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# Product Market Definition in Online Search and Advertising

*Nicolo Zingales**

One of the thorniest questions which competition authorities are increasingly confronted with is the extent to which traditional market definition tools can be used to assess the competitive dynamics of today's knowledge-intensive, user-based internet search business. The question is challenging for two main reasons: (1) the peculiarities of two-sided markets; and (2) the key role of user data in online search and advertising. This article addresses these issues individually: starting from a description of the interrelationship between online search and advertising, it highlights the role of user data as the most valuable asset for future growth in the industry, a potential barrier to entry and a cause of switching cost. Finally, it concludes with suggestions for product market definition.

## INTRODUCTION

In the last few years, competition authorities have been called on a number of occasions to define the product market for online search and advertising. Let's face it: this exercise is no easy task; three main problems arise when defining the product market: first, because of the far from obvious dynamics of this type of market, particularly its double-sided nature and the interaction of paid search with natural algorithmic search; second, because of the rapid innovation that characterizes the industry, with a continuous expansion of the boundaries of the relevant market and a constant repositioning of the competitive constraints; third, because authorities need to come to terms with the increasing importance of user data in this industry, and possibly attribute an economic value to it to reflect its relevance for the strategies of a firm operating in both the markets of search and advertising.

The issues of the double-sided nature and rapid pace of innovation are dealt with jointly by Part 1. The focus is primarily on the challenges posed for market definition by this particular type of two-sided platform, where one product is offered at no cost for consumers and the constant evolution makes it difficult to conduct a traditional quantitative analysis.

Part 2 lays out a further issue for market definition, illustrating the prominent role that users, and the data that concern them, play in this context. Given the increasing "commoditization" of data in both search and advertising, there is a risk that search engines strategically use them to prevent entry, or that the characteristics of the industry

* PhD candidate, Bocconi University; Scholarship Holder, Max Planck Institute for Intellectual Property and Competition.

simply lead to 'market tipping'.[1] Paragraph 2 explains the extent to which a search engine's privacy policy can affect the competitive assessment.

Finally, a concluding part combines the insights of the preceding paragraphs and endeavors to sketch a tentative definition of the market for online search and advertising, which may serve as a starting point for a more detailed competitive analysis.

## 1. THE COMPLEXITY OF TWO SIDED-MARKETS IN SEARCH

We are all familiar with the operation of search engines on the user side: you type your query in the search box, press "search" and then let the search engine browse through its large indexes of the web to render a list of results most relevant to what you are looking for. The majority of internet users are also aware of the fact that only some of the results are completely natural, i.e. deriving from a mechanic operation of the algorithm. In fact, some of the results represent the so called "paid search inclusion", meaning the advertisements which a search engine has committed (with advertisers) to display in association with certain keywords, independently from the operation of the algorithm. The basic mechanism is that the appearance of advertisements is triggered by the user typing keywords for which advertisers have previously won a bid through a competitive auction process. Paid search results are visibly distinguished from natural search results, but the criteria for distinction vary across search engines and over time. Historically, such criteria have been based on their appearance within a lighted or coloured backdrop, their positioning on the top of the ranking or on the right side of the screen, or their identification through a "promotion" tag on the left of the result.[2] Due to the lack of homogeneity, a user might not always be able to tell with certainty whether he is clicking on a natural algorithmic result or a paid search result.[3]

By contrast, what is certain is that although the general user may be more or less familiar with what has been explained so far, there is much less understanding about the intricacies of paid search advertising, or more generally, the functioning of search engines from the advertiser's side. The way in which prices for advertisers are determined, their interaction with relevance and traffic, and when exactly they become

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1 C. Argenton & J. Pruefer, 'Search Engine Competition With Network Externalities', *Journal of Competition Law & Economics*, 8(1), pp. 73-105, at 76.

2 The former used to be the method for distinction in Google, which then switched predominantly to the latter. The third method, by contrast, is the one adopted by Baidu: see I. McEwin & C. Chew, 'China—The Baidu Decision' (2010) 6(2) *Competition Policy International*; see also A. H. Zhang, 'Using A Sledgehammer to Crack A Nut: Why China's Anti-Monopoly Law was Inappropriate for *Renren v. Baidu*' (2010) 7(1) *Competition Policy International* 277-298.

3 For this reason, the Federal Trade Commission has sent a letter to search engines urging them to keep organic and paid search results separate: see Letter from Heather Hippsley, Acting Associate Director, Division of Advertising Practices, FTC, to Gary Ruskin, Executive Director at Commercial Alert (June 27, 2007) available at http://www.ftc.gov/os/closing/staff/commercialalertletter. See also the testimony by Thomas Barnett at the Hearing "The Power of Google: Serving Consumers or Threatening Competition?" held before Senate Judiciary Committee, Subcommittee on Antitrust, Competition Policy and Consumer Rights on 21 September 2011, available at http://www.judiciary.senate.gov/hearings/hearing.cfm?id=3d9031b47812de2592c3baeba64d93cb.shtm

due are complex topics on which there is a wealth of literature,[4] and which cannot be covered comprehensively in this paper. For our purposes, suffice it to say that search engines act as match-makers, aggregating demand of advertisers with a great volume of user queries, and managing through their operation to satisfy the demands of both sides: rendering relevant search results and exposing users to targeted advertisements.

Some users will be pleased to spot the advertisements relevant to their search, and might proceed to the purchase of the advertised product or service. In this sense, they will derive a positive effect from the existence of a high number of advertisers on the other side of the platform, as this makes it much more likely that they will in fact be targeted with a relevant advertisement. Some others might feel less content when viewing advertisements in their search result page, and to the extent they are able to discern their nature, they might even go as far as undertaking not to click on them. Nonetheless, they will have to accept the existence of paid search inclusions as a compromise thanks to which their search can be performed at no cost. Absent such compromise indeed, the search engine business would simply risk losing its viability. To be sure, despite the fact that today search engines can count on sources of revenues other than advertising, such as search syndication deals, there is no doubt that advertising represents the most important one.[5] This is because such business requires incurring substantial expenditures, which consist, at a very minimum, of the costs for the acquisition of the machines used to index the entire web, as well as their continuous running to keep the search service up to date. A search engine will typically need to incur also further expenses for the acquisition of licenses of material that is not in the public domain, and for the scanning and uploading of material that is in the public domain but not in a digital format.[6] In addition, search engines must devote some of their resources to research and development for the improvement of the algorithm, if they want to remain competitive.[7] In fact, despite the significant sunk costs that operating a search engine entails, competition in the industry is intense, as it can be witnessed by the continuous improvements and differentiation in the service. As

[4] For an exhaustive coverage, see H. Varian, 'The Economics of Internet Search', Angelo Costa Lecture delivered in Rome (February 2007), available at http://people.ischool.berkeley.edu/~hal/Papers/2007/costa-lecture.pdf. With particular reference to the auction process, see B. Edelman, M. Ostrovsky, M. Schwarz, 'Internet Advertising and the Generalized Second Price Auction: Selling Billions of Dollars' Worth of Keywords', NBER Working Paper No. 11765 (Nov 2005), available at http://www.nber.org/papers/w11765; Y. Chen and C. He, 'Paid Placement: Advertising and Search on the Internet', Net Institute Working Paper, (September 2006), available at http://www.netinst.org/Chen-He.pdf.

[5] It is reported that Google makes out of advertising as high as 97% of its revenues. See http://www.corporate-eye.com/blog/2011/07/97-of-googles-revenue-comes-from-advertising/

[6] It's the case of Google Books, but the same method has been used with old newspapers and old magazines. See from the official Google's Blog: http://googleblog.blogspot.com/2008/09/bringing-history-online-one-newspaper.html and http://googleblog.blogspot.com/2008/12/search-and-find-magazines-on-google.html

[7] It is reported that the major players in the industry spend in excess of $500 million a year in R&D, and the core infrastructure appears to be equally large: see P. Rufus, 'Is Google the Next Microsoft? Competition, Welfare and Regulation in Online Search' (2009) *Review of Network Economics* 9(4), 1-29, note 45.

Google famously submits, competition is "just a click away" in the world of search.[8] We will see below that such a claim has intrinsic limitations.

A valid alternative to the advertising compromise would be the provision of search results in exchange for a fee. This alternative scenario has never really been explored for general search queries, as the paradigm of free search established itself from the inception. However, it has arisen as the common standard in some particular categories of search which rely on specialised databases, such as legal search,[9] genealogic search,[10] and - to some extent - online dating websites.[11] Then again, these are very specialised, so called "niche" markets, where the choice for the particular business model appears justified by the uncertainty as to the platform's ability to reach a critical mass of users. By contrast, at a more general level, the web has enabled the creation of a number of businesses whose costs can be more than compensated through an extensive reliance by the provider on satisfying another group of customers - in most cases that group being advertisers. In the case of internet search, the convenience of using advertising as source of revenue is even more compelling for the simple reason that, differently from a platform where one knows exactly what he aims to find, the user typically has an investigating attitude that makes him more prone to indulge with the clicking of the relevant advertisements. As noted above, some users might even fail to realise that what they are clicking on is not a natural search result, rather a paid search result: in other words, an advertisement.

In depicting the basics of this industry, we have accounted for three important features that are common to a variety of market scenarios in the web-based economy: first, there are two different groups of customers who need each other and are served by the platform for the purpose of reaching out to the other group.[12] Secondly, there are externalities across the two groups: in our example, the higher the number of advertisers, the more likely it is that internet users (at least those which are inclined to click on them) will find relevant advertisements. Similarly, the higher the traffic of the search engine, the more likely it will be that advertisers manage to reach interested consumers. Thirdly, the pricing structure is fundamentally unequal: one of the two groups (such as advertisers) ends up paying not only for the satisfaction of its members,

[8] See testimony by E. Schmidt before the Antitrust, Competition Policy and Consumer Rights Sub-committee of the Senate Judiciary Committee on September 21, 2001, available at http://www.nbcsandiego.com/blogs/press-here/Schmidt-on-Antitrust-Competition-is-One-Click-Away-130300333.html. See also Google's official blog at http://googlesystem.blogspot.com/2009/05/googles-competition-is-one-click-away.html.

[9] Although Google has announced its intention to enter the market with its "Google Legal", this market has so far been mainly based upon subscription to specialised databases which serve as aggregators of jurisprudence, law reviews, journals and treatises, the most prominent examples being Westlaw and Lexis Nexis.

[10] Some examples are Ancestry, Footnote, World Vital Records, Genealogy Archive, Genealogy Today, MyTrees, and Genealogy Bank.

[11] This market is also in itself a typical example of a two-sided market for its unequal pricing structure: see Evans, 'The Antitrust Economics of Two Sided Markets' 20(2) Yale Journal on Regulation, 20(2), pp. 325-381

[12] Advertisers need users to click on their advertisements, and users typically have an interest in being shown relevant advertisements. The latter is subject to the *caveat* mentioned above, i.e. that not all users might derive utility from the presence of more targeted advertisements on the platform.

but also for that of the members of the other (such as users). These three features define what is commonly referred to as a "two-sided market": a market involving the provision goods or services to two distinct groups of customers who need each other in some way and who rely on the platform to intermediate transactions between them.[13]

It goes without saying that capturing the peculiar relationship between the different sides of these markets is a crucial step for product market definition. Absent recognition of such peculiarity, the risk is that an authority overlooks the important consequences that an apparently innocuous alteration of the market conditions on one side can have on the other. By way of example, it can be recalled the case in which a US district court declined to apply the antitrust laws because it saw no economic activity in the internet search market,[14] alleging that the complainant failed to cite any authority in support of the contention that a market of such kind could be identified independently from the search advertising market. Although it must be conceded that the court was constrained in the scope of its analysis to the claims submitted by the parties, including on the definition of the relevant market, there is reason to argue that the interconnection of these two markets should have been taken into account in the competitive assessment: As such, failing to recognize the link shows a misunderstanding of the dynamics of competition in this context.[15]

In addition to the "free product" problem, the unequal pricing pattern makes the standard market definition analysis tools unfit for purpose. In a one-sided market definition scenario, an authority would normally rely on the traditional "hypothetical monopolist" or "SSNIP" (Small but Significant and Non-Transitory Increase in Price) test, hypothesizing a 5 to 10% increase for a period of generally 1 year, and assessing whether customers would switch to an alternative provider and if so, to what extent. However, in the two-sided context it seems difficult to determine from which number the 5-10% should be derived to examine the effects on the market for the complimentary product, such as the search services. For sure it cannot be based on the actual price-tag of zero that applies to internet searches, as this would result in a price increase of zero and would devoid the test of its purpose. The mainstream approach is to take as reference the sum of the two prices, i.e. the price on both sides of the market. That, however, presupposes the identification of a common measurement unit,

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[13] For a more complete description of two-sided markets, see D. Evans, 'Two- Sided Market Definition', in, *Market Definition in Antitrust: Theory and Case Studies*, (ABA Section fo Antitrust Law, March 2012), Available at SSRN: http://ssrn.com/abstract=1396751; M. Armstrong, 'Competition in Two-Sided Markets' (2006) *RAND Journal of Economics*, 37(3), 668-691; D. Evans and R. Schmalensee, 'Industrial Organization of Markets with Two-Sided Platforms' (2007) *Competition Policy International*, 3(1), 151-179; G. Parker, G.M.W. Van Alstyne, 'Two-Sided Network Effects: A Theory of Information Product Design' (2010) *Management Science*, 51(10), 1494-1504; J. Rochet and J. Tirole, 'Platform Competition in Two-Sided Markets' (2003) *Journal of the European Economic Association*, 1(4), 90-1029; J. Rochet and J.Tirole, 'Two-Sided Markets: A Progress Report' (2006) *RAND Journal of Economics*, 37(3), , 645-667, and J.Wright, 'One-sided Logic in Two-sided Markets' (2004) *Review of Network Economics*, 3(1), 44-64.

[14] *Kinderstart.com LLC v. Google* ,2007 WL 831806 (N.D.Cal. 2007)

[15] Moreover, treating the identification of a market in the "traditional" sense as a jurisdictional issue for the application of antitrust law, the court's judgment has the effect of *de facto* deterring attempts to define such markets one-sidedly, which as described below could be the only solution to certain types of competition problems.

establishing the transaction upon which a given price is charged, and such identification it is not always straightforward. Accordingly, a distinction has been proposed, between so called "transaction markets" - where there is a systematic interaction between the two groups (that is the classic example of payment cards) and thus there is a determined "per-transaction fee" which makes the exact relation between the two sides apparent - and "non-transaction markets" (where that interaction between the two groups is either not present or not systematically observable).[16] The latter scenario is recognisable as a constant feature of all media markets. In search, users do not always click on the advertisements offered in response to given keywords. As a result, it is particularly difficult to assess the effect that a price rise on the advertising side will have on the user side. This is why it is often claimed that the feedback effects in this particular type of two sided-platform are uni-directional, i.e. arise only for advertisers from the number of users in the platform.

In addition, as implicitly recognised by the Commission's Notice on Market Definition,[17] the hypothetical monopolist test suffers from a major drawback, (named the "cellophane fallacy" after a famous US antitrust case illustrated the phenomenon), in that the price charged by the hypothetical monopolist might be already supra-competitive, thus affecting the ability to measure market power appropriately. For this reason, the Commission has in practice generally resorted to comparison of the price with that of other markets deemed to be competitive, or to other criteria for assessing substitutability of demand and supply such as functionality of services, technical characteristics and past evidence of anticompetitive behaviour or market power. This approach has its shortcomings, however, to the extent that every situation presents different features, and in many occasions no comparable can be identified. This is reportedly one of the practical problems with market definition in unilateral conduct cases,[18] and it is even more so when markets are characterized by rapid innovation, whereby products continuously develop acquiring new functionalities. The area of internet search is one example since competition is based on quality of the product, rather than on its price, and this is by nature hard to measure with quantitative criteria. As a result it would appear that, to the extent that a precise market definition is necessary, it is advisable that the economic analysis refer to qualitative data such as functionality of services, technical characteristics and specific features of consumer

[16] L. Filistrucchi, 'A SSNIP Test For Two-Sided Markets: The Case of Media', NET Institute working paper n. 08-34.

[17] Commission Notice 97/C 372/03 on the definition of relevant market for the purposes of Community competition law (hereinafter, "Notice"), para 19 ("Generally, and in particular for the analysis of merger cases, the price to take into account will be the prevailing market price. This may not be the case where the prevailing price has been determined in the absence of sufficient competition. In particular for the investigation of abuses of dominant positions, the fact that the prevailing price might already have been substantially increased will be taken into account").

[18] See L. White, 'Market Power and Market Definition in Monopolization Cases: A Paradigm is Missing', in W.D. Collins, *Issues of Competition Law and Policy*, 8; M. A. Glick, D. J. Cameron and D. G. Magnum, 'Importing the Merger Guidelines Market Test in Section 2 Cases: Potential Benefits and Limitations' (1997) *Antitrust Bulletin*, 42, 121- 122.

demand (that can be inferred from customer surveys and past practices) rather than on the "classic" parameters of volume of sales and prices.[19]

The main thrust of this discussion is that it may be less important to mark an exact delineation of the boundaries of these markets. The possibility of not doing so is expressly acknowledged by the Notice, according to which the question will be to decide on a few alternative possible relevant markets. It is not necessary to consider whether the market includes additional products, or to reach a definitive conclusion on the precise product market.[20] However, this acknowledgement is confined to the hypothesis where the operation in question does not raise competition concerns under any alternative market definition: in other words, as long as the authorities get from the general picture the understanding that there are no competitive concerns, then they can dispense with a rigorous quantitative analysis of sales and volumes of production and a simple description of the different players and the competitive constraints in the market will suffice. Now, although this seems to be precisely the approach adopted by the Commission with respect to mergers and acquisitions in the high technology sector,[21] it is argued here that failing to take a stance on market definition in the review of unilateral conduct is more problematic from a legal certainty perspective, particularly in situations involving complex economic assessments where the General Court tends to pay greater deference to the Commission's analysis. In fact, even where there is proven absence of anticompetitive effects in the case at hand, the likelihood of engagement in a similar practice by the same company or another market participant begs the question of defining markets in order for their participants to discern the extent to which a given conduct might be considered inside or outside the legality box.

How then should an authority go about defining a double-sided market where, as it is the case for search engines,[22] companies cross-subsidize a free product on one side through the sale of a different, non-competing product on the other side?[23] In practice, it can decide to follow two alternative strategies. The traditional one is to bundle the

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[19] The fact that profitability may be a poor proxy for the exercise of market power is indicated also by the 'Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty To Abusive Exclusionary Conduct by Dominant Undertakings', [2009] OJ C45/7, para. 11 (referring, to that effect, to Case 27/76, *United Brands Company and United Brands Continental v Commission* [1978] ECR 207, paragraph 126).

[20] Notice, supra n 17, para 27.

[21] For example, see Commission's Art. 6(1)(b) decision with conditions & obligations, 21 September 2007 in Case COMP/M.4731 *Google/Double Click*; Art. 6(1)(b) non-opposition decision, 18 November 2009 in Case COMP/M.5607 *Avaya/Norte*; Art. 8(1) decision, 21 January 2010, in Case COMP/M.5529, *Oracle/Sun*; and Art. 6(1) (b) non-opposition decision, in Case COMP/M.5727 *Microsoft /Yahoo Search Business.*

[22] In reality, search engines might be more accurately squared as a three-sided markets, where the satisfaction of demand in two sides (users and content providers) is funded through the provision of a service to a third group of customers (i.e., advertisers), but this further segmentation has been omitted in this paper as the functioning mechanism on the user side is parallel to that of the content provider side, and including a further specification in the basic explanation would unnecessarily complicate the picture.

[23] The specification about the non-competing nature of the second product is meant to the exclusion of the particular case where the free product can be perceived as a potential substitute for a premium version of the same product offered on sale, in which case a standard market definition can be applied: see Evans, 'The Antitrust Economics of Free' (May 19, 2011). Available at SSRN: http://ssrn.com/abstract=1813193 or doi:10.2139/ssrn.1813193

two products together and consider them as a "business ecosystem",[24] in which one cannot speak about one side of the market without comprehending the other. This was the case in the European Commission's decision in the proposed acquisition by Microsoft of the Yahoo! search business, which defined the market for advertisers as "online search advertising", and went on at length to explain the interrelationship between search and advertising.[25]

Alternatively, an authority can define market(s) as centred around one of the products and consider the complimentary product in the assessment of market power. An example of this type of analysis, although performed quite rudimentarily by omitting a proper consideration of the nature and the functioning of the competitive constraints, can be found in Beijing's first intermediate Court's decision in *Chinese State Administration of Industry and Commerce (SAIC) v. Baidu.*[26] Baidu, the leading search engine in China, was alleged to have arbitrarily imposed a ranking penalty to a medical information website, Tangshan Renren, in order to retaliate for the latter's drop in advertising bids on Baidu and force it to revert to the previous investment level. SAIC, acting upon Renren's complaint, challenged Baidu's behavior on the basis of Article 17(iv) of the Antimonopoly Law, which prohibits the imposition of exclusive dealings by dominant firms in the absence of a legitimate justification. Interestingly, the Court rejected the defendant's claim of immunity from the antimonopoly law grounded on the simple assertion that the search services were being delivered for free. Even though it accepted the defendant's pleading for an (incomplete) definition of the relevant market as "search engine market" in China, the Court objected that:

> the free internet service provided by search engine providers to internet users is not equivalent to a free service for charity, and may obtain actual or potential commercial benefits by attracting internet users and employing advertisement or other marketing services.[27]

At least at a formalistic level, the Court seemed to recognize the link between search and advertising. It did not delve into the type of constraints operating on the provision of search services, however, as it saw no need to undertake that assessment. Regrettably, the second tranche of market analysis is missing because the complainant did not adduce sufficient evidence that Baidu was dominant, and SAIC failed to supplement the complainant's submissions to that effect.[28]

From the examples illustrated, it is apparent that under either approach, the scope of the analysis done for market definition purposes is, at least in its first stage, limited.

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[24] Evans, Ibid.

[25] Decision of the European Commission, Case No. COMP/M.5727 *Microsoft/Yahoo! Search Business* (18 Feb. 2010), OJ L 24, 29.1.2004, p. 1

[26] See Opinion by Beijing No. 1 Intermediate People's Court, Civil Case No. Yizhongminchuzi 845/2009.

[27] Evans, above n 23.

[28] For the sake of completeness, it should be mentioned that despite the fact that the Court was not obliged to touch upon the issue of abuse (having determined that the company was not dominant), it incidentally did so by accepting Baidu's defence that the application of a ranking penalty was motivated by the inclusion in Renren's webpage of several spam links, and eventually dismissed the action.

This is in line with some literature which downplays the importance of a robust market definition relative to the competitive assessment, and commends an holistic approach aggregating the two.[29] In the unilateral conduct context, however, such an approach has two shortcomings: First, as noted, an inconclusive market definition approach appears in contrast with the need for clarity that the players in the industry ought to be able to rely upon, if they are to challenge potentially abusive practices by the dominant player. Differently from merger control, where the assessment is forward-looking and based on assumptions about the future of the market, present data concerning the dynamics of the market and the behaviour of the dominant company are actually available and should therefore give at least good directions for market definition on unilateral conduct reviews. Secondly, the possibility of inferring dominance from abuse is a contested theory, and asserting the prevalence of the competitive analysis over market definition would fall easy prey of the circular reasoning for which such "dominance inference" is contested.[30]

As a result, the most reasonable approach seems for competition authorities to make a *prima facie* product-specific market definition, involving a description of the market participants and the sources of competitive constraint and no more than a cursory look at market shares, namely in order to forego dominance inquiries in case of too little market power by the allegedly dominant company.[31] In order to avoid type II errors (under-enforcement), such *prima facie* markets should be drawn as narrowly as possible, identifying the smallest subset of products for which there is consumer demand. Only at a second stage would the picture become clearer, as authorities look into the scope for the exercise of market power, its relationship with potential entrants and whether any submarkets can be identified based on this particular relationship.[32] So for example, in the case of search engines the *prima facie* markets would be online search and online search advertising, with the main sources of competitive constraint coming from offline algorithmic search and directory-based search, and respectively, offline and non-search advertising.

Practically speaking, this appears the only viable route to follow in cases involving the high-tech industry, where the pace of innovation is so rapid. In such context, where

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[29] See L. Kaplow, 'Why (Ever) Define Markets?' (2010) *Harvard Law Review*, 124, 437 and the literature cited at footnotes 78-81 and 83; D. Evans, 'Lightening up Market Definition', in E. Elhauge, *Research Handbook on the Economics of Antitrust Law*, Edward Elgar (NY) 2010.

[30] For an evaluation of such hypothetical, see Advisory Group on Competition Policy, 'Report on an Economic Approach to Article 82' (July 2005), available at http://ec.europa.eu/competition/publications/studies/eagcpjuly_21_05.pdf, note 2, 5, et seq. For some criticism, Niels & Jenkins, 'Reform of Article 82 EC: Where the Link between Dominance and Effects Breaks Down' [2005] *European Competition Law Review* 26, 605; T. Eilmansberger, 'Dominance - The Lost Child? How Effects-Based Rules Could and Should Change Dominance Analysis' (2006) *European Competition Journal*, 15, 19; J. Vickers, 'Abuse of Market Power' (2005) *The Economic Journal*, 115, 244; J. Vickers, 'The Reform of Article 82 EC: Recommendations on Key Policy Objectives' (2005) *European Competition Review*, 1, 179.

[31] Along this line of reasoning but with application to all dominance inquiries, see National Economic Research Associates, 'The Role of Market Definition in Monopoly and Dominance Cases', Report Prepared for the Office of Fair Trading (July 2001).

[32] Engaging in such assessment at a later stage is in accordance with the procedure described in the Notice, supra, n 17, para. 43

markets are highly contestable and competition often comes from different platforms,[33] a conclusive market definition may be preposterous or speculative at best, as a market-share based assessment of dominance is likely to be based merely on a transitory situation of market power which does not duly take into account the pressure of potential entrants.[34] In fact, the use of market shares data in this context is likely to be misleading even when aimed at taking into account the existence of potential entrants: the main problem with the analysis in fast-moving markets is that data on the cross-elasticity of substitution is rarely available, as there has been usually little or no substitution of the same kind. The proposed solution to that problem is to conduct survey research to derive *indicia* of substitution; and subsequently, instead of basing the entire market definition upon indicia, simply use *prima facie* markets to draw a roadmap of what the market structure might look like, leaving its definition open within a range and focusing most prominently on the nature of the competitive constraints.[35] In our example of search engines, this type of approach would imply shifting the attention from the ascertainment of the market share of Google in online search and online search advertising,[36] to an indicative measurement of the extent to which it can exploit its share (for example, by imposing high prices to advertisers and skewing the results in favour of its products) without eroding its position on either side of the market (thus, not losing users or advertisers to the competing search engines or web portals).

## 2. THE ROLE OF USER DATA IN MARKET DEFINITION AND ASSESSMENT OF MARKET POWER

So far, we have seen the complications of market definition derived from the peculiar nature of two-sided markets. There is, however, another peculiarity in the market of internet search and online search advertising that warrants a departure from traditional market definition: the increasing reliance of these markets on the possession of user data. This feature of the online search advertising industry is of crucial importance for market definition for two reasons. First, it creates barriers to entry by conferring to the incumbent advantages that cannot be replicated by potential entrants. Secondly, it

[33] T.J. Muris, Antitrust in a High Tech World (2010) *Wall Street Journal*, August 12.

[34] See eg, D. Geradin, C. Ahlborn, V. Denicolò, and J.A. Padilla, 'DG Comp's Discussion Paper on Article 82: Implications of the Proposed Framework and Antitrust Rules for Dynamically Competitive Industries', available at http://ec.europa.eu/competition/antitrust/art82/contributions.html, 21; C Ahlborn, D. Evans and J. A. Padilla, 'Competition Policy in the New Economy: Is European Competition Law up to Challenge?' (2001) *European Competition Law Review*, 22, 156; C. Veljanovski, 'EC Antitrust in the New Economy : Is European Commission's View of the Network Economy Right' (2001) *European Competition Law Review*, 22, 115; C. Butts, 'The Microsoft Case 10 Years Later: Antitrust and New Leading "New Economy" Firms' (2010) *Northwestern Journal of Technology and Intellectual Property*, 8(2), 288.

[35] C. Pleatsikas and D. Teece, *The analysis of market definition and market power in the context of rapid innovation,* International Journal of Industrial Organization 19 (2001) 665-693

[36] For both markets, we are above 90% in the EU: see *Microsoft/Yahoo*, supra n 25. See also the findings of dominance made on the other side of the Atlantic in the Statement of the Federal Trade Commission Concerning *Google/DoubleClick*, FTC File No. 0710170 at 3 (Dec. 20, 2007), available at http://www.ftc.gov/os/caselist/0710170/071220statement.pdf ; and the Statement of Interest of the United States of America Regarding Proposed Amended Settlement Agreement (of the "Google Books project"), US Dep't of Justice, Antitrust Div. (Feb. 4, 2010), available at www.justice.gov/atr/cases/f255000/255012.htm#f.

allows players in the search advertising industry to move swiftly into neighbouring markets, such as contextual, display, email or more generally, non-search advertising.

As we conduct our searches, engines like Google and Microsoft Bing gather information regarding our search preferences.[37] This information is being gathered with the user's consent, which is deemed to be given by agreeing to the terms of use of the search engine. The data consists of two different types: at a very basic level, search engines derive from simple search information on our location (usually connected to the IP address), language, results, number of results, number of clicks and date and time of the searches. This is the basic information that is available to all search engines, regardless of whether the user is logged in on one of the additional services or applications that the search engine or one of its affiliated parties might offer. At a more advanced level, a search engine can, to the extent that it is able to track the user as it performs her searches, rely on more extensive information about search preferences. First of all, it will be able to trace that user's search history back to the previous searches conducted, and to combine those data. Second, it might extrapolate further data from the additional services which it or an affiliated party provides, such as toolbar, maps, video search, email, document viewer, group discussions, photo album, translator, finance portfolio management, and so on.

Take Google, for example: ever since the Mountainview-based company made it possible to create a user account, which is required in order to have access to some of its additional functionalities, it started targeting results to the particular preferences of the web user,[38] engaging in what has been denominated "personalized search" and is now a standard feature for Internet search.[39] Admittedly, this shift represents an advancement for the industry, leading to more specific, particularised and relevant results.[40] However, the ability of search engines to rely on a massive amount of personal information of its users should not be underestimated from a public policy perspective. In fact, the very concept of "personalised search" enables search engines to gain a wealth of valuable user information.[41] In an article dated February 25 2010, *The Economist* pointed out that since reliance on user information is a general feature of our society, we might call this the dawn of a new era characterized by data as the new raw material of business: an economic input almost on a par with capital and labour.[42]

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[37] For a comprehensive list of the data collected by Google, see D. Dower, 'The Evil Side of Google? Exploring Google's User Data Collection' (2008) *The Daily SEO Blog*, June 24, available at http://www.seomoz.org/blog/the-evil-side-of-google-exploring-googles-user-data-collection.

[38] See S. Kamvar, 'Search Gets Personal' (2005) Google's official blog, 28 February, available at http://googleblog.blogspot.com/2005/06/search-gets-personal.html

[39] For Microsoft Bing, see 'Making Search 'Yours'', Microsoft Bing's search blog, entry on 17 February 2011, at http://www.bing.com/community/site_blogs/b/search/archive/2011/02/10/making-search-yours.aspx. As to Yahoo, see M. Arrington, 'Yahoo Launches Personalized Search' (2006) *TechCrunch*, August 7, available at http://techcrunch.com/2006/08/07/yahoo-launches-personalized-search/

[40] J. Battelle, *The Search: How Google and its Rivals Rewrote the Rules of Business and Transformed Our Culture* (Boston, MA; London: Nicholas Brearley Publishing, 2005), p. 8

[41] See E. Parisier, *The Troubling Future of Internet Search,* World Future Society (2010).

[42] 'The Data Deluge' (2010) *The Economist,* February 25 (quoting computer scientist at University of California Berkeley Joe Hellerstein, who called this phenomenon "the industrial revolution of data").

In the search engine industry, the perception of such phenomenon is even more acute due to the relative ease of tracking and exploiting user preferences in this context. The speed at which the relevance of "customisation" is gaining traction in the industry can be ascertained by observing the number of changes that the leading engines implemented in the last 5 to 7 years. Now, if this industry's trend is confirmed (and there appears to be no reason why it should not), there is a substantial likelihood that data will become the most important asset in this market. Short of quality of the algorithm, comprehensiveness of the database, creativeness and user-friendliness of the user interface, the most important attribute for a search engine (but conceivably, of any advertising-based business) to thrive will be the ability to capture and account for personal user data. This implies that advertisers will be willing to pay more for data, and thus search engines and web portals are likely to offer even more free services in exchange for an enhanced ability to track user preferences.

Why would that suggest danger? At the outset, the most important consequence of this "customisation" appears to be that other entities engaged in offering Internet search will hardly be able to match the quality of the results offered by a dominant firm. This is the case, not so much because it enjoys a first-mover advantage on information gathering,[43] but rather because the company reinforces its position by concurrently playing in multiple parallel markets[44] where it can acquire, verify, test and obtain further specification of the information acquired in the "normal search" context. Following the Google example, through our Google Maps preferences the company is able to identify our home city, area code and even street address, despite the fact that our IP address might say otherwise. Through our behaviour on Youtube (videos uploaded and watched, comments made, etc.), it manages to predict with some precision what other products might interest us. Through the scanning of our emails for relevant keywords,[45] it manages to grasp the sense of our most private conversation and our upcoming planned events.[46] A lengthy and comprehensive description of the offerings of Google, even though limited to those features which enable the company to acquire additional user information, is omitted here as it could distract the reader from the central message that this part intends to provide: that the possession of user data and, most importantly, the ability to acquire them, will increasingly be seen as a barrier to entry in this industry. One consequence is that competition authorities will have to place more emphasis on the influence that such barriers have on the competitive constraints for a

[43] The current situation is actually the opposite: Google is chronologically only the third out of the 3 major search engines to launch "personalized" search. However, the fact that it can count on the highest number of users in the industry and therefore has enough traffic to continuously test and refine user preferences accordingly is likely to outweigh by far any possible late-mover disadvantage.

[44] See all the functionalities listed supra, at the beginning of Section II.

[45] This is one of the rules a user agrees upon by signing up on Gmail - see Google's FAQ on this topic at http://mail.google.com/mail/help/intl/en_GB/more.html#scanning. See also the letter sent on April 6, 2004 by 31 privacy and civil liberties organizations to Google, available at http://www.privacyrights.org/ar/GmailLetter.htm; and E.F. Moltzen, 'Microsoft's Ballmer: Google Reads your Mail' (2007) *CRN*, October 7, available at http://www.crn.com/blogs-op-ed/the-chart/202300583/microsofts-ballmer-google-reads-your-mail.htm.

[46] Although in that respect, Google Calendar performs a much better job by tracking exact time, date, invitees and attendants: see http://www.google.com/calendar.

defined market. A practical example is user data, which should be seen as something having economic value. This seems particularly appropriate as data are an asset which needs to be routinely refreshed,[47] and therefore continuously acquired, for the operation of the match-making service described above.

The other, perhaps most notable consequence, is that markets are likely to be much less neatly defined around a specific product or service, and much more centred on a participant's ability to use those data across different types of activities. For that reason, an essential step in market definition will involve determining the extent to which the privacy policy stated in the terms of use of the website (or search engine) allows the deployment of the information submitted by the user in other contexts, not only for the provision of another service by the same company ("intra-company versatility") but also for other companies to provide another or even the same service ("inter-company portability"). Thus, intra-company versatile user data acquired by a multi-market company will represent a substantial barrier for single-market providers, unless the user can also benefit from inter-company portability, which means absence of switching costs. The latter situation is rare, and can be encountered only in extreme cases,[48] where access to data is so crucial for the industry that portability obligations would otherwise likely be imposed on the basis of essential facility arguments.[49] The former is a standard feature for those integrated companies (the two rampant examples being Google and Microsoft) which offer multiple web-based services, one of which is typically matching eyeballs with advertisers. Incidentally, such matching can be offered through different platforms, not being limited to search engines. To the extent that the company is able to acquire personal data, it is able to offer targeted advertisements also in email, display and contextual advertising. The trend towards convergence of these three different formats of advertising, owing to the growth of behavioural advertising and the tendency to "mix and match" by the major players in the industry, has been noted

[47] The EU's Article 29 Data Protection Working Party issued a report on April 4, 2008 containing a set of obligations to search engine firms, including that of demonstrating the strict necessity of retaining specific personal data beyond 6 months from the moment in which was acquired. See Data Protection Working Party 29, Opinion on Data Retention, available at http://ec.europa.eu/justice/policies/privacy/news/docs/pr_03_04_08_en.pdf.

[48] One such extreme case may be Google's. At Google, an entire team has been set up with the objective of making user's exit from Google as easy and as smooth as possible. See www.dataliberation.com. However, this is only the case on one side of the market, the user side, and not for the advertising side where Google has repeatedly stated that it will not sell user data to advertisers or other platforms. See Google's privacy policy**,** infra n 51. See also testimony by Eric Schmidt at the hearing "The Power of Google: Serving Consumers or Threatening Competition?" held before Senate Judiciary Committee, Subcommittee on Antitrust, Competition Policy and Consumer Rights on 21 September 2011, available at http://www.judiciary.senate.gov/hearings/hearing.cfm?id=3d9031b47812de2592c3baeba64d93cb

[49] Meaning that the data would have to meet its requirements, which under US law are (1) essentiality; (2) no reasonable duplicability by competitors; (3) refusal to give access; and (4) access was feasible for the monopolist (See *MCI Communications v. AT&T Tel. & Tel. Co.,* 708 F.2d 1081, 1132 (7th Cir 1983), which represents the most up to date and precise test that has been fashioned by a Court who recognised the doctrine of essential facilities). An argument can be made that these requirements would be met if an integrated dominant search engine (such as Google) were to prevent its downstream competitors from user data.

during the course of the investigations in both *Google/Doubleclick* and *Microsoft/Yahoo*.[50] In fact, it is certainly imaginable that once Google has gathered a sufficient amount of data to predict a user's needs and surfing behaviour, it will be able to target that user with relevant advertisements not only through its search portal, but also through advertisements incorporated alongside emails, in its portal or in affiliated websites.[51]

At the same time, one should be careful not to put excessive reliance on customer data, since that would lead to an overly broad market definition. Accordingly, the user-side market for advertising-based businesses in the "customisation era" should not be defined too broadly (such as "online communication services advertising.") This is because entry might be theoretically possible for companies engaged in any type of web offerings that are funded by advertising, and through which a substantial amount of data can be gathered. Presumably, each of the offerings is characterised by its own demand curve, and the market should be drawn as close as possible to that curve.

Likewise, it is submitted that the provision of data should not be treated as a market in itself, for example by drawing the definition around "data gathered via search" as suggested by former FTC Commissioner Pamela Harbour and her Attorney Advisor Tara Koslov.[52] By contrast, in the proposed approach the possession of data and the substitutability of different types of advertising will enter the analysis at a later stage, in the examination of the competitive constraints of what is identified *prima facie* as the relevant market. As a result, to the extent that a company can interchangeably focus on the offer of different types of equally targeted advertising, it is not to be excluded that the relevant market will be defined broadly as that for "online advertising".

To sum up, the two important 'take-aways' from the prominent reliance of both advertisers and service providers on user data are that: (1) markets should be defined as narrowly as possible, and attention ought to be placed on user data as a factor that influences the effectiveness of the competitive constraints, and (2) where the amount of user data on which an internet-based company can rely is abundant, the different types of advertising through which its activities are financed are likely to be substitutes.

## 3. RAMIFICATIONS

We have seen that in the context of online search and advertising, market definition is confronted with a number of challenges:

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[50] See *Google/Doubleclick*, supra n 21, para. 50-56 and *Microsoft/Yahoo*, supra note 21, para.71-74. However, not all respondents of the market investigation accepted that description as accurate, contending that search and non-search have two different objectives, the former being aimed at direct response marketing and the latter at building brand awareness.

[51] Google in its privacy policy allows the use of data for *any* purpose related to providing, maintaining, protecting, and improving its services (including advertising services) and develop new services, as well as protecting the rights or properties of Google or its users: see http://www.google.com/goodtoknow/data-on-google/. By announcing some modification of its privacy policy on January 25 2012, Google officially clarified that this means that user data will be used across all its services, adding the important qualification that one cannot opt out from the use of such data without renouncing to the provision of Google's personalized services altogether - see http://www.google.com/intl/en/policies/.

[52] P.J. Harbour and T. Koslov, 'Section 2 in a Web 2.0 World' (2010) *Antitrust Law Journal*, 784.

(1) the peculiar relationship between search and advertising, due to (a) the establishment of a financial mechanism which relies entirely on the latter to provide the services offered in the former, and (b) the feedback effect between the two.

(2) the impracticability of a traditional SSNIP test, due to (a) the frequent absence of data concerning past substitution as a consequence of the continuous product innovation, and (b) the difficulty in obtaining a measurement of the main parameter of competition in search, i.e. relevance of results.

To overcome these challenges, this article has proposed a solution which relies on a first cursory delineation of the market, as opposed to a detailed quantitative analysis on prices and elasticities. This delineation would be based on qualitative indicia such as surveys and evidence of past substitution, and would use such indicia to infer the validity of a given type of market definition. The ultimate definition of the relevant market could still be potentially different, however, depending on the specific data provided by the parties concerning the effectiveness of the competitive constraints, such as the existence or the magnitude of barriers to entry, the market elasticities, the demand cross-elasticity, and any possible technological change.

Thus, as a first step, the *prima facie* market would be identified focusing on "all those products and/or services which are regarded as interchangeable or substitutable by the consumer, by reason of the products' characteristics, their prices and their intended use."[53] Secondly, the validity of such definition would be tested against the constraints present in the industry, to see the extent to which the pressure exerted by such constraints leads to a modification of the initial assessment.

Hereinafter, such analysis is conducted with reference to those defined by the notice as the three main sources of competitive constraints for a firm, namely: demand substitutability, supply substitutability and potential competition. For convenience, we first analyse demand and supply substitutability in one side of the market - online search - and then on the other (search advertising). Finally, we consider the role that potential competition plays with regard to the offering of search, simply because it is the side of the market that generates feedback effects, and therefore in which a company must be successful if it is to capture shares in the market for search advertising.

Given the particularity of internet search, where services are offered at no direct cost for users, one can rule out the price factor as relevant to consumers' perception of interchangeability. The *prima facie* market is to be identified as one in which consumers are able to type queries and obtain pertinent answers. In light of the wider advantages that an online search tool would offer - at least for most types of searches - over off-line comparables, it appears reasonable to define the market as that for "online search". This market, however, must be considered together with the market in which it generates revenues, namely that of advertising. Although there is some discussion regarding the appropriate boundaries of the market for online advertising, it would seem appropriate to define the market more narrowly, i.e. as focused on "search

[53] See Notice, supra n 17, at 7

advertising", both for administrative simplicity,[54] and in line with standard international practice,[55] so as not to let a possible prevention or restriction of competition in that market go unnoticed.

In online search, there is a prominent feature that explains why both demand and supply substitutability are not likely to be a significant constraint on the operation of a search engine. Success is, to a great extent, dependent upon scale, which is necessary to both sustain the sunk costs (in terms of machinery and human capital) and engage in experimentation aimed at increasing the relevancy of results. In order to conduct experiments a search engine needs to sacrifice monetisation of some of the eyeballs (i.e. of the users who visit its portal). It is natural to expect that the higher the number of users for a particular search engine, the more relevant its results will be. Relevancy, in turn, will consolidate the users' trust for that dominant engine, and attract even more users, thus triggering a "virtuous circle" which makes it extremely hard – if not impossible - for any competitor to provide equally satisfactory results. For this reason it can be expected that, unless Google is affected by managerial slack or otherwise loses an abundant proportion of relevancy relative to its competitors, demand substitutability will be extremely low. This conclusion applies with even more strength if one believes that evolution in the industry is likely to be driven not simply by user data (as asserted in part 2 above), but by the *volume* of user data processed by a search provider.

Two factors on the user side of the market that constrain the ability of users to react promptly to a deterioration of the results offered by a dominant search engine also militate in support of the same conclusion. First, users might be locked into a particular search engine because of their trust for the engine,[56] or simply because its use has become an entrenched feature of their surfing habits. Thus, to the extent that they are accustomed to use it, they might not seek out potential alternatives even if they were to perceive the existence of deterioration of results or lack of innovation on the user experience.[57] Secondly, a substantial information asymmetry makes the competitive assessment even more complex: neither Google's competitors, nor its users, know the extent to which Google is innovating or withholding the improvements at present to face potential competition in the future. In other words, they don't know whether and

[54] The Commission has sometimes indicated that, within a limited range, considerations of certainty and administrative ease may be appropriate for defining the exact scope of a market: for example, it has defined pharmaceutical markets according to the Anatomical Therapeutic Chemical classification system recognised by the World Health Organization despite the asserted "level of arbitrariness" identified in the classification (see *Sanofi/Sterling Drug*, O.J. C 156/10 (1991)). Similarly, it has dogmatically stated that because the conduct at issue related to and was directed at plasterboard manufacturers, the market a priori should be so defined (see Commission Decision No. 89/22/EEC, O.J. L 10/50 (1989), 4 CMLR 464 (*British Plasterboard*)).

[55] See U.S. Department of Justice & Federal Trade Commission, Horizontal Merger Guidelines (2010), available at http://www.ftc.gov/os/2010/08/100819hmg.pdf, section 4 ("properly defined antitrust markets often exclude some substitutes to which some customers might turn in the fact of a price increase even if such substitutes provide alternatives for those customers")

[56] See S. Vaidhyanathan. *The Googlization Of Everything (And Why We Should Worry)*, Berkeley and Los Angeles, University of California Press(2011)

[57] This has been referred to as the "laziness criterion". See F. Thepot, 'Market Power in Online Search and Social Networking: a Matter of Two-Sided Markets', presented at the XIX Workshop at City University, London on 26 January 2012 (on file with the author)

if so what they are missing out, as there is currently no entity that can be validly compared with Google to benchmark its rate of relevancy or innovation.[58] As a result, it is fair to be sceptical of the idea that demand substitution represents a significant constraint in this market.

Analogous considerations apply for supply substitution in search: because of the crucial role that scale and relevancy play in this market, it is extremely difficult for competitors to gain traffic at the expense of Google. This is even more the case as competition in search is based on quality of results, the measurability of which is much harder and less transparent than it is the case for prices. Once again, the information asymmetry will hinder competitors' ability to react in a timely way to any "less than substantial" decrease in Google's relevancy. As a result, Google can be confident that as long as it will continue to improve its relevancy, no competitor will be able to match its success.

A somewhat different analysis should be carried out for the other side of the market where advertisers are involved. In this market, there is a much greater extent of multi-homing: most advertisers consider Google's platform a must-have in their business, but decide not to forego the possibility of getting additional revenues through a second search platform.[59] As to the supply-side, it will be remembered that the demand of advertisers is served through a service of match-making, where advertisers' satisfaction is maximized when their advertisements get clicked on. In this respect, Google's higher traffic compared to that of its competitors allows it to set a higher price per keyword, as it is able to offer a higher chance that an advertisement will be clicked on. Different to the case of internet search, however, Google's decisions are transparent in this context, as the prices are (or at least should be[60]) perfectly observable by advertisers. If Google increases its price significantly, then, the demand of advertisers will shift to the competing platforms to the extent that the increase in price outweighs the added value for an advertiser of being on Google, instead of another search platform. But again, the service offered by the competing search platform can be considered a substitute only where Google's price increase is substantial: a 5 or 10% increase seems unlikely to be sufficient for that purpose. As a result, it can be concluded that although the constraints in the advertising side of the market are certainly more appreciable than those in the user side, neither is apt to impose significant limits on Google's exercise of market power. Nonetheless, it is not to be excluded that the increasing relevance of

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[58] Admittedly, there is a number of users which "multi-home:" (i.e., that runs searches on multiple engines) and thus are able to observe the improvements (or not) of Google relative to its competitors, but it seems unlikely that these users would ever abandon Google (they will, at best, multi-home with another engine, e.g. Microsoft Bing, as default preference).

[59] See - *Microsoft/Yahoo! Search Business*, (18 Feb. 2010), supra note 22.

[60] Previous investigations and commitments obtained by two different competition authorities with Google seem to suggest that this was not the case, at least with regard to the two particular services under examination. See the commitment entered into by the Italian Competition Authority with Google Ireland and Google Inc. in the case concerning Google News: Decision n. 21959 of 22 December 2010, *FIEG/Google*, available at www.agcm.it/trasp-statistiche/doc_download/2602-51-10.html. See also the commitment with Google adopted by the French competition authority on October 28th, 2010, imposing Google to practice a more transparent and predictable content policy in its advertising, available at http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=368&id_article=1488

user data warrants a broader market definition. One example could include other types of advertising such as contextual and display: that is an evaluation that we leave to the inquiring competition authorities. Surely, the progressive integration into search providers of a variety of services where such data are gathered is going to have a decisive influence over their ability to outcompete rivals.

The third source of competitive constraints is represented by potential competition. According to the Notice, potential competition differs from supply substitutability for the nature of the costs involved in switching production from one output to another, and the time required to carry the switch.[61] Thus, a potential competitor is an entity which would need to incur significant expenditures and risk (i.e., sunk costs) to accomplish the switch and is not able to do that in the short term. In the online search advertising market,[62] the path to achieving a product that is comparable with Google is certainly a long one. There are two main types of investments that one would need to undertake for that purpose: firstly, the web-indexing machines and the running costs involved; secondly, the need for a competent engineering team to devise a competitive algorithm and continuously improve it, as well as create and manage the advertising platform. Under both aspects, the task for a potential new-comer appears difficult, but not impossible. Essentially, it would have to gather some "state of the art" technology and recruit an extensive number of skilled engineers. But the greatest challenge would be coupling these expenditures with an indefinite period of unprofitable waiting to gain critical mass from traffic, which as noted above is crucial for the attainment of relevancy. There are, just a handful of companies that already possess some web-based assets and attract a decent amount of traffic: besides Google, a dedicated index of the most visited web pages lists Facebook, MSN, Twitter, Linked In, Amazon, Ebay and Apple among others.[63] For those companies, the idea of gathering the technology and the human capital necessary to compete in the search market might not be too far-reaching. All they would have to do is to insert search functionality in their websites, invest in indexing machines and hire a number of extremely skilled and talented computer science engineers.[64] Accordingly, these companies can be seen as potential competitors to be accounted for in the competitive assessment.

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[61] Notice, supra n 17, para 20.

[62] I consider here potential competition in the market as a whole, instead of dividing the analysis to address individually each side of the market, because in this context it does not make sense, at least for the time being, to speak of one side without the other: the possibility that a disruptive player enters the market and starts practicing a different business model, for example by delivering better results in exchange for a fee, appears risible.

[63] See Alexa Top 500 global sites, available at www.alexa.com/topsites. I deliberately omitted reporting Youtube, because it is one of Google's properties; Yahoo! and Baidu, because they are already (at least to some extent) in the market; and Wikipedia, because its business model is purportedly not based on advertising.

[64] In this respect, it is interesting to note that the US Department of Justice is currently reviewing the "no poach" agreement between Google, Apple, Pixar, Lucasfilm, Adobe, Intel, and Intuit, according to which each company commits not to hire employees or former employees of the other. One could interpret this move by Google as a sign of growing importance of human capital relative to the machinery for the search engine business. See http://techcrunch.com/2012/01/19/damning-evidence-emerges-in-google-apple-no-poach-antitrust-lawsuit/

The possibility of entry is likely to be more concrete to the extent that such companies can rely on a constant source of personal data over user behaviour and preferences to tailor both their searches and their advertisements to their needs. In that respect, it is interesting to note that Facebook, which is the most visited website in the world and arguably one of the largest databases of user information,[65] is partially owned by Microsoft. Facebook provides a search service powered by Bing, thereby injecting more traffic into Microsoft's capacity to run experimentation and ultimately improve the relevancy of its engine. At the moment, the share gained by Facebook in internet search is still low,[66] but it is conceivable that as people who spend a considerable amount of time on Facebook start to get acquainted with the existence of such feature,[67] Google's market share might be gradually eroded, perhaps even to the point that Microsoft Bing takes over as the dominant player. The latter is likely to be the case, however, only if Bing's relevancy improvements were visible and quick, for it is reasonable to assume that Facebook users would otherwise just keep two windows open and turn to Google for their searches.

In conclusion, although Microsoft might look like a crippled competitor in the online search advertising market, its ability to deploy its entire resources to fight up with Google should not be underestimated. Similarly, the possibility that other significant players of the web economy step in to contest this market is not to be excluded. Practically speaking, however, the role of potential competition is likely to remain marginal except for those players who do not possess both the traffic and the deep pockets necessary to enter the market. Not least, the ability of such companies routinely to capture user data and to be legally entitled to use them for the improvement of the search experience is expected to be of increasing importance to afford potential entrants the opportunity to bridge the "scale gap".

[65] Data from www.alexa.com/topsites - last visited on March 23rd, 2013.

[66] The current figure is of 1.43% market share in the US market. See http://www.karmasnack.com/about/search-engine-market-share/ - last visited on March 23rd, 2013.

[67] According to the web monitoring company Nielsen, Facebook is by far the website on which Americans spend most of their time: over 53.5 billion minutes in May 2011, compared to the 17.2 of Yahoo!, the 12.5 of Google, and the 9.1 of Youtube. See http://blog.nielsen.com/nielsenwire/social/