

Internet advertising : an economy of dominance

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Abstract

According to competition authorities, advertisements shown on different media are specific and complementary goods. This means that TV advertisements are not substitutable by print or radio advertisements. Keeping with this view, competition authorities consider that Internet advertising is a market onto itself. The Internet medium does not compete with advertising markets for print, television or radio. However, this view point no longer stands.

Advertisers use two criteria to value advertising medium: 1) reach, or the number of prospects which may see the ad, and 2) targeting, the socio-economic quality of these prospects. The positive network externalities linked with « *Winner takes all* » are at the root of the Internet's reach. Internet targeting depends on collecting and handling individual data and placing them on their social graph. Mass targeting yields incomparable power and creates the competitive advantage of the Internet compared to traditional advertising mediums. This explains why the Internet is becoming the world's leading advertising medium, upending television. The Internet is irreversibly substituting all traditional advertising media.

The Internet's value as an advertising medium depends directly on the quantity of data stored and its data management capacity: both are capitalistic businesses. The relationship between the quantity of data and the value of advertising capacity, explains why the advertising market's supply is so concentrated, and currently in a duopolization process.

The Internet's increasing dominance on the advertising market and the high concentration on the supply side requires the antitrust authorities' attention on the advertising, content production and publishing markets.

1. Audience reach and targeting are at the crux of competition on the advertising market.

Media whose economic equilibrium depends on advertising revenues, rely on business model called two or multi sided markets¹. In a two-sided market model, each media competes with the others for the audience, and do so with their content. The market for consumer "eyeballs" is the first side of their business. This audience is valued by each media on the advertisement market, which is the second side of this business model.

So, the two sides of the business are closely related. Supposing that advertisers are rational, they will seek to maximize the performance of their advertising budgets. Advertising performance is then measured by the number of purchases made or by the brand awareness generated. Budgets are thus allocated per advertising medium which maximizes performance and directly depends on the media's audience. Two factors contribute to valuing the audience: reach, or quantity, meaning the number of prospects having seen the advertisement, and targeting, or the quality of the prospects having seen the advertisement.

Reach: when one media increases its audience at the expense of another media and if the advertisement prices remain constant, it is likely that for the same investment, advertisers will switch their budget to the media with the higher audience. From an advertiser's viewpoint, the two media are substitutable goods. From a media buyer's perspective, the two media compete with one another. Although this point is obvious, competition authorities deny it, maintaining that different media advertising markets are separate.

Targeting: the characteristics of individuals comprising a media audience are the second key criteria for advertisers when they choose an advertising medium. For example, let's take the annual ad campaign of a golf club manufacturer targeting golf players. Suppose that the media selected to reach this target are: a golf-themed magazine and a TV channel dedicated to golf. The advertiser notices that circulation of the golf magazine has increased, while the themed-TV channel's audience has decreased. What will the advertiser do? To maximize ad spend and reach, the advertiser will maintain the overall budget, but increase ad spend for the magazine, and invest less in the themed golf TV channel. This example proves that different media, here a magazine and a TV channel, do indeed compete for the same advertising budget on the same advertising market. This example also underlines that segmenting the advertising market per media is not an obvious point, contrary to the competition authorities' beliefs.

Other criteria help assess the performance of an advertising media: its repetitive capacity, memorization power, localization, and so on. There are, of course, other criteria which are part of the final decision-making in advertisers' selected media. Overall, **advertisers arbitrate between advertising media to maximize the efficiency and efficacy of the advertising budget.** While the mechanisms at play in this arbitrage are complex, choosing a media, means considering all media advertising offers.

These mechanisms explain how the Internet is becoming the dominant medium on the advertising market.

2. Network externalities and "*Winner takes all*": the two sources of Internet power

The growth of the Internet's service-focused business models are based on positive network externalities. The utility of a service depends directly or indirectly on the number of users/members using the service². When the service reaches a critical user mass, an exponential number of new users takes place; This phenomenon is called the snowball effect³. The service's appeal depends on the number of initial users (externality) and the reactivity of the early-adopters to convince contacts to join the network; the *club effect*⁴. Access and free use of the service help reach a critical user mass quickly, which in turn, sparks the snowball effect. Competition on markets with positive network externalities and the snowball effect create the *Winner takes all*⁵, where the winner dominates, and pushes the market to a quasi-monopolistic status. Examples are: Google for search engines, Facebook for personal social media, LinkedIn for professional networks, YouTube for video-sharing networks, France's Le Bon Coin (like Craigslist) for classifieds, Skype for Internet video communications, etc.

When hundreds of millions of members share the same Internet service, they become a powerful audience which outnumbers traditional media audience, and which is advertisers' leading valuation factor. The Internet's advertising formats, such as display (banner ads, skyscrapers, pop-up, videos, etc.) and sales' links in a text format or other tools, were developed so that advertisers could engage with the site's users. The key tariffs include:

- **CPM** (cost per mille/thousand), cost per thousand of page views (advertisement displayed on the screen); in Europe prices near 1 euro;

- **CPC**, (cost per click) clicking on the ad: the average price is below 0.5 euros a click;
- **CPA**, (cost per action) the user's engagement post-click. For example, the user clicks on an advertisement which leads to an event's mini-site, and where the advertiser's desired action is to get the user's email address. There are many types of engagement, from creating an account, to downloading applications, or liking a page. CPA price varies with the type of information collected.

As the above formats and tariffs are Internet-specific, online advertising could be considered as different from other media advertisements. This idea has been acknowledged by competition authorities in Germany, France⁶, Italy, and other European competition authorities⁷, as well as America's Federal Trade Commission (FTC).

Yet, online advertising also provides specific audience targeting and profiling, which is little by little eroding into the competition authorities' conclusions as we will see further on.

3. **Big data and personalized mass targeting**

An advertisement's goal is to reach out to all prospects for a low price. The targeted prospects will maximize memorization and be incited to make purchases. *Big data* and programming advertising take these goals further.

Internet platforms have three types of information on their members:

- **Declared information**, which is explicitly transferred by users via forms, questionnaires, etc.,
- **Observed information**, tacitly transferred by using the service: pages and sites visited (*cookies*), information queries and page visits, purchases, date and time spent on a page, etc.,
- **Inferred information**, deduced or produced by the platforms based on the information obtained above, inferred information comes from *deep learning* or artificial intelligence, etc.

Declared and observed information provide real-time user updates. The more information gathered, the more the inferred information will find probable hidden preferences, tastes and buying trends for each person⁸. So, algorithms (*deep learning*) help predict personality and socio-type, and can even anticipate a person's mood when they're on a site, to push relevant advertising messages, to the user, as well as desired products or services. Platforms use filters to send the information users expect. This "curation" is appealing since users only see the messages they want to see. As a result, users live in an information bubble, called the *Filter Bubble*⁹. The power of these new tools provides a competitive advantage, which is valued on the advertising market.

4. **Targeting : the advertising value of individual data**

The more data collected on a person, the easier it is to identify his/her buying propensity for a given product or service, and the higher the value for the advertiser seeking to sell the product or service. The individual data market illustrates this value¹⁰.

The surname, first name and zip code of an American citizen are valued at 0.0005 dollar. When information such as sex, age, ethnicity and education level, are known, value is multiplied by 14 and is worth 0.007 dollar. But the price of individual data reveals how complex it is to link individual data with the propensity to buy. Millionaire status means personal data value is 245 times more than the standard data price. But a database of obese individuals with a gastric reflux is worth four times more than the millionaire database¹¹. So, the link between personal data and the propensity to spend remains hardly complex and rather uncertain.

Collecting the above information requires building very big data bases and knowledge which digital technologies now provide at low cost. More, digital technology is now used by a great majority, and technology is part of everyday life¹², so gathering personal data anytime and anywhere is growing, and with it the capacity to understand personal preferences.

Internet platforms are reaching an ever-widening user base, which can adapt to advertisers' precise and varied needs. Programmatic advertising is programmed by algorithms, meaning a person receives a relevant message at the right time and place.

This type of advertising has grown very quickly¹³. Targeting lowers advertising volumes but increases advertising revenue per media since advertisers are willing to pay for this precise consumer profiling and targeting. And, consumers don't find the advertising intrusive as it meets their tastes and needs.

5. The advertising value of individual data in the social graph

With the Internet, advertisers have individual data, and each Internet user can be localized in terms of their social relations, or their social graph, as stated by Facebook. **An individual's social advertising value is often higher than his/her stand-alone data.**

How are social links valued? A Facebook account averages 394 friends. What's a friend? Is it someone with whom you communicate regularly? Or just a contact? The average human being can simultaneously maintain a relationship with a maximum of 150 people, this number is limited by the size of the neocortex¹⁴. 150 stable relations, is less than half of the average Facebook account. Qualifying relationships in a network means assessing information flows between individuals, their destination, regularity, content and so forth.

A network's density can be measured by a ratio of the number of active links between users and the theoretical maximum number of links. The higher the ratio, the denser the network. The network's diameter or size is measured by counting the number of links between the network's two farthest members. The network's average degree of separation is measured by calculating the average number of members between two randomly chosen members. This number upholds the network's logic: friends...of my friends...of my friends. The smallest the degree of separation, the lower the average number of links between members, and the more potential the network has to be viral.¹⁵ Facebook's 721 million Facebook members have an average 4.74 degrees of separation – less than five members – when two members are randomly assessed. This number decreases to three if limited to a single country¹⁶, so the network is more viral.

A network's viral potential offers great value for an advertiser. By reaching out to a central or influential member, a host of additional members can be reached at no-extra cost by simply sending a message to the right person. Influential members are singled out on a regular basis, with new influence measures based on concepts like central intermediation.

Influence is easily identified by counting the number of friends, contacts or followers the influencers have. Cristiano Ronaldo has 104.7 million friends on Facebook and 47.3 million Twitter followers. Ronaldo is considered a major influencer. One tweet touting a product, clothes for example, costs more than 200,000 euros, or more than a TV advertisement on a national European TV channel. The advertiser pays because it's a means to reach out to a highly segmented population. More, no other media provides such a powerful targeting opportunity. Social value largely depends on personal value. The cashinfo.com site assesses an individual's average social value at over 300 euros¹⁷, which is much higher than the value of the average individual value.

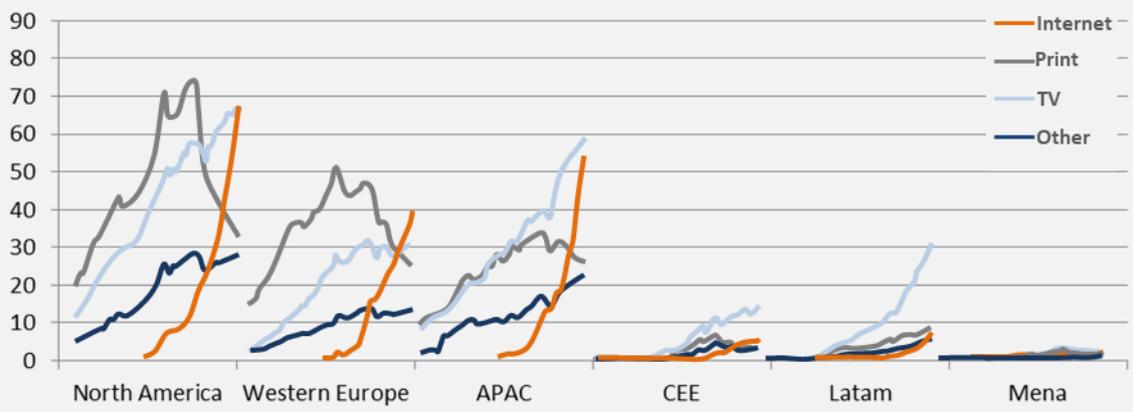
A social network has a communication function, but like traditional media¹⁸, it can also be a broadcast network. The Internet is replacing traditional advertising media, which is struggling to rival the Internet’s power and targeting.

The technology behind e-advertising is just beginning, and while there are still glitches technology is moving fast and Internet advertising will continue to increase its performance compared to traditional media advertising spaces. Substitution is on the march, and will not stop.

6. The consequences for the advertising market

In Europe’s 2015 advertising landscape, online advertising was the leading advertising media with 36.4 billion euros, ahead of television’s 33.3 billion euros (see graphic below). These two phases plot the Internet’s penetration as an advertising media.

Figure 1- Gross advertising investment per media (1980-2014, US \$ billion)



Source: Andreessen Horowitz, from Zenith Optimédia data, 2014.

In the first phase, Internet advertising provided a given format and was managed by traditional media companies as a means to further opportunities to target consumers. So, traditional advertising space and the Internet were viewed as complementary. The Internet, however, provided more power. The first media to feel the effects was print media with Internet display ads.

In the second phase, post-campaign performance measures, shows that with the same content, advertising on the Internet provides much better targeting than traditional media. The substitution mechanism kicked in, and the Internet became a head-on competitor. This process began in print media a few years ago. Today, it’s television’s turn, with the broadcast and improved cross screen technology (tablets, smartphones, Internet connected TVs) associated with consumer behavioral changes and higher bandwidth with lower plans for fixed and mobile networks¹⁹.

And yet, based on multi-sided market logic, it’s the content which generates the valued advertising audience. The Internet’s content-generating audience can come from new players, like *pure players*, but overall, today’s most read, listened to and watched content, is still produced by traditional media. They have been forced to follow and transposed their businesses to the Internet, and developed Internet-site specific content to stay competitive. More, this content transfer is fueling the drive from traditional media to the Internet.

Paradoxically, in what European competition authorities qualify as an emergent market, and even though content remains the key audience-driver, but the audience itself is no longer the sole driver

of advertising revenues. The change lies in what's behind the audience: the quantity and quality of the audience consuming the content. Traditional media have hazy knowledge of their audiences, and cannot always deliver the content in an optimal or maximal way. A few Internet players have the top hand and can both better optimize content diffusion and target the audience for the best value. Are yesterday's media being disrupted?

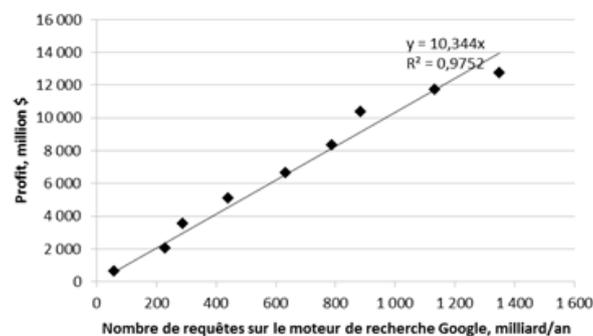
7. The advertising market's concentration dynamics

The European Competition Commissioner, Margrethe Vestager, qualifies data as *"The new currency of the Internet"*²⁰ furthered by *"the more data you collect, the more information you have on the best product you can offer, and your recommendation power increases, which can become a competition problem"*²¹.

This reckoning supposes that collecting, storing and analyzing personal data and an individual's inter-relationship data is expensive but with increasing returns, it's a scale-driven business. The greater the data volume, the more expertise increases. In turn, advertising value will increase.

The illustration below shows the relationship between the number of Google queries and the group's profits. Between 2004 and 2012, the linear regression is almost perfect ($R^2 > 0.97$), the profit per query remains constant at 0.875 cent. A broader search engine audience doesn't impact profitability. This is the opposite in traditional media where incremental audience gains can be more costly than the revenue they drive.

Figure 2- The relationship between Google profits and the overall number of search queries (2004-2012)



Source: Google data

Companies collecting large amounts of personal data, which they store and manage, have a true competitive advantage. The required infrastructure to bring out data value requires hefty investments in terms of servers, transportation capacity, and security. Google, for example, may have invested more than 10 billion dollars in digital infrastructure for 2014 alone.

In this « *Big is beautiful* », the Internet advertising market is heading towards one long term trend: concentration. In 2012, the first 9 firms represented 67% of the world market. In 2015, the same nine held 71% of the world market²². No other advertising market has witnessed as much concentrated demand. The dynamics are even more telling: Google and Facebook captured more than 90% of the American advertising market's growth (see table 1 below).

Table 1- Breakdown of Internet advertising growth per key offers

	Q1 2015 (Bn US\$)	Q1 2016 (Bn US\$)	Growth (Bn US\$)	the growth (%)	Q3 2015 (Bn US\$)	Q3 2016 (Bn US\$)	Growth (Bn US\$)	Share in the growth (%)
Google	6.9	8.3	1.4	52%	7.9	9.5	1.6	55%
Facebook	1.6	2.6	1.0	38%	2.1	3.4	1.3	45%
Autres	4.7	4.9	0.2	10%	4.6	4.7	0.1	3%
Total	13.2	15.9	2.7	100%	14.7	17.6	2.9	100%

Source: IAB.

These numbers also shed light on recent valuations, which are part of the race to access personal data. In 2014, Facebook bought WhatsApp for 21.6 billion dollars. Although Whatsapp posted annual revenues of 15 million dollars it never posted profits. Facebook was merely interested in Whatsapp's 430 million regular users. Whatsapp users accept that their messages and smartphone contacts be stored by Whatsapp. Personal data value and the number of social users explain the Whatsapp valuation. For Facebook, a Whatsapp user cost Facebook 50 dollars: much lower than the aforementioned 300 euros for an individual and social data.

The advertising market's overall trend towards concentration is a backdrop for these valuation levels. Based on the multi-sided logic, the data purchased can be priced according to advertising market's value.

Table 2- Transaction values of big Internet companies

Firm acquired	Date	Buyer	Price (Bn US\$)	Users at purchase (M)	Price per users (\$)	Revenue at purchase (M\$)	Revenue per User (\$)	Users (06/2016; M)	Price per user to date (\$)
Instagram	April 0212	Facebook	1	30	33,3	2	0,067	500	2,0
YouTube	Nov. 2006	Google	1,65	50	33,0	15	0,300	>1,000	1,7
Minecraft	Sept. 2006	Microsoft	2,5	100	25,0	14,3	0,143	125	2,0
WhatsApp	Oct. 2014	Facebook	21,6	430	50,2	15	0,035	>1,000	21,6
LinkedIn	June 2016	Microsoft	26,2	433	60,5	3	0,007	433	60,5

Source: Company websites and specialized press.

The European Commission approved of Facebook's purchase of WhatsApp, stating: "Herefore, the Commission notes that, regardless of whether the merged entity will start using WhatsApp user data to improve targeted advertising on Facebook's social network, there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook's exclusive control"²³. The Commission, nonetheless, fined Facebook 110 million euros for having misled the Commission with inexact information regarding the purchase and how Facebook would use Whatsapp data for advertising means. Yet, the Commission has still not changed its analysis of the advertising market: "Online advertising: the Commission concluded that, regardless of whether Facebook would introduce advertising on WhatsApp and/or start collecting WhatsApp user data for advertising purposes, the transaction raised no competition concerns. This is because, besides Facebook, a number of alternative providers would continue to offer targeted advertising after the transaction, and a large amount of internet user data that are valuable for advertising purposes not within Facebook's exclusive control would continue to exist"²⁴, which we feel is not correct.

Conclusion

The Internet's specific characteristics outperform traditional advertising. The trend substituting traditional advertising by the Internet is well underway and will not stop here. To qualify this

phenomenon of “irreversible ascending substitution”, is similar to how electric lighting replaced the candle and the combustion motor replaced animal traction.

Big data represents the key input for programmatic advertising and is the critical resource furthering the Internet’s advantages as a new medium for advertising. Higher profitability in producing big data will lead to an inevitable concentration of advertising worldwide.

Consequently, monitoring and controlling mergers and acquisitions in the digital realm is crucial, and requires new and different criteria. The European Commission grasped the problem in a public consultation in October 2016 for policy review guidelines regarding concentration deals.

Once advertising becomes a key revenue stream to finance the media, supply concentrates around the dominant advertising media, even impacting print or audiovisual content, diversity, editorial line and independence.

The status of firms providing advertising space to monetize an audience should be reconsidered from their current technical web hosting status. They should have the same status as a media publisher, sharing the obligations and rules to abide by, as required by their status. At minima, fair competition needs to be reinstated amongst all advertising spaces in a plurimedia market.

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- ¹⁰ <https://www.privacyrights.org/data-brokers>.
- ¹¹ Cf. http://www.ft.com/cms/s/2/927ca86e-d29b-11e2-88ed-00144feab7de.html?ft_site=falcon#axzz2WfFmKwic ou <https://www.cashinfo.com/infos/calculateur-de-valeur>
- ¹² The development of Internet of Things will provide a host of opportunities to collect massive amounts of individual data (watches, connected cars, etc.) or family (cf. Amazon’s Echo or Google’s Home and Nest, etc.).
- ¹³ The market has grown more than 50 % over the past three years and already accounts for 50 % of the display market at end 2016.

¹⁴ “Neocortex size as a constraint on group size in primates”, R.I.M. Dunbar, *Journal of Human Evolution*, vol. 22, n° 6, juin 1992, p. 469-493 (DOI 10.1016/0047-2484(92)90081-J). *Unravelling the size distribution of social groups with information theory on complex networks*, A. Hemando and alii, Cornell University Library. 16 September, 2009.

¹⁵ This view comes from Milgram, who in 1967 (before the Internet), measured the average number of degrees of separation between two individuals drawn randomly in the United States: he found 6 (5.2). The small world theory was born.

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¹⁸ Regarding the 2016 Presidential election fake information, Facebook admitted that it didn’t sufficiently curate the false information, *de facto* acknowledging the site’s editorial responsibility and yet Facebook is not obliged to uphold media’s strict obligations. Internet firms are much freer.

¹⁹ *La Fin de la télévision*, J.-L. Missika, Éditions Le Seuil, coll. La république des idées, 2006.

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²³ §136 : http://ec.europa.eu/competition/mergers/cases/decisions/m7217_20141003_20310_3962132_EN.pdf.

²⁴ “The European Commission lodged a complaint with Facebook affirming that Facebook had supplied inexact or false information during the Commission’s 2014 inquiry on Facebook’s WhatsApp acquisition, regarding the EU’s concentration policies.” Facebook had until January 31, 2017 to answer. The Commission can fine the company up to 1% of its revenues. http://europa.eu/rapid/press-release_IP-16-4473_fr.htm.