

Innovation and competition policy

Part II – case studies

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PREFACE

This report was jointly commissioned by the Office of Fair Trading (OFT), Department of Trade and Industry (DTI) and Office of Telecommunications (OFTEL) from Charles River Associates. They were asked to examine the role and application of competition policy within markets characterised by large scale product and service innovation.

Any views expressed are those of the authors and they do not necessarily reflect the views of the OFT, DTI or OFTEL. This report is not and should be not treated as a guideline issued as a consequence of the Director General's obligation to publish general advice and information under the Competition Act 1998.

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The OFT would welcome suggestions for future research topics on aspects of UK Competition and Consumer Policy.

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1 INTRODUCTION

- 1.1 Part I of this report considered in depth the characteristics of the new economy or high technology industries that are important when considering the application of competition policy to such industries. It then went on to consider the issues that should be considered when undertaking analysis of competition problems in such markets under the major headings of unilateral behaviour, collective behaviour and mergers. Most of the discussion in Part I was general in nature, with only a limited number of practical examples given to illustrate points. Furthermore, those examples did not necessarily reflect the key issues of the case quoted.
- 1.2 The purpose of this section is to undertake a more in-depth analysis of ten actual cases. This allows the cases to be described in more detail, and means that the analysis can focus on the key issues (from the perspective of this report) that were relevant to the particular case. The case studies are therefore intended to give a specific context which can be used to demonstrate some of the general points raised in Part I of this report.
- 1.3 In selecting the cases, we have endeavoured to cover a broad range of issues. The table below provides an overview of the cases selected.

TABLE 2.1 – OVERVIEW OF CASE STUDIES

<i>Case</i>	<i>Category</i>	<i>Industry or Firms</i>	<i>Juris.</i>
1. Microsoft	Unilateral Conduct	Computer Software	US
2. Video Games	Unilateral/Collusive Conduct	Nintendo and Sega	UK
3. Intel	Unilateral Conduct	Computer Hardware	US
4. Dell	Unilateral Conduct	Computer Hardware	US
5. Summit/VISX	Patent Pool	Medical Lasers	US
6. Iridium	Joint Venture	Satellite Communications	EU
7. BiB	Joint Venture	Digital Interactive Television	EU
8. Adobe/Aldus	Merger – Horizontal	Computer Software	US
9. Time Warner/Turner	Merger – Horizontal and Vertical	Media – Content and Distribution	US
10. Silicon Graphics	Merger – Horizontal and Vertical	Computer Software and Hardware	US

DISCLAIMER

- 1.4 In undertaking the case studies, we have had to rely upon information that is available in the public domain. We have therefore been dependent on the facts as presented in public documents. Furthermore, we note that those facts are most often presented by the prosecuting body, and that the publicly available documents in many of these cases are relatively brief. Given this, the reader should keep in mind the following points:
- The views we offer of these cases are intended to provide a basis for discussion and thinking about the issues raised in Part I of the report, and are not intended to conclusively decide whether a case was correctly decided by the adjudicating body.
 - Each case begins with sections covering background information, the alleged anti-competitive actions, and where appropriate any action taken by the adjudicating authority. These sections are generally paraphrased summaries of the adjudicating authorities' decisions. Facts, statements and allegations contained within these sections are those reported by the relevant authority, except where statements are otherwise referenced.
- 1.5 The views expressed are those of the authors and not necessarily those of the Advisory Panel or CRA. Although members of the Advisory Panel have been involved in some of the cases discussed,¹ no confidential information has been sought from, or provided by, the experts.

¹ Fisher testified for the Department of Justice in the Microsoft case, whilst Shapiro worked for the States in the Microsoft case and for Intel in the Intel case.

2 MICROSOFT

Background

EVENTS LEADING UP TO THE CASE

- 2.1 In June 1990, the Federal Trade Commission launched a probe into possible collusion between Microsoft and IBM. In 1993, the DoJ took over the investigation after the FTC deadlocked. Microsoft settled the antitrust charges in 1994 by signing a consent decree forbidding the company from using its operating system dominance to damage competition. A year later, the US District Court approved this decree.
- 2.2 In October 1997, the DoJ filed a complaint claiming Microsoft had violated the consent decree by demanding PC makers bundle its Internet Explorer web browser (MSIE) with their PCs in order to obtain a license for Microsoft's Windows 95 operating system. The District Court ordered Microsoft to stop forcing PC manufacturers to ship Internet Explorer with Windows 95. In May 1998, an appeals court ruled that this injunction did not apply to Windows 98. Six days later, the DoJ and 20 state attorney generals filed an antitrust suit against Microsoft, charging the company with using its market power to stymie competition.

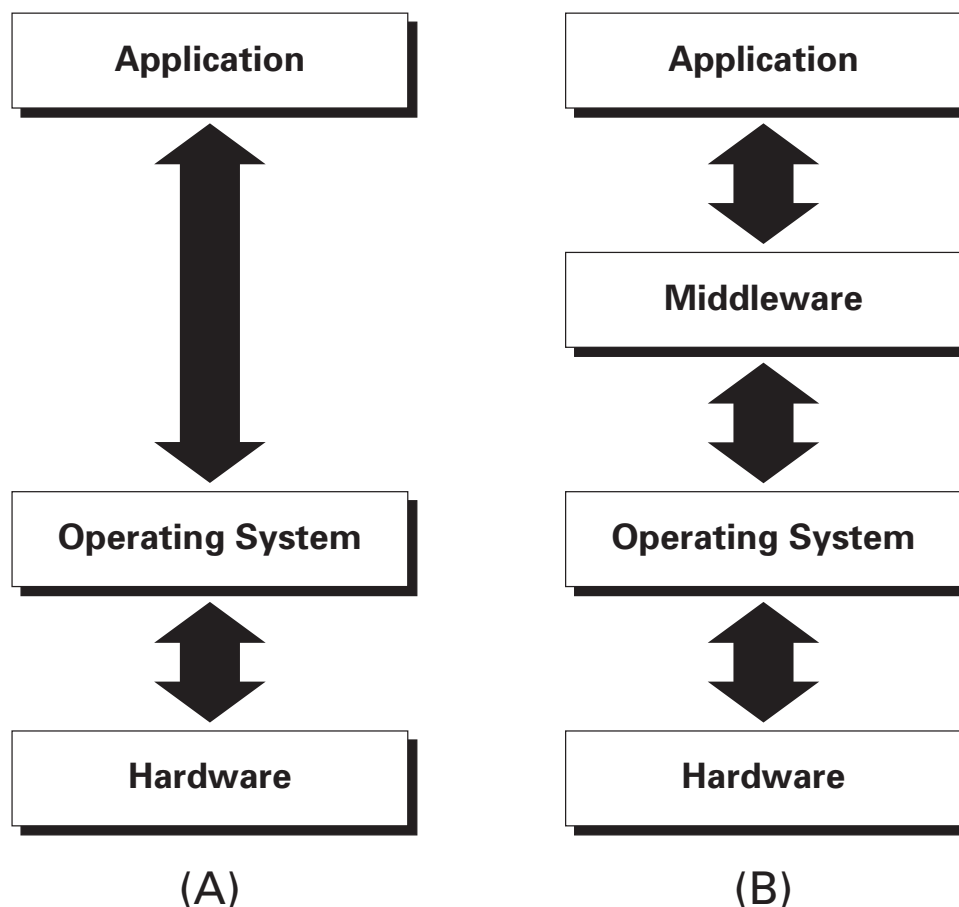
WHAT DID MICROSOFT DO TO DESERVE THIS ATTENTION?

- 2.3 The DoJ charged four specific antitrust violations:
 - unlawful exclusive-dealing arrangements,
 - unlawfully tying MSIE to Windows 95 and 98,
 - unlawful maintenance of a monopoly in the PC operating system market, and
 - attempted monopolisation of the internet browser market.
- 2.4 The overarching theme was the accusation that Microsoft had used its market power in the operating systems market in an anti-competitive fashion to preserve its dominant position, especially from the threat of so-called 'middleware' products. Possibly the most important (and certainly the most widely publicised) example of this was Microsoft's reaction to the threat it perceived from Netscape, although Microsoft dealt in a similar fashion with the threat it perceived from Sun's Java.

MIDDLEWARE PRODUCTS

- 2.5 Middleware products are software that sits on top of the operating system as an intermediary to applications. Table 2.1 illustrates the role of middleware. Table 2.1 (A) illustrates the situation without middleware. The application (eg, word processor) interacts directly with the operating system via the operating system's APIs (application program interfaces). The operating system then transmits the application's instructions to the hardware, which performs the tasks requested by the application. The problem for application developers is that APIs for different operating systems are very different. Thus, porting an application from one platform to another can easily become a costly endeavour. Middleware can reduce this problem. As Table 2.1 (B) illustrates, middleware sits between the application and the operating system. An application written for the middleware product can then call the middleware's APIs instead of the operating system's. The middleware then passes these instructions on to the operating system, which in turn passes the instructions on to the hardware. The key is that middleware used on different platforms can have the same APIs, regardless of platform, thus allowing software to run on a number of different platforms without needing to be tailored for the specific operating system.

FIGURE 2.1 – THE ROLE OF MIDDLEWARE



- 2.6 The threat to Microsoft's position in the market for operating systems stems from the fact that developers would be able to easily port their applications from one operating system to another if a middleware product were to become ubiquitous across different operating systems. This in turn would cause consumers to care less about the operating system they are using, as they would be able to use the same applications on different platforms. This in turn would weaken Microsoft's position in the operating systems segment by lowering the 'applications barrier to entry'.
- 2.7 The applications barrier to entry refers to the fact that consumers will prefer the operating system with the largest number of applications written for it, while developers prefer writing applications for operating systems with the largest user base. Rewriting applications to run on an additional platform is a costly endeavour whilst the economies of scale in writing software are huge: all the costs are 'first copy' costs. Thus, any potential competitor to Microsoft's operating system faces the 'chicken and egg' problem of attracting both users and developers to its platform. This problem is the 'applications barrier to entry.'
- 2.8 A piece of software that would remove this problem – middleware – would go a long way towards lowering the applications barrier to entry and making alternative operating systems more attractive to developers by lowering the cost of porting an application. This would increase the number of applications available on different platforms and attract more users to these other platforms. Taken to its extreme, middleware has the potential of making all applications available on all platforms, in which case consumers would not care which operating system they are using.
- 2.9 In order to prevent Netscape from attaining a position where it could pose a threat to Microsoft's dominance (ie, as a piece of middleware), Microsoft engaged in activities that curbed the effective distribution of Netscape's browser. Specifically, Microsoft:
- integrated MSIE into Windows, and
 - entered into exclusivity agreements with Original Equipment Manufacturers (OEMs), Internet Access Providers (IAPs), Internet Content Providers (ICPs), Independent Software Vendors (ISVs) and Apple Computer.

The integration of MSIE into Windows

2.10 The integration of MSIE into Windows occurred on three levels:

- MSIE was removed from the 'Add/Remove Programs' utility in Windows, making it difficult for users to remove the browser from their computers,
- Windows was designed to override the user's choice of a default browser in certain instances and to use MSIE instead, and
- 'commingling code related to browsing and other code in the same files', which makes it difficult to identify which files should be left on the system if a user or OEM does decide to remove MSIE manually.

2.11 The first two instances of integration reduced rival browsers' market shares by using Microsoft's market power rather than by improving on MSIE.

2.12 Regarding the commingling of code, the District Court found that Microsoft had unnecessarily jeopardised the stability and security of Windows in order to make it more difficult to remove MSIE.

EXCLUSIVE ARRANGEMENTS

2.13 The two most cost-effective ways of distributing browser software are having an OEM pre-install the browser on a computer, followed by bundling the browser with internet access software distributed by IAPs. Thus, the exclusivity agreements between Microsoft and different parties hindered the effective distribution of Netscape.

2.14 By blocking access to these channels, Microsoft forced Netscape into less efficient channels of distribution, especially mailings of CD-ROMs containing the browser software and downloads over the internet. Mailings significantly increase the cost of distribution to Netscape, while downloads shift the cost to consumers in the form of long (and unreliable) download times.

AGREEMENTS WITH ORIGINAL EQUIPMENT MANUFACTURERS (OEMS)

2.15 Microsoft's exclusivity agreements with OEMs were not always voluntary. Some OEMs would have preferred installing Netscape instead of MSIE. However, in order to be allowed to install Windows on their machines, OEMs need to obtain a license from Microsoft. This licensing agreement barred them from:

- removing any desktop icons, folders or 'Start' menu items,
 - altering the initial boot sequence, or
 - altering the appearance of the Windows desktop.
- 2.16 The first restriction meant that OEMs could not remove visible means of user access to MSIE. This meant that once MSIE became technically decent, OEMs had no incentive to install Netscape Navigator in addition. Furthermore, many licenses prevented OEMs from installing any rival browser at all.
- 2.17 The restriction on altering the initial boot sequence (ie, the sequence of programs loaded the first time a machine is turned on) meant that Microsoft determined the IAP (Internet Access Provider) signup process. When a user first starts a machine, Windows would present the user with a list of IAPs to which the user could sign up. None of the IAPs selected by Microsoft used Netscape in their internet access software.
- 2.18 The third restriction, the ban on changing desktop appearance, was allegedly intended to prevent OEMs from configuring Windows to automatically launch into an alternative user interface or to use the desktop to promote third party brands or browsers. The courts found that Microsoft did have the right to prevent OEMs from installing alternative interfaces to replace the standard Windows interface.

AGREEMENTS WITH INTERNET ACCESS PROVIDERS

- 2.19 Two courses of actions with respect to IAPs drew the attention of the DoJ:
- Microsoft developed an Internet Explorer Access Kit (IEAK) which it distributed to IAPs free of charge, and
 - Microsoft agreed to endorse the services of those IAPs that agreed to promote MSIE as their exclusive browser.
- 2.20 The IEAK allowed IAPs to easily customise MSIE to create a distinctive look for their services by allowing them to modify MSIE icons, title bar and home and search pages. The plaintiffs charged that this was predatory, but the Appeals Court found otherwise, as this was a new product altogether that Netscape could have mimicked.

- 2.21 The exclusive agreements with IAPs, on the other hand, meant that IAPs that promoted Netscape would not be included among Microsoft's recommended internet access providers. That is, they would not be listed in the initial boot sequence, and they would not have their icons placed on the desktop.
- 2.22 This strategy was so effective in attracting IAPs that fourteen of the top fifteen access providers in North America entered into exclusive deals with Microsoft.² This was found to effectively exclude Netscape from the second most efficient way of distributing its browser.

DEALS WITH INDEPENDENT SOFTWARE VENDORS (ISVS), APPLE COMPUTER AND INTERNET CONTENT PROVIDERS (ICPS)

- 2.23 Microsoft promised to give preferential support to important ISVs that agreed to certain conditions, such as using MSIE as the default browser for any HTML-based user interface. The preferential support included early beta-versions of Windows 98 and Windows NT, technical information and the right to use certain seals of approval. Technical information and beta versions of the operating system are particularly important to ISVs, as these are essential to develop applications for the new operating systems in a timely fashion.
- 2.24 This effectively foreclosed the ISV channel to Netscape. This channel, though not important by itself, became significant to Netscape because Microsoft had foreclosed the two largest channels of distribution (OEMs and IAPs).
- 2.25 In 1997, Microsoft and Apple Computer reached an agreement whereby Apple would make MSIE the default browser and would not place icons for non-Microsoft browsers on the desktop. In exchange, Microsoft promised to continue development of a Macintosh version of Microsoft Office.³ Again, this made developing applications for Netscape Navigator even less attractive.
- 2.26 Microsoft also had contracts with ICPs such as Disney. These contracts let the ICP have a place on the channel bar on the desktop. In exchange, the ICP agreed that if it were featured by Netscape, it would pay Netscape nothing for such treatment. Microsoft's only plausible reason for offering such contracts was to deny Netscape revenue.

² *Findings of Fact*, p153.

³ MS Office for the Macintosh was seen as vital for the survival of Apple Computer.

Microsoft and Java

- 2.27 Java is a programming language created by Sun Microsystems with the aim of creating a language that would make porting applications from one platform to another very easy. Theoretically, an application written in Java for one platform (eg, Windows) should function on any other platform that supports Java (eg, Solaris). This obviously presented Windows with the same threat as other pieces of middleware.
- 2.28 The Java Virtual Machine (JVM) is the actual piece of middleware that interprets Java programs into something that the underlying operating system can understand. Microsoft created a JVM that allowed Java applications to run faster on Windows than Sun's JVM for Windows did. However, Java applications designed to run on one JVM were incompatible with the other JVM and applications that ran on Microsoft's JVM would not run on other operating systems, thus defeating the purpose of Java by, in Microsoft's words, 'growing polluted Java.'
- 2.29 Furthermore, Microsoft entered dozens of 'First Wave Agreements' with ISVs which conditioned receipt of Windows technical information on ISVs' agreement to promote Microsoft's JVM exclusively.
- 2.30 Microsoft also created Java development tools that were incompatible with non-Microsoft JVMs. In itself, this might not have been problematic, but Microsoft was found to have deceived Java developers regarding the Windows-specific nature of the tools: even developers who chose to write for cross-platform compatibility over performance 'unwittingly wrote Java applications that ran only on Windows',⁴ despite Microsoft's public commitment to Sun's Java standards.
- 2.31 Finally, Intel had developed a JVM designed to run well while complying with Sun's cross-platform standards. Intel shelved the project at the advice of Microsoft. The District Court found that 'Microsoft's "advice" to Intel to stop aiding cross-platform Java was backed by the threat of retaliation'⁵ in the form of support for multimedia technology designed by AMD, Intel's main competitor.

⁴ US Court of Appeals. p55.

⁵ US Court of Appeals. p58.

Court findings

2.32 The District Court found Microsoft guilty of three antitrust violations. Specifically, it found that:

- Microsoft employed anti-competitive means to maintain a monopoly in the operating system market;
- Microsoft illegally attempted to monopolise the internet browser market; and
- Microsoft unlawfully tied its browser to the operating system.

THE RELEVANT MARKET

2.33 The relevant market was found to be Intel-compatible PC operating systems because there are 'currently no products – and... there are not likely to be any in the near future – that a significant percentage of computer users worldwide could substitute for [these operating systems] without incurring substantial cost.'⁶

2.34 Microsoft argued that the correct market definition should also include non-Intel compatible operating systems (primarily Apple's Mac OS), operating systems for non-PC devices (eg, information appliances such as handheld computers) and 'middleware' products.

2.35 Non-Intel compatible operating systems were found to be in a separate market because of the high switching costs associated with changing from Windows to those platforms. This cost includes not only the purchase of new hardware, but also the purchase of new applications software necessitated by the switch.

2.36 Information appliances were excluded from the relevant market because the District Court found that they fall short of providing all the functionality of a PC. It found that most consumers see them as complements to PCs.

2.37 Middleware was excluded from the relevant market because, even though it might one day become one, it is currently not a significant constraint on the competitive behaviour of Intel-compatible PC operating system producers.

2.38 The District Court found Microsoft to have a 95 per cent share of operating systems for Intel-compatible PCs. Microsoft argued that even a predominant market share does not by itself indicate a dominant position. If barriers to entry were very low, this would be true. However, the Court found that the 'applications

⁶ *Conclusions of Law*, p4.

barrier to entry' discussed above was considerable. Hence, given that Windows accounts for 95 per cent of the market, competing operating systems will be hard pressed to attract a significant number of developers and, consequently, consumers. A successful middleware product would erode this applications barrier to entry by lowering – and potentially eliminating – the cost of porting an application from one platform to another.

The rulings

MONOPOLISATION

- 2.39 The District Court found that Microsoft possesses monopoly power in the market for Intel-compatible PC operating systems. The Appeals Court upheld this finding in its entirety.

EXCLUSIONARY BEHAVIOUR: OEMS

- 2.40 The District Court found that the restriction prohibiting OEMs from removing desktop icons, folders or 'Start' menu entries thwarts distribution of rival browsers because it adds to consumer confusion.
- 2.41 The restriction on altering the initial boot sequence was also ruled to be anti-competitive.
- 2.42 The only OEM license restriction that the Appeals Court found in favour of Microsoft was the one that prevented OEMs from configuring their machines to automatically launch into a shell that presented an alternative user interface, as this would be a drastic alteration of Microsoft's copyrighted work.

As the Appeals Court put it 'Microsoft reduced rival browsers' usage share not by improving its own product but, rather, by preventing OEMs from taking actions that could increase rivals' share of usage'.⁷

EXCLUSIONARY BEHAVIOUR: THE INTEGRATION OF MSIE AND WINDOWS

- 2.43 The District Court found that removing MSIE from the 'Add/Remove Program' utility was anti-competitive. It also found that the commingling of code jeopardised the performance of the operating system in order to make it more difficult to remove MSIE. It therefore found the commingling of code to be anti-competitive. The Appeals Court upheld both of these findings.

⁷ United States Court of Appeals decision, p33.

2.44 The District Court also found that overriding the user's choice of browser in favour of MSIE under certain circumstances was detrimental to the user experience. This in turn was found to deter users from choosing a non-Microsoft browser, which the District Court found anti-competitive. The Appeals Court overturned this decision because it accepted that Microsoft had a valid technical justification for doing so.⁸

EXCLUSIONARY BEHAVIOUR: IAPS, ICPS, ISVS AND APPLE COMPUTER

2.45 The District Court condemned all four inducements to IAPs:

- offering MSIE free of charge to IAPs,
- offering IAPs a reward for each customer signed up using MSIE,
- developing the IEAK, and
- offering the IEAK free of charge to IAPs.

2.46 The Court of Appeals overturned the ruling for offering MSIE free of charge and for the IEAK.

2.47 The District Court also condemned Microsoft's deals with IAPs, wherein it granted promotion on the desktop in exchange for the IAPs' agreement to promote IE exclusively and to keep shipments of Netscape's browser under a specific percentage. The Appeals Court upheld this finding.

2.48 The exclusive arrangements with Internet Content Providers were found to be an insignificant constraint on Netscape and therefore non-exclusionary.

2.49 The courts also found that the exclusive arrangements with ISVs were exclusionary and anti-competitive. Normally, these arrangements would not have posed a significant constraint on Netscape, but given that the two most important channels of distribution had been foreclosed, ISVs had become vital to Netscape.

2.50 Microsoft's deal with Apple was also deemed to be anti-competitive.

⁸ Microsoft's help system automatically uses MSIE because it requires ActiveX technology, which Netscape apparently did not support at the time.

MICROSOFT AND JAVA

- 2.51 The District Court found the incompatibility of Microsoft's JVM to be anti-competitive. This finding was reversed by the Court of Appeals because it found that the Microsoft JVM does allow applications to run more swiftly and does not in itself have any anti-competitive effects. The Court of Appeals also reversed the District Court finding that the low pricing of Microsoft's JVM was predatory.
- 2.52 The 'First Wave Agreements' between Microsoft and ISVs which conditioned receipt of Windows technical information on ISVs' agreement to promote Microsoft's JVM exclusively were found to be anti-competitive because the deals foreclosed a substantial portion of the field for distribution of Sun's JVM and in doing so protected Microsoft's monopoly from a middleware threat.
- 2.53 Deceiving developers about the cross-platform compatibility of its developer tools was found to be done solely to protect the Microsoft monopoly of the operating system, and was thus deemed exclusionary.
- 2.54 Finally, coercing Intel into stopping development of its JVM was found to be exclusionary as well.

ATTEMPTED MONOPOLISATION

- 2.55 The District Court determined that Microsoft was liable for attempted monopolisation of the browser market because Microsoft:
- had engaged in anti-competitive conduct,
 - with a specific intent to monopolise, and
 - a dangerous probability of achieving monopoly power.
- 2.56 This was remanded by the Court of Appeals because the District Court had failed to define the relevant market and to demonstrate that substantial barriers to entry protect that market.

TYING

- 2.57 The District Court found that the contractual and technological bundling of MSIE with Windows resulted in a tying arrangement that was *per se* unlawful. The Court of Appeals held that the rule of reason should govern the legality of the tying arrangement and remanded the tying claim. As argued in Part I, we believe that tying should always be considered under a rule of reason analysis.

The issues – our view

- 2.58 The markets where Microsoft is active are characterised by strong network externalities and, to a large degree, incompatibility between different networks. For example, applications written for Windows cannot be used on another operating system without significant effort being put into porting those applications. Similarly, using documents created in different applications is a task that is beyond the capacity of most users (eg, using a WordPerfect document in Microsoft Word or using a Lotus spreadsheet in Excel). Also, businesses find that standardising on one platform reduces training and support costs and would prefer to use the platform for which it is most easy to hire labour (ie, the platform with the largest installed base). Training staff to use a proprietary word processor is not efficient if this word processor can be replaced with Microsoft Word, which most people are familiar with. Thus, there are strong incentives for adopting the platform – be it an operating system or application such as a word processor – with the largest number of users. Doing so allows the user to have access to the largest possible number of applications and to be able to share documents with the largest possible number of users.
- 2.59 These characteristics result in markets that are likely to be characterised by near monopolists. Specifically, markets as the ones described above are prone to:
- tipping effects, and
 - high barriers to entry (in the form of the applications barrier to entry).
- 2.60 Being prone to tipping means that in each such market there is likely to be only one player. For example, at one point WordPerfect was the predominant word processor, but after a transitional period, the market ‘tipped’ towards Microsoft Word, which is now the predominant word processor.² Similarly, VisiCalc was at one time the predominant spreadsheet programs for personal computers, but it was displaced by Lotus 1-2-3, which in turn was displaced by Microsoft Excel. This does not imply that one standard will win the entire market, although this is possible, but it does mean one standard often becomes predominant. Competitors that survive in such circumstances will do so by differentiating. Thus, WordPerfect is still being produced and updated, but it has been relegated to a minor role in the word processing market.

⁹ It is generally perceived that Microsoft Word and the other Microsoft Office applications gained dominance in their respective markets because Microsoft was the first company to offer them in an ‘Office’ bundle.

- 2.61 Being prone to tipping effects means that there is a high likelihood that each market will have a near monopolist, and that these monopolists will be highly profitable. The profitability of the (near) monopolist in such markets should not be a concern to the authorities, however. The profitability is the payoff that reflects the risk taken when entering the market. There are scores of examples of companies that have made huge investments in a bid to become a market standard and that have failed.
- 2.62 An example of the uncertainty of the outcome of entry is Microsoft Excel. When Excel first appeared, it was competing against several other spreadsheet packages, some of which were established players (Lotus 1-2-3), former standards (VisiCalc) and contenders to take over the market (Quattro Pro, WingZ). At that time, it was not clear at all that Excel would become the predominant spreadsheet program of the late 1990s.¹⁰ As such, Excel's current profitability should be seen at least partly as a reflection of the *ex ante* uncertainty that this undertaking involved.
- 2.63 Similarly, Microsoft's profitability itself should not be a concern to authorities. The operating systems market is littered with examples of failed attempts to become (or remain) the standard, such as C/PM, IBM's OS/2, Amiga, DR-DOS and BeOS. Microsoft is a survivor and its rents reflect the fact that its current position was not always a certain outcome.
- 2.64 However, there are competition concerns if a dominant position leads to 'serial monopolies.' Winning one innovation race may give the winner a head start in the next innovation race and may reduce the incentives or ability of other players to compete in the next race. This includes instances in which, for example, a dominant position in the operating systems market is leveraged to gain dominance in productivity suites (via preferential access to APIs), web browsers and media players (via tying into the operating system and excluding alternative providers).
- 2.65 Practices that achieve serial monopolies should be of particular concern to competition authorities if they are used to maintain monopoly power in another market. This was the concern in the present case. Microsoft was accused of attempting to dominate the browser market not for the sake of the browser market itself, but rather to protect the dominant position of its Windows operating system.¹¹

¹⁰ VisiCalc and WingZ have disappeared from the market since then and Lotus was sold to IBM.

¹¹ Indeed, the DoJ presented evidence that Microsoft referred to MSIE as a 'no-revenue product.' Microsoft was spending a great deal of money on something that brought in no revenue except by protecting the OS monopoly.

- 2.66 Specifically Microsoft tied its browser to its operating system. In a static setting, this would mean no consumer harm: practically every computer needs a browser, therefore having a browser incorporated into the operating system is useful to consumers, and there was an alternative to MSIE. In a dynamic model, however, this practice could cause consumer harm. Over time, tying MSIE into Windows made it likely that competitors would exit and unlikely that new ones would enter, not because MSIE is an innovative product that cannot be replicated or improved upon, but because Microsoft had in effect foreclosed the market to producers of browsers.
- 2.67 The effects of Microsoft's actions are not limited to the instances discussed in the case, however. By repeatedly engaging in exclusionary behaviour, a firm can build a reputation for behaving in a predatory manner. This in turn makes entry less attractive to potential competitors.
- 2.68 Judge Jackson said as much when he wrote:

It is clear [...] that Microsoft has retarded, and perhaps altogether extinguished, the process by which these two middleware technologies could have facilitated the introduction of competition into an important market.

Most harmful of all is the message that Microsoft's actions have conveyed to every enterprise with the potential to innovate in the computer industry. Through its conduct toward Netscape, IBM, Compaq, Intel, and others, Microsoft has demonstrated that it will use its prodigious market power and immense profits to harm any firm that insists on pursuing initiatives that could intensify competition against one of Microsoft's core products. Microsoft's past success in hurting such companies and stifling innovation deters investment in technologies and businesses that exhibit the potential to threaten Microsoft. The ultimate result is that some innovations that would truly benefit consumers never occur for the sole reason that they do not coincide with Microsoft's self-interest. (Findings of Fact, paragraphs 411-412)

- 2.69 When players in a market are taking risks by innovating, it is important to prevent incumbents from gaining a reputation for taking away innovators' rents. When Netscape became so successful that Microsoft felt threatened, Microsoft 'closed the door' on Netscape, preventing Netscape from reaping the rewards for its innovations in the browser market. Microsoft's strategy not only removed a potential entrant, but it also helped to give it a reputation for reacting aggressively and, the Court found, anti-competitively to any entry that it perceives as a threat to its dominance in the operating systems market. This is likely to have a chilling effect on future innovation.

2.70 It should be noted that reacting vigorously to entry is not anti-competitive in itself. Intent is important. There is a difference between competing vigorously on the merits of a product and taking anti-competitive measures to drive out competitors for the sake of protecting a monopoly position. Microsoft did the latter in this case. Thus, for instance, it was found that some OEMs dropped their support for Netscape not because of the merits of MSIE, but because Microsoft coerced them to do so.

2.71 To conclude, the main competition policy lessons that can be gleaned from this case are:

- compatibility/standards issues can lead to serious competition issues as they can create significant barriers to entry,
- where markets tip, monopolies in themselves should not be a concern unless they lead to serial monopolies,
- tying that is benign in a static setting can increase barriers to entry in a dynamic setting and hence damage competition, and
- firms can create barriers to entry and chill innovation by creating a reputation for very aggressive and/or anti-competitive responses to entry.

3 VIDEO GAMES

Background

- 3.1 This case study discusses an investigation into competition in the UK video games market conducted by the Monopolies and Mergers Commission (MMC) in 1994, and presented to Parliament by the Secretary of State in March 1995.¹²
- 3.2 Video games are electronic games played through a piece of hardware known as a console, that is then either plugged into a television for display or, in the case of portable machines, provided with its own built-in screen. Besides the console the playing of a video game requires a control pad for player input, and the game software. At the time of the enquiry, software was usually distributed in the form of a cartridge that was inserted into the console. However, CDs were also being used to deliver games, and this has become a popular means of software distribution in more recent times. The console and cartridges both contain microchips and circuitry, and embody computer programs to which patent and copyright law apply. The interaction of console and cartridge is also protected by security devices. As a result, the systems were proprietary, with the IPR owner able to control both hardware and software production.
- 3.3 The first video games were introduced in the late 1970s and enjoyed considerable success in the early 1980s. At this time Atari was the market leader. However the market collapsed during the 1980s because of a steep decline in interest, which is widely believed within the industry to have resulted from the release of a large number of low-quality and repetitive games. Atari suffered so badly in the market collapse that it nearly brought down Warner Brothers, Atari's parent company.¹³
- 3.4 Video games in their present form were developed in the mid-1980s. In 1986-87 Nintendo and Sega both entered the market with eight-bit consoles. In 1990 and 1992 16-bit consoles were introduced. Hand-held machines also appeared; Game Boy for Nintendo and Game Gear for Sega, in 1989 and 1990 respectively.
- 3.5 By the time of the MMC's enquiry, supply was dominated by two Japanese companies, Nintendo Co Ltd (Nintendo) and Sega Enterprises Ltd (Sega). Both firms operate worldwide, with their largest markets in Japan and the USA. In the UK they supplied together, through wholly-owned subsidiaries, 99 per cent

¹² Report of the Monopolies and Mergers Commission, *Video Games, A report on the supply of video games in the UK*, MMC, March 1995.

¹³ 'Cast Aside', *The Economist*, 25 January 2001.

of all consoles. Sega was the leading supplier with 60 per cent by value of total trade sales of games machines. The combined firms share of software sales was considerably smaller, about 40 per cent, because third party publishers also developed software for Nintendo and Sega's platforms. However, other competitors or potential competitors existed. Atari had a small presence in the hand held market, and had also launched a new static console (Jaguar). Commodore, a maker of home computers used for gaming and other applications, also introduced a CD-based console in 1993. Two major Japanese companies, SNK and NEC, were also active within the Japanese market. Many consumers also had the option of using arcade games and PC-based alternatives.

- 3.6 While the most up to date machines at the time of the enquiry were 16-bit, Sega had announced the introduction of a 32-bit system (Saturn), while Nintendo had plans to launch a 64-bit system in 1995. Furthermore, a number of actual or potential entrants existed. Philips had launched a CD-based multimedia machine for gaming.¹⁴ However, at an RRP of £599.99 it had been unsuccessful, and had been reintroduced at a price of £399.99. Sony was known to be developing a CD-based system to be known as the Playstation, that was expected to be released in 1995. A number of other firms, including Matsushita and Sanyo, were developing a new generation of multimedia machines based on a format known as '3DO'.
- 3.7 To be successful a gaming system needs to be technically up to date and appropriately priced, but it also requires adequate supplies of attractive and innovative software if customers are to be persuaded to buy it. Nintendo and Sega were both major producers of software for their own machines; however they also licenced independent publishers to produce games for their formats. Most of the major software suppliers at the time were US-owned. Publishers whose ultimate control was located in the UK accounted for well under 20 per cent of total UK software.
- 3.8 Following the collapse of the 80s, when sales hit a low point of £10 million in 1987, the UK market for video games had expanded extremely rapidly following the entry of Nintendo and Sega. It had reached nearly £300 million by 1991 and had climbed to £550 million by 1993. Nonetheless, this amounted to only five per cent of the total sales in the three major markets (US, Japan and Europe).
- 3.9 The typical video games player of the time was a nine to 16-year-old boy, although substantial numbers of older teenagers and young adults used the 16-bit consoles. Users were considered to be knowledgeable and fashion-

¹⁴ Multimedia machines can be used for a variety of applications such as, for example, gaming, watching movies or listening to music (CD or DVD based), and internet access.

conscious. Specialist magazines also existed that made information on the quality of systems and games readily available. Games could come into, and go out of, popularity very quickly, although the most successful games could have a lifespan measured in years rather than months.

The MMC's conclusions

3.10 The MMC concluded that a scale monopoly operated in favour of Sega, and that a complex monopoly existed in favour of Sega and Nintendo. The MMC concluded that the complex monopolists each engaged in one or more of the following practices:¹⁵

- establishing a discriminatory price structure for software and hardware which resulted in prices for software that were excessive in comparison with prices for hardware,
- requiring persons or companies wishing to publish software compatible with the company's hardware to acquire a licence to do so from the hardware producer,
- controlling the supply of third party software through the conditions included in such licenses, including limits on the number of games approved, approval of the software concept, program and packaging and restrictions on the manufacture of cartridges,
- incorporating technical features in their products, some of which also introduced territorial segmentation, which made it very difficult, independently and without breaching IPRs, to produce software that could be played on their machines, and
- restricting the rental and part-exchange of software.

3.11 In coming to these conclusions the MMC had clearly formed the view that Nintendo and Sega dominated a market that was subject to high barriers to entry, and that furthermore the duopolists were tacitly colluding on a number of business practices, which were held to be against the public interest. An (allegedly) high level of profitability was taken into account when forming these views.

¹⁵ MMC Report at paragraph 2.23.

- 3.12 These conclusions also reflect the fact that the Commission objected to the fundamental structure of the business model, which involved a proprietary system, protected by IPRs, the use of licensed software developers, and a pricing strategy that involved lowering the cost of hardware to build the installed base, with profits being earned on the subsequent sale of software.¹⁶

Subsequent events

THE SONY PLAYSTATION

- 3.13 Sony entered the video game market in 1995. It became the market leader in about three years, overtaking Nintendo as the world industry leader, with 53 per cent of the console market in 1998.
- 3.14 When Sony entered the market, Nintendo and Sega were at the point of transitioning from their 16-bit systems to higher performance platforms. Sega released the 32-bit Saturn system in May 1995. However, overall sales were low, and few titles were released for the machine as developers were taken off-guard by the early debut. As a result, the few games released were not of high quality. Nintendo also launched a 64-bit game system. The system's main attraction, Super Mario 64, turned out to be playable and impressed gamers, but rumours persisted that very little software was in development for the machine. Sales in Japan were initially phenomenal, but nearly vanished after a few weeks due to the fact that there were only two software titles available.
- 3.15 Ironically, while the incumbents struggled to create software libraries for their new systems, Sony had released the Playstation with twenty game titles. Also, because of its superior system architecture and easy-to-use programming interfaces, game writers developed games that had not been previously seen on home game machines. Sony continued with a strategy of offering reasonably priced hardware, which alongside a good selection of spectacular games, allowed Sony to quickly capture a majority share of the market.

THE DEPARTURE OF SEGA AND NEW CHALLENGERS

- 3.16 Of the two incumbent firms at the time of the MMC enquiry, Sega has fared the worst. In January 2001, Sega announced that it would cease producing its latest generation of hardware, the Dreamcast, in order to focus on developing software for its own machines and competing platforms, including Nintendo, the PC and

¹⁶ We note that this objection to the way the firms did business arose despite the observation that the market had almost ceased to exist in the mid-80s, and that the business model under consideration had been extraordinarily successful at building a much more successful video gaming market.

Microsoft's forthcoming Xbox. Microsoft is due to launch the Xbox late in 2001, which will mean a new competitor for Sony and Nintendo. The Xbox is a new proposition based on PC technology and the Windows 2000 operating system. The new generation of games machines are now more than just gaming stations, but are seen as platforms for all kinds of entertainment and interactive services that might be used in the living room. As a result, the nature of competition in the market continues to change with ever advancing technology.

The issues – our view

- 3.17 The video games enquiry is a complex report, running to some 250 pages including appendices. We can only hope to discuss a limited number of issues here, and then only as a brief overview of each issue. We have therefore focused on issues that are both likely to have been key to the conclusions reached, and may have been approached quite differently if thought about in the manner suggested in Part I of this report.

MARKET DEFINITION

- 3.18 For this enquiry the MMC defined the market as a market for video games. In doing so, the MMC explained why competing products such as arcade games, multimedia machines and PCs were not included in the market.
- 3.19 In our view, 'video games' was a reasonable definition for analysing relatively short-run issues, such as direct price competition, and contractual arrangements which depend largely on the strength of players at the time contracts are negotiated. However, some of the MMC's objections related to issues which, in order to be fully understood, needed to be viewed on a much more long-run basis. For example, the hardware/software cross-subsidy.
- 3.20 Our reading of the report suggests to us that the MMC viewed the hardware/software pricing issue in a strictly short-run manner, considering it a demonstration of the market power of the firms. We believe that this analysis was quite mistaken, and that the mistake might have been avoided if the correct market definition for this issue had been used. The pricing of hardware and software was one of the core components of Nintendo and Sega's business model. Understanding why the model worked as it did requires a broad understanding of the market.
- 3.21 There was substantial evidence available to the MMC that demonstrated that in the long-run competing platforms such as PCs, combined with the nature of demand, created a situation where hardware had to be priced at a 'reasonable' level. Above this level, some consumers would simply not buy, while others would move to PCs or other substitutes. In any event, it was clear that high hardware prices led to a drop in demand of such magnitude that the business

would not be viable. Given this constraint, the practice of earning profits on software rather than hardware was (and, for that matter, still is) necessary, and driven by the market, rather than a sign of monopoly.

- 3.22 The MMC appears to have come to the opposite conclusion – that the firms had market power and used this to increase the price of software, and then decreased the price of hardware to create a barrier to entry. However, the fact that the business model was driven by market conditions and the broad competitive constraints that existed, not by monopoly, should have been evident from the observation that the model had been used from the time Nintendo and Sega entered the market. The pricing model had been employed well before any concerns about alleged market power or anti-competitive concerns could have been held.¹⁷ However, even if this reasoning had not been convincing, if the business model had been analysed in the appropriate context the same conclusion should have been reached.
- 3.23 The message from this is very important in conducting competition analysis in a complex environment. Be wary of defining a relevant market, deciding what is in and out of the market, and then moving on to analysing the competition issues. For this enquiry, PCs and other platforms should not have been classified as simply being either in or out of the market. The enquiry considered a very broad range of issues. For some issues these competing platforms were relevant, for others they were not. Each needed to be carefully considered on a case-by-case basis. For questions such as considering the constraint on firms when pricing a particular game, it may well have been relevant to consider a relatively narrow market definition. However, for issues such as considering the overall approach to positioning the systems in the market, a wider view was necessary.

BARRIERS TO ENTRY

- 3.24 Subsequent events have demonstrated that the MMC over-estimated barriers to entry to the market. In this section we discuss three of the MMC's alleged barriers; brand, hardware pricing and relationships with third party software providers. However, beyond these particular points, the key point that needed to be considered when dealing with barriers to entry in this market was that the market was global, and that the very success of the incumbents provided more than sufficient incentive to enter the market. While it is clear that this was not a market that would be easily attacked by small, new-start competitors, there is no need for competition of this form at the global level. The threat was

¹⁷ If the reader remains unconvinced, then consider the entry of Sony in 1995. As a new entrant to a market, Sony could not have had market power – yet it employed the same pricing strategy. Clearly, the strategy was neither dependent on, nor evidence of, market power.

from any number of multinational firms that were either already in the market, or had the potential to enter. No matter how large the hurdles might seem, it is very difficult to hold any form of lasting monopoly in global markets for consumer electronics.

Brand

- 3.25 The MMC concluded at paragraph 2.44 that Nintendo and Sega had developed 'brand reputations ... that constitute a major deterrent to other companies that might think of competing with them'. The problem with this conclusion is that, while it was certainly true that Nintendo and Sega had strong brands, there were many other branded consumer electronics companies with strong brands in place. Furthermore, the market was very much driven by the level of both hardware/system and game performance. The report notes that players are knowledgeable, had ready sources of information, and were fashion-conscious. There was ample evidence of rapid market response to technical success or failure. This meant that whatever the reputation of incumbents, they remained vulnerable to a major branded player that entered with a superior product, either in technical terms or in terms of business model.

Hardware pricing

- 3.26 Hardware pricing was cited as a barrier to entry, but was not a barrier to entry at all. Either consumers preferred relatively cheap hardware associated with relatively expensive software, or they did not. If they did not prefer this model, then the pricing strategy employed by Nintendo and Sega would present an entry opportunity to competitors. If consumers preferred this pricing approach, as the evidence would strongly suggest was the case, then it implied that an entrant to the hardware business would need to use a similar pricing strategy using royalty payments from software sales to cover the cost of hardware. There is no reason this could not be done, as both Nintendo and Sega had demonstrated that third party developers could easily be employed. In this case, it was important to identify that the real entry problems that did exist, such as getting games developers to develop games for a commercially untried platform, were not related to the pricing strategy.

Third party software providers

- 3.27 The MMC was concerned that Nintendo and Sega's established relationship with third party software publishers could act as a barrier to entry. While it is true that Nintendo and Sega were established, their relationships were not exclusive, and software publishers generally developed for multiple platforms. Furthermore, the market was global, and there were numerous developers and publishers available. It is not clear to us how the relationships with third party software publishers could have been a barrier to entry. However, it certainly is true that a new entrant would almost certainly have to sponsor the development of games in the start-up period, which would certainly involve a

level of sunk investment and hence risk. However, given the potential rewards and size of competitors, there was no evidence of this deterring entry. There had been actual instances of entry and, as already noted, Sony was known to be in the process of bringing the Playstation to market.

- 3.28 A final point is that two established competitors existed in Japan that could have expanded internationally. Competitors active in one geographic market but not others face much lower hurdles than a completely new entrant.

COMPETITION

- 3.29 There are at least two fundamental points about the nature of competition in the video games market that are directly relevant to conducting a competition analysis in high technology markets:

- the prevalence, and importance of, technology waves; and
- interpreting the failure of competitors.

- 3.30 The video games market was marked by significant technology 'waves'. Every three or four years a new technology platform was introduced to the market. As a rule of thumb, the point of changeover to a new technology can be difficult for incumbents to manage, and often represents an opportunity for new entrants. In such a market, a critical issue for the analyst is to identify whether incumbent firms have a very large advantage in moving to the next technology (in which case short-run market power may also indicate the likelihood of a more lasting monopoly), or whether the incumbents are relatively exposed. There were some key indicators that suggested incumbents would be relatively exposed at such times in this market. In particular, systems did not generally offer backward compatibility, and consumers tired of old games quite quickly, rapidly switching to newer, better games. These conditions meant that the incumbents' existing installed base was only of limited value, and strongly suggested technology migration points were areas of opportunity for new entrants.

- 3.31 Another important issue is interpreting the failure of competitors. There were attempts to compete with Nintendo and Sega that had little success; and a good example is the attempt of Philips. It can be tempting to interpret attempted entry and failure as evidence of barriers to entry. However, it needs to be kept in mind that in a market for some form of system that is subject to network effects, entry is likely to be followed by an outcome that is more 'win' or 'lose' in form than in other markets. In this market, success required having a good technology, creating or sponsoring a good library of software titles, and employing a marketing and pricing strategy that was attractive to consumers. The whole package needed to be right to succeed. In such an environment, it

pays to keep in mind that the failure of firms such as Philips may simply show that they did not get it right. In markets such as the video games market the cost of failure is high, as in many technology markets. However it should always be borne in mind that such failures do not, of themselves, prove that the market is monopolised and impenetrable.

COLLUSION

- 3.32 In Part I of this report we noted that tacit collusion was rarely a major concern in technology markets due to the economic features of the markets involved. However, the MMC had concerns that market behaviour observed by Nintendo and Sega reflected tacit collusion. For example, the MMC stated at paragraph 2.46:

Their position of strength [Nintendo and Sega] has enabled the two companies to adopt strategies of parallel behaviour in which they have chosen where to compete directly and where not to do so. For example, in the hand-held segment of the market the products of the two companies are some distance apart in performance terms, as evidenced by the continuing disparity in price. On a somewhat wider technological front, Nintendo has chosen to develop cartridges further and Sega has introduced a CD format. The pattern of hardware prices (RRPs) over time similarly reveals an avoidance of direct price competition by the two companies ... the degree of competition between them does not seem to be as acute as would be the case if there were more suppliers in the market.

- 3.33 Product differentiation is a common business strategy. While it is certainly true that firms often attempt to differentiate in order to escape the 'competitive trap' of poor profitability associated with severe direct competition, this is not an anti-competitive action. Rather, it is a rational attempt to maximise profits that in most cases provides a significant source of consumer benefit – product variety is a significant benefit of competition. In the context of technology markets that exhibit network effects, differentiation is unlikely to be a form of tacit collusion. As previously discussed, markets subject to network effects tend to offer competitors 'win' or 'lose' outcomes. Given this, differentiation and reliance on proprietary technology is a high-risk strategy. The choice of proprietary technologies and differentiating technology offerings certainly may soften short-run price competition – as is the objective for almost any differentiation strategy. However, in network markets it will, if anything, increase the pressure to compete at the platform level. This may deliver a different form of competition to consumers, but it is not one that can be easily classified as being either better or worse for consumer welfare in the long-run.

PRICING

- 3.34 It is clear that the MMC took serious objection to the pricing model employed in the video games market, where hardware was priced at (or perhaps below) cost, while the profits of the business were earned on software sales. As noted above, we believe the MMC interpreted this pricing structure as a sign of anti-competitive market power, believing that the pricing structure was imposed on the market by the alleged monopolists. Our view is that in fact causation ran in the opposite direction, with the pricing model being imposed on the manufacturers by market conditions. However, whatever the cause, the MMC concluded that this pricing structure was economically inefficient, and to the detriment of the public. Our view is that this conclusion may also have been incorrect.
- 3.35 In Part I of this report, we described an analysis by Katz and Shapiro (1994), that showed how efficiency can be enhanced by this form of pricing. In brief, the argument is that by using the margin from software sales to reduce the margin on hardware sales (perhaps to negative margins), marginal hardware buyers are attracted, increasing the installed base of hardware. This will in turn lead to increased demand for games. This increased demand, combined with the scale economies present in software production, may then produce both greater variety and lower prices in the software market, increasing the welfare of all consumers on the network.

LICENSING

- 3.36 The MMC objected to the licensing practices that controlled the supply of third party software intended to operate on both Nintendo and Sega's systems, and concluded that a number of practices were 'steps taken to maintain or exploit the complex monopoly situation' and therefore acted against the public interest. These conditions included placing limits on the number of games that an individual third party firm could develop, approval of the software concept, program and packaging, and restrictions on the manufacture of cartridges.¹⁸
- 3.37 A critical issue when dealing with the competitive effects of licensing practices is the identification of the relevant counterfactual. The MMC employed a counterfactual that assumed that any software developer wishing to develop games would be allowed access to the firms proprietary information without

¹⁸ Although we do not discuss it in detail here, it is worth noting that Nintendo and Sega argued that their licensing practices were needed to ensure the quality of games available for their systems remained high. The MMC flatly rejected their arguments. However, in our view there is a good deal of information available in the report that would strongly suggest that this was a reasonable justification. This included the generally held belief that Atari's failure and the market collapse of the 1980s had resulted from an uncontrolled flood of low quality games.

any licensing restrictions, other than the payment of a reasonable royalty.¹⁹ There is no specific discussion of why the MMC considered this was the appropriate counterfactual. However, it is clear from the tone of the report and the MMC's conclusions that the MMC fundamentally objected to the proprietary nature of the systems, and the marketing strategy employed.

- 3.38 In our view the relevant counterfactual in a case such as this is no licences being issued at all. Both Nintendo and Sega developed their own games. It is not clear that there was any requirement on either firm to use third-party games developers. Of course, both had chosen to do so because they had commercial incentives to expand the range of software available through the use of third parties, and to ensure software production was efficiently undertaken by creating competition. Against the counterfactual of producing all software in-house, Nintendo and Sega's arrangements were pro-competitive and efficiency enhancing. There is no reason why Nintendo and Sega should be forced to relinquish the role of quality control simply because they chose to make an efficiency enhancing decision to employ external resources. In using the counterfactual it did, the MMC implicitly assumed that Nintendo and Sega should be subject to a compulsory access regime. Before doing so, they should have considered the issues discussed in the section entitled *Mandating Access to Intellectual Property* in Part I of this report. In our view, such a consideration would not lead to a compulsory access regime being put in place in this market.

PROFITS

- 3.39 In Part I of this report we discussed profitability, and its role in assessing whether a competition problem exists in a dynamic market. In short, our view is that profitability analysis is not a useful aid to assessing competition in such markets because there are severe practical and theoretical problems associated with measuring economic profitability. Furthermore, even if these problems can be overcome, not all economic profits are monopoly profits. The video games report illustrates both of these points.

The MMC's approach

- 3.40 In attempting to measure profitability, the Commission looked at two levels, the UK operations of Nintendo and Sega, and the consolidated results of the parent companies.
- 3.41 As acknowledged by the MMC itself, the UK based operations of Nintendo and Sega were primarily sales and distribution vehicles. The accounting results of such operations depend heavily on group policies that set internal transfer

¹⁹ Refer to paragraph 2.84 of the MMC report.

prices, and policies on where exchange rate and stock risks are borne. Indeed the Commission ultimately concluded that because of these factors the figures they produced did not provide 'a true picture of the profitability of UK activities to their parent companies'. Beyond this, we would argue that even if these accounting issues could be overcome, an analysis of the profitability of a distribution channel still could not reveal any really useful information about the economic profitability of the products of interest. At best, all that could be achieved was construction of some form of contribution, which is not a measure of economic profitability.

- 3.42 The Commission then proceeded to analyse the profitability of the parent companies. A major problem emerged in that the Commission could not calculate a figure for return on capital employed (ROCE). This was because Nintendo had negative capital employed for five of the six years examined. Sega, on the other hand, did not publish capital employed for the relevant business segment. Undeterred, the Commission then proceeded to use return on turnover (ROT), defined as operating profit divided by turnover, as a measure of profitability. The Commission then compared the ROT figures with a 'number of other major international companies with strong brands operating in similar markets'. These firms included Microsoft, Intel, Nike and Thorn EMI, amongst others. From this analysis, the Commission noted at paragraph 2.55 that:

Nintendo's performance was very near to that of the most profitable, while Sega, until the most recent year, was in the middle band. We note also that ...Nintendo has been assessed at the top of the 1994 Nikkei list ...which ranks 1,000 excellent Japanese companies in terms of profitability, management, growth potential and size; in the latest (1994) ranking Sega placed thirteenth. It is reasonable to conclude that Nintendo is an exceptionally profitable enterprise and, at least until 1993/94, Sega was also very profitable.

- 3.43 It is clear from the context of the report, and the MMC's eventual findings, that it considered this to be evidence of a competition problem. We could not disagree more. In terms of establishing whether there was a competition problem in the UK video games market, the MMC's analysis produced no useful information. The channel analysis produced no information on economic profitability. Neither did the analysis of the parent companies. However, there seems little doubt that both companies were performing well – Nintendo in particular. Unfortunately, identifying this fact also produced no information useful to the MMC's deliberations. We believe it is reasonable to assume that at the time of the report, nobody was disputing that both firms were highly successful companies. They had entered a market that had almost disappeared in 1987, taken a significant commercial risk to develop new technology and a new business model, and had been spectacularly successful on a global scale.

It would be odd indeed if both firms had not been performing very well by any measure in the early 1990s. However, the financial rewards associated with risk taking and commercial success are not profits that should concern a competition authority. Furthermore, they provide no evidence of lasting market power. On the contrary, if carefully examined, the Commission's report is full of evidence of the level of risk that continued to exist, and the ongoing pressure to innovate. For example:

- There was ample evidence of market volatility. The market rapidly expanded when successful new platforms were introduced, but rapidly cooled as existing technology matured. As a result, new platforms and games were regularly introduced by both Sega and Nintendo. This was driven both by the need to drive the market itself, and to avoid being beaten to the next technology by actual or potential competitors.
- There was evidence of significant shifts in market share, business failures even by very large players (Atari, Commodore; failed entry attempts by Philips and others), and competitive threats, both from new entrants (eg, Sony) and new platforms (multimedia).
- At the time of the report there were already signs of Sega's weakening position.

3.44 In summary, high levels of profitability generated by winning firms in high technology markets convey no useful information about the state of competition. The Commission should have looked to evidence of competitive behaviour and barriers to entry to assess whether the market was competitive.

MEASURING PROFITABILITY

In the context of this case, our view is that measuring the profitability of Nintendo and Sega was not a useful exercise. However, if the exercise was to be undertaken, this is our view on the broad approach that would be needed.

To correctly measure economic profitability, the (economic) costs and revenues associated with the activity of interest throughout its entire lifetime would have had to be accounted for. These could only be measured by modelling the activity over a complete product lifecycle. The video game business provides a good example of this concept. The competitors' businesses consisted of a series of high risk investments in hardware platforms. Each new platform brought to market would represent a major investment with its own lifecycle. Measuring the profitability of the introduction of a new model of console would involve accounting for all the costs associated with developing, manufacturing and marketing the console throughout the lifetime of the

investment (that is, as long as the particular model was in production), and recognising all the revenues earned from the model over its lifetime. If a suitable discount rate could then be calculated, to reflect the risk of the model's commercial launch, an accurate measure of profitability could be made.

4 INTEL

Background

- 4.1 Intel, based in Santa Clara, California, designs, manufactures and sells a variety of semiconductor products, including a line of microprocessor products that are generally known by the trade names Pentium, Pentium with MMX, Pentium Pro, Pentium II and Pentium III.
- 4.2 A microprocessor is an integrated circuit that serves as the central processing unit (CPU) that performs the major data processing functions essential to computer systems. Advance technical information about new microprocessor products is essential to Intel's 'original equipment manufacturer' (OEM) customers, who develop, manufacture, and sell computer system products such as servers, workstations, and desktop and portable personal computers. Computer design and development requires the effective integration of complex microelectronics components (including microprocessors, memory components, core logic chips, graphics controllers, and various input and output devices) into a coherent system. To achieve such system integration, a computer OEM requires product specifications and other technical information about each component, such as the electrical, mechanical, and thermal characteristics of the microprocessor. OEMs also need advance product samples and related technical assistance in order to perform system testing and debugging, thereby assuring the performance and reliability of new computer products.
- 4.3 Intel provides its OEM customers with technical information about new Intel products in advance of their commercial release, subject to formal nondisclosure agreements. Such information sharing benefits both Intel and its OEM customers. Customers benefit because the information enables them to develop and introduce new computer system products incorporating the latest microprocessors as early and efficiently as possible, while Intel benefits because a larger group of OEMs can sell new computer systems incorporating Intel's newest microprocessors as soon as the new microprocessors are introduced to the market.
- 4.4 The computer industry is characterized by short, dynamic product cycles, which are generally measured in months. In this environment, time to market is crucial. Indeed, the denial of advance product information is close to a denial of actual parts, because an OEM customer lacking such information simply cannot design new computer systems on a competitive schedule with other OEMs. Continued denial of advance technical information to an OEM by a dominant supplier could make a customer's very existence as an OEM untenable.

The complaint

- 4.5 The US Federal Trade Commission (FTC) issued a complaint against Intel in June, 1998. The complaint alleged that Intel sought to maintain its dominance by, among other things, denying advance technical information and product samples of microprocessors to Intel customers (OEMs) and threatening to withhold product from those OEMs as a means of coercing those customers into licensing their patented innovations to Intel. The FTC argued that Intel had monopoly power in the worldwide market for general purpose microprocessors. According to the FTC, Intel's market dominance was reflected in a market share approximating 80 per cent of dollar sales, together with high entry barriers including large sunk costs of design and manufacture, substantial economies of scale, customers' investments in existing software, the need to attract support from software developers, and reputational barriers.
- 4.6 The complaint alleged that Intel had suspended its traditional commercial relationships with three established customers – Digital Equipment Corporation, Intergraph Corporation, and Compaq Computer Corporation – by refusing to provide advance technical information about, and product samples of, Intel microprocessors. According to the FTC, Intel's objective in these actions was to force those customers to end disputes with Intel concerning the customers' asserted intellectual property rights, and to grant Intel licenses to patented technology developed and owned by those customers. In at least one of the cases, regarding Digital, the complaint also alleged that Intel acted to create uncertainty in the marketplace about the customer's future source of supply of Intel microprocessors.
- 4.7 The FTC stated that as a result of the commercial pressure exerted by Intel's conduct, Compaq and Digital quickly entered into cross-license arrangements with Intel. Intergraph was able to resist that pressure because it succeeded in obtaining a preliminary injunction from a federal district court requiring Intel to resume and continue supplying Intergraph with advance product information, part samples, and other technical support pending a judicial resolution on the merits of the claims in the lawsuit.
- 4.8 The FTC argued that the alleged conduct tended to reinforce Intel's domination of the general purpose microprocessor market in at least three ways:

²⁰ This issue is described more fully below.

- By giving Intel preferential access to a wide range of technologies being developed by many other firms in the industry. To the extent that firms desiring to compete with Intel were unable to obtain comparable access to such a wide range of technology, they could have been seriously disadvantaged, thus making it more difficult for them to challenge Intel's dominance.
- As patent rights are an important means of promoting innovation, coercion that forces customers to license away rights to microprocessor-related technologies on unfavourable terms tends to diminish the customers' incentives to develop such technologies, and thus harms competition by reducing innovation.
- By making it more difficult for an OEM to serve as a platform for microprocessors that compete with Intel's. Intel's actions ensured that Intel could act as a conduit for technology flows from one OEM to another. That is, an OEM that sought to enforce its intellectual property rights against other Intel customers may have faced retaliation from Intel. The FTC alleged that this had happened when Compaq sued Packard-Bell for patent infringement.²⁰ The result was that OEMs found it more difficult to differentiate their computer systems from their competitors through patented technology. As a result, an OEM seeking to use non-Intel microprocessors was less able to offset the lack of an Intel microprocessor by the strength of its own reputation for offering superior technology in other areas.

4.9 The FTC argued that for all of the above reasons, continuation of this pattern of conduct would likely have injured competition by entrenching Intel's dominant position. The FTC also argued that Intel's exclusionary conduct was not reasonably necessary to serve any legitimate, pro-competitive purpose.

4.10 Before describing the settlement agreed between the FTC and Intel, we summarise below three incidents, as stated by the FTC in their complaint.

DIGITAL EQUIPMENT CORPORATION

4.11 Digital developed, manufactured and marketed computer system products that incorporated Intel microprocessors. Digital also designed, manufactured and marketed some semiconductor products, including microprocessor products that are generally known by the trade name Alpha. The FTC complaint stated that although they had only a small share of the market, Digital's Alpha microprocessors were technologically significant being regarded as the highest performing general purpose microprocessors available, having performance superior to any of Intel's products in terms of accepted industry benchmarks for processor performance. When Intel engineers confirmed the performance of Digital's third generation Alpha product, they declared a 'strategic emergency'

and undertook to analyse the 'miracles' of Alpha performance. Alpha also provided the only alternative microprocessor platform that competed with Intel's microprocessor architecture in running the Windows NT operating system. The FTC stated that a major goal for Intel was the development of its IA-64 microprocessor architecture to compete with Digital's current 64-bit Alpha architecture, and the development of Merced and other IA-64-based microprocessors to compete with Digital's Alpha devices.

4.12 In 1995 Intel introduced the Pentium Pro microprocessor, which closed some of the alleged performance gap between Intel's Pentium microprocessors and Digital's Alpha microprocessors. After examining the Pentium Pro device, Digital concluded that Intel was using Digital microprocessor technology in violation of Digital's patent rights. On 12 May 1997, Digital sued Intel for patent infringement, alleging that Intel's Pentium microprocessors infringed ten Digital microprocessor patents.

4.13 The FTC alleged that Intel responded to Digital's lawsuit by publicly denying Digital access to any of the Intel technical information needed to continue developing in a timely and efficient manner new computer systems incorporating new Intel microprocessors. The FTC also alleged that, among other things, Intel:

- demanded the return of technical information and refused to supply any additional technical information needed by Digital to design computer systems products incorporating Intel's newest microprocessors,
- demanded return of microprocessor prototypes and refused to supply additional prototypes,
- acted to create uncertainty about Digital's future source of supply of Intel microprocessors, including the orchestration of a scene in which a Digital employee was publicly ejected from a widely attended industry meeting sponsored by Intel without any advance warning, and
- otherwise engaged in conduct to create a perception in the computer industry that Digital was no longer capable of bringing to market in a timely manner new computer system products that incorporated Intel's latest microprocessor technology.

INTERGRAPH

- 4.14 Intergraph develops, manufactures, and markets computer hardware and software products. Intergraph's flagship products are computer workstations designed for sophisticated graphics applications such as computer-aided design, engineering, manufacturing, animation, and other computer graphics, multimedia and digital media functions.
- 4.15 The FTC complaint states that in 1987 Intergraph purchased the Advanced Processor Division of Fairchild Industries, which had developed a family of microprocessor devices known by the trade name Clipper. Until 1993, Intergraph continued to develop Clipper microprocessor technology for use in Intergraph's computer systems. Beginning in late 1992, however, Intergraph shifted its focus away from Clipper-based computer systems and became one of the first computer manufacturers to develop a family of workstations and servers based on Intel's Pentium microprocessor and Microsoft's Windows NT operating system. As an early adopter of Intel's microprocessor architecture for workstations, Intergraph provided Intel with feedback that was essential for Intel's penetration of the workstation market and otherwise validated the use of Intel's products (and their use in Windows NT-based workstations) for what was at the time a new market segment for Intel. Intergraph became the first computer systems manufacturer to offer a workstation based on Intel's Pentium Pro microprocessor, and the first to offer a single- and dual-processor 3D graphics workstation based on Intel's microprocessors.
- 4.16 By 1994, Intel-based systems represented nearly three-quarters of Intergraph's hardware unit sales, and this figure had increased to 100 per cent in 1996. Over the years, Intergraph has designed many new computer systems based on new Intel microprocessors that have proved to be popular with consumers. Intergraph was the leading seller in terms of revenue of Windows NT workstations for the first quarter of 1997.
- 4.17 The FTC stated that in 1996 Intel demanded a royalty-free license to Intergraph's Clipper microprocessor technology as a condition for Intergraph continuing to receive technical information that Intergraph required to continue developing Intel-based workstations in a timely and efficient manner.
- 4.18 When Intergraph said it could not agree to such a demand, the complaint alleges that Intel refused to provide Intergraph with important information relating to graphics technology, contributing, along with subsequent Intel conduct, to a significant delay of Intergraph's development of a graphics workstation.

- 4.19 The FTC complaint states that in 1997, Intergraph began asserting that certain third parties using Intel-based computer technology were infringing certain Intergraph patents. When some of those manufacturers in turn sought indemnification from Intel against Intergraph's claims for patent infringement, Intel increased pressure to force Intergraph to grant Intel a royalty-free license to Intergraph's microprocessor-related patents.
- 4.20 The FTC alleged that when Intergraph again refused, Intel cut off Intergraph's access to any of the Intel technical information necessary to continue developing in a timely and efficient manner new computer systems incorporating new Intel microprocessors. The complaint alleges that, among other things, Intel:
- cut off technical information that Intergraph needed in order to design systems based on Intel's newest chips,
 - demanded the return of microprocessor prototypes and refused to supply additional prototypes,
 - failed to inform Intergraph of a bug Intel had previously discovered in an Intel chip that Intergraph was purchasing, and interfered with Intergraph's efforts to seek assistance from a third party after Intergraph discovered the bug,
 - acted to create uncertainty about Intergraph's future source of supply of Intel microprocessors, and
 - otherwise engaged in conduct to create a perception in the computer industry that Intergraph was no longer capable of bringing to market in a timely manner new computer system products that incorporated Intel's latest microprocessor technology.

COMPAQ

- 4.21 Compaq develops, manufactures and markets computer system products that incorporate Intel microprocessors. The complaint states that in November 1994, Compaq sued another computer systems manufacturer, Packard Bell, for using patented Compaq technology in Packard Bell computer systems. Intel, the supplier of the infringing components, intervened on Packard Bell's side, because Intel believed that it had an obligation to indemnify Packard Bell.
- 4.22 The FTC complaint alleges that in response to Compaq's assertion of its intellectual property rights, Intel cut off technical information that Compaq needed in order to design systems based on Intel's newest chips, even though

that technical information was widely available to similarly situated computer manufacturers, and even though Intel had no reasonable belief that Compaq had, could, or would misuse Intel's technical information.

The consent order

- 4.23 The FTC and Intel entered into a settlement in 1999. The resulting **consent order** prohibits Intel from withholding or threatening to withhold certain advance technical information from a customer or taking other specified actions with respect to such information for reasons relating to an intellectual property dispute with that customer. It also prohibits Intel from refusing or threatening to refuse to sell microprocessors to a customer for reasons related to an intellectual property dispute with that customer.
- 4.24 The FTC argues that the order does not impose any kind of broad or de facto 'compulsory licensing' regime upon Intel. Intel is free to decide in the first instance whether it chooses to provide or not provide information to customers, and whether to provide more information or earlier information to specific customers in furtherance of a joint venture or other legitimate activity. Furthermore, the order is limited to the types of information that Intel routinely gives to customers to enable them to use Intel microprocessors, not information that would be used to design or manufacture microprocessors in competition with Intel.
- 4.25 There is one important exception to the above requirements imposed on Intel. That exception involves situations where a customer maintains the right to seek an injunction against Intel's manufacture, use or sale of its microprocessors. The order contemplates that Intel may request a customer to waive that remedy, and give the customer a reasonable opportunity to make a simple written statement to that effect. If the customer refuses, Intel is not required to continue providing information or product with respect to the microprocessors that the customer is seeking to enjoin. The FTC believed that this provided an appropriate balance between the interests of Intel and its customers.
- 4.26 The order also included other specific circumstances where Intel is not obliged to supply product or advance technical information. For example, supply would not be required:
- where a customer has breached an agreement regarding the disclosure or use of the information,
 - where the information or product is not being provided to other customers, or
 - where the information would be used to design competing microprocessors.

- 4.27 Furthermore, Intel is not prohibited from seeking legal or equitable remedies based upon its own intellectual property, provided that it continues to supply advance technical information to the customer.
- 4.28 In summarising the case and its outcome from the perspective of the FTC, Chairman Robert Pitofsky stated²¹:

The heart of the Commission's complaint against Intel was the principle that a monopolist cannot withhold products or information about products in order to retaliate against customers who find themselves in an intellectual property dispute. We recognize that there is an essential balance to be struck between protecting the incentives of smaller rivals to innovate and unduly constricting a dominant firm's conduct of its business. The settlement would fully resolve those competitive concerns without interfering with Intel's legitimate business activities. This is the result that the staff would have sought after a full and successful trial.

The issues – our view

- 4.29 The facts available to us are those presented by the FTC, and we note that it is more difficult to gauge Intel's true motivations than it might appear at first glance. Patents can be used as competitive weapons, and even if the objective of enforcing patents is *bona fide* in the sense of simply seeking remuneration for intellectual property, the large number of potentially enforceable patents in existence can become a major problem for a firm attempting to develop new generations of technology. Furthermore, we understand that in practice it is very difficult to know what patents are pending when a product is designed. To that extent, we cannot tell from the information available whether Intel was being opportunistic²², or whether it saw itself as acting in a more defensive manner, reacting to actual or potential threats from other firms that were themselves in a position to act in an opportunistic manner. In other words, Intel may have been attempting to defend itself against being 'held-up' by other firms.²³ This can happen when firms find themselves in a position to enforce IPRs that had been inadvertently broken by other firms in the design of products that had already been taken to market.

²¹ FTC press release 17 March 1999, available at www.ftc.gov/ftc/antitrust.htm

²² By 'opportunistic' we mean by using its (alleged) market power in microprocessors either to simply avoid paying royalties to the owners of intellectual property, or to transfer intellectual property between downstream OEM's as alleged by the FTC (as described in the final bullet point of the section above on 'the complaint').

²³ We discuss this issue in more detail in Part I of this report, in the section on cross-licensing and patent pools. Readers who wish to gain a deeper understanding of the hold-up problem should refer to this section.

- 4.30 Certainly, if Intel's actions were as potentially damaging to OEMs' incentives and ability to innovate and differentiate their offering as the FTC case suggests, it is perhaps a little odd that firms such as Compaq and Digital so rapidly agreed to Intel's demands. Likewise, Intel's acceptance of the consent decree is consistent with either Intel taking the view that they may have lost a court action, or with Intel accepting that the FTC's conditions still allowed them to deal with any serious 'hold-up' threat to their business, should it occur, which may have been Intel's core concern in the first place. We also note that one of the four FTC Commissioner's dealing with the complaint dissented from the majority view.
- 4.31 While we cannot conclusively discern the motivations of the various parties from the public record, we would note that from an economic perspective the key issue to be addressed when assessing whether Intel's actions were, on balance, pro- or anti-competitive was establishing whether the main effect of Intel's actions was either to strengthen or maintain its competitive position, as alleged by the FTC, or to facilitate innovation and competition by removing the potential for patents to be used to stifle competition.²⁴
- 4.32 However, our reading of the FTC's decision and in particular Chairman Pitofsky's statement given above, is that the FTC did not consider the issue of Intel's underlying motivations (or perhaps even the net competitive effects) as the key issue in this case. The main issue, evident in Chairman Pitofsky's statement, was the method of dispute resolution employed by Intel. The abuse was in using a position of market power to resolve an intellectual property dispute decisively, and in Intel's favour. Whether or not Intel was 'in the right' in the IP dispute itself, the FTC found Intel's methods unacceptable. We note that whether or not this conclusion is correct is more a question of law than economics.
- 4.33 Another point of interest that is evident in this case is that there are a variety of means that can be used to harm competitors. The alleged efforts by Intel intended to damage competitors' reputations in the market are, if correct, a good example. It is perhaps also worth noting that such attempts to sabotage a firm's reputation will not always be dependant upon the saboteur having a dominant position in the market. However, as in this case, they will almost certainly be more effective when the threat involves lack of access to a critical input supplied by a dominant firm. Implying that Digital or Intergraph might not be able to deliver systems supporting the latest Intel CPUs would be of little concern if there were multiple sources of suitable high-quality microprocessors.

²⁴ This is, of course, very difficult in practice. A wide range of issues would need to be considered including whether there was any material impact on major competitors' ability to compete given the widespread practice of cross-licensing to avoid intellectual property disputes, and whether pro-competitive effects such as the lowering of costs associated with royalty free cross-licensing balanced any detrimental effects on the incentive to innovate.

4.34 Finally, we believe that perhaps the most useful lesson for antitrust enforcers from this case lies in the area of remedies. The consent decree seems to be a fair and balanced response to the perceived issues. It preserves all parties rights to their intellectual property, and in particular allows Intel to defend itself from being held-up by other firms that are seeking to prevent Intel from manufacturing or selling its microprocessors. This is a good example of how a well-constructed remedy can facilitate innovation and competition, without placing unnecessary or unreasonable restrictions on the operation of a dominant firm.

5 DELL COMPUTER

Background

- 5.1 This case concerns the prohibition of Dell Computer Corporation (Dell) from enforcing its patent rights against computer manufacturers using the VL-bus (a mechanism to transfer instructions between the computer's central processing unit and its peripherals). Dell Computer Corporation was engaged in the development, manufacture and sale of personal computer systems throughout the United States. The case was dealt with by the US Federal Trade Commission (the Commission) during 1995 and early 1996.
- 5.2 The Commission states that in February 1992, Dell became a member of the Video Electronics Standards Association (VESA), a non-profit standards-setting association. The membership of VESA consisted of virtually all the major computer hardware and software manufacturers in the United States.
- 5.3 At or around the same time, VESA began the process of setting a design standard for a computer bus design. This standard was later to be known as the VESA Local Bus (VL-bus). In common with all computer buses, the VL-bus carries information or instructions between the computer's central processing unit (CPU) and the computer's peripheral devices (eg, hard disc drive, video display terminal, or modem). Representatives of Dell sat on VESA's Local Bus Committee.
- 5.4 By June 1992, VESA's Local Bus Committee had approved the VL-bus design standard. This improved on existing technology by more quickly and efficiently meeting the transmission needs of new video-intensive software. One year earlier, in July 1991, Dell had received United States patent number 5,036,481 (known as the '481 patent') that, according to Dell, gave it 'exclusive rights to the mechanical slot configuration used on the motherboard to receive the VL-bus card.' However, according to the Commission, at no time prior to or after June 1992 did Dell disclose the existence of the 481 patent to VESA's Local Bus Committee.
- 5.5 After the committee approved the VL-bus design standard, VESA sought the approval of the standard by all of its voting members. On 20 July 1992, Dell voted to approve the preliminary proposal for the VL-bus standard. As part of this approval, a representative of Dell certified in writing that, to the best of his knowledge, 'this proposal does not infringe on any trademarks, copyrights, or patents' that Dell possessed. This was to comply with VESA's policy that member companies must make a certification that discloses any conflicting intellectual property rights, a policy that was designed to further VESA's preference for adopting standards that do not include proprietary technology.

- 5.6 On 6 August 1992, Dell gave final approval to the VL-bus design standard. As part of this final approval, the Dell representative again certified in writing that, to the best of his knowledge, 'this proposal does not infringe on any trademarks, copyrights, or patents' that Dell possessed.
- 5.7 According to the Commission, the VESA VL-bus design standard was successful, with over 1.4 million computers sold in the eight months following its adoption being equipped with the VL-bus. However, Dell then informed certain VESA members who were manufacturing computers using the new design standard that their 'implementation of the VL-bus is a violation of Dell's exclusive rights.' Dell demanded that these companies meet with its representatives to 'determine... the manner in which Dell's exclusive rights will be recognised...' Dell followed up its initial demands by meeting with several companies. At the point of the Commission's intervention, Dell had not renounced the claimed infringement.

The complaint

- 5.8 According to the Commission, Dell unreasonably restrained competition in the following ways, among others:
- industry acceptance of the VL-bus design standard was hindered because some computer manufacturers delayed their use of the design standard until the patent issue was clarified,
 - systems utilising the VL-bus design standard were avoided due to concerns that patent issues would affect the success of the VL-bus as an industry design standard,
 - the uncertainty concerning the acceptance of the VL-bus design standard raised the costs of implementing the VL-bus design as well as the costs of developing competing bus designs, and
 - willingness to participate in industry standard-setting efforts was chilled.
- 5.9 In the complaint, the Commission did not assert that Dell acquired market power. However, in a statement released with the consent order, the Commission stated that once VESA's VL-bus standard had become widely accepted, the standard effectively conferred market power upon Dell as the patent holder. If Dell were able to impose a royalty on each VL-bus installed in 486-generation computers, prices to consumers would likely have increased. According to the Commission's statement, this market power was not inevitable: had VESA known of the Dell patent, it could have chosen an equally effective non-proprietary standard.

CONSENT ORDER

5.10 The main theme of the consent order was that Dell was prohibited from enforcing the 481 patent against any company for that company's use of the VESA VL-bus standard. Dell was ordered by the Commission to comply with the following measures:

- Dell was ordered to cease all efforts in which it had asserted that any person or entity, by using or applying the VL-bus in its manufacture of computer equipment, had infringed the 481 patent.
- Until the expiration of the 481 patent, Dell was prohibited from undertaking any new efforts to enforce the 481 patent with regard to any company's use of the VESA VL-bus standard.
- For a period of ten years after the order became final, Dell was prohibited from threatening to enforce any patent rights when it intentionally fails to disclose those rights upon the request of any standard-setting organisation during the standard-setting process.

DISSENTING VIEWS

5.11 The following is a summary of the dissenting views of Commissioner Azcuenaga (the only Commissioner to issue a dissenting statement):

- The order prohibits Dell from enforcing the 481 patent without any allegation in the complaint that Dell intentionally and knowingly misled VESA and without any allegation that Dell obtained market power as a result of the misstatement at issue (although a reference to market power was made in a subsequent statement by the Commission).
- It is possible to assert that Dell must have known about the patent because some people at Dell knew about the patent. However, this leads to a strict liability standard under which a company would place its intellectual property at risk simply by participating in the standard-setting process. The question of whether Dell's corporate-wide knowledge (which would include constructive knowledge of the 481 patent) can be attributed to the Dell representative who signed the certification is also important. If this were the case, it could be alleged that Dell intentionally misled VESA. However, knowing of the patent is not the same as knowing that the standard would infringe the patent. One might expect this to be particularly true in high technology industries.

- The complaint does not allege that the company acquired or extended market power and, in addition, does not identify or allege any relevant product or geographic market. The sole reference to market power (in a statement by the majority rather than in the complaint itself) does not suggest that Dell wrongfully obtained market power, but rather that the standard conferred it. None of the ways in which Dell was alleged to have restrained competition suggest that Dell acquired the power to control price and output in a relevant antitrust market. The allegations regarding delay in acceptance of the standard, avoidance of systems using the VL-bus and uncertainty about the bus standard, all relate to the speed and breadth of industry acceptance of the standard. These effects do not necessarily translate into higher prices of computers for consumers, restricted output of computers in any relevant geographic market, or any other harm to consumers or competition.
- Even in the statement in which the reference to market power is made, the majority does not identify the relevant market in which market power allegedly was conferred. If the majority did mean to find that Dell had market power in the personal computer industry, further explanation would have been needed to make the finding more plausible.
- A problem with the order is that it may dissuade some firms from participating in the standards-setting process. Under the Dell order, a participant in a standards-setting process would be advised to review its patent portfolio carefully before permitting its representative to sign a ballot, but if it has valuable intellectual property to protect, it may consider not voting at all because voting on a standard may result in the loss of a company's intellectual property rights.
- The private remedy of patent estoppel, rather than a competition case, should suffice to remedy expectations based on Dell's conduct by barring inappropriate enforcement of a patent claim. If Dell's vote with its accompanying certification was misleading, and if another VESA member relied on the certification to its material prejudice, then the other firm may assert estoppel as a bar to any claims under the patent.

5.12 Finally, the relief imposed by the majority was viewed by the dissenting Commissioner as unnecessarily harsh. In effect, the order required (and continues to require) Dell to provide a global royalty-free licence to any firm that may have used the technology in the past, or may use it in the future, to implement the VL-bus design standard.

The issues – our view

- 5.13 There are two economic issues that we would like to comment on in this case. First, did Dell actually have a position of market power, and second, what was the likely long-term impact of Dell's actions.

MARKET POWER

- 5.14 From an economic perspective, the key question before the Commission was whether Dell's behaviour damaged the competitive process or consumer welfare. This ultimately comes down to a question of whether Dell had achieved a position of market power, and whether it had then abused (or was about to abuse) that position. On the face of it, it might appear self-evident that Dell had market power if it was able to increase the price of the VL-bus by claiming some form of royalty payment. However, it is not clear from the public documents that Dell had either succeeded in claiming a royalty, or that it in fact could succeed.²⁵ The Commission's documents allude to the fact that manufacturers either delayed or avoided using the design while the patent issue was in dispute. While this may not have been desirable, it would tend to cast doubt on the proposition that Dell was unequivocally in a position to exercise market power. Furthermore, Commissioner Azcuenaga argues on legal grounds that Dell may not have succeeded in exercising market power, even if it existed, because of the ability of damaged parties to seek private remedies that are available under patent law to deal with inappropriate enforcement of a patent claim.
- 5.15 The fundamental point is that while an IPR may give a particular party an unassailable position with relation to a particular piece of technology, it cannot be assumed that there are no substitutes available for that technology, and that the IPR therefore automatically confers a position of market power. Some form of market definition and market power assessment is a necessary step before concluding that competition has been damaged. Furthermore this is the case even if the exercise is difficult, as it may well be in a high technology industry.

IMPACT ON FUTURE BEHAVIOUR

- 5.16 The Commission's concern included the possibility that Dell's actions could damage future competition and innovation by increasing development costs and reducing industry willingness to participate in standard setting efforts. To

²⁵ We should also note that if Dell had succeeded in gaining some form of royalty payment that, depending on the level of the fee, this may have been an appropriate reward for the use of Dell's intellectual property. It is certainly unlikely that a price of zero was an efficient market price. In other words, it is important to keep in mind that a positive market price for the use of an intellectual property right is not conclusive evidence of an anti-competitive exercise of market power, nor is it necessarily even evidence of the presence of competitively meaningful market power.

come to this conclusion, the Commission must have assumed that behaviour of this type, by Dell or any other party, was likely to recur in the future. It is not obvious to us why such an assumption should be made.

- 5.17 It is clear from the fact that VESA had a policy requiring all parties to make a certification that disclosed any conflicting intellectual property rights that VESA had considered the issue of dealing with undisclosed proprietary IPRs. Presumably, this case arose because the declarations signed before establishing the standard were not sufficiently binding or well designed that they could deal with the problem presented by Dell's subsequent discovery (for whatever reason) of its IPR. However, unless there is some particular reason that a better contract could not be designed to deal with such *ex post* opportunism, surely the most likely future outcome would simply have been better contracts that prevented such incidents from 'holding up' the standard.
- 5.18 The point here is that when considering possible future damage to competition or innovation, it seems excessively conservative to assume that conventional legal tools such as contract law will be unable to deal with what amount to relatively conventional commercial disputes. The Commission seems to have assumed a 'worst case' scenario, whereas in our view it would be much more reasonable to assume the parties would learn from the experience, and seek to avoid future repetitions.

6 SUMMIT AND VISX

Background

- 6.1 Summit Technology (Summit) and VISX are two firms that compete in the market for equipment and technology employed in photorefractive keratectomy (PRK), a form of eye surgery that uses lasers to correct vision by reshaping the eye's cornea. PRK is a procedure for correcting nearsightedness, farsightedness and astigmatism. According to the US Federal Trade Commission (FTC), the potential demand for PRK is very large. There are approximately 140 million people in the United States with vision problems, most of whom correct their vision with contact lenses or eyeglasses. At the time of the FTC's investigation, the market for PRK was already large and growing. In 1996, the first full year of operation for FDA-approved PRK lasers, Summit and VISX lasers performed approximately 70,000 procedures in the United States. That number had increased steadily since then, and was forecasted to reach 500,000 by 2000. The current price for PRK ranges from \$1,500 to \$2,250 per procedure. Summit received FDA approval for its laser in 1995, while VISX received FDA approval to market its laser for PRK in 1996. Summit and VISX were the only two firms legally able to market laser equipment to be used for PRK in the United States.
- 6.2 According to the FTC, both Summit and VISX originally developed their own technology for performing the laser eye surgery, and had each sought patent protection. However, rather than proceeding to independently take their laser technologies to market, they formed a patent pool in 1992 in the form of a partnership, to which they each contributed their respective patents.
- 6.3 The pool established a \$250 licensing fee to be paid to the pool each time a laser produced by either firm was used to perform PRK. The proceeds from these license fees were then split between the two firms according to a predetermined formula. The pool's terms also prevented either Summit or VISX from licensing its own technology to any other party without the approval of the other.
- 6.4 Summit and VISX argued that the pool was created to reduce the uncertainty and expense associated with the patent litigation that would have inevitably ensued if the pool had not been formed, and that it therefore allowed both parties to be in the market, when patent infringement otherwise might have precluded one or both from coming to market.

The complaint

- 6.5 The FTC lodged a complaint against both Summit and VISX in 1998. The FTC charged that the two firms had ‘conspired to restrain commerce and created or maintained a monopoly by raising or fixing prices that physicians must pay to perform PRK procedures; raising the cost or preventing entry into the sale or leasing of PRK equipment; and by depriving consumers of the benefits of competition in the sale and leasing of PRK equipment.’
- 6.6 The FTC argued that the arrangements restrained competition in two ways. First, the firms no longer competed on price. The \$250 licensing fee to be paid to the pool each time a laser produced by either firm was used to perform PRK had the effect of fixing and increasing the price that doctors paid for PRK equipment and technology, by ensuring that neither firm had an incentive to charge doctors less than \$250 per procedure. Secondly, the FTC argued that the firms no longer had any incentive or ability to compete in the licensing of PRK technology, as neither firm could license its own technology without the approval of the other.

THE FTC’S ANALYSIS

- 6.7 In analysing the case, the FTC followed the US Department of Justice and the Federal Trade Commission’s Antitrust *Guidelines for the Licensing of Intellectual Property* (6 April 1995) (the ‘Guidelines’). The Guidelines address the analysis of intellectual property licensing in general, and patent pool arrangements such as that between Summit and VISX in particular. The Guidelines note that ‘antitrust concerns may arise when a licensing arrangement harms competition among entities that **would have been actual or likely potential competitors in a relevant market in the absence of the licence**’²⁶. The same analytical principles apply to pooling arrangements, with the Guidelines noting that pooling arrangements ‘may provide pro-competitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation’. However, it is also stated that where pooling arrangements ‘are mechanisms to accomplish naked price fixing or market division,’ or where they ‘diminish competition among entities that would have been actual or likely potential competitors in a relevant market in the absence of the cross-license,’ they are subject to challenge.
- 6.8 The FTC came to the view that Summit and VISX were horizontal competitors at the time they formed the pool, because they could and would have otherwise competed with one another in the sale or lease of PRK equipment by using

²⁶ Emphasis added.

their own technology embodied in their respective patents. The pooling arrangement restricted this form of competition. Furthermore, the FTC argued that the pooling arrangement also had an anti-competitive effect in the market for PRK technology licensing. Under the agreement, only the pool could license to third parties the PRK patents contributed by VISX and Summit, but VISX and Summit each retained a veto power over licensing of any of the patents in the pool. Whereas prior to the pool, each firm could have licensed its own patents unilaterally, after the pool no patent could be licensed without the consent of both companies. Since its formation, the FTC alleged that the pool had not licensed its patents to any third-party manufacturers, and any offers that were made were economically prohibitive.

- 6.9 The Guidelines add that if a pooling arrangement has an anti-competitive effect in the relevant markets, then the investigating authority should consider whether the pool is ‘reasonably necessary to achieve pro-competitive efficiencies’. In analysing whether the pool is reasonably necessary, the Guidelines note that the existence of practical and significantly less restrictive alternatives is relevant to a determination of whether a restraint is reasonably necessary. If it is clear that the parties could have achieved similar efficiencies by means that are significantly less restrictive, then weight should not be given to the parties’ efficiency claims. In making this assessment, however, the Guidelines note that the investigating authority should not engage in a search for a theoretically least restrictive alternative that is not realistic in the practical business situation faced by the parties.
- 6.10 As described above, Summit and VISX contended that the pooling arrangement reduced the uncertainty and expense associated with patent litigation that would have inevitably ensued without the pool. The FTC did not accept this defence. The FTC argued that Summit and VISX could have achieved these efficiencies by any number of significantly less restrictive means, including simple licenses or cross-licenses that did not dictate prices to users or restrict entry. Furthermore, the FTC concluded that, as a matter of fact, patent infringement would not have precluded either firm from coming to market.

CONSENT ORDER

- 6.11 Prior to entering into a settlement with the FTC, the companies decided to dissolve the pool. Both firms also entered into settlements with the FTC, which contained the following conditions:

- Summit and VISX were prohibited from agreeing in any way to fix the prices they charge for the use of their PRK lasers and patents, including the per-procedure fee charged to doctors each time one of the firms' lasers is used, and from agreeing in any way to restrict each others sale or licensing of their PRK lasers and patents.
- Summit and VISX were also required to take no action inconsistent with the dissolution of pool, except to the extent necessary to wind up its affairs.
- The firms were also required to license to each other, on a royalty-free and non-exclusive basis, the patents each firm contributed to the pool.
- Customers who incurred an obligation to pay a per-procedure fee during the existence of the patent pool could, with certain exceptions, stop using the lasers without penalty or continuing obligation.

6.12 The settlement required Summit and VISX to cross-license, on a royalty-free and non-exclusive basis, the patents each firm contributed to the pool – even though the FTC contended that VISX and Summit could have competed absent the pool. The FTC stated that the reasoning behind this provision reflected the fact that the parties had made sunk-cost investments in reliance on the pool. This made a cross-licensing arrangement desirable to approximate the competitive conditions that would have been achieved by the point the settlement was agreed, had the pool not been formed.

The issues – our view

6.13 Although this case revolved around intellectual property arrangements in a high technology market, it is a very good example of how the underlying issues and analysis can be very conventional. At the core of the case, according to the FTC, was a relatively straightforward set of arrangements designed to fix prices and prevent competitive entry. The only real complexity was in identifying whether the pooling arrangement was *bona fide*, or a convenient cover for an otherwise relatively straightforward anti-competitive arrangement.

6.14 In dealing with the pooling arrangement, there are two core questions that can be applied to analysing many forms of (potentially) anti-competitive arrangement. That is:

- Does the arrangement restrict competition that would otherwise have occurred, in the absence of the arrangement?
- If it does restrict competition, but there is some objective justification for the restriction, is this the least anti-competitive arrangement that could be used?

- 6.15 Dealing with the first question in the case of a patent pool requires identifying whether the patents in the pool are substitutes or complements.²⁷ In this case, the FTC came to the conclusion that many of the patents were substitutes. Furthermore, it formed the view that both firms could have proceeded without encountering blocking patent problems. Given this conclusion, it could be argued that the FTC did not need to specifically answer the second question – as it had already concluded that restrictions on competition were not needed. However, in practice it chose to do so, when it noted that in its view any legal concerns could have been dealt with using simple licensing or cross-licensing arrangements.
- 6.16 Although the FTC seems to have concluded that this case was relatively clear-cut, it is worth keeping in mind that in many cases it will not be that easy to decide whether or not there was considerable legal risk to the parties involved. When that is the case, the second question of whether the arrangement was a reasonable solution to the risk involved (that is, had the minimum impact on competition) becomes key. As noted above, the FTC also dealt with this point, no doubt to make it clear that it considered the arrangement unacceptable whether or not the parties agreed with its view on the likelihood of significant legal risks arising.

²⁷ This is discussed in more depth in Part I of this report, in the section on cross-licensing and patent pools.

7 IRIDIUM

Background

- 7.1 Satellites have been used for many years for international communications. Until recently, satellite communications were conducted via geo-stationary satellites in high earth orbit. This required powerful earth based transmitters, limiting the application of satellite to mobile (handheld) communications. As an expensive form of mobile communication, requiring bulky equipment, commercial satellite communications have therefore been limited to very remote land-based or maritime applications, where few other options are available.
- 7.2 During the late 1990s a new generation of mobile satellite system (MSS), built using low earth orbit (LEO) satellites, began coming into service. By using LEO satellites, smaller transmitters could be used, allowing handheld communications, and system capacity could be increased. Furthermore, the time delay associated with more distant geostationary satellites, which can be up to half a second, can be avoided. This significantly improves service quality, particularly for voice communications.
- 7.3 Iridium was the first such system capable of global handheld voice communications, as well as paging, messaging and emergency communication services. From the perspective of a user, the system appears to operate rather like a cellular system, based on a handset that an individual could carry, with the important additional advantage that it would work from anywhere on the surface of the earth.
- 7.4 As might be expected, the advantages of Iridium came at a cost. Satellites in low orbit individually cover a relatively small portion of the earth's surface, and move across the surface at high speed. To create a system that would continuously cover the globe, a constellation of 66 LEO satellites was needed. Furthermore, LEO satellites use more power to maintain their orbits, and therefore need to be replaced more often than satellites in more distant orbits. This made Iridium a tremendously expensive system, which in turn meant that a large number of subscribers would be needed to make the project commercially viable. Given ever expanding competition from terrestrial mobile systems (cellular and mobile radio), the size of the market available to LEO satellite systems was very uncertain. Furthermore, competition from other satellite systems, such as Inmarsat, already existed and future LEO competitors were developing competing services.

- 7.5 Added to these uncertainties and potential challenges was the fact that a key competitive advantage of Iridium would be that it was a truly global system. To be able to leverage this advantage, the system would have to be fully operational from virtually the beginning of its life. This meant that the entire system would need to be launched and put into operation before any real information on the likely commercial success of the venture could be gained. In effect, the bulk of the network investment, which was very large, would have to be undertaken at the beginning of the project. Given the nature of satellites the investment was then well and truly sunk. This combination of factors made Iridium a very risky undertaking. Part I of this report contains a discussion of how high technology markets are often characterised by very high fixed costs, which, in many cases, are sunk costs. The implications of this for risk and the nature of competition is also discussed.

THE CONSORTIUM

- 7.6 The Iridium consortium was headed by Motorola, a US provider of wireless communications and electronic equipment, components and services. Motorola owned 20.1 per cent of the venture, and was the primary contractor and a major supplier of components to the system. Aside from Motorola, the consortium had 16 other strategic investors, including a number of telecommunications service providers and equipment manufacturers that operated around the world and would be directly involved in the construction, operation and supply of equipment to the system. From the European perspective, two important investors were Stet (Italy) with a 3.8 per cent shareholding, and Vebacom (Germany), with 10 per cent.

THE IRIDIUM SYSTEM

- 7.7 The Iridium system consists of three layers, the space based system (effectively the core network), gateways that connect the satellites to terrestrial systems, and service providers. Iridium owned and operated the space-based network, while individual investors in the consortium constructed and owned the necessary gateways. The gateway investors then appointed service providers to undertake the usual service provider role of sales and marketing of the service and customer equipment, billing, customer management and so on. Service providers were expected to be existing cellular service providers, selling Iridium as a complementary premium service to their terrestrial cellular business. Indeed, most Iridium handsets were expected to be dual mode, using terrestrial cellular where available, and satellite where cellular was unavailable.
- 7.8 Gateway operators were granted exclusive rights to distribute Iridium within an allocated geographic area. Within that area it was up to the gateway operator to designate service providers, which were not expected to be engaged on an

exclusive basis, in order to allow access to the maximum number of potential customers. Exclusivity was granted to gateway operators in order to compensate for the costs and risks associated with the functions and investment they were required to undertake. This included:

- obtaining and maintaining all government authorisations and frequency allocations necessary to construct and operate the gateway within their designated gateway territory,
- constructing, maintaining and operating the gateway,
- establishing and maintaining appropriate interconnection, access and settlement arrangements through and with every PSTN within their allocated territorial area, and
- establishing a network of service providers within their territory.

7.9 Within the European Community, Stet and Vebacom were to be gateway operators, each with an exclusive territory.

Application to the European Commission

7.10 The European Commission assessed a number of agreements that were to be put in place in establishing Iridium, with a view to ascertaining whether those agreements might be considered to violate either Article 85 (1) of the EC Treaty, or Article 53 (1) of the EEA Agreement. While the investigation considered a number of agreements, we discuss here the two issues we believe are of most competitive significance; the creation of the consortium itself, and the granting of exclusive distribution rights to gateway operators. We discuss these issues in turn following a brief summary of the market definition and competition analysis employed.

MARKET DEFINITION AND COMPETITION ANALYSIS

7.11 In considering the issues, the Commission defined the relevant product market as the market for satellite personal communications (S-PCS) systems. The Commission did not believe that a precise definition of the geographic market was material to their decision. In defining the market, the Commission stated that S-PCS systems were expected to complement rather than compete with wireless terrestrial mobile technologies. The Commission also noted that S-PCS systems might either complement or compete with PSTN services, particularly in remote areas of low population density or where the fixed network

infrastructure is very poor. The market was defined in a brief, pragmatic fashion, relying on a description of the services offered, and did not explicitly employ a *SSNIP* test.

- 7.12 In the competition analysis the Commission acknowledged the likely presence of expected future competitors such as Inmarsat-P/ICO and Globalstar within the S-PCS market. However, although the market was defined as a market for satellite personal communication systems, it also stated that it expected 'competition... to be very intense and to come not only from other S-PCS systems, but also from terrestrial networks'.

THE CREATION OF IRIDIUM

- 7.13 The Commission concluded that the creation of Iridium did not violate either Article 85 (1) of the EC Treaty, or Article 53 (1) of the EEA Agreement, on the grounds that the partners in the consortium could not be considered actual or potential competitors. The reasoning given for reaching this view included the Commission coming to the view that:

- no investor in the consortium could be reasonably expected to make the necessary investment needed to set up and operate the system,
- no investor could be expected to assume the substantial technical and commercial risks associated with the system,
- no investor in Iridium holds the necessary authorisations and licences needed to provide services on a worldwide basis through satellite, and
- the array of technologies required was outside the individual capabilities of investors.

- 7.14 In reaching these views, the Commission acknowledged that the concept behind Iridium was untried, and could not be proven until fully operational. As such, the Commission accepted that the undertaking involved considerable risk.

EXCLUSIVE DISTRIBUTION ARRANGEMENTS

- 7.15 The key issue here was the granting of exclusive distribution rights to gateway operators. This right meant that no other company could build or operate a gateway within the assigned territory, or provide Iridium services in that territory (other than as an appointed service provider to the designated gateway operator). The Commission accepted that the restriction was necessary to compensate the gateway operators for the costs and risks that they were required to undertake. The Commission therefore concluded that the restriction was directly related

and necessary to the successful implementation of the system. In coming to this view, the Commission noted that any possible restrictive effects were mitigated by a number of facts, which included:

- Neither gateway operators nor service providers were prevented from dealing with competing operators.
- There was expected competition from competing satellite and terrestrial cellular systems.
- Iridium had limited capacity, which was expected to be fully employed by the consortium members.

7.16 In concluding that the exclusive distribution rights were not anti-competitive, the Commission put an important caveat around its conclusions. It noted that the ancillary nature of the rights could be revisited should the particular circumstances of the case change in a substantial manner. In particular, such a case would be if Iridium acquired a dominant position in respect of the actual provision of S-PCS services.

Subsequent events

7.17 Iridium began commercial operation in October 1998. At that point, the cost of constructing the network had exceeded \$5 billion. In its initial months, the firm spent some \$180 million on marketing, with the objective of winning 500,000 customers within six months. In fact, when Iridium filed for bankruptcy only nine months after its launch, it had acquired only 15,000 subscribers. Iridium's assets were subsequently sold in December 2000 to a new consortium of private investors – for the sum of \$25 million. The original investors had lost their entire investment. Furthermore, by 2001 two other consortia that had hoped to compete with Iridium, Globalstar and ICO, also went into liquidation, resulting in the loss of billions more by MSS investors.

The issues – our view

7.18 The application by the Iridium consortium to the European Commission for clearance of its proposed business arrangements under European Competition law had the potential to draw the Commission into a wide range of potentially difficult issues. What is the relevant market (or markets) involved? Would S-PCS satellite systems compete with terrestrial cellular or mobile radio systems, and to what extent? If they did compete, but only to a limited extent, which customers would be captive? There was a good deal of promised competition

at the time of the application (such as Globalstar), but would those systems ever be put into service if Iridium was first to market and captured most satellite customers?

- 7.19 To avoid becoming bogged down in detailed examination of questions that were in some cases virtually impossible to answer,²⁸ it is useful to identify at an early stage what the critical issues involved were. In this case, at least in our view, the most critical issue was the degree of risk involved. An important, but arguably secondary issue here is the degree to which the consortium members were required to join the consortium in order to assemble the necessary technologies and rights. The reason we consider this a secondary issue is that technology and other components necessary to establish the system in operation could *probably* be accessed by way of commercial arrangements (such as licensing) that fell short of creating a consortium with contributing members taking an equity position in the consortium. However, in terms of risk sharing, some form of joint venture based on equity investments by the partners was likely to be unavoidable.
- 7.20 The level of risk is the critical issue here because the general question that needs to be considered is **whether the arrangement harms competition that would have taken place in the absence of the arrangement.**²⁹ Also, in considering what might occur in the absence of the proposed arrangement, the issue of whether there is a less anti-competitive arrangement that would achieve the same result also needs to be considered.
- 7.21 For the establishment of the consortium itself, this poses the question of whether individual members of the consortium would otherwise be in a position to establish competing systems. If it is accepted that the risk of the proposition is such that this would not occur, then the arrangement cannot be anti-competitive. Similar logic applies to the distribution arrangements. If the risk is such that gateways would not be established without the potential rewards offered by exclusive rights to distribute the system, then the exclusive rights are not anti-competitive.
- 7.22 The important point is that if this key question can be answered with reasonable assurance, and it is accepted that the risk level requires the arrangements in question, then the other difficult questions are not critical. Whether or not

²⁸ For example, one of the key questions that could have been debated in defining the market is the extent to which satellite and terrestrial cellular services were substitutes. From the evidence available, it appears as though the consortium members were gambling that satellite and cellular were largely complements. However, subsequent events would suggest that this was not a good assumption.

²⁹ This is directly analogous to the test discussed in the earlier section in Part I of this report dealing with licensing arrangements.

terrestrial systems compete with S-PCS, and whether or not the proposed competing satellite systems are ever launched, the arrangements are not anti-competitive.

- 7.23 The text of the Commission's decision accepts in a number of places the view that Iridium was a very high-risk undertaking. Furthermore, the decision gives little or no consideration to what might otherwise be critical questions, such as a precise definition of the market and whether the promised competing satellite systems would ever eventuate. This suggests that the Commission most likely did identify and accept that this was the fundamental question, and that the answer was that the proposed measures were therefore necessary and pro-competitive.

MARKET DEFINITION

- 7.24 In its market definition the Commission defined a market for satellite based personal communication services, yet in its competition analysis it acknowledged that it expected Iridium would experience strong competition from terrestrial networks. Although the decision does not define exactly what is meant by terrestrial networks, presumably this included terrestrial cellular, mobile radio and fixed networks. This raises the question of whether, if a market for satellite systems was defined as the relevant market, competition from terrestrial systems should have been taken into account. Did the Commission make an error in conducting its competition analysis?
- 7.25 Our view is that the conclusion the Commission reached was correct, whether or not it appeared to be technically inconsistent with its market definition. In coming to this view, it is useful to return to the fact that the key issue was the level of risk Iridium was subject to. This risk came from the combination of very large sunk costs, with a great deal of uncertainty over the long run size of the market that was available, and of the level of competition that would be experienced from both other satellite operators and terrestrial substitutes. In other words, one of the fundamental uncertainties was the extent to which satellite and terrestrial systems would prove to be in competition. The extent of this uncertainty can be seen in the fact that the consortium's business model, based on cellular service providers and dual function cellular/satellite handsets shows that the consortium believed it was offering a complement to cellular services. In practice however, cellular networks expanded faster than expected, and offered unexpected solutions to roaming across incompatible cellular technologies (such as multiband cellular handsets). Cellular, and other terrestrial communications networks, turned out to be a substitute for most market segments that satellite operators had hoped to capture, and was no doubt a large part of the reason for the financial failure of the satellite systems.

- 7.26 So how should the Commission have defined the markets? One approach would be to use a **SSNIP** test type approach, which would reveal markets for satellite, cellular (and possibly mobile radio), and fixed network services. This approach would make it difficult to get at the core issue, which was uncertainty over the size of the satellite market, largely as a result of uncertainty over the degree to which the various technologies would develop to serve the various customer segments, and hence, in effect, the degree of competition between these markets in the long term. A better approach, given the long-term nature of the investment and competition issues, might therefore have been to define a wider market for mobile communications services.
- 7.27 Nonetheless, our view is that the Commission's approach, while not technically elegant, was simple, reflected the reality of the situation, and in this case produced the right answer. In practice, the Commission's approach amounted to use of the **first principles** approach, that reflected the competition issue at hand, and the competitive constraints that were relevant. Arguing over the exact heading the analysis should have received is not a useful exercise.

REGULATORY OPPORTUNISM

- 7.28 The caveat that the Commission put on its conclusion regarding the exclusive distribution arrangements indicated that should Iridium become dominant, the acceptability of the distribution arrangements could change. This is, in our view, a good example of how competition regulation can be badly misapplied
- 7.29 The issue here was whether the restraint was needed to reward the investor. The Commission concluded that it was. The fact that the Commission concluded this came from the level of investment and risk involved. At the point of investment, the investor should be able to get a **binding** ruling from the regulator, indicating that the arrangement will not subsequently be found illegal, should the investor 'win' and become dominant. Otherwise, the Commission's conclusion is of limited value – leaving the investor exposed to the risk of regulatory opportunism. If the venture fails, the regulator will not be interested and the investor will 'lose their shirt'. If the venture succeeds to the extent that the firm becomes dominant, the device designed to ensure the investor enjoys the profits of success might become illegal, in which case the regulator can transfer the rewards to consumers by, for example, mandating cost based access for competitors. This is exactly the sort of outcome that competition policy should seek to avoid.
- 7.30 We should note that even if Iridium had become dominant, and the distribution arrangements been called into question, a good regulator might still allow the arrangements as pro-competitive. This would happen if the regulator acknowledged that what they were observing was in fact a favourable outcome to a risky undertaking, and recognising that the resulting profits were the investors' just

rewards. However, this would inevitably involve an *ex-post*, or 'after the event', examination of what the level of risk and reward should be. After the event it always seems rather obvious that a project was going to fail or succeed, depending on what actually happened.³⁰ This makes it very difficult to accurately estimate the risk that was undertaken after the event. Of course, it is not easy to precisely estimate the risk before the event either, but it will be much more obvious to a regulator if there is a high degree of uncertainty at that point in time. It would therefore be highly preferable that the regulator should be asked to behave in a manner similar to the investor – having to make a binding decision before the event.

- 7.31 Note that we are not suggesting that had Iridium become dominant, it should have been free of any regulatory or competition constraints. That would be akin to committing to allow a dominant firm to behave anti-competitively. Instead, we are arguing that having allowed the exclusive distribution agreements because they were necessary to allow the parties to potentially earn a return on their investment, it would have been a bad policy *ex post* to renege on this and allow the parties to potentially earn a reasonable return.
- 7.32 The interaction between risk and competition policy is considered in Part I of this report, in the context of mandating access to intellectual property. We argue that if a dominant firm in a market has engaged in a substantial, high risk investment, and is enjoying the benefits of 'superior skill and enterprise', compulsory access claims should be treated with caution.

CONCLUSION

- 7.33 The Iridium story, and more broadly, the MSS story, starkly demonstrates how high-risk investment in dynamic, technology markets can be. There is a high awareness in general of the big winners in technology markets, firms such as Microsoft, Intel, Nokia, Vodafone, and many more. However, it is the nature of high-risk markets that they produce very big winners, and very big losers. Few of the losers have lost more than Iridium in such a short space of time.
- 7.34 From a competition policy perspective, this case has both good and bad points. In our view, the Commission did a good job of analysing competition in a broad fashion, and concentrating on the fact that this was a very high-risk undertaking that justified cooperation and some restrictive trade practices being implemented. However, its conclusions regarding the exclusive distribution arrangements amounted to leaving itself the option of engaging in regulatory opportunism should the venture have succeeded.

³⁰ Consider for example cellular mobile markets. For most of the 1990s, market growth has wildly exceeded industry forecasts. Yet now, it is difficult to imagine that there was any doubt about the potential of the market. If examining the mobile market now, it would be very easy to conclude that the risk undertaken by the early investors in this business was minimal.

8 BRITISH INTERACTIVE BROADCASTING

Background

- 8.1 British Interactive Broadcasting Ltd (BiB, now named Open) is a joint venture company created and owned by British Sky Broadcasting (BSkyB), British Telecommunications (BT) Holdings Limited, Midland Bank and Matsushita Electric Europe. The parties notified the European Commission of the creation of the joint venture, including a number of associated agreements between the parties, in 1997.
- 8.2 BSKyB was a broadcaster of analogue pay-TV services delivered via satellite and cable in the United Kingdom and Ireland at the time of this application to the Commission. BSKyB operated at both the retail and wholesale levels in these areas, supplying broadcast channels to competing pay-TV operators that use cable (and terrestrial digital) distribution systems. It launched a digital satellite pay-TV service in 1998 using the set-top box and other associated hardware that BiB subsidises. BSKyB is also active in the provision of conditional access services and other technical services necessary for the provision of pay-TV services.
- 8.3 BT is the owner and operator of the largest fixed telecommunications network in the United Kingdom.
- 8.4 Midland Bank is part of the HSBC group of companies, providing a range of banking and financial services in the United Kingdom and around the world.
- 8.5 Matsushita is a designer, developer and manufacturer of electronic and electrical products and associated software and information technology for home, industrial and commercial uses.
- 8.6 BiB was created to provide a new type of service, digital interactive television services, to consumers in the United Kingdom. BiB was formed as a joint venture to put in place the necessary infrastructure and services to allow companies to interact directly with consumers by way of a television-based interface. It was envisaged that a wide range of services would eventually form part of the Open digital interactive television service, including services such as home banking and shopping, holiday and travel services, downloading of games, learning on-line, a limited collection of Internet sites provided by a third party (together with email), and public services. The system also offers the potential to integrate interactivity into television broadcasts, for example by running interactive advertisements, or allowing home audience voting in quiz shows.

- 8.7 From the perspective of the user, the proposed system would form part of a satellite pay television ('pay-TV') package, with the normal associated hardware requirements (satellite receiver, set-top box), with the addition of a link to the local telephone network that allows two-way communication between the network and subscriber. To use the system, a subscriber will require a set-top box capable of operating the BiB interactive TV system. As in other businesses of this type, the digital set-top box is an important element of the infrastructure, with the (retail) selling price, along with other essential hardware including the satellite dish, being subsidised from ongoing service revenues.

The Commission's assessment

- 8.8 In dealing with the proposed joint venture, the Commission decided that there were a number of relevant markets:

- **The digital interactive television services market**

Interactive television services were considered distinguishable from potential alternative sources of supply for the customers of BiB's services, such as high-street retailing or interactive services provided via personal computers. Digital interactive television services and pay-television services were also considered to be different markets.

- **The 'customer access infrastructure market' for telecommunications and related services**

This was a new market definition for this area, designed to take into account the increasing demand for data services, and services other than traditional voice services that require two-way communications. After evaluating the available access options on the basis of two-way communication capability, transmission capacity and price, the Commission concluded that the market included BT's (copper) local access network and the cable operators' cable networks, but excluded for the time being wireless fixed and digital mobile networks. The Commission noted that BT, as the former telecommunications monopolist in the UK, possessed a network that covered almost all of the UK, and that 86 per cent of residential fixed lines were supplied by BT at that time.

- **The market for the wholesale supply of films and sports channels for pay television**

The Commission considered that there is a separate market for the wholesale supply of film and sports (or premium content) channels. The Commission noted that BSkyB dominated the supply of pay-TV film and sports channels in the UK, and that exclusive film distribution and sports rights contracts meant that there would be no emergence of significant competition in this area in the medium term.

- **The pay-television market**

The Commission continued with its practice of distinguishing between pay television and free-to-air television. The Commission noted that BSkyB has a particularly strong position in the pay television market.

- **The market for technical services for digital interactive television services and pay television.**

The Commission had previously defined a product market for the wholesale provision of the technical services necessary for pay television in a number of decisions. In the BiB decision it found that there was a very large area of overlap between the technical services necessary for pay-television and the services necessary for digital interactive television, although it also recognised that the skills and technologies underlying some of the individual technical services necessary for pay-television and/or digital interactive television services differed in some respects, and that therefore narrower product markets may exist. However, the Commission left this point open in the BiB decision, as it was not necessary to resolve the issue for the purposes of analysing this case. The Commission reasoned that demand for set-top boxes and associated technical services was directly linked to demand for broadcast TV, and therefore that the position of a supplier of technical services was largely determined by the position on the pay-television market of companies that use its services. BSkyB therefore had a strong position in this market through its services subsidiary, Sky Subscriber Services.

THE COMMISSION'S CONCERNS

8.9 The prime concern raised by the Commission was that the joint venture combined BT and BSkyB, who in the view of the Commission were both potential competitors in the digital interactive television services market. The Commission argued that both had sufficient skills and resources to launch such services, and both would be in a position to take on the technical and financial risks of doing so alone. Given the market positions of BT and BSkyB in markets related to the one in which Open would be active, the (potential) restriction of competition on the market for digital interactive television services was appreciable. In coming to this conclusion, the Commission noted in particular that BT would have the capability to provide such services, alongside other broadband services by virtue of the Digital Subscriber Line (DSL) technology that was becoming available for use on traditional copper-line networks.

8.10 This core concern was combined with a number of other concerns, three of which we discuss in more detail below:

- the potential for competition from cable networks,

- access to set-top boxes for potential competitors,
- access to fully interactive content.

COMPETITION FROM CABLE NETWORKS

8.11 Cable networks provide significant competition to BT's copper-based access network. The Commission was concerned that with its investment in BiB, BT would not have an incentive to develop competing services over its own cable network. Furthermore, competing cable network operators would be unlikely to establish services in an area already cabled by BT. As a result, BT was required not to expand its cable television interests in the United Kingdom. Beyond this, BT undertook to divest its existing interests.

THIRD PARTY ACCESS TO SET-TOP BOXES

8.12 In theory potential competitors to BiB/BSkyB could launch a competing service using a competing set-top box. However, B SkyB had a very strong position established in the UK pay television market. Furthermore, the BiB parties estimated that a subscriber base of at least one million subscribers would be needed to achieve efficient scale for the provision of digital interactive television services. Another relevant consideration was that the marginal costs³¹ of introducing a digital interactive service was minimised if it was offered as part of a wider digital television service. This suggested that in practice, a digital interactive television service would only be supplied as an additional service to pay television. As such the Commission was concerned that a potential competitor in the interactive television market could not economically provide a competing service, other than by gaining access to BiB's established infrastructure.

8.13 To achieve this aim, the Commission imposed a number of conditions that resulted in:

- the legal separation of a company responsible for the subsidy (and therefore subsidy recovery) of set-top boxes, and a requirement that the subsidy recovery mechanism be transparent and non-discriminatory,
- removal of a clause that gave BiB exclusive access to B SkyB's electronic program guide, and

³¹ We interpret the Commission's wording here as referring to the total incremental cost of developing and introducing a digital interactive service, rather than just the cost per connection of installing the service. However it is also true that it would be considerably cheaper on average to connect subscribers to both digital television and interactive services as part of the single installation visit rather than attempting to sell the services independently.

- removal of a requirement that customers wishing to purchase a BiB subsidised set-top box must also subscribe to BSkyB's pay-TV service.

ACCESS TO INTERACTIVE PAY-TV CHANNELS

8.14 BSkyB's channels are supplied both to competing cable and digital terrestrial³² pay-TV operators. However, these competitors only distribute the content, and may not modify it without BSkyB's consent. In order to make sure that these competitors could access the interactive features of these channels, BSkyB was required to offer its film and sports channels either with or without interactive applications, at the choice of the purchaser, priced on a non-discriminatory basis.

SUMMARY

8.15 The remedies imposed by the Commission were aimed at achieving three underlying objectives:

- increasing the likelihood that competitive access would be provided by a non-BT, cable-based, access provider,
- ensuring service providers of digital interactive services would have access to the BiB system on fair and reasonable terms, as it was unlikely the service platform itself could be duplicated by potential competitors, and
- ensuring competing content distributors were not disadvantaged through being unable to distribute content that included interactive features.

8.16 With undertakings in place to ensure the above objectives were met, along with a number of other changes to the proposed agreements, the joint venture was allowed to proceed. This was because the Commission believed that the potential reduction in competition was balanced by the ability to provide a better service, more quickly, than the joint venture offered. Furthermore, the potential anti-competitive effects were also reduced by the undertakings noted above, combined with the fact that a substantial level of competition could still be expected, particularly from cable operators.

The issues – our view

8.17 BiB is a relatively complex case, and we focus here on two issues that were both important to the case, and are relevant to the issues discussed in Part I of this report. Those issues are:

³² ONdigital, which has recently become ITV Digital.

- market definition, and the relationship between relatively narrowly defined markets and the competition issues at hand, and
- the relationship between the BiB proposal, and the potential influence of the joint venture on BT's behaviour.

MARKET DEFINITION

- 8.18 This case provides a useful demonstration of both the uses, and limitations, of market definition in dynamic markets. Market definition in cases such as this tends to be a difficult exercise. It involves technical issues that can be difficult for non-experts to evaluate. Furthermore, the services involved may not be currently available, meaning there is likely to be a good degree of uncertainty over those services precise future form, positioning in the market, and eventual acceptance by consumers. A key challenge when undertaking competition analysis in markets such as this is ensuring that the traditional competition analysis framework is used as a useful tool to aid understanding, and not allowed to become a part of the analytical problem.
- 8.19 Reading through the list of markets defined by the Commission shows that they provide a useful categorisation of the various functions undertaken by the relevant parties involved in the broad competitive environment. From the perspective of the competition analysis however, the key point is that there are both vertical and horizontal links between the markets. Furthermore, the nature of those linkages was critical to the analysis.
- 8.20 The implication of this is that it is important to recognise that defining markets in a case such as this provides a useful method of breaking the environment down into constituent parts, and then gaining a detailed understanding of those parts. This is a necessary exercise. However, the competitive issues of interest will not always reside solely within the markets defined.³³ This is perhaps best illustrated by discussing the core issues in this case at a very high level.
- 8.21 The key issue here was digital interactive television, and the extent to which the proposed joint venture would either facilitate or restrict the development of competition in this market. However, competition in the future market for digital interactive television services could not be viewed in isolation. There were two

³³ It could be argued that the way to deal with this is to define broader markets. However, in this case the service in question would always be distributed as a package of goods and services. To understand the competitive dynamics of competition in service packages, there is no substitute for analysing the underlying product markets. If the competitive conditions in the narrowly defined markets for the underlying products were found to be identical, then it may be appropriate to analyse a more broadly defined market.

related markets, for content (pay-TV) and access, which were both essential to the success of any interactive television system. The importance of access is self-evident: for a two way service to be viable some form of access infrastructure must be available. In the case of content, the Commission acknowledged that digital interactive television services would almost always be sold as an additional service provided as part of a pay-TV package. In practice, both the content and access markets contained players that were likely to possess long-term market power, and who were involved in the proposed joint venture – BSkyB and BT. Furthermore, some of the potential long term competitive effects lay in the access market.

- 8.22 In our view it was the nature of the relationships between competition in the various markets that the Commission had defined, and the resulting impacts on the incentives of these two firms, that provided the Commission with its core competition problem. In practice the Commission recognised this, with the decision discussing the competition issues in a broad context, relatively unconstrained by the markets that had been defined (ie, a first principles approach).

BIB AND BT

- 8.23 There are a variety of ways that the BiB joint venture could change BT's incentives and hence change BT's behaviour. For example, if BiB's interactive television based home shopping system was successful, it might materially influence BT's incentives to make broadband internet access more widely available. This is because BiB's system is effectively proprietary, giving it a good chance of being able to recover some portion of the value of transactions that take place over the system, whereas broadband internet is an open standard, and relatively difficult to control.³⁴
- 8.24 The problem for the Commission was that while a variety of stories could be told about how BT's incentives **might** be changed, there was equally little certainty about what would actually happen and why. Furthermore, preventing the venture from proceeding may have materially damaged the rate at which interactive services operated from television-based technologies were introduced into the United Kingdom. This would be to the detriment of consumers, without any certainty of balancing benefits in other areas.
- 8.25 Rather than speculate on possible future anti-competitive outcomes, the Commission chose in this case to let the deal proceed. Effectively it allowed BT

³⁴ With broadband internet, the network access provider can only price on the basis of either bandwidth made available or of the level of usage of the connection. However, this will reveal relatively little about the value of the interaction to the user.

the benefit of the doubt, and elected to adopt a 'watch and wait' strategy. The merits of such a strategy are discussed in Part I of this report. A key question is whether this was an appropriate regulatory response. In our view, it was. Exchanging the possibility of future detriment for reasonably certain current detriment would suggest that preventing the venture would have been a severe form of intervention at best. Nonetheless, the Commission could justifiably have had reservations about the proposed arrangement. If the venture significantly delayed the rollout of DSL technology in the UK, the future detriment could be quite serious. Conversely, there was no certainty that BSkyB would have been able to launch the venture alone. However, a factor strongly in favour of the Commission's approach is the fact that BT is subject to industry specific regulation, by the Office of Telecommunications (OFTEL). OFTEL has an active interest in the development of broadband, and is actively involved in monitoring the market. It was therefore quite practical to employ a 'watch and wait' approach.

- 8.26 Finally, it is useful to contrast this instance of a regulator allowing a proposal to proceed while reserving the option of taking future action, with the Iridium case. In the Iridium case, future action implied the possibility of *ex post* appropriation of rents that were just rewards for risk taking and that were necessary for the investment to occur. However, in this case the approach implied the possibility of future action to maintain competition in a related market that would otherwise have occurred, had the joint venture not been approved. Maintaining competition in the related market would not represent *ex post* rent appropriation. In our view the Iridium case provides an example of (potentially) inappropriate use of regulatory discretion, whereas BiB is a good example of how a regulator can make good use of its discretion.

9 ADOBE AND ALDUS

Background

- 9.1 This case relates to the acquisition of Aldus Corporation (Aldus) by Adobe Systems Incorporated (Adobe) during 1994. Elements of the transaction were challenged by the US Federal Trade Commission (the Commission).
- 9.2 Adobe developed and marketed computer software, and had sales of \$313.5 million in 1993. At the time, Adobe was developing and marketing a professional illustration program called Illustrator, in addition to other graphics software.
- 9.3 Aldus had sales of approximately \$206.5 million in 1993, and was a producer of computer software, with the majority of its revenue derived from graphics products. Aldus marketed a professional illustration program called FreeHand under licence from Altsys Corporation, which initially developed the program and continued to develop it in consultation with Aldus.

The complaint

MARKET DEFINITION

- 9.4 According to the Commission, one of the possible relevant product markets in which to analyse the proposed acquisition was the development and sale of professional illustration software for use on Apple Macintosh and Power Macintosh computers. At the time of the acquisition, there were only two products in this market, Illustrator and FreeHand. In 1993, combined worldwide sales in this market were approximately US\$60 million. Combined US sales were US \$32 million, of which about 70 per cent were attributed to Illustrator and about 30 per cent were attributable to FreeHand.
- 9.5 Illustrator and FreeHand competed for sales to graphic arts professionals. According to the Commission, these two products were the only illustration programs offering features and performance characteristics that enabled graphics professionals to create and print high-quality illustrations efficiently and reliably using Macintosh computers.
- 9.6 The Commission then considered broadening the relevant market; first, to include the development and sale of all illustration software for use on Apple Macintosh and Power Macintosh computers and, second, to include the development and sale of illustration software for use on IBM-compatible computers using the Windows operating system. Even in the broader market, Adobe and Aldus had a combined share of more than 35 per cent of sales. According to the

Commission, the products were differentiated, and a significant share of sales in the broader market was accounted for by customers who regard Illustrator and FreeHand as both their first and second choices.

- 9.7 The Commission believed that the relevant geographic market in which to consider the proposed acquisition was either the entire United States or worldwide. According to the Commission, most illustration software is published in the US, however there were no significant impediments to the sale of imported illustration software in the US.

ENTRY CONDITIONS

- 9.8 The Commission's opinion on the possibility of entry into the market for professional illustration software for use on Apple Macintosh and Power Macintosh computers was that it would not be timely, likely or sufficient in its magnitude, character and scope to deter or counteract anti-competitive effects. The reasons given for this were as follows:

- developing a professional illustration program was considered to be difficult and time-consuming,
- marketing a technically comparable (or even improved) illustration program was considered to be difficult and time-consuming because of network externalities associated with the extensive installed user bases associated with Illustrator and Freehand, and
- repositioning of other programs to compete with Illustrator and FreeHand would have been difficult, time-consuming and unlikely.

COMPETITION PRIOR TO THE ACQUISITION

- 9.9 According to the Commission, Adobe and Aldus had competed vigorously against each other with respect to price and development of new versions of Illustrator and FreeHand prior to the acquisition.

EFFECTS OF THE ACQUISITION

- 9.10 The Commission listed the following ways in which the acquisition, if unchallenged, may have reduced competition and created a monopoly in the relevant markets:

- it would have increased the already high concentration in the relevant markets,

- it would have eliminated Aldus as a substantial independent competitive force in the relevant markets,
- it would have eliminated actual, direct and substantial competition between Adobe and Aldus,
- it would have eliminated competition between the two closest substitutes, Illustrator and FreeHand, among differentiated products in the relevant markets,
- it would have allowed the merged firm unilaterally to exercise market power,
- it would have allowed the merged firm to raise prices, either directly or through reduced discounting, promotions, or service, on either Illustrator or FreeHand or on both products,
- it would have allowed the merged firm to reduce innovation by delaying or reducing product development, and
- it would have increased the likelihood of coordinated interaction.

CONSENT ORDER

9.11 The parties entered into a settlement with the Commission. The main actions required as part of the consent order were as follows:

- The two software firms were required to divest the FreeHand professional illustration computer software and name to Altsys Corporation within six months. The purpose of this requirement was to ensure the continuation of FreeHand as an ongoing viable professional illustration software program, to maintain FreeHand as an independent competitor in the professional illustration software business and to remedy the alleged reduction in competition resulting from the acquisition.
- The firms were required (for a period of ten years following the acquisition) to obtain the approval of the Commission before acquiring any stock or other interest in any firm engaged in the development or sale of professional illustration software for the Macintosh or Power Macintosh.
- The firms were required to obtain the approval of the Commission before acquiring any professional illustration software or acquiring or entering into any exclusive licence of professional illustration software.

The issues – our view

MARKET DEFINITION AND COMPETITIVE ENTRY

- 9.12 This case is a good example of market definition undertaken in a market characterised by differentiated products and high product margins. The key point in analysing markets of this type is establishing which products are relatively close, and which are more distant. Had the Commission gone with its narrowest definition, it would surely have overstated market power, while the wider definition was equally likely to understate it. Given this, evidence that a group of customers considered the two packages as both their first *and* second choice is useful, as it indicates that, at least for some customers, the packages were relatively close substitutes. From this point, theory would suggest that with high product margins, there may be a good deal of competition between the two, even if only a limited number of customers consider the packages substitutes.³⁵ This theoretical perspective would appear to be confirmed from the Commission's factual observation that it believed there was a good deal of direct competition between the two packages.
- 9.13 This case also provides a good case of a dynamic market where entry was not likely to be easy. The Commission argued that it would be difficult to create a competing product, and that because of network externalities and the installed base of the incumbents, it would be difficult to establish a position in the market. Although not specifically mentioned by the Commission, it also seems likely that customers would be reluctant to switch to a completely new package due to the costs that would be associated with retraining staff to use a new package. In other words, given the specialised area involved and the use of the package as a business tool, customers are likely to be relatively captive to a particular package once it has become their standard tool. This is analogous to the situation most firms are now in with Microsoft Office, where most would be reluctant to switch to a new software suite due to the switching costs involved.

COLLUSION

- 9.14 The Commission was concerned that the acquisition would 'increase the likelihood of co-ordinated interaction'. The public decision does not provide any detailed explanation of exactly what the Commission's concern was. We can only assume the concern was that with relatively few competitors in the wider market the possibility of co-ordinated effects would be increased. If this

³⁵ The intuition behind this result is that the higher the product margin, the greater the financial cost of losing a relatively small number of customers. This means that even a relatively small number of customers switching to competitors in response to a price increase could make that increase unprofitable.

was the Commission's concern, we would suggest that it was unlikely to be well founded. Markets characterised by differentiated products with high margins and network effects are unlikely to provide fertile ground for oligopolistic behaviour because of the strong incentive to cheat on the tacit collusion equilibrium. We would therefore suggest that unilateral effects, which were the primary concern of the Commission, were likely to be the only legitimate concern.

CONCLUSION

- 9.15 This case provides a good example of how a competition authority with an understanding of network effects and the importance high product margins in differentiated markets, can conduct what is otherwise a relatively conventional competition analysis in the context of a dynamic market.

10 TIME WARNER TURNER

Background

- 10.1 This case concerns the US Federal Trade Commission's investigation of the proposed acquisition of Turner Broadcasting System (Turner), by Time Warner, including the resulting relationship with Tele-Communications (TCI), and Liberty Media (Liberty). The merger was approved, in modified form, in February 1997.

TIME WARNER

- 10.2 Time Warner was engaged in the sale of Cable Television Programming Services to MVPDs (Multichannel Video Programming Distributors) throughout the United States. MVPDs are pay television operators, distributing by either cable, satellite or other means such as microwave (LMDS). Time Warner's primary Cable Television Programming Services at the time included Home Box Office (HBO) and Cinemax, and their multiplexed versions. Other Cable Television Programming Services that were controlled by or affiliated with Time Warner included E! Entertainment Television, Comedy Central, and Court TV. Time Warner also owned approximately 20 per cent of the outstanding stock of Turner.
- 10.3 Time Warner was the nation's largest producer of Cable Television Programming Services sold to MVPDs, measured on the basis of subscription revenues. Furthermore, HBO – the largest Cable Television Programming Service measured on the basis of subscription revenues – was viewed by MVPDs as a 'marquee' or 'crown jewel' service, that is, a service necessary to attract and retain a significant percentage of their subscribers.
- 10.4 Time Warner was also an MVPD. At the time, Time Warner served approximately 11.5 million households in selected areas in the United States, or approximately 17 per cent of all of the households in the United States that purchased cable services from MVPDs. Time Warner was the nation's second largest MVPD.

TURNER

- 10.5 Turner was also engaged in the sale of Cable Television Programming Services to MVPDs throughout the United States. Turner's Cable Television Programming Services included Cable News Network (CNN), Headline News, Turner Network Television (TNT), TBS Superstation (WTBS), Cartoon Network, Turner Classic Movies, CNN International USA, CNN Financial Network, and services emphasising regional sports programming. Turner was one of the US's largest producers of Cable Television Programming Services sold to MVPDs as measured by subscription revenue. Turner did not own its own distribution system.

10.6 Turner's CNN, TNT, and WTBS were also viewed by MVPDs as 'marquee' or 'crown jewel' services.

TCI

10.7 Along with Time Warner and Turner, TCI was engaged in the sale of Cable Television Programming Services to MVPDs throughout the United States. Some of the larger Cable Television Programming Services that were controlled by or affiliated with TCI included Starz!, Encore, Discovery Channel, The Learning Channel, Court TV, E! Entertainment Television, BET, The Family Channel, Home Shopping Network, and services emphasising regional sports programming. TCI also owned approximately 24 per cent of the outstanding stock of Turner.

10.8 At the time, TCI served approximately 14 million households in selected areas of the United States as an MVPD. TCI also had either direct or indirect interests in cable television systems that distributed Cable Television Programming Services to an additional four million households in the United States. These 18 million households were approximately 27 per cent of all of the households in the United States that subscribed to Cable Television Programming Services from MVPDs. TCI was the nation's largest MVPD.

LIBERTY

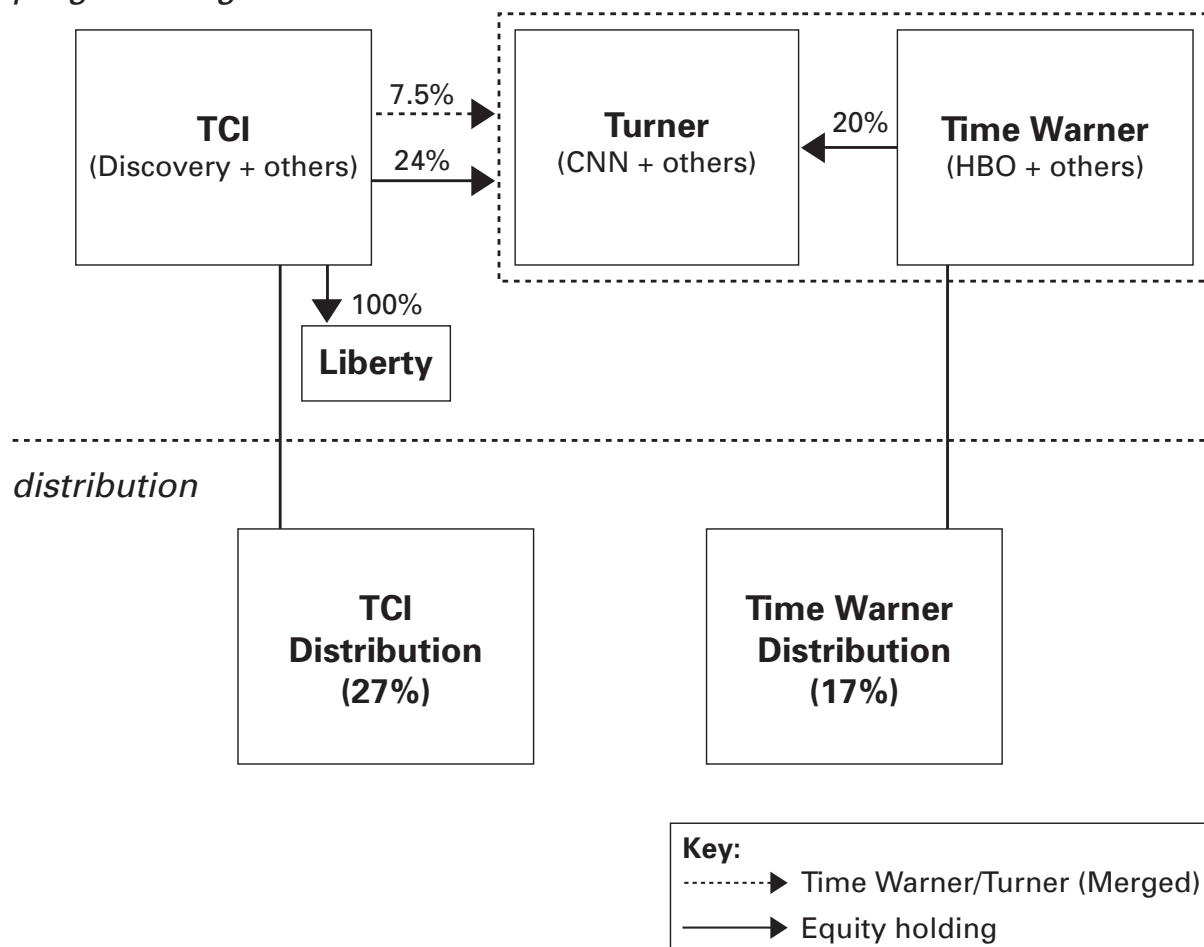
10.9 Liberty was a wholly-owned subsidiary of TCI, engaged in the sale of Cable Television Programming Services to MVPDs throughout the United States.

SUMMARY

10.10 Figure 10.1 overleaf shows in simplified form the parties involved, and the major relationships between those parties.

FIGURE 10.1 – THE TIME WARNER/TURNER MERGER

programming



The complaint

10.11 According to the Commission’s complaint, the relevant product markets over which to analyse the effects of the proposed transaction were:

- the sale of Cable Television Programming Services to MVPDs, and
- the sale of Cable Television Programming Services to households.

10.12 Cable Television Programming Services were considered to be a relevant product market because over-the-air broadcast television, video cassette rentals, and other forms of news and entertainment were not believed to have sufficient price-constraining effect on the sales of Cable Television Programming Services to MVPDs, or the resale of Cable Television Programming Services by MVPDs to households, to prevent the exercise of market power.

- 10.13 The geographic market over which to analyse the effects of the sale of Cable Television Programming Services to MVPDs was considered to be the entire United States, while the sale of Cable Television Programming Services by MVPDs to households was considered to involve each of the local areas in which either Time Warner or TCI operated as MVPDs.
- 10.14 The sale of Cable Television Programming Services to MVPDs in the United States was highly concentrated. Post-acquisition, Time Warner became the largest provider of Cable Television Programming Services to MVPDs in the United States, with a market share in excess of 40 per cent.
- 10.15 The post-acquisition HHI in the sale of Cable Television Programming Services by MVPDs to households in each of the local areas in which Time Warner and TCI sold Cable Television Programming Services was unchanged by the proposed acquisitions. As noted above, Time Warner as an MVPD served approximately 17 per cent of households, while TCI served around 27 per cent households.

COMPETITION AFFECTED

- 10.16 In the Commission's view, Time Warner and Turner were competitors with each other and with other sellers in the sale of Cable Television Programming Services to MVPDs. Time Warner's HBO, and Turner's CNN, TNT, and WTBS, were a large percentage of the limited number of 'marquee' or 'crown jewel' Cable Television Programming Services which disproportionately attracted subscribers to MVPDs. Time Warner faced actual and potential competition from other MVPDs, and potential MVPD entrants, in the sale of Cable Television Programming Services to households in each of the local areas in which it served as an MVPD.
- 10.17 According to the Commission, the effect of the agreements may have been substantially to lessen competition in the relevant product markets in the relevant sections of the country, in the following ways:
- enabling Time Warner to increase prices for its Cable Television Programming Services sold to MVPDs, directly or indirectly (eg, by requiring the purchase of unwanted programming), through its increased negotiating leverage with MVPDs, including through conditioning the purchase of one or more 'marquee' or 'crown jewel' channels on the purchase of other channels, and
 - enabling Time Warner to increase prices on its Cable Television Programming Services sold to MVPDs by raising barriers to entry by new competitors or to repositioning by existing competitors, by preventing such rivals from achieving sufficient distribution to realise economies of scale.

10.18 These effects were considered likely, because:

- Time Warner had direct financial incentives as the post-acquisition owner of the Turner Cable Television Programming Services not to carry other Cable Television Programming Services that directly compete with the Turner Cable Television Programming Services;
- TCI had diminished incentives and diminished ability to either carry or invest in Cable Television Programming Services that directly compete with the Turner Cable Television Programming Services. This is because long-term agreements required TCI to carry Turner's CNN, Headline News, TNT, and WTBS for 20 years at a 15 per cent discount, and because TCI, as a significant shareholder of Time Warner, would have had significant financial incentives to protect all of Time Warner's Cable Television Programming Services; and
- denying rival MVPDs and any potential rival MVPDs of Time Warner competitive prices for Cable Television Programming Services, or charging rivals discriminatorily high prices for Cable Television Programming Services.

CONSENT ORDER

10.19 In order to address the Commission's concerns, Time Warner agreed to restructure the merger. It entered into a settlement (consent order) with the Commission that contained the following provisions:

- (1) It required TCI and Liberty to divest their interests in Time Warner and Turner-related businesses to a separate company (or accept a maximum of 9.2 per cent nonvoting interest in Time Warner). This was intended to maintain TCI's incentive to carry non-Time Warner/Turner programming.
- (2) It required TCI, Turner and Time Warner to cancel their long-term carriage agreements involving CNN, Headline News, TNT, and WTBS. According to the complaint, by locking up scarce TCI channel space for an extended period of time, these agreements would have tended to prevent Time Warner's programming rivals achieving sufficient distribution to threaten Time Warner's market power.
- (3) It required the opportunities for Time Warner to bundle Time Warner and Turner programming to be reduced significantly. The Commission argued that this was needed to prevent the merged company from exerting substantially greater negotiating leverage over cable operators to take unwanted programming by bundling all or some of the marquee or crown jewel

networks and offering them only as a package. The consent order barred Time Warner from bundling HBO with Turner channels. Time Warner was also barred from bundling CNN, TNT or WTBS with Time Warner channels.

- (4) It barred Time Warner's programming interests from discriminating in price against rival cable systems.
- (5) It prohibited Time Warner's cable interests from discriminating in carriage decisions against rival programmers.
- (6) It required Time Warner's cable interests to carry a rival to CNN.
- (5) The proposed consent agreement also contains various reporting and record keeping provisions designed to assist the FTC in monitoring compliance.

DISSENTING VIEWS

10.20 The Commission vote to issue the order as final was 3-2 in favour, with Commissioners Azcuenaga and Starek dissenting. A summary of the arguments of the dissenting Commissioners is provided below.

COMMISSIONER AZCUENAGA

10.21 With respect to product market issues:

- Basic services (such as Turner's CNN) and premium services (such as Time Warner's HBO) are not substitutes along the usual dimensions of competition. Most significantly, they do not compete on price. CNN is sold to MVPDs for a fee per subscriber that is on average less than one-tenth of the average price for HBO, and it is resold as part of a package of basic services for an inclusive fee. HBO is sold at wholesale for more than ten times as much; it is resold to consumers on an *a la carte* basis or in a package with other premium services.
- If CNN and HBO were substitutes in this sense, we would expect to see cable system operators playing them against one another to win price concessions in negotiations with programming sellers, but there is no evidence that they have been used this way.

10.22 With respect to bundling:

- Bundling is not always anti-competitive. It can be used to transfer market power from the 'tying' product to the 'tied' product, but it also is used in many industries as a means of discounting. Furthermore, anti-competitive tying is unlawful, and Time Warner would face private law suits and enforcement action for such conduct.

10.23 With respect to foreclosure:

- Time Warner cannot foreclose the programming market by refusing carriage on its cable system, because Time Warner has less than 20 per cent of cable subscribers in the United States. Even if TCI were willing to join in an attempt to barricade programming produced by others from distribution, TCI and Time Warner together control less than 50 per cent of the cable subscribers in the country.
- TCI as a shareholder of Time Warner (with a minority share of less than 10 per cent) would have no greater incentive than it had as a 24 per cent shareholder of Turner to protect Turner programming from competitive entry. TCI's principal source of income is its cable operations, and its share of Time Warner profits from Turner programming would be insufficient incentive for TCI to jeopardize its cable business.
- The consent order requires Time Warner to carry an independent all-news channel. This might be appropriate if Time Warner were a monopolist. But with less than 20 per cent of cable subscribers in the United States, Time Warner is neither a monopolist nor an 'essential facility' in cable distribution. CNN also is not a monopolist.

COMMISSIONER STAREK

10.24 In his dissenting statement, Commissioner Starek said, 'I am not persuaded that either the horizontal or the vertical aspects of this transaction are likely substantially to lessen competition... Moreover, even if one were to assume the validity of one or more theories of violation underlying this action, the order does not appear to prevent the alleged effects and may instead create inefficiency.'

10.25 In relation to horizontal theories of competitive harm, Commissioner Starek argued that:

- there was little persuasive evidence that Time Warner's programs constrained those of Turner (or vice-versa); and

- there was no strong theoretical or empirical basis for believing that an increase in bundling of Time Warner and Turner programming would occur post merger. Even if such bundling did occur, there is no particular reason to think that it would be competitively harmful.

10.26 In relation to vertical theories of competitive harm:

- If one believes that programming is characterised by such substantial scale economies that the loss of one large customer results in the affected programmer's severely diminished competitive effectiveness, then this is an argument that the number of program producers that can survive in equilibrium will be small. This will result in a supracompetitive price for that program, but this will occur irrespective of the degree of vertical integration between programmers and distributors.
- If the reasoning of the complaint is carried to its logical conclusion, it constitutes a basis for challenging any vertical integration by large cable operators or large programmers.
- It is far from clear that TCI's incentives to preclude entry into programming are the same as Time Warner's. As an MVPD, TCI is harmed by the creation of entry barriers to new programming.

The issues – our view

10.27 The Time Warner/Turner decision was clearly contentious within the Commission itself. The key economic issues in dispute included:

- the relationship between the 'marquee' channels of Time Warner and Turner,
- the potential for anti-competitive bundling; and
- the potential for vertical foreclosure.

MARQUEE CHANNELS

10.28 A core question, reflected in the dissenting opinions, was whether the so-called 'marquee' channels of the merging parties were in competition. If they were, then the Commission's concerns over the possibility of subsequent price rises may have been justified. If they were not, then its concerns are likely to have

⁶ This effect is described in the section of Part I of this report, under Cross-Licensing and Patent Pools.

been misplaced. Furthermore, if the products were actually complements, then it is possible that Time Warner and Turner were actually closer to *complementary monopolists*, in which case the effect of the merger may have been to lower prices.³⁶

- 10.29 With the limited factual information publicly available, we are not in a position to conclusively resolve this issue, though we do note that the parties involved owned numerous channels, which would suggest that the competitive relationships between the differing types of channels would surely have varied considerably. Nonetheless, at least for the key movie channels owned by Time Warner, and news channels owned by Turner, the arguments presented by Commissioner Azcuenaga would tend to suggest strongly that these channels could not be considered close competitors.

BUNDLING

- 10.30 The Commission had concerns over the potential for anti-competitive bundling. Perhaps the first point to consider is that, as noted by Commissioner Azcuenaga and discussed in the section on bundling and tying in Part I of this report, there are a variety of reasons for bundling, many of which are not anti-competitive. In particular, given the cost and demand structure of cable TV services, bundling may be a more efficient way to price due to its superior ability to estimate willingness to pay, a useful attribute in a high fixed cost business.³⁷
- 10.31 Nonetheless, there are a number of ways bundling might be used to disadvantage competitors in the content market. For example, bundling large numbers of channels in a form of ‘full-line forcing’ could be used to occupy distributors’ channels, resulting in limited capacity being available for competing content providers. Whether this strategy might be successful would depend upon whether capacity constraints were in fact a serious issue, and on whether the merged entity was commercially and legally able to force distributors to screen all the channels in a large package.
- 10.32 Another concern may relate to the ‘two level entry’ theory of anti-competitive bundling, discussed in Part I of this report. This theory would suggest that if key channels were sold in bundles, this would increase barriers to entry in content by ensuring competing content providers have to produce a competitive bundle, and could not compete on a channel by channel basis. In this case, this concern has some intuitive appeal. However, it should be noted that this theory relies on either all content distributors choosing to compete on a package basis, or on capacity constraints being severe. Otherwise, there is no reason that a

³⁶ This effect is described in the section of Part I of this report, under Cross-Licensing and Patent Pools.

³⁷ How bundling achieves this is discussed more fully in the discussion of motivations for bundling and tying, in Part I of this report.

distributor could not choose to take the Time Warner/Turner package, and then purchase a standalone competing product, such as Fox News to compete with CNN. The issue then becomes one of pricing and market demand. For example, if the package price effectively makes CNN free at the margin to a distributor that *must* have other components of the package (such as HBO), then the challenge for an entrant (such as Fox News) would be to create enough additional value in their product to be viable as a standalone product.

10.33 The problem with deciding whether the merged entity could exclude competitors via bundling is that it turns on many assumptions including: the way the (potential) bundles are priced; the channel capacity of distributors; the size of the **additional** value that potential competitors could create with a new offering compared to the value of the incumbent's package; and the size of the market available to potential competitors. This problem is demonstrated in the brief and general discussion in the paragraph above – it merely raises a number of questions of a factual nature that would need to be examined before conclusions could be drawn. It should also be evident from the above discussion that bundling might be relatively effective at excluding competitors supplying channels that are of relatively low standalone value, but is much less likely to hinder potential competitors that can create high value offerings (for example, a sports channel carrying high value sports coverage).

10.34 This analysis comes back to our conclusion from Part I, that bundling and tying are difficult issues, that generally require a detailed investigation of the alleged anti-competitive practice. This suggests to us that Commissioner Azcuenaga was right to point out that anti-competitive bundling that impacts competition is generally likely to be unlawful, and subject to enforcement action, and that therefore the best approach is to ignore potential competition issues that are likely to be illegal if employed, and deal with specific issues if and when they arise. We would therefore argue that bundling concerns should not have been a major consideration in this case.

VERTICAL FORECLOSURE

10.35 The Commission also had concerns about vertical foreclosure resulting from vertical integration and the potential for the merged entity to close off large sections of the market to potential content competitors. A key issue here was the 20 year contracts between TCI and Time Warner giving TCI a favourable price for CNN. Between these contracts, and Time Warner's distribution interests, it would seem possible that competitors to CNN could have considerable difficulty accessing perhaps 44 per cent of the market. With only slightly more than half

the market to left to compete for, and no real alternative to pay television as a distribution channel, this may have been reasonable cause for concern in a business such as providing 24 hour news coverage.³⁸

- 10.36 Aside from this concern, the vertical foreclosure concerns either involve the potential effects of bundling which we have already discussed, or the potential for foreclosure from the local markets dominated by Time Warner's distribution interests. However, according to the Commission, the merger did not change concentration in any of relevant local markets. Furthermore, as noted by Commissioner Azcuenaga, it is not clear that conversion of TCI's 24 per cent shareholding in Turner into 7.5 per cent in Time Warner/Turner in any way changed TCI's incentives. In either case, the ability to exclude competitors from local markets would almost certainly involve an anti-competitive exercise of market power by a dominant local firm, which, once again, should be illegal, and therefore not an issue in the merger analysis.

CONCLUSION

- 10.37 Our view, on the basis of publicly available information, is that most of the Commission's concerns were either ill-founded, assumed future anti-competitive behaviour which should have been dealt with by future enforcement, or concerned issues that were present before the merger (such as the fact that TCI and Turner were linked by equity positions). Against that, most of the Commission's remedies should neither harm competition nor consumers, and the core merger was not prevented. The exception to this may be the ruling preventing bundling of Time Warner and Turner's marquee channels. Given the apparently complementary nature of the products, it is possible that bundling these services may have delivered lower prices to consumers.

³⁸ We note that *The Economist* reported in a recent article that 'the economics of non-stop news are shaky'. ('Television News', *The Economist*, 29 September 2001, p84)

11 SILICON GRAPHICS

Background

- 11.1 This case relates to the acquisition of both Alias Research (Alias) and Wavefront Technologies (Wavefront) by Silicon Graphics Incorporated (SGI) during 1995. The transaction was challenged by the US Federal Trade Commission (the Commission).
- 11.2 SGI was a firm involved in the design and supply of workstations, servers and supercomputer systems. Amongst its products, SGI developed computer hardware incorporating interactive three dimensional (3D) graphics, digital media and multiprocessor supercomputing technologies. SGI's total revenue in 1994 was approximately \$1.4 billion.
- 11.3 Alias was a leading producer of workstation-based 3D (and 2D) computer graphics software, for professional entertainment and industrial customers. Alias' products were used in the entertainment industry to produce graphical special effects used in applications such as the making of films and computer games. Alias had sales of approximately \$38 million in 1994.
- 11.4 Wavefront was also a leading producer of workstation-based 3D (and 2D) computer graphics software, for professional entertainment and industrial customers, and was a direct competitor of Alias. Wavefront had sales of approximately \$27 million in 1994.
- 11.5 According to the Commission, the market for entertainment graphics workstations was highly concentrated, with SGI supplying over 90 per cent of the market. As a result, most entertainment graphics software was developed for use on SGI workstations and was available only for SGI workstations.
- 11.6 The entertainment graphics software market was also concentrated and growing rapidly. The three leading software providers were Alias, Wavefront, and SoftImage – a subsidiary of Microsoft. The Commission stated that these three firms competed for sales of graphics software packages to 3D graphics and animation professionals. Furthermore, entertainment graphics software from Alias, Wavefront and SoftImage were argued to be the industry standards, and the Commission argued that the ability to run these firms' software is considered critical for any computer workstation manufacturer to compete successfully in the entertainment graphics workstation market.
- 11.7 Prior to the proposed merger, Alias negotiated with manufacturers of workstations other than SGI to port its entertainment graphics software products to those manufacturers' workstation platforms. The effect of such

agreements, if they were put into place, would have been to enable competing workstation manufacturers to compete in the entertainment graphics workstation market.

- 11.8 Up to the time of the proposed acquisition, SGI had maintained an open software interface for its entertainment graphics workstations, sponsored independent software developer programs, and shared advance information concerning new SGI products to facilitate and promote competitive development of entertainment graphics software.

The complaint

- 11.9 The proposed acquisition by SGI had both horizontal and vertical aspects. The combination of Alias and Wavefront introduced the potential for horizontal competitive effects, while the vertical integration of the software and hardware business led to the Commission having concerns over the potential for vertical foreclosure.
- 11.10 The Commission's view was that competitive entry would not be able to deter or counteract anti-competitive effects of the acquisition in either the software or hardware markets. In the hardware market, the Commission argued that entry would be unlikely without the ability to market a workstation that supports Alias or Wavefront software. Likewise, the Commission argued that entry into the software market would be unlikely, because of the extensive installed base of users trained on Alias, Wavefront and SoftImage entertainment graphics software.
- 11.11 The Commission concluded that the proposed acquisition could substantially lessen competition and tend to create a monopoly in the relevant markets in the following ways:
- foreclosing workstation producers other than SGI from significant, independent sources of entertainment software, reducing competition in the market for the manufacture and sale of graphics workstations,
 - increasing costs to workstation producers other than SGI for obtaining entertainment graphics software, reducing competition in the market for the manufacture and sale of graphics workstations,
 - facilitating SGI's unilateral exercise of market power in entertainment graphics workstations through price discrimination,

- enabling SGI to gain proprietary, competitively sensitive information pertaining to other workstation producers (if such workstation producers are able to get Alias or Wavefront software), reducing competition in the market for the manufacture and sale of graphics workstations,
- eliminating Alias and Wavefront as substantial independent competitors,
- increasing barriers to entry into the relevant markets by making two-level entry necessary,
- foreclosing, or increasing costs to, competitors of Alias and Wavefront in the software market, reducing competition in the software market,
- increasing prices in the software and hardware markets, and
- reducing innovation competition among producers of entertainment graphics software and among producers of entertainment graphics workstations.

CONSENT ORDER

11.12 In order to address the Commission's concerns, the parties entered into a settlement (consent order) with the Commission that contained the following provisions:

- SGI was required to enter into a porting agreement with at least one hardware manufacturer, so that at least one other manufacturer would be able to supply workstations capable of supporting SGI's software products.
- SGI was not to use any non-public information gained in the porting process for any purpose other than the porting of software.
- SGI was required to establish and maintain an open architecture, and publish the Application Program Interfaces (APIs) necessary to enable software developers to develop competing products for use on SGI's workstations.

DISSENTING VIEWS

11.13 As in the case of the Time Warner merger, the decision was split, with Commissioners Azcuenaga and Starek dissenting. Commissioner Azcuenaga argued that the competition problem in this case was simply the horizontal

aggregation of Alias and Wavefront. As such, the Commission's remedies that dealt with an alleged vertical foreclosure problem, did not address the real competitive issue.³⁹

The issues – our view

- 11.14 Once again, there was some disagreement over this case within the Commission, and it is difficult to discern with a high degree of certainty on the basis of the very limited information publicly available which of the Commission's concerns were valid, if any.
- 11.15 It is not clear whether the vertical foreclosure concerns were fully justified. The public decision has relatively little to say about SoftImage, although it is potentially a critical consideration. If SoftImage was capable of continuing to produce competing software for use on SGI workstations independently, then it would both have provided software competition and an independent supplier for competing hardware suppliers to deal with. However, the Commission seems to have been concerned that hardware suppliers would still have insufficient potential market available to them to be able to enter. Whether this is the case or not is a matter of fact.⁴⁰ However, assuming the Commission was correct, then the proposed remedy of ensuring at least one competing hardware manufacturer has access to sufficient software to ensure it is viable would seem a reasonable remedy.
- 11.16 Commissioner Azcuenaga argued the main issue was simply the aggregation of Alias and Wavefront, rather than the vertical foreclosure issues addressed by the Commission's remedies. Indeed, reducing the number of competitors in the market from three to two would, in general, be a reasonable basis to argue that a substantial lessening of competition is likely to result. However, it is debateable whether this is the case here.
- 11.17 Software firms generally have two sources of income, established customer base (licensing fees, package upgrades) and new customers (initial sales of packages and perhaps support). For sales to established customers, if those customers are relatively locked in by training costs and sunk investment in learning to use their package, then the number of competitors in the market will have relatively little impact on the prices and services made available to

³⁹ We did not have access to a copy of Starek's dissenting view.

⁴⁰ Although this is ultimately a factual issue, we do note that the Commission stated the software market was growing strongly. The source of this growth is a critical issue. If the growth was from new users, then this would tend to ease competitive entry. However, if the growth was from established customers purchasing extra user licences or upgrades, this would be much less helpful to potential entrants.

them, at least in the short run. Against this, the state of direct competition in the market will be quite relevant to initial purchasers. However, if customers are committed to a package once they have purchased it, and there are significant advantages to growing an installed base, competition for new business may still be relatively intense, even if only two software providers exist.

OPEN INTERFACES

- 11.18 Whether or not the Commission's fundamental concerns were justified, perhaps the most interesting feature of this case is the remedy employed – mandated open interfaces. In this case the remedy should have been easy to implement because, at least with respect to access to SGI's workstations, SGI was already operating an open architecture. Hence the order amounted to maintaining the status quo situation of open access. Given SGI's very strong position in the hardware market, this seems a sensible remedy designed to maintain competition in the software market.