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Cloud Computing and Online Search and Advertising Markets: Obstacles to Competition

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Introduction

This paper investigates obstacles to competition in the online advertising and search markets in Australia in the context of developments in cloud computing. It complements an earlier working paper that provides an overview of the industry.[1]

The focus is on the implications for regulation of emerging trends in the online advertising and search markets in Australia. The paper considers

- the application of existing law and regulation to these new markets and technology
- the implications of the new markets and technology for existing regulation.

On the first point, it seems likely that the dynamic nature of the market and the dominance of new players such as Google could have at least led to market practices and behaviours that are in breach of current law and regulation, including the *Trade Practices Act* of Australia.

On the second point, it seems likely that the development of the new markets and technology will imply the need to reconsider the regulation of existing markets and players[2] that are affected by the new form of dynamic competition.

The main conclusion of the paper is that the main obstacles to greater competition in the online search and advertising markets are

- First the under-regulation of the new online search and advertising markets implying weak protection of property rights, which has conferred advantages on its incumbent, Google, and created associated barriers to entry
- Second the over-regulation of the older ICT markets, which handicaps potential competitors to Google in the new markets.

It is important to ensure law and regulation 'get this balance right' as the failure to capture adverse new market practices, while heavily regulating existing market practices and participants, will encumber the incumbents and distort the competitive process, if you will, tipping the playing field.

To focus analysis, this paper proceeds as follows.

a) First, we discuss the broader market dynamics and context, the nature of competition and market dynamics and their broad implications for law.

[1] George R. Barker 2010 'Cloud computing, online search and advertising: Market Overview' 2010 Working Paper No. 1 Centre for Law and Economics Australian National University.

[2] For example, IBM, Microsoft.

b) Second, we focus more narrowly on the application of traditional existing areas of law to the currently unregulated behaviours of new market players in this new market context, including
   a. property law
   b. tort law
   c. contract law
   d. competition law.

The General Role of Law in Innovation and Competitive Markets

The focus of the paper is on competition issues surrounding online advertising and search in Australia in light of recent developments in cloud computing.[3] This invites one to consider the fundamental nature of competition and the current market context surrounding online advertising and search in Australia. The relevant market context is the online marketplace, or so-called digital economy—a by-product of the Internet. In this regard, the foremost observation is that this is a very new or nascent and rapidly developing market, which stands to be further transformed by the growth of cloud computing.

The Internet is clearly a new and evolving market, the product of several major and ongoing technological innovations. The received economic view of the nature of competition in technology markets is one described by Schumpeter as a 'process of creative destruction'. Four types of innovation can drive dynamic competition and the 'process of creative destruction': product innovation, process innovation, marketing innovation and organisational innovation—as follows.

- Product innovation: A good or service that is new or significantly improved can simply destroy the market for an older product. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics.

- Process innovation: A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.

- Marketing innovation: A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

- Organisational innovation: A new organisational method in business practices, workplace organisation or external relations.

One can illustrate the process of creative destruction arising from product innovations in the context of the current digital revolution by considering how music downloads purchased in the online marketplace are leading to the concomitant closure worldwide of music retail stores, and how the

[3] Aseparate working paper provides an overview of the nature of the online search and advertising and cloud computing markets: see Dr George R. Barker 2010 'Cloud computing, online search and advertising: Market Overview' 2010 Working Paper No. 1 Centre for Law and Economics, Australian National University..

development of MP3 players such as the iPod have simply replaced portable cassette and CD players such as the Sony Walkman as the market standard for portable music devices.

While the foregoing broad innovation sub-categories are useful descriptive classifications, the economically important common element of each of these forms of innovation over which policy can have a direct effect is the rule of law—or the enforcement of property rights and other rights including contract rights—which in turn underlies competitive markets and long-lasting networked relationships. The failure to focus on this underlying policy mechanism (that is, rule of law and property rights enforcement) in turn stems from the failure to identify the underlying economic characteristics of the innovations identified above. These are

- that all forms of innovation are non-rival, in the sense that one person's use of an innovation does not preclude another
- that innovation—whether product, process, marketing or organisational—is easy to imitate, or easy to learn and appropriate, and difficult and costly to protect or exclude others from.

This creates the problem of free riding. The free rider lets others incur the risks and costs of invention and discovery and simply imitates and appropriates the successful practices of the innovator. Free riders can then undercut market prices and thereby reduce returns to investment in innovation and create a fundamental obstacle to market entry and greater competition. Unless efficiency-enhancing legal rules are enforced in new markets, there will be suboptimal levels of innovation. As Keith Maskus, Sean Dougherty and Andrew Mertha note:

> [Innovative] investments can be quite costly and will be undertaken only when risk of their loss to unfair competition [is minimised]…Rather, the economy stagnates in a mode favouring copying and counterfeiting.[4]

As Debora Spar, the President of Barnard College, University of Columbia, further notes, the history of technology and economic development reveals a three-phase cycle involving: i) a phase marked by technological disruption; ii) a transitory phase marked by the lack of clear rules and enforcement as society wrestles with the implications of the technology; and iii) a final phase in which well-defined property rights re-emerge to establish clear market rules (a disruption-anarchy-property cycle).

While the expansion of the technological frontier briefly creates a stage of 'creative anarchy', Spar's key economic insight was that this stage—at least in Western economies—was soon replaced by clear rules that allowed entrepreneurs to flourish.[5] Thus, when viewed in the broad frame of technological and economic history, the Internet could well be in the early phase of a familiar cycle (of disruption-

[4] Keith Maskus et al. 'Intellectual Property Rights and Economic Development in China', in *Intellectual Property and Development: Lessons from Recent Economic Research*, 2005, at p. 299.

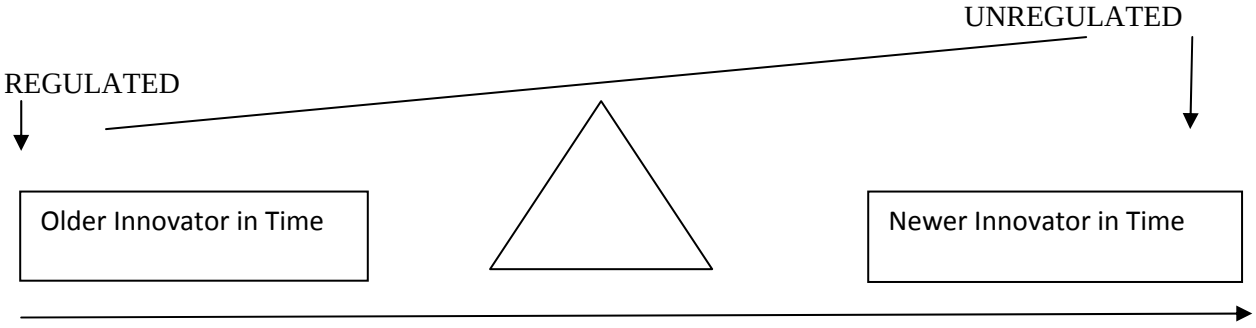
[5] Deborah Spar *Ruling the Waves: From the Compass to the Internet, a History of Business and Politics along the Technological Frontier*, 2001, p. 14.

anarchy-property) that has happened many times before. For Spar, the lesson for policy makers was to ensure that the initial period of creative anarchy was expeditiously replaced with a clearly defined and well-functioning set of property rights:

> [Entrepreneurs] must have property rights…and some means of enforcing them. Without property rights, rival claims over the new market can rapidly disintegrate into chaos, stunting commercial development as it did in the early days of the telegraph and broadcast radio…The establishment of property rights is one of the most crucial events along the technological frontier. It allows the market to unfold in a predictable way, and gives pioneers a hefty dose of ownership and security. Most important, perhaps, the creation of property rights also marks the difference between pioneers and pirates, between those whose claim on new technology is legitimate and those whose is not.[6]

Although ultimately providing the foundation for innovation, given law and regulation is costly for innovators to comply with and inevitably lags the development of new technology, one encounters the problem of maintaining what can be called 'regulatory balance'. As a new technology sweeps through the marketplace, the behaviour of early entrants will initially tend to be fairly unregulated. The first entrants, however, are then likely to become the first regulated. Moreover, once in the regulatory process, the extent of their regulation and their regulatory burden is likely to increase over time. This can put the older innovators or 'incumbents' (once were 'new entrants') at a gradual disadvantage compared with the newer entrants and innovators, to the extent that new innovators are utilising less-regulated innovations, and are therefore carrying less regulatory burden or costs. This can create a 'regulatory imbalance'—as represented in the diagram below—which increases with the passage of time.

'REGULATORY IMBALANCE'



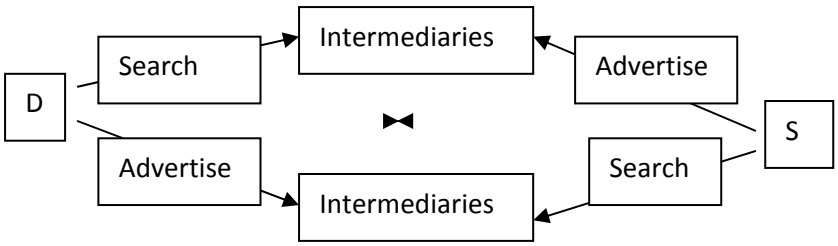
The inevitable existence of a regulatory imbalance has particular implications for competition policy. As new innovations occur and competition increases, regulatory policy needs to examine not only the need for regulation of new entrants—perhaps consistent with the treatment of incumbents—but also, and perhaps more often as an alternative, reduced regulation of 'incumbents'. This is true to the extent that unintentionally illegal or 'abusive' conduct could be more likely in the early phase of innovation markets given the lack of familiarity and experience of the new firms, consumers and regulators with

[6] Spar, *supra*, pp. 371, 374.

the technology and the legal limits of its use, together with the lack of competition providing weaker incentives. For this reason, the need for regulation of incumbents could decline to the extent that competitive pressures increase through the mid to later period of an innovation cycle, in order to maintain or restore regulatory balance. Otherwise the regulatory system may only serve to favour less efficient new entrants.

The Rule of Law and Intermediary Market Makers' Liability

The diagram below shows the simplified market relationships for online search and advertising services.[7] On the left-hand side, one has the demand for particular goods and services (for example, houses or cars). On the right-hand side, one has the supply of the goods and services. As indicated, both buyers (on the left) and sellers (on the right) have the choice to search for relevant opportunities or advertise their interest to the market. In this they may then engage intermediaries, as indicated in the middle panel of the diagram.



Very often the intermediaries in the new digital marketplace have sought to disown liability for harmful activities arising in the new market. For example, Napster and Kazaa alleged that they were not responsible for copying of copyright material. Similarly, ISPs have proposed that they are not liable for the harm created by users of the Internet. Google similarly has sought immunity from liability from normal legal rules.

It has thus been proposed in a number of contexts that blanket statutory exemptions be provided. The historical experience with such blanket exemptions is that they fail to allocate incentives for care efficiently. Thus, the common law itself has moved from a blanket exemption from liability for highway owners to a duty of care to users. The principle on which the duty of care may be established depends on the area of law. For example

- property law
- tort law
- contract law.

[7] For the derivation of this analysis, see Dr George R. Barker 2010 'Cloud computing, online search and advertising: Market Overview' 2010 Working Paper No. 1 Centre for Law and Economics, Australian National University.

In what follows, we shall discuss the legal rules in each area of law and how their breach could be creating obstacles to competition in online search and advertising markets.

The Role of Property Law

It has been well recognised that the competitive process relies on well-enforced property rights to ensure its efficient operation. Thus, in one of the earliest competition law cases in the common law it was commented that

> I can see no limit to competition, except that you shall not invade the rights of others. (*Per Lord Morris Mogul Steamship Co v Mcgregor Gow & Co* (1892) AC 49 at p. 50)

Property law offers protection from harm in relation to a set of well-defined interests. The class or category of interests protected by property law is said to be closed. Property rights define relations between people with respect to objects and actions or decisions that can cause harm. Where harm is created, someone has to bear it. To the extent that there are no property rules efficiently allocating harm, markets will not work as well. The economic role of property rights is to protect and thereby encourage investments in valuable assets and facilitate their exchange.

In this regard, exclusive property rights in information are the foundation of the knowledge economy. Generally, these rights in information are called intellectual property rights (IPR). IPR include patents that protect new inventions, copyright that protects creative works and trademarks that protect business goodwill. In the absence of the ability to exclude others from appropriating the information or knowledge one possesses or creates through IPR, there will be greatly weakened incentives to both invest in information and exchange or transfer it. Mark Blaug has commented that

> it was the rise of property rights economics in the 1970s, and especially the 1980s, that finally tied together the old labels of patents, copyrights and trademarks in one label of IPR…The economic rationale for patents, copyrights and trademarks was itself transformed by the property right approach, stemming from Coase's objection to Pigovian welfare economics and the emergence of law and economics as a distinct disciplinary subject.

In what follows, we shall consider the role of two major traditional relevant forms of property law in the online economy—copyright and trademarks—and how the online search and advertising market, and Google in particular, could be impacted on by these traditional areas of law.

Finally, we consider the landscape more generally and explore the proposition that the fundamental premise that should underlie the Internet is that information is property—both commercial and personal information. In this regard, the Internet poses a serious threat to this form of property and begs the question who should own what rights, and how should they be enforced? The challenge, it is suggested, will be to ensure an efficient enforcement of information rights both commercial and personal.

Copyright Law

One reason for people to use Internet search services is to access information per se. Very often this will require them to copy data—for example, from websites. Copyright law allocates the right to copy a work to authors and publishers. This then safeguards and thereby encourages their investment in creative works to the benefit of all. It does not, however, prevent agreements between parties to allow the use of copyrighted works. It merely prevents use of copyright other than by agreement with the right holder. A copyright is a form of personal property.

Digital Piracy: Google's alleged offending behaviour

As we have seen, Google[8] owns the largest Internet search engine, which links to more than eight billion commercial and non-commercial Internet sites. Its search engine is free of charge to Internet users and is supported by commercial entities' purchase of advertising space on their site.

In the autumn of 2005, the Authors Guild, which then had about 8,000 members, and five publishers sued Google for copyright infringement in the case known as *Authors Guild v. Google* in the US District Court for the Southern District Court of New York.

The background was that Google contracted with several public and university libraries to create digital archives of the libraries' collections of books. As part of the consideration for creating digital copies of these collections, the agreement entitled Google to reproduce and retain for its own commercial use a digital copy of the libraries' archives. Thus, Google scanned the texts of more than seven million books from major university research libraries for its Book Search initiative and processed the digitised copies to index their contents.

Google also reproduced the works for use on its website in order to attract visitors to its website and generate advertising revenue thereby. Thus, when Google copied works under copyright without the permission of the owners of the rights it breached their copyright. The Authors Guild alleged in its statement of claim that:

> By reproducing for itself a copy of those works that are not in the public domain ('the works') Google is engaging in massive copyright infringement.

The Authors Guild statement of claim noted Google posted revenues in excess of $3 billion in 2004, and revenues of more than $2.6 billion in the first two quarters of 2006. Generally, advertising revenue makes up approximately 98 per cent of Google's revenue.

In relation to books in the public domain, the action Google has taken does not breach copyright. Thus, Google allows users to download the entirety of the digitised books if they are in the public domain (about one million of them are). It alleges, however, that at this point it makes available only 'snippets' of relevant texts when the books are still in copyright unless the copyright owner has agreed to allow more to be displayed. Thus, Google might have obtained permission of the publisher for in-print books. Where, however, they have not obtained permission, they may still not have

[8] Google is a Delaware Corporation with its principal place of business located in Mountainview, California.

breached copyright if they copied and published only the jacket cover and an overview of the book based on marketing material released by the publisher, which are both arguable in the public domain for purposes of marketing. If, however, they have published 'snippets' or excerpts from the book without permission of the copyright holder then they are in breach of copyright.

Remedies for Digital Piracy and Market Bypass

If Google has copied books without the copyright holders' permission then that is in effect theft of property. Theft of copyright greatly undermines incentives to invest in publishing creative material and reduces incentives for creative activity. It further undermines the copyright holders' ability and incentive to engage in exchange and distribution activities relating to the work for reward. Copyright holders adversely affected by Google's action are therefore entitled to seek injunctions to prevent the use of their property rights. The injunction would compel Google to remove the books from its website. This forces Google back to the negotiating table and provides the basis for a competitive market for the rights to emerge. It thus prevents market bypass and reduces obstacles to the development of a competitive market.

As well as the primary property right remedy—namely, injunctive relief—copyright holders adversely affected by Google's action are also entitled to damages and declaratory relief. The damages would compensate the copyright holder for the breach of copyright. The declaratory relief would serve to clarify the legal issues in the case.

The Class Action

In the suit, the Authors Guild and three of its members claimed to represent a class of similarly situated authors whose books Google was scanning and whose copyrights Google was violating.

US law allows the filing of 'class action' lawsuits whose named plaintiffs claim they represent a class of persons who have suffered the same kind of harm from the defendant's wrongful conduct as long as there are common issues of fact and law that make it desirable to adjudicate the claims in one lawsuit instead of many.

By this action, the plaintiffs in *Authors Guild v. Google* seek damages, injunctive and declaratory relief with respect to Google's present infringement—and declaratory injunctive relief in relation to Google's unauthorised commercial use of 'the works'—on behalf of themselves and everyone else affected.

The Settlement Agreement

Google has negotiated a settlement agreement with the Authors Guild and the Association of American Publishers (AAP) that would, if approved, be settled as a class action on behalf of all book authors and publishers, with the guild and AAP claiming to represent their entire respective classes. Parties affected by the settlement agreement who wish not to lose their property rights by means of it were required to opt out by a date that has now passed.

By now, you could be a bit puzzled. Why should Google be able to secure a licence to make millions of in-copyright books available through Book Search just by settling a lawsuit brought by a small

fraction of authors and publishers? Why do objectors have to opt out of the settlement agreement in order to be exempted? Why don't they have to opt in to be bound?

The Monopoly Risk

By acceding to the certification of these classes through this settlement, Google will get a licence from all authors and publishers of books covered by the agreement (which is to say nearly every in-copyright book ever published in the United States) so that it can commercialise them through Book Search. This entails allowing Google to obtain a compulsory licence at a price set by a court, and considerably lowers the costs of acquiring the rights from copyright holders. This legal privilege amounts to a subsidy to Google.

New entrants thus seem likely to face higher costs of entry to the online library services market than Google. Virtually the only way that Amazon.com, Microsoft, Yahoo! or the Open Book Alliance could get a licence as comparably broad as the settlement would give Google would be by deliberately starting their own project to scan books. Now that there is greater awareness of the illegality of such actions, however, it seems unlikely that the new entrant would be able to replicate Google's actions as easily as Google found it. If permission were to be obtained from a library, the scanner might then be sued for copyright infringement. It is then unlikely the plaintiffs in such a lawsuit would be willing or able to settle on equivalent or even similar terms. It would further be very costly and very risky to litigate a fair use claim to final judgment given how high copyright damages can be (up to $150,000 per infringed work).

Meanwhile, Google would enjoy considerable first mover advantage and network effects from widespread use of its library.

Opt In or Opt Out?: Transaction costs and the law

Many objectors to the proposed settlement have emerged.

The NZ Society of Authors voiced concerns about the agreement and several NZ authors lodged to formally opt out of the agreement. As a result, New Zealand was not included in the modified agreement.

In Canada, an online petition by authors Sarah Sheard and David Bolt contends too many affected writers do not know or understand the details of the settlement. Bolt has commented that:

> Many writers have no idea what it's all about. They're not opting in or out. They will be orphans in the settlement and Google will be entitled to display their stuff forever and own their U.S. copyright. (*Montreal Gazette*, 9 January 2010)

The French President, Nicholas Sarkozy, speaking about the settlement, has been quoted as saying, 'We won't let ourselves be stripped of our heritage for the benefit of a big company, no matter how friendly, big or American it is.' 'We are not going to be stripped of what generations and generations have produced in the French language,' he added, 'just because we weren't capable of funding our own digitisation project' (*National Post*, 8 December 2009).

Google and this court case are clearly imposing costs on copyright holders. Why is it that objectors have to opt out of the settlement agreement in order to be exempted? Why don't they have to opt in to be bound?

It is a principle of contract law that only the parties to a contract or agreement can be bound by it. It is called the requirement of privity of contract. From an economic point of view, this is designed to ensure efficient outcomes, in the sense that no-one is made worse off by the agreement. If you have not participated in the agreement or signed an agreement, yet it will bind you, there is no guarantee you are not adversely affected by it.

The Court is currently considering the settlement and as a result may extend the settlement agreement to authors or publishers who did not opt out by 28 January 2010. If it does apply the settlement to all relevant people in the class then it runs the risk of imposing costs on parties who did not object in time—or who opted out. This raises the question, why do that? In what circumstances would it be efficient in principle?

Ronald Coase developed a theorem for which he won the Nobel Prize, which is called the Coase Theorem. This made the point that *if transaction costs are zero* and as long as property rights are clearly allocated and tradable then it does not matter who the rights are allocated to—they will be acquired by the party that values them most through voluntary exchange. Thus, the allocation of rights will not matter for efficiency. The importance of this theorem, however, is that it highlights that when transaction costs are *not* zero, the allocation of rights will matter. Now, in most circumstances, transaction costs are not zero.

This insight of Coase's is helpful to considering the case here and the opt-out rule imposing costs on objectors to Google's breach of copyright. In a zero transaction costs world, it would not matter if there was an opt-out or an opt-in rule. Under opt in, only those who did not benefit from the agreement would not opt in—and only those benefiting from the agreement would opt in. Under the opt-out rule, those who did not benefit would opt out—and only those benefitting from the agreement would not opt out. The outcome then would be the same.

The problem is when transactions are not zero. Given positive transaction costs then whether people opt in or opt out will depend on the value they attach to the agreement. It is the net value of the agreement or the value of the agreement net of transaction costs that will drive opting in or out behaviours. To explain this point further, we shall assume transaction costs are positive, and the transaction costs of opting in and opting out are the same for any and all individuals (that is, TCo = TCi = T). The key question for any individual, then, is whether the value of the agreement (Va) is worth more or less than the transaction costs (T) of entering or exiting the agreement—that is whether

$Va > T$ or

$Va < T$.

Where

Va = Value of the Agreement = welfare under the agreement less welfare outside the agreement

T = Transaction Costs = costs of entering or exiting the agreement.

A further complication is that cost and value could be uncertain. In what follows, we shall assume certainty.

The objective should be to minimise the sum of costs including the costs of transactions incurred and the value of transactions forgone. It then turns out the socially optimal rule depends on the distribution of the population. For example, the opt-out rule makes sense when most people, if not everyone, value the agreement highly positively. In this case, the cost of opting in is avoided with an opt-out rule. The opt-in rule makes sense when everyone, or by far the great mass of people, values the agreement highly negatively—for whom the cost of opting out is avoided with an opt-in rule.

Thus, one can map the population according to the value they receive from the agreement on a number line, as shown in the figure below, from negative on the left to positive on the right. As shown in the table underneath the number line, in the column on the extreme left we have people who attach a highly negative value to the agreement while on the extreme right are those who attach a highly positive value to the agreement. Those with mildly negative and positive preferences are in the columns in between.

VALUE OF THE AGREEMENT (Va)

-ve -T 0 +T +ve

A) Highly negative	B) Mildly negative	C) Mildly positive	D) Highly positive
-Va < -T < 0	-T < -Va < 0	0 < Va < T	0 < T < Va
Always out	In when 'Opt out' Out when 'Opt in'	In when 'Opt out' Out when 'Opt In'	Always in

The dividing line between group A and group B on the left-hand side of the table is the value of transaction costs (-T) that would have to be incurred to opt out. Thus, those with negative preferences on the left-hand side of the table divide into the following.

- Those in group A for whom the cost of the agreement (-Va) is assumed to be greater than the cost of opting out (-T). Given -Va < -T < 0 this group would incur the cost of opting out (-T) to avoid a greater loss (-Va). The transaction costs, T, are worth incurring under an opt-out rule (that is, -Va < -T < 0). They are therefore always out of the agreement under whatever opting rule applies—as shown in the last row. This group would therefore be better off under the opt-in rule as they avoid the costs of opting out with an opt-in rule.

- Those in group B for whom the loss they suffer from being part of the agreement is less than -T (that is, -T < Va < 0). Group B's status (in or out) thus depends on the opting rule. As shown in the last row, they are in when it is an 'Opt-out' rule and out when it is an 'Opt-in' rule. Under an opt-out rule, it is *not* worth their while incurring the transaction costs, -T, of opting out, so they stay in; whereas under an opt-in rule, they avoid the cost of opting in and stay out. This group would therefore be better off

under the opt-in rule as they are better off out and would not have to incur the transaction costs of opting out under the opt-in rule.

Group A would thus be willing to pay up to T to have an opt-in rule, while group B would pay up to the negative value they endure under the agreement to have an opt-in rule. Thus, the amount these two groups would pay in total for the opt-in rule would be

Equation 1 $\sum T_A - \sum v(a)_B$

Where

T_A = the transaction costs that would be incurred by group A to opt out under an opt-out rule

$V(a)_B$ = the negative value from the agreement endured by group B under an opt-out rule.

The dividing line on the right of the table, between group C and group D, is the value of transaction costs (+T) they would have to incur to opt in. This means those with positive preferences on the right-hand side will divide into

- those in group D for whom the transaction costs, T, are worth incurring under an opt-in rule (that is, $0 < T < Va$); for this group, the value they attach to the agreement is greater than the cost of opting in/out (that is, $Va > TC > 0$)
- those in group C for whom it is *not* worth incurring the transaction costs, T, under an opt-in rule (that is, those for whom $0 < Va < T$). This group's status (in or out) thus depends on the opting rule. Under an opt-in rule, as noted, the group does not incur the cost of opting in and so stays out and incurs some cost as a result in forgone Va. Under an opt-out rule, they avoid the cost of opting in and stay in, enjoying the benefit, Va. So this group would be better off with the opt-out rule as they are better off in, and would not have to incur the transaction costs of opting in under the opt-out rule.

Group D would be willing to pay up to T to have an opt-out rule, while group C would be willing to pay the positive value they gain under the agreement to have an opt-out rule. Thus, the amount these two groups would pay in total for the opt-out rule would be

Equation 2 $\sum T_D + \sum v(a)_C$

Where

T_D = the transaction costs that would be incurred by group D to opt in under an opt-in rule

$V(a)_C$ = the positive value from the agreement that would be forgone under the opt-in rule.

The opt-out rule will thus be efficient only when the value associated with the opt-out rule (identified in Equation 2) exceeds the value attached to the opt-in rule (identified in Equation 1). Thus, the opt-

out rule adopted in the Google case makes sense only when the condition indicated in Equation 3 holds.

Equation 3 $\sum T_{D+} \sum v(a)_C > \sum T_{A-} \sum v(a)_B$

According to Equation 3, then, the socially optimal rule depends on the distribution of the population. For example, when a considerable number of copyright holders value the agreement negatively, it might not make sense to impose an opt-out rule.

The opt-out approach clearly involves an attenuation of property rights, and imposes costs on those who value the agreement negatively and who would avoid the costs of the agreement under a property rule or 'opt-in' rule. It also assumes a world of relative certainty in which the Court can judge the transaction costs and values attaching to the agreement and make a socially optimal decision in accordance with Equation 3.

At least the costs imposed on those who are harmed by the agreement and the opt-out rule are capped by the value of the transaction costs of opting out. Moreover, at least those who may be forced to transfer their rights are compensated to some extent by the agreement. In comparison, the fair-use rule enables the rights of a copyright holder to be transferred to Google effectively without compensation.

Fair-Use Rule

Google's main defence would be one of fair use. Many copyright professionals expected the *Authors Guild v Google* case to be the most important fair-use case of the twenty-first century.

Transaction cost analysis applies to the fair-use rule as well. The argument essentially is that a fair use may be efficient for certain breaches of copyright which may impose only a small loss on copyright holders, which are outweighed by the gains to the perpetrators of the breach. The gains to the party in breach, however, are so small or speculative as not to justify the transaction costs of negotiating permission. Thus, a fair-use exemption could be efficient if the uncompensated small costs it imposes on copyright holders (c) are offset by benefits to 'fair users' (b), which are nevertheless less than the transaction costs of negotiating agreement (T). An efficient fair-use rule can thus be expressed as requiring that $c < b < T$.

Trademark Law

Registered trademarks are defined to be personal property in common law. Whether one is dealing with electronics, perfume or pharmaceuticals, brand reliability is the critical element in informing consumers and is the determining factor in consumer confidence in any form of innovation. The protection of a firm's 'brand' or 'trademark' is thus critical to its success. Innovation is without effect unless brand reliability can be properly signalled to consumers. The exclusive right to use a trademark helps support massive investments in advertising new innovations. Otherwise, by advertising an innovation one could become exposed to free riding by imitators who wait for first movers to bring the innovation to consumers' attention. The Apple brand spent hundreds of millions of dollars in advertising to market the iPod, and did the same for all its subsequent products. According to French Customs, the iPhone has now passed luxury goods and pharmaceuticals as the number one source of

counterfeiting in France. Apple is trying to protect itself from this phenomenon by building an exclusive business network representing billions of dollars in investments.

The application of trademark law to the online search and advertising market and the activities of Google has become the subject of recent court cases and legal developments.

Breach of Trademark: Google's alleged behaviour

On 23 March 2010, the European Court of Justice (ECJ) issued its preliminary ruling in relation to the Google AdWords system. Under the EU system, an EC trademark may be enforced for the whole European Union in a single proceeding. This ruling was highly awaited in Europe, where several cases between trademarks owners and Internet referencing service providers, and in particular Google, are pending before national jurisdictions.

The two main questions asked of the Court were essentially

1. competitors' liability—whether trademark holders could act against competitors to prevent them from buying protected brand keywords: the Google AdWords system

2. Google's liability—whether trademark holders could act against Google for the breach of their trademarks on AdWords.

We discuss each of these points in turn.

The relevant legal background is contained in Appendix 1 of this paper, including the relevant cases referred to the ECJ from the French Cour de Cassation, and the relevant Council Directives and regulations relating to the decision.

Competitors' Liability

On competitors' liability, the question referred to the ECJ was whether relevant European laws[9] were to be interpreted as meaning

> that the proprietor of a trade mark was entitled to prohibit a third party from displaying, or arranging for the display of, on the basis of a keyword identical with, or similar to, that trade mark which that third party had, without the consent of that proprietor, selected or stored in connection with an internet referencing service, an ad for goods or services identical with, or similar to, those for which that mark was registered.

The ECJ held that the relevant European laws had to be interpreted as meaning that the proprietor of a trademark was entitled to prohibit an advertiser from such

> in the case where that ad did not enable an average internet user, or enabled that user only with difficulty, to ascertain whether the goods or services referred to therein originated

[9] Articles 5(1)(a) and (b) of First Council Directive (EEC) 89/104 (to approximate the laws of the member states relating to trademarks) and Articles 9(1)(a) and (b) of Council Regulation (EC) 40/94 (on the community trademark), for which see Appendix 1.

> from the proprietor of the trade mark or an undertaking economically connected to it or, on the contrary, originated from a third party.

This clearly protects trademark owners' investment in their brand. In the meantime, prior to the decision clarifying the law, of course, Google has benefited from the ad revenue paid to it by those breaching trademarks in using AdWords. New entrants to the market will not have benefited from the 'grey time'.

The enforcement of this ruling going forward will reduce scope for free riders who pass themselves off as a competitor in order to appropriate some of the benefits from their competitors' investments in their reputation and brand. The reputation of a competitor for quality or reliability creates a premium associated with their trademark, which free riders can benefit from to the extent that they can pass themselves off as their competitors. Reducing the scope for such free riding will reduce the revenues received by Internet referencing service providers going forward, limiting the capacity for new entrants to establish themselves compared with Google.

From an economic perspective, any policy that lowers the costs of exclusion (that is, enhances the enforcement of property rights such as trademarks) will enhance incentives for the development and dissemination of creative goods and, as a result, will promote competitive markets, economic efficiency and economic growth.[10] *The law thus needs to be structured wherever possible to facilitate low-cost means of enforcing copyright.* One commentator who has highlighted this elementary economic insight is Chief Justice Easterbrook of the US Court of Appeals for the Seventh Circuit, and a leading law and economics scholar, who has emphasised:

> Intellectual property is no less the fruit of one's labour than is physical property. True, you need government to enforce your property rights by preventing strangers from using your ideas [or creative expressions] to make their own products, but you ordinarily need the government to enforce your rights in physical property against predators.[11]

Google's Liability

On Google's liability, the question referred to the ECJ was whether an Internet referencing service provider that stored, as a keyword, a sign corresponding with a reputable trademark and organised the

[10] See, for example, The World Bank's 2002 *World Development Report: Building Institutions for Markets*, at p. 8: 'Knowing one's rights to assets and income and being able to protect those rights are critical for market development…By affecting the incentives to invest—for example, through strengthening property rights—they can affect investment levels and adoption of new technology.'

[11] Frank Easterbrook 'Intellectual Property is Still Property' 13 *Harvard Journal of Law & Public Policy* 108 (1990) at pp. 112–13. Also see William Landes and Richard Posner: '[Property rights] enable people to reap where they have sown. Without that prospect, the incentive to sow is diminished. To take an example from intellectual property, a firm is less likely to expend resources on developing a new product if competing firms that have not borne the expense of development can duplicate the product and produce it at the same marginal cost as the innovator; competition will drive price down to marginal cost and the sunk costs of invention will not be recouped.' William Landes and Richard Posner *The Economic Structure of Intellectual Property Law*, 2003, p. 13.

display of ads on the basis of that keyword used that sign in a way that the proprietor of that mark was entitled to prohibit under relevant European laws.[12]

The Court held that the proprietor of a trademark was not entitled to prohibit an Internet referencing service provider that stored, as a keyword, a sign identical with a reputable trademark and arranged the display of ads on the basis of that keyword as in so doing the Internet referencing service provider would not use that sign within the meaning of relevant European law.[13]

To the extent that this is the correct interpretation of European directives and regulations, its likely consequence is to increase the costs of enforcing trademark property rights. Of particular concern are paras 55–57 in which the Court commented that

> 55 Although it is clear…that the referencing service provider operates 'in the course of trade' when it permits advertisers to select, as keywords, signs identical with trademarks, stores those signs and displays its clients' ads on the basis thereof, it does not follow, however, from those factors that that service provider itself 'uses' those signs within the terms of Article 5 of Directive 89/104 and Article 9 of Regulation No 40/94.
>
> 56 In that regard, suffice it to note that the use, by a third party, of a sign identical with, or similar to, the proprietor's trade mark implies, at the very least, that that third party uses the sign in its own commercial communication. A referencing service provider allows its clients to use signs which are identical with, or similar to, trade marks, without itself using those signs.
>
> 57 That conclusion is not called into question by the fact that that service provider is paid by its clients for the use of those signs. The fact of creating the technical conditions necessary for the use of a sign and being paid for that service does not mean that the party offering the service itself uses the sign.

The problem with this approach is that it increases the costs of enforcing trademarks. In considering the role of law in providing low-cost means of enforcing trademarks, attention must be paid not only to the behaviour of direct free riders, but also to third parties.

Third parties, including technology providers, are likely to emerge to service the 'free rider' demand while not compensating trademark owners for their efforts. One will observe a 'supply chain' supporting free riding. Any net payoff from copyright infringement will be shared between consumers and the various participants who help them in their 'supply chain' in different ways (for example, distributors, advertisers, intermediaries and other agents and related technology suppliers) in accordance with ordinary economic principles. The basic mechanism by which this occurs is straightforward. As end users of free riders are not paying the full cost of using the trademark, they will be prepared to share part of the net benefits with others who help them access trademarks at low cost. All the parties in this supply chain will directly or indirectly contribute to and benefit from the

[12] Article 5(2) of Directive 89/104 or, and in the case where that sign was identical with a reputable EC trademark, under Article 9(1)(c) of Regulation 40/94.

[13] Article 5(2) of Directive 89/104 or of Article 9(1)(c) of Regulation 40/94 (see [105] of the judgment).

net payoff of the 'free ride' in the use of the trademark—an outcome that will emerge with or without formal contractual agreements between benefiting parties.

The principal economic actor in the trademark breach scenario is the entrepreneur who intentionally facilitated the distribution—for example, by operating a website to which members of the public could post the works, by targeting search services to a location where the works can be found. The Court, in deciding that Google did not 'use' the trademark, does seem to limit enforcement options in this regard. The Court did, however, leave scope for enforcement activities, commenting that:

> 57 …To the extent to which it has permitted its client to make such a use of the sign, its role must, as necessary, be examined from the angle of rules of law other than Article 5 of Directive 89/104 and Article 9 of Regulation No 40/94 such as those referred to in paragraph 107 of the present judgment.

At paragraph 107, the Court commented:

> 107 Section 4 of Directive 2000/31, comprising Articles 12 to 15 and entitled 'Liability of intermediary service providers', seeks to restrict the situations in which intermediary service providers may be held liable pursuant to the applicable national law. It is therefore in the context of that national law that the conditions under which such liability arises must be sought, it being understood, however, that, by virtue of Section 4 of that directive, certain situations cannot give rise to liability on the part of intermediary service providers. Since the expiry of the period within which that directive had to be transposed, the rules of national law on the liability of such service providers must include the restrictions set out in those articles.

In the next section, I turn to consider the relevant provisions of Articles 12–15 entitled 'Liability of intermediary service providers', referred to by the ECJ—in particular, Article 14.

Intermediaries' Immunities

A common regulatory approach to infrastructure service providers is to provide them immunity from liability for harm caused in using their services. This was offered, for example, to highway owners until the common law courts reversed the rule. Thus, in the European Union, we have seen a rule developed that seeks to provide immunity to hosting services providers.

Article 14 of Parliament and Council Directive (EC) 2000/31, entitled 'Hosting', provides:

> 1. *Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that:*
>
> (a) *the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or*
>
> (b) *the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.*

In the trademark case, the ECJ had to decide whether Article 14 was to be interpreted as meaning that an Internet referencing service constituted an information society service consisting of the storage of information supplied by the advertiser, with the result that that information was the subject of 'hosting' within the meaning of Article 14 and that the referencing service provider therefore could not be held liable *prior to its being informed of the unlawful conduct of that advertiser*.

The ECJ decided that the Article 14 of Directive 2000/31 exemption applied to an Internet referencing service provider in the case where that service provider had not played an active role of such a kind as to give it knowledge of, or control over, the data stored. If it had not played such a role, that service provider could not be held liable for the data that it had stored at the request of an advertiser, unless, having obtained knowledge of the unlawful nature of those data or of that advertiser's activities, it failed to act expeditiously to remove or to disable access to the data concerned.[14]

This leaves considerable uncertainty surrounding the liability of Google, offering it an advantage as the incumbent, while creating concomitant obstacles to competition from firms that might be at the edges of the artificial and unclear boundary between an information society service provider that *'is not liable for the information stored at the request of a recipient of the service' (per article 14(1))* and one that is not—and how the *'condition that the provider does not have actual knowledge of illegal activity or information'* will be applied.

Property Rights and Information

In response to the new online market, we are observing the slow emergence of an area of law one might call information rights. The central questions in this area of law, as in any, are

- who should have what rights
- how should they be enforced?

On the first question, we shall consider two key forms of information: first, commercial information and second, personal information. On how to enforce rights, we shall focus on the use of common law courts' application of ordinary rules of law, including tort, contract and competition law rules.

Commercial Information as an Asset

Commercial information relates to firms and businesses, the activities they engage in and/or qualities they possess.[15] In the first instance, the bearer of the information is the business or firm on whom the information is about. Commercial information is valuable to the extent it can be sold or used to create

[14] See [120] of the judgment.

[15] Commerce can be defined as involving exchange between firms or businesses.

value. The value of information is its discounted net present expected value. Thus, it is the present value of what it can be expected to help create or earn in a future sale.[16]

The data might be valuable only when combined with the data of others—for example, to generate analysable databases. The data might also be valuable only in a probabilistic sense—perhaps to those who wish to market services. This could include potential suppliers to, or buyers of, the services of the information holder. There is no guarantee the holder of the information will want to buy or sell associated rights, but the chance that they might means the information is valuable to potential buyers or suppliers.

The ability to keep information secret provides the underlying way a firm can protect its information from being appropriated without compensation, or used in ways that are harmful to it. The problem with information, however, is that it is low cost to disseminate and it is non-rival. Thus, if one provides information to someone, they can readily on-sell it (that is, it is non-rival) and this will then limit the owners' ability to further profit from the information.

The law, however, seeks to further protect firms' rights to information. This makes sense when it offers net benefits from a social perspective relative to reliance on secrecy and private precaution.

Personal Information and Reputation Capital

Personal information is information about the characteristics of individuals. In the first instance, the bearer of the information is the person on whom the information is about.

Information about my personal characteristics and online behaviour, for example, is valuable. It is something that can be transferred to others; it is therefore something I could sell.

It is no accident that one of the interests of individuals protected by tort law[17] is their interest in their reputation.

In this regard, the social attitudes or cultural preferences can associate negative value with the knowledge that another person may engage in some activity or possess some quality—even though that activity or quality is not deemed illegal.

The Harm

Google is using the information about firms and individuals

- to 'sell' search services

[16] The person who generates or possesses the information could be unaware of its value to others and might not attach any significant value to it themselves.

[17] The common law of torts offers remedies for harm created by the action of strangers. The remedy is not available for all types of harm; in fact, the list is limited to such interests as freedom from physical injury and damage to property.

- to sell advertising services (for example, individuals' revealed search behaviour).

The problem is that firms might want to use Google's search services to search for information, but not simultaneously 'advertise' their interest. This is a form of bundling, in that when one uses Google's services for search, one is forced to use their services to advertise; they will 'advertise' your search behaviour. In a sense, they in effect post 'wanted ads' for you.

The harm from someone broadcasting one's behaviours and preferences includes

- direct costs = someone has to pay for Google's services: the costs of the 'free' search service will thus appear in the final price of goods sold in the marketplace; there will thus be cross-subsidisation of activities, and successful searches will pay for unsuccessful ones

- opportunity cost: if one's information is passed on then one loses the opportunity to sell one's information

- publicity and privacy costs: if one's information is passed on one incurs what can be called publicity costs.

On the last point, or publicity costs, not every interaction or exchange between people is positive sum or efficient. Interaction or exchange can cause net harm. Thus, when personal information is broadcast and people use this information to interact with its subject, the subject could suffer harm. The source of harm from private information being divulged includes

- the risk of adverse and mistaken government action

- the risk of adverse and mistaken private action.

This is true even if the information released about oneself is accurate. Even though the information is accurate, it could form the basis for mistaken and unwanted interactions with government and private actors or agents. The risks posed to individuals are enhanced when there is the possibility of the information about oneself being inaccurate—or even distorted.

Given the recipient of any interaction or exchange with others could suffer more harm than the communicant gains, people seek to take precautions against harmful exchanges by limiting their contact or investing in screening those with whom they deal. They invest in privacy—rather than publicity. The protection of privacy or private information enables people to take precautions against harmful contacts. In this sense, information about oneself is valuable property. If it is not protected by the law, there could be over-investment in private precautions (privacy) and over-exposure to publicity.

We have discussed how property law in the form of copyright law and trademark law can protect people from harm affecting a closed class of property interests. In the next section, we discuss the potential general role of tort law in offering protection.

Tort Law

Tort is a French word for 'wrong'. Tort law protects interests that are not recognised by property rights, or protected by contract. It governs mainly relations between strangers allocating costs or harm that can arise in their relationships. It does this by first determining whether a duty of care is owed in the relationship, and second whether there has been a breach of that duty causing harm.

The Legal Duty of Care

The question, then, is what is the duty of care owed by those in receipt of another person's private information? In the extreme, it could be to keep it private or not disseminate it without permission. Or it could be a duty not to 'misuse' it—for example, to not misrepresent it—or not profit from it without compensation. It could be to make only 'fair use' of it. The law of tort should protect against information being taken if the costs or harm from it being taken exceed the benefits; that would ensure efficient tort law rules.

There will be dual-care obligations in that individuals must take reasonable precautions to keep their information private before they may complain about its conversion, theft, misuse or misappropriation.

Contract Law

Contract law offers another avenue for protection of information rights and the basis of a competitive market. The question to ask is what is the nature, if any, of the contract between Google and its users? The terms of any such contract may be explicitly agreed—or implied by a court if they are reasonable.

The example of telephone directories provides a useful illustration of the options. For example, with the telephone white pages, one is given the option not to have one's number listed in that one can ask for an unlisted number. In the yellow pages, however, one's number will not be listed unless one pays for it.

The critical question in contract law is whether it can be argued that by contract users have consented to the behaviour that could be creating harm.

Implied Consent?

Google provides free search services and sells advertising and private information.

It would seem that when Google offers its services for free it is not able to impose obligations on its users. This includes the obligation to part with their information rights.

Competition Law

Turning to the application of competition law, it seeks to regulate the abuse of market power. In this section, we will address the point that over-regulation of the older ICT markets further handicaps potential competitors in the new search and online advertising market.

The three critical issues are: first, market definition; second, whether there is market power and what are the relevant barriers to entry that could create market power; and third, whether there has been an abuse of market power.

Market Definition

The rate of innovation and the dynamic nature of competition in the market make the definition of markets and the analysis of market power on a forward-looking basis a very difficult task, fraught with uncertainty. We have extensively discussed the nature of the relevant search and online advertising market in a separate working paper.

Market Power

There are two main sources of market power worth considering.

- First, weak enforcement of legal rules in new markets. As we have seen, Google's apparent breaches of property rights including copyright and trademarks have distorted the competitive process and conferred advantages on Google. New entrants now face higher costs of entry than Google did to the extent that recent moves to better enforce the law and legitimate rules of the game are reducing scope for new entrants to 'free ride' on the property rights of others—an advantage Google seems to have benefited from for some time in setting up its systems.

- Second, the heavy regulation of older ICT markets and traditional ICT service providers who might otherwise offer competition in the new markets. While the new markets and Google have been relatively exempt from the application of ordinary legal rules, traditional ICT service providers who could be potential competitors have over time become relatively encumbered by regulation hindering their ability to compete. For example, in the past six years, the European Union has subjected Microsoft to detailed regulatory supervision and imposed a series of record-breaking fines on Microsoft for alleged breaches of competition law.

We spent the early part of the paper exploring the relatively weak regulation of Google given the early dynamic phase of its main markets' development. In so doing we have elaborated factors that have distorted the competitive process, created barriers to entry and conferred advantages and market power on Google.

In the remainder of this section, we focus on the need to visit the over-regulation of Google's main potential competitors so as to enhance the competitive market process. For this purpose, we shall focus on the case for revisiting and reversing the heavy regulation of Microsoft, particularly in light of the competition it now faces given recent market developments in *cloud computing* and Google's associated role in them.

To illustrate the heavy regulation of Microsoft in Europe, the European Court of Justice has subjected Microsoft to regulation on the ground that it has a dominant position[18] in

[18] A dominant position under Article 82 of the Treaty has been defined by the Court of Justice of the European Communities as *'a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of the consumers'*.

- the client PC operating systems market since at least 1996
- the work-group server operating systems market since 2002.[19]

The Commission's claim as to Microsoft's dominance relied on two key alleged factors

- very high market shares
- significant barriers to entry.[20]

In what follows, we shall argue that the strength of this position is greatly weakened by recent developments in cloud computing. The underlying point that emerges from this discussion is that the Commission's definition of the markets for operating systems, and its analysis of dominance using various measures of markets shares, and alleged barriers to entry are clearly wrong.

The Nature of Cloud Computing[21]

In a separate working paper, we have already outlined in greater depth the nature of cloud computing. In this section, we will provide a briefer summary. In essence, cloud computing is where computing resources are accessed from a virtual online 'cloud' rather than from a local desktop or organisational data centre.[22] Cloud computing is a rapidly growing trend. The key concept of cloud computing is the detachment of computing resources from any even notional location. The easiest way to start delving into the cloud computing paradigm shift is therefore perhaps to take a look at what new services are now becoming available. These include

- software as a service ('SaaS')
- hardware as a service ('HaaS').

Together, they are raising the prospect of so-called 'utility computing'.

The first key development signalling the popular growth of cloud computing is the development of *software as a service or 'SaaS'*. This is where computer applications are accessed directly over the Internet, rather than being installed on local desktops or data centre servers. Commercial software as a

[19] See Recitals 429 to 541 to the contested decision. The relevant recitals referred to are included in the Appendix to this paper.

[20] See Recitals from original decision, para (429).

[21] Much of the discussion in this section is taken from ExplainingComputers.com An Online Text by Christopher Barnett; see http://www.explainingcomputers.com/cloud.html

[22] Brian Hall, general manager of Windows Live, has said: 'Cloud-centric is probably a better way to say it because Cloud OS makes it sound like it is only running on the cloud…A lot of the data, a lot of the apps, a lot of the interesting things are on the edge. They are on the PCs. They are on the Xboxes. They are on the phones.'

service offerings currently include online project management tools from Clarizen, as well as customer relationship management (CRM) and human resource applications available from Salesforce, Employease and Zoho. As reported by ZDNet, IBM has also recently joined the 'cloud computing bandwagon' with the launch of a new 'web-based social networking and collaboration service for business' called Bluehouse.

A number of online office applications are now also available for tasks including word processing and making databases, spreadsheets and presentations. These include Google Docs, Blist, SlideRocket and a wide variety of excellent tools from Zoho, and they allow anybody to create or upload documents into the cloud. Documents created with these applications can subsequently be recalled and worked on from any kind of computing device with an Internet connection. They can also be collaboratively shared.

All of the aforementioned online office applications are currently free; however, more sophisticated offerings are also available and are starting to enter mainstream corporate use. For example, the 'Premiere Edition' of Google Apps (which includes a supported version of Google Docs along with e-mail and collaborative video-sharing tools) is increasingly being rolled out in the place of traditional Microsoft software. For example, as reported by Silicon.com, following a successful trial, the Telegraph Media Group recently moved all of its 1,400 employees to Google Apps, and in doing so expects to cut its software costs by 80 per cent over three years in addition to facilitating new means of collaborative document authorship. Locally, the issue of how best to retain clients heated up with NZ Postal Services Group signing a three-year, $1 million contract that will see Google Apps rolled out to its 2,100 employees.[23]

In addition to software as a service, cloud computing includes the development of *hardware as a service or 'HaaS'*. This is where computer-processing capacity is purchased over the web. Amazon, for example, now offers a web service called Elastic Compute Cloud or EC2. This allows users to purchase computer-processing power online from Amazon, and on the basis of the processor cores, storage and data transfer they require in each 'instance'. Google has also launched a similar service called App Engine, which permits developers to run web applications on Google's infrastructure.

Hardware as a service can offer many advantages. Amazon, for example, highlights how EC2 is: elastic—because it allows users to increase or decrease their requirements within minutes; flexible—because users can choose the specification of each individual instance of computing power; inexpensive—as no dedicated capital investment is required; and reliable—as EC2 makes use of Amazon's proven data centres and network infrastructure. In addition to Amazon's EC2 offering, other current suppliers of hardware as a service include GoGrid and 3tera, both of which allow companies to replace their computing infrastructure with virtual servers hosted within their online cloud.

[23] Fronde's general manager for technology services, Rob Old, says the 'landmark deal' for the company will mean NZ Postal Services will use Google Apps for their e-mail, calendar, collaboration, Instant Messaging and, later, video communications.

In his book *The Big Switch*, Nicholas Carr compares the growth of cloud computing with the development of the electricity network about a century ago. Before that time businesses had to generate their own power and therefore had to choose their location based on the available means of generation, such as moving water to drive a wheel or a supply of coal. With the availability of a reliable electricity grid to which they could connect, firms were, however, increasingly freed from such constraints to focus on the other aspects of their business. We could thus be just entering an age in which both individuals and organisations will be able to dispense with a large home computer or corporate data centre, and instead connect far leaner computing devices to cloud computing resources that will fuel their information-processing requirements. It is therefore hardly surprising that cloud computing is also being referred to as 'grid computing' or *'utility computing'*. In parallel, many new, low-cost ultra-mobile computers—such as the Eee PC and Acer Aspire One—are starting to be termed 'computing appliances' due to the way in which they are intended to be used out-of-the-box with no user software installation to access the emerging cloud of utility computing services. Thin client computing desktop devices designed to access their applications and even operating systems online are also becoming increasingly common as individuals and organisations embrace computing in the cloud.

In theory and already in practice, cloud computing frees both individuals and organisations from the cost of installing, maintaining and constantly upgrading software applications on their desktops and/or in their data centres. It also allows companies to focus on their core competencies, rather than investing in centralised computing facilities that have to be maintained and upgraded and that might not be utilised at an optimum capacity.

This said, the many critics of cloud computing point to the fact that users become totally reliant on a high-quality Internet connection, and that externalising one's data, applications and hardware out in the notional cloud creates a reliance on external suppliers with potentially related business continuity, data-protection and security risks. The aforementioned concerns do, of course, have to be carefully considered. This said, our reliance on the Internet is now so great that even if applications are locally installed then the disruption caused by an Internet outage is already highly significant. In a sense, a solid Internet connection has now become as requisite a utility service for business and personal activities as a constantly available phone network and electricity supply. All that cloud computing is therefore doing is making us even more explicitly aware of this.

The same can be argued with respect to security concerns. Granted, using cloud computing makes individuals and organisations dependent on their cloud resource suppliers, with their data only as safe as their secure Internet connections. Once again, however, these are things on which we already implicitly rely. Anybody or any company who makes web searches or sends e-mail, let alone who purchases items or does their banking online, is already trusting the quality of available online security, as well as companies such as Google and Amazon and their Internet Service Provider with their data. We should also not forget that storing data locally can create data-protection problems of its own, with lost or stolen laptops, USB keys or hard disks potentially proving disastrous, as many recent events in the UK public sector have so aptly demonstrated.

Alongside the time it will take some to make a mind-set shift, the computing industry is also investing in overcoming the potential pitfalls that could be associated with cloud computing. For example, as recently reported by HP, along with Intel and Yahoo!, it is investing considerable resources in a global cloud computing test bed to help research and overcome potential problems.

As the above hopefully highlights, cloud computing significantly differs from the previous dumb-terminal/mainframe era in that users do not become reliant on a single, specific, centralised computing resource that their organisation has to invest in and maintain. Rather, they become reliant on a far looser external web of resources, which they will always to an extent be free to 'mash' as their needs dictate. In other words, a competent use of the cloud by either an individual or an organisation ought always to involve a loose rather than a tight coupling of computing resources. Reliance on individual SaaS or HaaS vendors ought therefore to be minimised in the same way that nobody obtaining power from a national electricity grid is dependent on the continuous functioning of a single, specific power plant.

Implications for Current Regulation

The fundamental implication of these developments is that the market's definitions and claims of dominance made by the Commission in the EU Microsoft case no longer hold. The Commission alleged two separate markets in—namely

- the client PC operating systems market, which the Commission alleged Microsoft had dominance in at least until 1996
- the work-group server operating systems market, which the Commission alleged Microsoft had dominance in since 2002.

It is now clear that the PC and work-group operating systems markets are not separable—and are instead being engulfed by a global and wider cloud computing market. Rather than relying on an operating system for a PC or work server, one can use the Internet.

From the point of view of economic theory, cloud computing offers a very close substitute in the PC and work-group operating systems and as a result all three now form part of a potential global single market. The extent of competition in all operating systems markets has radically increased. It is increasingly impossible, then, to claim that Microsoft has a dominant position under Article 82 of the Treaty. Dominance has been defined by the Court of Justice of the European Communities as

> a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of the consumers.

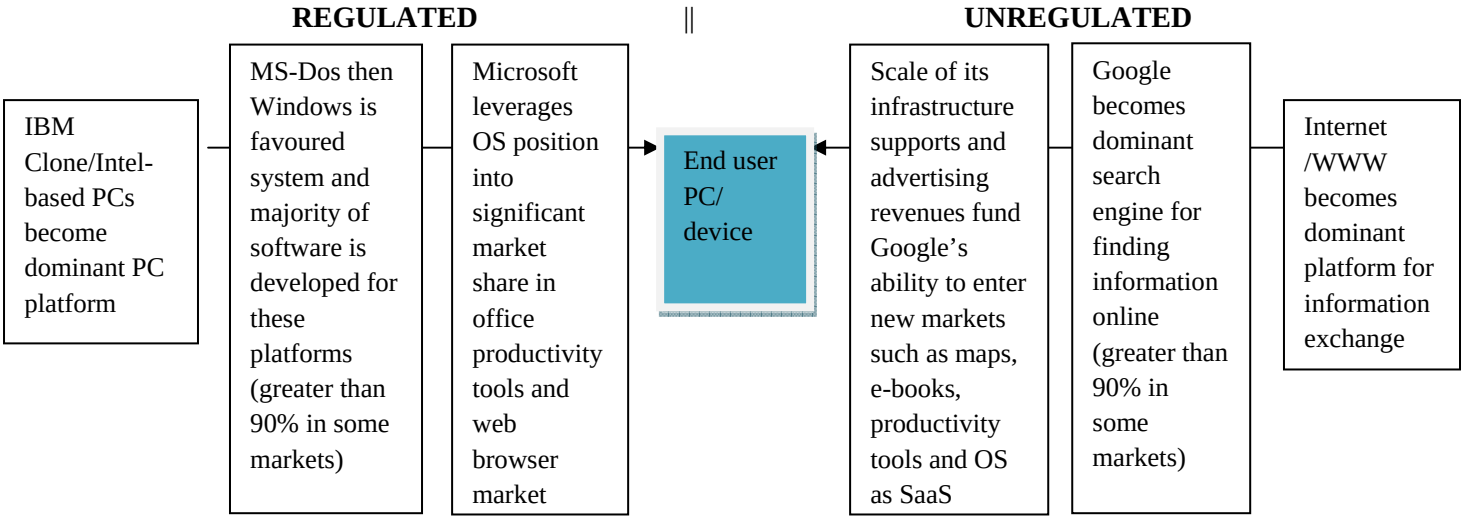
In economic theory, the fact that cloud computing is a close substitute for PC and work-group server operating systems increases competition and the elasticity final demand for PC and work-group server operating systems. This in turn denies Microsoft *'the power to behave to an appreciable extent*

independently of its competitors, its customers and ultimately of the consumers'—which is required for the CFI decision to be sustained.

It is not, however, simply a matter of economic theory of ICT markets and competition any more. The actual replacement of a traditional desktop PC and internal company server IT infrastructure with thin clients that access applications from a third-party cloud computing resource is a growing trend for several reasons—not least because it can offer significant cost savings, freedom from constant upgrade cycles (which become the cloud provider's problem), as well as the opportunity to engage in far greener computing. To cite a practical example, ThinDesk.com is offering small and medium-sized companies in Canada the opportunity to move to a thin client/cloud infrastructure and claims that customers can experience up to 40 per cent cost savings, coupled with increased reliability and productivity. Carbon footprint and energy reduction savings of up to 80 per cent can also potentially be achieved with a ThinDesk solution.

In tandem with Web 2.0, cloud computing has changed the landscape of the computing industry. Amazon, Google, IBM and others are already embracing a cloud computing revolution. Microsoft faces an increasingly tough challenge selling software to install on local hardware and can no longer be accused of dominance in that market.

Given recent developments in cloud computing, there is a real risk of regulatory imbalance. As the diagram below illustrates, the end user in the middle now has two ways to access services. On the left-hand side is the more traditional delivery platform, which originates from the early 1980s with the invention of the IBM clone/Intel-based PC and the adoption of MS-Dos (then Windows) as its favoured system. Given the longer, 30-year-plus history of this delivery platform, the players and products associated with it are now heavily regulated—considerably more so than Google and the services offered through the cloud, as shown on the right-hand side of the end user. This regulatory imbalance is creating a situation in which significant benefits from greater competition are being lost.



CONCLUSION

This paper has argued that the main obstacles to greater competition in the online search and advertising markets are

- the under-regulation of the new online search and advertising markets, implying weak protection of property rights, which has conferred advantages on its incumbent, Google, and created associated barriers to entry
- the over-regulation of the older ICT markets, which handicaps potential competitors in the new markets—such a Microsoft.

APPENDIX 1 Legal Background

The French Cour de Cassation referred several questions to the ECJ for a preliminary ruling in three decisions.

In case C-236/08, the respondent, Louis Vuitton, was the proprietor of the European Community trademark 'Vuitton' and of the French national trademarks 'Louis Vuitton' and 'LV'. It was common ground that those marks enjoyed a certain reputation. At the beginning of 2003, Vuitton became aware that the entry, by Internet users, of terms constituting its trademarks into Google's search engine triggered the display, under the heading 'sponsored links', of links to sites offering imitation versions of Vuitton's products. It was also established that Google offered advertisers the possibility of selecting not only keywords that corresponded with Vuitton's trademarks, but also those keywords in combination with expressions indicating imitation, such as 'imitation' and 'copy'. At the beginning of 2003, Vuitton brought proceedings against Google in *Google France, Google Inc v Louis Vuitton*, with a view, inter alia, to obtaining a declaration that Google had infringed its trademarks. In February 2005, a regional court in Paris and the Parisienne Court of Appeal found Google guilty of infringing Vuitton's trademarks. Google appealed on a point of law against that latter judgment.

In case C-237/08, the first respondent, Viaticum, was the proprietor of the French trademarks 'Bourse des Vols', 'Bourse des Voyages' and 'BDV', registered for travel-arrangement services. The second respondent, Luteciel, was a provider of information technology services to travel agencies. It published and maintained Viaticum's Internet site. Viaticum and Luteciel became aware that the entry, by Internet users, of terms constituting the abovementioned trademarks into Google's search engine triggered the display, under the heading 'sponsored links', of links to sites of competitors of Viaticum. It was also established that Google had offered advertisers the possibility of selecting, to that end, keywords that corresponded with those trademarks. Viaticum and Luteciel brought proceedings against Google in *Google France v Viaticum Luteciel and Google France v CNRRH, Pierre-Alexis Thoner, Bruno Raboin and Tiger*. In October 2003, a regional court in Nanterre, France, found Google guilty of infringement of trademarks and ordered it to compensate Viaticum and Luteciel for the losses they had suffered. Google appealed to the Court of Appeal (Versailles), which held that Google had acted as an accessory to infringement. Google appealed.

In case C-238/08, the second respondent, T, was the proprietor of the French trademark 'Eurochallenges', registered for, inter alia, matrimonial agency services. The first respondent, CNRRH, was a matrimonial agency and held a licence, granted by the second respondent, under the abovementioned mark. During 2003, T and CNRRH became aware that the entry, by Internet users, of terms constituting the abovementioned trademark into Google's search engine triggered the display, under the heading 'sponsored links', of links to sites of competitors of CNRRH, operated by the third and fourth respondents respectively. It was also established that Google offered advertisers the possibility of selecting that term as a keyword for that purpose. On the application of T and CNRRH, the third and fourth respondents and Google were found guilty of infringement of the trademark by the regional court in Nanterre, and subsequently, on appeal to the Court of Appeal (Versailles). Google lodged an appeal against that latter judgment. In those circumstances, each of the cases was

stayed and questions referred to the Court of Justice of the European Communities for a preliminary ruling.

The relevant provisions of Article 5 of EU Directive 89/104 entitled 'Rights conferred by a trade mark' identify the following rights.

> 1. The registered trade mark shall confer on the proprietor exclusive rights therein. The proprietor shall be entitled to prevent all third parties not having his consent from using in the course of trade:
>
> a. any sign which is identical with the trade mark in relation to goods or services which are identical with those for which the trade mark is registered;
>
> b. any sign where, because of its identity with, or similarity to, the trade mark and the identity or similarity of the goods or services covered by the trade mark and the sign, there exists a likelihood of confusion on the part of the public, which includes the likelihood of association between the sign and the trade mark.
>
> *2.* Any Member State may also provide that the proprietor shall be entitled to prevent all third parties not having his consent from using in the course of trade any sign which is identical with, or similar to, the trade mark in relation to goods or services which are not similar to those for which the trade mark is registered, where the latter has a reputation in the Member State and where use of that sign without due cause takes unfair advantage of, or is detrimental to, the distinctive character or the repute of the trade mark.

The relevant provisions of Article 9 of Regulation No 40/94, entitled 'Rights conferred by a Community trade mark', provides:

> 1. A Community trade mark shall confer on the proprietor exclusive rights therein. The proprietor shall be entitled to prevent all third parties not having his consent from using in the course of trade:
>
> (a) any sign which is identical with the Community trade mark in relation to goods or services which are identical with those for which the Community trade mark is registered;
>
> (b) any sign where, because of its identity with or similarity to the Community trade mark and the identity or similarity of the goods or services covered by the Community trade mark and the sign, there exists a likelihood of confusion on the part of the public; the likelihood of confusion includes the likelihood of association between the sign and the trade mark.

Article 14 of Directive 2000/31, entitled 'Hosting', provides:

> 2. Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that:

(a) the provider does not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or

(b) the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.

3. Paragraph 1 shall not apply when the recipient of the service is acting under the authority or the control of the provider.

4. This Article shall not affect the possibility for a court or administrative authority, in accordance with Member States' legal systems, of requiring the service provider to terminate or prevent an infringement, nor does it affect the possibility for Member States of establishing procedures governing the removal or disabling of access to information.