Interoperability remedies and innovation: a review of recent case law

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Abstract: *This article provides an economic analysis of recent merger and antitrust case law in Europe and US concerning the use of interoperability and open interface obligations as a competition law remedy. Our research seeks to clarify whether, and to what extent, interoperability remedies can promote both competition and innovation, or whether there is a conflict between these two objectives. Implementation of such remedies is not straightforward and may have a significant effect on a company's decision-making and R&D plans, with the Commission retaining a quasi-regulatory oversight for the duration of the remedy. We seek to identify effects on incentives to innovate that relate to the duration of an interoperability remedy, the monitoring required to ensure compliance and the commercial terms associated with the licensing of information.*

JEL: L40, L50, K21, K42

1 Introduction

The last few years have seen the growing use of interoperability remedies in antitrust and merger decisions. In a number of high-profile mergers, firms such as Siemens, GE, Cisco, and Intel have offered commitments to maintain open interfaces for medical devices, divest interoperability protocols for videoconferencing solutions or agreed the provision of interoperability information for microprocessor chips in order to obtain clearance for major acquisitions. In the field of antitrust, Microsoft was forced by a Decision of the European Commission ("Commission") in 2004 to license interoperability protocols for its Windows Server Operating System Software. The senior Commission official who was in charge of the Microsoft investigation recently expressed his support for interoperability remedies stating *"that these (interoperability solutions) favour market entry by a greater number of players...they stimulate competition in high-tech industries."*[1]

Interoperability as a concept is important not only in antitrust law. Interoperability is relevant in a wide range of industries including healthcare and telecoms where it plays a vital role in ensuring that different systems can exchange information in an effective manner. In order to do this, systems need to agree to operate under the same information protocols or standards. Various standards bodies have proposed definitions of interoperability but also note that these definitions are context specific. For example, the European Telecommunications Standards Institute ("ETSI") provides a number of definitions of interoperability in their White Paper of 2008[2], the most relevant stating that- *"Interoperability is the ability of two systems to interoperate using the same communication protocol."*[3]

[1] Speech by Cecilio Madero Villarejo given at Annual Conference on European Antitrust Law, Brussels, 3 March 2011 http://ec.europa.eu/competition/speeches/text/sp2011_02_en.pdf accessed 25 October 2011
[2] ETSI White Paper No.3 "Achieving Technical Interoperability – the ETSI approach" 3rd edition – April 2008
[3] Ibid, ETSI Project TIPHON.

Although interoperability has been defined as the ability to exchange and use information, it is important to note that *"interoperability is a matter of degree."* (Curley, 2008) Interoperability is therefore the extent to which products can exchange and use information, and it is this degree of interoperability that was at issue in the Microsoft case.

As this paper argues, for the firms involved, the implementation of interoperability commitments means that they are subject to regulatory oversight often for an extended period. Interoperability commitments are long-term behavioural commitments and require monitoring of their implementation. Such longer-term behavioural commitments affect research and development ("R&D") plans and product innovation strategies of the firms concerned. Moreover, as interoperability standards and protocols often rely on formal intellectual property rights ("IPRs") (copyright and patents), interoperability commitments typically contain commercial terms that state whether these rights are to be licensed on a royalty-free basis or against a royalty payment. Where fair, reasonable and non-discriminatory ("FRAND") licence terms are specified, there is room for interpretation. There is no widely accepted definition of FRAND, and the Commission has provided little guidance as to the principles that should be applied to calculate FRAND royalties.[4]

These and other issues are reviewed in this paper. They raise the question as to whether, and to what extent, interoperability remedies in merger control, and antitrust remedies in high-tech sectors more generally, can at the same time promote both competition and innovation, or whether there is a conflict between these two objectives.

We first describe the regulatory context in which interoperability remedies are agreed or imposed and how implementation of interoperability remedies can have an effect on

[4] Goldstein L and Kearsey B, (2004), Marshall N, Jenkins H, Niels G (2008), Geradin D and Rato M (2007) have all discussed proposed definitions of FRAND. Despite this, the concept of FRAND remains ill-defined and open to interpretation.

incentives to innovate (Section 2). We then in Section 3, provide a critical analysis of cases where interoperability remedies have been agreed or sanctioned. Section 4 illustrates our concluding thoughts.

2 Implementation and incentives to innovate

It is important to consider what the longer-term nature and effect of interoperability remedies are on companies that offer them in merger control proceedings or have to accept them as sanctions in antitrust cases. Implementation of a remedy is not straightforward and may have a significant effect on a company's decision-making and R&D plans with the Commission retaining a quasi-regulatory oversight for the duration of the remedy. In dynamic high-tech industries the importance of this effect cannot be underestimated.

2.1 Interoperability remedies in merger control

Remedies are recognised under EC community law in the Merger Regulation of 2004 ("ECMR") as a means for parties to obtain merger clearance subject to the fulfilment of certain commitments which are entered into in order to eliminate any competition concerns identified by the relevant authorities. As stated in the ECMR, commitments submitted by the notifying parties *"should be proportionate to the competition problem and entirely eliminate it*." (ECMR, 2004, para 30).

The revised Remedies Notice of 2008[5] provides extensive guidance on what type of remedies are acceptable to the Commission, how the remedies will be assessed, and how their implementation will be monitored.

Remedies can generally be categorised into two categories: structural and behavioural. Structural remedies give rise to a structural change in the market and are usually characterised by divestiture commitments which tend to hold favour with the Commission. There are some circumstances where structural remedies are not appropriate or indeed sufficient to remedy the competition concerns identified. In these situations, the notifying

[5] Commission notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 [2008] OJ C 267/1

parties may chose to submit behavioural remedies which provide access to the market. Behavioural commitments require long-term, extensive monitoring as they are usually set for a number of years with an annual/bi-annual reporting obligation on behalf of the Monitoring Trustee. Some behavioural remedies can be further subcategorised as "quasi-structural" where they have a structural effect on the market but do not, per se, involve a divestiture.

Interoperability and open interface remedies are essentially access remedies. They allow third parties access to the technology of a dominant undertaking or a merged entity that, but for the remedy, would significantly impede effective competition. They can be characterised as quasi-structural. This means that the remedy is behavioural in essence but has a structural and long-lasting effect on the market. Submission and implementation of an interoperability remedy in EC merger cases involves a number of things. It often encompasses the licensing of the notifying parties' IP to competitors in order to allow for the competitor products to sufficiently interoperate with that of the merging parties. It can also include divestment of an IPR to an independent body, or a commitment to implement a particular protocol on existing and future products (as witnessed in Cisco/Tandberg, 2010). The commitment to provide interoperability information can be seen to remedy competition concerns by removing barriers to entry which then allows competitors to use the merging entities' licensed IP to create products that work in harmony with them, consequently increasing the sale of rival products to compete effectively with those of the parties.

At this point, it is interesting to cross-reference the US system of merger control and the increasing use of the interoperability remedy in high-tech sectors under this system. The main Act governing the regulation of mergers and acquisitions in the US is the Clayton Act

of 1914.[6] The Clayton Act effectively prohibits the monopolisation of a market as a result of a merger or acquisition and aims to protect consumer interest from mergers or acquisitions which may have anticompetitive effects.

In parallel with the EC system for merger control under the ECMR, the US system allows for the submission of remedies in merger cases. The Antitrust Division of the Department of Justice ("DoJ") updated their 2004 Policy Guide to Merger Remedies in June 2011, providing a detailed guide to the types of merger remedies acceptable to the DoJ. Structural and so-called "conduct remedies" (behavioural remedies) are distinguished between in the Policy Guide, with examples of each type of remedy, and in which circumstances this remedy would be deemed to be acceptable.

Although the Policy Guide does not explicitly refer to interoperability as a conduct remedy, it does refer to *"mandatory licensing provisions"*[7] which allow for parties to *"licence certain technology or other assets on fair and reasonable terms."* This mandatory licensing effectively forms part of an interoperability remedy with the aim of allowing competitors to gain access to the proprietary IP of the merging entities in order to maintain competition.

Historically, and reflecting the EC's Remedies Notice of 2008, the US regulatory authorities have exercised a preference for structural remedies as stated in the Policy Guide to Merger Remedies of 2004.[8] This being said, some authors (Fenton, 2011) have recognised an increasing reliance on the use of conduct remedies in the US in recent years which does not easily reconcile with the 2004 Policy Guide. Live Nation – Ticketmaster[9], NBCU - Comcast[10], GrafTech International – Seadrift Coke LP[11] and PepsiCo[12] are all cited by

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[6] Clayton Act, 15 U.S .C. § 12-27
[7] Antitrust Division Policy Guide to Merger Remedies, US Department of Justice, (2011, p15)
[8] Antitrust Division Policy Guide to Merger Remedies, US Department of Justice, (2004)
[9] United States v. Ticketmaster Entm't, Inc., et al., 2010 U.S. Dist. LEXIS 88626 (D.D.C. July 30, 2010)
[10] United States v. Comcast Corp., et al., Case No. 1:11-cv-00106 (D.D.C. Jan. 18, 2011)
[11] United States v. GrafTech Int'l Ltd, et al., Case No. 1:10-cv-02039 (D.D.C. Nov. 29, 2010).
[12] In the Matter of PepsiCo, Inc., FTC File No. 091-0133 (Feb. 26, 2010).

Fenton (2011) as evidence to illustrate a departure from the relatively limited use of conduct remedies in US merger control despite statements made to the contrary in the 2004 Policy Guide.

2.2 Duration

The Remedies Notice of 2008 briefly comments on the duration of non-divestiture commitments stating that *"The Commission may accept that non-divestiture remedies are limited in their duration. The acceptability of a time limit and the duration will depend on the individual circumstances of the case and cannot be pre-defined in a general manner..."*[13] The Commission chose not to define a specific term for behavioural remedies which provides them with flexibility in deciding if a term proposed by the parties is acceptable. High-tech markets are usually fast-moving; hence commitments are often shorter in duration to reflect the fact that this type of market is not static and moves fairly quickly. Submission of a behavioural commitment for a long period imposes a burden on the notifying party to ensure compliance for x number of years. In addition to this, due to the nature of the market concerned, the remedy may no longer be deemed necessary if the technology of the relevant industry has moved on while the commitments remain in force. In practice, a commitment to provide interoperability information is usually set for a specific term, as witnessed most recently in Intel - McAfee[14]. However, in GE – Instrumentarium,[15] the Commission accepted an unlimited term for licensing obligations.

[13] Commission notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 [2008] OJ C 267/1, para 70
[14] Case COMP/M.5984 Intel/ McAfee [2010]
[15] Case COMP/M.3083 GE/ Instrumentarium [2003]

The duration of an interoperability remedy will affect the incentive to innovate if the return on investment in R&D to improve a product which is covered by an interoperability remedy is capped by an obligation to license interoperability information covered by IP, either on a FRAND basis or royalty –free basis.

From a competitor's perspective, their incentives to innovate would also be likely to be reduced by virtue of the fact that they can license protocol information and continue to sell products (thereby generating revenue) for as long as the remedy is in force, rather than investing time and money to develop new and innovative technology of their own. In this respect, provision of interoperability information may increase competition between competitors but innovation may be lessened, indicating that the two do not go hand-in-hand.

2.3 Monitoring

The imposition of remedies on merging firms calls for a mechanism by which these remedies can be monitored. Remedies are only effective when they have been implemented and continue to be maintained. Without an effective means of ensuring compliance, commitments made are merely promises to act or behave in a certain way. As a result, mechanisms designed to ensure compliance with commitments form an essential element of the EC merger control system.

The role of the Monitoring Trustee is outlined in Commission's model text of the Trustee Mandate[16] and generally provides that they will act on behalf of the Commission to ensure the merging entities' compliance with the commitments. In reality, the Monitoring Trustee's role goes a little further than this (Brueckner and Hoehn, 2010). Over time, the

[16] Best Practice Guidelines: The Commission's Model Texts for Divestiture Commitments and the Trustee Mandate under the EC Merger Regulation, Section C and D

tasks undertaken by the Monitoring Trustee have developed depending on the nature of the commitments (structural versus behavioural) which require different disciplines.

The monitoring of an interoperability remedy is not purely a regulatory or compliance issue. It may have an effect on incentives to innovate and therefore the effects of monitoring cross over from compliance into strategic decision-making in terms of R&D efforts. The imposition of a Monitoring Trustee on a merged entity to ensure compliance with a commitment can be somewhat intrusive. During the monitoring process, the company may make decisions relating to products covered by the commitments such as to alter an existing product, discontinue a product or to introduce a next generation product. As a result, future innovations and next generation products may become subject to the scrutiny of the Monitoring Trustee and indeed the Commission. This may cause firms to be more wary and negatively impact their innovation incentives if after development, a future product will fall under the scope of the commitments and be subject to a license to all competitors.

2.4 Commercial terms

A relevant discussion to be had at this point relates to the commercial terms associated with the compulsory licensing of technology under an interoperability remedy in competition law. When the Commission imposes a compulsory licensing remedy, or firms offer interoperability remedies with a licensing element, the commercial terms associated with the licences are critically important to promote competition while at the same time maintaining a firm's incentives to innovate.

Imposing FRAND obligations on a commitment to license technology is fine in theory, but in practice, requires an extensive analysis of the term itself. FRAND as a concept is open to wide interpretation as there is no universally accepted definition. Various commentators

have proposed their interpretations of FRAND from varying perspectives including an economic approach (Marshall et al., 2008) which centres on the market price of IP. Applying this interpretation of FRAND to licensing under a competition law remedy may not actually be considered as FRAND by the Commission given that the market price for IP may reflect the monopoly value of a technology which, as a result, would remain, or become, a barrier to entry. Thus a market-based royalty rate may not resolve the competition concerns identified unless the market power element is corrected (see our discussion of Microsoft below).

Another approach to determining FRAND as taken by Goldstein and Kearsey (2004) is to define the meaning of 'fair', 'reasonable', and 'non-discriminatory' separately. Fair can be defined as a *"matter of knowledge and process, analogous perhaps to what lawyers sometimes call Due Process."* Reasonableness *"is focused on the result, not the process. It means that the end result is something that allows both parties to feel that the outcome is acceptable."* Non-discriminatory is based on the notion of equality (Lewis, 2010). As Goldstein and Kearsey (2004) indicate, this means *"that neither side suffers in comparison to similar deals struck by either of the parties with outside or 'third' parties... 'non discriminatory' does not require every party to get exactly the same licence from every other party, but... that each party can say that it received a 'reasonable' deal."*

Interoperability standards and protocols often rely on formal IP (copyright and patents). Interoperability commitments therefore need to be clear whether these rights are to be licensed on a royalty-free basis or against a royalty payment.[17] The case law examined in section 3 below shows a range of provisions:

- Siemens/ Drägerwerk: royalty-free or documentation cost basis
- GE/ Instrumentarium: royalty-free or documentation cost basis

[17] See also case COMP/38.636 Rambus [2009]

- Cisco/ Tandberg: royalty-free
- Intel/ McAfee: royalty-free
- Microsoft: fair, reasonable and non-discriminatory

Where commercial terms state that interoperability information is to be provided for free, it is accepted that this means that there is no charge for the provision of the information but documentation and support may be charged on a cost basis. Where FRAND commitments are put in place, this leaves room for interpretation as there is no widely accepted definition of FRAND, and as stated above, the Commission has provided little guidance as to the principles that should be applied to calculate FRAND royalties (Veljanovski, 2008)

It is important to consider the effect that commercial terms in a licence for the provision of interoperability information have on the party providing the information. As stated above and further discussed in section 3, provision of interoperability information can be on a FRAND or royalty-free basis. Where interoperability information is licensed royalty-free, this is bound to have a negative impact on R&D incentives. Protocols may be protected by patents, the application for and renewal of which costs vast sums of money. Licensing IPR's creates a revenue stream that recoups the costs associated with R&D and IP protection. Having to license on royalty-free terms removes incentives to invest in product development.

Conversely, licensing on royalty-free terms to a competitor who previously could not gain access to the market, increases competition. It provides them with an opportunity to enter the market by licensing the required technology for free. They can then use this as a basis to create products to compete with the merged entity. Getting the balance right between the objectives to promote competition and innovation manifest itself acutely in the area of compulsory licensing. Clarifying the determination of FRAND royalties would, in light of this, seem a priority.

3 A review of interoperability remedy case law

The aim of an interoperability remedy is to restore (mostly) vertical competition concerns that arise as a result of a merger. The form of an interoperability remedy is not always identical, and can involve a number of different measures, as demonstrated in the cases mentioned below. The scope of an interoperability remedy is fairly wide-reaching and can involve the divestment of intangible assets as well as licensing obligations in a wide range of industries including medical equipment, videoconferencing solutions, computer operating systems and chipset design. An examination of a number of cases clearly demonstrates the evolution of the interoperability remedy, and the increasing number of elements that an interoperability remedy can embody.

3.1 IBM (1984)

The IBM[18] antitrust investigation of the 1980's related to the bundling of IBM's hardware and software (the central processing unit and the IBM System/370 operating system). The Commission adopted a formal Decision against IBM in 1984 to which IBM submitted an undertaking whereby they committed to *"disclose, in a timely manner, sufficient interface information to enable competing companies in the Community to attach both hardware and software products of their design to System/370."*[19] Under the commitment, any party who could provide evidence that they were engaged in business in the EEC and were manufacturing products of a relevant type to require access to interfacing information could make a request to IBM. The provision of interoperability information in this case was not free; rather it was to be provided on a reasonable and non-discriminatory ("RAND") basis.

[18] Commission Case IV/29.479.
[19] Case COMP/C-3/37.792 Microsoft [2004] para 738

The effect of the IBM undertaking on the market was captured in Fin Lomholt's opinion on the case published in the competition policy newsletter of 1998 [20] as follows-

> *"The main effect of the U/T (undertaking) was that as from 1 August 1984 it enabled competitors of IBM who were entitled to receive interface information under the U/T credibly to assure their clients that, due to IBM's obligations, their relevant products would continue to be System/370-compatible for at least about five and a half years. As a result of the U/T the fear, uncertainty and doubt which in that respect had hampered their sales efforts and thus their competitiveness in the marketplace before the Commission's acceptance of the U/T had thus been dispelled for the period up to 31 December 1989."*

The IBM undertaking represents an important step in the development of interoperability as a competition law remedy, and also introduced the RAND royalty concept into European Competition law.

3.2 Siemens/ Drägerwerk (2003)

The Siemens – Drägerwerk merger[21] in the medical equipment sector raised both horizontal and vertical competition concerns on the markets for ventilators and anaesthesia equipment. The merger raised concerns as it would have given the parties a very high market share in the market for anaesthesia delivery equipment. In addition to this, competitors feared that as a result of the merger, the merged entity would favour patient monitors manufactured by Siemens and may potentially fail to provide relevant information so that all manufacturers

[20] Competition Policy Newsletter [1998] Number 3, October http://ec.europa.eu/competition/publications/cpn/cpn19983.pdf accessed on 31 January 2012
[21] Case COMP/M.2861 — Siemens/ Drägerwerk [2003]

of monitors could interface with the ventilators and anaesthesia delivery equipment manufactured by the newly-merged entity.

In order to mollify the Commission's concerns, Siemens agreed to divest Siemens's Life Support Systems unit which would remove the overlap between the parties and bring their market share back down to an acceptable level. The purchaser of Siemens's Life Support Systems business could then run the divestment business in competition with the merged entity.

With regard to fears that the merged entity would give preference to Siemens monitors over and above the monitors sold by competing manufacturers, the joint-venture ("JV") parties agreed that they would provide technical interoperability information to allow competitor products to communicate with other relevant products manufactured by Siemens.

The interoperability commitment offered by the JV was comprised of the following elements. They undertook to keep open their existing interfaces on their therapy devices and patient monitors used in clinical critical care or the adjacent clinical area with respect to their combination with third party patient monitors of data management systems. They also committed to equip future devices with these open interfaces and agreed to provide, free of charge or at documentation cost, all of the information about the interface and communication protocol used for a therapy device which is necessary to ensure interoperability of Siemens devices with third party products (to be provided in the form of a licensing agreement).

In relation to certification cooperation, the JV agreed that they would, upon request, carry out the necessary certification of a combination of the JV's therapy equipment with third party patient monitors. The Commitments stated that such certification could be carried out

by testing or by the lending of such equipment; an element that is resonant of the GE commitment to loan equipment to third parties, as detailed below.

Siemens committed in their merger with Drägerwerk to provide interfacing information *"on a non-discriminatory basis and free of charge, (or with a charge to cover documentation costs)."*[22]

3.3 GE/Instrumentarium (2003)

Immediately following on from the Siemens merger, GE acquired the Finnish medical equipment company, Instrumentarium. Given the recent consolidation of the marketplace, the Commission raised concerns about the subsequent market share that the merged entity would control following the merger. The merger would combine two of the four leaders in the market for patient monitors.[23] Competitors raised concerns that post-merger, GE may give preference to its own patient monitors and its Clinical Information System (CIS) over monitors and other systems manufactured by competitors, and may refuse to provide interoperability information to allow the different products to interface and exchange information.

Drawing parallels with the Siemens case, GE committed to divest Spacelabs, and enter into a number of supply agreements with the purchaser of the divestment business to ensure its viability. In order to remedy the vertical concerns raised by the Commission, GE also committed to provide interfacing information necessary for the patient monitors and CIS of

[22]Ibid, para 156

[23] EC press release for clearance decision in GE/ Instrumentarium - http://europa.eu/rapid/pressReleasesAction.do?reference=IP/03/1193 accessed 04.11.2011

competitors to be able to interoperate with products produced by GE, particularly anaesthesia delivery equipment and ventilators.[24]

The open interface commitment undertaken by GE was comprised of a number of elements.

Firstly, GE committed to maintain open interfaces on their existing and future therapy devices, patient monitors and CIS. Secondly, GE was also under an obligation to provide the technical information necessary to allow third party equipment to interoperate with that of GE's, free of charge or at documentation cost and under non-discriminatory terms. The information to be provided under a licence agreement concerned communication interface protocols and other specifications. Thirdly, GE committed to make available, upon request, any new devices or upgrades to the products covered under the commitments, at charge, in order to allow for third parties to be able to test interoperability. GE also committed to certification cooperation with third parties which would provide them with examination and testing services, and undertook to provide third parties with the necessary physical components needed to allow for open interfaces, at reasonable and non-discriminatory market prices. Similarly to Siemens/Drägerwerk (2003) GE committed to provide interoperability information *"free of charge or at documentation cost, and on a non-discriminatory basis."*[25]

3.4 Microsoft (USA, 2000/2002)

In 1998 in the USA, the DoJ and a large number of other States filed a suit against Microsoft alleging that they had fallen foul of Sections 1 and 2 of the Sherman Act 1890. In

[24] Ibid
[25] Case COMP/M.3083 – GE/ Instrumentarium [2003] Open Interface Commitment, para iii.

1999, Judge Jackson issued his findings of fact[26] which concluded that Microsoft had monopolised the PC operating systems market and had subsequently maintained that monopoly through a number of abusive practices in contravention of Section 2 of the Sherman Act. Judge Jackson also found that Microsoft had illegally tied its Internet Explorer to the Windows operating system and had engaged in other exclusionary practices under Section 1 of the Sherman Act. The remedy order[27] issued by Judge Jackson in 2000 required the break-up of Microsoft which was consequentially, and unsurprisingly, appealed by Microsoft to the DC Circuit. The DC circuit affirmed the finding of abusive conduct but reversed the order requiring the breakup of Microsoft. A final remedy judgement[28] was issued in 2002 which required Microsoft to license certain communications protocols in order to allow rivals to interoperate with the Windows operating system.

The remedy consisted of three main elements- *"First it attempted to prohibit Microsoft from foreclosing the OEM ("Original Equipment Manufacturers") channel of distribution by eliminating restrictive licensing agreements... Second, the settlement offered a series of compliance measures with the goal of enforcing the terms of the settlement agreement. Third, and most importantly, the settlement attempted to keep open the ISP distribution channel by placing limits on Microsoft's ability to discourage other from developing, promoting, or distributing non-Microsoft middleware products*" (Rubinfeld, 2003). The intended effect of the remedies in Microsoft were to prevent Microsoft from engaging in future abusive conduct against rivals who threatened their market position. More importantly, the remedy provided for limited disclosure of communication protocols to allow for interoperability between rival servers and the Windows operating system.

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[26] United States v. Microsoft Corp., 84 F. Supp. 2d 9 (D.D.C.1999)
[27] United States v. Microsoft Corp., 97 F. Supp. 2d 59 (D.D.C. 2000)
[28] United States v. Microsoft Corp., No. 98-1232, 2002 WL 31654530 (D.D.C. Nov. 12, 2002).

The DoJ's case against Microsoft in the USA, and subsequent consent decree detailing the remedies to be imposed on Microsoft, were behavioural in nature and focused on the provision of interoperability information to competitors, but also included provisions to prevent Microsoft from behaving in a certain way towards original equipment manufacturers. In contrast to the European Commission's set of remedies imposed on Microsoft, a few years later the DoJ and DC Circuits approach seemed to focus more on what Microsoft were not allowed to do, rather than what they had to do, as a result of their abusive conduct on the market for operating systems.

In a related development in 2002, Netscape Communications, a subsidiary of AOL, filed a lawsuit against Microsoft alleging that Microsoft had illegally tied the Internet Explorer browser to the Windows operating system resulting in the promotion of Internet Explorer over and above that of the Netscape Navigator browser.

The antitrust settlement provided Netscape with a royalty-free licence for a term of seven years to use the Internet Explorer web browser with AOL's software. Microsoft further committed to ensure the interoperability of the instant messaging systems of the two parties. As mentioned in the IBM case above, this provides a fairly standard example of the scope of an interoperability remedy.

3.5 Microsoft (EU, 2004)

In 1999, the Commission opened proceedings against Microsoft[29] under Article 82 EC Treaty (now Article 102 TFEU), alleging that they had abused their dominant position on the market for work group server operating systems. After a five-year investigation into the case, and the issuance of three statements of objections, the Commission adopted a formal

[29] Case COMP/C-3/37.792 Microsoft [2004]

Decision in 2004 stating that Microsoft had abused their dominant position in the market for PC operating systems (Kühn and Van Reenen, 2008). Microsoft's alleged anticompetitive behaviour was two-fold; the case concerned its deliberate attempt to restrict *"interoperability between Windows PCs and non-Microsoft work group servers, and by tying its Windows Media Player (WMP), a product where it faced competition, with its ubiquitous Windows operating system."*[30]

In order to remedy the abuse, the Commission insisted on a number of remedies from Microsoft relating to the provision of interoperability information and the untying of windows media player from the Windows operating system, in addition to a fine of €497.2 million. Microsoft subsequently appealed to the Court of First Instance ("CFI") who upheld the Commission's finding of an abuse of dominance and ordered Microsoft to comply with the licensing remedy imposed by the Commission.

Focusing on the interoperability remedy, Microsoft were obliged to, within 120 days of the Decision,[31] provide "*complete and accurate specifications for the protocols used by Windows work group servers in order to provide file, print and group and user administration services to Windows work group networks."*[32] The remedies also imposed an obligation on Microsoft to provide updated interoperability information when new versions of the relevant products were released.[33] The provision of this information was required to be on a RAND basis, and to be made available to any undertaking having an interest in developing and distributing work group server operating system products.

The Microsoft case represents the Commission's fairly standard approach to the interoperability remedy. Microsoft were obligated to supply interested third parties with the

[30] EC press release in Microsoft case - http://europa.eu/rapid/pressReleasesAction.do?reference=IP/04/382&format=HTML&aged=0&language=EN&guiLanguage=en accessed 14.10.11
[31] Case COMP/C-3/37.792 Microsoft [2004], Article 5
[32] Ibid, para 999
[33] Ibid, para 1002

relevant information in order for them to create products that could interoperate with the Windows system- *"Microsoft's competitors can develop products that interoperate with the Windows domain architecture natively supported in the dominant Windows client PC operating system and hence viably compete with Microsoft's work group server operating system."*[34]

Similar to the Consent Decree in the USA, Microsoft was permitted to charge competitors for the licensing of their specifications for protocols used by Windows, albeit that this licensing, to ensure its effectiveness as a remedy, was to be on RAND terms. In the Decision, the Commission appeared to recognise the value of what they were asking Microsoft to provide, and permitted them to charge licensees for the provision of the specifications. It can be argued that at least part of the value of the IPR's was recognised by the Commission: *"In any event, to the extent that this Decision might require Microsoft to refrain from fully enforcing any of its intellectual property rights, this would be justified by the need to put an end to the abuse."* [35]

In November 2005, the Commission issued a Decision[36] to Microsoft where they imposed periodic penalty payments (under Article 24 of Regulation 1/2003) against Microsoft for failing to comply with their obligations stemming from the earlier Commission Decision of 2004. The issue here, related to the sufficiency of the interoperability information provided by Microsoft which had been reviewed by the Commission and Monitoring Trustee, as well as other third parties, and subsequently deemed as inadequate for the purposes of allowing Microsoft's competitors to develop work group servers that would be interoperable with the

[34] Ibid, para 1003
[35] Ibid, para 1004
[36] Case COMP/C-3/37.792 Microsoft [2005] Article 24 Decision

Windows system. Microsoft's failure to provide sufficient interoperability information was a breach of their commitment to *"disclose complete and accurate specifications."*[37]

In addition to the sufficiency of interoperability information, the Article 24 Decision provides an extensive analysis of the commercial terms relating to the provision of interoperability information to Microsoft's competitors. Microsoft created the Microsoft Work Group Server Protocol Program ("WSPP") which was a licensing program for the purposes of the Commission's Decision requiring Microsoft to provide interoperability information. Microsoft provided some structure as to the provision of interoperability information according to what exactly was being requested.[38] The WSPP gave an overview of Microsoft's Pricing Principles ("The Principles") in setting the royalty rates that they demanded for access to interoperability information. The Principles stated when remuneration for licences was acceptable and that excessive royalties would undermine the purpose of the Article 82 Decision in 2004. The Principles state that a cap on royalty rates was acceptable, giving regard to three fundamental factors. Firstly, that the protocols were Microsoft's own creations. Secondly, that there were innovations in those creations, and finally, taking into account the valuation of comparable technologies which excluded the strategic value stemming from the dominance of such technologies. The Commission stated in the Decision that any remuneration that was not in line with any of the factors listed above, was unreasonable.

The level of remuneration was based on the recipient's net revenue generated by products implementing the WSPP protocols, or on a per-server basis.[39] Microsoft recognised that they could not request remuneration for the provision of interoperability information for which there was no innovation. This was a key area of dispute for the Commission in determining

[37] Case COMP/C-3/37.792 Microsoft [2004] para 999
[38] Technical documentation, relevant patents for all WSPP protocols or a specific task, a specific scenario within a task or interface definition language only.
[39] Case COMP/C-3/37.792 Microsoft [2005] Article 24 Decision, para 108.

whether firstly, Microsoft were entitled to demand any royalty rates at all, and secondly, the amount of remuneration that Microsoft would be entitled to receive. Note that under US and EU patentability requirements, an invention is only patentable if it is new and involves an inventive step, or under US terminology, is "non-obvious." The Commission do refer to the fact that technology needs to be novel and involve an inventive step in order to be patentable,[40] however, they go on to state that *"that does not necessarily entail that no further investigation into the patented technology is needed in order to establish a reasonable price."*[41] The contentious issue here is that the Commission are stating that a further investigation is needed to establish a reasonable royalty rate, not to establish innovation. Innovation has already been established in light of the fact that the technology was accepted as patentable in the first place. It could be argued that the Commission did not give enough weight to the argument put forward by Microsoft when they established that innovation was evident as the technology was indeed covered by a patent.

The remuneration rates set by Microsoft also included a minimum and maximum royalty rate, and licensing of the technical information was to be requested under a "No Patent Agreement", "Patent Only Agreement" or an "All IP Agreement". The No Patent Agreement provided for licensees to gain access to interoperability information, but without taking a licence for patents which Microsoft claimed were necessary to interoperate with the Windows client PC's and Windows work group server. The "Patent Only Agreement" provided licensees with access to patents which Microsoft deemed necessary to interoperate with the Windows client PC's and Windows work group server operating systems, while under the All IP Agreement, licensees would gain access to the patents necessary, as well as the technical documentation required to enable interoperability.

[40] Ibid, para 165
[41] Ibid

Having investigated the level of royalties being demanded from Microsoft, the Commission stated that competitors *"would be placed at a significant commercial disadvantage vis-à-vis Microsoft if the royalty that it has to pay is the same as the stand-alone price of Microsoft's work group server operating system product."*[42] Charging rivals a similar royalty rate to licence a part of a technology, as that which customers would pay for a whole operating system makes little sense and goes against the purpose of the Commission's Decision. Rather than encouraging competitors to licence the technology and invest in R&D to develop products that would work on the Windows platform, the level of remuneration rates that Microsoft were requesting would cause a chill on innovation incentives. In order to maintain these levels of royalty rates, Microsoft would have to demonstrate that the rates were objectively justifiable, a challenge that Microsoft ultimately failed in. Microsoft's argument supported by a report by their advisors, PriceWaterhouseCoopers ("PwC")[43] was based on the premise that the profits accrued by the licensees as a result of the implementation of the protocols on their products, should be shared with the inventor of the technology, Microsoft. This "Income Approach" is outlined as follows- *"income approach estimates the incremental profits from the licenses intellectual property, and allocates these profits between the licensee and the licensor."*[44] PwC estimated that competitors who licensed the protocols from Microsoft would receive a 55-75% profit margin as a result, so for Microsoft to receive 25% of this, should be considered as reasonable (especially when considering what Microsoft were actually demanding was much lower than this).[45] In addition to this, the Commission looked into other comparable technologies which were being licensed in the marketplace as royalty-free. In addition to this, it appeared that

[42] Ibid, para 118
[43] One of the authors was part of the PwC Advisory team.
[44] Case COMP/C-3/37.792 Microsoft [2005] Article 24 Decision, para 153
[45] Ibid, para 156

Microsoft were also licensing similar technologies as royalty-free, hence the justification for the remuneration rates charged under the Article 82 remedy were hard to justify.

The arguments put forward by PwC on behalf of Microsoft appeared to hold no weight with the Commission, who concluded that Microsoft had failed to objectively justify the remuneration rates that they were charging, which the Commission felt were unreasonable. After the issuance of another Statement of Objections to Microsoft in July 2006, Microsoft agreed in 2007 to amend the royalty rates demanded under their licensing agreements. The "No Patent Agreement" remuneration rate was amended to a flat fee of €10 000. The remuneration rates under the "Patent Only Agreement" were adjusted to 0.4% of licensees' product revenues rather than the 5.95% that was initially demanded by Microsoft.[46]

3.6 Cisco/Tandberg (2010)

More recently, Cisco acquired Tandberg which raised horizontal competition concerns as both companies were active in the market for videoconferencing solutions. In order to remedy competition concerns, Cisco submitted a remedy package with a number of commitments. They agreed to divest their rights in the Telepresence Interoperability Protocol ("TIP") to an independent industry body. The aim of this remedy was to allow for the interoperability of products between Cisco and its competitors. The divestment of the asset permitted other manufacturers of videoconferencing solutions to participate in updates to the TIP protocol,[47] which may become an industry standard sometime in the future. In addition to the divestment of TIP, Cisco also committed, until the divestment of TIP was

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[46] EC press release - Microsoft 22.10.2007 http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1567&format=HTML&aged=0&language=EN&guiLanguage=en accessed 20.10.11

[47] EC press release in Cisco/ Tandberg - http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/377 accessed 04.11.11

complete, to provide any third parties with a *"worldwide royalty-free license"*[48] to any of its current or future patents that would be deemed essential for the implementation of TIP.

Cisco made two other behavioural commitments to the Commission in order to promote interoperability. They agreed to publish a source code library for their TIP version 7, which was to be made available to third parties under an open source license. Secondly, in order to continue to ensure interoperability of Cisco products with that of competitors who were implementing TIP, Cisco committed to implement TIP on a number of products, and successor products.

The remedies submitted essentially committed Cisco to provide free access to proprietary information. An important point to note about the Cisco case is that, before the Commission investigation of the merger and subsequent approval with commitments, Cisco were already providing royalty-free licenses to third parties for future patents that were deemed necessary to implement TIP.[49] If Cisco had then decided to charge for the TIP licences in their commitments, it is likely that the Commission would have deemed this as unacceptable and discriminatory, and requested a modification to the commitments package.

Cisco is unique as an example of an interoperability case due to the fact that the case involved the divestment of an intangible asset in order to ensure interoperability in the market for videoconferencing solutions.

3.7 Intel/McAfee (2011)

Intel/McAfee provides an interesting example of a recent merger that did not raise horizontal or vertical competition concerns, but rather concerns of a conglomerate effect. The two parties were active in complementary markets, and as a result, the Commission

[48] Case COMP/M.5669 Cisco/ Tandberg [2010] para 1.1 of Commitments
[49] Ibid, para 64

raised concerns as to the possible bundling of Intel's computer processing units ("CPU's") with the security solutions provided by McAfee. The Commission raised concerns on behalf of both Intel's competitors and McAfee's competitors. On the one hand, the concern related to the interoperability between the security solutions offered by other vendors with Intel's chipsets, and the on the other, the compatibility between McAfee solutions and non-Intel chipsets. In order to remedy the Commission's concerns, Intel offered a number of commitments relating to interoperability which were accepted by the Commission. Intel agreed to provide manufacturers of competing antivirus software solutions with the necessary information to allow their software to interact with the chipsets offered by Intel in the same way that McAfee's solutions would be able to interact. The initial remedy package as offered by Intel excluded the provision of interoperability information for all future solutions that Intel and McAfee would develop together. The Commission did not believe that this was sufficient and rejected the remedy package for a number of reasons. In the final (and much improved) set of commitments submitted to the Commission, Intel committed to provide interoperability information for future innovations. They also increased the duration of the commitments from three to five years and offered to include a "switch off" mechanism so that other security solutions could be replaced with McAfee as a security solution.

The Intel case also provides an extension into the scope of an interoperability remedy by requiring that the merging parties provide interoperability information for new products that may be jointly developed. This remedy effectively goes beyond what was requested in Microsoft whereby Microsoft had to provide updated information for new versions of relevant products covered by the remedies, and requires Intel to provides interoperability information for any new innovations that Intel and McAfee may develop together in the forthcoming years.

4 Concluding comments

Interoperability remedies provide a major challenge for competition law enforcement and require a careful balancing of competition and innovation objectives. Our review of the recent case law suggests that the enforcers have struggled to find this balance. In particular the implementation of interoperability remedies can have a number of effects, both positive and negative on incentives to innovate. From our analysis, it appears that innovation and promotion of competition do not always go hand-in-hand; when effects of implementation of the remedy are assessed, incentives to innovate tend to be reduced while competition increases.

The Commission's practice regarding commercial terms in IP licences appears to lack consistency when we compare Article 102 cases with merger cases. IBM and Microsoft were in principle permitted to charge for access to interoperability information, albeit on FRAND terms, however, the licences that Microsoft finally had to accept were much lower than what they originally proposed as being in line with commercial FRAND licensing and lower than those accepted in the IBM case.[50]

It is interesting to consider the possible justification for the difference in approach to the commercial licensing terms in Article 102 cases versus merger control cases. While the provision of interfacing information in GE and Siemens required the release of proprietary protocol information which was something of value to both companies, it is interesting to consider why both Siemens and GE opted to provide this information for free, while Microsoft were permitted to charge for access to their interfacing information.

[50] After the issuance of another Statement of Objections to Microsoft in July 2006, Microsoft agreed in 2007 to amend the royalty rates demanded under their licensing agreements. The "No Patent Agreement" remuneration rate was amended to a flat fee of €10 000. The remuneration rates under the "Patent Only Agreement" were adjusted to 0.4% of licensees' product revenues rather than the 5.95% that was initially demanded by Microsoft. See EC press release - Microsoft 22.10.2007 http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1567&format=HTML&aged=0&language=EN&guiLanguage=en accessed 20.10.11

It can be argued that the reason why these companies opted to give away interoperability information for free was because this was standard industry practice. Before the merger of Siemens and Drägerwerk and GE and Instrumentarium, healthcare technology companies were openly providing interoperability information in order for their products to work together as medical solutions to be used in hospitals.

Back to Microsoft, we note that the purpose of an Article 9 remedy is to restore the status-quo ante, that being the level of competition that existed before the Article 102 abuse. The purpose of the interoperability and unbundling remedy was not to punish Microsoft. The €497.2 million fine was put in place to punish Microsoft. Demanding that Microsoft license their interoperability information for almost free smacks of punishment and is arguably disproportionate. The lack of an accepted definition of FRAND royalties means that the appropriate balancing between competition and innovation remains an elusive concept.

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