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Practical Aspects of Aftermarkets in European Competition Law

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An “aftermarket” is a market for the supply of products or services needed for or in connection with the use of a relatively long-lasting piece of equipment that has already been acquired. Aftermarkets give rise to several kinds of questions under competition law. Does a relevant market for competitive analysis consist of separate markets for primary and secondary products, or is it a market for “systems” consisting of both primary and secondary products? When, if at all, is the supplier of the primary product dominant in the aftermarket for products or services needed for use with its equipment? If it is dominant, what conduct may be an abuse prohibited by Article 102 (ex-82) of what is now the Treaty on the Functioning of the European Union? This article applies well-known general principles of competition law, along with case law, to answer these questions.

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I. Introduction: What the Key Issues Are

An “aftermarket” is a market for the supply of products or services needed for or in connection with the use of a relatively long-lasting piece of equipment that has already been acquired. Aftermarkets include, for example, repair and maintenance services, spare parts and consumables such as cartridges for printers, games for games consoles, coffee capsules for coffee machines, and replacement blades, e.g. for simple shaving razors or for complex drilling and earth moving equipment. They include computer software and hardware, and any situation in which consumers buy one piece of equipment (or one copy of a computer program) and afterwards buy more of the same equipment or program.¹

The word is also used, less precisely, to describe the supply of improvements and additional products and services that become available during the life of the equipment. This category can include software upgrades that may become available in the market, and may be convenient or necessary for smooth functionality of the original software licensed by the user. (Eventually a chain of aftermarkets may develop with the successive acquisition of the hardware device, plus the subsequent software, plus additional software updates and upgrades.)

It is convenient to refer to all these aftermarket products and services as “secondary products,” and to the products that were first acquired as “primary products.”²

Aftermarkets give rise to several kinds of questions under competition law. Does a relevant market for competitive analysis consist of separate markets for primary and secondary products, or is it a market for “systems” consisting of both primary and secondary products? When, if at all, is the supplier of the primary product dominant in the aftermarket for products or services needed for use with its equipment? If it is dominant, what conduct may be an abuse prohibited by Article 102 (ex-82) of what is now the Treaty on the Functioning of the European Union?

If the secondary products or services in the aftermarket can be used with all the primary capital equipment produced by different manufacturers, these questions do not usually arise. There are then two multi-brand markets, for the capital equipment and for the aftermarket products or services.³ This situation may arise as a result of standardization, or informally.

Competition problems may arise if the secondary products or services for use with each manufacturer’s primary product cannot be used with primary products produced by any other manufacturer. In this situation, the buyer of the primary

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product may need to buy the secondary products or services that it needs from the manufacturer of the primary product. It may then be eventually alleged that the manufacturer's prices are excessive, that the manufacturer is illegally tying the supply of the secondary products or services to the primary products, or the manufacturer is refusing to enable competing producers of the secondary products to supply them.⁴

In theory, according to the U.K. Office of Fair Trading, there may be either:⁵

- A “system market,” consisting of a single market for combinations of primary products and the secondary products (e.g. a market for all razors and replacement heads). This may be because buyers engage in “whole life costing,” taking into account the cost of the secondary products when they choose the primary product.
- “Multiple markets,” consisting of a market for the primary products, and separate markets for the secondary products compatible with each manufacturer's primary product (e.g. one market for all razors, individual markets for each type of replacement head).
- A “dual market,” consisting of a market for the primary products and a separate market of all the secondary products, if they are compatible with all the primary products.⁶

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Using this terminology, although the Office of Fair Trading does not say so, competition law problems may arise only in “multiple markets” in which each of the secondary products is compatible with only one manufacturer's primary product. It is only in such situations that there may be separate markets for the secondary products, and there may be dominant positions in those markets. However, even in what are described as “multiple markets,” the “market” for each manufacturer's secondary product is

linked with and depends on the demand for the primary product. In practice, therefore, such a “market” is not separate and is not a market in which the manufacturer could be dominant unless it is also dominant for the primary products.

There are no reported cases in Europe in which a manufacturer has been found dominant for its secondary products when it was not dominant for the primary products.⁷ In other words, whether one asks if there are separate markets or if there is dominance, one reaches the same conclusion when the competition for the primary product constrains the manufacturer of the secondary product. The criteria for market definition and for dominance in practice lead to the same result, whatever it is, in all cases.

II. Market Definition (Is the market for “systems” consisting of both the equipment and the consumables?) and Dominance (Can an undertaking not dominant in the primary market be dominant in the secondary market?)

A. THE GENERAL PRINCIPLES

In economic and legal theory, the relevant principles about market definition and dominance assessment in aftermarkets are now clear and well-established.

It is well-known that at least some potential buyers of capital equipment are likely to be aware of, or influenced in their choice by, the cost of the products and services in the aftermarket. If this is so, the test known in Europe as the *Pelikan-Kyocera* test⁸ is applied, and there is a single market for the “systems,” the combinations of the equipment and the products or services that will be needed when the equipment is being used.

In the *Pelikan-Kyocera* case, the Commission used the phrase “primary and secondary markets” but went on to conclude that the cost of the secondary products was taken into account by buyers of the primary products (and, therefore, although the Commission did not say so, that they were *not* separate markets). The Commission concluded that lack of dominance in the market for the primary products prevented dominance for the secondary products arising where both products are interrelated, as evidenced by:

1. Whether the consumer can make an informed choice including lifecycle pricing;
2. Whether the consumer is likely to make an informed choice;
3. Whether, if exploitation of the aftermarket occurred, a sufficient number of customers in the primary market would adapt their purchasing behavior at the level of the primary market, (that is, would switch and buy another manufacturer’s primary product); and
4. Whether such adaptation would take place within a reasonable period of time.

A more correct reference to a “single market” combining primary and related secondary products appears in the Commission’s recent guidelines on vertical restraints:⁹

“(91) Where a supplier produces both original equipment and the repair or replacement parts for this equipment, the supplier will often be the only or

the major supplier on the aftermarket for the repair and replacement parts. This may also arise where the supplier (OEM supplier) subcontracts the manufacturing of the repair or replacement parts. The relevant market for application of the Block Exemption Regulation may be the original equipment market including the spare parts or a separate original equipment market and after-market depending on the circumstances of the case, such as the effects of the restrictions involved, the lifetime of the equipment and importance of the repair or replacement costs. **In practice, the issue to decide is whether a significant proportion of buyers make their choice taking into account the lifetime costs of the product. If so, this indicates there is one market for the original equipment and spare parts combined.**" (emphasis supplied)

How far potential buyers are influenced will depend on many circumstances:¹⁰ the sophistication of at least some of the buyers; how expensive the equipment is; the relative costs of the equipment and the aftermarket products over the average life of the primary equipment; how long the equipment will be used; how much the buyers know or can find out about the prices in the aftermarket and take them into account upon time of purchasing the primary product (prediction of lifetime costs); whether the secondary products must be bought on a continuing basis (as in the case of consumables or routine maintenance) or only irregularly when repairs or improvements are needed (repetitive buyers compared with sporadic buyers in the aftermarket); whether there is a high proportion of potential (new) customers compared with current (old) customers; whether it is possible to discriminate in prices for secondary products between new and old customers; whether the equipment can be hired or must be purchased; what the total net cost of replacing the equipment with that of another manufacturer would be (switching costs, which may depend, among other things, on the second hand value of the equipment, and the cost of retraining, installation, and changing software); and how long it would take to switch. If the aftermarket includes consumables, the buyer may need to estimate how much of the consumables the buyer will use, and be able to make meaningful comparisons with other primary products.¹¹ Clearly, it is important, in the case of spare parts, that many of them are available from sources other than the manufacturer of the primary equipment.

It will be seen that almost all of these factors are questions of degree, and that even for a given manufacturer's equipment there may be a wide range of potential buyers, whose needs and interests may differ widely. If the equipment is relatively expensive, some buyers will certainly calculate the cost of consumables as well.

In these circumstances the manufacturer of the equipment might, if it can, seek to charge different prices to different types of buyers. If it cannot price-differentiate for the initial capital cost (as would usually be the position), the buy-

ers for whom the marginal cost of the systems are most important will keep the price of the whole system down, particularly if they have bargaining power, thereby benefiting the infra-marginal buyers. The key question is whether there are enough price-sensitive buyers to make a price increase unprofitable.¹² In fact it is common for equipment manufacturers to keep the price of consumables high relative to the price of the equipment, precisely because that enables the manufacturers to obtain greater revenues, overall, from buyers making the most use of the equipment; in effect, they succeed in price differentiating through the sales of the consumables.

There are so many factors that may need to be taken into consideration that it might sometimes be difficult to say with confidence (if it were necessary), what proportion of the buyers are significantly influenced by the cost of the secondary products, and therefore how the single market for the systems really works. It would not be necessary to show actual changes by buyers to another primary product, but discipline between primary and secondary markets can be concluded from showing the possibility of such changes.

It is useful to distinguish between: (i) secondary products (e.g. consumables and maintenance) which are likely to be needed in direct or known proportion to the extent of use; (ii) repair services and spare parts which may be required irregularly and unforeseeably; and (iii) improvements or extra features such as new games or altered software. Improvements may be optional at least for some customers, but the other secondary products are not. Repairs and spare parts may be needed only at long intervals, or as a result of accidents or mishandling. Some spare parts, however, wear out at a foreseeable rate and need to be replaced regularly, so are more like consumables. Because consumables are needed in proportion to the extent of use, the potential buyers will be more likely to be influenced by the lifetime costs when purchasing the primary product. However, the differences between the degrees of foreseeability of necessary items do not basically alter the competition law analysis. Improvements, which may be either necessary or optional, and which imply a dynamic market, raise rather different issues, and need separate consideration, as described below.

It is important to note that the buyers need not be able to calculate accurately how much they will spend in the aftermarket over the life of the equipment. It is enough if a significant proportion of them, especially those with bargaining power, estimate it as best they can, and take it into consideration when making their choice of equipment. It would be quite wrong to assume that an equipment

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manufacturer is dominant for *e.g.*, repairs, merely because buyers do not know precisely how many repairs will be needed. If enough buyers are well enough informed about the probable cost of the whole “system” (primary and related secondary products), a significant increase in the price of secondary products or services would prove unprofitable overall, even if some buyers were unsophisticated or believed that they would use so few secondary products that the total cost would be unimportant. This is, in effect, the application of critical loss analysis by the manufacturer: The profits lost when well-informed buyers switch might be greater than the extra profit from higher charges paid by users who stay. The Commission seems not to have given enough attention to this point in the past.

It does not seem necessary to show how many customers would switch, or how soon, if the price of secondary products rose unduly. If prices have never risen unduly, it would be impossible to show the result empirically. It must be enough that it would, at some point, be possible and rational for at least some customers (presumably those buying the largest quantities of secondary products), to switch.

Many manufacturers of equipment practice “systems pricing,” that is, they charge relatively low prices for the equipment, in the hope or expectation of making a reasonable profit overall during the life of the equipment by charging appropriate prices for the secondary products. The fact that manufacturers do this is not evidence they believe that buyers are unaware of or uninfluenced by prices in the aftermarket. The manufacturers may know that buyers making little use of the equipment are likely to be attracted by a low initial cost, and are less concerned by the prices of the secondary products because they will not buy

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very many. The manufacturers also must assume that buyers who will make much use of the equipment will be sophisticated enough to calculate carefully the overall cost during the life of the equipment and, may, anyway be attracted by the low initial cost for cash flow or tax reasons.¹³ Consumables are current expenses, but the cost of capital equipment may need to be depreciated over more than one tax year.

Indeed, the use of system pricing is so widespread that it is hard to imagine a business buyer so naive that he would be unaware of the possibility that consumables or repairs (services and parts) would be part of the cost of using the equipment, and its use might become expensive. Everyone who buys a photocopier or a printer, or indeed a car, knows that.

Further, in any given market, if one manufacturer uses “system pricing” all manufacturers normally are obliged to do so, because the attraction of low initial capital expenditure is considerable.

“Systems pricing” is not the only evidence that points to the conclusion that the relevant market is for “systems.” In addition to cost-of-ownership information and low switching costs, company reputation¹⁴ and other factors protecting existing customers against “installed-base opportunism” (that is, overcharging of existing customers for secondary products on the assumption that they are locked in and can be forced to pay), are also important. There are times when this overcharging might be tempting: the product is in a declining market; the firm is having trouble competing in the market; the products are marginally profitable or unprofitable on a life-cycle basis, the firm has a few other products whose goodwill would not be affected; and the firm is in financial distress or has a very high cost of capital.¹⁵ In all other cases, installed-base opportunism is unlikely. A company selling multiple product lines for the same customers will not engage in installed base opportunism for one product line, as this would harm sales of other product lines. A high degree of technical change leading to short life of equipment would also discourage exploitation of current customers who have to make new purchasing decisions as soon as their equipment becomes obsolete.

All these factors have to be considered when assessing whether a dominant position could exist for secondary products, or whether competition in the primary products is disciplining competition and behavior in the sale of secondary products. Installed base opportunism, if it occurred, would involve charging high prices to users, rather than refusing to sell secondary products to downstream competitors. A manufacturer could sell secondary products to competitors and charge them high prices.¹⁶ A refusal to sell secondary products to competitors is not evidence of installed-base opportunism.

Innovation as a key factor in competition in the primary products—as it typically happens in technological devices—may be also another factor to consider. If an increase in prices occurs for the secondary product, customers may have an additional incentive to switch to alternative primary products that offer the latest technology.

The conclusion of the above is clear, and complications are unnecessary. If there is competition for the primary products, it will, in practice, constrain the competition for the secondary products, even if the secondary products cost so little that buyers are not likely to estimate the total cost over the life of the primary product. Antitrust problems could arise only in the unusual cases in which a buyer cannot estimate the overall cost of the manufacturer’s system; costs for secondary products are not material; and switching costs for primary products are high.

IF THERE IS COMPETITION FOR THE PRIMARY PRODUCTS, IT WILL, IN PRACTICE, CONSTRAIN THE COMPETITION FOR THE SECONDARY PRODUCTS, EVEN IF THE SECONDARY PRODUCTS COST SO LITTLE THAT BUYERS ARE NOT LIKELY TO ESTIMATE THE TOTAL COST OVER THE LIFE OF THE PRIMARY PRODUCT.

B. THE CASE LAW OF THE EUROPEAN UNION COURTS ON AFTERMARKETS

The economic principles described above have been seldom considered by the European Courts. There are probably several reasons. First, the economic principles are likely to show, in practice, an absence of dominance in secondary products unless there is dominance for primary products, so the Courts have no reason to dispute the results when these principles have been applied by competition authorities. Second, like many principles that have never been litigated, they are so widely accepted that they could hardly be contested. A universally accepted principle may be more firmly established than one based on a single, perhaps controversial, judgment. Third, these economic principles are consistent with common sense and general experience—a useful basis for a rule of law. Nevertheless, the main cases concerning aftermarkets that have been decided by the Courts must be mentioned.

In *Hugin Kassaregister*¹⁷ the Court annulled the Commission's decision on the ground that there was no evidence that the refusal to supply spare parts needed for servicing mechanical cash registers had an effect on trade between Member States. The Court accepted, as a fact, that there was a specific demand for Hugin spare parts (parts for other brands did not fit Hugin machines), and that a manufacturer could be in a dominant position for the supply of its own spare parts. However, the Court did not consider the argument that Hugin was not in a dominant position in the equipment market for cash registers, and therefore could not be in a dominant position for spare parts. In other words, the *Hugin* judgment

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does not mean that the Court rejected the economic principles explained here. It seems most unlikely that the Commission would reach the same conclusions today if a case similar to *Hugin* would arise.

In *Hilti*¹⁸ the Court found that Hilti was dominant for the equipment (cartridge-operated nail guns) and accepted that the company was also dominant for the consumables. This judgment is therefore entirely consistent with the economic principle outlined above.

*Tetra Pak*¹⁹ was a more complicated case, discussed below in connection with tying. *Tetra Pak* was found to be dominant on the market for aseptic packaging, but to have committed an abuse by seeking to monopolize the market for non-aseptic products, although the two kinds of products were not sufficiently interchangeable to form a single market.

The most recent judgment of the European General Court, concerning *Swiss Watches*, is discussed separately, below, in Section II (D).

C. EUROPEAN COMMISSION AND NATIONAL COMPETITION AUTHORITY CASES

It is useful at this point to summarize several of the key decisions of the Commission, as well as some other cases. It will be seen that a distinction has not always been clearly drawn between the question of whether there were separate markets for the primary and secondary products (rather than one market for “systems”) and the question of whether, if there were separate markets, the company in question could be dominant in the secondary market. The Commission has described primary and secondary products as if they were separate markets even when it went on to conclude that they were part of a single market. However, in spite of imprecise use of language, the principles are now clear.

All these cases involved complaints by competing producers of secondary products, not by customers.

As mentioned already, in *Pelikan/Kyocera*,²⁰ the Commission rejected the complaint of Pelikan, a German manufacturer of toner cartridges for printers, against Kyocera, a Japanese manufacturer of computer printers including toner cartridges for those printers. Pelikan’s complaint alleged a number of practices by Kyocera to drive Pelikan out of the toner market and accused Kyocera of abusing its dominant position in the secondary market. Kyocera was clearly not dominant in the primary market. There was no evidence of behavior that could be considered abusive. The Commission did not find that Kyocera had a dominant position in the market for consumables.

This finding was due to the features of the primary and secondary markets. Purchasers were well informed about the price charged for consumables and took this into account in their decision to buy a printer. “Total cost per page” was one of the criteria most commonly used by customers when choosing a printer, because life-cycle costs of consumables (mainly toner cartridges) represented a very high proportion of the value of a printer. Therefore, the Commission considered that if the prices of consumables of a particular brand were raised, consumers would have a strong incentive to buy another printer brand. In addition, there was no evidence that price discrimination between “old” or captive customers and new customers would be possible.

It is useful to compare *Pelikan/Kyocera* with the *Digital* case,²¹ in which the Commission obtained an undertaking from Digital on the assumption that Digital was dominant on the market for maintenance of its computers and software, but without making a formal decision regarding market definition, dominance assessment, or abusive behavior. The Commission said that switching hardware and software systems was slow, expensive, and difficult, and involved re-writing related systems. The prices of maintenance services were individually negotiated and confidential, and different terms could be given to different kinds of customers. Costs were not the primary consideration in choice of systems. Digital had a large base of customers that could not easily switch, and Digital

negotiated special terms with new customers.²² Because Digital gave an undertaking, the question whether the Commission was right to consider it dominant was not resolved. Evolution of servers from the proprietary systems in 1995 to today's open standard systems makes the *Digital* case less relevant for the purposes of market definition.

In *Infolab/Ricoh*²³ the Commission rejected a complaint of Info-Lab, a manufacturer of toner for photocopiers, against Ricoh, a photocopier manufacturer. Info-Lab alleged that Ricoh abused its dominant position on the market for toner cartridges compatible with certain Ricoh photocopiers and protected by Ricoh intellectual property rights by refusing to supply Info-Lab with empty toner cartridges, which would enable Info-Lab to compete with Ricoh in the sale of filled toner cartridges. Info-Lab claimed it was not possible to design a toner cartridge that would fit into the Ricoh machines without infringing Ricoh's intellectual property rights.

The Commission ruled that consumers were able to make informed choices when buying photocopiers and were, in practice, likely to do so. If Ricoh had tried to take advantage of its position by raising the price of cartridges, a sufficient number of consumers would switch their purchases of photocopiers, within a reasonable period. The Commission said that Ricoh was not dominant for photocopiers, and as the supply of cartridges was closely linked to photocopiers, it could not be dominant for cartridges.

In the *EFIM* case²⁴ the Commission explained its thinking in the two previous printers/photocopiers cases. These cases had raised the question whether a company could be dominant in the consumables market where it was not dominant in the upstream market for printers. If there was a close link between them, competition on the primary market could constrain companies' behavior on the secondary market. The Commission had found that Kyocera could not be dominant on the market for consumables because it was subject to intense competition on the primary market. For the same reasons, Ricoh could not be dominant for consumables. In the *EFIM* case, none of the companies was dominant for inkjet printers and, applying the same principles, the Commission concluded that none of them could be dominant for consumables. Even if the markets for primary and secondary products might be considered separate for some purposes, they were so closely linked that the relevant market should be regarded as a "printing systems market" comprising both the primary (printers) and secondary (consumables) products.

*ICL/Synstar*²⁵ was a U.K. Office of Fair Trading decision finding that ICL was not in a dominant position for the supply and maintenance of computer equipment with mainframe functionality. No separate market, or relevant secondary market, existed for hardware maintenance services for ICL mainframes, because of whole-life costing by purchasers of hardware. Buyers were sophisticated, the whole life cost of the secondary product was high relative to the price of the pri-

mary product, and price information was transparent since most purchases were by competitive tender. Product life cycles were getting shorter, and so the occasions for switching arose more often. Because there was no dominant position, ICL's refusal to supply certain diagnostic software for maintaining non-ICL hardware was lawful. In the single market for the primary and secondary products, ICL was not dominant.

A slightly different issue arose in *Novo Nordisk*.²⁶ Novo Nordisk, a leading insulin producer, introduced a method of insulin self-injection, the "insulin pen" system. Other companies' pen delivery systems include various components (i.e. injection devices, cartridges containing the insulin dosage, and disposable needles) which were compatible with the Novo Nordisk system. The Commission found that Novo Nordisk abusively disclaimed liability for the malfunction of its pen products, or refused to guarantee such products, when they were used with the compatible components of other manufacturers (even where malfunctioning might not be due to the use of those components).²⁷ Following discussions with the Commission, Novo Nordisk agreed not to use disclaimers in such circumstances and, further, not to treat other manufacturers' components as incompatible with its pen systems merely because of Nordisk's inability to carry out the ancillary "function check" for its pen products. In this case it appears that Novo Nordisk was considered dominant for the primary product. So this case is consistent with the conclusion that competition law issues exist in practice in aftermarkets only in case of dominance for the primary products.

It will be seen that the revised *Pelikan/Kyocera* test (essentially, do enough primary products buyers take into account the cost of the secondary products?) is unquestioned and valid in both law and economics. The soundness of the test should not be questioned merely because some terminology has been used loosely. If at least a significant proportion of primary products buyers take into account the cost of the secondary products, then the two kinds of products are so related that they are not in separate "markets," and the secondary products are certainly not in a "market" in which a manufacturer can be dominant unless it is dominant in the market for the primary products. Apart from luxury products, it is hard to imagine a situation in which buyers would not take the cost of consumables into account, so there probably are no cases in which the secondary products form a separate market.

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IS UNQUESTIONED AND VALID
IN BOTH LAW AND ECONOMICS.

D. AN EXCEPTIONAL CASE OF LUXURY PRODUCTS—SWISS WATCHMAKERS

A judgment of the European General Court²⁸ shows that separate dominant positions in aftermarkets are unusual, but not impossible. The case arose from a com-

plaint by a confederation of independent watch repairers. The Commission considered that there was no separate market in repair and maintenance services, but that the supply of those services was a feature of the luxury watch market, which is highly competitive. The confederation appealed against the rejection of the complaint.

The Court noted that the Commission said that the spare parts market for primary products of a particular brand may not be a separate market if either (1) the consumer can switch to spare parts of another manufacturer or (2) the consumer can switch to another primary product to avoid an increase in the price of spare parts. Importantly, the Court added that it would need to be shown that “in the event of a moderate and permanent increase in the price of secondary products, a sufficient number of consumers would switch to other primary or secondary products” so that such a price increase would be unprofitable.

A JUDGMENT OF THE EUROPEAN
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The Commission had initially considered that spare parts for luxury watches of different manufacturers were not substitutable for one another, and that the evidence subsequently showed they were not. Therefore, the key question was whether consumers would avoid increases in the prices of spare parts by switching to another primary product. The Court found that the total cost of repair and maintenance of luxury watches over a ten-year period is, for most models, less than 5 percent of the price of a new watch. Also, the price of spare parts is normally included in the cost of repair and maintenance, so that a moderate increase in the price of spare parts would be negligible in comparison with the price of a new luxury watch.

A purely theoretical possibility of switching is not enough. The definition of the relevant market is based on the concept that effective competition exists, which presupposes that a sufficient number of consumers would actually switch and that a moderate price increase would therefore be unprofitable. The mere possibility that the consumer can choose between several brands in the primary market is not enough to make the primary market and the after market a single market, unless that choice is made, in part, on the basis of the competitive conditions in the secondary market. Indeed, the Commission had stressed that the cost of repair and maintenance, including spare parts, was insignificant in comparison with the initial cost of a luxury watch, and that consumers did not consider the cost of after-sales servicing when choosing a watch. So the Commission had made a “manifest error” in believing that a moderate price increase would be unprofitable.

The Court added that the existence of a large manufacturer of components and spare parts for watches, including luxury watches, which did not itself produce complete watches and which was therefore not in the primary market, was a strong indication of the existence of a separate spare parts market.

Therefore, the Court said that, due to the Commission’s manifest error, “it cannot be ruled out that it might have established” that manufacturers of luxury watches held a dominant position at least in certain ranges of their spare parts that constitute separate relevant markets.

Presumably there are other luxury markets, e.g. for luxury cars, in which the cost of spare parts would be so small in comparison with the initial cost of the primary product that consumers would be unlikely to switch in response to a moderate increase in the price of spare parts. It seems unlikely that consumers who buy luxury products consider the cost of after-sales servicing or spare parts, even if the products require them, as cars and watches do.

There is, therefore, an important distinction between spare parts that are needed only if there has been wear or breakage, which may be a very small percentage of the total costs of the product, and consumables that are needed whenever the primary product is used, which may amount to 50 percent or 70 percent of the total cost of the product over its lifetime of use, depending on how much it is used. When making their initial choices, buyers of primary products that require consumables (at least if the buyers are professionals) can be expected to take the cost of consumables into account, and so consumables markets are most unlikely to be separate markets. A sufficient proportion of buyers of products requiring consumables would ultimately switch in response to a moderate price increase, and make the increase unprofitable overall.

THERE IS, THEREFORE, AN IMPORTANT DISTINCTION BETWEEN SPARE PARTS THAT ARE NEEDED ONLY IF THERE HAS BEEN WEAR OR BREAKAGE, AND CONSUMABLES THAT ARE NEEDED WHENEVER THE PRIMARY PRODUCT IS USED.

Even if a market for spare parts, or for repair and maintenance services, is separate from the market for the primary products, it does not follow automatically that the manufacturers of the primary products have dominant positions. There might be competing producers of spare parts, as there were in the *Swiss Watchmakers’* case. The normal market analysis would then be necessary to measure the market power of the manufacturers of the primary products.

This judgment is consistent with the economic principles explained in this article, because it was a situation of low information of aftermarket costs at the time of purchasing, low costs for secondary products (in proportion to the cost of primary products), and high switching costs).

E. THE COMMISSION’S 2005 DISCUSSION PAPER ON ABUSE OF DOMINANT POSITIONS

The Commission’s Discussion Paper on Article 82 (now 102) in 2005²⁹ discussed aftermarkets, although the Guidance Paper in 2009³⁰ did not. The Discussion

Paper suggested a classic two-step test in order to first define the relevant market and then to assess dominance.

The Commission stressed that:

“The strong position of the supplier on such [secondary] product markets may, however, not be indicative of the actual degree of market power of the supplier, since it may be constrained by competition in the primary market (...). In such a situation the supplier of the primary product cannot be said to be dominant on the aftermarket.”³¹

On market definition, the Discussion Paper said that the aftermarket consisting of the secondary products of one brand of primary product may not be the relevant product market if it is possible to switch to the secondary products of other manufacturers, or if the cost of switching to the primary product of another manufacturer would not be excessive. This is, of course, essentially the economic principle stated above. The Discussion Paper however went on to consider the situation in which there is a separate aftermarket consisting of the secondary products of a single manufacturer. Suppliers of other secondary products might have difficulty competing, either because of the confidential know-how or patent rights of the manufacturer in question, or they might fear retaliatory competition for their secondary products.

On dominance assessment, the Discussion Paper analyzed those situations where an aftermarket consisting of the secondary products of one brand of primary products has been (provisionally) found to constitute a relevant product “market,” saying, “a dominant position on such a market can only be established after analysis of the competition on both the aftermarket and the primary market.”

The Paper further said, “competition on the primary market does not protect customers who have already bought the primary product from being harmed if the supplier changes policy and raises prices or lowers quality after the customer bought the primary product.” If the supplier does change policy, the supplier “is no longer restrained in the aftermarket by the link with the primary market. The supplier may therefore be found to have a dominant position.” This is a curious comment, and seems plainly incorrect because it assumes that the customer is locked in and has no possibility of switching. Also, it underestimates the importance of new customers and of current customers who will need to replace equipment. The Paper, however, accepted that installed base opportunism can be

restrained by long-term service contracts or non-discrimination clauses, as well as by switching.

The Paper also said that it is easier to estimate the total cost of the system if the aftermarket was for consumables, the cost of which depended simply on the amount of use, than if the aftermarket was for repairs and spare parts; “if only professional buyers make (accurate) life cycle calculations, the supplier may still have substantial market power in the aftermarket vis-à-vis private customers.” This comment is also curious because it assumes, without saying so, that the supplier can differentiate in the price of the secondary products between professional and private buyers, which is not usually correct. It also assumes that the number of “professional” buyers who would switch, if price differentiation was not possible, would not be sufficient to make a price increase for secondary products unprofitable overall.

In the Discussion Paper the Commission went on to say that if a dominant position has been found on this basis, “the Commission presumes that it is abusive for the dominant company to reserve the aftermarket for itself by excluding competitors from that market” by tying or refusal to deal.³² The refusal might be a refusal to license intellectual property rights, a refusal to supply information needed to provide secondary products, or a refusal to supply spare parts. This statement is also unfortunate because it seems to assume that any conduct (even pro-competitive conduct such as low prices, innovative functionality, or additional value) that indirectly keeps a competitor out of the aftermarket is, or is likely to be, illegal. But any company, even a dominant one, has a duty to create competition only when the refusal to contract would be illegal for some specific reason. A refusal to help a competitor to enter a market is not necessarily illegal.

A REFUSAL TO HELP A
COMPETITOR TO ENTER
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These assumptions caused the Discussion Paper section on aftermarkets to be regarded as unsatisfactory because it assumed that (i) companies could sometimes be dominant in an aftermarket even if the primary market is competitive and (ii) that if a company is dominant for the primary products, it is normally illegal to keep competitors out of the aftermarket. Neither of those assumptions seems correct.

The Paper was also rightly criticized for a number of other conclusions. It drew a distinction between prior purchasers and future purchasers, because it said that competition in the equipment market does not protect those who have already bought the equipment. This disregards the possibility of switching, and ignores the fact that every purchasing company is also a potential future buyer, sooner or later. No primary products last forever. It assumed that the manufacturer could price differentiate between new and existing customers, which, in most situations involving consumables, is unlikely. It failed to say that, in response to an increase in the price of consumables, one crucial question is whether enough

buyers would switch to make the increase unprofitable for the manufacturer. Finally, the 2005 Paper disregarded the importance of company reputation and other factors protecting existing customers against “installed-base opportunism.”

It is therefore understandable that the section did not reappear in the Guidance Paper in 2009. (It may also have been omitted because the Commission concluded, correctly, that, in practice, aftermarket for spare parts, repairs and consumables very rarely cause genuine competition problems, for essentially the reasons given here.)

O’Donoghue & Padilla³³ also correctly say that the Commission’s comment about abuse was stricter than the tests applied in *Hilti*,³⁴ *Tetra Pak II*,³⁵ and *Microsoft*.³⁶ Dominance is not illegal; there must be evidence of abuse. Tying is normally pro-competitive, so the Commission’s comment in the Discussion Paper about abuse, which implies something close to a *per se* rule against tying in the aftermarket in the case of a company dominant in the primary market, was also inconsistent with what the Discussion Paper itself said about tying.

In fact, “installed base opportunism” would be damaging, and perhaps ultimately suicidal, for any company that practiced it. A sensible company would be unlikely to deliberately sacrifice its future customers, and its own future interests, for the inherently short-term opportunity to exploit its existing customer base. An equipment manufacturer cannot differentiate between those existing buyers who are likely to buy primary products again in the future and those who are not.

This not only makes opportunism unlikely, but it also means that if it were practiced, the company would be in difficulties of one or more of the kinds mentioned above, would probably have decided to leave the market, and so probably would no longer be dominant. Therefore, installed-base opportunism seems to be a largely theoretical problem, since it could only be short-term and, if significant, would lead to increased switching to other primary products and would do lasting damage to any company that tried it.

The Discussion Paper added, briefly, that there might be justification or efficiency defenses;³⁷ for example, to guarantee the quality and good usage of the secondary products, or to enable the dominant company to save production, distribution, or transaction costs. The Paper did not say so, but an equipment manufacturer may obtain large economies of scale if it can supply all of the consumables or spare parts. Clearly the reputation of the capital equipment depends on the consumables or other products or services in the aftermarket being satisfactory.

If dominance has not been shown, it is, of course, unnecessary to consider such questions as tying, bundling, and refusal to supply information, spare parts, or patent licenses, or to consider the possible justifications or efficiency defenses for them.

In practice it is difficult to visualize a situation in which all the conditions of dominance in a single-brand secondary market would be fulfilled, except when the manufacturer is also dominant in the market for the primary product or, perhaps, in the case of luxury consumer products.³⁸ Customers are never locked in forever, even when they need to buy consumables for the primary product. Manufacturers in practice can rarely if ever differentiate in price between existing and new buyers or between professional and private buyers of consumables, because they could not legally, or in practice, prevent arbitrage by contractual restrictions on resale or otherwise.³⁹ If the cost of the secondary product was too high in comparison with the price of the equipment, the customer would switch sooner or later. As already pointed out, there are no reported cases in Europe of dominance for secondary products without dominance for the primary products.

F. THE QUESTION OF CONSUMER HARM

Finally, it is necessary to consider the harm caused to consumers as a result of high prices in the aftermarket. Where, as is often the case, a manufacturer is “system pricing” (that is, charging low prices for the primary products and making profits primarily or only from sales of consumables), it would obviously be wrong to measure the cost of consumables to consumers without taking the cost of the primary products into account. Lower prices in the primary product make the products available to more consumers. A “system price” is related to the actual use of the device made by each consumer. The issue, again, is whether there is information to make informed decisions.

Overcharging for spare parts and supplying spare parts to competitors in the maintenance market are separate issues. Shapiro pointed out⁴⁰ that consumers would not be likely to benefit much even if manufacturers make their spare parts available to competitors. Manufacturers would price the spare parts to take into account lost profits in maintenance. Imposing a duty to supply parts would reduce the value of the manufacturer’s intellectual property rights. Consumers would still need to compare the total costs of each manufacturer’s system with the total costs of other manufacturers’ systems. Spare parts, not labor costs, are the largest element in the cost of maintenance. Also, maintenance and servicing are commodity services, and there is limited scope for competition in providing them.

U.S. Law

Although this article is about European law, it is useful to look briefly at U.S. law, since similar issues have arisen there. *Eastman Kodak v. Image Technical Services Inc.*⁴¹ is regarded as the leading case. In that case the Supreme Court held that summary judgment in favor of the defendant in aftermarket cases is generally not appropriate, even when the company in question has no market power in the primary products, because competition in the primary product does not necessarily prevent market power and anticompetitive conduct in the secondary products. Switching costs for users might be high relative to the exploitative price increase,

and the number of locked-in customers might be high relative to new customers. Lack of information might mean inadequate competition in the aftermarket, and create circumstances facilitating installed-base opportunism. Then opportunistic policy changes by manufacturers taking advantage of lock-in effects might be illegal monopolization.

Kodak was found to have market power in the high-end photocopiers market (and not only in the spare parts market), so it was not a case of dominance only in the secondary market. In addition, there was a lack of after-market information (which was limited to Kodak reports on micrographic service and declarations by Kodak that Total-Cost-of-Ownership estimates included only a few initial years while the equipment generally lasted longer), and there was also “lock-in” due to high switching costs.

In practice, since the *Kodak* judgment the lower U.S. courts have almost always found that either switching costs were not so high or shortage of information was not so serious that there was market power over the secondary products.⁴² In addition, they have usually held that there could be a breach of Section 2 of the Sherman Act only if the manufacturer had altered its pricing or other policy after buyers of the primary products were locked in.⁴³ They have also found that there was no market power either because other manufacturers’ secondary products were substitutable (i.e. that there was a “dual market” according to U.K. Office of Fair Trading terminology), or because users contracted for secondary products when they bought the primary product, and therefore knew the cost in advance.⁴⁴ Also, in some cases, buyers were able to protect themselves by long term contracts against price increases. Lower courts have also concluded that there could be no power in the aftermarket because the relevant market is for “systems,” and because there is competition for primary products that limits the scope for monopolization of the secondary products.⁴⁵

WHETHER THE CASES ARE
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Whether the cases are analyzed by reference to market definition or to market power, the result is the same. This, in fact, had been pointed out by the Supreme Court in *Kodak* (at page 470 note 15): “Whether considered in the conceptual category of “market definition” or “market power,” the ultimate enquiry is the same—whether competition in the equipment market will significantly restrain power in the service and parts markets”

Some U.S. courts have considered that there can be monopolization in the secondary products, if the high switching costs and inadequate-information conditions are fulfilled, even if there has been no change in the manufacturer’s policy. That policy might be illegal if it is unchanged. On this view, any policy change does not create market power, it merely takes advantage of it, and is evidence of it. However, if there has been no policy change, there is no injury (except when the original contract was unfavorable to the buyer, which is not an antitrust violation).

The almost unanimous refusal of lower U.S. courts to make findings in favor of plaintiffs on the basis of *Kodak*, and the large volume of economic and legal criticism of the Supreme Court's judgment, led Hovenkamp in 2001 to say that the *Kodak* judgment should be overruled,⁴⁶ and Goldfine & Vorrasi⁴⁷ in 2004 to say that overruling was unnecessary, because it was not applied.

It should be clear that both the law and economics are essentially the same in Europe and the United States. In short, in spite of the differences between Article 102 TFEU and Section 2 of the Sherman Act, essentially the same result has been reached in both jurisdictions: No competition issues arise in practice unless the company in question is dominant in the primary products.

III. Article 102: Analysis of Abusive Behavior Typically Alleged in Aftermarkets

As it has been explained above, Article 102 in practice applies to an aftermarket only if the manufacturer is dominant in the supply of the primary products. There may be dominance over secondary products even though there is no dominance over the primary products only in rare cases. Unless there is dominance, none of the possible kinds of infringement of Article 102 discussed below can arise.

A. TYING AND AFTERMARKETS

The Commission's Guidance document on exclusionary conduct⁴⁸ says that the Commission will normally take action when an undertaking is dominant in the tying market (the market for the primary products, if an aftermarket is involved) and:

1. The tying and the tied products are distinct products, and
2. The tying practice is likely to lead to anticompetitive foreclosure.

This assumes that customers are being made to buy the tied (secondary) products with the tying products, and it later mentions that there may be objective efficiency justifications for tying.

Putting aside the question of efficiency justification for the moment, and on the assumption that there is dominance in the primary (tying) market, are there separate products for the purposes of a tying analysis? Physically there are, and primary products and secondary products (such as consumables and spare parts) are not always sold as a package. The fact that most buyers take the total cost of consumables into account does not necessarily mean that they could not be considered separate for tying purposes.

Tying is discussed in the Commission's 2009 Guidance Paper on exclusionary abuses, but not aftermarkets. The Guidance Paper says that the Commission will act against tying when "the tying practice is likely to lead to anticompetitive foreclosure."⁴⁹ The Commission is, of course, correct to say that there is a fundamental distinction between "anticompetitive foreclosure" and foreclosure that can occur legitimately because the dominant company is lawfully selling better products at lower prices, and thereby excluding rivals from the market. However, this raises the difficulty that the Commission has not clearly defined "anticompetitive foreclosure" or said clearly how to distinguish it from lawful and desirable competition, in the contexts of tying, aftermarkets, or generally.

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anticompetitive foreclosure" or said clearly how to distinguish it from lawful and desirable competition, in the contexts of tying, aftermarkets, or generally.

The Guidance Paper merely says that anticompetitive foreclosure due to tying is more likely when the dominant company's conduct is lasting, or the company is dominant for more

than one product. The Commission's other comments (tying may lead to too few customers buying the tied product from rivals and the price may rise; tying may prevent buyers from altering the proportions of the two products that they use; tying may evade regulation of the price of the tying product) do not seem relevant to aftermarkets, or to complaints that the dominant company has a monopoly of an aftermarket.

The Guidance Paper says that tying by a dominant company is illegal if it harms consumers by anticompetitive foreclosure of one of the markets, and if the two products are distinct. This, correctly, implies that "foreclosure" is not always harmful to competitors or anticompetitive. However, the Commission's other comments do not help to indicate when tying might be harmful or anticompetitive. It may perhaps be that, although the Court in *Microsoft*⁵⁰ avoided weighing up or balancing the anticompetitive effects and the supposed justification, some such test may be needed, in at least some tying and bundling cases.

The tying section of the Commission's Guidance paper⁵¹ reads:

"The undertaking should be dominant in the tying market, though not necessarily in the tied market. In bundling cases, the undertaking needs to be dominant in one of the bundled markets. In the special case of tying in aftermarkets, the condition is that the undertaking is dominant in the tying market and/or the tied after-market."

The Commission also says “Two products are distinct if, in the absence of tying or bundling, a substantial number of customers would purchase or would have purchased the tying product without also buying the tied product from the same supplier.” Both comments are open to criticism.

One difficulty of applying tying principles to supposed exclusionary abuses in aftermarkets can be simply stated: If there have never been competitors in the aftermarket, it is difficult if not impossible to estimate what proportion, if any, of the buyers of the equipment would have bought secondary products from the competitors, if they had been able to do so. Everything would depend on the price, and perhaps also the quality and other competitiveness factors of the competitors’ products (innovation, design, ease-of-use, etc.). As products in an aftermarket (secondary products) are physically distinct from the capital equipment (primary product), there may be two products (a prerequisite for a tying abuse), even if they are not separate markets. The question of what buyers would have done if they had the choice is relevant to assessing the possible harm to consumers.⁵² However, since spare parts in aftermarkets are by definition all the same, price would be the only reason why consumers would buy them from different sources.

The U.K. Office of Fair Trading Assessment of Individual Agreements and Conduct, after explaining that tying is a form of leverage, correctly says:

“Where two activities are complementary (the sale of a product and the provision of maintenance services associated with the products, for example), there may be grounds for including them within the same relevant product market, in which case the issue of leverage of market power, as such, would not arise.”⁵³

The Guidance Paper, of course, accepts that tying often leads to efficiencies in production or distribution (including economies of scale) that benefit consumers, reduce transaction costs, or combine two products usefully into a single product. All of these efficiencies (particularly the first) are likely to be found in aftermarkets, but they do not seem to arise in aftermarkets in any special or unique way. In general, one would expect the manufacturer of equipment often to have unbeatable economies of scale in the production of spare parts and of consumables; although, competitors, of course, would have none of the research and development costs of producing the primary equipment and consumables in the first place.⁵⁴ In fact, if the secondary products were considered as a separate market, it might be one in which something approaching a natural monopoly would exist.

In *Tetra Pak II*,⁵⁵ the Court said that “even where tied sales of two products are in accordance with commercial usage, or there is a natural tie between the two products in question, such sales may still constitute abuse within the meaning of Article [102] unless they are objectively justified.” The Court did not accept that tying was a common practice with non-aseptic packaging, and said that even if it was, that would not justify tying of aseptic packaging.

IT SEEMS CLEAR THAT A VAGUE
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It seems clear that a vague “natural link” or “normal commercial usage” is not enough justification. Otherwise, the principle stated in *Tetra Pak II* may depend on whether there are two separate relevant markets and the company is dominant in both markets; if so, it adds nothing to the basic principle described here. Presumably in this context the possible abuse would be anticompetitive foreclosure, contrary to Article 102(b), and the justification would be the advantages for consumers of the tying practice. If so, this would necessitate estimating the scope for improvements being made independently by competitors producing only the tied products (bearing in mind that a company producing the tied products may thereby ultimately become able to enter the market for the primary products also).⁵⁶ Since, by definition, competitors in the aftermarket are selling the same products as the manufacturer, the scope for competition is limited. It would also be necessary to estimate the efficiency justifications resulting from the tying, which in most cases would be economies of scale, safeguarding of quality, encouraging innovation or expansion of output, or, in some cases, (e.g. blades for drilling and earth moving equipment) safety considerations.

Even if it were correct to regard primary and secondary products as being in separate markets, they would often be so closely related that it could rarely be unjustifiable or illegal to sell them together. This is particularly true as system pricing makes primary products available cheaply to more users, and so expands output overall. The efficiency justifications concern the primary market as well as the secondary products, and the whole situation must be taken into account.

If economies of scale are significant, they might be reduced as a result of one or more competitors entering the secondary product market; for example, as producers of the spare parts. It might therefore be necessary to try to assess whether the additional competition that would result from the entry of one or two competitors would offset the reduction in the economies of scale of the dominant company. So it might be necessary to distinguish between economies of scale that are achieved at a level of production that several companies can expect to reach, and which would not increase if their production increases further, and economies of scale that improve indefinitely with higher and higher production.

If economies of scale were easily reached, rival producers of secondary products such as consumables and spare parts could achieve them. If they can be obtained

only at large scales, it is hard to see a justification for obliging the manufacturer to share them with its competitors. In all cases, doing so would have the undesirable effect, recognized in all duty-to-supply cases, of discouraging development of alternative aftermarket sources of supply, and making the aftermarket less competitive than it would otherwise be. If the secondary products are subject to intellectual property rights, such as patents or copyright, imposing a duty to supply would involve a compulsory intellectual property license.

It therefore seems that, although for purposes of tying analysis primary and secondary products may be separate products, even in a market for systems, in practice dominance is unlikely, and tying is likely to be justified by efficiencies. Competition authorities wishing to encourage competition in secondary products need to be careful not to discourage innovation in the primary products.

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B. REFUSAL TO SUPPLY OR LICENSE NECESSITIES FOR AFTERMARKETS TO COMPETITORS UNDER ARTICLE 102 (EX-82)⁵⁷

The Commission's Guidance Paper on exclusionary abuses (in effect, foreclosure) includes a section on refusals to supply competitors.⁵⁸ It merely says that a refusal case is an "enforcement priority" for the Commission if:

1. The refusal concerns a product objectively necessary to compete effectively on a downstream market;
2. The refusal is likely to lead to elimination of effective competition on the downstream market; and
3. The refusal is likely to lead to harm to consumers.

This may give the impression that a duty to contract will often arise in refusal to contract cases, which is most unlikely to be correct. The Commission cannot change the law merely by failing to mention principles stated or implicit in the case law of the EU Courts.

In aftermarket cases (e.g. refusal to supply spare-parts to third parties to enable them to compete on maintenance services), there does not seem to be any reason for a stricter rule on refusal to contract than in other cases. So it is appropriate to consider the limiting principles that apply generally. It will be seen that, in practice, in most aftermarket cases no duty to contract would be likely to arise, even in the unusual situation in which there is a dominant position for secondary products. In theory, a duty, if one arises, might be either to supply spare parts or software or to license the patents to allow their production.

Only if all the following conditions are fulfilled, a refusal to contract may be illegal under Article 102 because it excludes or forecloses a competitor from the aftermarket. Because of the risk in all duty-to-contract cases of discouraging innovation and pro-competitive investment, it is necessary to consider all the conditions and limiting principles, including those that are unfortunately not stated in the Commission's Guidance. They seem to be as follows:

- A duty to contract is exceptional, and is not a usual or normal obligation. There is no duty to contract merely because, without a contract, a competitor cannot enter the market. Such a duty would imply that a dominant company always has an obligation to create competition in a downstream market, even if it had committed no abuse, which would be absurd.⁵⁹ The mere failure to help a competitor to create competition is not, in itself, an abuse.
- There is a duty to contract only if refusal is, or is linked to, an illegal abuse for some specific and identifiable reason, and not merely because a contract would lead to more competition in the short term in the aftermarket. Merely adding one competitor, or making a competitor more competitive, is not a sufficient reason for imposing a duty to contract. Article 102 can be applied only if something illegal has been done. The fact that there would otherwise be a monopoly does not lead automatically to an abuse or automatically create a duty to contract with a competitor; that would be regulation, not competition law. The abuse might be discrimination (if a contract had been made previously in an "equivalent" situation); depriving consumers of a new kind of product for which there is a clear and unsatisfied demand (not merely a copy or another version of the same product); or some other significant action "limiting" the production, marketing, or technical development of a competitor to the prejudice of consumers, contrary to Article 102(b). Refusing to give a competitor a competitive advantage is not the same as "limiting" its possibilities. "Limiting" another's possibilities means creating a handicap or a difficulty to which the competitor would not otherwise be exposed. As a result, there is no duty to supply e.g. spare parts for maintenance unless a dominant company has done something identifiable which has created a difficulty for third-party maintenance firms (even if all the other conditions for a duty to supply are fulfilled).
- As in all cases under Article 102, there must be proof of harm to consumers, as well as exclusionary or anticompetitive foreclosure.⁶⁰
- As well as dominance upstream, there apparently must also be dominance, or at least market power, in the downstream aftermarket.⁶¹
- In any refusal to supply case, there are two markets: an upstream market for the product or service that is an essential input (e.g. spare parts), and the downstream aftermarket in which the complainant wants to use the input (e.g. for maintenance services). The upstream

market may be “potential,” that is, the dominant company may never have sold the product or service in question to anyone. But the fact that some other company wants the input in question is not enough to create a “potential” market. The mere existence of demand cannot create a duty to supply. That would mean that there would be a greater duty to share more valuable inputs, which would be anticompetitive. There is no general duty to provide an input in whatever form or at whatever stage it would be convenient for each individual complainant to obtain it. So there can only be a duty if the dominant company has previously sold,⁶² or if it would be economically rational for it to do so.

- There must be sufficient scope for added value competition in the downstream market. If there is no such scope, competition and consumers cannot be harmed by the refusal. There is no duty to supply if the competitor is going to provide only copies of the dominant company’s secondary products, or for simple distribution and resale of e.g., spare parts or identical consumables without any added-value services. There cannot be a duty to supply the dominant company’s final product to its competitors, which would be the effect if there was a duty to supply merely for distribution purposes.⁶³ This means that, in practice, there cannot be a duty to supply consumables if there is no scope for significant added value competition using them in maintenance services.
- The Court in *Microsoft* (a case in which there was dominance in the upstream market) said that the test under the *Magill* judgment (that there must be a new kind of product for which there is a clear and unsatisfied demand), is only one example of the possible harm to consumers which is required by Article 102(b).⁶⁴ Article 102(b) says that abuse may consist of “limiting production, markets or technical development to the prejudice of consumers,” and the EU Courts have held that this prohibits conduct limiting the production, markets, or technical development of competitors of the dominant enterprise.⁶⁵ But the mere fact that competitors’ production, marketing, or technical development is limited is not enough in itself to cause harm to consumers. If competitors will only copy the dominant company’s product or service, even with minor improvements, there is no justification for a duty to supply under Article 102(b). Copying is not added-value competition. Any slight short-term benefit to consumers would probably not outweigh the harm done to dominant companies’ incentives to invest.⁶⁶ It is not clear whether the scope for competition in maintenance in aftermarket would be sufficient for this purpose.
- The Courts said in *Bronner*⁶⁷ and *IMS Health* that a refusal to contract is illegal if it eliminates “all” competition in the downstream market. If the company seeking the contract is the only competitor, or if all other companies are being treated in the same way, the refusal to con-

tract eliminates all competition. If the dominant enterprise has already contracted with other companies, or if there are other companies that do not need to rely on the dominant enterprise, competition is not eliminated, and the refusal does not restrict competition. But if the only competitor is inefficient, there might still be a duty to contract if all the other conditions are fulfilled.

- In *Bronner*, the Court stressed⁶⁸ that there is no duty to supply if alternative solutions are available “even though they may be less advantageous,” and if there are no “technical, legal or even economic obstacles capable of making it impossible, or even unreasonably difficult,” for any competitor, alone or in cooperation with others, to establish its own solution. The fact that a small competitor would not find an alternative economically viable is not enough to create a duty to supply. It would be necessary “at the very least” to show that no alternative, even one involving several competitors, could achieve a comparable scale, and that economies of scale were important.
- Even when a dominant company has already made contracts, it is not necessarily discriminatory for it to refuse to enter into other similar contracts with “equivalent” parties. The refusal might have no effect on competition or do no harm to consumers (for example, if the claimant was plainly inefficient or if there were plenty of competitors already), or the refusal might be justified for some reason.
- If there is dominance, and an illegal refusal to contract is said to be justified by efficiencies, but the efficiencies could be obtained without causing the exclusionary effects, there may be a duty to avoid those effects. (For example, a genuine improvement in one of two products that must work together may make it incompatible with competitors’ versions of the other product. In this situation a dominant company may have a duty to provide the information needed by competitors for interoperability. The question of information about improvements is discussed below.)
- Since the mere refusal to license an intellectual property right or to supply a product cannot be, in itself, an exclusionary abuse, there must always be some other identifiable abuse, for which a duty to contract or to license is the appropriate remedy.⁶⁹ The fact that the intellectual property right enables the dominant company to monopolize the downstream market is not enough, in itself, to constitute an abuse.

In conclusion, the requirement of scope for added value competition, and the rule that mere copying is not enough to create a duty to contract, show that in most aftermarkets, because the proposed competitors merely want to copy what the equipment manufacturer is supplying, there is no duty to contract even if the manufacturer were shown to be dominant for the secondary product or service.

Determining the Lawful Price for Secondary Products: The Difficulty If a Remedy Were Needed

One further, important point needs to be made. Aftermarket controversies always involve either a refusal to supply competitors or setting a high price for the secondary products (or both). In either case, if an infringement were found, the competition authority or court would have to decide at what price the secondary products could lawfully be sold under Article 102. The European Commission has always avoided attempting to fix such a price.

Determining the “correct” price for products for which there is *ex hypothesi* no substitute is not really possible, in particular because it would be impossible to decide the “correct” (i.e. maximum lawful) price for the manufacturer’s secondary product without taking carefully into account its prices for its primary product, and deciding different “correct” prices for different categories of users. For example, users can be categorized based on intensity of use, or whether that use is private or commercial.

There are other factors that would have to be considered. If the secondary products were patented, the suggested remedy would also involve a compulsory license of the patents, and the “correct” royalty rate would need to be determined. A competition authority could not usefully or effectively order a dominant manufacturer to supply its competitors with spare parts without also determining the relationship between the price to competitors and the price to consumers. This would raise margin squeeze issues.⁷⁰ Competitors could benefit from a supply of spare parts only if their maintenance operations were at least as efficient as those of the manufacturer, which seems unlikely to occur often.

The difficulties of devising an efficient remedy are a further reason for extreme caution before using competition law in aftermarket cases even when it might seem to be justified; in particular, if the input in question has never been marketed so there is no empirical evidence of what an appropriate price might be.

DETERMINING THE “CORRECT”
PRICE FOR PRODUCTS FOR
WHICH THERE IS *EX HYPOTHESI*
NO SUBSTITUTE IS NOT
REALLY POSSIBLE.

C. EXCESSIVE PRICES FOR SPARE PARTS AND CONSUMABLES

Even if there is in some sense a market for the primary products, and a separate market for the secondary product associated with each primary product, it is suggested that a company that is not dominant for the primary product is rarely, if ever, dominant for secondary products consisting of spare parts and consumables for its own equipment (except in the unusual case of luxury products). Even if other manufacturers’ products do not work with its equipment, in practice competition is likely to be for the “system,” *i.e.*, the combination of equipment, spare parts, and consumables, especially where switching costs from one system to another are relatively low.

Where that view is applicable, the possibility that the prices for spare parts or consumables (as distinct from the prices for the system as a whole) would be so high as to infringe Art. 102(a) rarely arises in practice. If the company in question is dominant in the market for systems, it would be the overall price for the system that would need to be considered. If, as is usually the case with system pricing, the price of the equipment is relatively low, *i.e.*, not much above cost, that would have to be offset against apparently high prices for the secondary products (spare parts and consumables).

The question whether the prices of those secondary products (spare parts or consumables) might infringe Article 102(a) can therefore be dealt with briefly,⁷¹ keeping the following points in mind:

- System pricing based on a low profit margin for main equipment and a higher profit margin for consumables makes new primary products available to a larger number of new consumers than would otherwise have access to the equipment. It also makes it possible to have a wider choice of different “systems” and “pay-per-use” solutions for different types of customers. System pricing, in other words, is pro-competitive and expands overall output because it allows users a greater choice about the extent and perhaps the nature of their use.
- This situation does not cause consumer harm, as future revenues in the aftermarket are likely to be already discounted in the primary market. A range of prices for consumables also facilitates legitimate (and pro-competitive) price discrimination
- Spare parts for long-lasting equipment must normally be kept in stock, and if there are many parts, the cost of keeping a complete stock must be taken into account. Spare parts may need to be kept in stock for a considerable time after the equipment in question is no longer sold, if the parts for the latest equipment do not fit earlier models. (If the “spare part” is software, the problem of stocks does not usually arise.)⁷²
- It may become no longer economic to produce and stock parts or consumables for obsolete or obsolescent equipment, so the manufacturer may then license other companies if they wish to do so.
- The manufacturer must continue to bear the research and development costs for both future equipment and secondary products. These costs must be financed somehow. A manufacturer is free to spread the financing of its R&D costs across the whole range of its products as it wishes, and if much of its revenue comes from the aftermarket, it is entitled to attribute much of its R&D to that market, even if the R&D concerns the equipment rather the consumables (which is not necessarily the case).
- Apparently high prices for consumables may be an alternative to leasing out the primary products and charging royalties based on the

extent of use, which would be a legitimate alternative strategy for a manufacturer to adopt.

IV. Some Additional Issues Concerning Aftermarkets

A. IMPROVEMENTS IN AFTERMARKETS—THE MICROSOFT JUDGMENT⁷³

So far this paper has been concerned with aftermarkets in which the products or services were unavoidably necessary for users. However, there is at least one other situation, sometimes described as an aftermarket, to which rather different principles apply. This arises where the dominant manufacturer of the primary or capital equipment improves it in some respect, or offers additional equipment or functions or new video games or other complementary products. The question then is whether it is obliged to give its downstream competitors enough information about the improvement (or to provide the additional equipment) to adapt their aftermarket or downstream products or services to the improved product, or to enable them to produce downstream products or services that imitate it or are adapted to it. It has been suggested that providing information in this context is analogous to providing other things that are necessary for a competitor entering an aftermarket. However, the other situations discussed above arise primarily in static markets, but improvements by definition arise in dynamic markets, and for this reason at least may raise additional issues.

Another even more important distinction is that even existing users of the primary products usually do not need the improvements or additions, so for that reason they are not analogous to consumable secondary products or maintenance, which are unavoidable. Improvements are not consumables; being not necessary, they are optional. A manufacturer's market power, therefore, is much less in the case of optional improvements and additions. Buyers of the primary products make overcharging complaints about consumables, but complaints about refusal to provide improvements are typically made by competitors producing secondary products. These latter complaints therefore raise questions about the circumstances in which, under EU law, a dominant company may have a legal duty to supply or license its competitors, as discussed above.

The issue, as in the case of unavoidable necessities, usually is whether the refusal to give information about the improvement or to license the relevant technologies deprives consumers of a new kind of product for which there is a clear and unsatisfied demand. This is not likely to be true in the case of an improvement or addition, because by definition a new or at least an improved

HOWEVER, THE OTHER SITUATIONS DISCUSSED ABOVE ARISE PRIMARILY IN STATIC MARKETS, BUT IMPROVEMENTS BY DEFINITION ARISE IN DYNAMIC MARKETS, AND FOR THIS REASON AT LEAST MAY RAISE ADDITIONAL ISSUES.

product is being provided. So the key issue is likely to be whether the refusal to supply the improvement limits the possibilities of competitors contrary to Article 102(b), and so deprives consumers of a clearly proved probability of substantially improved products.

The Commission said in the Guidance Paper⁷⁴ that there is a duty to contract if the product is “objectively necessary to be able to compete effectively” and the refusal is likely to lead to “the elimination of effective competition.” But there is never a duty to make the competitor’s product better or more profitable, or to put it on equal terms, even when it is clearly not as good or as profitable as the dominant company’s product, unless the disadvantage of the competitor is due to some conduct of the dominant company,⁷⁵ as was found in the *Microsoft* case.

A more precisely and correctly expressed principle based on Article 102(b) would be as follows. A refusal to provide the information about an improvement or to provide add-on equipment that is needed by competitors downstream (including refusal to provide a license of intellectual property rights) may be an abuse, because it interferes with the dynamic process of competition, even if all the conditions listed above are fulfilled, only if:

1. Sufficient harm to consumers is shown;⁷⁶
2. The refusal will eliminate or permanently handicap competition and create or maintain dominance in a new or developing market for a new or substantially improved product that competitors are producing, (or would produce, if the evidence that they would do so is strong enough), and would continue to be under competitive pressure to produce.⁷⁷ The new or improved product would be a downstream or secondary product; and
3. The duty to contract would provide an essential input otherwise unobtainable without giving horizontal or direct competitors all, or most, of the dominant company’s competitive advantage or depriving it of the incentive to invest further. (As long as the dominant company exclusively retains its main competitive advantage, it has an incentive to invest. If its main competitive advantage has to be shared, the scope for added value competition would be reduced or eliminated and, even more seriously, the competition law rule would end the dominance, which EU law has no power to do.)

A principle about refusal to contract on these lines may be deduced from the *Microsoft* judgment, without listing all the special features of that case which, cumulatively, led to the conclusion that its conduct was illegal.⁷⁸ It seems likely that the *Microsoft* case will come to be seen as relatively unusual, and not as a forerunner to a large number of duty-to-contract cases in high technology industries. A principle on these lines would also largely avoid the need for balancing or weighing up benefits against disadvantages, which is difficult and unsatisfac-

tory, and which the Court in *Microsoft* did not do.⁷⁹ The limiting principles and conditions discussed above in connection with duties to supply are applicable.

B. THE IMPLICATIONS OF THE COMMISSION'S PHARMACEUTICAL ENQUIRY REPORT

In the preliminary report of its Pharmaceutical Enquiry,⁸⁰ the European Commission seemed to regard as probably illegal a wide variety of practices in connection with patents that are, at least in most cases, entirely lawful. This would be relevant to this paper if the Commission still believes, as it appeared to do at the time of the preliminary Pharmaceutical Report, that it is likely to be illegal for a company dominant for the primary product to use patent rights to exclude competition in the secondary products.

This uncertainty is another consequence of the fact that the Commission's Discussion and Guidance Papers do not comprehensively define exclusionary conduct. Therefore, they provide no sufficient test or criterion for deciding whether conduct is contrary to Article 102 TFEU if it does not fall into one of the well-recognized types of exclusionary abuse,⁸¹ patent practices do not.

So the result of the omission of an aftermarkets section from the Guidance Paper, and the aggressive statements made in connection with the preliminary pharmaceutical report, is to leave the Commission's view of the relevant principles in a state of uncertainty. The Commission may, in its Guidance Paper on exclusionary abuses and in its final report of the pharmaceutical enquiry,⁸² have arrived implicitly at a position less strict than it implied previously. Probably it has done so, but it would be helpful if this was confirmed.

C. NON-COMPETITION LAW ISSUES CONCERNING AFTERMARKETS

It may be useful to mention several other legal questions, not arising directly under European competition law, which can arise in connection with aftermarkets.

One question is whether, and how far, national patent laws in Europe allow a patent owner to sell a patented product and to limit how the purchaser or its customers can use the product. This was the issue in the U.S. Supreme Court in *Quanta Computer, Inc. v. LG Electronics, Inc.*⁸³ It is not clear how far the national laws of the EU Member States answer this question. This issue would arise if the equipment manufacturer sold patented consumables or spare parts but did not license the patents for use with competitors' refills or for re-use by competitors. European Union law does not answer the question either, because EU competition law does not prohibit a patent owner from giving a limited field of use license. (If the restriction was purely contractual, as it would be if no patent was involved, Article 101, ex-81, might apply.) Since the key question is whether the restriction would limit use by an indirect buyer, the question seems to be governed by national patent law, and not by European competition law.

ONE QUESTION IS WHETHER, AND HOW FAR, NATIONAL PATENT LAWS IN EUROPE ALLOW A PATENT OWNER TO SELL A PATENTED PRODUCT AND TO LIMIT HOW THE PURCHASER OR ITS CUSTOMERS CAN USE THE PRODUCT.

Other kinds of conduct have been said to raise issues under European competition law, some of which seem similar to questions arising from the Commission's Pharmaceutical Enquiry Reports. Apart from what is said to be manipulation of the technical features of the equipment or of the products in the aftermarket, the main issues concern intellectual property rights.

Clearly, in principle, even a dominant equipment manufacturer may obtain patents and exercise patent or other industrial property rights. Obtaining patents is pro-competitive, and even a dominant company is allowed to compete aggressively within whatever limits are imposed by competition law. So the mere fact that an equipment manufacturer has patented the design or production process for its consumables or spare parts cannot be contrary to Article 102. This is so even though it might make it more difficult for a competitor in the aftermarket to sell consumables to be used with the equipment of the manufacturer in question.

Clearly, also, a dominant company is free in principle to improve either the capital equipment that it sells or the secondary products, such as consumables or spare parts, to be used with it, or both. This is true even if one consequence of the improvement is to make the improved system incompatible with competitors' consumables or spare parts. However, if a company dominant in a "system market" changes the system only to make it incompatible with competitors' products, and provides no improvement (such as enhanced functionality or reduced production or distribution costs) but only has the effect of foreclosing competitors, that would likely be conduct limiting the production, markets, or technical development of competitors, and would be contrary to Article 102(b) if harm to consumers resulted.⁸⁴

V. Conclusions

The principle is well-established in law and economics that a supplier of aftermarket products is not dominant for them if a sufficient proportion of the buyers of the primary products are significantly influenced by the cost of the aftermarket products (such as consumables or maintenance services), because there is then a single market for systems which includes both primary and aftermarket products. Low switching costs, company reputation, and other factors protecting existing customers against "installed-base opportunism" are also important. If there may be cases in which a separate market is exceptionally defined for those secondary products, competition in the primary market is likely to discipline behavior in the secondary market. Except in the case of luxury products, it is difficult, if not impossible, to visualize a situation in which the buyers of the pri-

mary product would not be influenced by the cost of secondary products such as consumables, unless the prices of both (e.g., razors and razor blades) or of the secondary product (e.g. printer and A4 paper) are trivial, since the cost of consumables can always be ascertained and will be certainly ascertained by a sufficient proportion of end-users.

The same applies to other aftermarkets that involve expenditure in proportion to the use of the products (e.g. maintenance agreements).

So genuine cases of dominance, and therefore of possible abuse of dominance, are not likely to arise in those aftermarkets either in EU or in U.S. law unless the company in question is dominant in the primary market. This general conclusion is now well-established, and should greatly simplify assessment of aftermarket cases.

The picture might be less clear if genuine information problems exist in the aftermarket, e.g., if the aftermarket cost was unrelated to use but arose exceptionally or irregularly, due to accidents.

An alternative argument might be based on a supposed illegal refusal to supply competitors with inputs that are essential for entry into the aftermarket. However, there is no duty to grant a license or to supply goods or services merely to enable a competitor to offer essentially the same kind of products or services as the dominant company is already supplying. There would be a duty to supply only on the basis of a relatively narrow principle based on special circumstances similar to those of the *Microsoft* judgment. ▼

1 Carl Shapiro, *Aftermarkets and Consumer Welfare: Making sense of Kodak*, 63 ANTITRUST L.J. 483-511 (1995); he comments that "aftermarkets are ubiquitous."

2 Some documents from competition authorities provide additional guidance on what aftermarkets are:

DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses (Dec. 2005): 243.

Aftermarkets are also sometimes called "secondary markets." Such markets comprise complementary products (or "secondary products") that are purchased after the purchase of another product (the "primary product") to which it relates. Standard examples include after sales services and spare parts for durable goods, as well as consumables such as ink cartridges and toner for printers and photocopiers. However, also upgrades of computer software may be considered aftermarkets.

The Commission's Notice on the definition of relevant market (1977) reads (¶56):

There are certain areas where the application of the principles stated above has to be undertaken with care. This is the case when considering primary and secondary markets, in particular, when the behaviour of undertakings at a point in time has to be analysed pursuant to Article [102]. The method of defining markets in these cases is the same, i.e. assessing the responses of customers based on their purchasing decisions to relative price changes, but taking into account as well, constraints on substitution imposed by conditions in the connected markets. A narrow definition of market for secondary products, for instance, spare parts, may result when compatibility with

the primary product is important. Problems of finding compatible secondary products together with the existence of high prices and a long lifetime of the primary products may render relative price increases of secondary products profitable. A different market definition may result if significant substitution between secondary products is possible or if the characteristics of the primary products make quick and direct consumer responses to relative price increases of the secondary products feasible.

UK Office of Fair Trading—“Market Definition” Guidelines (Dec. 2004):

An aftermarket is a market for a secondary product, that is, a product which is purchased only as a result of buying a primary product. For example, a customer would purchase a printer cartridge (a secondary product) only for use with a printer (the primary product). Another example is replacement heads for razors (the secondary product) and razors (the primary product).

- 3 See OFT Market Definition paper, *Id.* ¶¶ 6.2 and 6.4 (2004): “A dual market definition is appropriate where secondary products are compatible with all primary products (and perceived to be so by customers).”
- 4 See DG Competition Discussion Paper, *supra* note 2, ¶ 244:

Aftermarkets typically appear in competition cases when they are “proprietary”, that is, when they are brand-specific in that secondary products that can be used with one brand of primary product cannot be used with another brand of primary product, although the primary products themselves are substitutes. The contentious issue is often that the supplier of a primary product attempts to reserve the secondary market for itself.
- 5 See OFT Market Definition paper, *supra* note 2, ¶ 6.2.
- 6 Using these definitions, “Systems markets” and “multiple markets” are not mutually exclusive. The buyers of the primary products may take into account the probable cost of the secondary products over the life of the primary product, whether or not the secondary products are available only from one source. Even if it were difficult to estimate in advance the total cost of secondary products, it is not easy to imagine why the high cost of secondary products would not become known, at least to a significant proportion of buyers, and injure the reputation of the primary products with which they are compatible.
- 7 In the Swiss Watchmakers case (Case T-427/08, *CEAHR v. Commission*, Judgment dated December 15, 2010) the Court merely said that it could not be excluded that there was a dominant position. It is well recognized that products in clearly separate “markets” may constrain the ability of producers of each product to raise prices. Household fuels such as electricity, gas, coal, and wood are in separate markets for most purposes, but they clearly constrain the ability of producers to raise prices in the other markets. “The objective of defining a market in both its product and geographic dimensions is to identify those actual competitors of the undertakings involved that are capable of constraining those undertakings’ behaviour”: Commission Notice on definition of relevant market, OJ No. C-372/5, ¶2 (Dec.9,1997). At ¶56 of the Notice the Commission said:

There are certain areas where the application of the principles stated above has to be undertaken with care. This is the case when considering primary and secondary markets, in particular, when the behaviour of undertakings at a point in time has to be analysed pursuant to Article [102]. The method of defining markets in these cases is the same, i.e. assessing the responses of customers based on their purchasing decisions to relative price changes, but taking into account as well, constraints on substitution imposed by conditions in the connected markets. A narrow definition of market for secondary products, for instance, spare parts, may result when compatibility with the primary product is important. Problems of finding compatible secondary products, together with the existence of high prices and a long lifetime of the primary products

may render relative price increases of secondary products profitable. A different market definition may result if significant substitution between secondary products is possible or if the characteristics of the primary products make quick and direct consumer responses to relative price increases of the secondary products feasible.

- 8 Commission, XXVTH REPORT ON COMPETITION POLICY, pp. 41-42 and 140 (1995). This test was confirmed in the Commission's Discussion Paper in 2005, ¶¶ 259-260. See also Infolab/Ricoh, (1) COMPETITION POL'Y NEWSLETTER (1999). The Commission's Competition Policy Newsletter 1999 No. 1, (February 1999) at pp. 35-37 summarised the conclusion in the Info-Lab/Ricoh case by saying that dominance on the after-market is excluded:

If it is shown that a customer (i) can make an informed choice including lifecycle pricing, that he (ii) is likely to make such an informed choice accordingly, and that (iii) in the case of an apparent policy of exploitation being pursued in one specific aftermarket, a **sufficient** number of customers would adapt their purchasing behaviour at the level of the primary market (iv) within a reasonable time" (emphasis supplied).

Furthermore, information on lifecycle pricing may be available not only from manufacturers of primary and secondary products themselves, but also may be provided by, among other sources, third parties (competitors, specialized reviews and websites, consumer associations reports, etc.) or even by the buyers' ability to spread the information over a series of purchases and by repeat buyers. For example, a majority of printer users are repetitive buyers who already owned a printer in the past, so they are well informed about pricing patterns and lifecycle costs. With the possible exception of *Digital*, in which no formal market definition or finding of dominance and/or abusive behaviour was made, no case of insufficient information has been identified by the Commission.

- 9 Guidelines on Vertical Restraints, OJ No. C-130/1, ¶91 (May 19,2010).
- 10 Chevalier, *Dominance sur un marché des produits secondaires*, EUROPEAN COMMISSION COMPETITION NEWSLETTER (February 1998). In addition to the factors listed in the text, he mentions that if the choice of the primary product is not based primarily on cost (e.g. is based on technical characteristics or reputation) then an increase in the price of secondary products is less likely to affect the choice. New and existing buyers may be individuals or "professionals" who are both likely to be better informed and to be better able to assess all the costs involved. The existence of a second-hand market for the primary products is also relevant. Chevalier also points out that if the secondary market consists of services, the manufacturer supplying them may be able to differentiate between customers who carefully calculate cost and those who do not.
- 11 To facilitate comparisons across printers (and related supplies) and make easy a cost-of-ownership assessment by non-sophisticated customers purchasing printers for home-use, the UK Office of Fair Trading report, *Consumer IT Goods and Services* (2002) led to the adoption of a standard ISO/IEC 27411 - December 2006. This supplied information on inkjet printer cartridge page yields, allowing buyers to compare print yields (average number of printable pages) when using different manufacturers' equipment and to assess cost-per-page when buying a printer. This is important because the main reason why buyers of equipment may not be able to estimate the cost of the aftermarket products over the life of the equipment is lack of convenient comparable information. Similar international standards have been developed for information on monochrome toner cartridges (ISO/IEC 19752 - June 2004) and for color toner cartridges (ISO/IEC 1979 - December 2006) page yield measurements. Regulatory measures to facilitate comparison of lifetime costs seem better solutions than using competition law. In practice, a careful or sophisticated buyer of primary products can estimate what the cost of consumables (and to a lesser extent, repairs and maintenance) will be for the primary product that he is choosing.
- 12 This important point was made by the Court in the Swiss Watchmakers' case, Case T-427/08, CEHR v. Commission, Judgment dated December 15, 2010, (discussed *infra*) ¶ 80.

- 13 See Privy Council decision *Kaisha v. Green Cartridge Company (Hong Kong) Limited (Hong Kong)* [1997] UKPC 19 (30th April, 1997):

18. Furthermore, the ability to control the aftermarket and price the machines on the assumption that the purchasers will buy one's cartridges may actually enhance competition and provide greater choice to consumers, because it will enable manufacturers to compete not only on quality and price but also on the way they divide the cost of their products between the initial outlay and the aftermarket. For example, as Rogers J. pointed out, expenditure in the aftermarket may be treated by the tax authorities as revenue costs and more fully deductible than the capital cost of the machine. Thus a manufacturer who prices the machines lower and the cartridges higher may secure a competitive advantage as against a rival who charges the same lifetime cost in different proportions.

- 14 See OFT Market Definition (2004) paper, ¶ 6.7:

A supplier might not wish to increase prices of its secondary product for existing customers if that would earn it a reputation for exploitation and significantly reduce its ability to attract new or repeat customers to its primary product. Reputation is more likely to be important where suppliers have the prospect of relatively large numbers of new or repeat customers and where undertakings cannot price discriminate between new or repeat customers and other customers.

- 15 For an analysis of when installed base opportunism might occur, see Carl Shapiro & David J. Teece, *Systems competition and aftermarket: an economic analysis of Kodak*, 39(1) ANTI-TRUST BULL., at 135-162, (Spring 1994); see, also, Shapiro, *supra* note 1 at 483-511.
- 16 H. Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, COLUMBIA BUS. L. REV. 257 - 337 at 289 (2006).
- 17 Case 22/78, [1979] ECR 1869. The Court said it was necessary to decide whether the supply of spare parts constitutes a specific market or forms part of a wider market, and considered only alternative sources of supply of Hugin-compatible parts, and not the wider market for cash registers.
- 18 Case C-53/92 P, [1994] ECR I-667.
- 19 Case C-333/94 P, [1996] ECR I-5951.
- 20 *Supra* note 8, at 41-42.
- 21 Dolmans & Pickering, *The 1997 Digital Undertaking*, EUR. COMPETITION L. REV. 108-115 (1998).
- 22 Chevalier, *supra* note 10. A company considering buying a Digital system could find out how much it would cost; the Commission's point was that this could not be compared easily with the cost of competing systems.
- 23 Commission, COMPETITION POLICY NEWSLETTER, 35 (1999).
- 24 European Federation of Ink Manufacturers (EFIM), Commission Decision COMP/C-3/39.391 EFIM.
- 25 U.K. Office of Fair Trading, Decision dated 20 July 2001, Case CA98/6/2001, ICL/Synstar.
- 26 Commission, XXVI ANNUAL REPORT ON COMPETITION POLICY 37, Novo Nordisk, (1996).
- 27 In *Pelikan/Kyocera*, Pelikan centered some of its (unsuccessful) allegations on the limits placed by Kyocera on its printer warranty if damage was caused to the printer through the use of non-Kyocera toner car-

tridges. Note that this is distinct from the Novo Nordisk case, where warranty of the primary product was disclaimed for any failure either attributable or not to use of compatible secondary products.

- 28 Case T-427/08, CEHR v. Commission, Judgment dated December 15, 2010.
- 29 DG Competition Discussion Paper on the application of Article 82 of the Treaty to exclusionary abuses, ¶¶243-265 (December 2005).
- 30 Communication from the Commission—Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, OJ No. C-45/7, (February 24, 2009).
- 31 *Id.* ¶246.
- 32 *Id.* ¶264.
- 33 O’DONOGHUE & PADILLA, *THE LAW AND ECONOMICS OF ARTICLE 82 EC*, pp. 508-509 (2006).
- 34 Hilti, OJ No. L-65/19, 1988.
- 35 Tetra Pak II, OJ No. L-72/1, 1992; Case C-333/94 P, [1996] ECR I-5951.
- 36 Case T-201/04, Microsoft [2007] ECR II-3601.
- 37 Kühn, Stillman, & Cafarra, *Economic Theories of Bundling and Their Policy Implications in Abuse Cases: An Assessment in Light of the Microsoft case*, (1) EUR. COMPETITION J., 85-121, 103-119 (2005), who say that the efficiency effects of bundling are difficult to evaluate.
- 38 The joint comments of the American Bar Association’s Section on Antitrust Law and Section on International Law on the Discussion Paper conclude that “This fundamental insight regarding the key relationship between the primary market and any related aftermarkets means that a separate examination of a single brand aftermarket under Article 82 is seldom, if ever, appropriate” (p. 35).
- 39 Manufacturers may be able to differentiate in price between new and existing buyers of Services such as maintenance, because services cannot be re-sold.
- 40 Shapiro, *supra* note 1 at 502-504.
- 41 504 U.S. 451 (1992).
- 42 For example, in *ID Security Systems Canada v. Checkpoint Systems*, 249 F.Supp.2d. 622 (E.D.Pa.2003) the Court held that although switching costs were substantial, information was readily available and purchasers were well-informed, so there was no antitrust infringement.
- 43 *Digital Equipment Corp. v. Uniq Digital Technologies, Inc.*, 73 F.3d. 756 (7th Cir.1996).
- 44 In *Queen City Pizza, Inc. v. Domino’s Pizza, Inc.*, 124 F.3rd 430 (3d Cir.1997), there was no antitrust infringement because the buyers had agreed to buy pizza dough from Domino’s. The lock-in was contractual.
- 45 *SMS Systems Maintenance Services, Inc. v. Digital Equipment Corp.*, 188 F.3d. 11 (1st Cir. 1999).
- 46 Hovenkamp, *supra* note 16; D. Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal - Why Aspen and Kodak are Misguided*, 69 ANTITRUST L.J. 659 (2001); Carlton & Waldman,

Competition, Monopoly and Aftermarkets, Johnson School Research Paper Series #10-06 (2006) argue that competitive aftermarkets are not necessarily efficient and that “there is little that antitrust intervention can do to improve matters, but there is a lot such intervention can do to make matters worse.”

- 47 Goldfine & Vorassi, *The Fall of the Kodak Aftermarket Doctrine: Dying a Slow Death in the Lower Courts*, 72(1) ANTITRUST L.J., 209-231 (2004).
- 48 Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, O.J.N° C. 45/7, February 24, 2009 says, “in the special case of tying in the after-markets, the condition is that the undertaking is dominant in the tying market and/or the tied after-market.” (¶ 50).
- 49 *Id.* ¶¶ 47-62, at ¶ 50.
- 50 Case T-201/04, *Microsoft* [2007] ECR II-3061.
- 51 *Id.* ¶50, footnote 3.
- 52 See Centre for European Policy Studies Task Force Report, *Treatment of Exclusionary Abuses under Article 82 EC Treaty*, 58-62 (2009).
- 53 OFT, *supra* note 2, 414, ¶ 84.
- 54 There would be free-riding competition if one company incurs the R&D costs of the primary equipment but is prevented from recovering those costs by means of profitable sales of the secondary products. This would discourage development of primary products. This is acknowledged by the Commission, as the Guidance Paper says in the section dealing with refusal to supply: “Also, competitors may be tempted to free ride on investments made by the dominant undertaking instead of investing themselves. Neither of these consequences would, in the long run, be in the interest of consumers.” The same comment would apply in the context of tying as in the context of refusal to supply.
- 55 Case C-333/94 P, [1996] ECR I-5951.
- 56 The difficulty with any argument on these lines is that the competition authority is required to foresee the future with more confidence than is usually possible.
- 57 See, generally, Temple Lang, *European competition law and compulsory licensing of Intellectual Property rights—A comprehensive principle*, 4 EUROPARÄTSLIG TIDSKRIFT, pp. 558-588 (2004); Temple Lang, *Anticompetitive non-pricing abuses under European and national antitrust law*, 2003 Fordham Corporate Law Institute, (Hawk ed.) 235-340 (2004) (hereinafter “Temple Lang, Anticompetitive”).

The principal EU cases on refusal to contract, the effects of which are summarized briefly, in chronological order are:

- Case 238/87, *Volvo v. Veng*, [1988] ECR 6211.
- Joined Cases C-241/91 P and C-242/91 P, *RTE and ITP*, [1995] ECR I-743.
- Case C-7/97, *Bronner* [1998] ECR I-7791.
- Case C-418/01, *IMS Health* [2004] ECR I-5039.
- Case T-201/04, *Microsoft* [2007] ECR II-3601.
- Case C-468/06 to C-478/06, *GlaxoSmithKline*, Sept 16 2008.
- Case T-301/04, *Clearstream*, Sept 9 2009.

- Case C-52/09, *TeliaSonera* (not yet decided, a margin squeeze case that has been correctly dealt by Advocate General in his Opinion delivered on 2 September 2010 similarly to a refusal to supply).
- 58 In connection with the *Info-Lab/Ricoh* case, see (1) COMMISSION'S COMPETITION POLICY NEWSLETTER, ¶¶75-90 (February 1999), the Commission official's article on that case, which says, "even if Ricoh had a dominant position it is doubtful whether this would be sufficient to justify imposing an obligation on Ricoh to sell empty cartridges to Info-Lab."
- 59 This point is fundamental, and may seem obvious, but it often seems to be forgotten. It has been frequently repeated, in intellectual property cases, by the Courts, that a refusal to licence is illegal only if it is linked to some other abusive conduct: Case 238/87, *Volvo v. Veng*, [1988] ECR 6211; Cases C-241/91 P and C-242/91 P, *RTE and ITP*, [1995] ECR I-743; Case C-418/01, *IMS Health v. NDC*, [2004] ECR I-5039; Case T-201/04, *Microsoft* [2007] ECR II-3601 ¶¶ 319 ff, 643 ff. But in some cases (not aftermarket cases) the Commission has come close to saying that, even without proof of any specific abuse, a dominant company has a duty to supply so as to create competition downstream. That would mean that the mere absence of effective competition, or of any competition, would be equivalent to an abuse, even if the situation was not due to any conduct of the dominant company. That would make dominance, and not merely abuse of dominance, illegal. This is a regulatory theory, which has no place in competition law. In its interim measures decision in *IMS Health*, the Commission based an order to contract on the ground that, without a contract, there would be a monopoly, because pharmaceutical companies preferred the copyright maps used by *IMS Health*: OJ No. L-59/18, Feb. 28 2002, withdrawn OJ No. L-268/69, 2003; Case T-184/01 R, [2001] ECR II-2349 and 3193. In our view, this decision was clearly wrong, because it suggested that merely because there was a monopoly, even if due only to customer preferences, there was an abuse. H. Hovenkamp, *Unilateral Refusals to Deal, Vertical Integration, and the Essential Facility Doctrine*, University of Iowa Legal Studies Research paper 08-31 (2008) points out that consumers are no better off when a monopoly is shared.
- 60 Article 102(b) expressly requires prejudice to consumers as a condition of an abuse under that clause. The Commission's Guidance Paper, *supra* note 2, describes anticompetitive foreclosure in terms of harm to consumers (¶¶ 19-22) and indicates that foreclosure is legal (and not anticompetitive) if it causes no consumer harm. Under Article 101 conduct "reducing the welfare of the final consumer" is prohibited: Case T-168/01, *GlaxoSmithKline v. Commission*, [2006] ECR II-2969 ¶ 118; but see *Joined Cases C-501/06 P and others, GlaxoSmithKline*, [2009] ECR I-____ October 6, 2009 ¶ 63. The reasons for saying that harm to consumers must be required in all cases of abuse are set out in Temple Lang, *Anticompetitive, supra* note 57, at 250-253.
- 61 If there were competing suppliers of spare parts, a company could be dominant in the primary market but not in the secondary market. However, dominance on the downstream market is not necessary for abuse in margin squeeze cases, see Case C-52/09, *Konkurrensverket v. TeliaSonera* [2011] ECR I- (Feb. 17, 2011).
- 62 The previous sale might not be "equivalent" under Art. 102(c), so there might be no duty to contract under the principle prohibiting discrimination. But the previous contract would show that a sale might be rational, and that there was a "market" for the input. For example, the fact that some buyers buy single-use cartridges rather than refillable ones cannot be a ground of a complaint under Article 102 TFEU. Buyer preferences cannot create an essential facility or make an otherwise lawful practice unlawful. An essential facility, if one exists, is due to the unavoidable needs of competitors, not to the fact that buyers prefer the dominant company's products. This is important, in particular, because some companies have programs under which e.g., used consumables such as empty photocopying and printing cartridges are returned for recycling, motivated by cost savings and environmental protection purposes. The incidental effect is to deprive competitors of the ability to re-use some empty cartridges that are recycled (although consumers may have the choice of buying new or re-used cartridges). These take-back programs may have a major brand-image effect for OEMs, showing their effort to protect the environment; some buyers ask for take-back programs because of environmental concerns. Furthermore, it should be noted that "re-use" does not necessarily mean better protection of the environment, because a refilled consumable cannot be reused indefinitely, and may go to the

land-fill unless refillers have a recycling program of their own for re-used consumables, which seems not to be the norm.

- 63 There is no duty to contract merely to make the competitor's product a *better* product, but there may be a duty to contract if the competitor would otherwise be unable to compete, or if it would be "unreasonably difficult" for it to do so, and if all the other conditions are all fulfilled. The IMS Health judgement (2004 ECR I-5039) ¶ 28 (and the *Bronner* judgment, referred to below in the text) make it clear that there is no duty to contract if there are "alternative solutions, even if they are less advantageous." Even before the Microsoft judgment the Court of Appeal in *Intel Corporation v. Via Technologies* [2002] EWCA Civ. 195, said (¶ 48):

... Magill and IMS indicate the circumstances which the Court of Justice and the President of the Court of First Instance respectively regarded as exceptional in the case before them. It does not follow that other circumstances in other cases will not be regarded as exceptional ... there could be a breach of Article 82 without the exclusion of a wholly new product or all competition. This approach seems to me to be warranted by the width of the descriptions of abuse contained in Article 82 itself. I would, in any event, reject the submission of Counsel for Intel that the IMS test requires the exclusion of all competition from all sources. This was not a requirement in *Oscar Bronner* which referred ... only to all competition from the person requesting the service. Accordingly to the Summary in IMS ... must be read in that light. Were it otherwise liability under Article 82 could be simply avoided by a grant of a licence to an unenergetic rival.

- 64 "The circumstance relating to the appearance of a new product ... cannot be the only parameter which determines whether a refusal to licence an intellectual property right is capable of causing prejudice to consumers within the meaning of Article 82(b). As that provision states, such prejudice may arise when there is a limitation not only of production or markets, but also of technical development": [2007] ECR II-3601 at ¶ 647. If the supposed abuse is preventing the claimant from producing a new kind of product (not merely an additional product of the same kind) for which there is a clear and unsatisfied demand, it must be a defense if the dominant company can prove that it already has a business plan to produce the new kind of product that is in question.
- 65 The case law has made it clear that Art. 102(b) applies to limiting the production, marketing, or technical development of competitors, and not merely to limiting the dominant company's own activities. *Joined Cases 40/73 and others, Sugar Cartel—SZV*, [1975] ECR 1663, ¶¶ 399, 482-83, 523-527 ("the system complained of was likely to limit markets to the prejudice of consumers within the measure of Article [82](b) because it gave other producers ... no chance or restricted their opportunities of competing with sugar sold by SZV": ¶. 526); *Case 41/83 Italy v. Commission (British Telecommunications)*, [1985] ECR 873; *Case 311/84, Telemarketing CBEM*, [1985] ECR 3261, ¶. 26; *Case 53/87, CICR v. Renault*, [1988] ECR 6039; *Case 238/87, Volvo v. Veng*, [1988] 6211; *Joined Cases C-241/91P, RTE and ITP ("Magill")*, [1995] ECR I-743 at ¶ 54 ("The applicants' refusal to provide basic information by relying on national copyright provisions thus prevented the appearance of a new product, a comprehensive weekly guide to television programmes, which the applicants did not offer and for which there was a potential consumer demand. Such refusal constitutes an abuse under heading (b) of the second paragraph of Article [82] of the Treaty."); *Case C-41/90, Höfner and Elser*, [1991] ECR I-1979 at 2017-2018 ("Pursuant to Article [82](b), such an abuse may in particular consist in limiting the provision of a service, to the prejudice of those seeking to avail of it": ¶. 30; *Case C-55/96, Job Centre*, [1997] ECR I-7119 at 7149-7150; *Case C-258/98 Carra*, [2000] ECR I-4217; *Case T-201/04, Microsoft*, [2007] ECR I-3601 ¶. 643-648 ("The circumstance relating to the appearance of a new product, as envisaged in *Magill* and *IMS Health* ... cannot be the only parameter which determines whether a refusal to licence an intellectual property right is capable of causing prejudice to consumers within the meaning of Article 82(b) EC. As that provision states, such prejudice may also arise where there is a limitation not only of production or markets, but also of technical development": ¶ 647). *BELLAMY & CHILD, EUROPEAN COMMUNITY LAW OF COMPETITION*, 6th ed., pp. 1025-1026 (2008); *Commission Decision, P&I Clubs*, OJ No. L-125/12, May 19, 1999, ¶¶ 128-133. See E. Elhaage, *Defining Better Monopolisation Standards*, 56 *STANFORD L. REV.* 253 (2003); Temple Lang, *Anticompetitive, supra* note 57 at 235-340; Temple Lang, *The Requirements for a Commission Notice on the Concept of Abuse*

under Article 82 EC, FINNISH COMPETITION LAW YEARBOOK 271-306 (2007); TEMPLE LANG, CENTRE FOR EUROPEAN POLICY STUDIES SPECIAL REPORT (2008); O'Donoghue & Padilla, *supra* note 33, Ch. 4; O'Donoghue, *Verbalizing a general test for exclusionary conduct under Article 82 EC*, in EHLERMANN & MARQUIS, EUROPEAN COMPETITION LAW ANNUAL 2007: A REFORMED APPROACH TO ARTICLE 82 (2008); Vickers, *Abuse of Market Power*, 115 (6) ECON. J., 244 (2005) (who discusses three tests, on sacrifice, as-efficient-competitors, and consumer welfare). Other tests suggested have included a no-economic-sense test and a consumer surplus test).

- 66 The IMS Health interim measures decision of the Commission involved a single market, and would have allowed competitors to use IMS Health's principal competitive advantage to produce identical products.
- 67 Case C-7/97, Bronner, [1997] ECR I-7791, ¶¶ 43-44.
- 68 *Id.* ¶¶ 41-46.
- 69 Temple Lang, *Anticompetitive*, *supra* note 57, at pp. 284-308; Temple Lang, *European Competition Law and Compulsory Licensing of Intellectual Property Rights—A comprehensive principle*, 4 EUROPARÄTTSLIG TIDSKRIFT, 558-588 (2004). Since the mere refusal to give access to any other property or asset cannot be an abuse, it is not clear whether the rules on intellectual property rights are different from those for other kinds of property. However, the Court of Justice has clearly stated several times that refusal to licence an intellectual property right, in itself, cannot be an abuse, and that some "additional element" (which apparently must be a separate abuse) must be present. The Guidance Paper, *supra* note 2 at ¶87 says that consumers may be harmed if the refusal to contract is likely to stifle follow-on innovation. This statement is not limited by reference to any circumstances such as those in the *Microsoft* case. In my view, it is both too vague and too broad. There cannot be a duty to contract merely to enable a competitor to copy or improve on or add to a product already made by the dominant company.
- 70 See the opinion of Advocate General Mazak in case C-52/09, *Konkurrensverket v. TeliaSonera*, delivered on September 2, 2010, and the judgment, dated February 17, 2011, which confirmed that under EU law there can be an illegal margin squeeze even if there is no duty under Art. 102 to supply, and that the company does not need to be dominant in the downstream (retail) market: see, also, case C-280/08 P, *Deutsche Telekom* [2010] ECR I- (October 14, 2010).
- 71 For criteria to be used for deciding whether a price is excessive and contrary to Article 102(a), see Temple Lang, *The requirements for a Commission Notice on the concept of abuse under Article 82 EC*, 2007 FINNISH COMPETITION LAW YEARBOOK (Mentula et al. eds.), 271-305, at 280-284 (2008).
- 72 In *Volvo v. Veng* it was suggested that it might be an abuse to stop producing spare parts, and not to allow others to produce them, if the purpose was to force users to buy new products, or to prevent competitors from providing services for which spare parts would be needed.
- 73 Case T-201/04, *Microsoft*, [2007] ECR II-3601.
- 74 *Id.* at ¶81.
- 75 In *National Carbonising v. National Coal Board* (1976) the Commission finally concluded that NCB had no duty to lower its price to NCC to enable NCC to make a profit on domestic coke, since NCC's difficulties were due to its reduced sales of industrial coke, for which NCB was not responsible. NCC had fewer long-term contracts to supply industrial coke, and so its sales declined. In its decision *BBI/Boosey & Hawkes* OJ No.L-286/36, ¶19 (1987), the Commission said that there is under Article 102 (as it now is) "no obligation placed on a dominant producer to subsidise competition to itself."
- 76 Proof of harm to consumers is required by Article 102(b). Ordering a dominant company to supply an input always creates at least some competition in the downstream market in the short term. This is

not a sufficient reason for imposing a duty to contract. The harm to consumers must be something more than the mere absence of competitors, or absence of choice. In cases in which consumers are not being deprived by the refusal of something that is already available to them, there would need to be clear evidence that competitors would provide some specific advantages, innovations, or developments of importance for consumers. Mere claims that they will ultimately offer better products or services are not enough, and it is important that they would not be able to relax their efforts even if they contracted with the dominant company. In other words, there must be not only scope for added value competition, but also sufficient probability that it will occur and be significant.

- 77 This requirement means that both the dominant company and its competitors continue to be under competitive pressure to develop better products, an essential objective of any rule designed to promote dynamic competition.
- 78 Special features of the *Microsoft* interoperability case that individually or cumulatively seem to have been significant were: Network effects; Exceptional extent and duration of dominance; That the benefits relied on could have been obtained without the conduct in question (Judgment, ¶1154); A pattern of exclusionary conduct; Interoperability had been practiced in the industry and by Microsoft itself; There was no risk that interoperability could lead to mere copying of the whole product; and Because of time lag and disadvantages, competitors would always need to do more than merely provide interoperability. Also, there were high market shares in the downstream market, and Microsoft was not capacity-constrained in that market. A high proportion of competitors in that market were affected. Microsoft's refusal was part of an exclusionary strategy: Disclosure would encourage innovation in the whole industry, including Microsoft; and Reduction of innovation harms consumers through reduced choice and lock-in of users. In any refusal to contract case it may be necessary to balance short-term effects of promoting competition against long-term effects of reducing incentives to invest. But the legal rules should be designed so as to avoid, as far as possible, making the test merely a balancing test, which would be contrary to legal certainty. This problem is not the result of the specific phrase used by the Commission. This is distinct from the problem of balancing the short-term pro-competitive and anticompetitive effects of the conduct in question.
- 79 A software company can limit access to its software upgrades / software support tools to customers who licensed the original software, and not make those upgrades available for licensing stand-alone, at least where the software company is not dominant for the original software.
- 80 Commission, *Pharmaceutical Sector Inquiry: Preliminary Report* (November 2008).
- 81 See, generally, Centre for European Policy Studies, *Report of Task Force, Treatment of Exclusionary Abuses under Article 82 of the EC Treaty*, 21-28 (2009).
- 82 Commission, *Pharmaceutical Sector Inquiry: Final Report* (July 2009). See Temple Lang, *Current Competition Law Questions for Pharmaceutical companies*, CURRENT DEVELOPMENTS IN EUROPEAN AND INTERNATIONAL COMPETITION LAW, 16th St. Gallen International Competition Law Forum 2009 (Baudenbracher ed.), 79-111 (2010).
- 83 553 U.S. ____ (2008).
- 84 Commission decision *Decca Navigation System*, OJ L-43/27 (1989). Factual issues might arise if the change involved genuine improvements, but also made competitors' products incompatible with the improved equipment. If the improvement involved only a change in software, there might be an obligation, in order to avoid an abuse, to disclose the new software to competitors.

