

CRA COMPETITION POLICY DISCUSSION PAPERS 4

Innovation and competition policy: Challenges for the new millennium

April 2002

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Innovation and competition policy: Challenges for the new millennium

Abstract

This paper is a condensation of a report by Charles River Associates for the OFT that addresses innovation and competition policy. The report finds that while questions are sometimes raised about whether there is a need or a role for competition policy in the dynamically competitive new economy, virtually all serious scholars of competition policy believe there is an important role for enforcement in these industries provided it is carried out with flexibility and caution. Flexibility is the key. In the context of dynamically competitive industries it means avoiding per se rules and focusing the analysis on the conduct and its alleged anticompetitive effects. Market definition and the use of concepts such as market power and dominance must be tailored to the competition issue being analysed and in particular the concept of market power must include both pricing power and exclusionary power. This overall approach is called "the first principles approach". The report then goes on to analyse how this analysis can be applied to three areas of enforcement: unilateral conduct by a dominant firm, cooperative behaviour among firms and merger policy.

Introduction

The greatest challenge to competition policy at the beginning of the twenty-first century is the acceleration of technical change and innovation that has created a new competitive dynamism in a range of markets sometimes collectively referred to as the “new economy.” These markets are characterised by rapid innovation, intense competition based more on product development than on prices, with intellectual property as the critical asset for competitive success. This so-called “new economy”, has become almost synonymous with the information technology industries including computer software, hard-

- 1) what is the appropriate role for the competition authorities to play;
- 2) what characteristics of these markets and the competitive processes they engender are important for competition policy;
- 3) can the traditional tools of competition policy be used or adapted to analyse the competitive issues in these markets; and
- 4) how, going forward, should we modify, if at all, the tools and procedures that we use to address competition issues in industries of the new economy.

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

ware, Internet-based businesses and associated technologies such as wireless communications. However it also includes biotechnology, medical devices, pharmaceuticals, aerospace and others. In these dynamic markets, the critical questions are:

To address these questions, the OFT commissioned Charles River Associates to prepare a report, which was published by the OFT in early March 2002.¹ This report is divided into two parts. Part One addresses the conceptual issues; Part Two consists of

ten case studies that represent important illustrations of the competition issues that arise in the context of the new economy. The table below provides a list of the cases analysed.

This paper summarises the basic findings of Part I of the Report, which addresses the conceptual issues.

The basic methodology of competition analysis and the new economy

One of the basic questions that is frequently raised, at least rhetorically, has been whether, in a world of dynamic competition that might be characterised as *Schumpeterian*,² competition policy is necessary or useful or will just get in the way of efficiency enhancing processes of the new economy. One of the interesting findings of the CRA study is that, if one goes beyond the analysis of journalists in the business press and provocative “throw away” lines in speeches designed to suggest that maybe competition policy is the problem – not the solution – in the new economy, there is virtual unanimity that competition policy and enforcement is important in the new economy. The CRA study found no cases where a serious antitrust scholar or practitioner, whether lawyer or economist, argued for abandoning enforcement of competition laws in the new economy. This is true for scholars on both sides of the Atlantic, for those on both sides of the Microsoft case, and for non-members and members of the Chicago School of economic thought, who are typically renowned for advocating minimal intervention in markets. What they all state in one form or another is that it is important to enforce the competition laws, but with caution and with flexibility.

As with most statements of this kind, the devil is in the details. What do caution and flexibility mean in this context? Of the two concepts, the concept of flexibility is the most methodologically significant. A careful reading of the experts suggests that caution is important because there can be serious costs to intervention, and unintended consequences can

often be the result. Therefore, the competition authorities should only intervene in dynamically competitive markets where the potential for anticompetitive harm is large and the potential benefits from intervention are great. This is probably a good principle for competition policy in general. It is even more appropriate for dynamic markets where effects of intervention are likely to be particularly difficult to predict.

When experts call for flexibility in the application of the competition laws and policy they are generally referring to two things. First, they are arguing against the use of *per se* rules against practices such as tying, bundling, price discrimination and so on, without further analysis of the competitive effect of this conduct in each particular context in which it occurs. One of the conclusions that stands out from the CRA study is that whether conduct is anticompetitive or not usually depends upon the exact circumstances of the case. This is true in general, of course, but is true more often in dynamically competitive markets. The second aspect of the call for flexibility relates to the process of competitive analysis itself. In both UK and EU proceedings a structure of analysis has evolved that begins with market definition and proceeds to the determination of market power or dominance, and only then focuses upon the anticompetitive abuse and its consequences. This structural procedure can lead to errors in any case, but is particularly prone to producing errors in dynamically competitive markets.

Most practitioners recognise that the traditional approach to competition policy issues of defining the relevant market, assessing the existence of market power or dominance, and then considering whether a particular behaviour or merger is anticompetitive can be seriously flawed in some circumstances. These circumstances are likely to arise more often in high technology markets than in more standard markets. For example, what is the usefulness of a 5-10% hypothetical monopolist price rise test for market

definition when competition is based on drastic innovations leading to the replacement of the current dominant firm, not on price competition between competitors? For this reason we advocate (generally, but particularly in high technology industries), a “first principles” approach to competition policy.

“The “first principles” approach centres on an examination of the competitive effects of the conduct at issue. This is appropriate because competitive effect is the true core of antitrust. Although market power and market definition have a role in antitrust analysis, their proper roles are parts of and in reference to the primary evaluation of the alleged anticompetitive conduct and its likely market effects. They are not valued for their own sake but rather for the roles they play in an evaluation of market effects.” (Salop, 2000)³

We believe that the “first principles” approach as described by Salop that focuses the analysis of anticompetitive conduct directly upon the alleged conduct itself and on the effects of that conduct is not only appropriate for the analysis of anticompetitive behaviour generally, but that it is particularly well suited to the analysis of alleged anticompetitive conduct in the new economy. It provides the framework and flexibility for appropriately considering competition issues in the new and old economies.

The traditional economic approach to market definition and market power has focused primarily on price. However, one corollary to the first principles approach is that we need to expand our definition of market power to include the power to exclude in addition to power over price. The competitive issues that arise in dynamically competitive industries often involve exclusionary power rather than pricing power. In a competitive environment where competition is primarily innovation driven and based on the introduction of new products and features and only secondarily based on price, it is not surprising that most of the allegations and concerns about anticom-

petitive behaviour relate to actions or agreements that threaten to exclude competitors or to tilt the playing field through the adoption of an anticompetitive strategy. Such behaviour will allow a firm or group of firms to achieve, maintain, expand, or extend a dominant position. Therefore the focus of the analysis has to be on exclusionary behaviour. Note that this is appropriate also for many cases that arise outside the new economy.

Characteristics of the new economy

Different economists categorise the characteristics of the new economy that are relevant for competition policy slightly differently. However there is a generally agreed upon set of characteristics of these new economy industries that are considered to be important for competition policy.

R&D and intellectual property

It is investment in R&D that produces the new technology and ideas that are at the heart of innovation. Intellectual property, therefore, plays a major role in competitive strategy in high technology industries and competition policy needs to recognise this. In particular, competition policy issues to do with patenting and licensing intellectual property become very important in highly innovative industries. This is obviously highly relevant to the European Commission’s consideration of the Technology Transfer Block Exemption.

Network effects

High technology markets are often characterised by significant *demand-side network effects* which lead to a tendency for markets to “tip” to a single dominant vendor or technology.⁴ In markets that tip, competition is *for* the market, not *in* the market, and the market is likely to end up highly concentrated. The incentive is therefore to gain the upper hand and become the predominant player as early possible,

which can be expected to lead to particularly vigorous competition at this early stage. Given this incentive, it is not surprising that firms go so far as to give away products such as software. When all firms, large and small, engage in such tactics with the objective of winning the race to monopoly, it becomes extremely difficult for a competition authority to analyse predatory behaviour using conventional methods.

Closely related to this, when competition with such high stakes is taking place, firms can be expected to use all tactics available to tilt the playing field their way. When the choice is either to win big, or lose out altogether, it will pay to be particularly aggressive. Practices such as tying, exclusive dealing and various other predatory methods may be used if available, and can be more effective than usual if they are able to tip the balance in the market at the critical time. If they can change the competitive situation even temporarily, network effects may make their advantage permanent. Under some conditions these practices can be used by a firm that is dominant in one market to tip the market for a related product in its direction, even if its variant of the product is an inferior one.

The key conclusion from this is that competition authorities need to focus on trying to ensure that an undistorted process of rivalry takes place and in particular is not threatened by existing monopolists trying to deter rivalry. Note that there are likely to be more methods open to monopolists to deter rivalry and reduce competition in high technology markets. For instance, the scope for predation is dramatically increased and the economics of predation can be significantly altered. For example, withholding technical information necessary to a rival may be a very effective, and *costless*, method of predating.

High fixed/sunk costs low marginal costs

Markets with very high sunk costs and low marginal costs are likely to be highly concentrated, to involve a large amount of price discrimination (in order to

try to recover the sunk costs) and to exhibit high margins. Competition authorities are traditionally concerned by all three of these issues. They will need to ensure that they do not mistake the natural consequences of the cost structure of the industries for genuine competition concerns.

Technical complexity, compatibility and standards

High technology markets are often characterised by high levels of technical complexity and the need for complementary products to work together. These characteristics lead to a need for firms to cooperate to ensure that products interoperate. Competition authorities have also, quite properly, traditionally been concerned about cooperative behaviour. However, such cooperation over standards can ensure that there is competition within a market between different providers of products using the same standard, rather than just competition for the market followed by (near) monopoly.

Applications to competition policy

In our report for the OFT, we divide competition issues into three broad categories:

- unilateral conduct by a dominant firm;
- collective behaviour by two or more firms; and
- mergers.

The application of competition policy in each of these areas is discussed below as it pertains to high-technology, dynamically competitive markets.

Unilateral effects

Predation

The nature of predation is often significantly different in high technology markets. The standard price tests based on marginal, variable or avoidable costs are likely to be unhelpful when fixed costs are very large and marginal costs are close to zero. In one sense, such tests are likely to be far too permissive: they would allow pricing in response to a new

entrant that could not possibly be the rational response except for the anti-competitive benefits of exclusion. In another sense such tests are not permissive enough: when competition is for the market, very low penetration pricing may be a perfectly rational and pro-competitive form of competition.

The standard idea behind predation is that the pre-dating firm incurs costs in the short-run (typically losses), which it recoups in the long-run once it has induced exit. However, in the new economy predatory acts may be costless, for example predatory 'vapourware' announcements in software, or even cost-saving $\frac{3}{4}$ for example, refusing to share information necessary for a competitor to compete.

We therefore propose a "non-price test" based definition of predation. Our definition is that predation occurs where a firm either incurs costs or undertakes other actions which may be cost free or cost reducing, that it would not have taken had it not been for the anticompetitive benefits to the firm undertaking these actions.

Tying and bundling

In the context of dynamic industries, issues that need to be considered that can justify tying or bundling include:

- the potential for price discrimination to lead to efficient recovery of fixed costs;
- the need for firms selling complex systems to protect their reputations;
- the ability of bundling to reduce prices and increase sales;
- the potential for cost savings from bundling; and rational product integration.

Against this one has to look for and evaluate the potential for using these practices to foreclose competition. Firms competing in markets involving large fixed (and sunk) costs face significant risk when entering markets, and require reasonable prices and volumes to survive. Commercial practices that reduce the share of the market available for the

entrant to contest, reduce the price the entrant can expect for its products or substantially raise the risk, may have considerable potential to deter entry, and reduce innovative investment in new products.

Clearly tying and bundling are complex issues for competition authorities and serious errors can be made if tying or bundling practices are condemned as anticompetitive without a thorough analysis of why they were used and what their competitive effects were. Tying and bundling should not be condemned as acts that serve no legitimate productive purpose, as for the most part, they have been by the US courts. This is particularly true in high-tech dynamically competitive industries. It is highly significant that the US Court of Appeals in its decision in the recent Microsoft case remanded the tying case against Microsoft back to the lower court to be tried under a rule of reason analysis.

Licensing and mandating access to IP

Intellectual property is the engine of growth in most high technology industries. This means that the licensing of intellectual property tends to be particularly necessary and important in such industries. Accordingly, competition authorities need to have a good intellectual framework for considering whether licenses are anti-competitive or not.

The key question that competition authorities should seek to answer in a licensing case is whether a license harms competition that would otherwise have occurred. This makes it very important that competition authorities consider carefully what the relevant counterfactual situation is. If the counterfactual is that a company would have issued no license, then a license that imposes restrictions on the licensee is still likely to be pro-competitive.

The question of whether to mandate access to IP or not is fundamentally similar to the question of whether to mandate access in standard essential facility-type cases. The question hinges on the trade-off between reducing dynamic incentives by mandat-

ing access but increasing static pricing efficiency (and potentially facilitating innovation by others).

Profitability

Measuring profitability is a poor way of conducting competition policy in standard industries. It is likely to be even worse in high technology industries. The very high *ex ante* risks of failure mean that the returns to “winners” in high technology markets should be very high. We conclude that the risks of *ex post* appropriation of rewards that were not *ex ante* excessive are very high and that competition authorities should in general avoid using profitability measures in high technology industries.

Collective behaviour

The need for competitors to cooperate is not new to the new economy, but it is much more widespread than in the old economy. This is because compatibility issues are likely to be common with highly complex products and the scale of R&D required may be too much for individual firms to consider undertaking.

Cooperative standards setting

Cooperative standard setting tends to move competition from being *for* the market to being *in* the market. This can be necessary to allow a product to be launched in the first place. Examples include the launch of the CD format, which was very risky when launched and was established as a cooperative standard by a coalition of firms. Agreed standards, rather than competing standards, can reduce the potential wastage of “standards competition” and can also make it easier to reap economies of scale in inputs. The two questions that a competition authority needs to ask when analysing collective standard setting are:

- (i) what would the world look like without the standard: no product or competing products?; and
- (ii) is this the least anti-competitive approach to reaping the benefits of the agreed standard?

Cross-licensing and patent pools

Many technology products require access to a number of intellectual property rights, which will often be held by a number of different firms. When diffuse ownership of the intellectual property needed to develop a product occurs, and prevents firms from developing products, this is known as a “blocking patents” problem. Cross-licensing and patent pools are two forms of solution that help resolve the problem of blocking patents. Cross-licensing occurs when firms enter into reciprocal licensing arrangements. Patent pools can be used to remove blocking patent problems, but do so by setting up a separate entity that contains the relevant patents needed to produce a product or category of products.

The key question that a competition authority has to ask in these cases is whether the intellectual property rights that are being cross-licensed or pooled are *substitutes* or *complements*. When they are complements, the arrangement is likely to be pro-competitive. When they are substitutes the arrangement may well be anti-competitive.

Platform joint ventures and cooperative R&D

A substantial amount of innovation is conducted through joint ventures and other collaborative arrangements. Two forms of joint venture particular to high technology markets that a competition authority may encounter are platform joint ventures and cooperative R&D efforts.

Platform joint ventures are a feature of modern e-commerce, and often involve trading exchanges of various types moving onto electronic platforms, such

as automated bank clearing houses, online stock exchanges, and airline reservation systems. The competition concerns surrounding them relate to collusion between competitors via the platform and exclusion of players who are not given access to the platform.

R&D joint ventures can reduce innovation competition between players. However, they are likely to be pro-competitive when the R&D will not take place in the absence of the joint venture. This may be because the risk of the R&D expenditure is too great for a single firm, or because an individual successful firm will find it hard to appropriate fully the rewards to the R&D (in which case the incentive to free-ride on the R&D of others is high).

Mergers

The most important question to ask when assessing a merger in a market characterised by a high degree of product innovation is: what is the nature of competition in this market? Does competition take place *in* the market or *for* the market? Where competition is for the market, the authorities must accept that the equilibrium is likely to have only one player and should therefore not be worried about concentration or dominance *per se*. Instead they should worry about whether a merger in such a market is likely to change the identity of the winner of the race in a way adverse to consumers and whether it is likely to slow down the timing of innovation, or significantly reduce incentives to innovate.

The nature of high tech markets is such that genuine joint dominance concerns should be relatively rare. Many markets will have only one significant player and so almost by definition cannot give rise to joint dominance concerns. Where competition is in the market, not for the market, the cost conditions of these markets may well give rise to relatively few

players, but will also mitigate against tacit collusion due to low barriers to expansion and high product margins.

Vertical mergers may be problematic if they lead to exclusion of rivals at one vertical level. In a market where a complementary product is very important and has only one supplier, perhaps because of critical proprietary intellectual property rights, exclusion may be a real concern.

Finally the merger standard of a substantial lessening of competition provides a more useful focus than that of dominance because often markets will have a dominant firm in any case. For many mergers in the new economy the relevant question is whether a merger will strengthen or weaken competition in the process of determining the dominant firm.

Conclusion

The analysis of competition in high-tech dynamically competitive industries raises some new issues and, perhaps more importantly, illustrates the need to apply the competition laws flexibly. Unfortunately, efforts to create a mechanistic structure of analysis and fixed rules of abuse often do not serve us well in dealing with competition issues in dynamically competitive industries. The analysis of these industries makes clear that there may be other more standard cases as well where rigid procedures may lead to errors. This does not call for abandoning our standard competition analysis paradigms altogether, but rather for applying them flexibly and for accepting the focus of the first principles approach, which is upon the alleged abuse and its effects upon competition and consumers. In such an approach, market definition and the determination of dominance are adapted to the needs of the competitive analysis rather than the competitive analysis being forced into a rigid format that may be inappropriate, given the

competitive issues raised by the alleged abuse. One implication of this approach and much of the analysis in our report is that competition policy in dynamically competitive markets must fully analyse the alleged anticompetitive conduct and its effects. There are few short cuts or rules of thumb that can be counted upon to produce the correct policy response in all or even most cases.

1 “Innovation and Competition Policy”, downloadable from www.ofc.gov.uk/News/Publications.

2 Joseph A Schumpeter was a leader in the Austrian school of economic thought, that tends to view the competi-

tive process as a series of winner-take-all (or at least, most) competitions. This school of thought does not consider monopoly prices as necessarily disadvantaging the consumer. Rather, it views them as providing the return needed to attract the high risk investment required to bring the benefits of innovation to the modern economy.

3 Salop, Steve, The First Principles Approach to Antitrust, Kodak, and Antitrust at the Millennium, *Antitrust Law Journal*, Vol. 68 (no. 1), pp 187-202.

4 Demand-side network effects refer to a situation where the more users that join a network, the more valuable the network becomes to all users. Examples include telecommunications networks, and software products.

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