

# Is "Trusted Computing" an Antitrust Problem? Microsoft *et al.* Under Scrutiny

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On January 31, 2003, the Computer and Communications Industry Association, a group representing telephone, computer and consumer-electronics firms, filed a formal complaint against Microsoft, alleging abuse of a dominant position contrary to Art.82.<sup>1</sup> Earlier in the same month, it became known that the first peer review panel to be convened by DG Competition<sup>2</sup> would be charged with scrutinising a draft decision "to take tough action against Microsoft"<sup>3</sup> following other alleged abuses of the corporation's "practically undisputed market dominance" in the computer operating systems sector.<sup>4</sup> The final decision was expected to be adopted in

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1 Information on the complaint is available online at [www.ccianet.org/ms\\_eu.php3](http://www.ccianet.org/ms_eu.php3).

2 The establishment of such panels was announced as part of a package of administrative reforms by Commissioner Monti in November 2002. See SPEECH/02/545 entitled "Merger control in the European Union: a radical reform" delivered to the IBA Conference on EU Merger Control in Brussels, on November 7, 2002. The European Commission's press releases are available online from the "RAPID" database at <http://europa.eu.int/rapid/start/cgi/guesten.ksh>.

3 Francesco Guerrera, writing in the *Financial Times*, January 23, 2003. See also *Reuters EU Briefing*, January 24–26, 2003.

4 See Commission Press Release IP/00/141 of February 10, 2000, "Commission examines the impact of Windows 2000 on competition". See also IP/00/906 of August 3, 2000, "Commission opens proceedings against Microsoft's alleged discriminatory licensing and refusal to supply software information",

the first quarter of the year.<sup>5</sup> Also in January, Microsoft reached a settlement with the EU Data Protection Working Party in connection with the proper treatment of personal data pertaining to users of the "Passport" online authentication system.<sup>6</sup> It is against this—clearly rather delicate—background of official scrutiny of privacy and antitrust issues in the personal computer industry, that another technological initiative appears set to pose the thorny question of the extent to which leading firms can engage in joint technological innovation without thereby infringing the competition rules.

## The "Trusted Computing Platform Alliance" and "Palladium"

The "Trusted Computing Platform Alliance" was established in 1999 by Intel, together with Compaq, Hewlett-Packard, IBM, and Microsoft.<sup>7</sup> It now consists of a broad consortium of companies active in the computer industry, whose identities were initially kept secret, but which now number over 200.<sup>8</sup> The Alliance has elaborated and adopted a set of specifications for a system which "facilitates trust in computing platforms and environments".<sup>9</sup> At least part of the technology has been patented in the United States by, or on behalf of, TCPA members.<sup>10</sup> The TCPA system consists of a cryptographic monitoring and reporting element integrated

and IP/01/1232 of August 30, 2001 "Commission initiates additional proceedings against Microsoft".

5 Speaking at the World Economic Forum in Davos, Commissioner Monti indicated that a decision on the investigations into Microsoft would be adopted in the "first part of this year".

6 See *Reuters EU Briefing*, January 22, 2003: "Microsoft to seek antitrust deal with EU". See also Commission Press Release IP/03/151 of January 30, 2003, and the documents of the Data Protection Working Party: [http://europa.eu.int/comm/internal\\_market/en/dataprot/wpdocs/index.htm](http://europa.eu.int/comm/internal_market/en/dataprot/wpdocs/index.htm). Microsoft reached a parallel settlement with respect to "Passport" and data protection with the US Federal Trade Commission in August 2002 (FTC File No. 012 3240, see [www.ftc.gov/opa/2002/08/microsoft.htm](http://www.ftc.gov/opa/2002/08/microsoft.htm)). On data protection and privacy generally, see Koenig, Bartosch and Braun, eds, *EC Competition and Telecommunications Law* (Kluwer, 2002), Ch.10.

7 See the official TCPA website at [www.trustedcomputing.org](http://www.trustedcomputing.org).

8 For a current list of the members, see [www.trustedcomputing.org/tcpaasp4/members.asp](http://www.trustedcomputing.org/tcpaasp4/members.asp).

9 Version 0.90 of the TCPA specification was released to the public in August 2000. At the time of writing (January 2003) the current version of the specification is 1.1b of February 22, 2002, which runs to over 300 pages.

10 See, e.g. US Patent 6,513,117 of January 28, 2003, the latest in a series of applications relating to cryptographic digital rights management systems (e.g. U.S. Patents 6,330,670 and 6,327,652). According to the abstract, the invention is "a delivery system for managing security keys uses three key pairs to establish, register, move and revoke rights in a device to view protected information. The first and second key pairs cooperate to establish a secure certificate containing a device public and

into the computer hardware, which controls the process in which the computer loads its operating system (or "boots up"), and monitors the subsequent activities of application software running on the system. "Palladium" was, until recently, the code-name for new software components of Microsoft's Windows operating system which can interact with the TCPA cryptographic hardware.<sup>11</sup> The purpose of TCPA, when combined with Palladium (or with its equivalent from other vendors), is to provide a computing environment in which users cannot substantially alter their hardware or software configurations without the acquiescence of the manufacturers of these components; and, to enable such "trusted" computers to communicate securely not only with the vendors of computer components, but also with the providers of electronic data.

### TCPA technology<sup>12</sup>

The technical heart of TCPA is the cryptographic hardware element, known colloquially as a "Fritz chip". The name is a somewhat pejorative reference to the US Senator for South Carolina, Fritz Hollings, who is a strong proponent of legislative measures favourable to the holders of intellectual property rights, such as the Digital Millennium Copyright Act of 1998. The first Fritz chips were developed as individual integrated circuits, suitable for piecemeal incorporation into computer motherboards. Subsequent generations of TCPA hardware will be integrated during the manufacturing process into the main processors, not only of computers, but also of internet-enabled third-generation mobile telephones, personal digital assistants, set-top boxes for cable and satellite television, hi-fi equipment, DVD players, and even wristwatches. For convenience, we will refer here to the chip's operation in a computer, but

private key, and the pairs of keys are manipulated to install the appropriate keys in the device and the associated authentication server without ever exposing the keys. Thereafter, in the event of a need to authorize a new device to view content associated with a prior, authorized device, the key pairs are used to revoke the rights of an old device and establish identical viewing rights in the new device." See [www.uspto.gov](http://www.uspto.gov).

11 As of January 25, 2003, Microsoft discontinued use of the code name "Palladium", perhaps because of the significant negative publicity which TCPA has generated in computing circles. The operating system components which take advantage of TCPA hardware are now to be known as "the next-generation secure computing base for Windows".

12 Our description of the TCPA technology is based, with thanks, on the *TCPA/Palladium Frequently Asked Questions*, compiled by Ross Anderson, Reader in Security Engineering at the University of Cambridge Computer Laboratory. See [www.cl.cam.ac.uk/rja14/tcpa-faq.html](http://www.cl.cam.ac.uk/rja14/tcpa-faq.html).

bear in mind that practically any future consumer electronics or communications device could be equipped with TCPA hardware.

The Fritz chip serves three basic functions: it uniquely *identifies* the appliance within which it is installed<sup>13</sup>; it *monitors and interacts* with the appliance's hardware and software components; and, it *communicates* in a cryptographically secure manner with third parties. In operation, the chip establishes a "trust boundary" when the device is turned on. The Fritz chip verifies that the hardware present conforms to an approved configuration before beginning to load the software, which is then examined to ensure that it too matches an approved type whose serial number has not been revoked, or listed by the manufacturer as a forgery or illegal copy. By a process of constantly interrogating hardware and software components and comparing their responses against a table of known "trusted" elements, the TCPA chip ensures that the computer is booted into a known state, running with an approved constellation of hardware and software. At this point, the chip can transfer management of the trusted computing functions to TCPA-enabled software, such as Microsoft's "Palladium", or to other authentication software made available by providers of digital content.

### What TCPA technology makes possible

TCPA hardware, when combined with suitable software, such as Microsoft's "Palladium" components, enables remote, centralised control over information in electronic form. The two most obvious applications for the technology are combating the infringement of IP rights (especially copyrights) in software and so-called "digital rights management" functions. TCPA-capable computers can, for example, be instructed to refuse to run software whose serial number appears on the manufacturer's list of illicit copies, or to delete any

13 The use of a unique serial number for computer hardware devices is not new. Intel's Pentium III processor has included a hard-coded serial number at least since 1999 (see [www.intel.com/support/processors/pentiumiii/psu.htm](http://www.intel.com/support/processors/pentiumiii/psu.htm)), and network interface cards for PCs also contain a "global unique identifier" for technical reasons. Microsoft's "Office'97" software includes the network card's identifier in document files as a matter of course, which makes it possible to trace individual documents back to the computer upon which they were originally written. In 1999, the FBI reportedly used unique identifier information appended by Office'97 to identify the author of the "Melissa" email virus, which is estimated to have affected one million computers and caused damage worth US\$80 million. Under public pressure regarding privacy concerns, Microsoft released a patch to disable this behaviour, see <http://office.microsoft.com/Downloads/9798/Off97uip.aspx>.

unlicensed programs present together with the data files created by those programs. In addition, TCPA-capable computers can be forbidden to open data files created on other computers which are not TCPA compliant and/or data files which were created using unlicensed software. Similarly, TCPA systems can be ordered not to make illegal copies of music CDs or of DVD movies, and to delete any unauthorised copies already present on the system. Microsoft has already adverted to such behaviour in the licensing terms for its "Media Player" software.<sup>14</sup> The various approvals and authentications required stem first, from compliance with the basic TCPA specification itself and, subsequently, from conformity with remotely-hosted databases of trusted applications which the TCPA system consults via encrypted transmissions in order to determine which data may be accessed and by which applications. The remote authorisation databases may be controlled by hardware or software manufacturers, by the vendors of electronic content, by governments, or by a combination of all these.

More subtly, TCPA systems can be used to enable the rental of software or entertainment content while enforcing pay-per-view, pay-per-page, or similar regimes of limited access. Since TCPA-enabled computers are uniquely identifiable, they can be used for making secure electronic payments, for bidding in secure electronic auctions, and for sending encrypted data which demonstrably comes from a known source. While some of the benefits claimed for the technology by the TCPA consortium are probably more sales puff than concrete improvements (such as the purported ability of TCPA to protect against computer viruses and so-called "spam" email), there is clearly a demand for other features, such as data access control and digital rights management. Whether this demand stems more from computer users or from the computer and entertainment industries is less clear.

<sup>14</sup> The licensing terms for a recent free security update to Microsoft's "Media Player" software required users to consent to the automatic installation of unspecified future measures to prevent the infringement of IP rights on their computers in the following terms: "Digital Rights Management (Security). You agree that in order to protect the integrity of content and software protected by digital rights management ("Secure Content"), Microsoft may provide security related updates to the OS Components that will be automatically downloaded onto your computer. These security related updates may disable your ability to copy and/or play Secure Content and use other software on your computer. If we provide such a security update, we will use reasonable efforts to post notices on a web site explaining the update." See Microsoft Security Bulletin MS02-032 of June 26, 2002, at [www.microsoft.com/technet/](http://www.microsoft.com/technet/). As to the legal status of such licensing terms, see Phillip Johnson, "All wrapped up? A review of the enforceability of shrink-wrap and click-wrap licences in the UK and the US" [2003] E.I.P.R. 98.

A key capability of the TCPA system is that of limiting or denying access to data created, manipulated or stored on TCPA-enabled devices. Governments could, for example, enforce a policy that documents created on civil-service computers can only be opened by other government computers, and can therefore not be leaked in machine-readable form to the press. Similarly, the military or other organisations—including both honest businesses and organised criminals—could enforce a system of classified access to in-house data, with such refinements as: limiting the number of times a document can be read, and by whom; or, providing for automatic deletion of email messages after a given time. To counter the risk of TCPA functions being used for nefarious purposes, it is likely that governments, police and intelligence agencies will be given "back-door" access to circumvent the TCPA encryption.<sup>15</sup> Clearly, the civil rights implications of TCPA are wide-ranging, and they have been amply discussed elsewhere.<sup>16</sup>

### Creating markets for TCPA-equipped products

The market for sales of new personal computers has more or less stagnated: most private individuals who want and can afford a PC already have one (or more), and the performance of the current generation of hardware exceeds the requirements of all but the most demanding or specialised of business applications, with the result that few companies are interested in purchasing large quantities of new equipment, since their current hardware is adequate.

Against this background, the progenitors of TCPA have proposed a technology which, if it becomes widespread, will attach to the PC two functions which are important to the majority of computer users, and which should thereby generate demand for a new generation of TCPA-enabled hardware and software. For businesses, the security and confidentiality of data is paramount, particularly as the value of the work-product stored on computer equipment typically exceeds the replacement cost of that hardware many times over. The cryptographic capabilities of TCPA—particularly the ability to

<sup>15</sup> In January 2003, Microsoft announced its "Government Security Program". See [www.microsoft.com/presspass/features/2003/Jan03/01-14gspmundie.asp](http://www.microsoft.com/presspass/features/2003/Jan03/01-14gspmundie.asp).

<sup>16</sup> See, e.g. Richard Stallman's book *Free Software, Free Society* (2002). An extract entitled "Can you trust your computer?" is available online at <http://newsforge.com/newsforge/02/10/21/1449250.shtml?tid=19>.

restrict data to in-house use, and to protect and authenticate email communications—are important in this regard. Businesses will also welcome the ability of TCPA to prevent the running of unlicensed or unauthorised software.

For most home computer users, surfing the internet and access to multimedia entertainment are important features of the PC. From the point of view of the consumer, neither of these functions stands to be directly enhanced by the adoption of TCPA functionality. However, on the supply-side, the major providers of internet services are increasingly likely to make use of the TCPA system. Imagine, for example, on-line auction houses providing TCPA-enabled bidding software, which takes advantage of TCPA's unique hardware identifier to ensure that a seller cannot place inflationary bids in his or her own auction. TCPA-compatibility is also likely to become an integral part of secure purchasing systems for use over the internet, a function which its proponents hope will supplant the current generation of banking "smart cards". Indeed, TCPA capability may even become a prerequisite for internet access in the future, as service providers wish to limit broadband access to a single computer and to track so-called "denial of service attacks" on their networks.

The entertainment industry is particularly keen on using TCPA-enabled digital rights management to enforce copyrights and to exploit the possibilities of rental and pay-per-view access to electronic media. As a result, using hardware equipped with TCPA will become increasingly necessary for consumers to get the best out of their home entertainment systems. Music CDs which cannot be played back in the CD-Rom drive of computers are already being distributed. It is conceivable that a future generation of DVD films would play only on TCPA capable hardware, in order to prevent their being duplicated.<sup>17</sup>

The TCPA instigators hope that the personal computer with TCPA capability will become and remain the platform of choice for both business and home use. Once TCPA is firmly established in the PC market, its functions will likely be extended to many other items of consumer electronics. General acceptance of TCPA-enabled applications will drive demand for TCPA capable hardware and software, thus ending the stagnation which currently characterises those markets.

17 Online dissemination of films digitally "ripped" from DVDs has reached such proportions that the European Commission recently set up a working unit to deal with the problem, and recommended that the Member States regulate access to broadband internet connections. See *Agence Europe*, February 8, 2003, p.9.

## The implications of TCPA for competition

TCPA was initiated by five of the key players in the personal computer industry, one which—at least in some respects—is notoriously concentrated. Among the founding members of the Alliance, Intel faces serious competition in the market for central processing units only from AMD, which is also a TCPA participant. Microsoft already stands under suspicion of leveraging its clearly dominant position on the market for desktop computer operating systems in order to bolster its share of the market for server operating systems, and the European Commission has also objected to its bundling of Media Player with the Windows operating system.<sup>18</sup> Since the TCPA specifications were released, Hewlett-Packard has taken over Compaq.<sup>19</sup> Both Intel and Microsoft are clearly in positions of influence—if not of outright dominance—in their respective markets. Since these market leaders have adopted the technology, their industry counterparts must do likewise, for fear of being left behind by the technological trend-setters or, worse, being left with products which will be seen by consumers as "incompatible" with the *de facto* standard. Thus, since its inception in 1999, many other participants have joined the TCPA consortium, and their number is still growing. Computer hardware containing "Fritz" chips is available commercially. Microsoft has already begun integrating digital rights management components into its operating systems and applications, and Intel has announced that TCPA circuitry will be included in the next generation of processors. This all raises the question of the extent to which the TCPA technology is being used by powerful incumbents in the industry to stifle competition.<sup>20</sup>

## Leveraging dominance

Professor Varian, a leading economist familiar with the computer industry, has suggested that TCPA will have anti-competitive effects if the technology is widely adopted. On the one hand, it will enable the collaborative exercise of market power in neighbouring oligopo-

18 See Commission Press Release IP/01/1232 of August 30, 2001.

19 See the Commission's non-opposition Decision of January 31, 2002 under the Merger Regulation in Case COMP M.2609 at [http://europa.eu.int/comm/competition/mergers/cases/decisions/m2609\\_en.pdf](http://europa.eu.int/comm/competition/mergers/cases/decisions/m2609_en.pdf).

20 See Sam Costello, "Palladium concerns Microsoft's competitors, not lawyers" *InfoWorld*, June 25, 2002; [www.info-world.com/articles/hn/xml/02/06/25/020625hnpalladium.xml](http://www.info-world.com/articles/hn/xml/02/06/25/020625hnpalladium.xml).

listic industries.<sup>21</sup> He says, "the markets for software operating systems and for music and video content are highly concentrated, so partnerships between these two industries should be viewed with suspicion. Such partnerships could easily be used to benefit incumbents and to restrict potential entrants".<sup>22</sup> On the other hand, using a "trusted boundary" system such as TCPA to control after-purchase behaviour, especially in connection with digital rights management, will tend to inhibit innovation by computer users.<sup>23</sup>

In its complaint under Art.82 EC to the European Commission, the Computer & Communications Industry Association (CCIA) alleges that Microsoft is abusing what it calls "superdominant" positions on the markets for operating systems, internet browsers and personal productivity applications both to insulate existing monopolies from competition, and to leverage that dominance into several related markets, including those for audio/video streaming and playback, and into the market for digital rights management software.<sup>24</sup> The CCIA refers to the judgment of the Court of First Instance in *Tetra Laval* as a case where Art.82 forbade such leveraging behaviour.<sup>25</sup>

## Microsoft's competition-law concerns

The question of whether Microsoft is abusing its dominance over the market for PC operating systems is clearly coming to a head.<sup>26</sup> Already, Mr Monti has announced that a decision on at least one of the

Commission's outstanding investigations into the corporation will be adopted in the first quarter of 2003. The new complaint under Art.82 by the CCIA will probably add weight to existing suspicions that the market leader in operating systems, browsers and productivity suites is behaving anti-competitively. Microsoft itself is undoubtedly taking seriously the matter of its obligations under the EU competition rules, as two changes in its personnel late in 2002 indicate: Jean-Yves Art, a leading EU competition law practitioner joined the in-house legal team; and, the corporation obtained the services of a DG Information Society official, Detlef Eckert, who has taken leave of absence to work as security officer and public spokesman in Europe for the trustworthy computing (formerly Palladium) initiative.<sup>27</sup> Microsoft is clearly gearing up to deal with the Commission on competition issues from both the legal and public relations perspectives. Interestingly, prior to his appointment as Director General of DG Competition in September 2002, Mr Lowe is reported as having said that the Commission will not allow Microsoft to use Palladium to foreclose its competitors.<sup>28</sup>

## The legal status of the TCPA specifications

Leaving aside the question of whether Microsoft *alone* is infringing the competition rules, as has been alleged, it is interesting to consider the wider competition-law implications of the TCPA. At least three questions arise:

### *Can a consortium involved in standard-setting constitute, or act as a smokescreen for, a cartel?*

Community law uses the term "standard" for "a technical specification approved by a recognised standardisation body for repeated or continuous application, with which compliance is not compulsory",<sup>29</sup> whereas a "technical specification" is defined as "a specification

21 On neighbouring markets, see Koenig, Kühling and Braun, "Die Interdependenz von Märkten in der Telekommunikation" [*trans.* The interdependence of telecommunications markets] in *Computer und Recht*, November and December 2001. See also the paper by Jean Tirole, Patrick Rey and Paul Seabright, "The Activities of a Monopoly Firm in Adjacent Competitive Markets: Economic Consequences and Implications for Competition Policy" (University of Toulouse, July 2001) available at [www.idei.asso.fr/Commun/Articles/Seabright/Activities.pdf](http://www.idei.asso.fr/Commun/Articles/Seabright/Activities.pdf).

22 Prof. Hal R. Varian, "New Chips Can Keep a Tight Rein on Consumers", *New York Times*, July 4, 2002.

23 See Prof. Eric von Hippel's paper on user innovation, in the proceedings of the conference "Open Source Software: Economics, Law and Policy", June 2002, Institut d'Economie Industrielle; [www.idei.asso.fr/Commun/Conferences/Internet/OSS2002/Divers/FramePapers2002.html](http://www.idei.asso.fr/Commun/Conferences/Internet/OSS2002/Divers/FramePapers2002.html).

24 See the summary of the CCIA's complaint at para.19, available at [www.cciagnet.org/ms\\_eu.php3](http://www.cciagnet.org/ms_eu.php3).

25 Case T-5/02 *Tetra Laval BV v Commission* [2002] 5 C.M.L.R. 28.

26 On the subject of Microsoft's antitrust problems with the US Department of Justice, see, e.g. Richard L. Gordon, "Antitrust Abuse in the New Economy: The Microsoft Case" (Edward Elgar, 2002) as reviewed by Mark Furse in [2003] E.C.L.R. 148.

27 Reuters, November 29, 2002.

28 Mr Lowe was speaking at the American Antitrust Institute on July 1, 2002. His speech "Competition Policy in the European Union" is available at [www.antitrustinstitute.org/recent/192.cfm](http://www.antitrustinstitute.org/recent/192.cfm). The remarks concerning TCPA were made in response to a question from Ian Hopper of the Associated Press, and are reported at [www.computeruser.com/news/02/07/08/news2.html](http://www.computeruser.com/news/02/07/08/news2.html).  
29 Art.1(6) of Dir.98/34, laying down a procedure for the provision of information in the field of technical standards and regulations [1998] O.J. L204/37, as amended by Dir.98/48 amending Dir.98/34 laying down a procedure for the provision of information in the field of technical standards and regulations [1998] O.J. L217/18.

contained in a document which lays down the characteristics required of a product such as levels of quality, performance, safety or dimensions, including the requirements applicable to the product as regards the name under which the product is sold, terminology, symbols, testing and test methods, packaging, marking or labelling and conformity assessment procedures".<sup>30</sup> Technical specifications, the observation of which is compulsory, *de jure* or *de facto*, are usually referred to as "technical regulations" within the system of legislative acts of the European Community.<sup>31</sup>

Clearly, the TCPA specification does not come within the recognised understanding of the term "standard" in European law.<sup>32</sup> However, it is the product of economic activity on the part of undertakings and even such "informal" standardisation must, like any other economic activity, be carried out in compliance with European competition law. Since the standard-setting process involves the participation of companies operating on the same market level(s), standardisation probably implies at the very least a type of horizontal co-operation agreement, to which Art.81 and the Commission's Guidelines apply, and at the most, a cartel.<sup>33</sup> In our opinion, the fact that the TCPA was, at least until recently, not willing to disclose its membership, points to the type of somewhat "clandestine" mindset, which would normally be characteristic of cartel-like behaviour.

Standardisation agreements may restrict competition because of their possible negative effects on innovation, or on the variety of products, and also because of any market foreclosure caused by the agreement.<sup>34</sup> On the

other hand, prices and output are usually not restricted by standardisation agreements.<sup>35</sup> According to the Commission's Guidelines, standards are most likely to restrict competition in the context of a broader agreement aiming at excluding actual or potential competitors (problem of market foreclosure).<sup>36</sup> If standards give the parties of a standardisation agreement joint control over production and/or innovation, standards may restrict competition (problem of negative effects on innovation or the variety of products).<sup>37</sup> Whether competition is actually restricted depends upon the extent to which the respective companies remain free to elaborate alternative standards, or to develop products non-compliant with the jointly agreed standards.<sup>38</sup> Additionally, competition may also be restricted if certain bodies are granted exclusive rights to carry out conformity assessment procedures, or if standards impose restrictions on conformity marking.<sup>39</sup> In the Guidelines, the European Commission considers "that, in principle, standardisation agreements do not restrict competition if the standards were adopted by the recognised standards organisations, which are based on non-discriminatory, open and transparent procedures".<sup>40</sup> Clearly, this reasoning refers more to standards arrived at in connection with formal regulation than those adopted more-or-less voluntarily by industry stakeholders, such as the TCPA specification.

Finally, even if a standardisation agreement would normally fall under the prohibition in Art.81(1) EC, an exemption may be forthcoming provided that the terms of Art.81(3) EC are satisfied.<sup>41</sup> In the *X/Open Group*

30 Art.1(3) of Dir.98/34 as amended by Dir.98/48.

31 See e.g. Art.2(11) of Dir.98/34 as amended by Dir.98/48. The language used is similar within the WTO framework, see European Commission, *Communication from the Commission: Community External Trade Policy in the Field of Standards and Conformity Assessment*, COM(96)564 final, para.13: "It draws a clear distinction between standards, which are voluntary, and technical regulations, which are mandatory".

32 For an in-depth treatment, see A. Neumann, "The European Regulatory Framework for Standardisation in the Telecommunications Sector", Ch.12 of Koenig, Bartosch and Braun, eds, *EC Competition and Telecommunications Law* (Kluwer, 2002).

33 Commission Notice, Guidelines on the applicability of Art.81 of the EC Treaty to horizontal co-operation agreements ("Horizontal Guidelines") [2001] O.J. C3/2; [2001] 4 C.M.L.R. 819.

34 See S. P. Gates, "Standards, Innovation, and Antitrust: Integrating Innovation Concerns into the Analysis of Collaborative Standard Setting" [1998] 47 *Emory Law Journal*, available at [www.law.emory.edu/ELJ/volumes/spg98/gates.html](http://www.law.emory.edu/ELJ/volumes/spg98/gates.html). See also M. B. Spring, "Information Technology Standards" [1991] 26 *Annual Review of Information Science and Technology* 00. Also P. Grindley, D. J. Salant and L. Waverman, "Standards WARS: The Use of Standard Setting as a Means of Facilitating Cartels, Third Generation Wireless Telecommunications Standard Setting" [1999] 3 *International Journal of Communications Law*

and Policy, available at [www.ijclp.org/3\\_1999/pdf/ijclp\\_webdoc\\_2\\_3\\_1999.pdf](http://www.ijclp.org/3_1999/pdf/ijclp_webdoc_2_3_1999.pdf).

35 Horizontal Guidelines, para. 22. The policy of the European Telecommunication Standards Institute concerning intellectual property rights has already been subject to an investigation by the European Commission, see Notice pursuant to Art.19(3) of Council Reg.17 concerning Case IV/35.006 *Re ETSI interim IPR policy* [1995] O.J. C76/5. In that case, the Commission identified two relevant markets, i.e. the market for telecommunications standards and the downstream markets which use those standards. Generally speaking, standardisation may affect three different relevant markets: the product markets to which the standards relate, the service market for standard-setting and the distinct market for testing and certification.

36 Horizontal Guidelines Notice, para.165. See also R. Whish, *Competition Law*, p.525.

37 *ibid.* para.166.

38 *ibid.* para.167.

39 *ibid.* para.167.

40 *ibid.* para.163.

41 Art.1(1)(a) of Reg.2821/71 on application of Art.85(3) of the Treaty to categories of agreements, decisions and concerted practices [1971] O.J. L285/46; [1972] C.M.L.R. D4, authorises the Commission to grant block exemptions, *inter alia*, in respect of agreements concerning the application of standards and types. However, no such exemption is currently in force.

case,<sup>42</sup> the Commission granted such an exemption, on the ground that the parties to the standardisation agreement in question aimed at making the results of the co-operation available as widely and quickly as possible.<sup>43</sup> Formerly, the members of patent pools<sup>44</sup> such as TCPA regularly applied for an exemption under Art.81(3) on the basis that they promote technical progress. Until Regulation 1/2003<sup>45</sup> enters into force in May 2004, such an application under Regulation 17/62 is theoretically still possible, but will lapse when the new rules take effect. There is no indication that the TCPA has applied for an exemption. Thus, unless the Commission decides to consider the status of the TCPA technology in connection with the new complaint against Microsoft, it is possible that a national court or competition authority will be called upon to decide whether TCPA infringes Art.81(1).

*Do the competition rules forbid the collective use of technological means to protect subsisting and undisputed intellectual property rights in circumstances where that use also restricts competition?*

The commercial interests behind TCPA and Palladium are very much two-edged swords. On the one hand, the software and entertainment industries have a legitimate interest in combating infringement of their copyrighted works, and in enforcing the terms of their licensing policies. On the other hand, TCPA can also be used to leverage market power in operating systems and multimedia into broader markets for consumer electronics and entertainment in general. In the pharmaceuticals sector, there is a large body of European law dealing with the circumstances in which the exercise of an intellectual property right (a trademark), although nominally protected by Art.30, may nonetheless be regarded as "abusive" where that exercise is calculated to lead to

or perpetuate the artificial partitioning of the EU internal market.<sup>46</sup> In the case of TCPA, a collective technological means of preventing copyright infringements is being brought to bear in such a way that competition is likely to be harmed. Could this also be regarded as an abusive pre-emptive exercise of IP rights? Interestingly, a similar issue has already arisen in the context of the Commission's investigation into the pricing and region-coding system for films distributed on DVD.<sup>47</sup> Films, for which the distributors hold copyright licences, are released in a staggered fashion depending on region, and discs from different regions are not interchangeable on standard player hardware. (The United States, Canada, and US Territories make up "Region 1", and Japan, Europe, South Africa, and Middle East including Egypt are in "Region 2".) This is arguably a case where the copyright is being used in a spill-over fashion to curtail parallel imports into the Community, and the patent pool arrangement for which an exemption under Art.81(3) was obtained appears to extend to the technology of the DVD medium only, and not to the region-coding aspects. Again, the exercise of subsisting IP rights seems to be in conflict with anti-competitive effects, in this case price rigidity.

Three additional Community legal instruments may be relevant in respect of the intellectual property aspects of TCPA: the IBM Undertaking of 1984,<sup>48</sup> the Software Directive,<sup>49</sup> and the proposed new Directive on the enforcement of intellectual property rights.<sup>50</sup> In 1984 IBM undertook to provide to its competitors the technical information necessary to interface other products to the IBM "System/370" range of computers. In return, the Commission suspended proceedings under Art.82, based on allegations that IBM was abusing its then dominant position in the market for minicomputers. Clearly IBM had a legitimate interest in preserving its IP rights in the interface, which it had acquired through its own effort and investment (most specifically in its

42 *X/Open Group* (87/69/EEC), December 15, 1986 [1987] O.J. L35/36; [1988] 4 C.M.L.R. 542 relating to a proceeding under Art.85 of the EEC Treaty.

43 *ibid.* para.43.

44 On patent pools, see the proceedings of the conference "The Economics of the Software and Internet Industries", January 2003, Institut d'Economie Industrielle, Toulouse, available at [www.idei.asso.fr/Commun/Conferences/Internet/Janvier2003/Divers/FramePapers2002.html](http://www.idei.asso.fr/Commun/Conferences/Internet/Janvier2003/Divers/FramePapers2002.html). See also the Commission's actions regarding *ETSI* and *Minidisks* as described in the 25th Annual Report on Competition Policy (1995) at pp.131 and 123, respectively, available at [http://europa.eu.int/comm/competition/annual\\_reports/rap95\\_en.html](http://europa.eu.int/comm/competition/annual_reports/rap95_en.html).

45 Reg.1/2003 on the implementation of the rules on competition laid down in Arts 81 and 82 of the Treaty [2003] O.J. L1/1.

46 See, e.g. Case C-443/99 *Merck Sharp & Dohme GmbH v Paranova Pharmazeutika Handels GmbH* [2002] 2 C.M.L.R. 26 and Case C-143/00 *Boehringer Ingelheim KG v Swingward Ltd* [2002] 2 C.M.L.R. 26. For a thorough review of the case law, see also the Opinion of A.G. Jacobs of July 12, 2001 in those cases. More recently, see the Opinion of A.G. Jacobs of March 7, 2002 in Case C-433/00 *Aventis Pharma Deutschland GmbH v Kohlpharma GmbH and MTK Pharma Vertriebs-GmbH* [2002] 3 C.M.L.R. 24.

47 See Commissioner Monti's SPEECH/01/275 and Commission Press Release IP/01/815 of June 11, 2001, both available at [www.europa.eu.int/rapid/start/welcome.htm](http://www.europa.eu.int/rapid/start/welcome.htm).

48 *IBM Proceedings* [1984] C.M.L.R. 255.

49 Dir.91/250 on the legal protection of computer programs [1991] O.J. L122/42.

50 See Commission documents MEMO/03/20 and IP/03/144 of January 30, 2003, available online from the "RAPID" database at <http://europa.eu.int/rapid/start/cgi/guesten.ksh>.

source code), but it could be prevailed upon by the Commission to accept an effective diminution of the value of those rights, and a commensurate loss in valuable network effects, in return for stopping the case under Art.82.

Directly influenced by the IBM case, the Software Directive incorporated into Community law the notion of interoperability of computer programs. Article 6 of the Directive allows competitors of the author, without his authorisation, to reproduce and decompile code when to do so is "indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program". Interestingly, the Software Directive does not prevent the owners of a dominant technology from changing elements of that interface with the effect of rendering competitors' software non-interoperable. Arguably, however, Art.82 requires a still higher standard of behaviour on the part of dominant undertakings or those controlling a "dominant" technology standard. Since the TCPA consortium has taken the step of publishing its specification, it is likely to be seen to be complying with the interoperability requirements under the Directive. Microsoft has also been reported as willing to release the source code for its Palladium components.<sup>51</sup>

The Commission's new plans for a Directive against counterfeiting and piracy of intellectual property have been heavily influenced by the software industry lobby. It is estimated that 37 per cent of software in use in the EU is unlicensed, to a value of nearly €3 billion. The proposal, if adopted, would require the Member States to provide in national law for the protection of so-called "technical devices" which are incorporated in protected goods at the manufacturing stage, and which serve to identify them as genuine to consumers.<sup>52</sup> Arguably, TCPA hardware could come within this definition, since it is a technical means to protect copyrights in software.

*Can the adoption of a technology with potentially pro- and anti-competitive effects by a large number of industry stakeholders constitute the abuse of a collective dominant position?*

In their book *Platform Leadership*,<sup>53</sup> Gawer and Cusumano advance the thesis that Intel, Microsoft and Cisco capture network effects in the computer industry to

their advantage by developing patented technologies and then establishing consortia, such as the TCPA, to whose members they license the innovation without charge and on a reciprocal basis. Since industry stakeholders expect that any technology supported by the key leading firms may become a standard, they hedge their bets and join the consortium in large numbers at no cost to themselves. Development of the technology accelerates, and the membership of the consortium reaches a certain "critical mass", upon which the technology becomes a *de facto* standard. At this point, even those undertakings which did not adhere to the consortium are obliged, for business reasons, to make their products compatible with the new standard, or risk being sidelined by the industry majority. The TCPA consortium seems to fit this model.

On the face of it, such behaviour would, at least arguably, seem capable of falling within the prohibition in Art.82—namely, limiting production, markets or technical development to the prejudice of consumers. Where the instigators of the consortium already enjoy a dominant position or positions they must be particularly circumspect in their competitive tactics. We would thus suggest that their behaviour in establishing TCPA requires to be examined closely, in order to be sure that a consortium is not being used to take actions which, if adopted unilaterally by dominant firms, could be construed as abuse.<sup>54</sup> We note, however, that some commentators have argued that the practice of tying or bundling new technologies and applications with operating systems, *even when* carried out by dominant players in the industry, should be regarded as beneficial to competition, and that a rule-of-reason approach, rather than a rule of *per se* illegality should be adopted.<sup>55</sup>

## Conclusion

"Trusted computing" promises improvements in the security and functionality of computer systems. It also, however, raises serious and unresolved issues regarding

54 Christian Koenig has argued elsewhere that the Commission should be more pro-active and employ sophisticated analysis techniques when considering Microsoft's capacity to leverage its dominant position in operating systems into neighbouring markets. See his editorial in *Wirtschaft und Wettbewerb*, Vol 53, No.1, January 2003: "Was wäre (gewesen), wenn T-Online von Microsoft... Der Blickwinkel des Wettbewerbsrechts" [*trans.* What if... Microsoft had bought T-Online]. Available (in German) at [www.vhb.de/wuw/kommentare/komm-03/komm\\_01\\_03.html](http://www.vhb.de/wuw/kommentare/komm-03/komm_01_03.html).

55 See Evans, Padilla and Polo, "Tying in Platform Software: Reasons for a Rule of Reason Standard in European Competition Law" (2002) 25(4) *World Competition* 509-514.

51 See <http://news.com.com/2100-1001-938973.html>.

52 Art.21 of the proposal: [http://europa.eu.int/comm/internal\\_market/en/intprop/docs/index.htm](http://europa.eu.int/comm/internal_market/en/intprop/docs/index.htm).

53 Annabelle Gawer, Michael A. Cusumano: *Platform Leadership—How Intel, Microsoft, and Cisco Drive Industry Innovation* (Harvard Business School Press, 2002).



its compatibility with the competition rules applicable in the European Union. The new complaint lodged by the CCIA against Microsoft has presented the European Commission with an unexpected and timely chance to consider the TCPA/Palladium system in detail. We hope that this opportunity can indeed be seized, that a careful and sophisticated analysis will be undertaken, and that

the status of technology consortia in competition law can be clarified. Of particular concern are the issues of whether technological standard-setting, however openly conducted, can amount to a cartel; and, whether dominant undertakings, simply by forming or joining a consortium can dispel suspicion of engaging in abusive commercial behaviour.