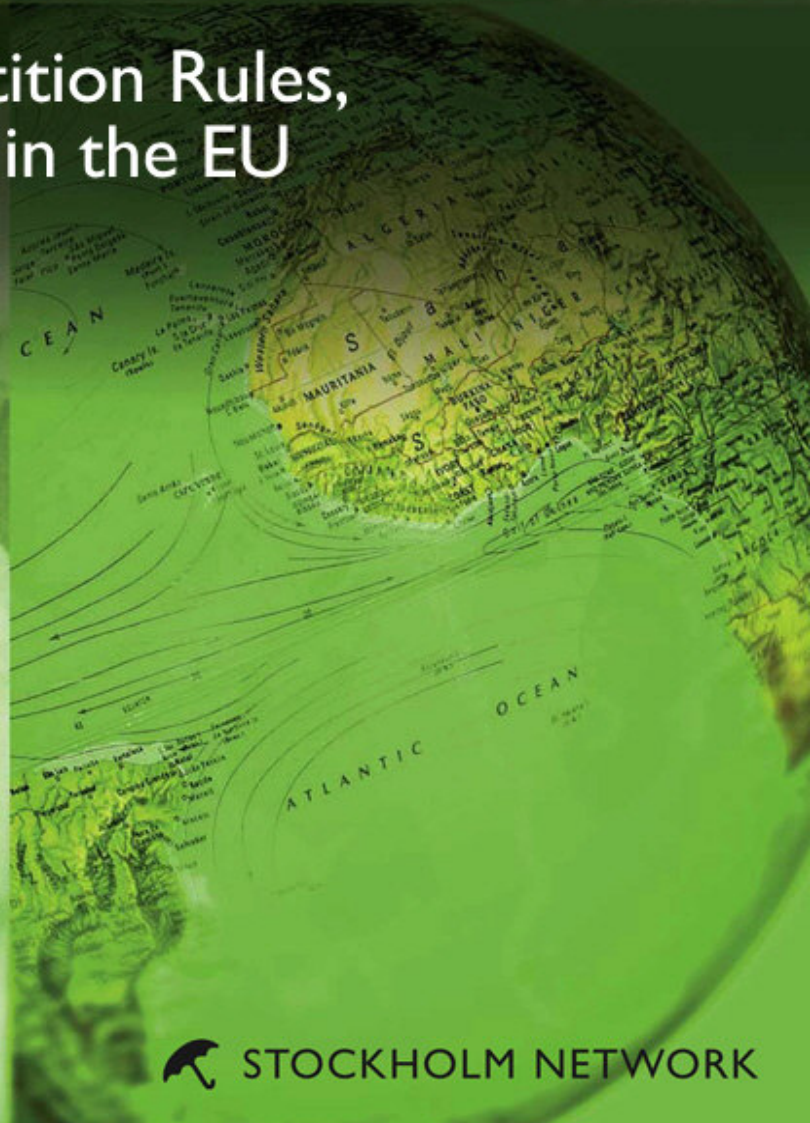


The Stockholm Network Experts' Series on Intellectual Property and Competition

Bad Reception: Competition Rules, and Wireless Standards in the EU



By Michael Einhorn



STOCKHOLM NETWORK

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CONSOR Intellectual Asset Management

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Background

Regulatory authorities in the USA and Europe now approach the antitrust issues of exclusive dealing, predatory pricing, and other potentially anti-competitive actions in a somewhat different manner. In the USA, the competitive process is viewed as a powerful check upon the unbridled exercise of producer power. Competition then is a process that forces rival producers to be responsive to consumer needs, as well as a selection mechanism that rewards producer efficiency and innovation. When enforcing antitrust laws, US competition authorities examine allegedly anti-competitive tactics for their effect upon consumer prices and overall economic efficiency, rather than profit losses and other hardships imposed on direct competitors.

The situation is somewhat different in Europe. Here, the European Commission antitrust authorities more often regard competitive harm as a threat market rivals. In particular, producer competitive actions may actually be regarded as economically harmful if they have the effect of taking market share from a less efficient rival in the industry. If the initiator is a producer in control of a particular technology that is patented or otherwise necessary, the contested practice may be limited or disallowed by the Commission.

The difference is highlighted in an ongoing matter initiated before the Commission in 2005. In that year, five major technology companies (Broadcom, Nokia, Ericsson, Panasonic Mobile Communications, and Texas Instruments) requested the Competition Directorate of the European Commission to enjoin Qualcomm from certain practices in the licensing of patented technologies now used in the European standard for third generation cell phones. In the plaintiffs' view, Qualcomm failed to meet prior commitments to license its technologies on terms that were fair, reasonable and non-discriminatory, and apparently required by the standards agreement. Along with two South Korean companies, two plaintiffs – Texas Instruments and Broadcom – also filed similar complaints with the Korean Fair Trade Commission. A related action in the USA was dismissed in summary judgment, but is now pending appeal.

In 1989, Qualcomm publicly introduced the concept that a digital communication technique called code division multiple access (or CDMA) could be commercially successful in wireless communication applications. Along with the market dominant GSM (Global System for Mobile Communications) and TDMA (Time Division Multiple Access), CDMA became one of three voice-only digital wireless technologies that displaced analogue techniques in Europe in a second generation of phone technology. Subsequently, variations of each technology would become competing third generation (3G) wireless standards that would be capable of carrying both data and voice traffic.

Indeed, in May 2000 the International Telecommunications Union (ITU) adopted a 3G standard (IMT-2000), that now encompasses five different technology modes. Three such technologies – CDMA 2000, W-CDMA, and TDD – incorporate CDMA protocols and utilise Qualcomm's intellectual property in core components. These operating modes are separately implementable and are not interchangeable from a technological perspective. The USA and Asia have moved to implement CDMA-2000, while Europe has focused on the W-CDMA alternative. Compared with Europe's dominant standard GSM, CDMA remains a smaller technology in Europe.

As a lead developer of CDMA, Qualcomm now licenses to original equipment manufacturers (OEM) technologies from a menu of 1000 patents; the company now has over 1700 patent applications pending in the USA. For W-CDMA, licensees include leading equipment providers such as Siemens, Nokia, Ericsson, Motorola, Lucent, Samsung,

and LG Electronics. As the standards use technology from different technology owners, licenses for the sharing of technology are established under the governance of the ITU. The licenses regarding W-CDMA specify that licensing terms must be fair, reasonable, and non-discriminatory.

As compensation for patented technology used in integrated circuits, Qualcomm generally receives royalties that are paid as a percentage (e.g., 5%) of the selling price (net of permissible deductions) of the equipment. The company also performs contract R&D for specific projects on behalf of various government agencies and commercial contractors.

In the plaintiffs' eyes, Qualcomm's licensing practices fail to meet the necessary FRAND ('fair, reasonable, and non-discriminatory') criteria for two reasons. First, the company set lower royalty rates to handset customers who buy chipsets exclusively from Qualcomm (which is the largest provider of CDMA chips but a relatively small provider in Europe where CDMA is not dominant). Second, the company fixed the same royalty rate on W-CDMA handsets as it did for CDMA 2000 3G handsets, although it contributed less technology to the former standard.

Selective Discounting

In examining the issue, we face a key distinction between aggressive competition and harm to a particular group of competitors. By any stretch, selective discounting by a market competitor is vigorously competitive. Qualcomm is a small player in the overall European chipset market, which is dominated by manufacturers that produce for the larger GSM standard. Accordingly, if Qualcomm lowers the price of its licensed technology to buyers who agree to purchase its CDMA chipsets, it evidently expands the market share of CDMA in this wider competitive market, to the detriment of larger chipset manufacturers (such as Texas Instruments) that produce for the dominant standard.

An astute analysis of a related matter appeared in a US decision written by Judge Frank Easterbrook in the Seventh Circuit, in the matter of *Schor v. Abbott Labs.*, Case No. 05-3344 (7th Cir. 7/26/06). The facts of the case were as follows. Defendant Abbott Labs owned a patent on Norvir, a protease inhibitor that slows down the progress of the HIV-AIDS virus. Because Norvir can cause serious side effects, it is commonly used in combination with other inhibiting drugs that mitigate these dangers. Abbott now offers one such combination cocktail under the brand name Kaletra, but also makes available Norvir as a stand-alone product for use with other competitive components. In its pricing practices for its pharmaceutical portfolio, Abbott sold the combination Kaletra at a higher price than the stand-alone Norvir, and sold both above their respective average variable cost (AVC).¹

Even though Kaletra was priced higher than Norvir, Plaintiff Gary Schorr contended that Abbott's pricing was anti-competitive; i.e., Norvir was priced too high and Kaletra too low. To Schorr's view, Abbott's intent was to obtain a monopoly for the other competitive inhibiting drugs now sold as part of the Abbott cocktail. Per the plaintiff's reasoning, competitive manufacturers would be driven from the market. At this point, Schorr anticipated that Abbott would increase the price of Kaletra, expectedly to the level of a monopoly.

In Judge Easterbrook's view, Abbott's strategy in and of itself would violate no antitrust laws unless it implicated a definable anti-competitive act that had already led to, or presented a real possibility of, monopolisation in at least one

¹ This eliminates the price-squeeze claim in *United States v. Aluminium Co. of America*, 148 F.2d 416 (2d Cir. 1945), in which the defendant producer sold processed aluminium (a 'combination product') below the price of raw aluminium. It also eliminates the predatory price claim, where a finding of predation generally requires finding prices that fall below average variable cost.

particular market.² This was not the case here. As the exclusive owner of a lawfully acquired patent, Abbott had under US law the right to charge whatever the market will bear, or even refuse to sell or license its patented invention to another.³ That said, were the other components of Kaletra not made available at reduced prices, users such as Mr Schorr would actually have had to pay more to other competitive producers for much the same inhibiting components offered in the Kaletra cocktail.

But Easterbrook also realised a larger theoretical point. As a patent owner with the exclusive right to price its product, Abbott had presumably priced Norvir in a manner that would maximise its profits. Once that price is set, the company could have maintained the same profit level simply by pricing the related components of Kaletra at the market-bearing price of Abbott's competitors, i.e., not discounting the cocktail from its competitive level elsewhere charged in the market. By pricing Kaletra below this level, Abbott actually was reducing its short run profits. In Judge Easterbrook's view, there was no danger of any monopoly being established in the long run as a consequence of this competitive price move.

The upshot of Easterbrook's analysis is this. With the right to price Norvir as it saw fit, Abbott actually set the price of other inhibiting components below the prevailing market level – thus benefiting consumers and harming competitors. A ruling for the plaintiff would have offset these competitive effects.

Funding Research and Development

Plaintiffs also contended that Qualcomm's licensing practices were unfair for a second reason; Qualcomm affixes the same royalty fee on each CDMA phone regardless of whether it is CDMA2000 or W-CDMA. That is, Qualcomm did not then give discounts to W-CDMA users, despite the fact that W-CDMA used fewer components contributed by Qualcomm. Accordingly, this gives the appearance that Qualcomm is charging higher rates for the use of individual components in W-CDMA.

Some financial analysis will shed some light on the practice. Qualcomm earned the following revenues in the past five fiscal years (ending December).

Revenues				
(In millions, except per share data)				
2006	2005	2004	2003	2002
\$ 7,526	\$ 5,673	\$ 4,880	\$ 3,847	\$ 2,915

² These terms appear as Section 2 of the Sherman Act, an antitrust statute passed in 1890 for the purpose of protecting against harm to competition. "Every person who shall monopolise, or attempt to monopolise, or combine or conspire with any other person or persons, to monopolise any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding \$10,000,000 if a corporation, or, if any other person, \$350,000, or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court". 15 U.S.C. § 2, at <http://www.usdoj.gov/atr/foia/divisionmanual/two.htm#a1>.

³ For example, see *CSU et al. v. Xerox Corporation*, US Court of Appeals for the Federal Circuit, (February 17, 2000), at <http://www.ll.georgetown.edu/federal/judicial/fed/opinions/99opinions/99-1323.html>

In the last fiscal year (2006), Qualcomm earned 34.9% of its total revenue (or \$2.63 billion) through the operations of Qualcomm Technology Licensing, which licenses patented technology to some 135 providers that use CDMA. The remainder of the company's revenues were earned by segments of the company that perform manufacturing, services, and strategic investment management operations – QUALCOMM CDMA Technologies (QCT), QUALCOMM Wireless & Internet (QWI), and QUALCOMM Strategic Initiatives (QSI). The overall importance of technology licensing to Qualcomm has increased in the past three years, as QTL revenues accounted for only 27.2% (\$1.33 billion) of total consolidated revenues in fiscal 2004.⁴

Besides the expanding importance of its licensing operations, there is yet another discernible complicating trend in Qualcomm's business. As CDMA has made wider inroads into new markets, the company's revenue base has moved away from its historically strong markets in South Korea, Japan, and the United States where CDMA had its early breakout. Combined revenues from customers in South Korea, Japan and the United States have decreased as a percentage of total revenues, from 82% in fiscal 2004 to 76% in fiscal 2005 and 66% in fiscal 2006. Meanwhile, Europe accounted for a growing share of Qualcomm revenues – from 11% in 2004 to 17% in 2006.

Qualcomm's revenues from sales and licensing cover, among other items, the company's expenditures for research and development, which is performed in various locations throughout the world in order to advance technologies related to CDMA. R&D expenditures are then related to the design of new integrated circuit products and other initiatives designed to support lower cost phones, multimedia applications, high-speed wireless Internet access and multimode, multiband, multinetwork products and technologies. The company's R&D expenditures in fiscal 2006, 2005 and 2004 totalled approximately \$1.5 billion, \$1.0 billion and \$720 million, respectively, and therefore accounted for about 20% of revenues, and 60% of operating income.

Although Qualcomm does perform contract R&D, a large percentage of the company's expenditure is on pooled efforts not intended for any one user. At the time when Qualcomm starts a particular research undertaking, company engineers cannot know exactly what part of an activity will actually be used in subsequent devices and what the final market yield will be. To avoid the danger of undercompensating investments, the company must necessarily determine a way to recover or monetise total investments over the sales of all products to which it contributes.

Much like the historic Bell Laboratories and the major pharmaceutical companies that have funded pooled research of this nature, Qualcomm recovers its considerable costs of research by earning revenues on the smaller group of technologies that it can actually patent and bring to market. Predictably, returns on some technology components would appear to exceed some informal breakdown of costs that would attempt to apportion general R&D to individual final components of the process. But the real economic causality between market winners and starting costs is tenuous.

The fact is, technology winners must cover all R&D costs if the company is to cover also the costs of failures that it cannot reasonably anticipate at the outset. *Accordingly, Qualcomm would evidently fail to recover ongoing costs if it were to reduce license fees ex post for the smaller users of W-CDMA.* Qualcomm's financing situation then is much like a theme park that charges visitors fixed fees for an all-day or all-season pass; the park does not reduce fees for individuals who only ride roller-coasters, Ferris wheels, or carousels. The park's overall revenues would be deficient if the

⁴ QCT revenues comprised 58%, 58% and 64% of total consolidated revenues in fiscal 2006, 2005 and 2004, respectively. QWI revenues comprised 9%, 11% and 12% of total consolidated revenues in fiscal 2006, 2005 and 2004, respectively.

company were to allow individual visitors the right to “creamskim” their favoured rides without compensation for the wider costs of running the enterprise.

Much like the theme park, Qualcomm offers its technology through a ‘one size fits all’ arrangement that makes all technology available for a fee unrelated to components finally in use. There are two key benefits to such a financing arrangement. First, the company does not have to worry about market conditions for individual technologies that may deplete *ex post* the amount of funds available to finance ongoing R&D. Second, users face no incremental cost to adopt any one additional component of the Qualcomm IP portfolio. With no incremental cost to migrate to new technologies, equipment manufacturers have the opportunity to build out CDMA technology in the most rapid fashion.

As a theme park may choose instead to sell tickets for individual rides, it is certainly possible that Qualcomm could offer an alternative licensing deal that might indeed be more favourable to particular users. *But to suggest that they be legally compelled to do so defies economic sense.*

Standards Governance

Efforts by the plaintiffs or other companies to amend or modify the intellectual property policies of standards organisations regarding the proper licensing procedures for component technologies that are now used in industry standard portfolios would be problematic. In this context, some participants have suggested that standards organisations establish maximum aggregate royalty rates for revenues paid by each OEM. Whenever standard technologies include different donors, the affixed ceiling amount can be apportioned to each donor company based upon the size of the patent portfolio that it makes available to the standard.

While apparently fair, such a proposal would actually put different technology donors into a ‘zero sum’ game with one another; one company can gain a larger share of the fixed royalty rate only if another one loses. Whatever apportioning procedures are designed, the suggested rule is also heedless of the underlying costs of developing portfolio of particular technologies.

Conclusion

The issue highlights the crossroads at which European competition law now finds itself. In criticism of European antitrust policies, the Economic Advisory Group for Competition Policy (EAGCP), a group of seven European academic economists, wrote a position paper in 2005 entitled *An Economic Approach to Article 82*. The paper was commissioned by the chief economist of DG Comp but remained independent of the organisation’s review process.

Per the EAGCP study, DG Comp must come to recognise that certain practices, such as discriminatory prices and preferential deals, may have different effects upon consumers and other producers; the overall net benefits that could be expected may also depend upon circumstantial details. When gauging market harm, authorities must not confuse the protection of competitors with the protection of consumers; it is the satisfaction of consumer needs that should be the “ultimate yardstick of competition policy”.

Regulators may then consider the possible beneficial effects of Qualcomm’s tactics. First, the company is now competing with the predominant GSM standard by lowering the price of its chips, admittedly selectively, in a manner

that benefits the buyers of mobile phone handsets. Second, the company is funding research efforts that provide new technologies with a stable revenue source that is appropriate given the nature of applied research in this industry. Market advocates should hope that a balanced and nuanced approach will ultimately prevail in this investigation.