

STANDARD-SETTING CONSORTIA, ANTITRUST, AND HIGH-TECHNOLOGY INDUSTRIES

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Standards and standard-setting organizations have been an important feature of the economic landscape for many years, particularly in the information technology and telecommunications industries. This article reviews the antitrust treatment of private-sector standard setting. It emphasizes organizational decision-making issues relevant to consideration of standard-setting "procedures" and draws on Federal Trade Commission experience with such matters. The article then examines the applicability of the law and decision-making issues for standard setting in high-technology industries.

In considering antitrust issues confronting high-technology industries, the two most important types of standards are quality and safety standards and interface standards. Quality and safety standards define the design or performance characteristics that products must have either to be sold in the market (e.g., automobile emissions standards) or to obtain "approval," "certification," or "listing" by a standard-setting body (e.g., the Underwriters Laboratories' seal). Interface standards specify whether and how one type of product will be able to fit or communicate with other products (e.g., gauge of railroad tracks, color TV transmission standards, or computer operating system interfaces with applications programs).

Interface standards are of primary interest in telecommunications and information technology industries. Quality and safety standards, however, can be an important factor in the acceptance of new technologies in all types of industries. For example, performance standards with

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respect to radiation or interference with other systems will sometimes constrain technological choices. Moreover, the case law with respect to quality and safety standards is also important to the development and implementation of interface standards because most of the precedent applicable to standard-setting organizations comes from experience with the setting of technical quality and safety standards.¹

Procedural considerations have played a primary role in the antitrust analysis of standard setting. We argue that this role should not be expanded. The teachings of the academic literature on decision-making processes suggest that limiting enforcement attention solely to procedural considerations leaves room for anticompetitive outcomes from a standard-setting process. While the benefits of standard setting are considerable, and the vast majority of standard-setting activities taking place in high-technology industries appear to pose only slight anticompetitive concerns, we believe that continued, cautious vigilance is needed. In particular, we argue that an enforcement approach that examines the substantive reasonable basis for a standard, as well as the procedural means by which it is adopted (or implemented), does not present a serious obstacle to legitimate standard-setting activity, yet will deter standard setting whose primary purpose is reduction of competition.²

I. BENEFITS OF STANDARDS

There is a general consensus that standards provide a wide variety of substantial procompetitive benefits. Because of this, the antitrust enforcement agencies and courts have looked favorably on industry-developed

¹ Joseph Kattan, Remarks Before the ABA Antitrust Section Annual Meeting, New Orleans, La. (Aug. 8, 1994) ("Virtually every case in which a defendant was found liable for abuse of the standard-setting process involved the promulgation of a safety standard that declared a competitor's product unsafe and made it unsalable."). The principal cases are those involving development, interpretation of industry codes, and certification under such codes or standards (*Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988); *American Soc'y of Mechanical Eng'rs v. Hydrolevel Corp.*, 456 U.S. 556 (1982); *Radiant Burners, Inc. v. Peoples Light & Gas Co.*, 364 U.S. 656 (1961); *Sessions Tank Liners, Inc. v. Joor Mfg.*, 786 F. Supp. 1518 (C.D. Cal. 1991), *rev'd*, 17 F.3d 295 (9th Cir.), *cert. denied*, 115 S. Ct. 66 (1994); *Clamp-All Corp. v. Cast Iron Soil Pipe Inst.*, 851 F.2d 478 (1st Cir. 1988), *cert. denied*, 488 U.S. 1007 (1989); *Consolidated Metal Prods. v. American Petroleum Inst.*, 846 F.2d 284 (5th Cir. 1988); *ECOS Elecs. Corp. v. Underwriters Labs., Inc.*, 743 F.2d 498 (7th Cir. 1984), *cert. denied*, 469 U.S. 1210 (1985); *Eliason Corp. v. National Sanitation Found.*, 614 F.2d 126 (6th Cir.), *cert. denied*, 449 U.S. 826 (1980)), and those involving information provision by an association (*Moore v. Boating Indus. Ass'n*, 819 F.2d 693 (7th Cir. 1986), *cert. denied*, 484 U.S. 857 (1987); *Schachar v. American Academy of Ophthalmology*, 870 F.2d 397 (7th Cir. 1989)).

² In this article we focus on group standard setting that involves formal procedures and explicit cooperation among participants. A different set of issues arises in the case of market-determined standards (e.g., MS-DOS). For instance, while ex post monopoly power may be the source of antitrust concern in these cases, there may be little or no issue with the decentralized "market" process by which the standard emerged.

technical standards.³ The exact form of standardization benefits varies across markets and industries.⁴ In the case of high-technology industries, much emphasis has been placed on the benefits from standardization and compatibility that arise when network or consumption externalities are associated with a product.⁵ In such a setting the benefit an individual buyer derives from the product is greater when other buyers also use the product. In turn, this economy of scale on the demand side of the market implies that benefits to society as a whole are greater when standardization allows for product compatibility among all users.

There are many familiar examples of markets and goods where such an externality effect, and hence standards, play an important role. In telecommunications markets, as with telephones and fax machines, the externality is due to a direct physical effect: communication is more valuable as the network size increases. Another class of externalities involves indirect or market mediated effects. This includes the familiar case of availability and interchangeability with complementary products, as with VCRs and tapes, and PCs and software. Standards may also contribute to positive externalities on the supply side of the market, such as reduced costs for standardized inputs. Additional examples include information diffusion to market participants, as with a standardized multiple listing service in real estate markets, and transaction cost efficiencies, as with minimum standards for quality or safety.

II. COLLECTIVE STANDARD SETTING

A. POTENTIAL ANTICOMPETITIVE EFFECTS

Anticompetitive effects may arise from collective standard setting in several different ways.⁶ The substance (or timing) of a standard has the

³ Harry S. Gerla, *Federal Antitrust Law and Trade and Professional Association Standards and Certification*, 19 DAYTON L. REV. 471, 503 (1994) ("Antitrust courts generally have been favorably disposed toward trade and professional association standards.").

⁴ For a more thorough discussion of standardization benefits, see David Balto, *Industry Self Regulation and Standard Setting* (1994) (unpublished manuscript); Raymond T. Nimmer, *Standards, Antitrust and Intellectual Property*, in *INTELLECTUAL PROPERTY ANTITRUST* (PLI) 389-480 (D. Bender ed., 1994); Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND J. ECON. 70 (1985); Michael Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424 (1985).

⁵ By definition, such an externality exists for a product if its value to an individual buyer varies directly with the number of other buyers of the product (i.e., the larger the network of purchasers, the higher the price each purchaser will be willing to pay on average). Michael Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93 (1994), note the benefits of standardization in the communications and computer hardware and software industries.

⁶ See FTC BUREAU OF CONSUMER PROTECTION, STANDARDS AND CERTIFICATION—FINAL STAFF REPORT (1983) [hereinafter FTC STAFF REPORT] (general discussion of the potential anticompetitive effects of standard setting).

potential to produce a number of anticompetitive effects. For example, a standard may disadvantage some subgroup of existing competitors by raising the costs, or excluding the technologies, of rivals even when there is no technical rationale for creating such a disadvantage. With regard to raising rivals' costs, the benefit, and hence the incentive, for a firm to manipulate the specification or adoption of a standard has been identified in the analysis of Salop and Scheffman.⁷ By choosing or otherwise influencing the standard, a dominant firm can often raise the production costs of market rivals, thereby inducing them to raise prices and reduce output. Further, the dominant firm can still benefit even when the standard increases its own production cost.⁸ One should not, of course, expect standards to have exactly the same impact across all competitors, and the key antitrust issue is the reduction of competition, not the protection of competitors.

Katz and Shapiro examine how the theory of cost-based facilitating practices can be applied to the analysis of standards.⁹ The key issue involves how different standards choices affect the cost structure (fixed versus marginal costs) of industry participants. For example, if the use of a costly adapter achieves compatibility and this raises marginal costs for each firm, it is possible that all firms may favor compatibility. An industry-wide increase in marginal costs will lead to a reduction in output and higher prices. The resulting increase in revenues from the higher prices (but reduced output) will sometimes be greater than the increase in costs.

Related anticompetitive effects include the use of standards to exclude current rivals or to raise entry barriers. Standards may also be used in attempts to leverage one or more competitor's existing property rights. Many of the allegations against IBM by the Department of Justice in the 1970s antitrust case involved the manipulation of standards.¹⁰ Examples include alleged attempts to control the compatibility of peripheral de-

⁷ Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267 (1983).

⁸ *Id.* More generally, adoption of consensus standards can affect the amount of product innovation that occurs in an industry. In the context of a case, assessing the extent and significance of this concern—and weighing it against the procompetitive benefits of a consensus standard—would appear to be very difficult, except possibly in cases where there appeared to be no benefit to the standard in question (versus, say, the standard that it replaced).

⁹ Katz & Shapiro, *supra* note 4 (compatibility standards have the potential for serving as a coordinating device to reduce joint output).

¹⁰ *United States v. IBM*, 1975-1 Trade Cas. (CCH) ¶ 60,104 (S.D.N.Y. 1975) (amending complaint).

vices, such as tape and disk drives, with mainframe computers so as to disadvantage manufacturers of competing "plug-compatible" products.¹¹

B. ENFORCEMENT APPROACHES

The antitrust analysis of collective standard setting falls under the rule of reason. The enforcement agencies' general approach in analyzing collaborative activities under the rule of reason "is to inquire whether the restraint is likely to have anticompetitive effects and, if so, whether the [activity] is reasonably necessary to achieve procompetitive benefits that outweigh those anticompetitive effects."¹² Standards are scrutinized as to whether they are "reasonably necessary" to achieve legitimate (procompetitive) ends¹³ and, if so, whether the benefits of the standard outweigh the costs.

An important consideration with respect to the "reasonably necessary" criterion is the existence of less-restrictive alternatives. For example, in the recently issued DOJ/FTC Antitrust Guidelines for the Licensing of Intellectual Property the agencies indicate that "the existence of practical and significantly less restrictive alternatives is relevant to a determination of whether a restraint is reasonably necessary."¹⁴ This approach is more easily applied by the antitrust agencies to determining if less-restrictive alternatives exist to the particular licensing contract than to determining where less-restrictive alternatives exist to a particular standard. Licensing contracts can be evaluated on the basis of economic criteria with which the agencies have considerable expertise; evaluation of alternative standards will generally require technical judgments about which the agencies will be less expert.¹⁵

¹¹ Garth Saloner, *Economic Issues in Computer Interface Standardization*, 1 ECON. INNOVATION & NEW TECHNOLOGY 135 (1990). Katz & Shapiro, *supra* note 4, note that video game manufacturers such as Coleco have developed adapters to run games of competitors on their own hardware and that litigation has ensued.

¹² U.S. Department of Justice and Federal Trade Commission Antitrust Guidelines for the Licensing of Intellectual Property § 3.4 (1995), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,152 [hereinafter Intellectual Property Guidelines]; 7 PHILLIP E. AREEDA, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION 1477 (1986) (overall, "collaboration is lawful when deemed 'reasonable' because its threats to competition are either minor or are outweighed by legitimate considerations."); *see also* Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492 (1988).

¹³ *United States v. Realty Multi-List*, 629 F.2d 1351, 1375 (1978) ("the requirements of the rules themselves must be reasonably necessary to the accomplishment of the legitimate goals and narrowly tailored to that end.").

¹⁴ Intellectual Property Guidelines, *supra* note 12, at § 4.2.

¹⁵ A less-restrictive alternative analysis is further complicated in standard setting because standards typically emerge from a group decision-making process. Choosing a standard has a bargaining component and, consequently, reaching a consensus will sometimes interfere with the goal of making an efficient standard (or "antitrust preferable") choice. For example, consider a firm that faces the loss of an installed-base advantage. When the firm

Technical judgments are also critical to assessing whether the benefits of the standard outweigh the costs, but most courts and agency officials lack a technical background. To what extent, then, should antitrust enforcement and judicial institutions second guess technical decisions? There are at least three general approaches an enforcement agency could take to evaluate the reasonableness of a standard. These approaches differ in the extent to which the institutions focus on the technical merits of the standard itself.

It is possible, of course, for the agencies and courts to take on the task of examining and evaluating the relative technical merits of the standard in question. Under such an approach unmeritorious standards would fall, but given the relative lack of technical expertise of the agencies and courts, the approach seems likely to demand substantial litigation resources and may result in an increase in the proportion of bad decisions.¹⁶

A less technically demanding approach, but one with some capability to reject anticompetitive standards, is for the agencies and courts to determine if there existed a reasonable basis for the existing standard. A reasonable basis approach involves an examination of whether the decision can be reasonably supported on the merits (e.g., based on information at the time that would be credible to experts, and which does not ignore contrary evidence proffered by opponents of the standard). Other considerations would include the procedures and quality of the decision-making process¹⁷ and apparent motivations of participants

cannot be compensated directly for the loss, the standard may be inefficiently compromised in order to achieve compatibility with the installed base as a way of getting the firm to accept. The effects on innovation and participation incentives for firms under compulsory licensing are important factors that must also be considered. See the analysis and discussion in Joseph Farrell & Carl Shapiro, *Standard Setting in High-Definition Television*, BROOKINGS PAPERS ECON. ACTIVITY: MICROECON. 1 (1992); Joseph Farrell, *Choosing the Rules for Formal Standardization* (1994) (unpublished manuscript, on file at University of California, Berkeley).

¹⁶ In this regard it is worth noting that when charged with the task of developing a standard, government bodies will often delegate much of the technical assessment to committees of industry representatives. The FCC had been using this approach for a high-definition TV standard. See Farrell & Shapiro, *supra* note 15.

¹⁷ See FTC STAFF REPORT, *supra* note 6, for a discussion of elements important in determining reasonableness of procedures (e.g., record of proceedings, interests of decision makers, following procedures, opportunity for challenge of evidence). The "quality" of the decision-making process is also considered by the FTC (e.g., whether particular concerns were even considered, whether analysis was systematic or based on speculation). See Michael C. McCarey, Associate Director, FTC Bureau of Consumer Protection, *Industry Standards and Certification: Three Current Issues*, Remarks Before the 26th Annual Symposium of the Trade Ass'n and Antitrust Law Comm. of the D.C. Bar, Washington, D.C. (Feb. 1990).

(based on documents and market position).¹⁸ Using the reasonable-basis approach, a standard would be supportable even if conclusions leading to a different standard might be drawn, as long as the evidence reasonably supports the actual standard.

Finally, one could limit one's concerns exclusively to determining if procedural defects in the standard-generating process exist.¹⁹ While informed judgments about such procedures will still be necessary, technical judgments will be avoided. Of course, such an approach would require, ultimately, some indication of competitive effect.²⁰

In the past few years the FTC has conducted several antitrust investigations of standard setting, though none has resulted in an enforcement action. These investigations appear to have followed the reasonable-basis approach. It is difficult, however, to know the extent to which the Commission would employ such an approach in a formal decision involving private standard-setting organizations.

The last FTC consent order involving standards is *American Society of Sanitary Engineering*, entered in 1985.²¹ This complaint centered around ASSE's lack of a reasonable basis for rejecting an innovative device based on preexisting policies, rather than a problem with ASSE's procedures. In the complaint the FTC alleged that ASSE "refused" the innovating firm's request to extend ASSE's standards coverage to include the innovative product and never evaluated the evidence the firm submitted concerning that product. Instead, ASSE based its decision solely on its policy of refusing to extend standards coverage to products that are patented or produced by a single manufacturer and on an unsupported assertion

¹⁸ It is common for the Commission to require more evidence the larger the apparent cost associated with particular exclusions. See, e.g., *Pfizer, Inc.*, 81 F.T.C. 23, 64 (1972). See also Terry Calvani, FTC Commissioner, Remarks Before the American Nat'l Standards Inst. Public Conference 11 (Mar. 25, 1987).

¹⁹ FTC STAFF REPORT, *supra* note 6, at 151, was quite critical of the procedures it found in a survey of 64 standard-setting organizations (e.g., "Staff has identified a widespread lack of procedures for handling substantive complaints effectively.").

²⁰ See *Northwest Wholesale Stationers v. Pacific Stationery & Printing Co.*, 472 U.S. 284, 293 (1985):

the absence of procedural safeguards can in no sense determine antitrust analysis. If the challenged concerted activity of Northwest's members would amount to a per se violation of Section 1 of the Sherman Act, no amount of procedural protection would save it. If the challenged action would not amount to a violation of Section 1, no lack of procedural protection would convert it into a per se violation because the antitrust laws do not themselves impose on joint ventures a requirement of process.

²¹ *American Soc'y of Sanitary Eng'g*, 106 F.T.C. 324 (1985).

that the design specified in the preexisting standard was the only "acceptable design."²²

In one of the more recent investigations, the FTC staff was concerned that material evidence suggesting the need to revise the standard may not have been dealt with in a reasonable way and that bias may have existed in the decision-making process. That investigation was closed because it became moot when the standard-setting body revised its standard. Another investigation was closed because a reasonable basis for exclusion of a class of products did exist and, while one party with a vested interest facilitated attendance (for voting), those attendees were knowledgeable and appeared to have been predisposed to vote for exclusion.²³ The FTC has also shown some interest in investigating possible anticompetitive uses of proprietary technology in a standard-setting situation, for example, where a company may have withheld from the standard-setting body (in which it was a member) knowledge of an existing and material patent and then asserted intellectual property rights under the patent only after the standard was adopted.²⁴

In determining whether to exercise its prosecutorial discretion to bring a case, the Commission will weigh many factors, including the extent of economic harm as well as the possibility for and effects of remedies.²⁵ Such an approach is consistent with the Commission's general approach to horizontal restraints.²⁶ This general approach has been used, for exam-

²² *Id.* at 328.

²³ That is, while the attendees in question might not have attended without assistance from an interested party, their positions did not appear to have been influenced by that party.

²⁴ See Calvani, *supra* note 18 (describing some standards cases that were closed in the mid-1980s).

²⁵ See, e.g., Deborah K. Owen, FTC Commissioner, Remarks Before the National Ass'n of Attorneys General State Antitrust Seminar (Nov. 13, 1990) ("Agreements to create standards have been traditionally evaluated under a rule of reason, weighing the procompetitive and anticompetitive aspects of the conduct, rather than automatically blessing or rejecting it"); Calvani, *supra* note 18 ("absence of good procedures is not reason to condemn a procompetitive standard . . . antitrust review should focus principally on whether that standards organization had substantial justification for its decisions.").

²⁶ Massachusetts Bd. of Registration in Optometry, 110 F.T.C. 549, 604 (1988):

First, we ask whether the restraint is "inherently suspect." In other words, is the practice the kind that appears likely, absent an efficiency justification, to "restrict competition and decrease output?" . . . If the restraint is not inherently suspect, then the traditional rule of reason . . . must be employed. But if it is inherently suspect, we must pose a second question: Is there a plausible efficiency justification for the practice? . . . If it is not plausible, then the restraint can be quickly condemned. But if the efficiency justification is plausible, further inquiry—a third inquiry—is needed to determine whether the justification is really valid. If it is, it must be assessed under the full balancing test of the rule of reason. But if the

ple, to analyze the closely related question of association membership restrictions.²⁷

C. DECISION-MAKING PROCEDURES AND ANTITRUST LIABILITY

Northwest Wholesale Stationers teaches that antitrust law violations cannot stem solely from poor or biased decision-making procedures.²⁸ Defective decision-making procedures, however, have generally played an important role in standards cases where antitrust liability was found.²⁹ Defective procedures, when found, have been treated as evidence relevant to anti-competitive intent,³⁰ and the vast majority of the defects found in these cases were obvious. For example, in *Allied Tube* the meeting to vote on standards was "packed" with the addition of a group of members who lacked familiarity with the relevant arguments and were recruited and organized specially for the purpose of voting. While this action was not found to be a direct violation of the rules of the organization, it clearly offended the spirit of such rules. Other actions that have contributed to findings of antitrust liability include stacking the representation on key committees, unilateral (and material) interpretations of the existing

justification is . . . not valid, then the practice is unreasonable and unlawful under the rule of reason without further inquiry

²⁷ Mary Lou Steptoe, Acting Director of the FTC Bureau of Competition, Remarks Before the 30th Annual Symposium on Associations and Antitrust, D.C. Bar Ass'n (Feb. 16, 1994) ("If the denial of access to an association does not restrict rivalry in the marketplace, it is unlikely to be considered inherently suspect.").

²⁸ *Northwest Wholesale Stationers v. Pacific Stationery & Printing Co.*, 472 U.S. 284 (1985). In *Northwest Wholesale Stationers* the question before the Court was whether exclusion of a competitor from a joint purchasing cooperative was anticompetitive. A determination that the exclusion was anticompetitive turned, in part, on whether "the cooperative possesses market power or exclusive access to an element essential to effective competition." *Id.* at 296.

²⁹ Gerla, *supra* note 3, at 531:

The pervasiveness of a lack of reasonable decision-making process, or its subversion in these cases is stunning. This pattern indicates that courts are in fact placing a burden on plaintiffs to demonstrate that reasonable procedures were not used or corrupted in order to prevail in a denial of certification case.

³⁰ *Consolidated Metal Prods. v. American Petroleum Inst.*, 846 F.2d 284 (5th Cir. 1988) (emphasizes significance of procedures and economic interests of decision makers); *Brant v. United States Polo Ass'n*, 631 F. Supp. 71 (S.D. Fla. 1986) (lack of procedural due process is relevant to determination of anticompetitive motive); *Carleton v. Vermont Dairy Herd Improvement Ass'n*, 782 F. Supp. 926 (D. Vt. 1991) (due process issues are relevant to the rule of reason analysis); *Pretz v. Holstein Friesian Ass'n*, 698 F. Supp. 1531 (D. Kan. 1988) (procedure relevant to determination of motive and reasonableness of restraint); *Weight-Rite Golf Corp. v. United States Golf Ass'n*, 766 F. Supp. 1104, 1109 (M.D. Fla. 1991).

standard,³¹ and manipulation of relevant evidence.³² Both the formal and informal decision-making processes can be implicated.

Would consumer welfare be served sufficiently by limiting antitrust attacks to situations involving improper uses of the decision-making process or actual defects in the process? Proponents of such an approach would argue that decision-making procedures with the "right" features (e.g., diversity of membership, impartiality, etc.) will prevent exclusionary (or unfair) standards from being set; that courts are best suited for dealing with process issues rather than those of technical substance; and, therefore, that antitrust agencies and the courts should focus their attention almost exclusively on procedures. Such a focus, together with indications about the "right" procedures, would provide the business community with clear guidance. The problem is that this focus yields an antitrust standard that is too lax.

To examine the arguments favoring an exclusive focus on decision-making procedures, we consider whether procedural irregularities are necessary for anticompetitive effects to be generated. We begin by asking whether "good" decision-making processes can be manipulated through "fair" means. If the theoretical and practical answer to this question is yes, then procedural irregularities are not necessary for anticompetitive outcomes, and limiting enforcement attention to procedures would exclude a potentially important class of anticompetitive outcomes.

The public-choice literature shows clearly that "good" decision making can be manipulated through "fair" means. All voting procedures have defects in terms of aggregating individual preferences into a group decision.³³ That is, considerations such as the order in which choices are made will sometimes affect the final outcome. In particular, simple majority voting, supramajority voting rules, and weighted or ranked voting schemes all suffer from this defect. It is easy to construct simple theoretical illustrations of this point.³⁴

Defects in voting procedures are not merely theoretical issues. Experiments run by researchers support the theory; political scientists point to the strategic control of committee agendas in legislatures and how such

³¹ *American Soc'y of Mechanical Eng'rs v. Hydrolevel Corp.*, 456 U.S. 556 (1982).

³² *Sessions Tank Liners, Inc. v. Joor Mfg.*, 786 F. Supp. 1518 (C.D. Cal. 1991), *rev'd*, 17 F.3d 295 (9th Cir.), *cert. denied*, 115 S. Ct. 66 (1994).

³³ This fundamental result is developed in KENNETH J. ARROW, *SOCIAL CHOICE AND INDIVIDUAL VALUES* (1951); *see, e.g., id.* at 59.

³⁴ *See* AVINISH DIXIT & BARRY NALEBUFF, *THINKING STRATEGICALLY* 259-85 (1991).

control induced particular outcomes (e.g., killer amendments).³⁵ Even accounts of the successful use of such agenda control techniques in local club decision-making settings exist in the literature.³⁶

None of this should really come as a surprise. The lore of committee decision making is replete with observations and maxims concerning how to manipulate ostensibly impartial decision-making procedures to one's advantage. What the political economists have done is to cull out the essential features and structures underlying these notions and analyze how tactical (e.g., agenda control) and strategic (e.g., various procedural rules in institutions) choices affect collective decision making.

In summary, these lines of research indicate that (a) subgroups can take advantage of apparently impartial procedures to obtain their preferred results, (b) the group optimal outcomes may not emerge, even without strategic attempts to manipulate outcomes, and (c) the status quo is an important determinant of outcomes. We should also emphasize that consensus-type rules are also open to manipulation. Nor does diversity of membership necessarily solve these problems. None of this is very comforting, and all of it suggests the need to go beyond a mere exploration of the decision-making procedures when examining potential antitrust violations by standard-setting groups.

Current case law therefore appears justified in not allowing "good" procedures to immunize a joint standard-setting exercise, though clearly bad procedures would be evidence against innocence.³⁷ Similarly, an enforcement policy that looks to a reasonable basis for the standard, the standard's competitive impact, and uses egregious procedures as an important plus factor—a rough characterization of FTC past policy—also is consistent with these research findings.³⁸

There are other ways in which the research on decision-making processes can be used in a legal determination of antitrust liability. Although the public-choice literature suggests that a primary path around the use

³⁵ PETER C. ORDESHOOK, *GAME THEORY AND POLITICAL THEORY: AN INTRODUCTION* (1986).

³⁶ Charles Plott & Michael Levine, *A Model of Agenda Influence on Committee Decisions*, 68 AM. ECON. REV. 146 (1978).

³⁷ In *Sessions Tank Liners, Inc. v. Joor Mfg.*, 786 F. Supp. 1518 (C.D. Cal. 1991), *rev'd*, 17 F.3d 295 (9th Cir.), *cert. denied*, 115 S. Ct. 66 (1994), the district court held that subversion of process "of necessity" also proved lack of procompetitive justification. (The district court decision was reversed on *Noerr-Pennington* considerations.)

³⁸ These findings also raise the unpleasant possibility that even unmanipulated group decision making can result in outcomes that are less than optimal, thus reducing the benefits to be derived from standards. This could matter in the overall weighing of costs and benefits under the rule of reason.

of impartial procedures is through agenda control, one should be very cautious not to overinterpret evidence relating to who sets the agenda and what outcomes emerged from the process. Agenda control is an uncertain process. More importantly, there will always be an agenda setter and, on average, any majority or supramajority process will more likely produce an outcome roughly corresponding to the agenda setter's preference than not. A fact situation, on the other hand, in which the agenda setter's preferences clearly run counter to the outcomes would, in our estimation, provide some weak exculpatory evidence.

III. HIGH-TECHNOLOGY INDUSTRIES: DIFFERENT TREATMENT FROM OTHER INDUSTRIES?

Casual observers view high-technology industries as possessing features such as constant and often dramatic innovation. For antitrust purposes, however, it is important to note various defining characteristics of the industry in question—whether it be “high technology” or not—and use those particular characteristics for analysis.

A. SOME CHARACTERISTICS OF HIGH-TECHNOLOGY INDUSTRIES RELEVANT TO STANDARD SETTING AND ANTITRUST

In this section we note a number of characteristics that are common to most industries that would be categorized as “high-technology” industries and discuss the antitrust ramifications of such characteristics for standard setting. These characteristics are (1) constant and often dramatic innovation; (2) large potential benefits from standardization; (3) prevalence of interface standards; (4) voluntary adoption of the standard; and (5) frequent existence of relevant proprietary knowledge. Most high-technology industries have these characteristics, as do (at least in part) many industries that would not be generally characterized as “high tech.”

The first three characteristics act to mitigate potential competitive concerns. The voluntary adoption aspect appears to us to be less important in the interface standard setting than with other types of standards, and the existence of proprietary knowledge would tend to increase competitive concerns.

1. *Constant and Often Dramatic Innovation*

In an industry exhibiting constant product and process innovation, not only will the market positions of incumbents change rapidly, but also new entrants will appear and sometimes totally displace incumbents. Standards may quickly become obsolete, or, alternatively, the technological capital that might provide some members of the industry with a

competitive advantage will turn out to afford only a short-term advantage. Attempts to employ the standard for a longer-term advantage will suffer from the general uncertainty and unpredictability of the future.³⁹

Because of technological change, appropriate antitrust market definitions may change over time as well. For example, various kinds of software packages are increasing their functionality to the point where they may compete with previously separate products (e.g., file recovery functions previously only available in add-on programs are included in later versions of the DOS operating system; similarly, file conversion utilities are now integrated in word processing programs). Similarly, improvements in processing power may make it possible that previously "slow" general-purpose computer programs will have speeded up sufficiently to compete with the "faster" specialized programs.

2. *Large Potential Benefits from Standardization*

It has been argued that the enormous potential benefits from standardization will dwarf the potential anticompetitive effects as well as act as a force mitigating those effects. If, for example, the benefits of achieving standardization are huge, those benefits reduce the incentive for competitors to jockey for a slightly more preferable standard and put at risk a quick adoption of the standard.

Not all standard-setting situations will have these characteristics. First, we note that there are many instances in which major disagreements about the appropriate standard have led to long delays. While one can attribute some of the problem to purely technical disagreements, there is strong reason to believe that that is not always the case.⁴⁰ Thus, we surmise that the incentives associated with coming to agreement on a standard will not always overwhelm the incentives to gain a competitive advantage, say, through attempts to raise rivals' costs or to develop an installed base.

The analysis of Farrell and Saloner is helpful for understanding delays as well as failures in reaching agreements through formal standardization

³⁹ See Joseph Kattan, *Antitrust Analysis of Technology Joint Ventures: Allocative Efficiency and the Rewards of Innovation*, 61 ANTITRUST L.J. 937, 965 (1993) ("markets characterized by rapidly changing technology are certainly less susceptible to anticompetitive harm").

⁴⁰ Farrell, *supra* note 15, provides a discussion of vested interest and delay. See *Control Data Corp. v. Baldrige*, 665 F.2d 283 (D.C. Cir. 1981), where it is noted that a joint industry-government committee in the late 1960s failed to establish input/output standards to connect peripheral equipment to mainframe computers; see also Stanley Besen & Leland Johnson, *Compatibility Standards, Competition, and Innovation in the Broadcasting Industry* (Monograph: The Rand Corp. Nov. 1986) (discussing conflict in the choice of AM stereo standards).

processes (committees).⁴¹ When the value of coordination on a standard is large relative to the value a firm attaches to adopting its preferred standard, they find that committees are very likely to reach ultimate agreement on a standard. Significantly, however, they also show that the process tends to be slow, with very little chance of agreement in the early stages.

Second, there are many standard-setting situations where the benefits of a new standard are not obviously so large. Often, for example, there already exists a workable standard, and the proposed new standard is either only a modification of the old standard or an incremental improvement. There the antitrust benchmark is not a standard versus no standard, but rather one standard versus some other standard.⁴²

Another important question is whether the standard itself is "seamless." If parts of the standard can be examined in a standalone way and can be changed or eliminated without affecting the basic essence of the overall standard, then scrutiny of at least those portions of the standard seems justified as long as the adoption of the overall standard is not substantially delayed.

3. *Prevalence of Interface Standards*

Quality and safety standards are often set up to allow for a dichotomous outcome, e.g., certified or not certified. These dichotomous outcomes make exclusion of a product quite possible and, therefore, make antitrust liability easier to find.⁴³ Interface standards differ in that they are not so dichotomous. Here it would appear that the interface standard may raise some firms' costs of achieving compatibility with the interface standard, but is less likely to be exclusionary. For example, computer hardware standards may require some firms to use costly adapters.

The extent to which the interface standard is designed to be backward compatible—to maintain compatibility with the existing user base—will affect the nature and distributional impact of the standard on consumers and producers. Firms that have a substantial existing user base have an easier time carrying that advantage into the future when the new standard is backward compatible. Buyers will not be discouraged from buying

⁴¹ Joseph Farrell & Garth Saloner, *Coordination Through Committees and Markets*, 19 RAND J. ECON. 235 (1988).

⁴² It might also be possible that some portion of a standard may provide limited (or no) additional functionality but may serve to raise the costs of entrants or a subgroup of the current competitors.

⁴³ Although the certification decision is usually dichotomous, the economic impact of being uncertified—and, more importantly, the impact on competition—will depend on a wide variety of market factors and, therefore, may not be dichotomous.

an existing product (based on the old standard) if they know that product will work under the new standard. Thus, there can be substantial differential impacts on firms depending on whether the new standard is backward compatible. Further, a firm with an installed base has the option of predatory pricing when faced with entry by a new technology, thereby slowing, or even preventing, the adoption of the newer standard.⁴⁴

It is also possible that a new standard may be promulgated by a firm that currently enjoys a strong existing base. Examples of this include new generations of computer hardware and software. A potential anti-competitive concern is that the dominant firm can engineer a standard to maintain compatibility with its own past generations while rendering other firms' products incompatible.⁴⁵

4. *Adoption or Support of the Standard Is Voluntary*

In many cases involving the codes of professional organizations an important issue has been whether compliance was enforced or unenforced. If unenforced, restrictions on advertising, for example, become less critical because anyone who wants to advertise can do so, thereby undermining any anticompetitive effect. The economics of interface standards, however, makes voluntariness less persuasive as a defense since those who disagree with the standard may still be forced by the market into adopting it.

5. *Frequent Existence of Relevant Proprietary Knowledge*

Proprietary knowledge, such as a patent, may or may not convey an economic rent or lead to market power.⁴⁶ In the case of a standard that effectively requires the use of a proprietary technology, the standard, if adopted, can imbue the technology with market power that it previously lacked. Thus, there is the potential for monopolization, or more minimally a raising of rivals' costs, through the conjunction of an adopted standard and a proprietary technology.

Standard-setting organizations are quite concerned with this and usually take care either to fix this problem before adopting the standard or to avoid a standard involving a proprietary right entirely. For example, the rules of the American National Standards Institute (ANSI) require that a patented technology be licensed openly and at reasonable royalty rates when the technology is part of a standard.⁴⁷

⁴⁴ Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Pre Announcements, and Predation*, 76 AM. ECON. REV. 940 (1986).

⁴⁵ Saloner, *supra* note 11, provides a discussion and analysis of this issue.

⁴⁶ Intellectual Property Guidelines, *supra* note 14, § 2.2.

⁴⁷ See Nimmer, *supra* note 4, at 449.

In addition, some courts have held that a participant in a standard-setting exercise that does not indicate the existence of a potential blocking proprietary technology may be estopped from obtaining unreasonable rents on the use of the technology by others.⁴⁸ To the extent that such court holdings protect members of a standard-setting organization against this type of deception, actions by an enforcement agency may be unnecessary.

The issue of proprietary technology raises additional concerns.⁴⁹ First, the existence of a proprietary technology offers a route—albeit a rather public (within the standard-setting body) one—for distributing benefits unequally, and perhaps unjustifiably, to given parties. Second, those with the technology may have additional technical advantages with respect to the technology that gives that firm a lead on its competitors. Finally, what would happen if a firm was close to patenting something that would put a cloud on the free use of the standard?

Running through the above analysis is direct or indirect concern with market power. Market power is of direct concern when the standard at issue involves existing firms with a strong market position. For many current and potential markets based on new technologies, however, current market power may not be at issue. Rather, it is the potential for creating market power under a proposed new standard, perhaps for an individual firm or for a set of firms, that may merit closer scrutiny.

The existence of proprietary knowledge, then, increases the probability that there is an anticompetitive component that could emerge from the standard-setting process. Such circumstances should lead to more vigilance on the part of standard setters as well as antitrust agencies.

B. HIGH-TECHNOLOGY STANDARD SETTING AND THE REASONABLE-BASIS APPROACH

Under our preferred approach to the antitrust analysis of technical standard-setting activities it is necessary to identify a potentially anticompetitive standard (or element of a standard) and then see if that standard (or element) is reasonably necessary to achieve a legitimate end and has a reasonable basis. Such a screen is coarser than that employed in the typical antitrust analysis, but perhaps appropriately so, given the generally clear procompetitive benefits of standards and the difficulty outsiders

⁴⁸ *Potter Instrument Co. v. Storage Technology Corp.*, 207 U.S.P.Q. 763 (1980); *Wang Labs., Inc. v. Mitsubishi*, No. CV 92-4698 JGD (C.D. Cal. July 1, 1993).

⁴⁹ In recent years the FTC has shown some interest in cases along these lines.

have in assessing those standards. In addition, our previous discussion suggests that it will be more difficult to identify an anticompetitive interface standard than an anticompetitive safety or quality standard. Anticompetitive effects of interface standards are likely to be a matter of degree (raising costs differentially) rather than of exclusion. This makes the effects harder to identify and liability harder for courts to find. Similarly, we noted a number of reasons suggesting that one should be even less concerned about standard setting in high-technology versus lower-technology industries. These differences do not, however, undermine the value of applying the reasonable-basis approach to interface standard setting in high-technology industries.

C. REMEDIES

The types of remedies that can be employed will also affect the likelihood of enforcement action by the agencies. Remedies available in interface standard settings often differ from those available in safety/quality standard settings. Because standard setting is often done outside the market through committee rather than through the natural forces of market competition, remedies for both types of standards may involve "regulatory" interventions as opposed to more conventional "antitrust" or structural interventions. Where proprietary knowledge is involved, reasonably noninvasive remedies exist, for example, licensing at a reasonable fee or making the proprietary property available for no charge. Where a standard favored one party or group of parties in a way that does not involve proprietary knowledge or technology, modifying the existing standard would be difficult for a court or agency with no particular expertise in the area. In any event, by the time the case is concluded, the standard may already have been established, so the cost of adjusting the standard would be prohibitive. Here a court's best options for remedies may be with respect to the process by which future standards are set, assuming that the standard-setting process is ongoing. If so, some procedural fixes for the future could be instituted.

The difficult remedy issues posed by an anticompetitive interface standard (as opposed to remedy issues posed by anticompetitive quality and safety standards where a remedy might be as simple as including a previously excluded product class) may discourage antitrust agencies from bringing what might otherwise appear to be a meritorious suit. One would, therefore, expect to see relatively more enforcement action in cases with readily identifiable remedies, e.g., cases involving abuses of a firm's proprietary knowledge or cases involving ongoing standard-setting bodies that appeared to have violated the antitrust laws.

D. CONVENTIONAL SPILLOVER CONCERNS INVOLVING INFORMATION EXCHANGES

Standard setting in general involves many of the same potential anti-competitive effects plaguing other information exchange settings. Because standard setting is forward looking, it may involve a competitively sensitive information exchange about future technologies and products. On the other hand, it may not require the exchange of much marketing information, and in most cases will probably not involve personnel with much knowledge or authority in the marketing area.

Unlike many other processes involving information exchange, determination of the best standard for the industry may well depend on technical information that might also be close to the technical core for the firms involved. This can affect standard setting in a number of ways. Competitive concerns may make negotiations more difficult because of the understandable reluctance of firms to release core technical information. Antitrust concerns associated with information exchanges may also interfere with transmission of information that could improve the joint decision to create a standard. While such exchanges would be evaluated under the rule of reason and will generally be critical to achieving a procompetitive efficiency, antitrust counsel is likely to circumscribe the information exchanges more than is absolutely necessary, particularly because what is necessary for antitrust purposes is not always well defined.

With regard to overall social benefits from a standard, focusing on technical information may be too narrow a perspective. When a standard is related to a new product or service, as opposed to an incremental improvement over existing ones, the exclusion of factors such as marketing information may bias the standard choice in an undesirable way. For example, suppose the exchange of technical information leads to consensus on a standard with attractive production cost characteristics, and that this comes at the expense of a compromise on quality dimensions. If buyers place a high value on quality, then the standard will be poorly aligned with buyer preferences when marketing information is ignored.

IV. SUMMARY AND A CAVEAT

Because of the clear procompetitive benefits from standards and the remedial and other problems discussed herein, antitrust liability is most likely to be found in cases involving exclusionary standards, especially where the exclusion is not reasonably related to the purpose of the standard. Another important factor for finding liability will be whether

the procedures through which the alleged exclusionary standard was chosen are egregious.⁵⁰

The foregoing discussion might suggest to many that the number of legitimate uses of standard setting will greatly outnumber illegitimate uses and, therefore, that it might be sensible for the enforcement agencies to be extremely lenient or even ignore these types of collective actions. But government policies and the private responses to policy interact. One might expect, for example, that an extremely lenient policy would induce the formation of groups whose intent is to use standard setting as a cloak for anticompetitive activities. Moreover, even when a group might have formed initially for legitimate standard-setting purposes, such a group might later find an anticompetitive basis for agreement, for example, because agreement based only on the technical benefits of creating a standard was insufficient motivation for a successful negotiation. This "adverse selection" problem suggests to us that the agencies (and the courts) should not give blanket approvals to standard-setting organizations and must remain vigilant in this area.

⁵⁰ Jack E. Brown, *Technology Joint Ventures to Set Standards or Define Interfaces*, 61 ANTITRUST L.J. 921, 931-33 (1993), notes that "antitrust concerns have been minimal in the standard-setting area, particularly in the case of new or emerging technologies . . ." Because "consortia formed to date generally have involved only some competitors attempting to counteract the influence of other competitors," courts "have been loath to condemn research and development joint ventures . . . least of all those involving legitimate standard-setting industry activities," and there is a recognition that "a legitimate goal of research and development consortia is the enhancement of the ability of innovators to appropriate and protect the benefits of their innovations. . . ."