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Essential Function vs Essential Facility: Defining the amount of R&D protection in high-tech industries after *IMS* and *Microsoft*

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This paper examines the "law of R&D protection" from three different perspectives: (1) Article 81 EC, (2) merger situations, and (3) Article 82 EC. By way of background, the author looks at what legal options are available for companies to protect their R&D investments in highly innovative industries. As a general framework, he distinguishes early, medium and market stages of research and development activity. The main section of the paper then deals with various competition law issues which arise at each of these three stages, including "R&D aid" and Block Exemption Regulations such as the Technology Transfer Regulation. EC merger decisions and other relevant case law are also discussed, in particular the *IMS* and *Microsoft* cases. Key issues are illustrated by examples from the pharmaceutical and the printer industry. The paper concludes with comparing to what extent R&D investments are protected under EC competition law at the horizontal - Article 81 & merger control - and vertical - Article 82 - level.

1. INTRODUCTION

The position of a company investing in research and development (R&D) is complex and developing. This paper examines the way in which EC competition law and practice deal with such R&D efforts within high-tech industries like computer hardware and software, printers, telecommunications & media and biotechnology. In particular, it considers: the extent to which Article 81 influences the terms and conditions that companies may include in any agreement on shared R&D (joint ventures, technology licensing); the assessment of R&D in merger control cases; when Article 82 obliges a company to share its innovation, on the grounds that a refusal to license amounts to an abuse of the R&D investor's dominant position.

2. R&D INVESTMENTS: BUSINESS STRATEGIES AND LEGAL OPTIONS

Innovation based on research and development is a key factor in markets where companies compete for selling the most technically advanced product rather than only standard products at the lowest price. Therefore, in order to be successful in such markets, a company needs to find a strategy of how to introduce innovative products and how to keep doing so. By way of introduction, the following section looks at what

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makes high-tech markets special. It also discusses various options available for companies in order to gain or maintain an innovative advantage.

2.1. High-Tech Markets

There are a number of features characterising markets for sophisticated products the manufacture of which requires substantial technological equipment and/or know-how.[1] Unlike ordinary commodity markets, high-tech markets come and go at great speed. Following major inventions, consumers' preferences quickly shift from one type of product to the next. In the media sector, for example, within half a consumer's lifetime, records and audio tapes have been replaced with CDs, while mp3 technology is on the way. Playing and burning DVDs will soon have taken over from traditional home video. In the periods between such major breakthroughs, there are usually several generations of products belonging to the same class, each generation excelling its predecessor with better specs.

It has been said that in high-tech industries there is competition *for* the markets rather than competition *on* the markets.[2] Innovation may be more important than prices.[3] This picture is probably too simple in many cases but its key message is correct. Certainly the company first realising the commercial importance of a new technology and being able to develop corresponding products until market stage before anybody else, will have a "first mover" or "early leader" advantage.[4] Once a new product market has been established, however, usually other companies will challenge the innovative leader. Competition will then be on price as well. Within each new technology, products usually come in several generations or platforms. Supplying out-dated generations at best price does not promise to be profitable, as no one wants to buy these products any more. Therefore, competition *for* the markets actually means that successful companies manage to have at least one latest generation product at market stage.

This is illustrated by an example from the printer industry. In inkjet technology, printer performance has doubled every 18 months for almost 20 years now.[5] As consumers

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1 John Temple Lang, 'European Community antitrust law: innovation markets and high technology industries' (1996-1997) 20 Fordham Int LJ 717, 718-722, has identified a list of 13 features. Probably the 5 most important are: (1) R&D investment: important, considerable amount required up-front, high risk of sunk costs; (2) innovation: short life cycles of products, rapid change of technology platforms/product families; (3) market shares: less important for the assessment of market power; (4) IP rights: important in order to "harvest" the fruits of R&D efforts; (5) information-based industries: value of products is often affected by number of companies/individuals participating (network/system effect) - need for standards or interface definitions.

2 Richard Schmalensee, 'Antitrust Issues in Schumpeterian Industries' (2000) 90 American Econ Rev (Papers and Proceedings) 192, 193; see also Evans & Schmalensee, 'Some economic aspects of antitrust analysis in dynamically competitive industries' NBER Working Paper No w8268, May 2001.

3 Temple Lang, n 1 *supra*, p 720. It is arguable that even in the absence of competition, companies would nonetheless innovate: see summary of the economic literature provided by Lowe & Peeperkorn, 'Singing in tune with competition and innovation', paper presented at the 31st Annual Conference on International Antitrust Law & Policy, Fordham University School of Law, 7/8 October 2004, p 8-15.

4 Temple Lang, n 1 *supra*, p 718; Kairo & Paulweber, 'High technology industries, private restraints on innovation and EU antitrust law: the European approach to market analysis of R&D competition' RTkom 1/2001, p 21, RTKom 2/2001, p 68.

5 Performance is mainly measured by velocity (drops per second) and by resolution (dots per inch).

base their purchase decision on a combination of both performance and price of a printer, companies must constantly improve their models so as not to fall behind competitors. Assuming that there is undistorted competition on the market, such continuous up-grading requires a stream of creative ideas and inventions. Research and development is the source from which creative streams flow. Accordingly, a company's success on high-tech markets depends largely on its R&D potential.

2.2. R&D Potential

A company's innovative potential can be assessed against the following background: investments in basic research are the starting point. A company will either invest in its own scientific unit or establish contractual relationships with an external think tank or university. Technology at this early stage will then lead to certain prototypes which need further testing until they finally reach market stage. The duration of each of these three stages – early, medium and market stage – varies from industry to industry.[6]

With regard to pharmaceutical products, the European Commission further subdivides the medium stage.[7] R&D projects undergo three different phases of clinical testing: Phase I marks the start of clinical testing on humans, some eight to ten years before a product is marketed. Phase II, some four to five years before the product is marketed, involves working out the proper dose for the patient and defining the areas of application. Phase III, starting three years before the product is marketed, involves establishing the product's effectiveness on larger groups of patients.

Taking into account such long preparatory periods and the great risks involved, companies will have already spent considerable costs on every new product before it actually reaches market stage. In practice, only companies which can generate enough cash-flow from existing IP portfolios to finance ongoing research projects for future products will have sustainable R&D potential.[8]

3. COMPETITION LAW PERSPECTIVE

There is no single "law of R&D". Instead, EC competition law looks at research and development activities from different angles. On the one hand, co-ordination between companies in joint R&D agreements, strategic alliances and joint ventures are assessed from a horizontal perspective (Article 81, block exemptions, horizontal guidelines). The same applies for merger control, where various recent cases involving companies' R&D clarify the Commission's approach. On the other hand, once dominance is found at the horizontal level, certain vertical issues arise. In particular, Article 82 requires deciding whether a company is obliged to grant licences for know-how or provide interface data because the requested information – even if protected by IP rights – is an essential facility. As noted above, three main stages – early, medium and market – can be

6 See BusinessWeek, 75th Anniversary Issue, 11 October 2004, p 58, which gives an overview of key product areas within the highly innovative sectors information technology, health care and business & finance, also mentioning the sectors transportation, energy and materials & manufactured products where change has been slower.

7 For case references and more details see Section 3.2.2.

8 Kairo & Paulweber, n 4 *supra*, p 20.

distinguished as a general framework for judging research and development activities.[9] A company's priorities and investment strategies will depend on the fact in which of these stages its core R&D focus lies.

3.1. Early Stage: sharing resources and risk

At the early stage, research is so basic that its ultimate commercial value is not always readily apparent. The road to potentially profitable products is long, costly and risky. In the light of vague success and high failure rate, companies will aim at minimising own involvement by either using public resources or sharing resources and risk. The success of the first strategy is determined by state aid law in the field of research and development, while the second depends on how joint venture agreements are assessed under Article 81.

3.1.1. "R&D Aid"

There is a regulatory framework in place which aims at encouraging basic research beneficial for a larger public.[10] The 6th Framework Protocol has been up-dated with regard to small and medium enterprises (SMEs).[11] In sum, these provisions confirm that state aid granted for companies carrying out R&D generally contributes to improving the competitiveness of Community industry. However, the law differentiates according to the exact stage of the R&D project. The closer the R&D is to the market, the more significant may be the distorting effect of the state aid and the less public funding should be given.

In order to determine the degree of proximity to the market, the Commission distinguishes between fundamental research, industrial research and pre-competitive activity, thereby further subdividing the early and medium stages outlined in this paper. While fundamental research[12] may be awarded at a gross aid intensity of up to 100%, industrial research[13] can only get 60% of the eligible costs of the project as state aid. Pre-competitive development activities[14] which are closest to the market can be aided at

[9] There are more complex models trying to understand and describe the mechanisms of innovation. The key stages of innovation include product conceptualisation, technical feasability, product development, commercial validation and pre-production preparations, as well as distribution and marketing strategies. For detailed references see Kairo & Paulweber, n 4 *supra*, p 13, 17, n 31.

[10] See Community framework for state aid for research and development, OJ 1996, C45/5.

[11] Commission Regulation 364/2004/EC, OJ 2004, L63/22.

[12] Fundamental research is defined as activity designed to broaden scientific and technical knowledge not linked to industrial or commercial objectives (see former Annex I, new Article 2b(h)).

[13] "Planned research of critical investigation aimed at the acquisition of new knowledge, the objective being that such knowledge may be useful in developing new products, processes or services or in bringing about a significant improvement in existing products, processes or services" (see former Annex I, new Article 2b(i)).

[14] "The shaping of the results of industrial research into a plan, arrangement of design for new, altered or improved products, processes or services, whether they are intended to be sold or used, including the creation of an initial prototype which could not be used commercially" (see former Annex I, new Article 2b(i)).

35% maximum. These ceilings may in certain cases be increased to 75% for industrial research and 50% for pre-competitive development.[15]

3.1.2. Joint Ventures

Under Article 81, the Commission monitors research and development joint ventures that fall outside the EC merger control regime. Co-ordinated efforts resulting in "joint" research can be exemptable under the Research and Development Block Exemption (R&D BER).[16] Similar joint ventures may consist of technology transfer agreements or licensing agreements for patents and/or know-how.

(a) R&D BER

Regulation 2659/2000 covers agreements whereby companies agree to jointly carry out research and development and to jointly exploit the results. "Jointly" means that the work involved is either carried out by a joint team, jointly entrusted to a third party or allocated between the parties by way of specialisation in research, development, production and distribution.[17]

Co-operation in research and development and/or in the exploitation of the results may have positive effects for a market economy and consumers. This is because it promotes technical progress by avoiding duplication of research and development work by stimulating new advances through the exchange of complementary know-how and by rationalising the manufacture of the products.[18] On the other hand, such benefits from new products or the reduction of prices brought about by improved processes are unlikely if the co-operation enables the partners to eliminate competition in respect of a substantive part of the products or services in question.

Therefore, the key question is where to draw the line indicating that R&D co-operation is likely to impede rather than to drive innovation. Following the tradition of the Verticals BER, the R&D BER mainly relies on market shares: the block exemption ceases to apply if the parties' combined share of the market for the products arising out of the joint research and development becomes too great (exceeding 25% when the parties are competitors).[19] However, the Regulation contains some general language which may be read in the context of high-tech markets:

> The exemption should continue to apply, irrespective of the parties' market shares, for a certain period after the commencement of joint exploitation, so as to await

[15] Eg, research with potential multi-sectoral application focussing on a multidisciplinary approach, cross-border research projects or projects between companies and universities, see Article 5a(4) for details.

[16] Commission Regulation 2659/2000/EC on the application of Article 81(3) to categories of research and development agreements, OJ 2000, L304/7.

[17] R&D BER, Article 2(11).

[18] R&D BER, para 10; see also Guidelines on the applicability of Article 81 to horizontal cooperation agreements (Horizontal Cooperation Guidelines), OJ 2001, C3/2, para 40.

[19] R&D BER, para 16, Article 4(2).

stabilisation of their market shares, particularly after the introduction of an entirely new product, and *to guarantee a minimum period of return on the investments involved.*[20]

(b) Relationship with other BERs

TTBER

The R&D BER is *lex specialis*, while the Technology Transfer Block Exemption (TTBER)[21] has a broader scope. There are, however, some borderline areas where both regulations apply in one project. The R&D BER also covers licensing between the parties (and by the parties to a JV) in the context of a joint research and development agreement which may set out the conditions for licensing its fruits to third parties. However, the individual license agreements concluded with third parties go beyond the scope of the R&D BER and have to be assessed under the TTBER.[22]

Specialisation BER

The second *lex specialis* is Regulation 2658/2000 on specialisation agreements which covers, *inter alia*, joint production agreements.[23] It extends to provisions concerning the assignment of use of IP rights provided that these rights are ancillary to such agreements. In summary, the relationship between the three BERs can be characterised as follows. The TTBER applies to the licensing of technology in all three stages of R&D activities, while the R&D BER covers special joint activities at the early and medium stage and the specialisation BER block exempts certain joint activities at the market stage.

(c) Cases

In a number of cases, R&D joint ventures were assessed under the ECMR.[24] For example, Shell and BASF formed a full function joint venture in the chemicals industry focusing on polypropylene (PP) technology.[25] Shell would endow this JV with its world-wide PP technology business, including IP rights and R&D resources. BASF was to contribute the IP rights relating to its development of certain PP catalysts. In its assessment, the Commission found that this combination would give the JV dominant technology and possession of a suite of patents that effectively blocked any other parties' attempts to develop metallocene technology.[26] Therefore, the concentration was only cleared with commitments to divest BASF's PP technology business including

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[20] R&D BER, para 16 (emphasis added).

[21] Commission Regulation 772/2004/EC on the application of Article 81(3) to categories of technology transfer agreements, OJ 2004, L123/11.

[22] Guidelines on the application of Article 81 to technology transfer agreements, OJ 2004, C101/2, para 60.

[23] Commission Regulation 2658/2000/EC on the application of Article 81(3) to categories of specialisation agreements, OJ 2000, L304/3, Article 1(1c); see also TTBER-Guidelines, para 57; Horizontal Cooperation Guidelines, n 18 *supra*, paras 78-118.

[24] For a discussion of joint ventures involving R&D outside the ECMR see Steve Anderman, 'EC competition law and intellectual property rights in the new economy', [2002] Antitrust Bulletin 285, 302.

[25] *Shell/BASF/JV-Project Nicole*, Case COMP/M.1751.

[26] *Shell/BASF/JV-Project Nicole*, n 25 *supra*, para 51.

all patented and unpatented know-how and R&D activities and to license BASF's metallocene patent rights on undiscriminating terms and conditions to all interested parties.

In *Thomson/Lucas*, the parties set up a joint venture which should produce and sell on world-wide level a new product to the automotive industry.[27] This joint venture should supervise and control all R&D work. The parties also granted the joint venture the necessary licenses for it to operate in its field of activity. Looking at the effects of this research and development joint venture, the Commission saw no competition concerns because the technology necessary to manufacture the product was currently being developed by several players on the market and because none of the JV's parent companies was active in neighbouring markets.[28] Thus, the common R&D effort was genuinely found to be pro-competitive.

3.1.3. Conclusion

EC competition law allows joint research and development. The more remote such activity is from the market, the more it is encouraged. JVs close to the market are permitted provided that they create no bottleneck by establishing a dominant technology which impedes alternative R&D activities in the area in question.

3.2. Medium Stage: "Going half way"

As soon as R&D lines can be made out showing prototypes of new products or product classes, companies will generally choose a different strategy. Joint ventures or strategic alliances now have more the character of shopping for missing "ingredients". These may be know-how that would be too expensive to develop alone or particular inventions required in the current research project but protected by other companies' IP rights. An appropriate legal instrument is licensing. If a great number of such "ingredients" is needed in order to complete a certain project or portfolio of innovative products, a company may decide to acquire entire businesses including their R&D lines.

3.2.1. Licensing - TTBER

It is well known that the new regime of the TTBER applies to most forms of licensing agreements in high-tech industries. In particular, it covers licensing of patents, know-how and software copyright as well as so-called mixed agreements including these IPRs and also provisions which relate to the sale and purchase of products, unless these "close to market" elements constitute the primary object of the agreement and are directly related to the production of the contract products.[29]

Like the R&D BER, the TTBER takes a market share based approach (competitors' combined market share must usually be below 20% on the relevant technology and product market), assuming that Article 81(1) prohibits restrictions of both inter-technology competition (ie competition between companies using competing

[27] *Thomson/Lucas*, Case IV/M.1332.

[28] *Thomson/Lucas*, n 27 *supra*, para 15.

[29] TTBER, Article 1(b).

technologies) and intra-technology competition (ie competition between companies using the same technology).[30] However, a second safe harbour applies if there are more than four independently controlled technologies (on top of those of the parties) on the market.[31]

Discussing further details of the TTBER would exceed the scope of the present paper and has been brilliantly done elsewhere.[32] However, it should be mentioned that the Regulation well acknowledges the issue of protecting R&D investments:

> In the assessment of licence agreements under Article 81 it must be kept in mind that the creation of intellectual property rights often entails substantial investment and that it is often a risky endeavour. In order not to reduce dynamic competition and to maintain the incentive to innovate, the innovator must not be unduly restricted in the exploitation of intellectual property rights that turn out to be valuable. For these reasons *the innovator should normally be free to seek compensation for successful projects that is sufficient to maintain investment incentives, taking failed projects into account*.[33]

Most intriguingly, the risk and the sunk investment involved are said to lead to the agreement falling outside Article 81(1) or fulfilling the conditions of Article 81(3), as the case may be, for the period of time required to recoup the investment.[34] In practice, this period of time can, if at all, only be determined on the basis of numerous (and sensitive) economic data. Substantial legal uncertainty therefore remains.

3.2.2. M & A

The Commission has examined many merger cases in high-tech markets. Assessing the post-merger situation, it always took into account the R&D potential of the parties. On balance, each different industry requires to consider special circumstances of its own. A consistent and rather advanced analytical framework can be found in the pharmaceuticals sector which has been examined most often.

(a) Cases

The following examples illustrate how the Commission has been evaluating R&D activities in the context of merger control.[35]

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30 TTBER-Guidelines, para 12.

31 TTBER-Guidelines, para 131; similar to the innovation market concept used in the US, this "safe harbour" is based on the idea that an agreement is only likely to harm competition if it diminishes the number of "technology poles"/"R&D poles" considerably; see Kairo & Paulweber, n 4 *supra*, p 25; see also Horizontal Cooperation Guidelines, n 18 *supra*, paras 50-77.

32 See Dolmans & Piilola, 'The new technology transfer block exemption', (2004) 27(3) World Comp 351; Hansen & Shah, 'The new EU technology transfer regime' [2004] ECLR 465; David Mamane, 'Reform der EU-Wettbewerbsregeln für Technologietransfer-Verträge', [2004] sic! 616.

33 TTBER-Guidelines, para 8 (emphasis added).

34 TTBER-Guidelines, para 8.

35 In addition to the selection of cases discussed below, leading cases include *DMS/Roche Vitamins*, COMP/M.2972; *Bayer/Aventis Crop Science*, Case COMP/M.2547; *Bayer/Lyondell*, Case COMP/ M.1796; *Hoechst/Rhône-Poulenc (Aventis)*, Case IV/M.1378; and *Hoffmann La Roche/Boehringer Mannheim*, Case IV/M.950.

Glaxo Wellcome

In *Glaxo Wellcome/Smith Kline Beecham*, the Commission examined products which were not yet on the market but which were at an advanced stage of development.[36] The potential for these so-called pipeline products to enter into competition with other products which were either in the pipeline themselves or already on the market was analysed by reference to their characteristics and intended therapeutic use. The Commission argued that R&D potential should be considered in terms of its importance for existing markets, but also for future market situations. Regarding future developments, relevant product markets can obviously only be defined in a less clear-cut manner than in the case of existing markets. However, by reference to the "Anatomical Therapeutic Chemical" (ATC) classification, the Commission found a framework which allows market definition based primarily on the characteristics of future products as well as on the indications to which they are to be applied. With regard to the geographical dimension, the Commission stated that because R&D is normally global, the consideration of future pharmaceutical markets should therefore at least focus on the territory of the EU, and, possibly, on world-wide markets.[37]

Given the fact that the parties pursued different lines of R&D, the Commission considered that the operation was unlikely to lead to an elimination of the existing R&D currently being conducted by the merging entities. While it was believed that the parties would "streamline their R&D efforts in the future", given the large number of current pipeline products and the resources of competitors on the market, the Commission did not find that this would lead to the elimination of the overall R&D potential.[38] Based on overlaps in the pipeline products for the treatment of COPD (Chronic Obstructive Pulmonary Disease), however, the Commission was concerned about a future strong market position of the merged entity. It accepted a conditional undertaking according to which one party's pipeline product in this sector would be sublicensed but only in the event that third parties' competing phase III pipeline compounds failed. In assessing this remedy, the Commission took into account the fact that "a certain degree of uncertainty prevails in pipeline products".

Abbott/BASF

Abbott, a global healthcare company with manufacturing, distribution and R&D facilities in more than 130 countries, notified to the European Commission its acquisition of the world-wide pharmaceutical business of BASF.[39] The Commission found that in the pharmaceuticals industry, a full assessment of the competitive situation required examination of the products which are not yet on the market but which are at an advanced stage of development (after large sums of money have been invested). It took into account the R&D potential of the parties by looking at possible overlaps in the development of future products.

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[36] *Glaxo Wellcome/SmithKline Beecham*, Case COMP/M.1846.

[37] *Glaxo Wellcome/SmithKline Beecham*, n 36 *supra*, para 75.

[38] *Glaxo Wellcome/SmithKline Beecham*, n 36 *supra*, para 188.

[39] *Abbott/BASF*, Case COMP/M.2312.

Here, again, market definition was based either on the existing ATC classes or primarily on the characteristics of future products as well as on the indications to which these were to be applied.[40] The Commission considered that Abbot and BASF had overlapping pipeline products in two areas, in one of which there was already an existing product. At a closer look, however, it turned out that in one area actually two separate "future product markets" had to be identified. The Commission's market investigation confirmed that it would be very difficult to trial the products in question for the same indication – such "switching" of R&D lines would take between 5 and 10 years and would cost around €50 million.[41] The investigation also confirmed that there were more than 10 known alternative future products being developed by Abbot's main competitors.[42] In the light of these facts the Commission concluded that post-merger effective competition would not be significantly impeded in any market in future pharmaceutical products.

Monsanto/Pharmacia

Monsanto/Pharmacia & Upjohn was another case where two companies with, *inter alia*, heavy investments in pharmaceutical products merged.[43] With regard to future products, the Commission found overlap in pipeline products. In its assessment the Commission took into account a global move to consolidation within the pharmaceuticals industry. Observing a rapidly changing business environment characterised by increasing R&D costs etc, it then argued economics of scale, concluding that after the merger, the new entity would on a world-wide basis remain subject to strong competition from numerous multinational companies. Size allowed firms to leverage increasing R&D costs across a broader range of products and to spread the risk involved in every new research project over a larger capital base. Therefore, greater resources of the merged entity could be used to fund additional R&D projects, to devote more resources to long term projects and to increase spending on already advanced projects to accelerate the development process.[44]

Pfizer/Warner Lambert

In *Pfizer/Warner Lambert*, both parties had pipeline products in different stages of development in the field of oncology.[45] The Commission concluded that the merged entity's activities would not result in adverse competition effects. Firstly, as Pfizner's and Warner Lambert's pipeline products had different mechanisms of action, it remained dubious if their discoveries – although both in the broad primary research area oncology – actually overlapped. Secondly, even if they did, there was said to be vigorous competition from third parties with a number of competing compounds under development in (the more advanced) phases III and II.

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[40] *Abbot/BASF*, n 39 *supra*, para 19.

[41] *Abbot/BASF*, n 39 *supra*, para 43.

[42] *Abbot/BASF*, n 39 *supra*, para 44.

[43] *Monsanto/Pharmacia & Upjohn*, Case COMP/M.1835.

[44] *Monsanto/Pharmacia & Upjohn*, n 43 *supra*, para 48.

[45] *Pfizner/Warner-Lambert*, Case COMP/M.1878.

(b) Horizontal Merger Guidelines

The above cases are in line with the Commission's Horizontal Merger Guidelines which were recently released.[46] Effective competition is seen as a key driver of innovation. At the same time, innovation as such is regarded as a benefit to consumers like low prices, high quality products and a wide selection of goods and services.[47] With regard to high-tech markets, the Commission acknowledges the limited significance of market shares which should be interpreted in the light of the special conditions of such markets.[48] The Horizontal Merger Guidelines do not mention the innovation market concept coming from the US, although the Commission tacitly applies this concept in *Monsanto/Pharmacia*. There is, however, some language which gives the Commission wide discretion in how to assess high-tech mergers.

> In most cases the competitive conditions existing at the time of the merger constitute the relevant comparison for evaluating the effects of a merger. However, in some circumstances, the Commission may take into account future changes to the market that can *reasonably be predicted*.[49]

This covers imminent competition from potential rivals who are about to enter a market but also allows a preview of the future market situation as a result of current R&D potential.

3.2.3. Conclusion

In the context of merger control, the Commission considers whether overlapping R&D activities may result in eliminating competition in future product markets. At the same time, it takes into account the number of alternative "R&D poles" post merger. This approach is consistent with the so-called second safe harbour test set out in the TTBER.

3.3. Market Stage: Recouping investments

The final stage is where new products are actually marketed. This enjoys much attention in the debate on the limits of IP rights which has been revived by the recent cases *IMS* and *Microsoft*. In the present context, the following section looks at the vertical questions to what extent a company can rely on IP rights as R&D protection rights and when Article 82 obliges a company to share its innovation or part if it with competitors. The horizontal dimension of the market stage has already been discussed above.[50]

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[46] Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ 2004, C31/5.

[47] Horizontal Merger Guidelines, n 46 *supra*, para 8.

[48] Horizontal Merger Guidelines, n 46 *supra*, para 15.

[49] Horizontal Merger Guidelines, n 46 *supra*, para 9 (emphasis added).

[50] See Section 3.1.2(b) on the Specialisation BER and Section 3.2.2. on M&A.

3.3.1. Compulsory licensing of IP rights – *Magill* and *IMS*

In *Magill*[51] the Commission held that TV broadcasters, which had relied on copyright conferred by national legislation over TV listings, abused their dominant position by refusing to grant a licence to *Magill* to copy this material, thereby preventing *Magill* from using the information to publish a weekly TV guide containing comprehensive listings for the week ahead. On appeal the ECJ found that a refusal to grant a licence by a company holding a dominant position could in "exceptional circumstances" infringe Article 82. The broadcasters had, contrary to the principle set out in *Commercial Solvents,*[52] reserved themselves the secondary market of weekly television guides by excluding all competition on that market since they denied access to the basic information which was the raw material indispensable for the compilation of such a guide. This so-called *Magill*-test – foreclosure of a new secondary market by refusing access to an essential facility ("indispensable raw material") – has been further elaborated in *Tiercé Ladbroke,*[53] *Oscar Bronner*[54] and finally in the *IMS* case.[55]

IMS had created a brick structure which had effectively become the industry standard for the presentation of regional data services in the pharmaceutical sector. Although this structure was created with limited creativity, IMS had successfully asserted national copyright. It had then excluded competition from the market by refusing, without objective justification, to licence this structure to its competitors. The ECJ assumed exceptional circumstances for abuse under Article 82 based on the following criteria:

- The company asking for the licence intends to offer new products on the downstream market which the dominant company does not offer and for which there is potential consumer demand;
- The refusal to licence is not objectively justified;
- The refusal to licence eliminates all competition in the relevant downstream market;
- The licence itself is indispensable to carrying out business inasmuch as it is not economically viable for a company in a similar position as the dominant firm to create the facility to which it requests access.[56]

Commentators have described the *Magill* and *IMS* cases as remedies to aberrations in the application of national copyright laws.[57] In both cases the right-holder enjoyed

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51 Cases C-241&2/91P *RTE & ITP v Commission* [1995] ECR I-743.

52 Cases 6&7/73 *Commercial Solvents v Commission* [1973] ECR 223.

53 Case T-504/93 *Tiercé Ladbroke v Commission* [1997] ECR II-923.

54 Case C-7/97 *Oscar Bronner GmbH & Co. KG v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG and Mediaprint Anzeigengesellschaft mbH & Co. KG.* [1998] ECR I-7791.

55 Case C-418/01 *IMS Health GmbH & Co. OHG v NDC Health GmbH & Co. KG*, [2004] 4 CMLR 28.

56 *IMS Health*, n 55 *supra*, paras 38, 45-49.

57 Ian Forrester, 'Competition and intellectual property law and policy in the knowledge-based economy', paper of 21 June 2002 presented at the Department of Justice/Federal Trade Commission Hearings (unpublished), p 24. Even with regard to the *Microsoft* case it can be argued that Article 82 did not have to be called upon if IP law had taken a form offering a more extensive guarantee of interoperability of interface information for

rather large economic advantages flowing from the exercise of rights acquired with rather little own creative effort. Therefore, it remains dubious if the exceptional circumstances found in these cases can be applied where the rights in question are patents or know-how which are the result of years of expensive R&D in a technology-driven industry. On the contrary, in high-tech industries one must also ask whether the IP rights requested are well-deserved or not. Or, as AG Jacobs has already pointed out in *Bronner*, the obligation to licence strongly depends on whether the IP right protection is easy or "difficult to justify in terms of *rewarding or providing an incentive or creative effort*".[58] Along the same lines, the following questions should be asked:[59]

- Was the work of trivial value or of significance? What was the investment by the dominant company? How much up-front R&D was needed in order to create the IP protected invention?[60] Are there any "sunk costs" for related research which failed but was preparatory for the work in question?
- Is the market dynamic? If so, will it take care of distortions flowing from the refusal to licence? If not, is compulsory licensing the only plausible means of creating some movement in the marketplace?
- What will be the impact on future innovation and R&D activities if the use of the IP right were to be challenged in this case? What signal will the competition enforcer give to the marketplace if it compels a licence?

3.3.2. Compulsory innovation sharing? - *Microsoft*

In the *Microsoft* case, the Commission goes one step further. Not only does it oblige a dominant company to grant a compulsory licence in return for royalties. It also imposes a duty on Microsoft to disclose interface codes which will allow competitors' products to talk to Microsoft's own products.[61] Although this was heavily debated in the case, the Commission emphasised that Microsoft was under no obligation to disclose its so-called source codes which would have allowed competitors to duplicate features from Microsoft's windows family of operating systems.[62]

software than under Article 6 of the EC Computer Programme Directive. I owe this point to Professor Steve Anderman.

58 Opinion of AG Jacobs, Case C-7/97, [1998] ECR I-7794, at para 63 (emphasis added).

59 See also *Forrester*, n 57 *supra*, p 23.

60 See BusinessWeek, 75th Anniversary Issue, October 11, 2004, p 143-145, with a detailed index examining corporate R&D and capital spending of "the most future-oriented companies".

61 *Microsoft*, Case COMP/C-3/37.792, C(2004)900 final, p 299, Article 5. It is understood that making the interoperability information available "on reasonable and non-discriminatory terms" may not actually amount to an adequate return for the up-front investments, so basically Microsoft is obliged to share its interface codes for free.

62 *Microsoft*, n 61 *supra*, paras 713-721.

The R&D defence

As a justification for its refusal to disclose the interface, Microsoft invokes its R&D costs the protection of which it said was the essential function of its IP rights over the information requested:

> " … those rights are meant to protect the outcome of billions of dollars of R&D investments in software features, functions and technologies … Disclosure would negate that protection and eliminate future incentives to invest in the creation of more intellectual property".[63]

The Commission dismissed this R&D defence on two grounds. First, the central function of IP rights was seen as twofold. On the one hand, such rights were to protect the moral rights in a right-holder's work and ensure a reward for the creative effort. On the other hand, an essential objective of IP law was, "that creativity should be stimulated for the general public good." Under exceptional circumstances, a refusal by a dominant company to grant a licence might be contrary to the general public good with harmful effects on innovation and on consumers.[64]

Secondly, Microsoft's argument regarding its incentive to innovate was accepted as a legitimate defence against exceptional circumstances for a duty to licence but rebutted on the facts. On the basis of the available evidence, the Commission doubted whether an order to supply would have any negative impact on Microsoft's incentives to innovate. Even if Microsoft had anticipated such a decision of the Commission years ago, it would have nonetheless developed its products as a whole including the design of its products' interfaces simply because Microsoft sold client PC and work group server operating systems and these products need to interoperate with one another.[65]

Besides, it was held that an order to supply would actually have a positive impact on Microsoft's *future* incentive to innovate. This was believed because without intervention Microsoft was seen to be likely to succeed in eliminating all effective competition in the workgroup server operating system market. Microsoft's R&D efforts, so the Commission's argument, were spurred by the innovative steps the company's competitors take. Supplying them with the requested interface information would end the lock-in effect that drove consumers towards a homogeneous Microsoft solution. This would happen because consumers could now also buy other companies' implementation properly working in the Microsoft environment. Such competitive pressure, argued the Commission, would then increase Microsoft's own initiative to innovate.[66]

Obviously, by reserving the discretion to decide each individual case solely based on balancing its facts,[67] the Commission cannot be said to apply or amend an existing

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[63] *Microsoft*, n 61 *supra*, para 191.

[64] *Microsoft*, n 61 *supra*, para 711.

[65] *Microsoft*, n 61 *supra*, para 727.

[66] *Microsoft*, n 61 *supra*, para 725.

[67] See *Microsoft*, n 61 *supra*, paras 555 and 558: "There is no persuasiveness to an approach that would advocate the existence of an exhaustive checklist of exceptional circumstances"; "the Commission must analyse the entirety of the circumstances surrounding the specific instance of a refusal to supply and must take its decision based on the results of such a comprehensive examination."

exceptional circumstances test under Article 82. Instead, it refuted Microsoft's submission on the facts and went on to introduce a "freestyle" balancing approach to justification. This was structured around two key arguments: the essential facility test and the "initiative to innovate"-test.

The essential facility test

Without explicitly referring to it, the Commission actually observed that the essential function of an IP right finds its limits where the information protected by this right is an essential facility. The doctrine of essential facility has been developed in the context of physical assets where access was mandated to ports, bridges etc.[68] Basically, a facility is essential when the following conditions are fulfilled:

- It is impossible to replicate the asset;
- There are no alternative means of entering the relevant market;
- There is lack of effective competition in the foreclosed markets; and
- The owner of the asset competes in the foreclosed markets.

Therefore, the key question is whether access to specifications of a proprietary *de facto standard* has to be treated in the same way as access to a physical asset. Further, one may ask if such equal treatment shall apply generally or only in the presence of network effects making the dominant company's products the "must have" solution. It seems that such network effects can lead to a *de facto standard* resulting in path-dependency, ie consumers would face considerable switching costs (IT training, time to adapt etc) rather than advantages when becoming pioneer users of an alternative technology.

Balancing individual reward for creative effort against the general public good of innovation in a market economy is a difficult task. Above all, it is hard to determine under which circumstances interoperability shall be regarded as an essential facility.[69] Apart from particular economic evidence in each individual case, there are a number of general issues to be considered: Do all firms need to possess the same qualities and attributes for there to be effective competition? In other words, would a level playing field be essential for competition? Arguably, there is a fine line to be drawn between "essential to compete" and "it would make my life easier". How much interoperability is essential? For example, under the assumption of dominance, would a printer manufacturer have to ensure 100% compatibility between his products and independent refillers' cartridges? Or could he reserve certain enhanced features (eg printer displaying the amount of ink left in the cartridge) to himself?

[68] For a detailed discussion of early case law see John Temple Lang, 'Defining legitimate competition: companies' duties to supply and access to essential facilities', (1994-1995) 18 Fordham Int LJ 437.

[69] The basic idea is that a firm should not be able to control access to a bottleneck input, ie an input required to compete in a downstream or upstream market. From an economic perspective; Henry Ergas, 'Regulation and essential facilities', paper of 19 April 2002 (unpublished).

The "initiative to innovate"-test

The Commission's argument regarding Microsoft's *future* incentive to innovate appears to be circular indeed. Certainly, any decision obliging a company to share with its rivals information that provides a competitive advantage will reduce its head-start. Thus being forced to let competitors catch up, the company will not surprisingly have to perform better so as to regain its former position. In high-tech markets, this means that the company must innovate even more in order to make up for its rivals' free riding. Therefore, the question whether an order to supply would have (had) any negative impact on a dominant company's incentives to innovate can meaningfully be asked only with regard to a hypothetical *past* situation.

3.3.3. Conclusion

Once having established dominance under Article 82, the regulator may further find a proprietary *de facto standard* which he regards as an essential facility that should rather belong to the public. A company should then be allowed to defend its R&D investments by showing that (a) the up-front costs have not yet been amortised by marketing the final product and (b) the obligation to share the interface information would have diminished its initial incentive to invest.

4. CONCLUSION

This paper clearly establishes that R&D investments are in many ways affected by competition law. At the horizontal level, joint R&D activity is permitted unless it amounts to a dominant technology impeding alternative R&D endeavours in the same area. Similarly, mergers involving R&D are cleared provided that they do not result in foreclosing future product markets. A company that holds a dominant position on a high-tech market may find, at the vertical level, that it is obliged to licence use of certain IP rights to others in return for the payment of a reasonably royalty. When having established a proprietary *de facto standard*, the company may even be obliged to provide certain information for free, provided that this information ensures the interoperability between the dominant company's product and applications made by others. In the first case, it can recoup its R&D costs from royalties instead of from direct product sales. In the second case, however, there is a risk that the company which established the *de facto* standard will get no adequate return for disclosing the interface information.