

**EXCLUSIONARY INNOVATION: HOW TO AVOID INNOVATION TO BE STIFLED
REMEDIES IDENTIFIED FOR THE SOFTWARE SECTOR**

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Executive Summary

1. In some circumstances innovative behavior may have an exclusionary effect. In particular, in the software market, innovative behaviors can create exclusionary practices due to the market features and the exploitation of IPRs. Explanation of, what is meant by “exclusionary practices centered on innovation”, and how market features and IPRs do matter in this respect, will be addressed in this paper.

2. In the Microsoft III and IV cases one can find an example of exclusionary practices centered on innovation since Microsoft’s behaviors have been deemed generating both anti- and pro-competitive effects with the latter overcoming the former. The twofold nature of Microsoft’s behaviors is easily identified in the technological tying of, respectively, Internet Explorer and Windows Media Player to its operating system.

3. In Microsoft III and IV decisions, exclusionary practices centered on innovation can call for an antitrust law intervention in order to limit the anti-competitive effects that they generate. However, such an intervention presents two problems. Firstly the question arises as to *when* antitrust law can intervene to address behaviors that, being centered on innovation, are deemed lawful by de fault. Secondly, would a line between beneficial and exclusionary innovation been drawn, *how* should antitrust remedy be designed in order not to stifle the pro-competitive effects that those innovative behaviors, although exclusionary, still generate, on the one hand; and not to eliminate the incentives to further innovate, on the other. This is the reason why remedies centered on IPR regulation are highly debated insofar they are deemed to limit or eliminate incentives to innovate.

4. As to the first question, a standard is likely to be elicited by Microsoft III and IV decisions. The conclusion thereby emerging seems to be that as long as IPRs work as incentives to innovate, a system of rivalry is to be maintained; however, when exploitation of IPRs by rightholders becomes a means to limit competition in the market (in that it enables to prevent both competitors and rightholders’ further innovation), then IPRs lose the function of innovation incentives, and remedies are to be undertaken in order to maintain competition effective in the market. Such a system is likely to reduce the competition v IPRs clash that, in the high-tech markets, is stronger than ever.

5. As to the issue of which remedies to adopt, it does not appear to be thoroughly addressed yet – at least in widely criticized Microsoft IV decision. Indeed, once the innovator is entrenched in the technological frontier, the different categories of antitrust remedies ought to be carefully taken into consideration in order to compare their advantages and drawbacks.

6. Whenever the innovation process is running at risk to be slowed down or blocked, antitrust intervention should focus on keeping the market open and maintaining the incentives to innovate. The architecture of remedies needs to be cautiously constructed and refined.

DISCUSSION PAPER **Preliminary draft**

1. Innovation has historically been deemed a competition driver and, therefore, rewarded through the granting of IPRs ⁽ⁱ⁾. However, in high-tech markets innovation may be twofold. On the one hand, it promotes competition and deserves reward, such as IPRs; on the other hand, whenever the actor is monopolist or enjoys a dominant position, innovation may generate anti-competitive effect to the extent of becoming an exclusionary practice.

The reason why this happens can be found in the high-tech market specific features ⁽ⁱⁱ⁾, such as lock-in, network, winner-takes-all, and the like, which, coupled with low marginal costs, can amplify innovation anticompetitive effects ⁽ⁱⁱⁱ⁾. In addition, in such markets the actors' positions is strengthened by IPRs either rewarding rightholders for their previous "innovative efforts" or protecting their freedom to further innovate. Although changing design or updating (upgrading) patented or copyrighted products are rightholders' choices – as well as bundling two different products – nevertheless, exploitation of IPRs may higher barriers to entry.

The innovation becoming a means of exclusion is not a topic new to the law and economics literature where a line between "beneficial" and "detrimental" innovation has been tentatively struck by those scholars theorizing a "predatory innovation" doctrine ^(iv). However, the aim is herein to not further develop that doctrine, rather, to use as starting point the postulate that innovative behaviors may generate both pro- and anti-competitive effects, and that in high-tech market the latter can be amplified by specific market features and IPR presence.

Hence, the term "predatory innovation" is herein used to indicate conducts falsely innovative but exclusively aimed to drive and keep competitors out of the market. Therefore it does not raise interpretative problems. Whereas those innovative conducts that, regardless of the actor's purpose, can at the same time generate detrimental and beneficial effects on competition – so as to be likely to fall into the exclusionary practices categories – are highly controversial and then need an in-depth analysis. Our analysis will specifically focus on the balancing between the anti and pro-competitive effects of innovative behaviors in high-tech markets without taking into account the purpose that the actor is aiming at while innovating ^(v).

2. The exclusionary potentiality (or the potential exclusiveness) of innovative behaviors in high-tech markets seem taken into account in two recent decisions regarding middleware integration practices adopted by Microsoft in the software market ^(vi). Both the well-known American and European Microsoft decisions deal with the software integration topic where addressing, respectively, Internet Explorer (IE) and Windows Media Player (WMP) tying to the Microsoft operating system (OS).

Before entering into the merits of these decisions it is worth pointing out that the software market is a classic example of high-tech market presenting specific features. In fact, in this sector one product or standard tends towards dominance ^(vii) and this generates high direct and indirect network effects. The utility that a user derives from the consumption of a good increases with the number of other users consuming that good. Thus, once one product or standard achieves wide acceptance, it becomes entrenched ^(viii). On the other hand, software programs are protected by

copyright and this protection has been progressively extended from source code to other elements^(ix), not least communication interfaces. Besides, patents are granted for software programs showing technical effects which further expand these products' protection^(x). Middleware (or more broadly software) integration can thus exemplify the issue in exam: innovative behaviors – adopted by IP right holders – generating both pro- and anti-competitive effects. Moreover, when adopted by a firm leading a forehead market (such as the operating system market), software integration may be capable of hampering competition in an aftermarket (such as the server or browser markets) and raise barriers to entry. However, since software market operators are rewarded for their innovation through the granting of IPRs that, in turn, are supposed to provide an incentive to further innovate, they can in any case allege that those behaviors fall within the boundaries of their exclusive rights.

Such a complex scenario makes hard to elicit the standard to apply in order to make a balance between pro- and anti-competitive effects and to clearly state when innovation turns into “exclusion”. The U.S. Supreme Court in Microsoft III and the European Commission in Microsoft IV decisions appear, however, to provide some hints.

2.1 In Microsoft III, amongst the several challenged behaviors such as withholding crucial technical information, predatory prices, contractual restrictions on OEMs in order to affect distribution channels, and so forth, the software integration at issue was IE integration in the Windows 98 OS^(xi). To end-users this did not directly constitute a burden since it did not really affect Windows 98's purchase price; rather, as it emerges in the decision, it may indirectly affected the variety of media payer available on the market. However, it did matter to Microsoft competitors. In particular, Netscape and Sun Microsystems found the integration to be an exclusionary practice since (i) it prevented their products – namely, Netscape web browser and Java class libraries – from competing with the Microsoft products in the OS and browser markets; (ii) it prevented them from entering the OS market; and (iii) it drove them out of the browser market.

While all the complaints were accepted by Jackson J. – who even required Microsoft to submit a proposed plan of divestiture in order to split the company into an OS business and an applicative software business^(xii) – the Court al Appeal upheld the sole monopolization offense since Microsoft was deemed to possess monopoly power in the relevant market and to adopt an anti-competitive behavior in order to maintain its position. The existing monopoly power was derived not only from Microsoft's market share, but also from the OS market structure. In this regard network effects were deemed to increase Microsoft's market power so as to make entry to the market impeded by barriers to entry. The specific market features mattered even in balancing the pro- and anti-competitive effects of the integration. Once the anticompetitive effects – i.e. the competition harm – were deemed present; a lack of pro-competitive justification for the integration, or, alternatively, the anticompetitive effects outweighing pro-competitive effects, was to be proved to establish an exclusionary practice. Although, in principle, the Court of Appeal was skeptical about an integration having anti-competitive effects – since integrations were still considered mainly pro-competitive – in this case, even the second instance court showed concern for the way the integration could affect the emergence of products alternative to Microsoft OS (i.e. middleware). Since IE was bundled into the OS code, it was deemed to prevent OEMs from pre-installing other browser programs, thereby reducing rivals' usage share and developers' interest in rivals' APIs as an alternative to the API set exposed by the Microsoft OS. In other words, both Courts' appear to be aware of the integration's refraining middleware potential competition to OSs thereby constituting an exclusive practice^(xiii).

As to the other claims, they were remanded to the lower court which never stated on them though since the parties signed a consent decree putting an end to the proceeding^(xiv), and

imposing many obligations on Microsoft, amongst whom it is worth recalling: (i) the disclosure of the new APIs in use between OS and browser, and (ii) the compulsory licenses of Microsoft's IPRs to enable licensees (i.e. OEMs) to promote non-Microsoft middleware. As to the former, although protected under copyright and trade secret laws, the new APIs' disclosure was deemed necessary so as to enable software developers to create new browser versions competitive with the new IE version. As to the latter, Microsoft's past behaviors had showed how IPRs could be a means to refrain OEMs from promoting non-Microsoft products. Therefore, compulsory licenses could be a viable solution to this.

2.2 The starting point for Microsoft IV is the above mentioned consent decree – as implemented in Kollar-Kotelly J.'s final judgment – and its alleged violation. Although the Microsoft III and IV decisions are often compared, and the Microsoft IV decision is deemed stricter than the Microsoft III one ^(xv), they do not appear to involve identical practices, rather, to address different aspects of a similar behavior.

In the European case Microsoft was challenged for abuse of dominant position under art. 82 of the EC Treaty ^(xvi) with regard to both the OS and work group server markets and the WMP integration in its OS. As to the latter, it is worth recalling that since 1999 WMP versions had often been integrated, however, since they did not present the current WMP functionalities – streaming over the Internet and local playback functionalities – these integrations have never been challenged. For this reason the Commission stressed the competitive advantage that the integration of the last WMP version was giving to Microsoft (especially if compared with former integrations).

Although, in both cases, the behavior in question was defined as software – or better middleware – integration, this behavior can be split (or at least it seems to have been split in Microsoft III decision) ^(xvii) into technological integration (or technological tying) and contractual tying (the latter appearing to be a means to strengthen the former in both American and European cases). Technological tying was the focus of the assessment carried out in Microsoft III, and, in this respect, the behavior was evaluated under the monopolization offense (the contractual tying not having been assessed but remanded). In Microsoft IV, instead, since the technological tying complied with the consent decree as to disclosure obligations (i.e. the new APIs in use between WOS and WMP were disclosed), the assessment dealt more broadly with other non-technological components of the tying practice – that is “contractual tying” (those same practices remanded to the lower court in Microsoft III and never assessed due to the settlement).

What struck in the Commission's reasoning is the consideration given to the potential competition ^(xviii) whose stifling may make consumer choices impossible due to the absence of alternative products. For this reason, art. 82 EC of the Treaty was deemed applicable even though Microsoft complied with the consent decree, and affected consumer choices only indirectly – by affecting access to the market and behaviors of stakeholders, such as OEMs, content providers, and software developers.

In this context, thus, in order to avoid barriers to entry the remedy adopted was the obligation to offer to OEMs two WOS versions: one with WMP unbundled and one with WMP bundled. The efficiency of this remedy has been criticized under many aspects.

3. Microsoft III and IV decisions are likely to show that exclusionary practices centered on innovation may call for an antitrust law intervention in order to limit the anti-competitive effects that they can generate in network markets. It emerges though that this intervention presents two problems.

Firstly the question arises as to *when* antitrust law can intervene to address behaviors that, being centered on innovation, are deemed lawful by *de fault*. In other words, assuming that innovative behaviors may constitute “exclusionary practices”, how could “good” or “bad” innovation be distinguished? The situation is made further complex by the fact that these behaviors took place in high-tech markets characterized by the above mentioned effects, on the one hand, and they are mostly implemented by IPR owners thereby constituting legitimate exercise of these exclusive rights, on the other hand ^(xix).

Even though the first question is answered, a second and even more problematic question is still to be faced. In fact, would a line between beneficial and exclusionary innovation have been drawn, *how* should antitrust remedy be designed in order not to stifle the pro-competitive effects that those innovative behaviors, although exclusionary, still generate? And, again, how not to eliminate the incentives to further innovate? For these reasons remedies centered on IPR limitation are highly debated as they are deemed to limit or eliminate incentives to innovate.

4. As to the first question, a criterion to distinguish between “good” and “exclusionary” innovation in network markets is likely to be elicited from Microsoft III and IV decisions where both the US Court of Appeal and the European Commission adopted a standard grounded on the balancing of pro-and anti-competitive effects in high-tech markets. Such a standard cannot be properly formulated, though, without framing it within the debated contrast between competition and intellectual property laws.

As to competition law, it has been showed that the greatest enhancement of social wealth is provided by innovation efficiency, followed by product efficiency and, lastly, allocative efficiency ^(xx). Although in an ideal world these efficiencies should be achieved simultaneously, priority is to be given to advance technological and product processes as engine of society development. This can happen only by preserving competitive processes over the long run. In fact, fostering and protecting innovation and product efficiencies enhance the aggregate social wealth in the current information society, whereas promoting and defending allocative efficiency increases social wealth only in the margin and “does not have the deeper, more widespread, and longer-lasting impact of focusing enforcement effort on practices and market structures that are detrimental to innovations and production efficiencies” ^(xxi). Therefore, exclusionary practices, though not apparently affecting consumers’ wealth, may still provide a disincentive for production and innovation advances through losses of competing sources of innovation, thereby threatening or displaying the competition process.

As to intellectual property law, its purpose is not that distant from competition law’s goal. Even here the purpose appears to be that of granting exclusive rights is maximization of social welfare through the access versus incentive tradeoff: “charging a price for a public good reduces access to it ... but increases the incentive to create in the first place, which is a possibly offsetting social benefit” ^(xxii). Intellectual property law confers exclusive rights as reward to innovation (they enable innovators to recoup their investment) and incentives to further innovate. However, these rights are also tailored, in breadth, scope, and term, to allow certain uses and a certain degree of access to the public in order to enable information and culture to be spread. Hence, as long as intellectual property law maintains a balance between public benefit, on the one hand, and scope, term and breadth of the rights conferred, on the other hand, it is consistent with competition law.

In the light of the goals pursued by both regimes, specifically in high-tech markets (i.e. fostering and protecting innovation process), intellectual property law and competition law complement each other. The former grants exclusive rights in order to increase innovation (and output) so as to enlarge the number of actors in the market; while the latter seeks to maintain or

encourage pluralism in the market in order to increase innovation and output. That is to say that the same goal can be sought through different ways, intellectual property being an *ex ante* tool and competition law being an *ex post* tool.

The mutual goal being the innovation process, whenever exclusionary practices limit it, they are to be closely monitored even when adopted by IPR holders. Exclusivity does not provide justification for maintaining dominance through preventing further innovation^(xxiii). Therefore, whenever a conduct adopted by a dominant firm is exclusionary to the extent of blocking or slowing down the innovation process, it violates competition law^(xxiv) (and the ultimate goal of intellectual property law as well).

This is even truer in high-tech markets in general, and in software market in specific, where the innovation process is easily blocked (or severely slowed down) by the innovator's entrenchment in what can be called the "technological frontier". Due to network effects, having reached the technological frontier enables the dominant firm, firstly, to block subsequent innovation (not only the subsequent innovation of competitors - unable to overtake that edge, but also subsequent innovation of the dominant firm himself - not having any incentive to overtake it). And secondly, having reached the technological frontier enables the dominant firm to prevent competitors from reaching it as well. Basically competitors can always be kept at bay. Although lower social welfare can not be immediately perceived and consumers are not harmed in the short run, however, this mechanism is likely to block or slow down the innovation process in the long run since the dominant firm does not fear any pressure to innovate from competitors.

High-tech markets, hence, present a threshold below which IPRs work as market based incentives to innovate but above which they do not work as incentives anymore because the innovator has reached the technological frontier and from there competitors are impeded to reach and overtake it. As long as IPRs implement an efficient system of rivalry they should not be questioned from a competition law point of view^(xxv). In fact, in this context IPRs perform their function of incentives to innovate through the granting of exclusive rights. However, once the innovator is entrenched in the technological frontier (or a standard has emerged), remedies are to be adopted to avoid block or delay of the innovation process. At this stage IPRs, which have performed their function until the entrenchment has been reached (or a standard has emerged), must not be used to maintain the innovator on the technological frontier, thereby preventing competitors from reaching that frontier and the innovator from further innovating as well. In other words, IPR exercise is to be restricted whenever competition on the merits must take place^(xxvi).

In this way incentives to innovate will *theoretically* not disappear because, on the one hand, competition on the merits will still be present and force the dominant firm to further innovate, and, on the other hand, mechanisms of compensation for the innovator will be adopted (such as licenses at reasonable fees).

To match theory with practice, though, remedies adopted to control the dominant firm's entrenchment on the technological frontier, are to be carefully designed to efficiently affect the relevant markets. The remedies imposed in Microsoft III and IV cases may provide an example of tools adopted to maintain the markets open (see *supra* §§ 2.1, 2.2)^(xxvii). They consisted of firstly disclosure obligations of copyrighted material (such as APIs), which are unlikely to eliminate incentives to innovate but enables competitors to bring their products at the same level of Microsoft's middleware or applicative programs and develop new versions as well as new products. Secondly courts required compulsory licenses of patented materials (such as information protocols), which may provide efficient means as long as the issue of pricing the access is properly tackled^(xxviii). In fact, while a low price may lower the licensor's incentives to innovate, a fair price may compensate the narrowing of the exclusive right. The remedy more debated is, as already

mentioned, the unbundling obligation as tailored by the European Commission, which in order to be effective is to be inserted in a more structured modularity system (see *infra* § 5).

5. Even when the above mentioned problem of balancing pro- and anti- competitive effects of innovative behaviors in high-tech markets is solved in the sense of limiting IPRs whenever it becomes necessary not to block or slow down the innovation pace, there still remains the critical issue of adopting remedies proportionate to the goal of maintaining markets open. It is then important to firstly assess which remedies are the most efficient amongst those offered by antitrust law, and secondly to tailor them to the high-tech market specific features.

Antitrust remedies may be classified under three categories: fines, structural and behavioral remedies.

As to fines, they aim is at preventing infringers from further adopting anti-competitive behaviors, on the one hand, and at deterring all market operators from implementing similar behaviors in turn, on the other. Fines, thus, are primarily a means of deterrence according to the Court of Justice's words: "in assessing the gravity of an infringement for the purpose of fixing the amount of the fine, the Commission must take into consideration not only the particular circumstances of the case but also the context in which the infringement occurs and must ensure that its action has the necessary deterrent effect, especially as regards those types of infringement which are particularly harmful to the attainment of the objectives of the community"^{xxxix}.

Many reasons stay against standing alone fines for pursuing the goal of maintaining high-tech markets open. In Microsoft IV decision the fine amount has been extensively criticized since it was not deemed high enough to discourage the infringer from similar behaviors (^{xxx}). Moreover, a further drawback of fines may be in the companies' attitude to recoup their losses on prices so as to have as final result a rise of consumer prices. This is even more true with regard to an operator entrenched in the technological frontier which appears even more less likely to step back because of a fine that can easily be recouped on final prices. It is then questionable that such a remedy could, at least when not coupled with others, achieve the goal of lowering barriers to entry and maintaining IPRs to perform their functions of incentives to innovate (^{xxxi}).

As to the structural sanctions, while they have only recently become available under competition law regulation n. 1/2003 in EU; in the U.S. they have more frequently been adopted. In Microsoft III case, the Jackson J.'s first instance proposal turned around the divestiture remedy; this and other parts of the decision were though reverted by the Court of Appeal.

Structural remedies, however, do not seem appropriate in high-tech markets where innovation is a matter of synergies, and neat boundaries between markets should not be drawn. On the contrary, such remedies would limit research and development activity to one single product or market, prevent stepping into confining sectors, and thereby jeopardize innovation (^{xxxii}). Operators may thus be prevented from fully exploiting the innovative potentialities deriving from implementation of products combining functions belonging to separate sectors. Part of the technical progress is a result of integrating functions performed by different products. Had this not been possible due to a structural division of the high-tech sector, products we have now, such as current computers, would not currently be manufactured and marketed. Doubts therefore remain that structural sanctions, if standing alone, are means that may promote innovation.

As to behavioral remedies, so far they remain the main (and probably most efficient) tool to open up those markets which in reason of their structure tend towards entrenchment (^{xxxiii}). It has already been noticed that the remedies adopted in Microsoft III and IV mainly fall under this category (apart from the pecuniary sanctions in Microsoft IV). In the light of the remedies thereby adopted the structural remedies in the software market may roughly be classified into: disclosure obligations, mandatory licensing, and unbundling.

The crucial point here is to determine how these remedies shall be tailored in order not to disincentive operators from further innovating. In fact, IPRs being limited, operators may be less likely to invest as they may not fully be able to later exploit their rights. In this context, while disclosure obligations limited to interoperability points such as APIs – and not extended to any part

of the source code – appear in any case to increase incentives to innovate in the long term ^(xxxiv), compulsory licenses and unbundling are matters of discussion.

As to the former (disclosure obligations), it does not seem to be a remedy new to either competition law or intellectual property law. Moreover, while in the European and many other national patent law systems compulsory licenses are whenever necessary authorized for incremental innovation ^(xxxv); in the US in during 40's and 50's compulsory licenses were wildly used and there is evidence that this practice not only did not lead to a decrease in high-tech sector investment but, rather, lead to an increase in such investment ^(xxxvi). On the other hand, application of the essential facilities doctrine can be found in both European and American competition law although the cases are not consistent ^(xxxvii). With specific regard to the software market, whenever the innovator is entrenched in the technological frontier, compulsory licenses do appear the only remedy to provide him new incentives to innovate. By sharing fundamental inputs, the monopolist is forced to keep walking the innovation path. However, even in this case, mechanisms of pricing access are to be introduced in order to take into account all the elements of the case at hand. Having this been done in the telecoms sector; no obstacles appear to subsist to repeat the experiments in the software.

As to unbundling remedies, these tools are less known to the market of innovation and need, therefore, more caution in being applied. Such caution does not derive from any fear of destabilizing the IPR system, rather it comes from the fact that when properly designed unbundling remedies may be highly powerful. Their design may in fact extensively vary as happened in Microsoft III and IV cases. The US consent decree chose to limit the visibility of the Windows Media Player by allowing computer sellers to hide visible means of access to WMP. In this way WMP remained present to rise up upon request by a savvy consumer or by a third-party. At the opposite, the European Commission required Microsoft to engage in mandatory versioning and in offering computer sellers versions of Windows with and without WMP. The Korean Fair Trade Commission has recently gone further by ordering Microsoft to sell a version of its Windows operating system including neither Windows Media Player nor Windows Messenger functionality, and requiring Microsoft to facilitate consumer downloads of third party media player and messenger products selected by the Commission, and prohibiting Microsoft from selling in Korea a version of its server software that includes Windows Media Services ^(xxxviii). Such a remedy can be efficient in a real modularized system whose elements can be acquired and combine independently from Microsoft and OEMs' decisions, and when prices of unbundled versions as well as single elements are clearly set.

6. Balancing pro- and anti- competitive effects of innovative behaviors in high-tech markets may be solved by limiting IPRs whenever it becomes necessary not to block or slow down the innovation pace. However, adopting remedies proportionate to the goal of maintaining markets open remains the critical issue.

Antitrust law offers three categories of remedies: fines, structural and behavioral remedies. It is then important to effectively balance their efficiency, and to tailor them to the high-tech market specific features.

In this context, although the recent decisions offer some guidance on remedies to be chosen in order to keep the innovation markets open, they are not enough numerous, consistent and identically focused to pay a clear way in framing a scheme of remedies. Nevertheless, based on the existing decisions, the following approach could be explored:

- Firstly, in case of exclusionary practices one should consider the possibility of imposing a combination of each of the above mentioned three categories of antitrust remedies, since each category presents advantages and drawbacks for innovation;
- Secondly, the framework of remedies has to be kept at the minimum necessary in order to enable markets to remain open and, also, in order to avoid a goodwill overregulation of dynamic sectors that would be counterproductive for them;
- Finally, due to the specific features of markets of innovation, special attention should be given to the category of behavioral remedies as these remedies offer,

when properly drafted, better balanced tools to lower barriers to entry, as long as in their format they remain simple to be applied and can be easily revised.

ⁱ FREDERIC M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 350 (Rand McNally College 1970). See also JOHN M. CLARK, COMPETITION AS A DYNAMIC PROCESS 178-270 (Brooking Institution 1961).

ⁱⁱ ILKA RHANASTO, INTELLECTUAL PROPERTY RIGHTS, EXTERNAL EFFECTS AND ANTITRUST LAW 183 (Oxford University Press 2003).

ⁱⁱⁱ John Temple Lang, *European Community Antitrust Law: Innovation Markets and High Technology Industries*, in INTERNATIONAL ANTITRUST LAW AND POLICY 519 (Bender 1996).

^{iv} Janusz A. Ordover & Robert D. Willig, *An economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L. J. 8 (1981). *Contra* J. Gregory Sidak, *Debunking Predatory Innovation*, 83 COLUM. L. REV. 1121 (1983).

^v Jurisprudential cases have often considered the innovator's intent to adopt exclusionary practices relevant to the assessment of predatory practices centered on innovation such as in *Bard v. M3System* 157 F.3d 1340 (Fed. Circ. 1998). For an analysis of this case see HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY, THE LAW OF COMPETITION AND ITS PRACTICE 289 (West end ed. 1999), at 327-332. See also Federico Ghezzi, Maria Lilla Montagnani, *Software ed innovazione predatoria*, 23 AIDA 425, 436-441 (2004).

^{vi} *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (Microsoft III), and Commission Decision of 24.03.2004, relating to a proceeding under Article 82 of the EC Treaty (Case COMP/C-3/37.792 Microsoft), C(2004)9 final (Brussels 21.4.200) (unofficial publication) (Microsoft IV).

^{vii} This mechanism has been defined competition "for the field", instead of "in the field", by Harold Demsetz, *Why regulate utilities?*, 11 J.L. & ECON. 55, 57 n. 7 (1968).

^{viii} JOSEPH. A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 81-90 (Allen & Unwin 1943). The Author argues that this entrenchment is temporary because innovation may alter the field altogether. At least the latter is deemed the mechanism to keep the software market (and, generally speaking, the high-tech markets) competitive. Recent cases, though, such as the European Microsoft case, demonstrate that network effects and IPRs tend to strengthen the innovator's position. On the assessment of market power in high-tech markets see Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257, 332 (2001).

^{ix} For a complete overview of software protection under the US copyright law see MARK A. LEMLEY ET AL., SOFTWARE AND INTERNET LAW (Aspen Law and Business 2nd ed. 2003). For a comparative approach, see ADRIAN STERLING, WORLD COPYRIGHT LAW (Sweet & Maxwell 2nd ed. 2003).

^x On software patentability see Micheal Guntersdorfer, *Software Patent Law: United States and Europe Compared*, DUKE L. & TECH REV 6 (2003).

^{xi} In detail, the challenges were of monopolization, attempt of monopolization and tying. It is worth mentioning that according to Sherman Act, 15 U.S.C. § 2 *Monopolizing trade a felony; penalty*: "Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding \$10,000,000 if a corporation, or, if any other person, \$350,000, or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court."

^{xii} *United States v. Microsoft Corp.*, 97 F.Supp.2d 59 (D.D.C 2000). On the remedies therein adopted see Howard A. Shelanski, J. Gregory Sidak, *Antitrust Divestiture in Network Industries*, 68 U. CHI. L. REV. 95 (2001).

^{xiii} In order to understand this point some technological background is needed. Specifically, OSs and software programs interact through Application Program Interfaces (APIs) which also enable software developers to write programs compatible with an OS. However, OSs are not the only software programs exposing APIs. Other non-OS programs do the same, among them: Netscape and Sun Microsystems products. Programs like this are called "middleware" since they rely on an OS and its APIs, but, at the same time, they expose their APIs to software developers. While the Microsoft III controversy was taking place, no middleware exposed enough APIs to offer a full range of applications. Users still needed to rely on an OS. However, a middleware such as Netscape would have been capable – once program developers had written enough middleware applications – to satisfy all user needs. Had this happened, users might have chosen less expensive middleware compatible applications rather than OS direct compatible applications. For this reason, Jackson J. stated that: "[t]he growth of middleware-based applications could lower the costs to users of choosing a non-Intel-compatible PC operating system like the MAC OS"*United States v. Microsoft Corp.*, 83 F.Supp.2d 9, 18 (D.D.C. 1999).

^{xiv} *United States v. Microsoft Corp.*, 231 F.Supp.2d 144 (D.D.C. 2002).

^{xv} Rudolph Peritz, *Re-Thinking U.S. v. Microsoft in Light of the E.C. Case*, NYLS Legal Studies Research Paper No. 04/05-4 <http://ssrn.com/abstract=571803> (22 March 2004).

^{xvi} According to art 82 EC Treaty: “Any abuse by one or more undertakings of a dominant position within the common market or in a substantial part of it shall be prohibited as incompatible with the common market in so far as it may affect trade between Member States. Such abuse may, in particular, consist in: (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions; (b) limiting production, markets or technical development to the prejudice of consumers; (c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.”

^{xvii} The distinction between technological and contractual tying is stressed by HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY, *supra* n. 9, at 303, arguing that “the most obvious difference between the §2 tying (...) and the traditional §1 or Clayton Act §3 offenses consists in the lack of any agreement requirement in the former. Monopolization is a unilateral practice. So when a dominant firm unilaterally imposes tying (...) under circumstances where a qualifying agreement cannot be proven, the practice may still constitute an antitrust violation”. To be more precise, in Microsoft III the Court of Appeal identified four behaviors: two of them – namely, preventing OEMs to uninstall or remove IE from WOS desktop; and designing WOS so as to withheld from consumers the ability to remove IE by use of the Add/Remove Programs utility in Windows – constituting technological tying, thereby assessed through the monopolization offense test; and the remaining two – namely, Microsoft’s requiring WOS licensees to license IE as a bundle at a single price; and Microsoft’s designing WOS so as to override the users’ choice of default web browser in certain circumstances – constituting tying and needing for a rule of reason analysis by the remanded court. On the difference between technological and contractual tie-ins, see David S. Evans, A. Jorge Padilla and Michele Polo, *supra* n. 16, at 509.

^{xviii} Ian S. Forrester, *Article 82: Remedies in Search of Theories?*, INTERNATIONAL ANTITRUST LAW & POLICY, 2001 FORDHAM CORP. L. INST. 167 (B. Hawk, Ed. 2005) (stressing that in the last decade the European Commission’s application of art 82 EC Treaty has looked forward “at the desired conduct rather than looking backward and ensuring the discontinuation of the abuse”).

^{xix} When anticompetitive behaviors are adopted by IPR owners in “traditional markets” (i.e. markets devoid of the above mentioned effects), the standard adopted to draw a line between legitimate exercise of IPRs and anticompetitive practices is to be found in the “subject matter of rights” which has superseded the existence/exercise dichotomy criterion. In AstraZeneca (Case COMP/A. 37.507/F3) the Commission asserted that the alleged dominant firm’s conduct (misleading representation in order to stretch the patent term) falls outside the patent right subject matter thereby constituting an abuse of dominant position according to art 82 EC Treaty. Although the different outcomes, similar reasoning has been adopted in *Volvo AB v Veng* [1988] ECR 6211; *Coditel v Cine Vog Films* [1980] ECR 881; *Centrafarm v Sterling* [1974] ECR 1147. In the latter, though, the existence/exercise dichotomy is also mentioned, whereas it appears completely surpassed in AstraZeneca. In this decision, in fact, the acquisition of the patent right itself constitutes an abuse since it is deemed the result of misleading representations.

^{xx} Joseph F. Brodley, *The Economic goals of antitrust: efficiency, consumer welfare, and technological progress*, 62 N.Y.U.L. REV. 1020, 1021, 1042 (1987), arguing that “In some instances exclusionary conduct may not cause an immediate injury to consumers, but this should not prevent antitrust intervention against deliberate cost raising or other exclusionary conduct. By lowering the return to production efficiency and inducing wasteful investment in predatory strategies, exclusionary conduct reduces aggregate social welfare and, in the long run, consumer welfare as well”.

^{xxi} John J. Flynn, *Antitrust and the Suppression of Technology in the United States and Europe: Is There a Remedy?*, 66 ANTITRUST L. J. 487, 495 (1998).

^{xxii} WILLIAM M. LANDES, RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 20-21 (The Belknap Press of Harvard University Press 2003), arguing that the trade-off between access and incentive is very important, though, there is much more in the economic analysis of intellectual property law, such as the economic continuity between physical and intellectual property.

^{xxiii} *Contra* Frank H. Estearbook, *When is it worthwhile to use courts to search for excludent conducts?*, in COLUMB. BUS. L. R. 345, 357 (2003). The author, though recognising the predation theory’s appeal, does argue that “the costs of false positives in dealing with exclusionary practices claims seem very high for a false positive means that we will confuse real competition with exclusion and thus harm consumers”.

^{xxiv} This idea was initially formulated – in a time in which innovation was *per se* lawful – by James W. Brock, *Structural Monopoly, Technological Performance, and Predatory Innovation: Relevant Standards under Section 2 of the Sherman Act*, 21 AMERICAN BUSINESS L.J. 1983, 291, 305-306 (1983). The Author also claims for a close investigation of and appreciation for the nature, degree and significance of structural monopoly power. This analysis should precede and condition the evaluation of performances in attempting to distinguish lawful and unlawful monopoly under section 2 of the Sherman Act.

^{xxv} Philip J. Weiser, *The Internet, Innovation, and Intellectual Property Policy*, 103 COLUM. L. REV. 534 (2003). The Author expressly affirms that “intellectual property law should resist allowing the copying of a user interface or allowing access to a platform standard where competition is otherwise sustainable in that market”.

^{xxvi} Similarly Philip J. Weiser (*supra* n. 100, at 534) asserts the necessity for a compulsory licence system whenever a *de facto* standard is achieved in the software market. Same opinion is expressed by Makan Delrahim, *Forcing Firms to Share the Sandbox: Compulsory Licensing of Intellectual Property Rights and Antitrust*, Addressed at the British Institute of International and

Comparative Law, London, England (transcript available at www.usdoj.gov/atr/public/speeches/203627.htm) (May 10 2001). However, the Author's favor towards compulsory licenses (whenever there is harm to competition) is conditioned to a narrowly drafting. Different opinion is adopted by Robert P. Merges, *Who Owns the Charles River Bridge? Intellectual Property and Competition in the Software Industry*, UC Berkeley Public Law and Legal Theory Working Paper No. 15 <http://ssrn.com/abstract=208089> (October 1999), arguing that standards-setting and pooling arrangements are a more useful remedial model whenever a head-on clash between property rights and innovation is present.

xxvii In favor of the remedies adopted in Microsoft III case see Charles A. James, *The Real Microsoft Case and Settlement*, 16 ANTITRUST 58 (Fall 2001).

xxviii Damien Geradin, *Limiting the Scope of Article 82 of the EC Treaty: What can the EU learn from the U.S. Supreme Court's Judgement in Trinko in the wake of Microsoft, IMS, and Deutsche Telekom?* 22 draft version to be published in *Common Market Law Review*.

xxix *Musique diffusion française* (Case C 100-103/80) http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&numdoc=61980J0100&lg=en#I2I. See VAN BAELE & BELLIS, *COMPETITION LAW OF THE EUROPEAN COMMUNITY*, 1106 (The Hague 2005).

xxx It has been noticed that "For violations committed by a single offender, a necessary condition for deterrence to work is that the expected fine, discounted for the probability of detection and punishment, exceeds the gain which the offender expected to obtain from the violation." (Wouter P.J. Wils, *Optimal Antitrust Fines: Theory and Practice*, forthcoming 29 WORLD COMPETITION No 2 (June 2006). Given this, no doubt that the fine imposed on Microsoft does not generate deterrent effects.

xxxi Favorable to private damages as the most efficient remedy Richard J. Gilbert & Michael L. Katz, *An Economist's Guide to U.S. v Microsoft*, COMPETITION POLICY CENTER WORKING PAPER NO. CPC01-19 (May 2001).

xxxii Kenneth Elzinga et al., *United States v. Microsoft: Remedy or Malady?*, 9 GEO. MASON L. REV. 633 (2001); and, for a general survey of divestiture effectiveness Robert W. Crandall, *The Failure of Structural Remedies in Sherman Act Monopolization Cases*, AEI-Brookings, Working Paper No. 01-05-, 2001. *Contra see* Robert H. Lande, *Why Are We So Reluctant to 'Execute' Microsoft?*, 1 ANTITRUST SOURCE 1 (November 2001); and Thomas M. Lenard, *Creating Competition in the Market for Operating Systems: Alternative Structural Remedies in the Microsoft Case*, 9 GEO. MASON L. REV. 803 (2001).

xxxiii Thomas E. Sullivan, *The Jurisprudence of Antitrust Divestiture: The Path Less Travelled*, 86 MINN. L. REV. 565 (2002) (arguing that remedies alternative to divestiture should be considered in dynamic markets, namely conduct-based remedies, because the cost of correcting market failure should not exceed the anticompetitive injury visited on consumers).

xxxiv Maria Lilla Montagnani, *Predatory and exclusionary innovation: which legal standard for software integration in the context of the Competition v Intellectual Property Rights clash?*, forthcoming 37 IIC (2006).

xxxv Gustavo Ghidini, Emanuela Arezzo,

Robert P. Merges, *Who Owns the Charles River Bridge? Intellectual Property and Competition in the Software Industry*, UC Berkeley Public Law and Legal Theory Working Paper No. 15 <http://ssrn.com/abstract=208089> (October 1999), arguing that standards-setting and pooling arrangements are a more useful remedial model whenever a head-on clash between property rights and innovation is present.

xxxvi Frederic M. Scherer, *Antitrust, Efficiency, and Progress*, 62 N.Y.U.L.R. 997 (1987).

xxxvii Makan Delrahim, *Forcing Firms to Share the Sandbox: Compulsory Licensing of Intellectual Property Rights and Antitrust*, Addressed at the British Institute of International and Comparative Law, London, England (transcript available at www.usdoj.gov/atr/public/speeches/203627.htm) (May 10 2001).

xxxviii Warren S. Grimes, *Korea Fair Trade Commission's Microsoft Decision*, FTC:WATCH #668, Jan. 30, 2006, <http://www.antitrustinstitute.org/recent2/481.pdf>. Strong criticism on the decision in the *Statement Of Deputy Assistant Attorney General J. Bruce McDonald Regarding Korean Fair Trade Commission's Decision In Its Microsoft Case*, December 7 2005, http://www.usdoj.gov/atr/public/press_releases/2005/213562.htm.

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