter the innovation market. The firms trying to improve their polypropylene technology were potential competitors of the future goods market. These firms were also currently competing in the current innovation market.

91. See *supra* text accompanying note 88.

Firms not trying to improve their polypropylene technology, but which may try to do so in the future, were also potential competitors of the innovation market. Other firms, who controlled, or who might develop, comparable technologies were also potential competitors of the innovation market. The FTC could not reasonably identify all these firms which might, in the future, try to develop or improve polypropylene technology. The FTC could therefore not identify the potential competitors of the innovation market.

iii) Evaluate Competition From Downstream Products

Since Shell and Montedison controlled the two marketable polypropylene technologies, these firms controlled the relevant products. In this case, therefore, downstream products did not apply competitive pressure in any relevant market.

iv) Assess Increase in Concentration in R&D

In this case the FTC could not analyze the joint venture's incentive to innovate. Perhaps the joint venture would already have enjoyed such a large market that it would not try to improve its technology. But even if the joint venture had enjoyed a large market share, it may nevertheless still have tried to improve its technology. The joint venture may, for example, have wanted to sell its improved technology to its old customers. If the joint venture improved its technology it might have been able to sell its better technology to more customers. It may have been able to expand its share of the market for polypropylene itself. Also, if the joint venture had improved its technology, then it may have been able to enter markets for technology related to polypropylene technology, or other opportunistic markets.⁹² In short, the FTC could not have determined how, if at all, the joint venture would seek to expand its polypropylene business. It therefore could not have evaluated the joint venture's incentives to innovate.

Even if the FTC could not have analyzed the joint venture's incentives to innovate, the FTC still correctly challenged this transaction. Traditional antitrust law required the FTC to stop the firms from monopolizing the polypropylene technology market. Thus, in this case the FTC acted, not because the firms tried to monopolize an innovation market, but because the firms tried to monopolize the current goods market.

92. For the definition of an opportunistic market, see *supra* text accompanying note 40.

v) Assess Efficiencies

No evidence indicates that this transaction would generate R&D efficiencies. Such efficiency gains would, in any case, not justify allowing these firms to create a monopoly in the polypropylene technology market.

C. Current Goods Maker Purchases Potential Competitor

1. *Wright Medical Technology*⁹³

a) Background of the Case

Before it attempted to buy Orthomet, Wright Medical Technology already controlled 95% of the orthopedic hand implant market.⁹⁴ Orthomet controlled a patent which would allow it to develop the next generation of hand implant. Unsurprisingly, the FTC would not allow Wright to purchase its only potential competitor.⁹⁵

In this case the FTC protected competition in the future goods market. It preserved the possibility that Orthomet may sell the next generation of hand implant and the possibility that Orthomet may compete against Wright Medical in the future hand implant market. But the FTC did not find an innovation market.

In this case as well, if the FTC had applied Gilbert and Sunshine's innovation market methodology, then it would simply have analyzed the future goods market. As the following analysis shows, in this case as well the FTC could not find an innovation market.

b) The FTC Could Not Apply the Gilbert and Sunshine Methodology

i) Identify the overlapping R&D Activities

The firm's R&D activities overlapped in the market for orthopedic hand implants. This is the future goods market.

ii) Identify Alternative Sources of R&D

The complaint alleged that no other firms could make hand implants. However, if Wright Medical were earning high enough monopoly profits, then other firms would certainly want to enter the hand implant market.

93. *Wright Medical Technology, Inc.*, 60 Fed. Reg. 460 (F.T.C. 1995).

94. *See Rapp, supra* note 43, at note 85.

95. *See* Commissioner, Federal Trade Commission, Mary L. Azcuenaga, *Intellectual Property and Antitrust: A Perspective from the FTC*, Speech before the American Law Institute-American Bar Association, San Francisco, California (1995) (available at <<http://www.ftc.gov/speeches/azcuenaga/ali-aba.htm>>).

These possible competitors could include firms currently manufacturing, among other things, other medical devices, automated machinery, or robotic equipment.

Firms which were not performing the relevant R&D at the time of this transaction might do so in the future. They might base their future research on technologies different from those of Wright Medical or Orthomet's, and perhaps even on technologies which do not yet exist.

Thus, in the future, many firms might try to enter the hand implant market. And these firms, by trying to enter the hand implant market, would be providing alternative sources of R&D. The FTC could not identify all these firms which might, in the future, invest in the relevant R&D. The FTC, therefore, could not identify all the all potential competitors who might enter the innovation market, and not find the innovation market.

On the other hand, the FTC may very well have correctly alleged that Orthomet was Wright Medical's only potential competitor. Because Wright already controlled 95% of the market, and was trying to buy the only firm which could challenge it in the foreseeable future, then, almost by definition, no other firm could, for the foreseeable future, compete in the future orthopedic hand implant market. Thus in this case the FTC appropriately protected competition in the future goods market.

iii) Evaluate Competition From Downstream Products

Since Wright controlled 95% of the current goods market, other downstream products offered very little current competitive pressure.

iv) Assess Increase in Concentration in R&D

The FTC could not know how Wright Medical's purchase of Orthomet would affect Wright Medical's incentives to innovate. Perhaps the combined firm would have felt that, because it enjoyed monopoly power, it did not need to innovate. On the other hand, even after it had purchased Orthomet, Wright Medical may still have tried to improve its technology. It may have wanted to do so for any number of reasons. It may have wanted to sell better implants to users of its current products. Or it may have wanted to expand into other markets, such as the market for other types of implants. Wright Medical could expand its business in an almost infinite number of ways. The FTC could not know, how, if at all, Wright Medical may, in the future, choose to expand its business.

v) Assess Efficiencies

As in *Shell/Montedison*, the FTC did not explain what efficiencies, if any, it thought this transaction would generate. The FTC, undoubtedly correctly, did not believe that this transaction would generate efficiencies that would justify allowing Wright Medical to purchase its only potential competitor.

2. *Boston Scientific*⁹⁶

In this case, Boston Scientific, SCIMED and CVIS planned to combine their businesses. Boston Scientific and CVIS together controlled 90% of the market for intravascular ultrasound catheters (IVUS). SCIMED, the FTC alleged, was the most likely potential entrant into this market. SCIMED was investing in the relevant R&D, had developed a prototype product, and, the FTC said, would probably have entered the market within 2-3 years.

This transaction raised serious antitrust concerns in the current and future goods markets. Two of the relevant firms together controlled 90% of the current goods market. Further, the transaction would combine these two firms, which dominated the current goods market, with their most likely future competitor. Therefore standard antitrust analysis, and not innovation market analysis, required the FTC to challenge this transaction.

This case is similar to *Wright Medical*. Just as the FTC could not apply Gilbert and Sunshine's innovation market methodology in that case, so too could it not apply the author's methodology in this case. In this case as well the FTC could not identify potential competitors of the innovation market, and it could not analyze the combined firm's incentives to innovate.

D. No Current Goods Market, Potential Competitors Combine

Of the three categories of cases, this category offered the antitrust authorities their greatest challenge. This category presented the authorities with cases in which no firm yet made the relevant good, but the relevant firms were trying to make the good. Thus, while the firms did not compete in the current goods market, they may, if they did not combine their businesses, compete in the future goods market.

96. *Boston Scientific Corp.*, 60 Fed. Reg. 12,948 (F.T.C. 1995).

1. *Glaxo-Wellcome*⁹⁷

In early 1995 the British pharmaceutical firm Glaxo bought its rival Wellcome. Glaxo sold, among other products, the world's most effective anti-migraine drug. Doctors injected this drug into patients. Wellcome was one of several firms trying to develop a comparable anti-migraine drug, but one which patients could ingest orally. Glaxo was also trying to develop an oral version of its drug.

a) The FTC and European Commission Define Future Goods Market Differently

In this case the FTC and the European Commission found that the firms competed in different future goods markets. The FTC defined the market much more narrowly than did the Commission. By defining the future goods market so narrowly, the FTC left no doubt that it found a future goods market, and not an innovation market.

The FTC found that the firms competed in, what it called an innovation market, to develop only the oral version of the anti-migraine drug. The FTC therefore found that the firms were competing to develop a product which did not yet exist. As the FTC analyzed this case, therefore, the firms did not compete in a current goods market.

The European Commission, by contrast, found that the firms competed in a broader market. The European Commission did not distinguish between oral and injectable forms of the drug. Both forms of the drug, the European Commission found, competed against each other. Therefore, according to the Commission, Wellcome was trying to enter a market in which Glaxo already operated.

Additionally, the European Commission found that, besides Wellcome, "at least two" other major pharmaceutical firms were close to developing a competitor to Glaxo's anti-migraine drug. The Commission recognized that, of these R&D projects, Wellcome's might be the only one which succeeds. Thus the Commission realized that if it approved the merger, then the market may lose its only future competitor to Glaxo's new anti-migraine drug.

Recognizing the European Commission's concerns, and possibly anticipating the FTC's future order, Glaxo volunteered to grant to a third party an exclusive license to either Wellcome's or its own anti-migraine R&D program, but Glaxo reserved the right to decide which program it would license. The European Commission, however, concluded that because Wellcome was one of several firms investing in the relevant R&D,

97. *Glaxo plc.*, 60 Fed Reg. 16,139 (F.T.C. 1995).

the effect of removing Wellcome from the market would be "limited." Therefore, the European Commission may very well have approved the merger even if Glaxo had not agreed to license one of the R&D programs.

b) **FTC Analyzed a Future Goods Market, Not an Innovation Market**

The FTC defined a narrower market than did the European Commission. The FTC found that the firms competed in a narrow future goods market to develop an oral version of the drug. The European Commission, by contrast, found that the firms competed in a broader market which included both the existing injectable form of the drug Glaxo already sold, and the oral form of the drug the firms were trying to develop.

This difference shows that the FTC found a future goods market, and not an innovation market. In fact, the FTC analyzed a very narrow future goods market. If the FTC had actually analyzed an innovation market, then it would have evaluated the firms' broad ability to innovate. Yet the FTC does not even claim that in this case it evaluated the firms' abilities to innovate, either generally or specifically, regarding anti-migraine drugs. In this case the FTC did nothing more than analyze a very narrow future goods market.

c) **The FTC Could Not Apply Gilbert and Sunshine's Methodology**

As in other cases, the FTC could not apply Gilbert and Sunshine's innovation market methodology.

i) **Identify the Overlapping R&D Activities**

As the FTC analyzed the firms' R&D activities, both firms were trying to develop the oral version of the drug. The firms therefore competed in the oral anti-migraine drug future goods market.

ii) **Identify Alternative Sources of R&D**

The complaint alleges that no other firms offered alternative sources of R&D. However, while the FTC might credibly claim that, for the foreseeable future, no firm would enter the future goods market, it could not claim that no firm would enter the innovation market.

The agencies find it particularly easy to identify potential entrants into current and future pharmaceutical markets. Federal agencies test possible new pharmaceutical products for many years. This testing process allows the antitrust agencies to see which drugs firms are trying to develop, and which drugs these firms may therefore be able to sell in the future. Thus,

the testing process allows the agencies to identify potential competitors of current and future pharmaceutical markets. It does not, however, allow the agencies to identify potential competitors of an innovation market. A firm trying to develop a new drug is a potential competitor in the appropriate drug market. But if the firm is trying to develop the new drug, then it is currently "producing" innovation; it is competing in the current innovation market. Potential competitors of the innovation market are firms which may, in the future, try to produce the appropriate drug. And the testing process does not allow the agencies to identify such firms.

Thus, in this case, the agencies could not identify potential competitors of the anti-migraine innovation market. Many other firms may in the future, try to develop anti-migraine drugs. To develop these drugs firms may use technology similar to the technology Glaxo and Wellcome use, or they may use entirely new technology. They may even develop new ways of treating migraine headaches, or may not even use drugs at all.

iii) Evaluate Competition From Downstream Products

The drugs Glaxo and Wellcome were trying to develop were so clearly superior to the drugs other firms sold that the FTC did not consider these other drugs to be comparable products. Thus no downstream products exerted competitive pressure in the oral anti-migraine market.

iv) Assess Increase in Concentration in R&D.

While in this case the FTC could not determine the merged firms' incentives to innovate, if it had attempted to do so, then it would have concluded that the merger would probably increase those incentives. If the merged firm could develop an oral version of its drug, then it could expand its anti-migraine drug market. For example, if it could sell an oral, rather than an injectable, form of the drug, then children and others who might prefer an oral form of the drug would probably be much more likely to use the product. Most patients would rather swallow a pill than be injected with a hypodermic needle. And if the merged firm sold a drug which consumers could more easily use, then it would sell more of its product.

If the merged firm developed an oral version of the drug, then it may also be able to enter other markets. It may be able to develop oral versions of other drugs. The firm may also be able to develop a lower strength, over the counter, version of its oral drug. In short, while the agencies can never definitively analyze a firm's incentives to innovate, the evidence in this case does not show that the merger would lower the firms' incentives to innovate.

The FTC acted in this case to stop the merged firm from monopolizing the future goods markets. Even if the FTC had developed an opinion regarding the merged firm's incentives to innovate, this opinion seems to have played no role in the FTC's analysis of this case.

v) Assess Efficiencies.

In this case, as in the other cases, the FTC did not explain what efficiencies, if any, it thought this transaction would generate. Again, efficiency considerations appear to have played no role in the FTC's evaluation of this case.

2. *Upjohn-Pharmacia*⁹⁸

Later on in 1995, two other pharmaceutical firms, Upjohn and Pharmacia, also merged. These companies were trying to develop, among other things, new treatments for solid tumors. Neither firm yet sold the relevant drug.

a) European Commission: Future Market is Competitive

In this case the European Commission did not see an antitrust problem.⁹⁹ The European Commission concluded that, even though both firms based their research programs on the same class of compounds, their R&D efforts would not necessarily overlap. The European Commission said that the drugs the two firms were trying to develop may offer alternative therapies, and would therefore not necessarily compete against each other in the future. The Commission also found that three other firms were doing similar research. It concluded that while the firms were performing similar solid tumor research, their R&D programs did not raise antitrust concerns.

b) FTC: Future Goods Market Not Competitive

Unlike the European Commission, the FTC found that the firms did in fact compete to develop treatments for solid tumors.¹⁰⁰ The FTC found a

98. *Upjohn Co.*, 60 Fed. Reg. 56,153 (F.T.C. 1995).

99. Case No. IV/M. 631 (Sept. 28, 1995).

100. The FTC said that, worldwide, only "a very small number" of firms were engaged in research similar to that of the merging firms. The FTC also said that because the information was highly confidential it could not disclose how small this number was. Presumably the FTC discovered the same three other research programs the European Commission discovered, and, therefore, unlike the Commission, the FTC considered three to be a very small number. This would be consistent with the *I.P. Guidelines*' statement that the agencies will probably challenge a transaction unless at least 4 competitors were doing similar R&D. See *Analysis of Proposed Consent Order to Aid Public Comment*, 60 Fed. Reg. 56,159 (F.T.C. 1995); *I.P. Guidelines*, *supra* note 9, at § 3.2.3 ex.

separate innovation market, and ordered Upjohn to divest specific technology. In this case the FTC saw an antitrust problem where the European Commission saw none.

c) The FTC Could Not Apply Gilbert and Sunshine's Methodology

In this case, as in the other cases, the FTC could not use Gilbert and Sunshine's innovation market methodology. In this case, the FTC found, not an innovation market, but a future goods market.

i) Identify the Overlapping R&D Activities

According to the FTC's analysis, the firms' R&D activities overlapped. Both firms were trying to develop treatments for solid tumors. This is therefore the future goods market.

ii) Identify Alternative Sources of R&D

The complaint alleges that there were no alternative sources of R&D. As explained above,¹⁰¹ the long and cumbersome federal drug approval process does allow the antitrust agencies to identify potential competitors of future pharmaceutical markets. It does not, however, allow the agencies to identify potential competitors of innovation markets. Thus, in this case, while the FTC could identify competitors who might enter the future goods market, it could not identify potential competitors of the relevant innovation market.

iii) Evaluate Competition From Downstream Products

Since no downstream products existed, no downstream products could exert any competitive pressure.

iv) Assess Increase in Concentration in R&D

While the FTC can never analyze, with complete confidence, a firm's incentives to innovate, if it had done so in this case, it would have, yet again, concluded that the merged firm faced strong incentives to innovate. The merged firm was on the verge of developing a life-saving drug which no competitors sold. Since consumers are willing to pay rather significant sums for drugs which save their lives, if the merged firm were able to develop this drug, and no other firms sold the drug, it could sell the drug quite profitably. In short, the merged firm faced a great incentive to de-

4; *see also supra* text accompanying note 97 (where, in Glaxo-Wellcome, the European Commission implied that it would find a market with only two other competitors sufficiently competitive).

101. *See supra* text accompanying note 97.

velop this life-saving drug as soon as possible, and thereby earn monopoly rents as soon as possible.

In truth, the FTC acted in this case, as it did in the other cases, because it feared that the merged firm would dominate the future goods markets. If the FTC had developed any beliefs regarding the merged firm's incentives to innovate, then, again, these beliefs played no role in its analysis of the case.

v) Assess Efficiencies

In this case the FTC did not explain what efficiencies, if any, it thought this transaction would generate. Again, efficiency considerations probably played no role in the FTC evaluation of this case.

3. *American Home Products*¹⁰²

The FTC also claims to have found an innovation market when reviewing American Home Products Corp. (AHP) purchase of American Cyanamid Co. Both firms were trying to develop a vaccine against Rotavirus infections in humans. The merging firms were two of only three trying to develop this vaccine. The FTC ordered AHP to sell its R&D program.

The FTC analyzed this case in much the same way that it analyzed other cases, particularly *Upjohn-Pharmacia*. In this case, just as in *Upjohn-Pharmacia*, the FTC could neither identify potential competitors of the innovation market, nor could it analyze the merged firm's incentives to innovate. Therefore, just as the FTC could only identify a future goods market and not an innovation market in *Upjohn-Pharmacia*, the FTC in this case could only identify a future goods market and not an innovation market.

In this case the FTC could not identify all potential competitors of the relevant innovation market. While the federal drug testing process allowed the FTC to identify firms which were currently trying to develop Rotavirus vaccines, it did not allow the FTC to identify firms which were not yet trying to develop such vaccines, but which might try to do so in the future.

The FTC also could not analyze the merged firms' incentives to innovate. If the merged firm were to develop its new vaccine, then it would be the only firm selling the vaccine. It would be a monopoly seller of a very valuable drug, and would therefore earn substantial profits. Therefore just

102. *American Home Prods. Corp.*, 59 Fed. Reg. 60,807 (F.T.C. 1995).

as the merged firm in *Upjohn-Pharmacia* faced a great incentive to innovate, so did the merged firm in this case.¹⁰³

4. *Sensormatic*¹⁰⁴

a) Firms Agree to Sell Assets and Patents

In this case the FTC analyzed a rather complex transaction. The firms involved in this transaction, Knogo Corp. and Sensormatic Corp., manufactured and sold anti-shoplifting systems. To use these systems, retailers put the appropriate sensors and alarms at the exits to their stores, and attached the appropriate markers to their products. When customers paid for a product, store clerks removed the electronic marker from the product. If, however, a shopper should happen to walk out of a store without paying for a product, then the electronic marker would sound the alarm.

In 1994 Knogo Corp. was developing a next generation anti-shoplifting system. This new system, which Knogo based on its SuperStrip technology, would allow manufactures, rather than retailers, to attach the electronic markers to the appropriate products. Manufactures could not only attach markers on products more efficiently than could retailers, they could also attach markers on products to which retailers could not attach markers. The new system would therefore allow retailers to protect more of their products, and at a lower cost.

Sensormatic was trying to develop its own new anti-shoplifting system, but nevertheless sought to acquire Knogo's SuperStrip technology. Knogo originally planned to sell to Sensormatic all of its assets outside North America. Knogo also planned to license to Sensormatic the exclusive right to its SuperStrip patents not only in North America, but throughout the world. Knogo, however, intended to continue to use its SuperStrip technology within North America. Finally, the firms agreed to grant each other royalty-free cross-licenses, in which each agreed to tell to the other of any improvements either may make to the SuperStrip technology.

b) The FTC Feared the Agreement Was Anticompetitive

The FTC feared that the transaction might lower the firms incentives to innovate. In doing so, the FTC expressed as many as four separate con-

103. The European Commission also reviewed this transaction. It did not, however, discuss the market for vaccines and Rotavirus infections in humans. It therefore, apparently, did not see any antitrust problem in this market. See Case No. IV/M. 500 (Sept. 19, 1994).

104. *Sensormatic Elecs. Corp.*, 60 Fed. Reg. 5428 (F.T.C. 1995).

cerns. First, the FTC feared that because the agreement required each firm to share with the other any improvements it may make to its technology, the agreement lowered each firm's incentives to innovate. Each firm would be less inclined to improve its technology, the FTC reasoned, because it would have to share this improvement with the other firm.¹⁰⁵

Second, the FTC believed that the parties had agreed to share patent rights in a way which would harm competition. The FTC feared that the firms would use their patents to exclude others from the market. The complaint alleged that other firms would not even try to develop comparable anti-shoplifting systems "because of patent protection for important technology and the time required to develop the requisite technical skills to compete in the [innovation market]."¹⁰⁶

Third, the FTC feared that the agreement would encourage the firms to improperly agree among themselves to develop one anti-shoplifting system standard. Before the transaction Sensormatic was trying to develop its own anti-shoplifting system, which, like Knogo's, would require manufactures to attach markers to their products.¹⁰⁷ The FTC therefore reasoned that to use these or similar systems, manufactures and retailers would have to agree to one uniform standard. The FTC feared that Knogo and Sensormatic, realizing that the industry would eventually use one system with one standard, would not try to develop two competing systems. Yet the FTC wanted Knogo and Sensormatic to each invest in its own system. This competition to innovate, the FTC believed, would drive the firms to develop the best system.¹⁰⁸

Fourth, the FTC may also have feared that after the transaction the firms remaining in the industry would collude to affect the standard the

105. *See id.* (complaint, at ¶ 16). This complaint alleges that the transaction would lower only *Knogo's* incentive to innovate. The complaint does not allege that the transaction would lower *Sensormatic's* incentive to innovate. Apparently the FTC felt that, because the cross-license provision forced Knogo to share the fruits of its R&D efforts with Sensormatic, the provision lowered Knogo's incentive to invest in the R&D in the first place. This reasoning is plausible, but should apply equally to Sensormatic, which would have to share the fruits of its R&D efforts with Knogo. While this limited allegation, which related only to Knogo, may have been sufficient to allow the FTC to consider how the cross-license agreement effected the transaction, this article will nevertheless assume that the logic of the allegation applies equally well to both firms. The article will therefore assume that the FTC feared that the agreement would lower each firm's incentive to innovate.

106. *Id.* (complaint, at ¶ 14).

107. Dahdouh & Mongoven, *supra* note 11, at 424.

108. Sensormatic Elecs. Corp., 60 Fed. Reg. 5428 (F.T.C. 1995) (complaint, at ¶ 16).

industry developed.¹⁰⁹ According to this hypothesis, each of the firms trying to develop SuperStrip-like anti-shoplifting systems would realize that if the industry did not adopt its standard, then, firstly, it would not be able to sell products in the future, and, secondly, that the products it had already sold would become useless. The FTC may have feared that the firms would act to keep the equipment they had already sold usable, and that to protect this installed base the firms would, in some unexplained way, collude as they developed the necessary standards. Perhaps the FTC feared the firms would collude to suppress the development of the new technology. Whatever the FTC feared, it did not express the basis for that fear clearly.

In response to these fears, the FTC only allowed Knogo to grant Sensoromatic the non-exclusive right to its SuperStrip technology. The FTC therefore preserved Knogo's right to license its SuperStrip technology to other competitors. The FTC hoped that this action would prevent Sensoromatic and Knogo from monopolizing the future market for the next generation of anti-shoplifting system.

c) FTC Analyzed a Future Goods Market, Not an Innovation Market

In this case the FTC analyzed a future goods market, not an innovation market. The FTC analyzed the future goods market for the next generation of anti-shoplifting system. As the following analysis shows, once again in this case the FTC could not use Gilbert and Sunshine's methodology to find an innovation market.

The FTC first defined the future goods market, which in this case was the market for improved anti-shoplifting systems. The FTC then analyzed this market, and did so using traditional antitrust law concepts. The FTC feared that this transaction would harm competition in as many as four separate ways. To analyze each of these concerns the FTC applied the appropriate traditional antitrust concept. The FTC did not find an innovation market.

First, the FTC feared that the cross-license agreement would lower each firm's incentives to innovate. However, as the I.P. Guidelines make clear, traditional antitrust law certainly allows antitrust authorities to insure that firms do not enter into cross-license agreements which reduce the firms' incentive to innovate.¹¹⁰

109. See Dahdoun & Mongoven, *supra* note 11, at 426-27.

110. See *I.P. Guidelines*, *supra* note 9, § 5.4.

Regarding the FTC's second fear, the law also already allows the anti-trust authorities to stop firms from entering into patent license agreements which lower their incentives to innovate.¹¹¹ In fact, FTC attorneys Dahdouh and Mongoven acknowledge this themselves.¹¹²

Regarding the FTC's third fear, antitrust law has also traditionally allowed the agencies to ensure that firms do not develop standards in a way which harms competition. The law has always prohibited firms from using standards to improperly monopolize markets.¹¹³

Dahdouh and Mongoven suggest that the FTC also feared that the firms remaining in the industry would collude to retard the development of technology and standards. If such a fear were justified, then, as even Dahdouh and Mongoven themselves acknowledge, the FTC already had the authority to respond appropriately.¹¹⁴ As these authors acknowledge, the agencies and courts have, in a number of cases, stopped firms from improperly suppressing technology.¹¹⁵

Thus the FTC could use traditional antitrust law to respond to all its concerns in this case. To regulate this transaction the FTC did not need to, and did not, find an innovation market.

d) Applying Gilbert and Sunshine's Methodology Shows That the FTC Did Not Find an Innovation Market

As with all the other cases, in this case the FTC did not find an innovation market. Furthermore, as this section shows, the FTC could not apply Gilbert and Sunshine's methodology just as it could not in the other cases.

i) Identify the Overlapping R&D Activities

The firm's R&D activities overlapped in the market for the next generation anti-shoplifting system, one which would allow manufacturers to attach the appropriate markers directly to their products. This was the future goods market.

ii) Identify Alternative Sources of Competition.

As the FTC itself acknowledged, other firms were trying to develop comparable anti-shoplifting systems. Thus other firms competed in what

111. *Id.* § 5.5.

112. See Dahdouh & Mongoven, *supra* note 11, at 424.

113. See James J. Anton and Dennis A. Yao, *Standard-Setting Consortia, Antitrust, and High-Technology Industries*, 64 ANTITRUST L.J. 247 (1995).

114. Dahdouh & Mongoven, *supra* note 11, at 426.

115. See also *supra* text accompanying note 59.

the FTC would call an innovation market. In fact, the FTC does not allege that the innovation market was concentrated.

Further, other firms, which, at the time of the transaction were not trying to develop anti-shoplifting systems, may in the future have tried to develop such systems. In the future these other firms may have tried to enter the market—unless patent rights or standards blocked them. Yet, as explained above, traditional antitrust law already allowed the FTC to determine whether the firms were trying to use patent rights or standards to improperly block access to the market. Gilbert and Sunshine's innovation market methodology adds nothing to this analysis.

iii) Evaluate Competition From Downstream Products

No firm yet produced the improved anti-shoplifting system Knogo and Sensormatic, and other firms, were trying to develop. Other firms did however produce anti-shoplifting equipment, and, as the analysis of step four shows, the FTC did believe that this installed base would affect the firms' incentive to innovate.

iv) Assess Increase in Concentration in R&D.

Regarding the allegations the FTC did make, the FTC did not analyze the firms' incentives to innovate in the systematic way Gilbert and Sunshine require. Gilbert and Sunshine expect the FTC to determine whether the agreement would increase or decrease each firm's incentives to innovate. But the FTC did not definitively state what this agreement would do to those incentives. In fact, the FTC alleged, in effect, that the agreement both increased and decreased the firms' incentives to innovate.

On the one hand, the FTC alleged that the agreement would lower the firms' incentives to innovate. The agreement required each firm to tell the other of any improvements it may make to the SuperStrip technology. The FTC feared that the agreement would therefore lower each firm's incentives to innovate.

On the other hand, the FTC also feared that the agreement would allow Sensormatic and Knogo to work together to establish the industry standard. To establish this standard the firms must be the first to perfect and sell the next-generation anti-shoplifting system. To be the first into the market, the firms would have to work hard and fast, and innovate quickly. Thus when alleging that the firms wanted to establish the industry standard the FTC implicitly alleged that the firms would work hard and fast, and therefore faced a strong incentive to innovate.

The complaint also alleged that the agreement may cause the firms to lower the number of research and development tracks they pursue. It does

not follow, however, that even if the firms were to invest in a smaller number of R&D tracks, that they therefore faced a lesser incentive to innovate. The firms could simply focus their R&D efforts on the most promising technology, and then work hard to develop that technology.

The complaint also alleges that the agreement may have allowed the firms to use the SuperStrip patents to stop other firms from entering the relevant market. If the firms were able to do this, then they would in fact have faced a great incentive to innovate. As soon as they sold the next generation system, they would earn monopoly profits. The opportunity to earn monopoly profits creates a great incentive to innovate.

Dahdouh and Mongoven discuss the FTC's possible fear that this transaction may allow all the firms in the industry to collude regarding the development of standards. The complaint, however, made no such allegation. The FTC probably did not make this allegation because it is so implausible. Even Gilbert and Sunshine themselves acknowledge that firms are very unlikely to collude in an innovation market.¹¹⁶

The complaint does, however, allege that collusion might allow Sensormatic to unilaterally reduce innovation efforts, but this allegation is implausible. Apparently, the FTC did not believe that the transaction would lower Knogo's ability to reduce its innovation effort. It is not clear why the FTC believed that the agreement would lower only Sensormatic's ability to unilaterally lower its R&D efforts, and not Knogo's. If the FTC feared that both firms would collude, then it obviously feared that the two firms would work together, and it did not fear that only Sensormatic would reduce its innovation efforts.

If the FTC actually feared that the agreement would increase Sensormatic's ability to unilaterally lower its R&D efforts, this fear does not seem reasonable. Even under the parties' original agreement, Knogo still retained the right to use its patents and other intellectual property rights in North America. Thus Knogo could have continued to innovate, and develop better products, within North America. Since the original agreement allowed Knogo to continue to innovate, the agreement does not seem to increase Sensormatic ability to unilaterally reduce its innovation efforts.

Further, to the extent that either Sensormatic alone, or Sensormatic and Knogo together, could have actually colluded to reduce their R&D efforts, the FTC could have attacked such conduct. To do so, it would not need to allege that the firms competed in an innovation market.¹¹⁷

116. See Gilbert & Sunshine, *supra* note 10, at 597.

117. See *supra* text accompanying note 59.

v) Assess Efficiencies.

Again in this case the FTC did not explain what efficiencies, if any, this transaction may generate. Thus, once again, the FTC does not seem to have analyzed any possible R&D efficiencies. In fact, the FTC only alleged that the agreement would harm an innovation market within North America. But innovation market advocates have always claimed that such markets are worldwide.¹¹⁸ In fact, FTC Commissioner Mary L. Azcuenaga dissented from the FTC's finding that the relevant innovation market was only in the United States and Canada. Commissioner Azcuenaga said that by focusing only on North America, the FTC "exclude[d] from the market the potentially important research activity of at least one European firm."¹¹⁹

The FTC limited the market to North America because it found only a future goods market. In this case the FTC focused on the American market for the next generation of anti-shoplifting systems. While the FTC felt that Canadian firms may affect the American future goods market, it did not feel that European firms would affect the future American market. It therefore ignored European firms' attempts to develop the next generation anti-shoplifting system.

5. *Ciba Geigy-Sandoz*¹²⁰

a) R&D Competition Unclear

When Ciba Geigy and Sandoz merged to create Novartis, they created a firm with control of over \$80 billion in assets, and the world's second largest pharmaceutical firm. When reviewing this merger the FTC analyzed, among other things, the firms overlapping R&D programs. The FTC saw antitrust problems regarding, among other things, the firms' gene therapy R&D programs. Neither firm sold, but both firms were trying to develop, gene therapy products.

Gene therapy may offer doctors entirely new ways to treat cancer and other debilitating diseases. Gene therapy may allow doctors to create modified genes, and then insert these modified genes into their patients' cells. But while gene therapy looks very promising, no firm yet sells any gene therapy product. Ciba Geigy and Sandoz were the leading firms investing in gene therapy R&D and trying to develop these gene therapy products.

118. See, e.g., Gilbert & Sunshine, *supra* note 10, at 594-95.

119. Statement of Commissioner Mary L. Azcuenaga, concurring in part and dissenting in part, 60 Fed. Reg. 5428, 5431 (F.T.C. 1995).

120. Ciba Geigy Ltd., FTC File No. 961-0055 (Dec. 5, 1996).

The FTC alleged that this merger would harm competition in both a broad gene therapy R&D market, and would also harm competition in four specific gene therapy future goods markets. In the first paragraph of the section of its complaint in which it defined the relevant markets, the FTC first alleged that the merger would harm competition in the broad market "for research and development of gene therapies."

After alleging that the transaction would harm competition in this broad gene therapy market, the complaint then alleged that the merger would harm competition in four specific gene therapy future goods markets. The complaint said:

Specific gene therapy product markets, in which the effects of the proposed merger may be analyzed include the research, development, manufacture and sale of:

- (a) herpes simplex virus-thymidine kinase ("HSV-tk") gene therapy for the treatment of cancer;
- (d) HSV-tk gene therapy for the treatment of graft versus host disease;
- (c) gene therapy for the treatment of hemophilia; and
- (d) chemoresistance gene therapy¹²¹

According to the complaint, the FTC anticipated that the market for these products, and for other gene therapy products, would grow over the coming years. The FTC did not expect the regulatory authorities to allow firms to sell any gene therapy products until the year 2000, but, said the complaint, after that year the market would grow significantly.

In this case the FTC clearly found four future goods markets. The complaint alleged that the firms competed in the four specific gene therapy future goods markets. Specifically, the complaint alleged that the firms competed in the market for the "research, development, manufacture and sale of ..." these products.

The FTC therefore clearly saw the firms' research and development efforts as a part of the firms' efforts to manufacture and sell the relevant products. The FTC analyzed not only the firms' R&D efforts, but also the firms' future efforts to sell products based on these R&D efforts. The FTC therefore alleged that the merger would harm competition, not in a separate R&D, or innovation, market, but rather in future goods markets.¹²²

121. *Id.* (complaint at part IV).

122. One could make this point about other cases as well. In *Upjohn-Pharmacia*, for example the FTC also alleged that the transaction would harm the market for "research, development, manufacture and sale. *Upjohn Co.*, FTC 60 Fed. Reg. 56, 153 (F.T.C.

The FTC may also have feared that the merger would allow Novartis to stop other firms entering the future gene therapy market.¹²³ According to the FTC, Ciba Geigy and Sandoz were the two firms leading the effort to develop gene therapy products.¹²⁴ These firms, the FTC said, controlled vital gene therapy intellectual property. While the FTC acknowledged that it could not know what patents Novartis would eventually receive, it nevertheless concluded that the firm could use its intellectual property, including the patents Ciba Geigy and Sandoz already owned, to hinder or block entry into the relevant market.

The FTC feared that Novartis would not license its gene therapy intellectual property. Novartis would lead the gene therapy R&D effort, and, the FTC reasoned, would not want other firms to close the R&D gap. It would therefore not license its intellectual property to other these research firms, the FTC said. The FTC thus concluded that the merger would improperly allow Novartis to block access to the broad future gene therapy market. It therefore ordered Novartis to offer non-exclusive licenses of essential gene therapy intellectual property. Yet, to issue this order, the FTC did not need to, and did not, find an innovation market. The FTC often regulates how firms acquire and combine intellectual property rights.¹²⁵ In this case the FTC exercised its traditional authority in this area. It did not find an innovation market.

The FTC feared that this transaction would harm competition in two separate ways. The FTC feared that Novartis would dominate the four specific future goods markets it identified. The FTC also feared that the merger would give Novartis such a broad portfolio of intellectual property rights that it could block access to the future gene therapy market. To re-

1995). In this case, however, the FTC alleged that the firms competed in a broad gene therapy market. It is therefore particularly important to note that in this case that the FTC alleged, not only that the firms competed in the broad gene therapy market, but also that they competed in the four specific future goods markets.

123. The first paragraph of the relevant part of the complaint says that: "One relevant line of commerce in which to analyze the effects of the proposed merger is gene therapy technology and research and development of gene therapies, including *ex vivo* and *in vivo* gene therapy. Specific gene therapy products, in which the effects of the proposed merger may be analyzed include the research and development, manufacture and sale of: [the four specific product markets]." Ciba Geigy Ltd., FTC File No. 961-0055 (Dec. 5, 1996) (complaint at part IV). Thus the complaint does not clearly state that the general research and development market is a market separate and distinct from the four specific product markets.

124. *Id.* at part V.

125. See *I.P. Guidelines*, *supra* note 9, § 5.4.

spond to either of these concerns, however, the FTC did not need to, and in fact did not, find an innovation market.

b) The FTC Could Not Apply the Gilbert and Sunshine's Methodology.

Applying the five steps of Gilbert and Sunshine's methodology shows that, again, in this case the FTC did not find an innovation market.

i) Identify the Overlapping R&D Activities

Both firms were trying to develop the four specific gene therapy treatments which the complaint identified. In this case, therefore, the FTC identified four specific future goods markets.

In addition, in this case the FTC also feared that the merger would give Novartis such a broad patent portfolio that it could stop other firms from entering the broad gene therapy market. Yet the FTC could address this concern using its authority to regulate how firms acquire intellectual property rights. To respond to its concerns the FTC did not need to find an innovation market.

ii) Identify Alternative Sources of R&D

In all the previous cases, except possibly *Sensormatic*, the FTC could not identify competitors who might enter the relevant innovation market. Because innovation is the "product" of an innovation market, a firm is competing in an innovation market if it is trying to develop the relevant good. It is competing in the innovation market even if it is not producing the relevant good. Potential competitors of an innovation market are therefore firms which may, in the future, try to develop the relevant good. Since the FTC can usually not know which firms may, in the future, try to produce the relevant good, it can usually not identify potential competitors of an innovation market.

In this case, however, the FTC may have been able to identify potential competitors of the innovation market. In this case the FTC could plausibly claim that it could identify all the firms which would, in the future, try to develop the relevant good. No firm, the FTC could plausibly assert, would try to enter the relevant innovation market; no firm would even try to develop the relevant future goods because, if it develops these goods, then Novartis would stop it from selling the goods. And firms, knowing they will not be able to sell the goods, will not try to develop the goods in the first place. Thus, in this case the FTC could plausibly claim that it could identify competitors who might enter the innovation market: that is, none at all.

Yet in this case the FTC still cannot claim that it found an innovation market. The FTC can only plausibly claim that it was able to identify the potential competitors of the innovation market because Novartis might be able to use its broad intellectual property portfolio to stop other firms from entering the market. But, without finding an innovation market, the FTC could respond to its fear that Novartis would use its intellectual property rights in an anticompetitive manner. It could use its traditional authority to regulate how firms acquire intellectual property rights. Thus even if the FTC could in this case claim that it identified all the potential competitors of the innovation market, this claim, though plausible, still does not lead to the conclusion that the FTC found an innovation market.

iii) Evaluate Competition from Downstream Products

Because no firm yet sold any gene therapy products, there were no downstream products in this case.

iv) Assess Increase in Concentration in R&D

In this case the FTC could not analyze the merged firm's incentives to innovate. In fact, the FTC imposed on Novartis a remedy which may actually have lowered its incentive to innovate. The FTC believed that Novartis was on the verge of developing new treatments for debilitating, previously untreatable diseases. As in *Upjohn-Pharmacia*, the merged firm in this case would earn very substantial profits if it were the only firm selling its life-saving product. Thus the merged firm, Novartis, faced a strong incentive to develop and sell its products as soon as possible, and thereby earn monopoly profits as soon as possible.

If the remedy the FTC imposed on Novartis affected its incentive to innovate, then the FTC in fact lowered these incentives. The FTC required Novartis to license intellectual property rights. This order, the FTC hopes, will increase the competition Novartis will face when, in the future, it sells gene therapy products. This competition will force Novartis to charge a lower price for these products, and therefore earn a lower return from its current and future R&D investments. Since the order will lower the return Novartis will enjoy from its future R&D efforts, the order actually lowers Novartis' incentive to innovate.

If the FTC issued an order which may lower Novartis' incentive to innovate, then clearly the FTC did not issue the order because the FTC wanted to increase Novartis' incentive to innovate. Rather, the FTC is-

sued its order because it wanted to insure that Novartis would not monopolize the relevant future markets.¹²⁶

v) Assess Efficiencies.

In this case, yet again, the FTC did not explain what efficiencies, if any, it thought this transaction would generate. Thus efficiency considerations probably played no role in the FTC's assessment of this case as well.

c) European Commission Decision

i) Analyzed Market Access

In this case the European Commission analyzed what it called the "future market" for gene therapy products.¹²⁷ It analyzed whether Novartis would be able to use its patent portfolio to block access to the broad gene therapy market. It did not find an innovation market.

The European Commission said that the merger would allow Novartis to dominate this future market if: (1) Gene therapy were to prove successful; (2) Competitors were unable to develop gene therapy treatments which did not infringe Novartis' patents; and (3) Novartis were granted the broad patents for which the merging firms had applied.

The Europe Commission then analyzed each of these three conditions. Regarding the first, the Commission began by observing that whenever it analyzed a future market it would not know if the firms would ever sell the relevant good. Yet in this case, the Commission concluded, the firms' research looked very promising, and that the Commission should therefore analyze competition in a future gene therapy market.

Regarding the second condition, the Commission again recognized that it was dealing with uncertainty. Competitors may be able to develop gene therapy treatments which did not infringe Novartis' patents, but they may not, the Commission said.

Regarding the third condition, the Commission yet again said that it was dealing with uncertainty. It said that it could not know if Novartis would receive the broad patents for which Ciba Geigy and Sandoz had applied. But, said the Commission, the firms may have created a barrier to entry simply by applying for the broad patents. The Commission feared

126. When the FTC protected competition in these future markets, it simply did what it always does. It acted to ensure that the market was competitive, and would therefore, hopefully, drive the relevant firms to innovate. See Landman, *supra* note 69.

127. See Ciba Geigy/Sandoz, Case No. IV/M.737 (July 17, 1996), O.J.L.201 (July 29, 1997).

that possible competitors may hesitate to develop technology which Novartis' patents may prohibit them from using.

Focusing on the risk that Novartis' broad patents would stop others from entering the gene therapy market, but realizing that it was dealing with a high level of uncertainty, the Commission concluded that, "[I]t cannot therefore ultimately be said with sufficient probability that the merger will on any future market lead to the creation or strengthening of a dominant position."¹²⁸

Possibly anticipating the FTC's actions, the merging firms had already agreed to license the technology its European patents covered. Aware of this promise, the Commission approved the merger.

Thus, in this case the European Commission determined whether the merger would give Novartis such a broad patent portfolio that it could stop other firms from entering the relevant market. Because the Commission could not know what European patents Novartis would eventually receive, it could not conclude that the patent portfolio would necessarily allow Novartis to stop other firms from entering the future market. The European Commission therefore imposed on Novartis no remedy.

ii) The European Authority and United States Authority Analyzed Future Market Access

In this case both the United States and European authorities analyzed whether Novartis would be able to use its intellectual property rights to block access to the broad future gene therapy market. Ciba Geigy and Sandoz held different patent rights on different sides of the Atlantic, and the two antitrust authorities therefore reached different conclusions. In this case the European Commission analyzed what it called a "future market." It did not find an innovation market. This suggests that the FTC also analyzed whether Novartis could use its intellectual property portfolio to block access to the relevant market, and also did not find an innovation market.

6. *Conclusion*

In none of these cases have the agencies found innovation markets. In none of these cases were the agencies able to apply Gilbert and Sunshine's innovation market methodology. The agencies were neither able to identify potential competitors of the innovation market, nor were they able to analyze the relevant firms' incentives to innovate. The European Commission analyzed many of the same cases which the American authorities

128. *Id.* at point 106.

also analyzed. The European Commission, however, does not claim to have found an innovation market in these cases. And just as the European Commission was not able to find an innovation market, the American authorities were unable to find an innovation market.

V. OTHER ACTIONS: R&D PART OF GOODS MARKET

The agencies' recent actions also show that they do not in fact find separate innovation markets. In several recent cases the agencies have alleged that various firms competed in research and development markets. The relevant agency has always alleged, however, that this research and development market was a part of a series of markets including the current goods market. In these cases, therefore, the relevant agency clearly saw its alleged research and development market as a part of the relevant current goods market. This section reviews a representative sample of this cases, in which the FTC did not even allege that the firms competed in a *separate*, research and development, or innovation, market.

A. Ciba Geigy-Sandoz

In addition to alleging that the Ciba Geigy-Sandoz merger would harm competition in the market for gene therapy products, the FTC also alleged that the merger would harm competition in the markets for corn herbicides and pest control products. Regarding both markets the FTC's complaint alleged that the firms competed in markets for the "research, development, manufacture and sale" of the relevant product.

Both firms were already selling products in both of these markets, and thus both firms were competing in the relevant current goods market. The FTC therefore did not add to its case when it alleged that the firms also competed regarding research and development. The FTC simply alleged the truism that whenever firms compete in a current goods markets, they compete not only on price, but also on innovation.

B. Lockheed Martin-Loral¹²⁹

The FTC alleged that Lockheed Martin's purchase of Loral Corp. would harm competition in research and development. Yet while the FTC made these allegations, it, yet again, did not find an innovation market.

The FTC alleged that this transaction would harm markets for the "research, development, manufacture, and sale" of 10 different products. But these products, and therefore the markets for these products, already existed. Therefore, just as the FTC's research and development allegations

129. Lockheed Martin Corp., 61 Fed. Reg. 18732 (F.T.C. 1996).

regarding corn herbicide and pest control products did not strengthen the FTC's claim in *Ciba Geigy*, neither did the research and development allegation strengthen the FTC's claim in this case.

The FTC also alleged that various aspects to the transaction would allow Lockheed Martin to obtain competitors' trade secrets and other proprietary information. The FTC alleged that the transaction would therefore lower these competitor's incentive to innovate. Again, while the FTC may have made an accurate allegation, it did not make one which lead it to find an innovation market.

The law protects firms' proprietary information. It seeks to encourage firms to develop this information, and thereby to innovate. If a firm believes that its competitor will obtain whatever proprietary information it may develop, then the firm may indeed not develop the information. Thus, to encourage firms to innovate, the FTC should indeed insure that firms can protect their secrets. But, again, the law has always allowed the FTC to do this. Gilbert and Sunshine's innovation market methodology adds nothing to this analysis.

C. Boeing-Rockwell¹³⁰

The FTC objected to certain aspects of the Boeing Company's purchase of the Aerospace and Defense Business of Rockwell International Corp. In its complaint the FTC alleged that the firms competed in the markets for the "research, development, manufacture and sale" of three specific products: High Altitude Unmanned Air Vehicles, Space Launch Vehicles, and Space Launch Vehicle Propulsion Systems.

Again in this case the FTC did not find that the firms' research and development efforts formed a separate market. On the contrary, the FTC simply alleged that the transaction would harm competition in the markets for these three already existing goods, including harming competition to improve these goods. It did not allege that the firms competed in a separate innovation market.

The FTC also alleged that the transaction would allow Boeing to obtain confidential information, to which it should not have access. Once again, the FTC should resolve this matter as it feels is appropriate. To do so, however, it does not need to find an innovation market.

130. The Boeing Company, 61 Fed. Reg. 66038 (F.T.C. 1996).

VI. AGENCIES RECOGNIZE THAT THEY ONLY FIND FUTURE GOODS MARKETS

A. Introduction

Various agency officials have actually endorsed this article's analysis. These officials have acknowledged that the agencies find only future goods markets. But some of these officials have used terms and qualifying language which has obscured this important reality. These terms and qualifiers have created the inaccurate impression that the agencies find innovation markets.

B. Federal Trade Commission

1. *Report on "High-Tech Global Marketplace"*

a) "Defined With Respect to an Ultimate Goods Market"

In its highly publicized 1996 report on the "New High-Tech Global Marketplace,"¹³¹ the FTC staff recognized that the agencies actually analyze future goods markets, and not innovation markets. The FTC issued the report after holding related hearings in 1995. At the hearings various witnesses argued for, and against, the idea that the agencies should find innovation markets. The FTC staff's report summarized the debate, and also tried to defend the idea that the agencies should find innovation markets. Yet the report also made the following very telling observation:

In terms of how to define the scope of an "innovation market, the *IP Guidelines* approach of focusing on "research and development directed to particular new or improved goods or processes" seems most useful. One witness suggested that access to specialized assets could also be the basis for identifying substitutable innovation efforts and for assessing the relative competitive significance of market participants. Such an approach has received some attention. This approach might well be sufficient to cabin the agency's analysis, yet the issue ultimately would lead back to the potential existence of a good. This is, in asking whether a firm possessed "specialized assets," one would need to ask: "specialized assets necessary to produce what types of goods?" At the moment, it seems inevitable that an innovation market will be defined with respect to an ultimate goods market, such as "R&D directed at [a class of products]."¹³²

131. FEDERAL TRADE COMMISSION STAFF, *supra* note 63.

132. *Id.* at 34 (citations omitted).

b) This Conclusion is Inconsistent With the I.P. Guidelines

While the FTC claims to base this conclusion on the I.P. Guidelines, this conclusion is actually inconsistent with those Guidelines. The Guidelines try to explain how and when the agencies will find an innovation market. They define an innovation market in the same way Gilbert and Sunshine do. Example three of the Guidelines, for example, says that the agencies will try to analyze firms' incentives to innovate. Thus when the FTC acknowledges that, in trying to define an innovation market, it must inevitably define, not an innovation market, but an "ultimate goods market," the FTC acknowledges that it finds, not an innovation markets, but rather a future goods market.

c) The Complete Report Obscures This Important Conclusion

While the FTC staff did make this candid admission, it did so reluctantly. The report generally defends the innovation market concept. The report even qualifies this passage. One of the footnotes omitted from the above quotation refers to a previous passage in the report which defended the idea that the FTC can preserve competition in a market for core competencies.¹³³

Some innovation market advocates believe that the FTC can not only find an innovation market, but also that by doing so it can protect competition in an imagined market for core competencies. Thus when the FTC defends the idea that it can protect competition in a market for core competencies, it defends the idea that it can protect competition in innovation markets.¹³⁴

2. *Commissioner Azcuenaga: "Future Competition in a Specific Product"*

In her recent speech *Antitrust and Intellectual Property: Recent Highlights and Uncertainties*¹³⁵ FTC Commissioner Mary L. Azcuenaga reviewed the development of the innovation markets concept in the United States. In doing so she in effect acknowledged that the agencies have always analyzed a future goods market, not an innovation market.

133. *Id.* at 34, n.119.

134. *Accord* Dennis A. Yao and Susan S. DeSanti, *Innovation Issues Under the 1992 Merger Guidelines*, 61 ANTITRUST L.J. 505, 510-11 (1993).

135. Commissioner, Federal Trade Commission, Mary L. Azcuenaga, Speech before the American Law Institute-American Bar Association, Ritz-Carlton Hotel, Boston, Massachusetts, (April 24, 1997) (available at <<http://www.ftc.gov/speeches/azcuenaga/aliba97.htm>>).

To begin her discussion Commissioner Azcuenaga reviewed the cases in which the agencies developed the innovation market concept. The Commissioner noted that even before the agencies had developed the innovation market concept, they had alleged that various transactions would harm competition in R&D. The Commissioner offered *Roche Holdings*¹³⁶ as an example of such an early case. In *Roche Holdings* the FTC alleged that the parties competed to develop CD4-based therapeutics to treat Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome. The *Roche Holdings* complaint alleged that the proposed merger would eliminate potential competition in the market to develop this product. Thus, in that case, the FTC alleged that the firms competed in the future goods market for CD4-based therapeutics. The FTC did not allege that the firms competed in an innovation market.

Then, Commissioner Azcuenaga said, the agencies developed the innovation market concept. She showed how the I.P. Guidelines and *Sensormatic* contributed to the development of the concept. The Commissioner also noted that many questioned whether the agencies should try to find innovation markets. In particular, she noted Richard Rapp's broad criticism of the concept.¹³⁷ She also noted that some have questioned whether firms can actually monopolize innovation markets.

Commissioner Azcuenaga then went on to defend the FTC. When defending the FTC from Dr. Rapp and the others critics Commissioner Azcuenaga said:

The critiques of the innovation market theory raise serious questions regarding how far it should be pursued, at least given our current knowledge. Nonetheless, the valid criticisms of the theory seem to apply to its application in a broad sense to the concept of innovation. They do not seem to undercut our antitrust concerns for future competition in a *specific product* that is already under development. Almost all the FTC cases have involved research and development by a very few firms of a pharmaceutical product to remedy a particular disease or condition. The Commission has focused on future competition to manufacture and sell the *particular drug* in question and not the general level of research or development in the pharmaceutical industry.¹³⁸

136. *Roche Holdings Ltd.*, 113 F.T.C. 1086 (1990).

137. See Rapp, *supra* note 43.

138. Azcuenaga, *supra* note 135 (emphasis added). Commissioner Azcuenaga repeated this analysis in December 1997 when she said that the FTC is "continuing to allege a diminution of competition in research and development markets for specific prod-

Commissioner Azcuenaga is correct. Her statement says, in effect, that the agencies have not actually extended their analysis beyond that of *Roche Holdings*. The agencies continue to analyze, not an innovation market, but a future goods market.

3. *Director Baer: "This Important Innovation Market."*

At the same time that FTC Commissioner Azcuenaga offered her analysis, the director of the FTC's Bureau of Competition, William J. Baer, offered his analysis of innovation markets. At first glance, Director Baer seems to have contradicted Commissioner Azcuenaga. Yet, on closer examination, one discovers that Director Baer's analysis, while confusing, is actually consistent with that of Commissioner Azcuenaga, and of this article.

In his *Report from the Bureau of Competition*,¹³⁹ Director Baer seemed to state that the agencies find innovation markets as the I.P. Guidelines develop and define the concept. In his report Director Baer discussed *Ciba Geigy* at length. He said that the FTC acted to "preserve competition in this important innovation market." Director Baer continued:

The *Ciba-Geigy* case illustrates the important role antitrust can play in protecting competition in R&D. This is not new, but it has some prominence—some would say notoriety—in recent years. The renewed focus on R&D competition is probably attributable to several factors. First, the *Intellectual Property Guidelines*, issued in 1995, drew attention to the concept of innovation markets. Second, there has been a substantial amount of recent merger activity in certain markets where antitrust may be particularly important in preserving R&D competition, such as pharmaceuticals and defense. Third, there is an increased appreciation of the importance of preserving incentives for strong rivalry in the race to produce new and improved products in key markets. Research and development, and innovation, are critically important to the competitiveness of our markets, both domestically and internationally. Moreover, R&D competition is critically important not only in saving dollars in the purchase of

ucts." Commissioner, Federal Trade Commission, Mary L. Azcuenaga, Panel Discussion on Technological Innovation, International Trade and Competition Policy, Remarks before the Japan Fair Trade Commission 50th Anniversary Symposium, Tokyo, Japan (December 1, 1997) (available at <<http://www.ftc.gov/speeches/azcuenaga/japan97.htm>>).

139. Director, Bureau of Competition, Federal Trade Commission, William J. Baer, Federal Trade Commission Before the American Bar Association Antitrust Section Spring Meeting 1997, Washington, D.C., (April 9-10 1997) (available at <<http://www.ftc.gov/speeches/other/abaspg97.htm>>).

new products, but also in saving lives and ensuring our national security.¹⁴⁰

a) Closer Look: Agencies Find Future Goods Market

A close examination of Director Baer's comments, however, reveals that the director actually agrees with this article's analysis. Despite the passage quoted above, the director actually, indirectly, endorsed the conclusion that the agencies find only future goods markets. When defending the FTC, the director said:

Our cases will show that we have intervened in innovation market transactions under carefully limited circumstances—namely, where few firms possess the specialized assets or characteristics needed to compete successfully in the market. It is only in that situation that a merger is likely to result in a substantial loss of R&D competition.¹⁴¹

Indeed, Director Baer is correct. The agencies have only acted when the merging firms had the same specialized assets. And, as this article has shown, to determine which firms had the same specialized assets the agencies had to determine which firms may sell the same products in the future. In other words, the agencies had to define a future goods market.

4. *Baer and Azquenaga: FTC Found an Innovation Market in Ciba Geigy*

Both Commissioner Azquenaga and Director Baer seem to say that the FTC found an innovation market in *Ciba Geigy*. Yet neither of these two officials actually show that the FTC found an innovation market in this case.

a) Baer: Agencies Stop Firms From Improperly Using Patents

In the passage quoted above Director Baer implies that the FTC found an innovation market in, among other cases, *Ciba Geigy*. Yet, despite the Director's seemingly broad endorsement of innovation markets, Director Baer actually does agree with this article's conclusion that the agencies find future goods markets. Director Baer acknowledged that in *Ciba Geigy* the FTC acted to stop firms from using their intellectual property rights to harm competition. Director Baer said that, "Because of the patent portfolios of Ciba Geigy and Sandoz, competitors could be blocked from

140. *Id.* (footnotes omitted).

141. *Id.*

commercial development.”¹⁴² Director Baer therefore explained that the FTC acted to ensure that Novartis could not block other firms from entering the relevant market.¹⁴³

Thus, according to Director Baer, the FTC acted because it feared that Novartis would use its broad patent portfolio to improperly block access to the relevant market. Yet, as this article has shown, the FTC could respond to this fear without finding an innovation market. Director Baer’s analysis of this case, therefore, does not show that in *Ciba Geigy* the FTC found an innovation market.

b) Commissioner Azcuenaga

Along with Director Baer and this article, Commissioner Azcuenaga also said that in this case the FTC acted to stop Novartis from using its broad patent portfolio to block other firms from entering the relevant market. Commissioner Azcuenaga said that “the language of the complaint and the remedy suggest that the breath of the patent may have been a concern.”¹⁴⁴ Thus the Commissioner also recognized that the FTC acted to ensure that Novartis could not use its broad patent portfolio to stop other firms from entering the relevant market.

Commissioner Azcuenaga also recognized that in this case the FTC found four specific future goods markets. The Commissioner said that:

the complaint alleged four research and development product markets relating to gene therapy for specific medical conditions, similar to other recent Commission orders involving research and development markets. The antitrust concern was that in each of four markets the merger combined two firms with competing products in the FDA pipeline¹⁴⁵

In other words, Commissioner Azcuenaga acknowledged that the FTC alleged that the firms competed, not in innovation markets, but in future goods markets.

142. *Id.*

143. *Id.* Director Baer repeated these remarks in November 1997, saying of *Ciba Geigy*: “There were relatively few potential competitors for this technology, because the merging firms controlled critical patents.” Director, Bureau of Competition, Federal Trade Commission, William J. Baer, *New Myths and Old Realities: Perspectives on Recent Developments in Antitrust Enforcement*, Address before the Bar Association of the City of New York, New York, (November 17, 1997) (available at <<http://www.ftc.gov/speeches/other/bany.htm>>).

144. Azcuenaga, *supra* note 135.

145. *Id.*

In her speech, however, the Commissioner also said that in *Ciba Geigy* the FTC may have found an innovation market. The Commissioner said that the FTC may have found an innovation market in this case because "the complaint alleges increased barriers to entry and altered incentives to license patents."¹⁴⁶

It does not follow, however, that simply because the FTC discussed barriers to entry and incentives to license patents that it therefore found an innovation market. First, courts, and the agencies, regulate how firms acquire patents exactly because they fear that if firms acquire too broad a patent portfolio, then they will use this broad patent portfolio to erect barriers to entry to the relevant market. The law responds to the fear that the firms will monopolize the relevant market, and, as monopolists, will face a lower incentive to innovate. Thus whenever the agencies analyze patent acquisitions they analyze barriers to entry, but they do not find innovation markets. Second, innovation market methodology, so its supporters say, allows the agencies to regulate firms' incentives to innovate. These supporters do not even claim that innovation market analysis allows the agencies to regulate firms incentives to license already existing technology.¹⁴⁷

C. Department of Justice

1. Patent Pool

Joel Klein, the Assistant Attorney General of the Antitrust Division of the U.S. Department of Justice, has also recently discussed innovation markets.¹⁴⁸ He too seems to have endorsed the idea that the agencies find innovation markets. Yet, once again, close examination of this high official's analysis shows that his endorsement was far from ringing.

146. *Id.*

147. Commissioner Azquenaga did not say that in *Ciba Geigy* the FTC feared that the agreement would lower Novartis' incentives to innovate. Yet even if the FTC did harbor such fears, it still does not follow that the FTC found an innovation market in this case. The agencies stop firms from using patents, and other intellectual property rights, to monopolize markets because the agencies fear that, as monopolists, the firms will face a lesser incentive to innovate. Therefore, whenever the agencies analyze the scope and breath of any patent or patent acquisition they inevitably consider the relevant firms' incentives to innovate.

Further, in this case, as in all these so-called innovation market cases, the FTC could not analyze the merged firm's incentives to innovate, at least not in the manner innovation market analysis requires. See *supra* text accompanying notes 43-59.

148. Acting Assistant Attorney General Joel I. Klein, Department of Justice: Cross-Licensing and Antitrust Law, Address before the American Intellectual Property Law Association (May 2, 1997).

Assistant Attorney General Klein described the antitrust concerns cross-license agreements raise. In particular, Mr. Klein discussed the complex antitrust history of the Manufacturers Aircraft Association. To resolve various conflicting patent claims, at the time manufacturers first started to build commercial aircraft, almost all aircraft manufacturers agreed to pool their patents. When discussing then-Attorney General Gregory's 1917 opinion regarding the antitrust aspects of this arrangement, Mr. Klein said the innovation market concept would have helped Attorney General Gregory analyze the patent pool. The current Assistant Attorney General specifically cited, with approval, the innovation market section of the I.P. Guidelines.

2. *Innovation Markets Analysis Adds Nothing to the Law*

Yet, in fact, the innovation market section of the current I.P. Guidelines would not have helped Attorney General Gregory in 1917. Firstly, and most obviously, Attorney General Gregory did not need the help. Without the Guidelines' assistance the former Attorney General reached what the current Assistant Attorney General believes was the correct decision. Secondly, and very relatedly, the law already in 1917 addressed, in quite an appropriate fashion, the antitrust issues which concern Assistant Attorney General Klein today. Just as Attorney General Gregory could address the relevant antitrust issues in 1917 without using innovation market analysis, so Assistant Attorney General Klein can—80 years later—address the relevant issues without using innovation market analysis. Innovation market analysis adds nothing that was not in the law 80 years ago.

Thirdly, and finally, the aircraft technology patent pool of that case did not even raise a true innovation market issue. It raised issues relating to current and future goods markets. The Attorney General analyzed how the patent pool would affect the current goods market, which was the market for the then-current generation of commercial aircraft. Indirectly, the Attorney General also analyzed the future goods market, which was the market for the next generation of aircraft. The Attorney General certainly did not analyze competition among firms that were "not likely potential competitors" in a goods market.¹⁴⁹ The firms already competed against each other.

3. *More Aggressive Current Enforcement*

Assistant Attorney General Klein did say that his Department may have reached a different decision today than Attorney General Gregory

149. Gilbert and Sunshine say competition in an innovation market relates to firms that are not likely potential competitors. See *supra* text accompanying note 55.

reached in 1917. The United States at that time was fighting World War I, and therefore bought many airplanes. For the sake of national security, therefore, the United States wanted manufacturers to build airplanes as quickly and cheaply as possible. Today the United States is not fighting a war and the DOJ has different priorities. Today, said the Assistant Attorney General, the Department would have worried more about whether the patent pool lowered incentives to innovate. Therefore, today, the Department may not have made the same decision it did in 1917.

In reality the Assistant Attorney General is saying that, regarding intellectual property rights, the Department enforces antitrust law more aggressively now than it did in 1917. While the DOJ has always used antitrust law to limit the extent to which patent holders could exercise their patent rights, it has over time varied the extent to which it has limited these rights.¹⁵⁰ At the moment the Department may very well be enforcing antitrust law more aggressively than it did in 1917. This aggressive attitude may even have lead the Department to develop and defend the innovation market concept. But even if the Department is more aggressive, and even if it says it finds innovation markets, this does not mean that the Department actually finds innovation markets.

VII. AGENCY STATEMENTS CREATE CONFUSION AND OPPOSITION

A. Attorneys Cannot Advise on Innovation Markets

When high agency officials make statements such as these, they create the false impression that the agencies find innovation markets.¹⁵¹ This impression causes great anxiety among attorneys. When firms consider entering into a transaction, they naturally ask their lawyers whether they will violate any laws if they do so. Attorneys must be able to tell their clients if they should enter into a particular transaction. But if the agencies may find that firms compete in an innovation market, even if they are not even likely potential competitors in a future goods market,¹⁵² then attorneys will not be able to give their clients sound advice. Attorneys will not know when the agencies will find an innovation market, or which firms the agencies will find compete in this innovation market.

150. Steven P. Reynolds, *Antitrust and Patent Licensing: Cycles of Enforcement and Current Policy*, 37 JURIMETRICS J. 129 (1997).

151. See, e.g., Neil Campbell and Jeffrey Roode, *The 'Highest Common Denominator' Effect*, GLOBAL COMPETITION REVIEW, Aug.-Sept. 1997, at 29 (explaining how the FTC applied Gilbert and Sunshine's innovation market methodology in *Ciba Geigy*.)

152. See Gilbert & Sunshine, *supra* note 10, at 570.

Further, the agencies should not expect attorneys to find and analyze innovation markets. The agencies, the creators of this innovation market concept, can themselves not find innovation markets. If the creators of the innovation market concept can themselves not find innovation markets, then attorneys in private practice will certainly not be able to find such markets.

B. Attorneys Can Advise on Future Goods Markets

Although attorneys cannot determine if their clients compete in an innovation market, attorneys usually can determine if their clients compete in a future goods market. Like many areas of the law, attorney's advice in this area will never be completely free of doubt. Nevertheless, attorneys can clearly explain to their clients the concept of a future goods market. And, working with their client, attorneys will usually be able to determine, to a reasonable degree, whether their client competes in a future goods market.

C. Innovation Market Opponents Recognize Agencies' Legitimate Antitrust Concerns

James Kobak, Jr. has adeptly expressed the opposition of many to innovation markets:

[I]nnovation markets might be described as the newly hypothesized "dark matter" of the antitrust cosmos. Like dark matter, there is little empirical evidence about innovation markets; like dark matter, they are notoriously difficult to explore in the absence of actual transactions; and like dark matter, if they do exist, they will enormously affect the size, scope, and future of the antitrust universe

Some call this a search for a will-o'-the-wisp: a market that virtually cannot exist under any customary legal or economic definition of the "relevant market." It is also a search for a market where only the most fragmentary and speculative data may exist. Not only is the burden of the search enormous, but the reliability of what is found may be highly suspect at best.

The innovation market concept goes beyond these relatively familiar [areas of antitrust law]. (footnotes omitted)¹⁵³

Yet Kobak also recognizes that in this area the agencies do at times raise legitimate antitrust issues:

153. James Kobak, Jr., *Running the Gauntlet: Antitrust and Intellectual Property Pitfalls on the Two Sides of the Atlantic*, 64 ANTITRUST L.J. 341, 360-61, (1996).

[N]o one would contend that R&D and its fruits are never an important dimension of competition; ordinary market analysis should take some account of R&D efforts and their present and reasonably predictable impact on existing competition.¹⁵⁴

VIII. CONCLUSION: TO RESPOND TO THEIR CRITICS, THE AGENCIES SHOULD CLEARLY STATE WHAT THEY DO

Director Baer, Assistant Attorney General Klein, and other officials have for the past several years made numerous statements which create the false impression that the agencies actually find innovation markets. In reality, of course, the agencies do not find innovation markets. The agencies are not applying the innovation market methodology the I.P. Guidelines describe, and which Gilbert and Sunshine and Dahdouh and Mongoven develop. The agencies find no more than future goods markets.

The agencies should respond to their critics. The agencies should respond because their actions show not only that the critics are correct, but also that the agencies can validly defend themselves. The agencies' actions show that the critics correctly attack innovation markets; the agencies have never actually found an innovation market. But the agencies' actions also show that in this area the agencies have generally acted reasonably, and with restraint. To respond to their critics the agencies should acknowledge that they find, not innovation markets, but rather future goods markets.

154. *Id.* at 361.

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