Digital Attention Intermediaries: A Competition Law Perspective

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ABSTRACT

Digital intermediaries bring together an attention seeker and an attention target/provider. Intermediaries are not new but they have developed substantially thanks to the Internet as well as big data and Artificial Intelligence. This paper analyses the specific characteristics of digital intermediaries and reviews how competition law methodologies should adapt to those characteristics. To determine market power, the paper recommends that separate relevant markets should be defined for each side of the market and that specific metrics (such as monthly unique visitors or time on site) should be used for the "free" side. Specifically to measure potential competition, the paper recommends to assess entry barriers to existing product markets but also to future product markets by looking at innovation capabilities. To determine the competitive effects of a merger, the paper recommends to assess the effects on all sides of the market and not only on the paying side. The competitive assessment on the free side could be done in cooperation with the authorities in charge of media pluralism or data protection. For abuses of dominant position, the paper recommends to focus on the most harmful foreclosure conducts which are competitors envelopment, refusal access to data and interoperability and increase of users costs to switch or multi-home.

JEL: K21, L41, L82, L86

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I. GOALS AND SCOPE OF THE PAPER

Attention intermediaries offer content, products and services to consumers to attract their attention and then resell this attention to attention seekers, which can be online advertisers, providers of content or product to be bought, app developers. With the progress and the diffusion of digital technologies (the Internet and then big data and artificial intelligence), attention intermediaries have taken an increasing importance in the economy and the society.

The attention intermediaries bring many benefits which can be estimated in different manners. One way is to assess how much users are ready to pay for the service. Brynjolfsson, Collis, and Eggers (2019) ask Facebook users to specify what monetary compensation they would need to give up their use of the service for a month and found that in 2016-7, the monthly figure for US participant in the survey was at the $35-50 level. The figure for access to search engines was even higher. Another way is to estimate the value of the content provided by attention platforms. Evans (2017) indicates that, in 2016, American adults spent 437 billion hours on ad-financed attention platforms. On the basis of the opportunity cost of the time, Evans calculates that this time was worth $7.1 trillion using the average after-tax hourly wage rate and $2.8 trillion using the average after tax minimum wage rate, which can thus be the value of the content of those platforms.

However, attention intermediaries also increase risks. Some risks are broad and societal. For instance, Allcott et al. (2020) found that a four-week period without Facebook 'improves subjective well-being and substantially reduces post-experiment demand, suggesting that forces such as addiction and projection bias may cause people to use Facebook more than they otherwise would.' Also, some intermediaries have become so large that they do not merely manage a private space but they control part of the public sphere. This may require a move from a private law to a public law approach to their regulation, what is now called "digital constitutionalism" (Suzor, 2019). In addition, some intermediaries are so large that they have acquired very substantial information and surveillance power, which may need to be tamed (Cohen, 2019; Zuboff, 2019).

Other risks raised by the platforms are linked to the working and the contestability of the markets as the size and business models of some platforms may threaten competition and innovation. The prevention of those risks is part of the broader debate on the role of competition policy and regulation in controlling the economic power of digital platforms (Petit, 2020; Wu, 2018). In its 2020 Digital Strategy, the European Commission announces that it will, on the one hand, review of the fitness of EU competition rules for the digital age and, on the other hand, explore, in the context of the Digital Services Act package, ex ante rules to ensure that markets characterised by large platforms with significant network effects acting as gatekeepers, remain fair and contestable for innovators, businesses, and new market entrants.[1]

To contribute to this key academic and policy debate, this paper aims to analyse how the antitrust methodologies to assess market power and the theories of harm should be adapted to the characteristics and dynamics of the attention markets. The paper runs as follows: after this introduction, Section 2 reviews the main characteristics of the services provide by attention intermediaries and gives examples of antitrust (merger) cases which failed to take into account some of those characteristics. On that basis, Section 3 proposes two main changes to improve the assessment of market power: the use of alternative metrics for market definition and market shares to better reflect the characteristics of these services and a better analysis of potential competition to better reflect the high rate of innovation of online markets. Then, Section 4 proposes improvements to analyse merger and anti-competitive unilateral conducts in attention online markets. Finally, Section 5 concludes with concrete policy recommendation to make EU competition rules fitter for the attention markets.

II. THE ATTENTION INTERMEDIARIES AND ANTITRUST GAP CASES

A. Definition and characteristics

1. Attention intermediaries and digital technologies

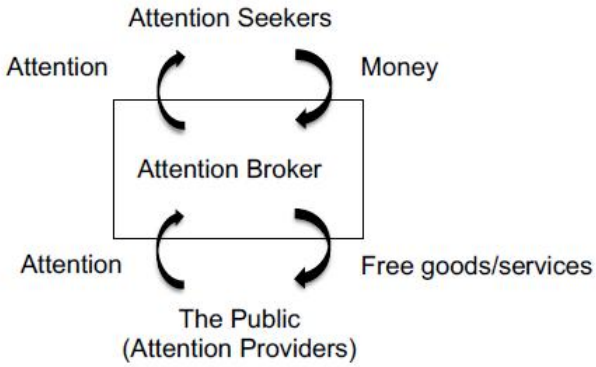
As illustrated in Figure 1, attention intermediaries are active on two-sided markets with three actors: (i) an *attention intermediary/broker* (e.g. a traditional broadcaster or an online platform) which brings together (ii) an *attention target/provider* (i.e. viewer, user) and (iii) an *attention seeker* (e.g. an advertiser, provider of services, seller of a good). In the words of Evans and Schmalensee (2016), an attention intermediary is a matchmaker between the attention target and the attention seeker. On the one hand, to get viewers, the intermediary should have attractive

[1] Communication from the Commission of 19 February 2020, Shaping Europe's digital future, COM(2020) 67, p.10.

content (premium content for media firms, good results for search platforms, large choice, good recommendations and good services for online marketplaces). On the other hand, to get attention seekers, the intermediaries need to have large share of the attention of customers, ideally of customers who single home and which are ready to engage with the attention seekers with a high willingness to pay. Thus, attentions intermediaries care about the size of attention but also its composition.

In practice, attention online intermediaries may cover different types of platforms: content or video sharing platforms, social media, search engine, e-commerce marketplaces.[2] Each type of platform has different characteristics, which raise different issues for competition and regulatory policy and several types of platforms are already subject to specific EU rules.[3] However, the main common feature of the attention platforms is that they try to maximise the activities they intermediate and, for that, have to maximise the attention they attract.

Figure 1. The Attention markets and its sides



Source: Wu (2019)

In multi-sided markets, there are important cross-groups networks externalities between the different sides of the market that create important network effects as more viewers lead to more attention seekers and vice versa.[4] This key characteristic explains why many attention markets tend to tip in favour of one dominating platform and why a platform tends to focus on market expansion before profitability. This feature is sometimes referred as the 'first mover advantage'. However, this is misleading as the first platform of a new attention service tends to experiment and makes mistakes and it is the second or the third platform entering that tends to win the whole - or a big part of - the market. Also in multi-sided markets, the overall price structure on all sides of the market matters and not prices on specific side; the intermediaries may decide to charge both sides (as pay-TV broadcasters) or only the attention seekers side (as free-TV broadcasters or most of the online platforms offering 'free' services).

The benefit of attention is not new as explained in Peitz (2020, section 1). Since long, attention has been valued by many firms such as trade fairs, supermarkets, yellow pages and, in particular, traditional media firms.[5] Media firms are usually based on one of the three main business models with different financing means:[6] (i) the Public Service Media model which is free for viewers, without (or with less) advertising and financed with State support, (ii) the free-TV model which is also free for viewers but financed with (more) advertising and (iii) the pay-TV model for which viewers have to pay a fee in exchange of no (or less) advertising. On the attention target side, all media firms are competing for the same eyeballs. Audience rate is the most important for pay-TV which directly depends on the number of paying subscribers and for free TV on the number of viewers as the price advertisers are willing to pay depends on the audience size. [7] Audience also plays a role, although to a lesser extent and in a more indirect manner, for Public Service Media.

[2] On the different types of online platform, see Commission Staff Working Document of 25 May 2016, Online Platforms, SWD(2016) 172.
[3] Recent EU laws have defined different types of online platforms and subject them to different rules. Online intermediations services and online search engine are subject to the *Platform-to-Business Regulation 2019/1150*; online marketplaces are subject to the *Network Information Security Directive 2016/1148*; video-sharing platforms are subject to the *Audiovisual Media Services Directive 2010/13 as amended by Directive 2018/1808*; online content sharing services are subject to the new *DSM Copyright Directive 2019/790*. See de Streel, Kuczerawy, Ledger (2019).
[4] On multi-sided market and cross-group externalities, see Belleflamme and Peitz (2015).
[5] Noam (2019).
[6] The development of online intermediaries leads to a fourth model, the freemium which is an hybridisation of the free and pay model: the viewer has a choice between a free (and usually basic) but with advertising option and paid (usually with adds-on) without advertising. This is the case of Spotify, YouTube, LinkedIn …
[7] Francis Le Lay, the former CEO of TF1, the main French free-TV broadcaster candidly explains : *à la base, le métier de TF1, c'est d'aider Coca-Cola, par exemple, à vendre son produit (...). Or pour qu'un message publicitaire soit perçu, il faut que le cerveau du téléspectateur soit disponible. Nos émissions ont pour vocation de le rendre disponible : c'est-à-dire de le divertir, de le détendre pour le préparer entre deux*

Back then, the key asset of the media firms to attract eyeballs was good content, in particular premium content such as blockbusters movies and popular sport events. For pay TV broadcasters, another key asset was the control over the technical services which comprise (i) the conditional access services,[8] (ii) the set-up boxes, (iii) the services relating to accessing the electronic programme guide and the writing of applications compatible with the application programming interface included in the set top boxes, and (iv) a system to allow financial transactions to be conducted in a secure environment.[9]

The development of digital technologies has led to an important evolution and diversification of the types and business models of attention intermediaries (Martens, 2016).[10] Supermarkets evolved towards online marketplaces, yellow pages evolved towards online search engines and broadcasters evolved towards content sharing platforms.

Digital technologies also changed the ability and the incentives to attract attention. On the one hand, Internet has increased the opportunities to spend one's attention and therefore, *ceteris paribus*, has made attention more scarce and its attraction more difficult and possibly more competitive.[11] On the other hand, big data and AI have increased the value of data,[12] hence the incentives to collect data through attention attraction. But the competitive dynamics of data collection has made attention attraction less competitive in some circumstances for the following two reasons.

First, data collection through attention attraction may exhibit network effects and feedback loops as shown in Figure 2 below. A first feedback loop is linked to the *number of users* and runs as follows: (1) more users means more data; (2) which in turn, means better quality of the service in a general way (on the basis of general indicators such as language, location etc.) as well as in a personalised way (on the basis of the profile that has been built of a specific user); (3) which in turn, attracts even more users to the service. If this feedback loop takes place, the cost of data collection is higher for a new and small platform than for a larger one.[13] Thus the existence of the feedback loop depends on the relationship between the data, the ability to establish customer profile and the service quality which, in turn, depends on the type of data and the type of application at hand (Krämer, Schnurr and Broughton-Micova, 2020).

A second feedback loop is linked to the *monetisation possibilities* and runs as follows: (1) more users means more data; (2) which in turn, means better targeting possibilities for advertisement when additional data are necessary to improve the targeting algorithms; (3) which in turn, raises the likelihood that users click on the ads that are displayed to them, hence increase monetisation under the commonly used pay-per-click model; (4) and which attracts more advertisers because of the higher probability that a user buys the advertised product; (5) which in turn raises again the revenues of the provider; (6) those increased possibilities of monetisation increase in turn the possibility of investment to improve the service and attract more users; (7) which also contributes to the increase of advertisers. If this second feedback loop takes place, a new and small platform with less users and less data will have more difficulty to target its ads and attract advertisers than large platforms, hence less money to improve its products. Here again, the existence and the intensity of this feedback loop needs to be tested on a case-by-case basis and depends on (i) the relationship between the quantity of data and the improvement of ad targeting algorithm, (ii) the relationship between the quality of ad targeting and the attraction of advertisers, and (iii) how the platform invests advertisement revenues and finances service improvement. This empirical evaluation is very difficult to do because the online advertising value chain is very complex and opaque (CMA, 2019; Geradin and Katsifis, 2019).

The development of artificial intelligence may in some circumstances re-inforce those feedback loops as it may strengthen the relationship between user data and service quality in the first loop, and the relationship between

messages. Ce que nous vendons à Coca-Cola, c'est du temps de cerveau humain disponible (...). Rien n'est plus difficile que d'obtenir cette disponibilité. C'est là que se trouve le changement permanent. Il faut chercher en permanence les programmes qui marchent, suivre les modes, surfer sur les tendances, dans un contexte où l'information s'accélère, se multiplie et se banalise.

[8] EECC, art.2(12) defines conditional access system as 'any technical measure, authentication system and/or arrangement whereby access to a protected radio or television broadcasting service in intelligible form is made conditional upon subscription or another form of prior individual authorization.'

[9] See Decision of the Commission of 15 September 1999, Case 36.539 *British Interactive Broadcasting*; Decision of the Commission of 2 April 2003, Case M.2876 *NewsCorp/Telepiu*, para.116.

[10] For an interesting account of the development of today largest attention intermediaries, see Galloway (2018) and specifically Levy (2020) on Facebook, Auletta (2009) and Schmidt and Rosenberg (2015) on Google.

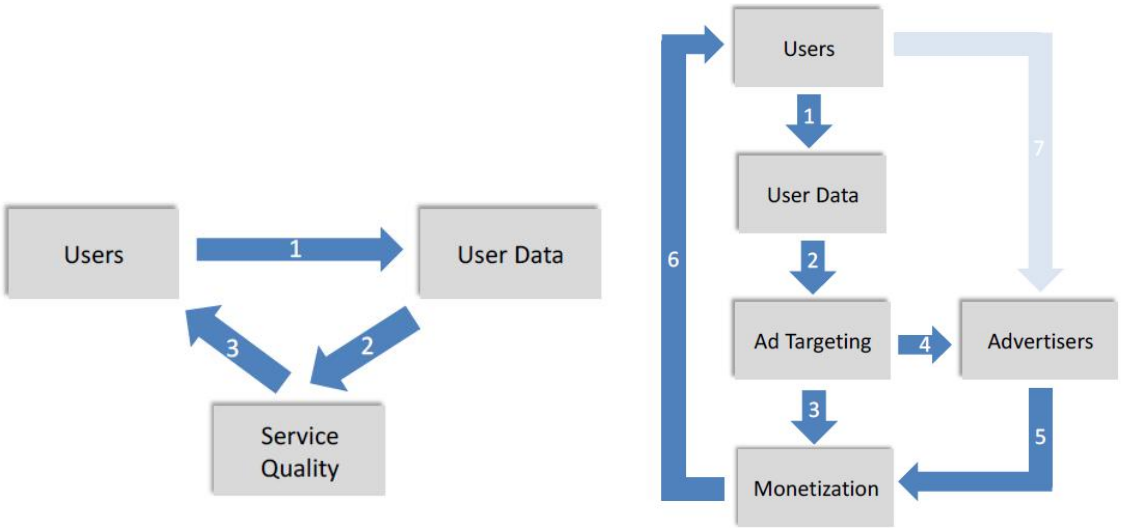
[11] Evans (2013); Peitz (2020) citing Herb Simons: 'a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it'

[12] OCED (2015) show that data have become of the most important input to develop new products and services - mainly through experimentation and learning - and to better sell existing products or services -mainly through personalisation.

[13] Pasquale (2013); Ezrachi and Stucke (2016).

user data and ad targeting in the second loop.[14] Again, this effect should be assessed on a case-by-case basis and very much depends on the type of data and on the type of self-learning algorithms at hand.

Figure 2. The user and monetisation feedback loops



Source: Lerner, 2014

Second, data is general-purpose and can be used for the development and the diffusion of different products and services. Relying on what Prufer and Schottmüller (2017) call 'data-driven network effects', large attention intermediaries having collected many data can expand from one market to another and create attention conglomerates.[15]

2. Attention gatekeeper

There is no clear definition of gatekeeper in EU law, although the European institutions have used the term in antitrust[16] and regulatory contexts[17] when intervening in attention markets. The simplest definition of gatekeeper is an undertaking which determines who can pass through a gate. Lynskey (2017:9-10) defines gatekeeper as an undertaking which controls the flow and accessibility of information and structures the digital environment. [18] With that perspective, she explains that gatekeeper power is distinct from market power in terms of how it is measured, and in terms of its potential impact on the rights and interests of individuals. She also claims that not all harms to individuals are captured by the ex post application of competition rules, or visible from a purely economic perspective.

Leaving aside those broader and societal harm and adopting a narrow economic perspective, a loose definition of a gatekeeper would be that it is an undertaking that can control access by a group of users to some goods or another group of users.[19] In this perspective, an attention intermediary is a gatekeeper if it manages to control the access to the attention targets. This level of control depends on the homing decision of those attention targets and increases with the proportion of single homers. A possible market configuration is to have single homing on the attention target side and multi-homing on the attention seekers side. This is what Armstrong (2006) calls a *competitive*

[14] Domingos (2015).
[15] For more developments, see Bourreau and de Streel (2019).
[16] For instance in Case M.2876 *NewsCorp/Telepiu*, para.198, the Commission considered the merging parties would have been "the *gatekeeper* of a tool (Videoguard CAS) that may facilitate entry for any alternative pay DTH operator and of an infrastructure (the platform) that may ease the conditions for the broadcasting of pay and free TV satellite channels."
[17] Explanatory Memorandum of the Commission Proposal for a Regulation on promoting fairness and transparency for business users of online intermediation services, COM(2018) 238: "This growing intermediation of transactions through online platforms, combined with strong indirect network effects that can be fueled by data-driven advantages by the online platforms, lead to an increased dependency of businesses on online platforms as quasi *gatekeepers* to markets and consumers."
[18] Laidlaw (2010) differentiates between two types of gatekeeper: 'Internet gatekeepers' who control information flows and 'Internet information gatekeepers' which as a result of this function of controlling information flows can have an impact on 'participation and deliberation in democratic culture'. Helberger et al (2015) argue that much of the concern regarding the influence of gatekeepers lies in their control over access to individuals and the way in which the relationship between gatekeepers and users is shaped. Also Cohen (2019).
[19] For more on gatekeeper and bottleneck, see Alexiadis and de Streel (2020:4-6).

bottleneck as the attention seekers need to be on the platform if they want to reach the attention target who single home on that platform.[20]

From this antitrust perspective, the authority should determine what are the main tangible and intangible capabilities which enable the intermediary to have a gatekeeper position and whether those capabilities could be replicated by a new entrant platform. For the traditional attention intermediaries such as TV broadcasters, the gatekeeper position could be due to the control of premium content (films and sport) or, for pay-TV distribution, the control of technical services (CAS, STB …). For the more recent digital platforms, gatekeeper position may also be due to the control of essential data allowing better recommendation and personalisation or a conglomerate footprint allowing valuable synergies for the attention targets.

B. Blind spot or Gap antitrust cases

T The characteristics and dynamics of markets on which attention intermediaries provide their services have not always been fully taken into account by antitrust authorities which led to some blind spot or gap cases (Wu, 2019). In those cases, often merger clearance decisions, the antitrust authority missed important market dynamics which could have affected the outcome of the decision and, more usefully, can inform us on the possible adaptations to competition policy methodologies.

1. Media mergers

In Europe, there was a wave of mergers and joint ventures among broadcasters in the nineties. Reviewing those concentrations, the Commission focused on the paying side on the market (the advertisers) and ignored much of the free side (the viewers). The Commission justified this 'follow the money approach' by the fact that the audience share (on the free side of the market) influences the advertisers (the paying side of the market), hence would in any case be indirectly taken into account when looking at the paying side.[21] However, Franck and Peitz (2019:49) claim that the antitrust authorities should have looked at both sides of the market because a merger between two TV broadcasters which are close competitors on the "viewers' market" give them ability to increase their advertising volumes.

Similarly in the US, the 1996 Telecommunications Act relaxed ownership limitations on radio stations, which led to an important consolidation wave among radio broadcasters and high levels of concentration. The DOJ, which reviewed many of these mergers, focused its analysis on the implications of the mergers on prices for advertisers and paid little attention to the effects on the content offered in the viewers market because radio services were provided for free. The latter might have included lower quality of radio broadcasts (including lower investments in costly investigative journalism), higher attention costs of listeners in the form of more advertisements, and even harm to the democratic process.[22] In an ex post review of those mergers, Tyler Mooney (2010) shows that harm occurred, in the form of higher attention costs in form of a higher ratio of advertisements to content.

Monti (2020) explains that, sometimes, the antitrust authority focuses on the paying side of the market while a media authority looks at the viewers' side. For instance, in the *Springer/ProSieben* merger between two firms active in the markets for TV broadcasting and newspaper publishing in Germany, the competition authority (BKA) reviewed the effects on the advertising side while the Commission on Concentration in the Media (KEK) reviewed the effects on the viewers side and considered whether the merger risked creating an adverse impact on public opinion by concentrating ownership within one group.

Those media merger decisions show the importance of looking at both sides of the attention market and not merely at the paying side. To be sure, both sides are related and reviewing the effects at the paying side is a way, as explained by the Commission, to indirectly analyse the free side. But this is not sufficient to capture all the competitive effects of a merger on the viewers' side.

2. Digital mergers

As it has been well documented by now, some large attention intermediaries are serial acquirer of start-ups. LEAR (2019) observes that, between 2008 and 2018, Google has acquired 168 companies, Facebook has acquired 71

[20] For more development, see Franck and Peitz (2019:54-57).
[21] Decision of the Commission of 7 October 1996, Case M.779, *Bertelsmann/CLT*, para. 15 noting that: 'In any event, the audience shares in the TV broadcasting are a determinant factor for the success of the broadcasters in the TV advertising market and have, therefore, to be assessed at least in the context of this market'. Also Decision of the Commission of 3 August 1999, Case M.1574, *Kirch/Mediaset*, para. 11.
[22] Stucke and Grunes (2011).

companies and Amazon has acquired 60 companies, i.e. around 15, 6 and 5 transactions per year on average.[23] As of now, most of these acquisitions have been approved without remedy and none has been blocked. However, several commentators, with the benefit of the hindsight, claim that some of the clearance decisions were not prospective enough and did not sufficiently analyse to which extend the acquisition aimed at reducing potential competition. Some Facebook decisions stand out as the new gap antitrust cases.

In 2012, the acquisition of Instagram by Facebook was cleared unconditionally by the UK OFT[24] and unanimously cleared by the US FTC. While the FTC gave no guidance for its decision, the OFT clearance was based on the following reasons: (i) Instagram was not seen as potential competitor to Facebook, contrary to what some industry observers had claimed.[25] On the attention seekers side (advertisers), Instagram was not a competitor to Facebook at the time of the merger as it did not show ads, although it would after the merger; on the attention target side (viewers), Instagram was seen as a mere photo app not competing with a social network like Facebook. (ii) There were stronger competitors on mobile photo app market than Facebook. (iii) There was no incentive of vertical input foreclosure which would consist in preventing the quality of the upload of photo from Instagram to rival social networks to foreclose Facebook's rivals.

However, the analysis misses the point that Instagram and Facebook although addressing different consumer needs and clearly non-substitute products, were nonetheless communication media that potentially exercised competitive pressure on each other – due to the fact that both were competing for the attention of smartphone-users – of which the popularity of each of them modified the relative preference of users for the other, raising the opportunity cost of using the other. Moreover, Instagram had the ability (with the social graph) to become a social network. Under the current competition law assessment methodology, the operation was a conglomerate merger given that markets are defined according to user substitution between rival products and tend to discount dynamic constraints. What appeared as a conglomerate merger when markets were defined according to products could have been seen as a horizontal merger if markets were defined on the basis of attention markets or spaces.

Then in 2014, the acquisition of WhatsApp by Facebook was cleared unconditionally by the European Commission[26] and was not challenged by the US FTC. Clearance was based on the analysis that WhatsApp was on different product markets than Facebook and that Facebook had others and stronger competitors. Again, the analysis misses the point that WhatsApp and Facebook were possibly already in the same attention market or space and that WhatsApp had the ability (because of the social graph) to become a social network.

My point is not to claim that any of these mergers should have been prohibited or that any of the acquired firms would have become a strong competitor of the acquirer. In fact, even with the benefit of the hindsight, it is not clear how Instagram or WhatsApp would have developed on a standalone basis or if they had been acquired by another platform. I just want to claim that if the competition authorities could have used a competition law methodology more adapted to the way products that are imperfect substitutes or complements compete against each other dynamically for user attention in digital markets, their decisions would have better reflected the competitive dynamics of the industry.

III. ASSESSMENT OF MARKET POWER OF ATTENTION INTERMEDIARIES

The determination of the market power of the attention intermediaries requires assessing the existing competition with methodologies and metrics which are adapted to the characteristics of attention market. More than other sectors, it also requires a robust assessment of potential competition on existing and future product markets given the importance of innovation.

[23] Gautier and Lamesch (2020) analyse 175 acquisitions made by the five leading US digital firms Alphabet, Amazon, Apple, Facebook and Microsoft during 2015-2017.
[24] Decision of the OFT of 14 August 2012, Case ME/5525/12, *Anticipated Acquisition by Facebook Inc of Instagram*
[25] *See, e.g.*, Om Malik, *Here Is Why Facebook Bought Instagram*, GIGAOM (Apr. 9, 2012, 11:28 AM), https://gigaom.com/2012/04/09/here-is-why-did-facebook-bought-instagram/: "Facebook was scared shitless and knew that for the first time in its life it arguably had a competitor that could not only eat its lunch, but also destroy its future prospects. Why? Because Facebook is essentially about photos."
[26] Decision of the Commission of 3 October 2014, Case M.7217 *Facebook/WhatsApp*. Also Decision of the Commission of 17 May 2017, Case M.8228 *Facebook/WhatsApp*.

A. Methodologies and metrics to asses existing competition

1. Methodologies for multi-sided markets

In case of multi-sided markets, the first question is whether the antitrust authority should define one single market covering all sides or different markets for each side. [27] Contrary to the US Supreme Court in *Amex*,[28] the EU Courts went for the second option in *Master Card*[29] and *Cartes Bancaires;*[30] they define a market for each side while noting that the relationship between both slides would be taken into account in assessing market power and theories of harm. After a detailed analysis of the pros- and cons of each option, Franck and Peitz (2019:22-39) support the multi-markets approach because it is more flexible and allows for different substitution possibilities by the user groups on the two sides of the platform. Moreover, the scope of the markets on each side may be different as substitutability preferences may not be the same for the attention seekers and for the viewers. For instance, Newman (2016:110) explains that: "advertisers may view search results and online email services as close substitutes to deliver ads to consumers; they may even view offline venues like billboards as fairly close substitutes for online platforms.[31] However, viewers may not see social networks and email services as closely substitutable, and billboards are so distant as to be irrelevant."

This difficulty is not new and was already an issue in defining broadcasting markets. Bird and Bird (2002:73) observes that the Commission defined distinct markets for pay-TV and free TV because of the differences in trading relationships between the broadcasters and the viewers, in funding models and in viewers experience.[32] Several national competition authorities adopted the same market segmentation on the basis of a more thorough two-step economic-based analysis: the first step consisted of applying the 'hypothetical monopolist' test for both demand and supply; the second, in applying a more factual-based analysis (*i.e.*, by looking at the product characteristics) as a 'safe-net' to compensate for the first criterion's possible inaccuracy. However, this segmentation ignores that pay and free TV compete for the same eyeballs but with different business model.

Turning to the free side of the market, the General Court recognised in *Topps*[33] that: "the SSNIP test may also prove unsuitable (…) where there are free goods or goods the cost of which is not borne by those determining the demand." There is thus a need to adapt the substitutability logics of the SSNIP test to markets without monetary price. To do that, Wu (2019) proposes an *Attentional-SSNIP (A-SSNIP)*, a test that determine how consumers might react to a Small but Significant and Non-Transitory Increase in undesired messages or advertising load for a given product. He explains the test as follows: "if one added a five-second advertising video that played before every usage of Google search, would some number of consumers switch to Bing? Presumably yes, meaning that Google search and Bing are substitutes and competitors. But what if the additional load was added to all search engines—would consumers spend less time on search and spend more time on Facebook or Twitter instead? If not—if consumers continue using search, even at the new, higher attentional price—then this would suggest that search is, in fact, the right market definition and that a hypothetical search engine monopolist is in a position to raise attentional prices."

With the same logic, Newman (2016:66) proposes *Small but Significant and Non-transitory Increase in Costs (SSNIC)* test which is analogous to the SSNIP test, but with the costs for users in terms of attention and information, instead of the price. Thus the antitrust authority should assess whether a market-wide five percent increase in the amount (or length, duration, etc.) of advertisements would cause viewers to substitute away to a

[27] Also OECD (2018a).
[28] *Ohio v. American Express Co*., 585 U.S. (2018).
[29] Case T-11/08 *MasterCard*, para 176-177 : "It is indeed the case that there are certain forms of interaction between the "issuing" and "acquiring" sides, such as the complementary nature of issuing and acquiring services, and the presence of indirect network effects, since the extent of merchants' acceptance of cards and the number of cards in circulation each affects the other. However, it must be pointed out that despite such complementarity, services provided to cardholders and those provided to merchants can be distinguished, and, moreover, cardholders and merchants exert separate competitive pressure on issuing and acquiring banks respectively."
[30] Case C-67/13P Cartes bancaires, paras. 78-79: "It is necessary to take into consideration all relevant aspects – having regard, in particular, to the nature of the services at issue, as well as the real conditions of the functioning and structure of the markets – of the economic or legal context in which that coordination takes place, it being immaterial whether or not such an aspect relates to the relevant market. That must be the case, in particular, when that aspect is the taking into account of interactions between the relevant market and a different related market […] and, all the more so, when, as in the present case, there are interactions between the two facets of a two-sided system."
[31] In *Person v. Google*,, No. C 06−7297 JF (RS), 2007 WL 1831111, at 3 (N.D. Cal. June 25, 2007), a US Court has held that "search-based advertising is reasonably interchangeable with other forms of Internet advertising."
[32] Decision of the Commission of 20 September 1995, Case M.553, *RTL/Veronica/Endemol*, para. 17 noting that: "all tv broadcasters compete against each other for audience shares. However, in view of the fact that there is no direct trade relationship between broadcasters of "free" tv channels, on the "supply side" and, viewers on the "demand side," it might be argued that tv broadcasting does not constitute a market in the strict economic sense of this notion."
[33] Case T-699/14 *Topps*, para.82. Similarly, Decision of the Commission of 27 June 2017, Case AT.39 740, *Google Search (Shopping)*, para. 245.

different attention service. However, the author points to several difficulties in the use of the SSNIC test: (i) the identification of the relevant cost unit: attention, information or a combination of both; (ii) the difficulty for customers in evaluating the costs in terms of attention and information, due, for example, to distorted perceptions of attention costs (and related information costs); and (iii) the heterogeneity of both attention and information costs.

In the same vein, the OECD (2013:14) or Gal and Rubinfeld (2016:551) propose to use *Small but Significant and Non-Transitory Increase in Quality (SSNIQ)* test which examines switching behaviours with reduction of quality, covering both increase in efficiency or decrease in non-monetary costs (such as privacy, exposure to ads …). In *Qihoo 360 v. Tencent* , the Chinese Supreme People's Court relied on a variant of this test, the *Small but Significant and Not-transitory Decline of Quality (SSNDQ)* to define online instant messaging services.[34]

Peitz (2020) suggests to define the markets according to what the viewers are looking for. The author gives the example of consumers looking for hotel accommodation. In this case, they may use the services provided by Booking or Expedia and book via those portals or use Google Maps to locate interesting hotels and then either book via a portal or the hotel website. Peitz then explains that there may be (i) a market for hotel search on which Google, Booking and Expedia (and TripAdvisor and others) are active and (ii) a market for hotel booking on which Booking, Expedia and hotels with their own online booking system are active.[35]

In the same vein, an US district Court defined a market for online social networks which "are used to get in touch with old friends and to keep current friends informed about what's new and exciting".[36] Rejecting the broader market definition proposed by the defendant, the Court considered that social network market is distinct from the market for Internet connectivity services which simply give users the ability to access the Internet, and from the market for online dating sites whose main function and purpose is to enable users to meet potential dates.

Interestingly, Alexa, one of the major monitoring firm of Internet website traffic, presents its statistics around 17 broad categories (adult, arts, business, computers, games, health, home, kids & teens, news, recreation, reference, regional, science, shopping, society, sports and world) which are then divided into several sub-categories.[37] Those categories and sub-categories give interesting indications on possible delineation of markets for Internet users attention. Note also that the same online intermediary may offer different categories of services, hence may be active in different attention markets.[38]

2. Metrics for the free side of the market

Today the cornerstone of competition law assessment is structural presumptions resulting from market shares of the firms and the concentration ratio of the markets.[39] Those indicators are calculated according to the type of products or services exchanged on the market. For the paying side, the calculation of market share and concentration ratio is no different than other markets where monetary transactions take place. It consists in calculation the *market shares of the transactions* in volume or in value. [40] As indicated by the Commission, shares in value is better indicator when products are differentiated.[41]

For the viewer side which is often non-paying, it is not possible to calculate monetary transactions market shares and other indicators are used. In *Google Shopping*, the Commission notes that there are several methods to calculate market shares by volume, including "per number of queries, users, page views or per number of sessions."[42] As explained by Franck and Peitz (2019:71), one indicator often used by antitrust authority is the

[34] *Beijing Qihoo 360 Technology v. Tencent Technology (Shenzhen)*, (Sup. People's Ct. 2013). See https://www.competitionpolicyinternational.com/qihoo-360-v-tencent-first-antitrust-decision-by-thesupreme-court.
[35] Cremer et al. (2019, p. 117-119) propose to rely on *user space*, which "include all types of products and services that are, on the basis of their current functionalities, not yet close substitutes but could possibly expand in the future such as to become close competitors – e.g. because they serve similar user groups, the functionalities overlap and the markets are somewhat interlinked."
[36] *LiveUniverse v. MySpace* No. CV 06−6994 AHM (RZx), 2007 WL 6865852, at *4 (C.D. Cal. June 4, 2007), *aff'd*, 304 Fed. Appx. 554 (9th Cir. 2008).
[37] https://www.alexa.com/topsites/category
[38] Also Franck and Peitz (2019:58).
[39] Guidance Paper, paras 13-15.
[40] Franck and Peitz (2019:71) give the following example: Decision of the Bundeskartellamt of 20 April 2015, B6-39/15, *Immonet/Immowelt* where the German competition authority estimated that the leading real estate platform (ImmoScout) had a share of more than 70% in transactions and considered this as evidence of market power.
[41] Commission Notice on the definition of the relevant market for the purposes of Community competition law, O.J. [1997] C 372/5, para.55.
[42] Decision of the Commission of 27 June 2017, Case AT.39 740, *Google Search (Shopping)*, para. 276. The Commission did not discuss the relative informative value of those different parameters as it concluded that the methods indicate that since 2008, Google has enjoyed high market shares in all the relevant general search markets across the EEA, except for the Czech Republic. More specifically, the Commission then referred to market shares calculated based on page views and site visits (id., paras 277–279).

number of unique visitors, which is the number of contacts by different devices identified by an IP address during a standard period of time, typically a month.[43]

Interestingly, the number of users on a platform is also a criterion used by several EU legislations applicable to online platforms, in particular regarding moderation of online content. For instance, the new DSM Copyright Directive imposes additional stay-down obligations for content sharing platforms when the average number of *monthly unique visitors* exceeds 5 million, calculated on the basis of the previous calendar year.[44] The proposal for a Regulation on preventing the dissemination of terrorist content online imposes some duty of care on the hosting platforms which are established in the EU or which have *significant number of users* in one or more Member States.[45]

However, the number of users is an indicator which is simplistic and does not carry enough information on the market power in several circumstances. This is the case when viewers multi-home on different platforms but do not allocate their attention equality among them, which is often the case in practice. This is also the case when the usage of a platform is heterogeneous among users.[46] In those cases, it is better to consider usage volumes rather than number of users.

To do that, Wu (2019:26) suggests to rely on *Time on Site*. For instance, he indicates that: "a 2017 comScore report suggests that Facebook held roughly 1 000 monthly minutes of the average American's time, as compared with about 250 for Instagram and Snap, respectively, and less than 200 for Twitter, and 50 for Google+. Relying on these data for hypothetical purposes, and presuming that "online social networking" is an appropriate market definition, if consumers nationwide spent a total of some 2 000 minutes per week on all social networking apps, and overall spent 55 percent of those hours on Facebook and 12.5 % on Instagram, we would have some sense of the structural importance of a transaction like the Facebook-Instagram combination. In this hypothetical, it would leave the combined company with a 67.5 % market share in the presumed social networking market."

In the same vein, Alexa measures the *daily time on site* which estimates daily time on site per visitor to an Internet website (and is updated daily on the basis on the trailing 3 months). Alexa also collects the *Daily Pageviews per Visitor* which estimates the daily unique pageviews per visitor on a specific site (and is updated daily on the basis on the trailing 3 months).

While the market share is an important and often the most determinative criteria of dominance assessment in the antitrust cases, it has less information value in dynamics markets when market share evolve quickly. In its Guidance Paper, the Commission notes that the level of the market share but also its duration should be take into account in the dominance assessment.[47] In *Cisco and Messagenet*, the General Court upheld the clearance without conditions of the Skype acquisition by Microsoft in 2011 because: "the consumer communications sector is a recent and fast-growing sector which is characterised by short innovation cycles in which large market shares may turn out to be ephemeral. In such a dynamic context, high market shares are not necessarily indicative of market power."[48] As many markets for Internet users attention are also dynamic, it is thus key, and often more important, to analyse the indicators of potential competition than those of existing competition.

3. Identification of attention gatekeepers

As explained above, there is a competitive bottleneck when, for a given attention market, when attention targets (i.e. the customers) tend to single-home while attention seekers (i.e. the merchants or advertisers) multi-home. This may lead to a narrow market definition by platform. For instance in *Android,* the Commission defines a

[43] Franck and Peitz (2019:71) give the following examples: Decision of the Bundeskartellamt of 22 October 2015, Case B6-57/15, *Parship/Elitepartner*, paras 132–133; Decision of the Bundeskartellamt of 6 February 2019, Case B6- 22/16, *Facebook*, paras 390–413. Also Decision Bundeskartellamt of 8 September 2016, Case B6-126/14, *Google/VG Media*, paras 154–155: Google's market shares calculated on the basis of search queries are clearly important in regard to Google's position in the market for search advertising.

[44] Directive 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9 and 2001/29, OJ [2019] L 130/92, art.17(6).

[45] Proposal of the Commission of 12 September 2018 for a Regulation of the European Parliament and of the Council on preventing the dissemination of terrorist content online, COM (2018) 640, art.2(3). See also Directive 2010/13 of the European Parliament and of the Council of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services (Audiovisual Media Services Directive), OJ [2010] L 95/1, as amended by Directive 2018/1808, art.28b(3) which refers to the size of the video-sharing platforms to determine the appropriate content moderation measures that should be adopted.

[46] Franck and Peitz (2019:71) echoing the need to calculate market share in value when products are differentiated.

[47] Guidance of 3 December 2008 on the Commission's Enforcement Priorities in Applying Articles [102 TFUE] to Abusive Exclusionary Conduct by Dominant Undertakings, para.15.

[48] Case T-79/12 *Cisco and Messagenet v. Commission* EU:T:2013:635, para.69.

market for app stores for the Android mobile operating system[49] and a US plaintiff in an *Apple* case claims that there is a market for app stores for the iOS mobile operating system.[50] As explained by Franck and Peitz (2019: 55), such market definition by mobile OS is based on the assumption that consumers are single-homers as they make a discrete choice of either using a device based on Apple's or Android's mobile operating system while app developers tend to be multi-homers.[51]

Franck and Peitz also recall that the relationship between the different sides of the market should be taken into account and that the monopoly power on one side of the market (such as the side of app stores for the Android/iOS mobile operating system) may be mitigated through interaction with the other user group, in particular if large parts of the revenues that are generated on the monopolised side are passed to the users on the other side. A similar debate took place several years ago when regulatory authorities were about to regulate the mobile termination tariffs and were warned to take into account the effects of their decisions on the other sides of the market (the so-called waterbed effects).[52]

While competitive bottleneck may lead to a narrow 'per platform' market, it is also close to situation of economy dependency of which the abuse is prohibited in some Member States, alongside antitrust rules. The longstanding doctrine of abuse of economic dependency under German antitrust law,[53] which has also been embraced by several Member States[54] such as France[55] and, more recently, Belgium,[56] may be relied upon to prevent attention platforms from exercising unfettered commercial freedom in those situations where the attention seekers do not have realistic solutions in connecting with attention targets. Interestingly, Alexa calculates the dependency of a site on others, such as how much of the traffic originates from search which is the percentage of all referrals that came from Search engines over the trailing month. Finally, the statistics also include measures of relevancy, such as the number of total sites linking in on that website.

Ex ante regulation also deals with various types of dependency relationships in the attention markets. One example relates to access to technical services for digital TV which may constitute a key capability for media firms. Some Commission decisions have imposed compulsory access to those technical services as a condition to clear pay-TV merger.[57] To complement antitrust law, ex ante rules were adopted in 1995 to force the providers of Conditional Access Systems (CAS) to offer to broadcasters, on a FRAND basis, technical services enabling the broadcasters' digitally-transmitted services to be received by viewers.[58] This obligations has been carried forward in the EECC but it now limited to the providers of CAS from which broadcasters depend to reach any group of potential viewers.[59]

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[49] Commission Decision of 18 July 2018, Case AT.40 099, *Google Android*, paras. 268-322.

[50] *In re Apple iPhone Antitrust Litigation*, 846 F.3d 313, 315 (9th Cir. 2017).

[51] Parallels may be drawn with the definition of the wholesale termination market in telecommunications. In this case, the Commission recommends to define the market per operator because the called parties single-home (as they do not directly pay the wholesale termination fee in a Calling Party-Pays system) while the operators of the calling party have to multi-home on the different operators: Commission Recommendation 2014/710 of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to ex ante, OJ [2014] L 295/79, Annex: markets 1 and 2.

[52] See for instance, Valletti and Houpis (2005).

[53] Section 20(1) of the German Act against Restraints of Competition, available at: http://www.gesetze-im-internet.de/englisch_gwb/englisch_gwb.pdf, this section applies "*to undertakings and associations of undertakings to the extent that small or medium-sized enterprises as suppliers or purchasers of a certain type of goods or commercial services depend on them in such a way that sufficient and reasonable possibilities of switching to other undertakings do not exist (relative market power). A supplier of a certain type of goods or commercial services is presumed to depend on a purchaser if this supplier regularly grants to this purchaser, in addition to discounts customary in the trade or other remuneration, special benefits which are not granted to similar purchasers*".

[54] For a comparative analysis of the legislations in the Member States, see Renda et al. (2012:42-68).

[55] Article L 420-2 of the Commercial Code, available at: http://www.autoritedelaconcurrence.fr/doc/code_commerce_gb.pdf . The state of economic dependence requires that that it is impossible for the plaintiff to resort to another undertaking for the supply, or the sale, of a given product or service, due to technical or economic reasons. In essence, four types of economic dependence have been addressed by the French Competition Authority, namely: (i) scarcity-based dependence; (ii) dependence associated with long-lasting business relationships; (iii) assortment-based dependence; and (iv) demand-based buyer power dependence.

[56] Economic Law Code, art. I-6 (4) which defines economic dependency as: "the absence of reasonably equivalent alternatives available within a reasonable period of time, on reasonable terms and at reasonable costs, allowing it for each of them to impose services or conditions that could not be obtained under normal market conditions".

[57] Decision of the Commission of 2 April 2003, Case M.2876 *NewsCorp/Telepiu*, para 225. When those access commitments could not have been obtained, mergers have been prohibited: Decisions of the Commission of 27 May 1998, Case M.993 *Beterlsmann/Krich/Premiere* and Case M.1027 *Deutsche Telekom/BetaResearch*. The merger was prohibited because it would have resulted in BetaDigital and BetaResearch having a dominant position on the German market for the supply of technical services for pay-TV, besides Premiere strengthening its dominance on the pay-TV market and Deutsche Telekom strengthening its dominance on the cable networks.

[58] Directive 95/47 of the European Parliament and of the Council of 24 October 1995 on the use of standards for the transmission of television signals OJ [1995] L281/51, art.4(c). This article also reminded that the providers of CAS should comply with EU competition law, in particular if a dominant position appears.

[59] EECC, art.62(1) and Annex II, Part I.

B. Methodologies and metrics to assess potential competition

Antitrust authorities have always recognised the importance of potential competition. Already in the 1997 Market Definition Notice, the Commission observes that: "The third source of competitive constraint, potential competition, is not taken into account when defining markets, since the conditions under which potential competition will actually represent an effective competitive constraint depend on the analysis of specific factors and circumstances related to the conditions of entry. If required, this analysis is only carried out at a subsequent stage, in general once the position of the companies involved in the relevant market has already been ascertained, and when such position gives rise to concerns from a competition point of view." [60]

The Commission gives more indications on the criteria to take into account potential competition in the 2004 Horizontal Merger Guidelines by noting that: "For a merger with a potential competitor to have significant anti-competitive effects, two basic conditions must be fulfilled. First, the potential competitor must already exert a significant constraining influence or there must be a significant likelihood that it would grow into an effective competitive force. Evidence that a potential competitor has plans to enter a market in a significant way could help the Commission to reach such a conclusion. Second, there must not be a sufficient number of other potential competitors, which could maintain sufficient competitive pressure after the merger." [61]

As digital markets are very dynamic, competition analysis should be dynamic as well and therefore, give the same importance to potential competition than to existing competition. To do that, antitrust authorities should assess the possibilities to enter existing markets by looking at entry barriers on those market. The authorities should also assess the possibilities of developing new services that will replace the existing ones by looking at the control and barriers to innovation capabilities.

1. Entry barriers to product markets

In its Guidance Paper, the Commission lists the three main types of entry barriers (legal, economic and strategic). The Commission defines the economic barriers as forms of advantages specifically enjoyed by the dominant undertaking. Then, the Commission gives the following examples: "economies of scale and scope, privileged access to essential inputs or natural resources, important technologies or an established distribution and sales network; other costs and other impediments, for instance resulting from network effects, faced by customers in switching to a new supplier."[62]

As already explained, attention markets are characterised by the presence of important cross-groups externalities and network effects between the different sides of the markets as more viewers on the platform tends to lead to more attention seekers and vice-versa. Those network effects are often the most important entry barriers to the attention markets. As Shapiro and Varian (1999:185) have explained "precisely because various users find it so difficult to coordinate to switch to an incompatible technology, control over a large installed base of users can be the greatest asset (a platform) can have". This was already the case in traditional media or communications markets, but the development of big data and AI have amplified those network effects. As explained above, the collection and use of customers' data exhibit important (users and monetisation) feedback loops which can entrench the market power of an attention intermediary. Moreover, data-driven network effects encourage the expansion of dominant intermediary from their core markets to enter or develop other (data-related) markets and diffuse their market power through the economy.

However, as the economic theory has shown and the EU courts have decided, the size of the network effects needs to be balanced with the ability and the incentive of customers to multi-home.[63] Indeed, if an attention intermediary counts many customers but most of them multi-home and can be reached across different platforms, the market power of each of the platform is limited. Note that in a data environment, the ability to multi-home among intermediaries offering the same type of attention services depends to a great extent on the capacity of the viewers to move and port their data across attention intermediaries.

In those situations where multi-homing is difficult, the only credible entry strategy is to focus on niche and differentiated market. In that regard, Franck and Peitz (2019:77) give the example of the platform Etsy for

[60] Commission Notice on the definition of the relevant market for the purposes of Community competition law, O.J. [1997] C 372/5, para.24.
[61] Commission Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, O.J. [2004] C 31/5, para.60.
[62] Guidance of 3 December 2008 on the Commission's Enforcement Priorities in Applying Articles [102 TFUE] to Abusive Exclusionary Conduct by Dominant Undertakings, para.17.
[63] Case T-79/12 *Cisco and Messagenet v. Commission*, para.79.

handicraft goods, which displaced eBay for the associated intermediation service because the uniform requirements on the presentation of products across different categories on eBay did not fit well the needs of sellers of handicraft items and Etsy was able to offer a format that was more attractive for both sides. More generally, Tirole observes that in digital markets: "entry usually concerns a niche segment. Recall that Amazon began as online bookstore and Google as a mere search engine. Later, platforms may build a complete product line and expand to compete head to head with dominant platforms."[64]

Another more specific possible entry barrier to attention markets is linked to the so-called "zero price effect".[65] Several studies in behavioural economics show that consumers treat a price at zero very differently than any other price; they appear to act as if zero pricing of a product not only decreases its cost but also adds to its value.[66] This is well understood by the General Court in *Cisco and Messagenet*, which notes that: "In so far as users expect to receive consumer communications services free of charge, the potential for the new entity to set its pricing policy freely is significantly restricted. The Commission rightly observes that any attempt to make users pay would run the risk of reducing the attractiveness of those services and of encouraging users to switch to other providers continuing to offer their services free of charge. Likewise, if the new entity decided to stop innovating in terms of its communications services, it would also run the risk of reducing their attractiveness given the level of innovation on the market in question."[67] Thus with free products, entry strategies are more limited. They may focus on product and quality differentiation but not on price differentiation.

Finally and more generally, barriers to entry tend to increase with the development and the maturation of a market. Franck and Peitz (2019:77) observe that entry barriers are lower in quickly growing markets in which many unattached users arrive and in markets with fast technological changes. Thus, it is not because an attention intermediary has displaced a previous incumbent when the market was nascent that this intermediary can easily been displaced when the market has matured. For instance, the fact that Friendster has been replaced by Myspace which, in turn, was replaced by Facebook - or that AltaVista has been displaced by Google - several years ago does not mean that Facebook or Google can easily be displaced today.

2. Entry barriers to input markets: the innovation capabilities

The determination of entry barriers to products markets to assess potential competition on existing markets should be complemented with a determination of the entry barriers to the input (innovation capabilities) markets to assess potential competition on future markets. This complementary analysis reduces the risks of errors of the antitrust review because, as put by Teece (2009), "when innovation is high, capabilities are more stable than products." Yet, this complementary analysis is challenging because the types of innovation capabilities and their role in product innovation are complex and uncertain, in particular in industries where the innovative process is not clearly structured. However, Teece (2009:255) also observes that: "the tools for assessing capabilities may not be well developed yet, but they are developed enough to allow tentative application. Clearly, product market analysis can be unhelpful and misleading in dynamic contexts. Using the right concepts imperfectly is better than a precise application of the wrong ones."

In this regard, the antitrust authorities have already developed several concepts to go up the innovation value chain and identify the state of competition at the input level.[68] For instance, the European Commission has relied on the following concepts. (i) First, *competition in innovation* refers to R&D poles which may compete with each other depending on the "the nature, scope and size of any other R&D efforts, their access to financial and human resources, know-how/patents, or other specialised assets as well as their timing and their capability to exploit possible results."[69] Cautiously, the Commission notes that R&D poles may be identified when the process of innovation is well structured, like in the pharmaceutical industry, but that the concept will normally not be used

[64] https://qz.com/1310266/nobel-winning-economist-jean-tirole-on-how-to-regulate-tech-monopolies/

[65] The zero price effect has also implications on market definition and, when not taken into account, may lead to a new fallacy similar to the old Cellophane fallacy. As Newman (2016:75) explains: "where two products are offered at zero prices, the fact that customers would switch away from one product and toward the other in the event of a price increase does not necessarily indicate that the two belong in the same product market. Such switching likely reflects nothing more than the zero price effect in action."

[66] Shampanier et al. (2007). Some other behavioural studies on the zero price effect are summarised in Gal and Rubinfeld (2016: 528-530).

[67] Case T-79/12 *Cisco and Messagenet v. Commission*, para.73.

[68] See Federico, Scott Morton, and Shapiro (2019); Petit (2019).

[69] Commission Guidelines of 14 December 2010 on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, O.J. [2010] C 11/1, para 119-122 and Communication Guidelines of 21 March 2014 on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements O.J. [2014] C 89/3, para 26. The Commission has also developed the concept of *technology market* which consists of "the licensed technology rights and its substitutes, that is to say, other technologies which are regarded by the licensees as interchangeable with or substitutable for the licensed technology rights, by reason of the technologies' characteristics, their royalties and their intended use.": Commission Guidelines on horizontal co-operation agreements, paras 116-118 and Communication Guidelines on technology transfer agreements, para 22.

when the process of innovation is not clearly structured. (ii) Second, *innovation space* is "not a market on its own, but an input activity for both the upstream technology markets and the downstream products markets",[70] and corresponds to the discovery targets over which firms compete.[71]

Thus, when assessing potential competition between attention intermediaries, the antitrust agency should analyse which platforms control the innovation capabilities and what the entry barriers to innovation markets and spaces are. This approach may be more difficult to apply in the digital sector than in the pharmaceutical sector because the innovation process is less structured and shorter in the former than in the later. However, it is not impossible[72] and innovation markets may be defined for the main capabilities of the digital sector such as data, key platforms elements and essential patents, some type of engineering skills and very risky and patient capital.[73]

IV. THEORIES OF HARM IN ATTENTION MARKETS

The conducts of the large attention intermediaries generate many benefits but may also distort competition to the detriment of consumers on any side of multisided markets on which they are present. Where services are provided for free on one side of such markets, such harm may happen on the paying side of the market (often the attention seekers) but also on free side of the market (often the attention targets) when there is a reduction of the quality, choice or innovation.[74] Thus, in evaluating the competitive harm, the antitrust authorities should look at both sides of the markets. As put by Gal and Rubinfeld (2016:554), "If the focus is only on free goods, there may be false negatives. If the focus is only on paid goods, false positives may arise." As illustrated below, some merger clearance decisions have only looked at the paying side and ignored the harm on the free side while some decisions sanctioning an abuse of dominance have mistakenly focussed on the free side and ignored the benefits on other sides of the market.

An important difficulty in assessing the competitive effects is that a conduct can have *at the same time* pro and anti-competitive effects, possibly with different timeframe. Many of the conducts reviewed below generate efficiencies in the short term but potentially at the expense of effective competition, hence efficiencies and innovation in the longer term. The balancing of short and long term has always been at the core of any public policy decision. However in the digital economy, the short- and long-term effects of firms' behaviours may be amplified and more uncertain, which makes the balancing more difficult.[75]

A. Merger control

The review of the competitive effects of mergers and acquisitions in attention markets should take into account the two main characteristics of those markets: (i) they are multi-sided, hence the effects on all sides should be analysed, (ii) they are subject to a high rate of innovation, hence the effects on future competition and innovation should also be analysed.

1. Assessing the effects on all sides

The experience in reviewing media mergers illustrates the importance of analysing the competitive effects of the concentration on both sides of the market: the attention seekers (in general the advertisers' side) and the viewers. Often, the analysis of each side is separated and done by different authorities on the basis of different legal instruments. On the one hand, the effects of the merger on the attention seeker side are reviewed by antitrust authority on the basis of competition law.[76] On the other hand, the effects on the attention targets side are reviewed by media regulator on the basis of media law, which does generally not require rigorous market definitions and with the specific media pluralism objective. Such parallel analysis is explicitly authorised by the Merger Regulation which acknowledges that pluralism can be a legitimate interest on the basis of which Member States may review mergers, without encroaching on the exclusive competence granted to the Commission by the Merger Regulation.[77]

[70] Commission Decision of 27 March 2017, Case M. 7932 *Dow/DuPont*, para. 348.
[71] para.2168. The R&D undertaken in innovation spaces "generate[s] early pipeline products." Para.2159.
[72] Also Kerber and Kern (2014).
[73] Alexiadis and de Streel (2020); Petit (2020).
[74] Which are different dimensions of competition: Guidance Paper, paras.11 and 19; Horizontal Merger Guidelines, para.8.
[75] This leads us at the core debate on the values and objectives of antitrust and, as I have argued elsewhere (de Streel, 2020) in case of doubt, the antitrust policy should favour diversity and effective competition over short-term efficiencies.
[76] E.g. the online advertising market in Case M.4731 *Google/DoubleClick*.
[77] Council Regulation 139/2004 of 20 January 2004 on the control of concentrations between undertakings, O.J. [2004] L 25/1, art.21(4).

However, some anticompetitive harm may take place on the free side of the market, such as the increase in ad load observed after the US radio broadcaster mergers. Arino (2004) or Stucke and Grunes (2009) claim that the effects of the merger on non-price competition should be analysed by the antitrust authority and not left to the media authority. At minimum, as argued by Monti (2020), the double analysis by several authorities of the same corporate practice requires a good cooperation between authorities to ensure the quality, the coherence and the effectiveness of their different decisions.

The experience in reviewing digital mergers also illustrates the importance of looking at all sides as the market definition and the market dynamics on each side may be different. Indeed, the product scope of the market may be different for the attention seekers and the viewers (attention targets) and the attention seekers often multi-home which tends to be less the case of the attention targets. Moreover, looking at the viewers side may change the antitrust perspective and show horizontal effects in what may have appeared to be a conglomerate merger. To deal with this uncertainty on type of the merger, Peitz (2020, section 3.4) suggests that the antitrust authority starts an investigation considering the merger as a conglomerate or vertical merger assessing potential competition and, in parallel, consider it as a horizontal merger assessing the effect on actual competition in more broadly defined markets.

With a more particular setting, Pratt and Valletti (2018) propose a framework that formalizes the idea that antitrust authorities should take into account attentional markets when assessing mergers.[78] Their analysis suggests that in order to assess the competition in online platform markets, one should take into consideration its impact on product markets through online advertising. Also, whether concentrated platform markets induce concentrated product markets will depend on the overlap of customer bases, and thus in particular on whether consumers multi-home. If they do, the type of strategy that they highlight is likely to disappear.

On the attention seekers side, the review of digital mergers raises a similar tension as in the media mergers between competition and non-competition issues, as illustrated in Table 3 below. While such tension is between competition and pluralism in media mergers, the tension is between competition and data protection in digital mergers. As for media, such tension can be dealt with a parallel review by different authorities, the antitrust authority for the competition concerns and the data protection authority for the privacy issues. However, three improvements can be done to better coordinate the competition and privacy concerns: (i) the SIEC test should include privacy protection when privacy is competition dimension in the markets,[79] (ii) the Merger Regulation may recognise explicitly, as for media pluralism, that privacy protection (as such and independently of its effects on competition) is a legitimate interest next to the SIEC;[80] (iii) the antitrust and privacy authorities should cooperate closely when reviewing a digital merger which impacts personal data collection and analysis.[81]

Table 1. Comparison between media and digital merger review

	Attention seekers side	**Attention targets side (often free)**
Media mergers	- SIEC: Effects on price competition	- SIEC: Effects on non-price competition: choice and diversity, ad load - Separate media review: pluralism (independently of its a competition dimension)
Digital mergers	- SIEC: Effects on price competition	- SIEC: Effects on non-price competition: choice and diversity, ad load, data collection - Separate privacy review: data collection (independently of its a competition dimension)

[78] They develop a theoretical model where consumers can join various online advertiser-supported platforms. Each consumer uses a subset of these platforms (i.e., multi-homes). There is also an incumbent producer and an entrant producer that compete to sell a product to consumers. They advertise their products on the various platforms and it is assumed that each platform displays one targeted ad, and only one, to each consumer. The consumers know the incumbent's product, but are not aware of the entrant's product. The only way for the entrant producer to enter the market is thus to advertise on platforms to inform consumers of its existence. Consumers benefit from becoming aware of the entrant's product, which provides them with a higher utility than the incumbent's product, and this increases total surplus too. However, entry reduces the profit of the incumbent producer. Each platform runs a second-price auction for each one of its users. The winner, which is either the incumbent or the entrant producer, displays a targeted advertisement to that user. Therefore, for a given user, there are as many advertising auctions as the number of platforms she engages with.

[79] As already recognised in the Decision of the Commission of 6 December 2016, Case M.8124 *Microsoft/LinkedIn*, para. 350 noting that: "to the extent that these foreclosure effects would lead to the marginalisation of an existing competitor which offers a greater degree of privacy protection to users than LinkedIn (or make the entry of any such competitor more difficult), the Transaction would also restrict consumer choice in relation to this important parameter of competition when choosing a Professional Social Network."

[80] For a discussion, see Graef (2016:349-352).

[81] For a discussion, see Monti (2020).

2. Assessing the effects on future competition and innovation

When a big attention intermediary acquires a small start-up, the antitrust authority should concentrate its review on the effects on future competition and innovation, especially when the price of the acquisition is high relative to the size and the age of the start-up, or if the intermediary is a serial acquirer. To do such assessment, the authority should first determine whether the acquired start-up is a credible potential competitor to the big attention intermediary and could become a competitive force on existing or future markets if developed on a stand-alone basis or acquired by another platform. As suggested by LEAR (2019),[82] this prospective assessment should be done over a longer period than the two years timeframe of the merger review.[83] However, such assessment is complex because it is about potentiality in a sector where innovation is high and often unpredictable. To reduce the risks of errors, LEAR (2019) recommends to use dawn raids in the context of merger investigations in order to uncover valuable evidence such as the future plans of the target and whether the incumbent perceived the target as a threat.

Then if the antitrust authority determines that the acquired start-up is a credible potential competitor to the acquirer, it should decide whether the positive welfare effects of the acquisition are higher than its negative effects. The acquisition may speed up the development and the diffusion of the innovation of the start-up thanks to the capabilities (including the user base) of the acquirer but it may reduce future competition (and innovation) on a longer term as one potential competitor disappear. Thus, the antitrust authority should balance the expected short-term benefits (in terms of quicker innovation diffusion) with the expected long-term harms (in term of effective competition and innovation) of authorising the merger. This is extremely complex and authorities probably do not have yet all the necessary robust economic tools to do such an assessment, hence will inevitably make mistakes when assessing the background and evidence submitted by the merging parties and other market players. [84]

To allow the antitrust authority to do this balance of the welfare effects, the standard of proof for merger review need to be adapted, at least in some jurisdictions. Currently in the EU, the standard of proof relates to the most probable post-merger market evolution: the Commission should clear the merger when it is more probable than not that such concentration is pro-competitive and, conversely, prohibit the operation or impose remedies when it is more probable than not that the concentration is anti-competitive. [85] Such standard minimises the risks of errors (of type I and of type II), but does not take into account the costs of those errors. This illustrates a more general and fundamental bias of lawyers and Courts which are more concerned by the risks of making a mistake than by its costs.

However, the economic theory of decision under uncertainty recommends that both risks and costs of errors should be factored into the decision framework and its standard of proof.[86] Looking at the costs of errors is particularly important in the digital sector where markets tip quickly, meaning that the costs of type II errors may be very high.[87] Thus, there might be a need to transform the current burden of proof incumbent on competition agencies that it is more probable than not that the concentration will significantly impede competition to a more comprehensive 'balance of harms' standard that takes both the likelihood of significant impediment of competition but also and the costs of antitrust errors equally into account. Such new standard would allow the antitrust authority to balance the expected short-term benefits with the expected long-term harm in authorising the merger. [88] In

[82] The Bird and Bird Study (2002) was already calling for more dynamic market definition in the media sector given the technological progress.
[83] Commission Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, O.J. [2004] C 31/5, para.74.
[84] Fortunately, those tools are being developed in recent economic papers on merger and innovation: Federico, Scott Morton, and Shapiro (2019); Motta and Peitz (2020).
[85] According to the Court of Justice of the European Union: "*the Commission is, in principle, required to adopt a position, either in the sense of approving or of prohibiting the concentration, in accordance with its assessment of the economic outcome attributable to the concentration which is most likely to ensue."* Case C-413/06P *Bertelsmann and Sony/Impala*, para 52. In his Opinion in this case (at para 76-77), Advocate General Tizzano went even further by stating that the Commission should authorise the concentration when the market evolution is so uncertain that is not possible to determine a future which is more probable.
[86] See Salop (2017).
[87] Case T-201/04, *Microsoft v. Commission*, para 562: "*In this case, the Commission had all the more reason to apply [Article 102 TFEU] before the elimination of competition on the work group server operating systems market had become a reality because that market is characterised by significant network effects and because the elimination of competition would therefore be difficult to reverse*." Moreover, the rapid market evolution does not necessarily make the costs of type II errors low as then-Competition Commissioner Monti explained nearly 20 years ago: '*I also have doubts that the pace of development in technology sectors will inevitably mean that market failures will last only for a short time. The risk is rather that a position of market power may be temporary in the absence of anti-competitive action – but anti-competitive action by the company with market power would render that temporary strength permanent. This is surely one of the concerns of the Microsoft case in the US, and can also be seen in some of the leveraging cases that I will mention later*': *Competition in the New Economy*, Speech at the 10th International Conference of the Bundeskartellamt, 21 May 2001. Also Scott Morton et al. (2019, p.74).
[88] Also Furman et al. (2019 :98); Crémer et al. (2019:50-51), Scott Morton et al. (2019; Motta and Peitz (2020).

practice, this means that if the acquisition of a small start-up by a big tech firm would eliminate a credible probability, even small, that such start-up could become an effective competitor to the big tech acquirer, allowing such merger will eliminate the potential benefits, which may be important, of having more competition. As the costs of making a type II error may be important, they should be taken into account and may lead to the prohibition of the merger or to the imposition of remedies.

B. Abuses of dominant position

Next to acquisition, dominant attention intermediaries may try to exclude (as efficient) competitors with different foreclosure strategies: some are offensive and aim at acquiring dominance on new attention markets with bunding strategies; others are more defensive and aim to protect existing dominance by refusing access to key inputs or increase users switching and multi-homing costs.[89]

1. Bundling and envelopment

According to Eisenmann, Parker and Van Alstyne (2001:1271), "envelopment entails entry by one platform provider into another's market by bundling its own platform's functionality with that of the target's so as to leverage shared user relationships and common components". This is common practice on the digital markets and allows entry in new markets without Schumpeterian innovation. The authors give the examples of Microsoft having enveloped Netscape's Web browser by bundling for free Explorer with Windows OS;[90] or Google entering many platform markets by linking new products to its search platform such as online payment services (Google Checkout), productivity software (Google Docs), Web browser software (Chrome), and mobile phone operating systems (Android).

Such envelopment strategy requires two main ingredients: (i) First, the dominant platform should be able to leverage its customer and attention base from its core market to new markets, and thus benefit from significant network effects when it enters the new markets; these network effects can be of much larger magnitude than those enjoyed by the entrant. (ii) Second, operating the two attention services together may entail significant economies of scope because of shared components or modules between them. Given the key importance of users' attention for successful envelopment strategy, it comes as no surprise that it is an even more important firms' capability in the digital than in traditional sectors. However, the potential exclusionary effects from envelopment is mitigated when consumers can multi-home: in this case, even if the dominant platform bundles its core service with the new services, there might still be room for a rival platform.

As often for the firm's conducts in the attention markets, envelopment may *at the same time* have pro and anti-competitive effects. On the positive side, it enables the large platform to enjoy economies of scope in product development and the customers to enjoy synergies within the platform's ecosystem. It also allows such large platforms to increase competition and innovation in other product markets in which they enter.[91] On the negative side, envelopment allows the large platform to exclude competitors which may be as efficient but have a smaller user base and/or are active on less different markets. Thus, envelopment may generate efficiencies in the short term but this conduct may reduce effective competition and possibly innovation efficiencies in the longer term.

In its Guidance Paper, the Commission indicates that tying and bundling[92] are common practices which often provide customers with better products or offerings in more cost-effective ways. However, the Commission recognises that those practices may be anti-competitive when (i) the tying and tied products are distinct products, and (ii) the tying practice leads to anti-competitive foreclosure which is the most likely when the firm can commit to its bundling strategy, for instance through technical means, when many products are bundled or when the prices of the tying product are regulated.[93] Those criteria need to be adapted to better reflect the conditions and the effects

[89] Dominant intermediaries may also directly exploit their users (business users or the consumers) but this is not analysed in this paper.
[90] This envelopment practice led to antitrust actions in the US and in the EU: *United States v. Microsoft Corp*., 87 F. Supp. 2d 30 (D.D.C. 2000), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir. 2001). Decision of the Commission of 16 December 2009, Case 39.530 *Microsoft (tying)* and Decision of the Commission of 6 March 2013 condemning Microsoft for ne respecting the first (commitments) decision. The European Commission also condemned another Microsoft envelopment practice involving Media Player: Decision of the Commission of 24 March 2004, Case 37.792-*Microsoft*, paras. 792-989 which was confirmed by the General Court in Case T-201/04 *Microsoft v. Commission*, EU:T:2007:289, paras.839-1193.
[91] Petit (2020).
[92] The Commission defines (i) *tying* as a situation where customers that purchase one good (the tying good) are required to also purchase another good from the producer (the tied good) – it can take place on a *technical* or *contractual* basis ; and (ii) *bundling* as a situation when several products are offered and priced together – in the case of *pure bundling* the products are only sold jointly in fixed proportions while in the case of *mixed bundling*, the products are also available separately, but the sum of the stand-alone prices is higher than the bundled price: Commission Guidance on the enforcement priorities in applying Article 102 TFEU, para. 48.
[93] Commission Guidance on the enforcement priorities in applying Article 102 TFEU, paras 51-62.

of the envelopment strategies. First, the control of a large user base is a key condition for the foreclosure strategy and should thus attract the attention of the antitrust authority. Second, the short term and long-term efficiencies should be more explicitly balanced in the antitrust assessment and the short-term benefits (in terms of economies of scope and consumers synergies) should not necessarily prevail over the longer-term costs (in terms of loss of competition).[94]

2. Refusing access to data or interoperability

Dominant attention intermediaries may also want to protect their market power by limiting market contestability on the supply-side and refuse to give access to key tangible or intangible components of their platforms. Those components consist in premium content or technical services for the traditional broadcasters,[95] they may consist in data sets or service interoperability for digital platforms.

To impose compulsory access, an antitrust authority should prove that the four conditions of the essential facilities doctrine are met: (i) the objective necessity of the input, (ii) the elimination of effective competition on the downstream market for which the input is needed, (iii) the prevention of the appearance of a new product on such downstream market and the resulting consumer harm and (iv) the absence of objective justification for the refusal.[96] However, the conditions of the essential facilities doctrine and, more generally, for the exceptional circumstances justifying the imposition of a duty to deal under Article 102 TFEU are not crystal clear and are interpreted differently in the literature. My interpretation is that the four conditions of the essential facilities doctrine are sufficient - but not necessary - for a competition authority to impose access.[97] Those conditions are merely proxies for a more fundamental cost-benefit analysis (or a balance of interests as the Courts put it or an incentives trade-off as the economists put it) at the core of compulsory access. For each case, the antitrust authority should assess, on one hand, the benefits of access generated by the competition and innovation brought by the access seeker and, on the other hand, the costs of access in reducing investment incentives of the facility holder and access seeker. This analysis is difficult to do because costs and benefits are not easy to quantify and often have different timeframes.

With regards to data, the key issue in deciding whether compulsory sharing may be imposed under Article 102 TFEU is to determine whether the benefits of data sharing outweigh the costs. Such analysis should be applied in light of the data's features. On the one hand, the benefits of sharing data are higher than for other facilities because data are general-purpose input that can be used for many different attention services. On the other hand, the costs (in incentives) of sharing data are lower than for other facilities because data are non-rival and its holder can continue to use them while sharing them with others. Costs are also lower when data are collected as by-products of another service, and therefore, would continue to be collected even if they have to be shared. Therefore, applying the *same* cost-benefit analysis which is at the core of the duty to deal antitrust case-law in light of the *different* characteristics of data and competitive dynamics of the attention economy implies that the threshold for imposing data sharing under Article 102 TFEU should be lower than the threshold to impose access to other products or inputs. However, the costs of imposing such data sharing is not free as it may reduce the incentives to collect and store data that antitrust authorities should be mindful.

In that regard, two US antitrust cases are interesting. In both cases, a digital start-up relied on the data of a larger attention platform to provide data analytics services and then, at some point, was cut off from the access to that data. In the first case, *PeopleBrowsr* analysed Twitter data to sell information about customer reactions to products or about Twitter influencers in certain communities. At some point, Twitter decided that its data will not anymore be accessible directly, but should be bought from certified data resellers. Following a complaint by PeopleBrowsr, a Californian Court ordered, with interim measures, that Twitter had to continue to provide its data directly. Then the parties settled the case deciding that after a transition period, PeopleBrowser will get the data from the certified data resellers.[98] In the second case, *hiQ* analysed LinkedIn public available data to provide information to business about their workforces. At some point, LinkedIn limited access to this data by legal and technical means, because it wanted to provide similar services itself. Following a complaint by hiQ, a US federal district judge ordered LinkedIn to resume the supply of its data.[99] Those two cases might illustrate a theory of harm based on the free-

[94] Also Khan (2017).
[95] For an discussion of the conditions to impose access to those key assets of broadcasters, see Ibanez Colomo (2012).
[96] Guidance Paper, paras. 75-90.
[97] See also Monti (2007:223-243).
[98] http://blog.peoplebrowsr.com/2012/11/peoplebrowsr-wins-temporary-restraining-order-compelling-twitter-to-provide-firehose-access/ and http://blog.peoplebrowsr.com/2013/04/peoplebrowsr-and-twitter-settle-firehose-dispute/
[99] *HIQ Labs v. LinkedIn.*

riding by large attention platforms on the experimentation costs - which may constitute an important part of the innovation costs - incurred by start-up. [100]

To reduce market contestability, a dominant attention intermediary may also refuse to interoperate with a smaller platform. If the four conditions of the essential facility doctrine are met, such refusal could be sanctioned by an antitrust authority.[101] In some cases, EU legislations go further than antitrust and impose interoperability beyond the requirement of essential facility. This is the case for the communications platforms which exhibits direct network effects and for which, therefore, the benefits of interoperability are higher. [102]

3. Increasing users switching or multi-homing costs

Attention intermediaries may protect their dominant position by limiting market contestability on the demand-side and increasing the costs of switching or multi-homing of their users. A direct means to reduce user switching is with contractual practices, such as long duration or exclusivity clauses.[103] However, contractual restrictions are rarely used on the free side of the market. On that side, another means, which is indirect but possibly more effective, consists in limiting the portability of data between platforms. Indeed, data represent a key asset not only for the platforms as explained above, but also for users of social networks (e.g. posts on Facebook), music streaming (e.g. the playlist) or booking sites (e.g. the customers reviews and evaluations). In those cases, users may be reluctant to switch or multi-home if they cannot bring 'their' data with them. Recent EU legislations, in particular the GDPR,[104] provide rights to data portability and should contribute to make the markets work better. However, the scope of those portability rights is still legally uncertain and is, in any case, too limited to facilitate switching or multi-homing across several attention intermediaries.[105] Therefore, antitrust may have to fill the regulatory gap if a refusal to allow data portability has anti-competitive effects and cannot be justified by efficiency or objective necessity (such as privacy or security).

However, sanctioning a refusal to allow data portability may be complicated by the fact that such refusal may violate different EU legislations. It may violate competition law because of its exclusionary effects of some attention platform unable to attract users who cannot port their data or because of its exploitative effects on users whose privacy choice are unfairly limited. Beyond antitrust law, refusal to port data may also be considered as a violation of data protection law (depending of the practice and the interpretation given to GDPR), or even in some cases, of consumer protection law. This is an illustration of the more fundamental issue that, often, conducts of the attention intermediaries violate different legal instruments which are enforced by different regulators. In those cases, Monti (2020) explains that a good cooperation between those authorities is essential.

V. RECOMMENDATIONS TO IMPROVE EU COMPETITION POLICY

To conclude, this last section proposes adaptations to the different EU competition law building blocks in order to better take into account the main characteristics of the attention online intermediaries, in particular the multi-sidedness of the markets, the role of data as key innovation capabilities and the high rate of innovation.

A. Market definition

Three adaptations could be done to the market definition methodology. Most of them are already implemented to some extent in the Commission practice and in the Courts case-law, but the review of the 1997 Market Definition Notice is a good opportunity to include them in the Commission Notice.[106] First, the Notice could clarify that, in case of multi-sided markets, antitrust authority may define different relevant markets on each side provided that the relationships between the different sides are taken into account in the assessment of dominance and competitive effects of conducts. Second, to define the market on the free side, the Notice could indicate possible alternatives

[100] Newman (2016:106-107) mentions two other cases where US Courts refused to impose data access where no prior voluntary access to data had been granted: *LiveUniverse v. MySpace* , No. CV 06−6994 AHM (RZx), 2007 WL 6865852, at *1 (C.D. Cal. June 4, 2007), *aff'd*, 304 Fed. App'x. 554 (9th Cir. 2008) and *Facebook v. Power Ventures* No. C 08−05780 JW, 2010 WL 3291750 (N.D. Cal. July 20, 2010).
[101] Decision of the Commission of 24 March 2004, Case 37.792-*Microsoft*, paras.546-791 which was confirmed by the General Court in Case T-201/04 *Microsoft v. Commission*, paras.291-712.
[102] EECC, art.61(2a) for number-based interpersonal communications services and art.61(2b) for number-independent interpersonal communications services.
[103] See Commission Decision of 20 March 2019, Case AT.40411 *Google Search (AdSense)*.
[104] Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46 (General Data Protection Regulation), OJ [2016] L 199/1, art.20.
[105] Kramer, Senellart and de Streel (2020).
[106] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12325-Evaluation-of-the-Commission-Notice-on-market-definition-in-EU-competition-law

to the SSNIP test which adapt its substitutability logics to non-monetary indicators such as attention (Attentional-SSNIP), quality (SSNIQ) or non-monetary cost (SSNIC). Third, the Notice could introduce and define the concept of gatekeeper when the customers on one side of the market (in general, the attention target side) single-home. In this case, markets may even be defined narrowly, per attention intermediary platform.

B. Dominance and beyond

Three adaptations could be done to the dominance assessment methodologies and metrics. Again, some of them are already implemented in the Commission practice and in the Courts case-law, but it may be useful to mention them in the soft-law, for instance by amending the Guidance Paper. First, as already mentioned, the antitrust authority should take into account the relationships between the different sides of the market in assessing market power. Second, on the attention target side, the antitrust authority could use metrics adapted to the services provided to calculate market share, such as number of unique visitors or time on site. Third, the antitrust authority should focus more on potential competition on existing and future markets, which is often a better indication of the competitive dynamics than the existing competition. To do that, the authority should analyse the entry barriers to existing product markets, in particular the network effects resulting from the cross-groups externalities and the use of data. This analysis should be complemented by a review of the entry barriers to the input markets and innovation capabilities, such as data, user base, skills, computing power and patient and risky capital.

C. Mergers and acquisitions

Three adaptations could be done to the merger assessment methodologies. Here also, some of them are already implemented in the Commission practice and in the Courts case-law; but it may be useful to include them explicitly in the Commission Guidelines on Horizontal and Non-Horizontal mergers.

First, the antitrust authority should assess the effects of a concentration on all the sides of the market and not only on the paying side; on the free market side, the antitrust authority should review the effects on the non-price dimensions of competition (such as user choice, data collection and/or the advertising load) and closely cooperate with other authorities reviewing the non-competition effects of the concentration (such as the media authority reviewing the effects on pluralism or the data protection authority reviewing the effects on privacy). The competitive assessment on the attention target side should be done in cooperation with other authorities which have to analyse the effects of the merger on the basis of other legislations such as media, advertising or privacy.[107]

Second, the antitrust authority should focus their analysis on the effects of the merger on future competition and innovation. This is particularly difficult in digital markets which evolve quickly (because of innovation) and in unpredictable manner (because innovation is often disruptive). However, authorities may reduce the risks of errors by looking at the internal documents of the merging parties and the analysis of financial and industry experts. Moreover, authorities can learn from previous cases (provided some ex post analysis are done) and from recent new economic research on the effects of mergers (in particular big tech acquisitions) on potential competition and innovation.

Third, the ability and incentive for the antitrust authority to adopt a more dynamic analysis, in turn, requires an adaptation of the standard of proof. Instead of a standard based on the most likely scenario post-merger, which minimises the risks of errors, the EU Courts should impose a standard based on the balance of harms which minimises the risks but also the costs of antitrust errors.

D. Exclusionary abuses of dominance

Finally, the methodologies to assess the competitive harms of unilateral conducts of the dominant attention intermediaries should also be adapted to the characteristics and the dynamics of the markets. Such assessment is a complex balancing exercise because, in the digital sector, a conduct has often *at the same time* pro and anti-competitive effects. Indeed the same conduct may generate efficiencies in the short term but potentially at the expense of effective competition, hence efficiencies and innovation, in the longer term. Thus the methodologies to assess the four specific exclusionary practices mentioned in the Guidance Paper could be adapted in the following way: (i) with regard to exclusive dealing, the Guidance Paper could mention the practice which aims at increasing switching or multi-homing costs of the attention targets, such as limiting contractually or technically the ability to port data; (ii) with regard to tying and bundling, the Guidance Paper could mention the typical bundling strategy in platform markets which consists in enveloping a niche competitor thanks to overlapping user

[107] See also recommended by Monti (2020).

(and attention) bases between the dominant platform's core market and the new market and shared components or modules between the two digital services; and (iii) with regard to refusal to supply, the Guidance Paper could more explicitly explain that applying the same cost-benefit analysis, which is at the core of the duty to deal antitrust case-law in light of the different characteristics of data and competitive dynamics of the attention economy implies that the threshold for imposing data sharing under Article 102 TFEU should be lower than the threshold to impose access to other products or inputs.

Those proposals do not require a revolution in the economics at the basis of modern antitrust nor of the main legal concepts and methodologies that have been built by the antitrust agencies and the Courts over the years. They merely call for an adaptation of those theories, concepts and methodologies to the characteristics of attention markets. However, they do not get away with the different trade-offs that have always been at a core of the antitrust intervention: between short-term and long-term competition and efficiency, between efficiency and diversity or between more dynamic analysis and the increasing risks of errors. If anything, the characteristics of the attention market amplify those trade-offs. The work of the antitrust authorities is thus more challenging than ever, but also more interesting than ever.

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