

The Open Computing Alliance

Removing Barriers to Tomorrow's ICT

Assessing Market Power in the ICT Industry

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Terms of Issue

This paper has been prepared by the Open computing Alliance (OCA) in response to the European Commission's Public Consultation on 'Post-i2010: priorities for a new strategy for European information society (2010-2015)'.

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Assessing Market Power in the ICT Industry

The Department of Justice has recently commenced an enquiry into the assessment of market power under its 1992 anti-trust guidelines. The European Commission has also recently conducted a review of best practice and looked carefully at its processes.

We provide below some practical suggestions on the issues that arise in assessing market power in the ICT industry, and how they can be addressed, below.

1. Basis for analysis of market power: the importance of forward-looking scenarios

The traditional approach to assessing market power in the industrial organisation literature is based on the Structure-Conduct-Performance paradigm (SCP). The SCP approach assumes a stable, causal relationship between the structure of an industry, firm conduct, and market performance as measured by economic profits. Typically the set of observable structural variables are measures of seller concentration and barriers to entry and the line of causality is envisaged to run from structure through conduct to performance or the exercise of market power. The implication is that concentration facilitates the exercise of market power. To analyse the markets, market definition is required and the boundary of the affected market determined. This has traditionally been done using a variety of techniques that concentrate on defining the products and services that are within the boundary of the relevant market. (Such as the identification of features and functionality from the perspective of the end user, the hypothetical monopolist test/SSNIP test ect).

A natural alternative or a complimentary and parallel approach to the market definition approach would be to model the industry and the nature of competition that is affected by an event, in relation to mergers, or abuse in dominance cases, or potential outcomes in relation to cartel or other coordination cases. Economists have recommended that this technique can be used and modelling the industry would mean taking evidence on a rolling basis as input to potential forward-looking scenarios. The approach allows the calibration of such things as the potential for a merged entity to increase the upward pressure on pricing and the model can be used, using pre-merger data, to use the calibrated model to predict post-merger prices. One can envisage in this an approach that makes the firm more of the centrepiece of analysis. Firms differ in the products they sell, their strategy, organisation form and internal efficiencies, capabilities and capacities and their own (evidenced) forward planning and should be given greater weight. It is the drive to be different that drives dynamic competition of the Schumpeterian sort. This firm approach reverses the link between structure and conduct and performance; it is firm specific efficiency advantages that determine how large a firm grows and therefore industry concentration. Thus more efficient companies with superior products grow to be larger than other firms. Looking into such factors and using current evidence and information to project reasonable potential forward looking scenarios would be less mechanistic and provide some degree of consensus over likely market outcomes based on the individual input from market participants.

We understand that modelling and forward projection was used by the US Department of Justice in litigation during 2009, in order to securely demonstrate a likely anti trust issue, in part from a recognition that the traditional approach is insufficiently robust.

2. Industry specific issues and problems in ICT market analysis

a) Economic characteristics of ICT markets

- i) The economic phenomena that are important for high highly relevant for the ICT markets include switching costs, lock-in, economies of scale, network effects, standards, and systems effects. Most of these phenomena are present in conventional industries, are important for technology-intensive industries, but vital in assessing high-technology industries.
- ii) As a very general matter ICT markets have become both more diverse and more complex over time. The increasing customisation and the tailoring of services to help customers adapt new technologies to meet their needs looks set to continue. There is also a marked shift from innovation at the product level in consumer markets to innovation in the provision of services. Examples include innovation in commercial offerings through service packages. The commercial and economic product offering is often a new form of contract that allow consumers increasing varieties of choice over types of hardware and software and choices over financial matters such as billing and length of term of contract. See for example the mobile telecommunications and mobile devices markets. Similar packages are being defined in ICT generally where enterprise deals require individually tailored integrated packages of products and services. The offering may be composed of components that are very different and meet customers needs in different ways, but they are nevertheless substitutes, and this can often be easily be misunderstood when analysing markets using the traditional tools of market analysis.

b) Complimentary products

- i) It is also common in high-technology industries to see products that are ineffective unless they are combined into a system with other products: hardware cannot be used without software, DVD players are useless without DVD content, and operating systems are useless without applications. These are all examples of complementary products whose value depends on their being used together. In the server market, hardware and operating systems do not by themselves add value for the user unless these are used together with application software.
- ii) Traditional market analysis can be confused and confusing when the starting point for analysis is taken to be part of a product package or bundle or one of a number of complimentary products.

c) Commission intervention can itself define markets

- i) Compliments can be supplied as a single integrated offering or as a package or bundle of loosely interrelated products. In defining the individual component that can be unbundled, or combined with other complimentary products, the Commission can itself also affect the structure of markets through its anti-trust decisions (such as the Microsoft and IBM cases) and as such anti-trust cases have shaped the ICT industry over the past 50 years.

- ii) Any government intervention in markets will have economic and other public policy impacts. Anti trust intervention is no different and remedies have consequences not simply for competition but also, for other policies that the Commission is charged with pursuing. In the recent report by the Rand Corporation, for DG Infosoc, “Trends In Connectivity”, this is explicitly recognised: economic and social consequences of alternative types of intervention are modelled. This needs to be more fully recognised when making decisions in abuse of dominance cases and when pursuing interoperability.

d) Dynamic competition and “Technology shifts”

- i) Cloud Computing platforms and services represent a dramatic shift in the proposition to the customer, and a significant change to the structure of the ICT industry. This is an example of a wave of technological change that is sweeping the industrial landscape, where the new services will replace and substitute for the old, but again would not easily fit into the traditional approach to market definition; indeed the SSNIP test would exclude many offerings as not being part of the relevant market.
- ii) Any analysis of the market will be difficult in ICT markets. The history and structure of competition and historic information that is available within firms may be a limited guide to how competition will develop in the future. Dynamic competition means that individual firms will seek to innovate at the different levels of the markets they inhabit at the time of any analysis, with new products and services entirely eclipsing existing products and services. This dynamic competitive process in the ICT markets has been called the “digitisation of machines”. For example, a few years ago there was a thriving market for voice recording machines designed to record telephone messages, and within a short space of time that market has been subsumed by processing and storage technology that can and is embedded in a device or server, and capable of being accessed from anywhere. The machine has been substituted by digital components in a digital network. On a standard approach to market analysis this would not have been contemplated, a forward-looking scenario based approach has a greater chance of understanding these types of market development.

3. Practical suggestions

Recognising the issues that the characteristics of the industry create for market analysis, we propose below a list of practical refinements to the existing approach that are designed to address some of the worst issues that have or could arise from the existing analytical framework in both the EU the United States.

a) Timeframes: the importance of Knowledge Management

- i) The Commission’s current approach needs to find facts and reach decisions in a relevant time-frame for the affected industry. We understand that from a business perspective, when the Commission is seized of an issue time is always of the essence to those affected. More

importantly, from the public interest perspective in ensuring an effective enforcement of competition law, given the very rapid speed of change in ICT markets, decisions need to be taken more swiftly. If not, the Commission may be faced with positions that are impossible to reverse and where the remedy is ineffective. For example, as a result of network effects, dominance can be established very quickly; the low marginal cost and high fixed costs of many players in the ICT industry make this a particular issue for the ICT sector. Likewise, new entry can swiftly take away an established market position.

- ii) Knowing when to act requires a degree of understanding and awareness of the nature of competition and the changes taking place in the market. In financial markets we have seen the consequences of lack of awareness of market developments and the public interest in anticipating the future. Gathering information on a more methodical basis, rather than in response to cases, would allow cases to be disposed of in a more timely way and acting to avoid market failure should be regarded as best practice. This could be an argument for modelling likely market outcomes as a way of analysing the market.
- iii) Even within the traditional approach to market analysis, to deal with ICT matters the Commission needs to adapt its process to ensure that it has the ability to understand complex markets in much shorter time frames. In particular there is a need to train its people to understand the language, culture and nature of competition in ICT markets and that requires it to develop and train its people more fully or recruit more people who have industry knowledge as part of the case teams. The Commission should also have a rolling program of information gathering and analysis so that it approaches case and issues from a position of knowledge. The US Department of Justice has recognised the issue and partly addressed it through the adoption of task forces that allow its people to develop a degree of industry expertise as well as antitrust enforcement. The Commission should consider this approach as a matter of best practise.

b) The starting point for analysis: product characteristics, functionality SSNIP test etc: the definition of customer demand.

- i) The starting point for analysis of market power is an assessment of the relevant market. This requires an authority to identify those current products that are offered to meet customer demand. This is done in merger cases to compare the product offerings of merging firms and assess whether overlap exists between products or product ranges so that any reduction in horizontal competition can be understood. In monopolization or abuse of dominance cases this is done to understand whether a supplier has market power in the relevant market. Similarly in cartel cases the assessment of the relevant market is the starting point for analyzing market power and the effect on the market.
- ii) The issue in ICT markets is that a number of different products, with different physical characteristics, different prices and terms of offer, may substitute for others in fulfilling customer demand. A physical product may also be substituted for by a service offering. Some customers may be using products that are becoming technologically inefficient or obsolete,

and continue to do so without enquiring as to the more modern substitutes. This is a constant feature of the ICT landscape with physical machines being replaced by services provided on microchips or through computing more generally. (See the example of the digitization of machines given above which captures this process).

- iii) The real issue is the real world problem that firms are offering different things to meet customer demands and the issue is with the process that does not attempt to define demand in terms of an objective statement of customers needs. Rather the process takes as a proxy for those needs the current products and services that meet those demands.
- iv) This is an issue that has been addressed in the purchasing of products and services to meet customer needs in government contracting. It is a serious concern for government departments to ensure that they do not over or under-specify their needs and to ensure technological neutrality they have sought to define their needs in terms of an objective description of demand rather than a specification of existing products and services from existing manufacturers. The authorities could, similarly, define demand as an objective output and then consider those offerings that seek to meet those needs.

c) Hypothetical Monopolist test (SSNIP): Can a forward-looking model be developed?

- i) In defining the boundary of the relevant market, there are a number of problems involved in using the hypothetical monopolist by reference to a market with the small but significant increase in price that is taken to exclude substitutes. In many ICT markets the industry is characterised by high fixed costs and low variable costs. In telecommunications the high fixed costs of network build, including trenches, fibre or copper, transmission and switching equipment, taken together with network externalities, mean that the telecommunications firm can offer new products and services through new and tailored offerings, or low incremental cost with the addition of relatively small investments in software or systems. Computing is similarly characterised by high fixed costs on the supply side, in such things as research development, intellectual capital in both property and people, and relatively low incremental costs in the distribution of software.
- ii) Such high fixed costs mean that products have to be considered over their lifecycle. It is often the case that many current products are offered at prices that make a contribution to profits after pricing against an accounting exercise or sales model. These can be riddled with issues such as the allocation of fixed and common costs, the question of whether the current price is at or near the level that would apply in a competitive market, and whether the firms engaging in the competition have the resources to stay the course for the duration of the cycle of competition.
- iii) Each of these factors requires an examination of the resources and capabilities of the firms that are engaging in the competition. Their strategies and business models need to be understood; the authorities need to develop an understanding of capability and speed of supply side

response, and recognize that customer demand can be fulfilled through a broader range of offerings within a broader price boundary. In some respects the custom and practice of the DOJ has recognized that the typical +/-5% price variation given in the guidelines is not taken in practice. The basis for analysis should be more forward looking and more clearly stated in future.

d) The Timeframe for analysis

- i) The timeframe for analysis of the relevant market involves looking at committed and uncommitted entry and, in the case of uncommitted entry a time frame of a year is indicated.
- ii) This is arbitrary. The supply side response in any industry can be identified and in many ICT industries the lifecycles can be more precisely modeled if not specifically predicted. The time frame for analysis should take into account the lifecycles of the market or industry concerned.

e) Switching costs: Technology Lock-in and Behavioural Economics

- i) Technological lock in occurs when a customer is technically incapable of switching from one product to another without incurring significant costs. It may act to have the effect of preventing market developments that might otherwise occur, and be particularly relevant in bundling cases where the “lock-in “ of hardware that only works with certain software, or vice versa, stifles customer choice and industrial innovation.
- ii) While technology lock in is an aspect of switching costs that are taken into account in traditional analysis, perhaps a greater understanding of their significance needs to be weighed given in the light of advances in evidence of human beings propensity to value the known over the unknown and our limited ability to properly assess risk. Loss aversion will no doubt be a factor that increases switching costs. Default bias will, likewise, be a factor that can increase switching costs away from the known and familiar to the unknown and potentially riskier alternatives. Other learning from behavioural economics, such as complexity aversion, being grounded in empirical analysis, should be addressed if the authorities were to assess markets by using up to date information to model forward looking outcomes, and test the evidence against potential scenarios or probable market outcomes.

f) European Convention on Human Rights: ECHR or Judicial review to the European Court

- i) Various commentators have raised points about the European Commission’s process under the ECHR. We believe that the Commission should not spend time on what it has to do as a matter of law; it should spend time on being the best antitrust authority it can be, and should be constantly thinking about how it can improve its capability and processes such that it reaches decisions that are of the highest quality in the eyes of both market participants and the law.
- ii) Whether there is an ECHR argument or not, there should be a reform of procedure. This should not be a "one off" project but something that is under

constant review. This involves an admission only that no process is perfect and recognition that improvement is in the public interest.

- iii) The current system by which imperfect analysis of ICT markets is conducted using analytical techniques that are flawed and clearly both disproportionate and unreasonable, and indicates a clear case for judicial review of administrative discretion. Whether the traditional analysis leads an authority to fail to take into account factors that any reasonable authority should take into account, or takes into account factors that should not be taken into account, are both the basis on which administrative actions and administrative decisions can be challenged, whether through the ECHR or the more usual route of challenging the authorities decision making before the European Court.

g) Testing of Evidence: the benefits to the economy of an administrative process when done well, over a ponderous court process

- i) Within the constraints of the administrative process the Commission should be concerned to test the evidence. This is something that has not occurred sufficiently in the EU as the procedure is in the nature of an administrative exercise. The administrative nature of the process is unlike the process before national courts or indeed the administrative process in the USA, which is more judicial in nature. Because of these differences, the discipline of the national or US systems in terms of rules of evidence and procedure have not had the opportunity to develop in the EU. For example the Daubert line of cases in the USA has led to a series of court cases where economic "evidence" has been severely criticised for not being in the nature either of relevant fact or of expert testimony. This needs to be addressed and some mechanism for the more thorough testing of evidence needs to be introduced into the EU process.
- ii) Possible mechanisms would include a greater separation of roles so that the assertion that the Commission is 'prosecutor judge and jury' can be effectively rebutted. At present the role of the case team is conflicted: the people concerned should have a mandate to investigate and see if they can find evidence of infringement of the rules. That is a discreet activity and would benefit from discreet objectives and a discreet team focused on those objectives. Whether the case team has identified a sufficiently strong case requires the Commission to provide a method by which the evidence it has gathered can be tested before an internal independent adjudicator with the knowledge, background and experience of a senior EU judge. The appointment of the hearing office should be from the ranks of the European Court, or former European Court judges so that justice can be seen to be done.
- iii) The hearing officer could benefit from the common commercial practice of "Red Team Review" where a small team challenges the findings of the first with an interest in ensuring high quality outcomes. An increased level of resource supporting the hearing officer would help him challenge the case team's evidence and the Commission would benefit from better quality decisions.
- iv) The benefit of a knowledgeable and swifter administrative procedure is that it can be more expert if less clearly dispassionate and objective than a court

process. This is something that should be regarded as a potential benefit of the EU system. In particular the administrative process can be quicker, and a well-informed and swift process is likely to have merits and benefits for the wider economy that the slower court process. This should be recognised and contrasted with the more ponderous EU national or US systems.

h) In support of the European Commission pursuing its role as guardian of the Treaty and of the Competition rules

- i) There is also a case to be made on the other side of the argument in favour of the Commission when exercising its power to investigate potential infringements. It is often alleged by monopolists and cartelists that the Commission is over-enthusiastic in its prosecutorial discretion, and that there is a tendency for the case teams to find facts that fit theories. This criticism is unfair and may not be statistically significant. There are many cases the other way where the Commission declines to take cases that it should perhaps take. This is a problem of the inertia that has crept in recently with the Commission being reluctant to do its job, perhaps for lack of information and expertise, concern over lack of capability, sensitivity to criticism and fear of retribution. There have been a string of court cases criticising the Commission, which will no doubt have taken their toll on people's morale.
- ii) Officials in the Commission's position need to be careful but have a duty to take action. It is the case that when dealing with major companies and monopolies they are often dealing with well-funded and knowledgeable adversaries. It is nevertheless in the public interest that the Commission should take cases without fear or favour, make sure that justice both done, and seen to be done, and ensures equality before the law.
- iii) The very few cases that have been brought for abuse of dominance is testament to both a lack of resource and a concern to ensure that only crystal clear breaches are taken as cases. Again, the way in which evidence is obtained is an issue as is the way in which evidence is tested. There is always a lack of quality in any decision where the opinion of the organisation is unitary; where dissent is possible the prevailing view is tested. Moreover in a culture where there is no dissent the truth usually suffers. This is something the Commission should consider and welcome as an improvement to its currently inadequate process and something it could easily change.

i) Competition Decisions in the context of the new Treaty

- i) There has been recent Economist article about the Commission being "27 politicians". The view that the Commission acts as a body of 27 politicians that should have nothing to do with a Competition Decisions is mistaken. The mistake here is to think that the EU competition law is a separate part of the Treaty from the whole of the Treaty; it is part of the Treaty and needs to be considered against the wider EU industrial policy that is developed for the single market or other policies that are developed for particular sectors. This is clearer in the new Treaty than

it was in the old and generally a good thing since it allows competition policy to be set in context.

- ii) It is not perhaps a sufficiently adequate process because competition decisions have to be taken on competition grounds; where there is a conflict between competition policy and other policies there is an inadequate mechanism for resolution of either the articulation of conflicting policies or the resolution of conflicting policies. Much is in practice dealt with in inter-services consultation; but this area requires a fresh look under the new Treaty. (The recent speech by Commissioner Almunia did not fully address the issue of conflict between different policy objectives and what happens in such circumstances needs to be more fully articulated).

j) Access and Interoperability: critical for effective competition in the ICT sector

- i) The current review provides both a timely and a welcome opportunity to make changes, particularly bearing in mind the new EU treaty and the development of the Commission's overall 2020 plan. In particular we note the significance of the Commission's Digital Europe agenda and its focus on interoperability and technology neutrality. This plan, when taken together with the recent legislative changes in the telecommunications space and recent competition cases are significant.
- ii) The policy decisions made, to open up legacy infrastructure and to provide access and interoperability between different layers of the technology stack, whether through the recent telecommunications package, or through the important precedent setting decisions such as the recent Microsoft browser case, are vital for the healthy functioning of competition in the ICT sector as well as in the wider the economy.

We hope that you find this outline of issues useful and look forward to a continued and productive dialogue between the OCA all interested and concerned by these issues in the future. We also attach a slide pack presentation that addresses the issues in this paper for your information.

Open Computing Alliance,
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