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Note 1

The online advertising market in the EU

Update 2015 and Focus on programmatic advertising

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Executive Summary

Section 1: Key data on the online advertising market in Europe

- According to WARC data, the EU 28 online advertising market generated ad expenditures of EUR 33.3 billion in 2015, surpassing the EU 28 TV advertising market, which generated EUR 30.7 billion in 2015, for the first time (see Figure 2). In 9 EU countries, online ad spend has surpassed TV ad spend (see Table 2, Figure 12 and Figure 13)

- The value of the online advertising market in Europe (27 IAB countries) totalled EUR 36.4 billion in 2015, a growth by +13% year-on-year (2014: EUR 32.1 billion) (see Figure 1)

- For the 21 EU countries tracked by IAB Europe and IHS, the online advertising market reached EUR 32.5 billion in 2015 (see Table 1) with the United Kingdom, Germany and France representing 67% of the market value; the top 10 EU markets represent 94% of online ad spend (see Figure 5)

- 2 countries experienced market decreases, Greece with -4.9% and Romania with -11.9% while 19 EU countries experienced positive growth, with 13 countries growing by double digits (see Figure 7)

- In the United Kingdom, France, Netherlands, Germany and the Nordics the online advertising market is becoming more mature as advertisers become increasingly confident in the digital landscape and consumers' online consumption of content increases

- Online ad spend per capita varies from EUR 181.7 in the United Kingdom to EUR 0.2 in Romania (see Figure 3), reflecting different maturation levels of the online advertising market

- Paid-for-search is the largest advertising format with EUR 17 billion, growing by +12.5% in 2015. The biggest market growth was for digital display advertising with 17.5% to EUR 12.7 billion (see Table 6) and which has a 38.3% share of the main 3 digital formats (see Figure 14)

- The share of ad formats vary between Western European countries, where paid-for-search is the main advertising format (with 45.9% of ad spend), and Central and Eastern European countries where display advertising is the main format (with 55.7% of ad spend), due to different objectives of advertisers in these 2 regions (see Figure 16, Figure 17 and section 1.7.3)

- The 17 worldwide key players on the online advertising market take a 66.9% share of total online ad spend, with Google and Facebook taking a combined share of 42.9% (see Table 5). No European player is among these 17 key players.

Sub-section Focus on display advertising in the EU – Key drivers of growth are online video and mobile display advertising

- The growth by 17.5% to EUR 12.7 billion in the 21 EU countries in ad spend on display advertising (see Table 6) was mainly driven by the increase in online video advertising (+35.8.% to EUR 2.5 billion) and mobile display advertising (+60.5% to EUR 3.5 billion) (see Figure 28)

- Display advertising is furthermore driven by advertising on social networks (63.2% of internet users and 47.4% of the total population in Western Europe use social networks)

- Programmatic advertising is a key driver of display advertising by rendering the buy process more efficient for ad sellers and buyers and by permitting better targeting capabilities with a large reach in an increasingly fragemented audiovisual landscape (see section 2 Focus On Programmatic Display Advertising)

- Video advertising grew by double-digits in every EU market (Figure 32) but video ad expenses vary widely among EU countries, with online video advertising generating EUR 746 million in the United Kingdom and EUR 1 million in Romania (see Table 7). The top 3 markets have a 61% share of total online video ad spend and the top 8 countries represent a 90% share (see Figure 31)

- Notwithstanding this fast growth, video advertising is still a small share of online display ad spend with an average share of 16.7% of display advertising in the EU (see Figure 33).

- Mobile is expected to be the main platform for online video by 2016 with consumers worldwide spending an daily average of 19.7 minutes watching online video on mobile device and 16 minutes on fixed devices, as stated by ZenithOptimedia

- IHS estimates that by 2018, 57.2% of online video advertising generated in EU-5 will be captured by Google and Facebook and foresees that European broadcasters will have less than ¼ of the online video advertising market. YouTube is estimated to generate USD 5.18 billion in 2016 in advertising revenues (see Figure 34 and Table 8)

- Mobile display advertising is the other growth driver of display advertising due to the increased use of mobile devices in daily media consumption by EU populations. Ad spend on mobile display grew by 62% in the 17 EU countries for which data is available, to EUR 3.3 billion in 2015 (see Table 9)
- The importance of mobile display in the display advertising market can be seen by the already important share of mobile display; on average 28.7% of display ad spend in EU countries (see Figure 39). In the United Kingdom, mobile display has a share of 43.1%, in Romania 3.5% of total display ad spend in each country. The top 3 countries accounted for 75% of mobile display ad spend (see Figure 35) with the UK alone taking 53% of EU mobile display ad spend in 2015.
- 7 Key players worldwide in the display ad maket will take 58.7% of the display ad market in 2016 (Table 10). No European player is among the top companies in display ad spend revenue worldwide.

Section 2 : Focus on Programmatic advertising

- Programmatic advertising is used in order to deliver the right advertisement at the right time in front of the right person; a key objective in display advertising, where the advertiser has to have knowledge on a consumer's profile and interest in order to achieve these objectives (data on consumers preferences, habits, etc in order to establish a profile).

- "Programmatic advertising" means the automated buying and selling mechanism for online display advertising. It is technology-driven, as the purchase and selling process passes through machine-to-machine automation, involving no human input in the transaction (however, human input is required to create the rules for both the buy and sell side and to define the consumer profiles which are/should be targeted). In other words, programmatic advertising is the automatisation of the ad buying and selling process.

- The key benefits of programmatic advertising are better targeting of audiences through the use of data and more efficient ad buying and selling transactions, both for the advertiser/agency and the publisher (see Schema 2). To understand the evolution that programmatic represents, one has to understand the traditional ad buying process; time-consuming and involving a lot of human resources and interactions, without the possibility to target advertisements at the individual level based on data and profiles but only on contextual assumptions (see Schema 1)

- Programmatic advertising is classified into 4 different types, based on whether the price is established through an auction (real-time bidding) or set in advance (fixed price) (see Schema 3).

- Auction-based programmatic transactions, called Real-Time Bidding (RTB), can be made on an open marketplace (see Schema 6) or an invitation-only marketplace (see Schema 7), where the publisher can select potential advertisers. The auction process takes typically less than 1 second (Schema 4 and Schema 5). Real-time bidding represents the lion share of programmatic advertising in 2015 worldwide (see Figure 59) and in Europe (EMEA) (see Figure 67)

- Fixed price programmatic sales are called programmatic direct transactions (see Schema 8) and are transactions where the price is known in advance (no bidding process). These are buying and selling processes in which advertisers and publishers are directly linked through ad tech (see section 2.2 for an overview of all players involved in the programmatic advertising ecosystem). The placement of an ad can be either on reserved ad inventory (the advertiser knows in advance where its ad will be placed) in which case the process is called "Automated Guaranteed", either on unreserved inventory (the advertiser does not know on which part of the website the ad will be placed) in which case the process is called "Unreserved Fixed Rate". Fixed price programmatic sales represent a small share of programmatic advertising, which remains mainly auction-based (see Figure 59).

- In 2016, according to a survey by IAB Europe, 87% of 105 surveyed advertisers, 92% of 432 surveyed agencies and 93% of 302 surveyed publishers use programmatic advertising (see Figure 41, Figure 42 and Figure 43).

- For an overview of the programmatic ad ecosystem and players involved in the value chain, please refer to section 2.2. Schema 14 and Schema 15 give an overview of the digital ad and video ecosystem with the main players in each segment of the value chain in Europe.

- Online video publishers can be classified into 4 distinct categories, each category having a different approach to programmatic advertising (see Schema 12 and page 59).

- Data is the fuel for programmatic advertising ("Data is the new oil", especially in online advertising). An overview of the different types and methods of data collection used in programmatic advertising can be accessed in section 2.2

- 4 different factors are affecting the adoption of programmatic advertising: shift in video consumption from linear TV to online live streaming & on-demand, broadband availability, data & privacy regulations and TV & video ad market convergence (see section 2.3)

- For an overview of the reasons, barriers and main business impacts of advertisers, agencies and publishers to adopt programmatic advertising, please refer to section 2.3. Better targeting, real-time advertising, lower advertising costs, analytics and insights gained are the main reasons and benefits for advertisers and agencies. Maximising their ad inventory value, client demands, making available their premium inventory at scale and gaining a competive advantage were the main reasons and benefits for publishers to adopt programmatic advertising.

- The majority of programmatic ad spend is done on the fixed internet globally, with a share of 72% of programmatic ad spend (Figure 60). By 2019, Magna Global expects that 50% of programmatic ad spend will be made on mobile devices, following the shift of media consumption from the fixed to the mobile internet by consumers.

- At its beginning, programmatic advertising was used for remnant ad inventory by publishers and by advertisers to place low-cost banner ads. With the rapid adoption by publishers and advertisers of programmatic, it is increasingly used for premium inventory and for online video ads, as both parties become more confident with this type of transaction process.

- In 2015, 54% of worldwide programmatic spend was on desktop banner and 19% on mobile banner with only 18% on desktop video and 8% on mobile video. These ratios will however radically change with an expected share of desktop video in programmatic spend of 27% and mobile video of 28% by 2019 (see Figure 61). This shift is also reflected in the estimated annual compound annual growth rates (CAGR) of these formats in the period 2014 to 2019, with mobile video growing by 80% and desktop video by 46% compared to a CAGR for desktop banners of 8% and mobile banners of 40% (see Figure 62). As more videos are watched online, more video ads will be bought programmatically.

- By 2019, programmatic ad spend in all formats will represent 50% of ad spend on formats (banner and video, mobile and desktop - see Figure 63)

- Magna Global estimated programmatic ad spend in the EMEA region to be of USD 3 million in 2015 which will eventually rise to USD 8 billion by 2019 (see Figure 56). The Netherlands, the United Kingdom, Germany, Italy, France, Denmark and Sweden are the leading countries in the EU in terms of programmatic ad spend in 2015 (see Figure 57 and Figure 68)

- Each advertising market is different in the EU, even more so for programmatic advertising. Different market structures shape different market trends. Therefore, a general overview of the EU market for programmatic advertising is not possible. IAB Europe and IHS estimated the net advertising revenue in the programmatic market in Europe to be worth EUR 3.66 billion in 2014, up by 70.5% (see Figure 66). Of these EUR 3.66 billion, the majority is allocated to desktop display with EUR 2.9 billion. Mobile programmatic generated EUR 230 million, up by 240.2% in 2014.

- Country data for the programmatic advertising market in GB, DE, FR, IT, ES, NL and DK is available in section 2.4.2.1

- Programmatic online video advertising generated EUR 375 million in 2015 in the EU countries tracked by IHS, up by 56% compared to 2014 (see Figure 76) and growing much faster than non-programmatic video advertising (Figure 77). The share of programmatic video ads in total video ads is however still low in 2015 with 16.8% of total video ad spend but is expected to grow to 51.4% by 2020, when programmatic video ads will be largely adopted by the digital ad ecosystem according to IHS (see Figure 78 and Figure 79).

- Country data for each tracked EU market for programmatic video ads can be seen in section Country data 2.4.3.1

- Since 2014, similar to programmatic online video advertising, programmatic transaction solutions have been applied to linear TV, with however slow adoption by broadcasters, out of fears of cannabilising their existing business model. Programmatic TV advertising promises to use audience data to individually target viewers, thus being efficient for advertisers and promising higher revenues for broadcasters. In 2015 however, this form of advertising for linear TV has not been adopted in Europe, except by a small number of broadcasters which are experimenting with this transaction process (see section 2.5).

- Ad targeting is possible for linear TV; on a reduced set of data, on smart TVs and connected TVs (set-top boxes, media players). Programmatic TV advertising is still in its infancy and represented EUR 4 million in Europe in 2014 but will grow to EUR 1.5 billion by 2019 and represent 4% of TV advertising revenues (see Figure 91), as estimated by IDC. The United Kingdom, Germany and France wil be the most important markets for programmatic TV advertising by 2019.

1. Key data on the online advertising market in Europe

1.1 Sources on the European online advertising market

The main figures freely available for the European online advertising market are published by IAB Europe[1] in the IAB Adex Benchmark and are established by IHS. IAB and IHS establish figures on online advertising spending in Europe based on data received from 27 European countries, of which 21 are members of the European Union (EU countries missing are Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta and Portugal and non-EU countries included are Belarus, Norway, Russia, Serbia, Switzerland and Turkey). Therefore, when referred to "Europe" the figures are not representative of the European Union but the "Europe" of the 27 countries participating in the IAB study.

In this note, we rely on the figures published by IAB Europe and IHS and have tried, whenever possible, to compile figures for the 21 EU countries by excluding the non-EU countries (indicated in the titles of figures and tables whenever available by "EU countries"). Another source used is Warc[2] (which does not publish figures broken down according to online advertising categories but publishes figures for the overall advertising market by European countries) in order not to only rely on a unique source for data on the online advertising market.

Also, it should be noted that data published in the Adex Benchmark report are adjusted, estimated (through modelling) and recalculated on a different basis for each country as the methods of data collection and treatment vary from country to country. Therefore, IHS standardises the data in order to make figures comparable across countries.

Other sources used for the chapter on programmatic advertising are IAB Europe, IAB Worldwide, IHS, Magna Global, ZenithOptimedia, MTM, Ooyala, IDC, Marin Software, Digiday, eMarketer and national advertising representations and local IABs in Europe. The different sources are indicated throughout the report. Graphs, tables and schemas are linked in the text.

[1] http://www.iabeurope.eu/

[2] http://www.warc.com/ As of the 31st of August 2016, Warc data on the advertising market in Europe for 2015 is not yet available. Data will be inserted into the final document.

1.2 An EUR 32.5 billion market in the EU surpassing TV advertising for the first time

- According to IAB Europe and IHS data from the *ADEX Benchmark 2015 – European Online Advertising Expenditure report* the value of the online advertising market for the 27 European countries included in the report was EUR 36.4 billion in 2015, an increase by 13% compared to the total of EUR 32.1 billion in 2014 (see Figure 1). When reduced to the 21 member states of the EU, the total online advertising market totalled EUR 32.5 billion in 2015 (see Table 1).

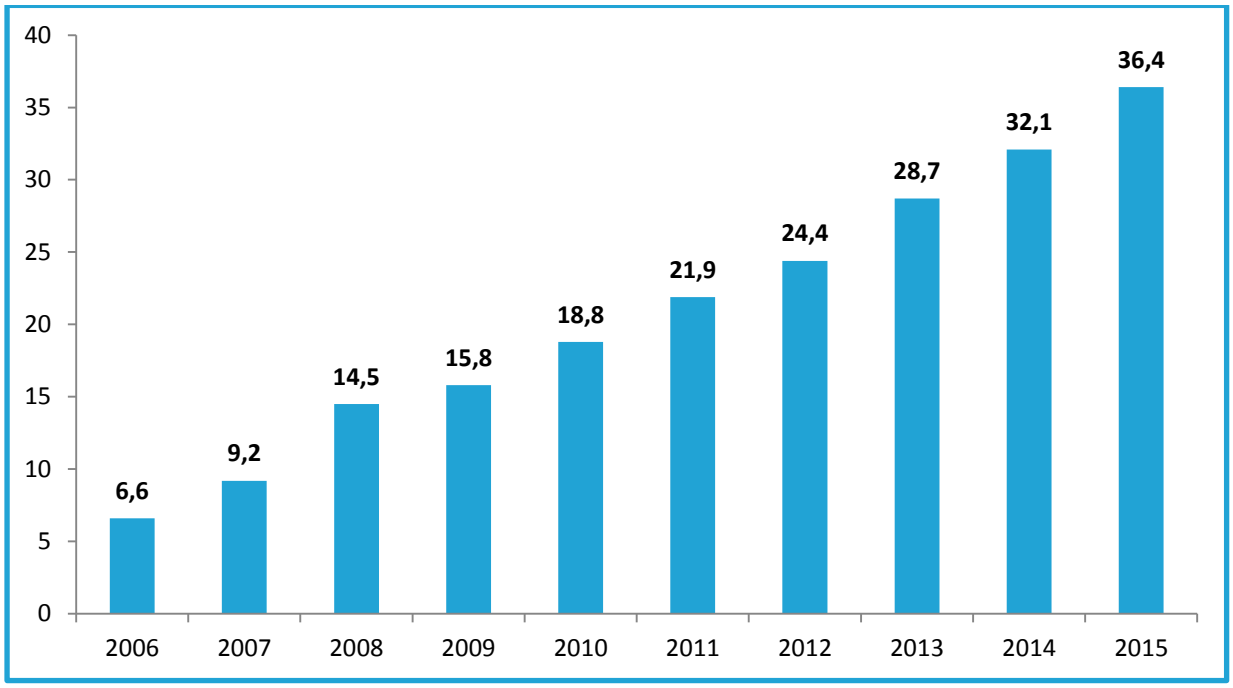
- The compound annual growth rate (CAGR) of online advertising in Europe from 2006 to 2015 is 20.9%, according to IAB/IHS. However, market data for the years 2006 to 2011 have been retropolated by IHS based on estimated IHS growth rates and only data from 2011 onwards are provided by IAB Europe.

- 2015 marks the first year in which **online advertising has surpassed TV advertising in Europe on a pan-European basis** (for individual countries, strong differences appear and in several countries TV advertising is still the first advertising medium). With this years EUR 36.4 billion for online advertising, the online ad market has surpassed the TV advertising market which was worth EUR 33.3 billion in 2015 in the 27 IAB European countries (see Figure 9).

- The online advertising market is also becoming more mature in several countries in the EU (UK, Nordic countries, France, Netherlands, Germany) and as Europeans time spent online (fixed and mobile) and consumption of online media keeps increasing, ad spend follows. Increased targeting capabilities (on mobile devices, programmatic, cross-device targeting) have helped to push advertising spend by advertisers to a new high in Europe. The use of consumer profiles for better ad targeting, established through the use of data, becomes ubiquitous.

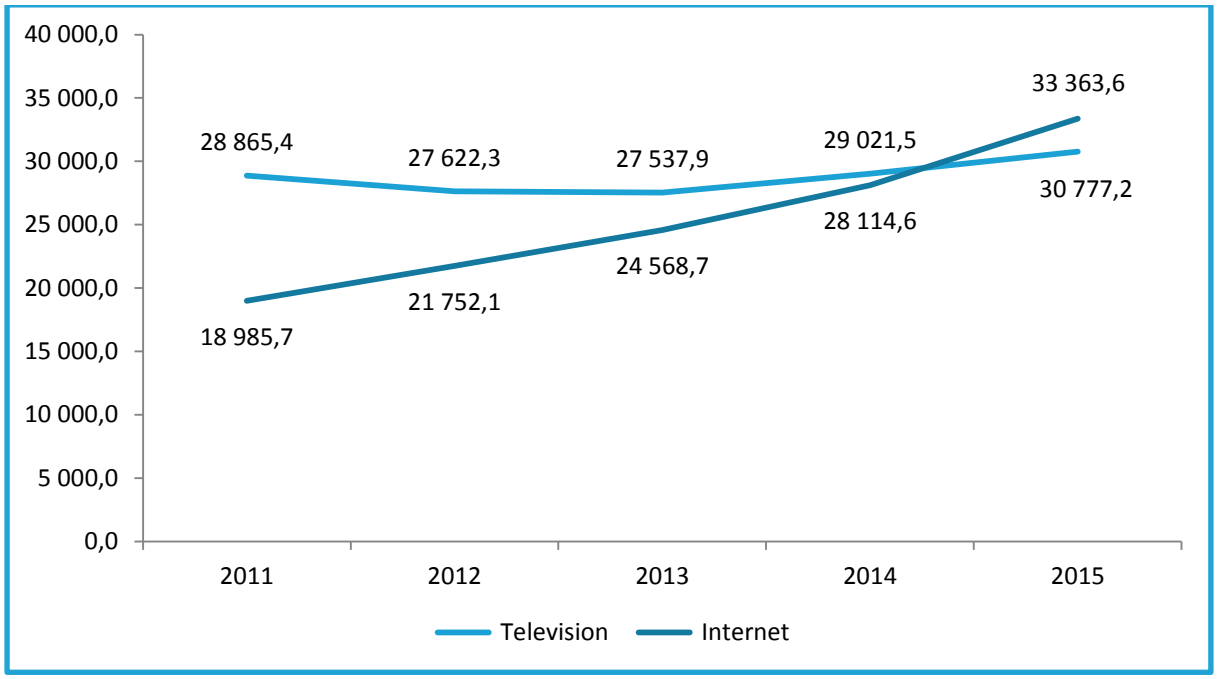
- According to Warc, the online advertising market in EU 28 reached EUR 33.3 billion in expenditures, surpassing the TV advertising market, which generated EUR 30.7 billion in 2015, for the first time. (see Figure 2) Warc and IAB/IHS consider the year 2015 as a milestone; advertisers are spending more on online advertising (individualised advertising) than on TV advertising (mass advertising). In a media world where audiences are fragmented, this shift from mass-advertising to indivisualised advertising through the use of data is a logic evolution and mimics the shift in media consumption.

Figure 1 Europe (27 IAB countries) Total online advertising spend in EUR billion, 2006-2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 2 EU 28 – WARC – Online and TV advertising expenditures 2011 – 2015, in EUR million



Source: Warc

1.3 Strong variations of online ad spend per capita

- The metric "online ad spend per capita" indicates the maturity level of national online advertising markets and shows the future possibilities of development which remain on each market. Of course, advertising spend depends also on macroeconomic data such as GDP or percentage of the population using the internet. The maturity of each market is given by how much each online consumer is worth to advertisers; the metric online ad spend per capita reflects this value.

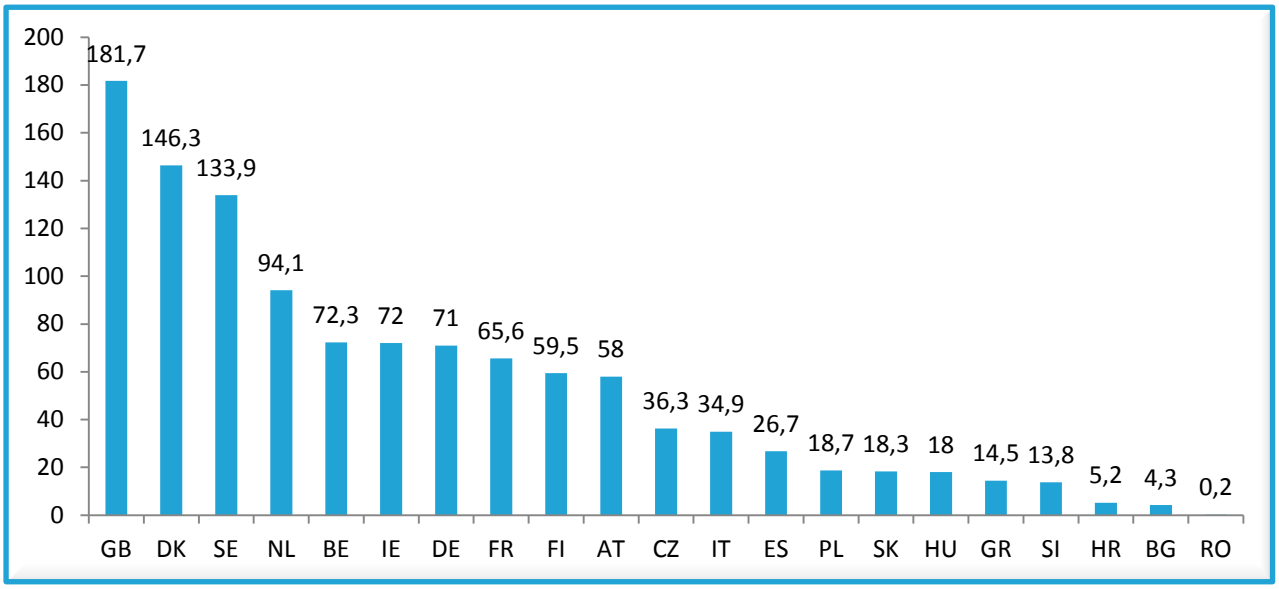
- For the 21 EU countries for which IAB/IHS provide information, the data shows that the 3 most developed markets are the United Kingdom, Denmark and Sweden (see Figure 3).

- 7 markets have an online advertising spend per capita in the range of EUR 50 to EUR 100, indicating a growth potential. These markets are the Netherlands, Belgium, Ireland, Germany, France, Finland and Austria. With the exception of Italy and Spain, all Western European countries have an advertising spend per capita above EUR 50 as online media consumption becomes more widespread in these countries.

- 8 markets have an online advertising spend per capita below EUR 50 but still above EUR 10. In these markets, traditional means of advertising are still preferred and online advertising has room for progress, in line with the adoption by consumers of digital device and a shift towards online media consumption.

- 3 markets recorded an online ad spend per capita below EUR 10: Hungary, Bulgaria and Romania. The low average spend per capita indicates that advertisers have not yet adopted the online space as a predominant mean for advertising and rely on traditional advertising media.

Figure 3 EU 21 - Online advertising spend per capita in EUR, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.4 The top 3 countries accounted for 67% of total ad spend

- The United Kingdom with EUR 11.8 billion, Germany with EUR 5.5 billion and France with EUR 4.2 billion are the top 3 online advertising markets in the EU and accounted for 67% of the total ad spend in the 21 member states of the EU included in the Adex Benchmark report 2015 (see see Table 1). The United Kingdom alone accounts for 36% of total online ad spend in these 21 countries and is twice the size of the next largest market, Germany. 94% of total online advertising spend is generated in the top 10 countries and nearly 80% in the top 5 (see Figure 5).

- The Top 10 online advertising markets in the EU are all situated in Western Europe with the exception of Poland, the thenth largest advertising market of the 21 EU countries (and also with a higher population than other CEE countries, therefore a larger consumer market requiring higher ad expenses by brands and advertisers).

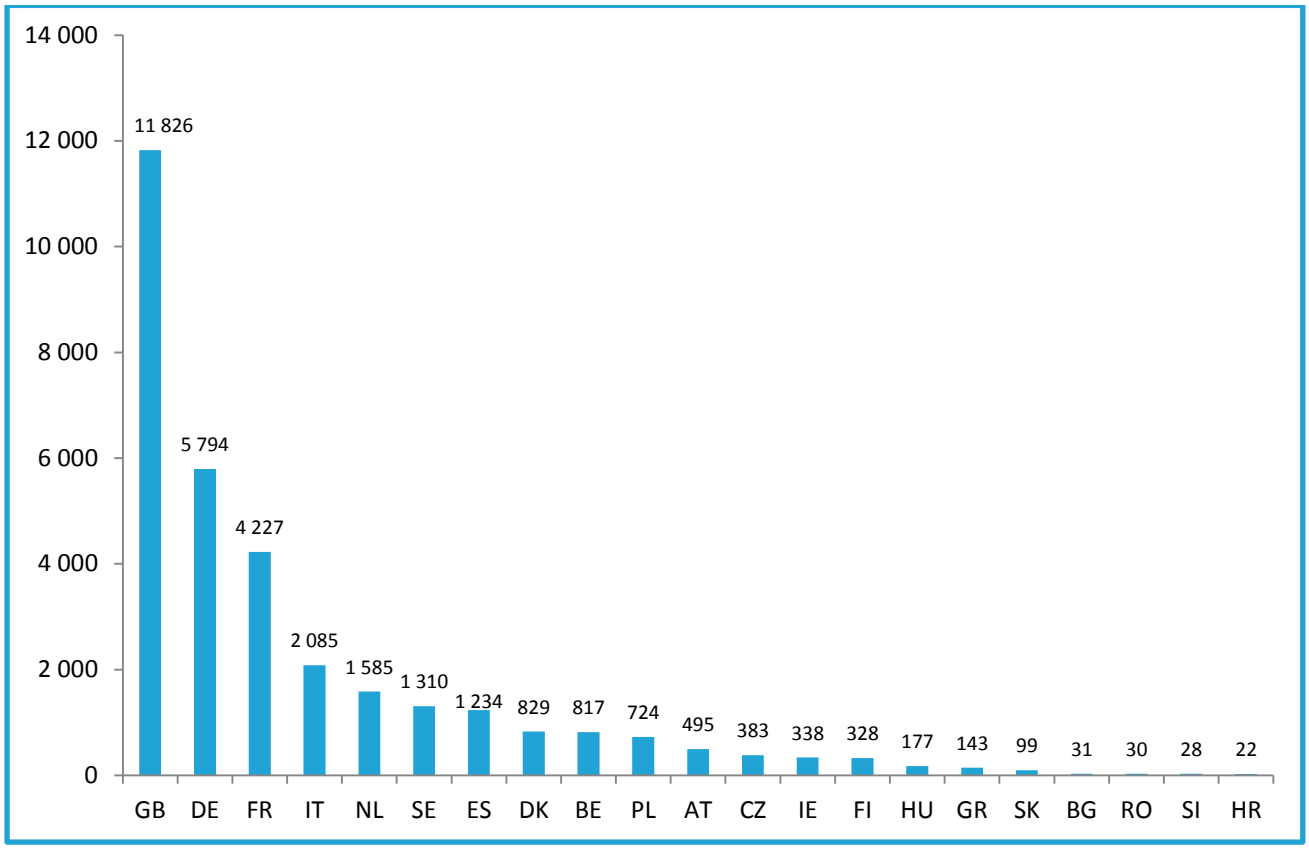
- The data shows that in the EU a disparity in the adoption of online advertising (and online media usage) still exists. The divide West/East and North/South exists when it comes to the digital economy as the DESI (Digital Economy & Society Index) demonstrates. The most advanced countries on the DESI are also the countries with a greater online ad spend per capita, reflecting the central place online media takes in their citiziens media consumption.

Table 1 Total online advertising spend by EU country and concentration of ad spend in EUR millions and %, in 2015

	Total online advertising spend	In % of total EU 21 ad spend	Cumulated %
GB	11 826	36%	36%
DE	5 794	18%	54%
FR	4 227	13%	67%
IT	2 085	6%	74%
NL	1 585	5%	79%
SE	1 310	4%	83%
ES	1 234	4%	86%
DK	829	3%	89%
BE	817	3%	91%
PL	724	2%	94%
AT	495	2%	95%
CZ	383	1%	96%
IE	338	1%	97%
FI	328	1%	98%
HU	177	1%	99%
GR	143	0%	99%
SK	99	0%	100%
BG	31	0%	100%
RO	30	0%	100%
SI	28	0%	100%
HR	22	0%	100%
Total EU 21	**32 505**	**100%**	**100%**

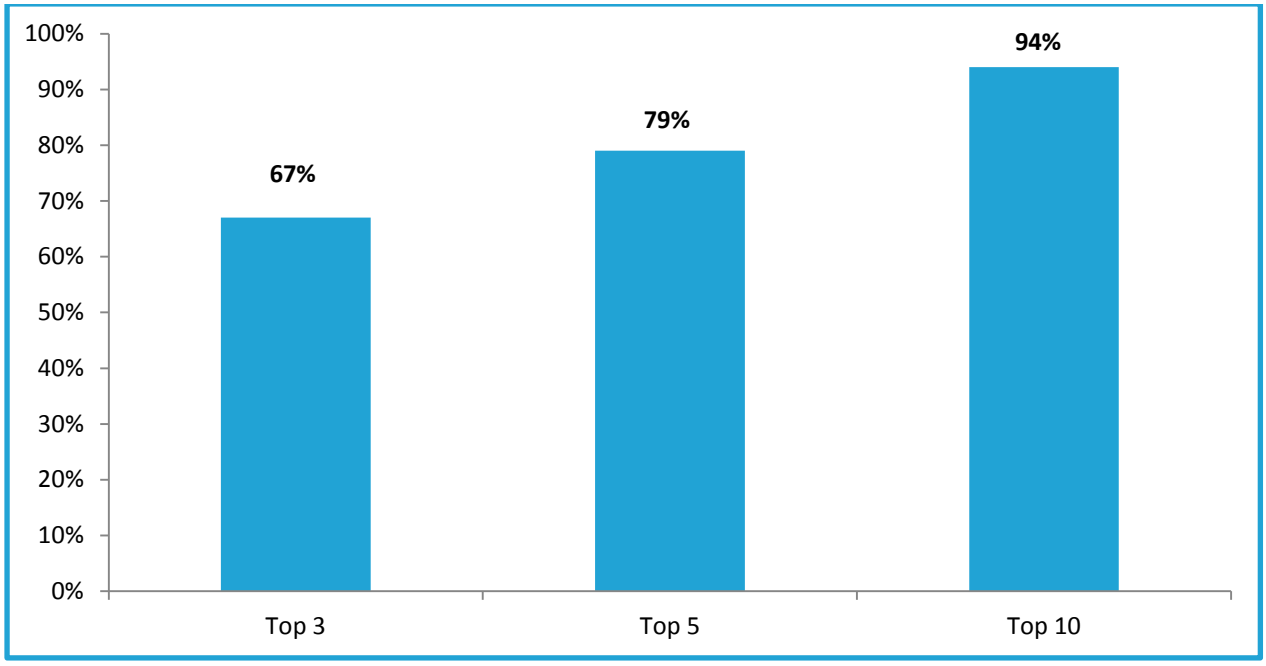
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 4 EU 21 - Total online advertising spend by country in 2015, in EUR billion



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 5 EU 21 - Concentration of online adspend in % of total online adspend, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.5 Market maturation and small increase in market growth rate in 2015

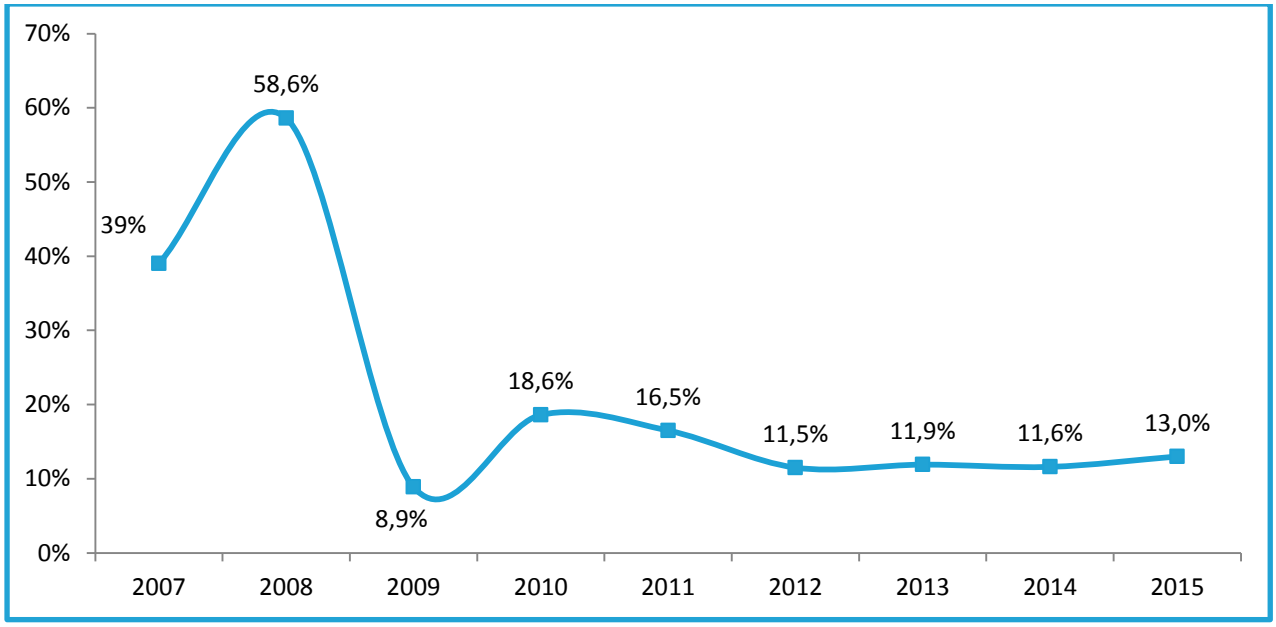
- Compared to last year, market growth slightly accelerated in 2015; from 2014s 11.6% to 13% in 2015. This slight acceleration mainly comes from the growth of emerging markets (below EUR 30 ad spend per capita) and mature markets (ad spend per capita above EUR 100), according to IHS (see Figure 6). In emerging markets, advertisers started to rely more heavily on online media for their advertising messages; in mature markets, advertisers increased their online presence and have completely integrated online advertising into their media mix.

- Only 2 markets recorded actual market decreases, Greece with -4.9% and Romania with -11.9%. 19 out of the 21 EU markets recorded positive growths, with 13 markets having a double-digit year-to-year growth rate (see Figure 7).

- As in 2014, growth rates show a significant dispersion, ranging from -11.9% in Romania to 29% in Ireland. Emerging markets (CEE) and mature markets (SE, GB, DK) have the highest growth rates whereas markets with a well established online advertising market (Top 10 markets without GB, DK, PL and SE) recorded single-digit growth rates, translating the maturing/coming of age of the online space as an advertising medium (see Figure 7).

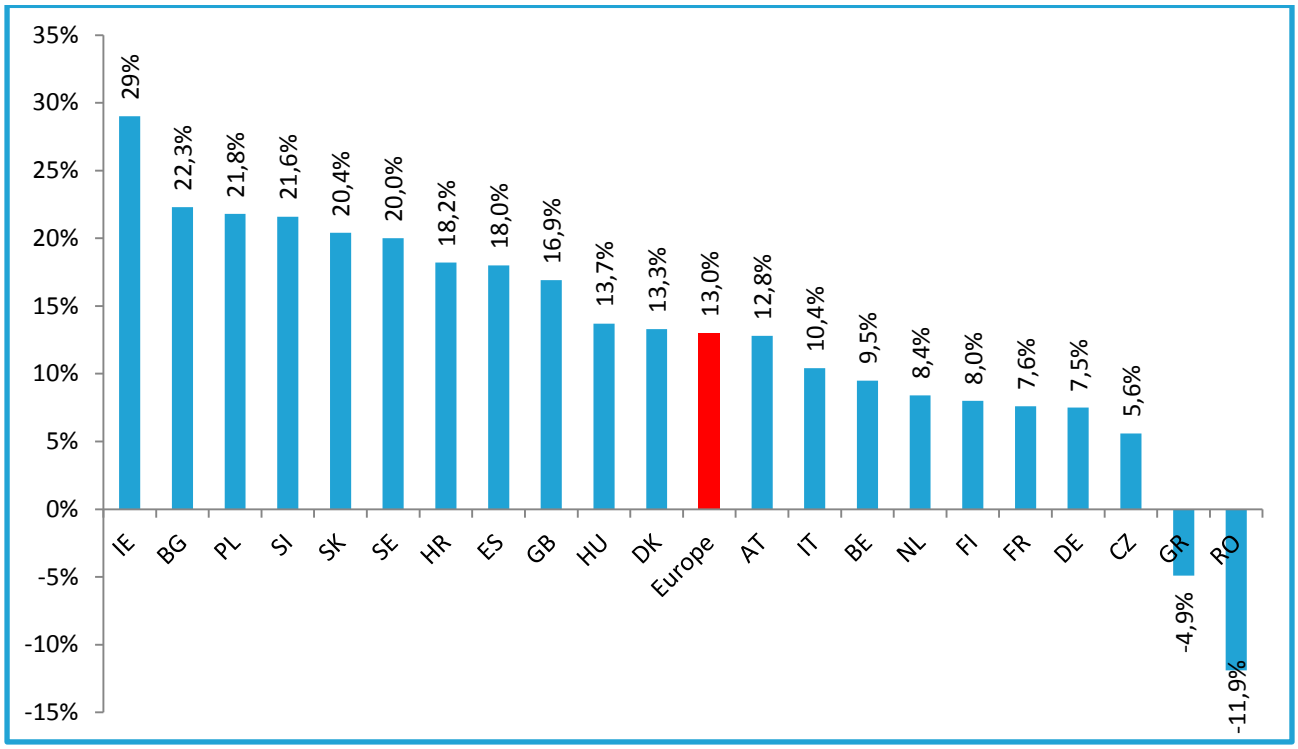
- As IAB and IHS state it, it is the first time that no market recorded a growth above 30%, a sign of maturing for the online ad market. The most mature markets (GB, SE and DK) are also growing by double-digits which translate *"advertisers confidence in online as an advertising medium"*, as stated by IHS.

Figure 6 Europe (27 IAB countries) Online advertising year-on-year growth rate in Europe 2007 to 2015, in %



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 7 EU 21 - Online advertising growth rate by country in %, in 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.6 Online becomes the number one medium for advertising in Europe and helps a declining advertising market to register growth

- As it was the case in 2014, online advertising helped the total advertising market to grow in Western Europe and mitigated the decline in advertising spendings in CEE. Overall, the 27 European countries tracked by IAB/IHS experienced a decline in their advertising market (exluding online) of -4.1% in 2015. However, the growth of 13% of the online advertising market has helped to mitigate the decline of the traditional advertising markets and stabilized advertising expenditure for all media with a final growth of +1% for the total European advertising market.

- The advertising market, like other markets, depends on the economic conjuncture and GDP growth. The figures show that the online advertising market proves to be more resilient than traditional advertising markets to economic conjencture, even if in 2015 "all major Eurozone economies recored growth", according to IHS. All other media advertising markets recorded no growth at all or decline, despite the economic recovery (see Figure 8).

- In Western Europe, the advertising markets (excluding online) would have grown only by 0.9%; the continued strong growth of the online advertising market (+12.8%) helped to increase the total advertising market by +4.6% compared to 2014 (see Figure 8).

- In CEE, the advertising market (excluding online) has fallen by 28.2% in 2015, a staggering loss in value of almost one third. The strong growth of the online advertising sector (+15.6%) in 2015, has helped to reduce the fall to -19.5%. This shows that even if in CEE countries the advertising sector is still struggling to recover (and traditional advertising media has almost lost 1/3 of its value in 2015), online advertising continues to experience strong growth (from a rather low starting point, one has to point out). However, the data comprises Russia and Turkey and as the Russian advertising market has shrunk by 10% in 2015 this had in turn an impact on CEE figures published by IHS (see Figure 8).

- According to IAB/IHS' data on advertising expenditure per medium, online has surpassed for the first time TV advertising in Europe in 2015, the same finding as for Warc figures. The online ad spend of EUR 36.4 billion in 2015 has surpassed Europe's TV advertising market of EUR 33.3 billion, which is stagnant compared to 2014 (see Figure 9).

- Online advertising does also *"absorb some, but not all of the declines in print, particulary newspaper advertising"* in 2015, according to IHS. Print advertising is the category of advertising which declined the most over the past year in Europe as advertisers shifted their ad spends on print to online media. Online publishers and ad tech companies are in the pursuit of bigger TV

advertising budgets; for now, the shift from TV towards the online space has not yet taken place as TV is resilient, even with shrinking audiences.

- Online advertising is made of different categories of advertising (the 3 main ones being paid-for-search, display and classifieds & directories, see Figure 14). In 2015, no category of online ads surpassed TV advertising. Also it should be noted that TV advertising would most significantly compare to online display advertising (and even in this category to the sub-category video advertising). Therefore, even if online advertising on a whole has surpassed TV advertising in Europe, the possibilities of the display ad category and more specifically video advertising and mobile display advertising for further growth remain important. TV will remain a main media for advertisers in Europe in the years to come as EU citizien still allocate a significant share of their time to watch linear TV.

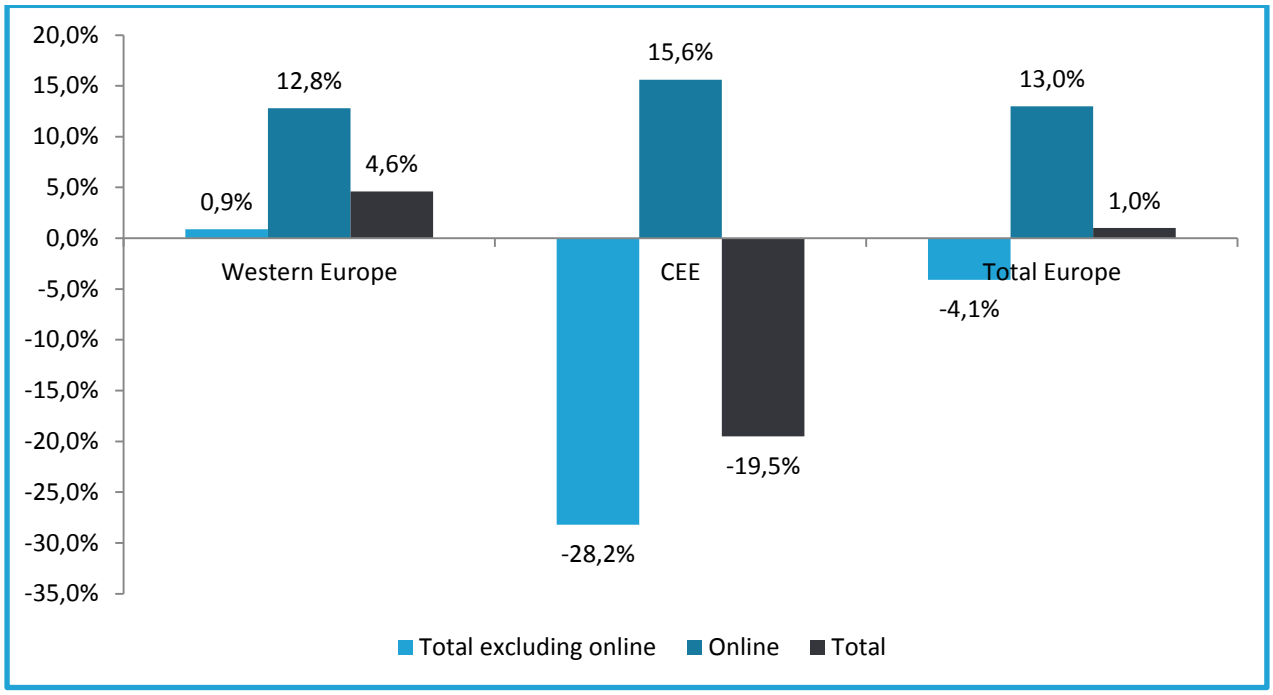
- As TV advertising budgets have not declined, the coming years will see an increased competition between online players and traditional TV players for advertising budgets in video advertising. The advantages of the online space (better targeting capabilities, real-time advertisement, interactivity…) are not yet fully exploited by the ad tech sector and advertisers in 2015, and the continued improvement of the online advertising landscape in terms of measurability, advertisers confidence and common standards will help to further push forward online as an advertising medium in European countries.

- Warc data shows that Online advertising expenditure has surpassed TV advertising expenditure in 2015 in EU 28. Online advertising generated expenditures of EUR 33.3 billion in 2015, TV advertising expenditure EUR 30.7 billion. (see Figure 10)

- Growth rates of online advertising surpass TV advertising the past four years. After a decline in 2012 and 2013, TV advertising grew by 5.4% and 6% in 2014 and 2015. Online advertising grew by 14.4% and 18.7% in 2014 and 2015 respectively. (see Figure 11)

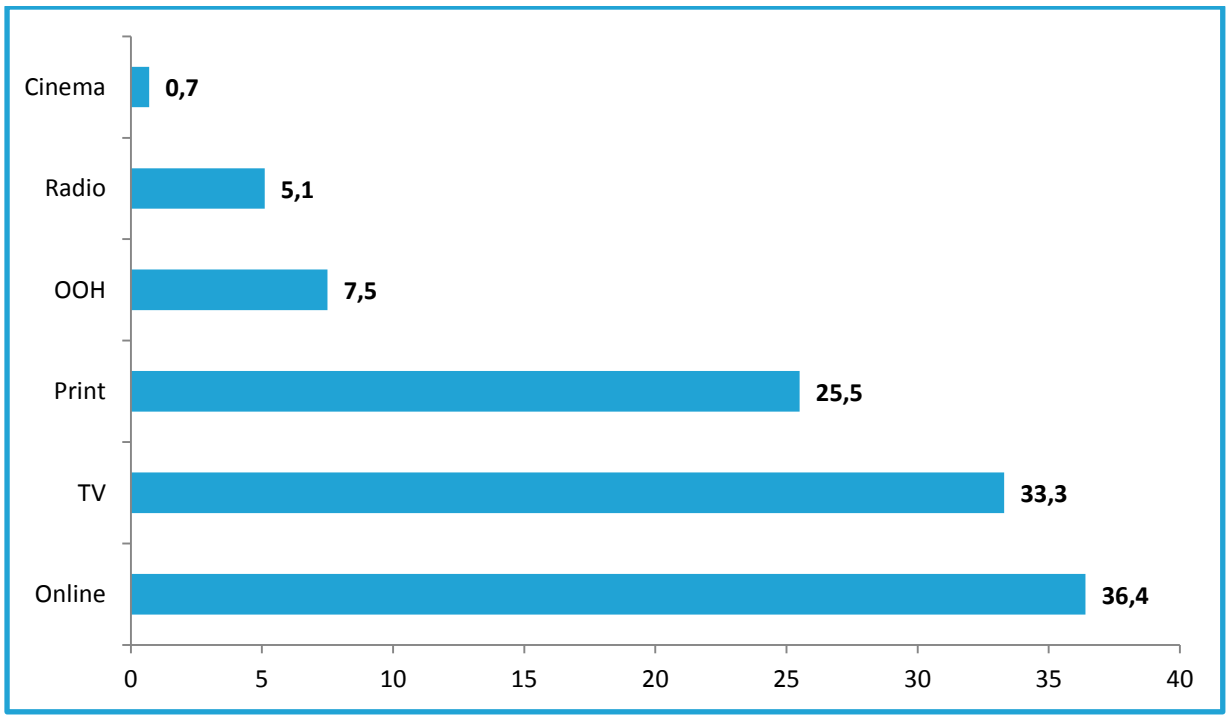
- In 9 EU countries, online advertising has surpassed TV advertising. These countries are the United Kingdom, Germany, France, the Netherlands, Sweden, Denmark, the Czech Republic, Ireland and Finland. (see Table 2)

Figure 8 Europe (27 IAB countries) Total advertising growth in Europe in %, in 2015



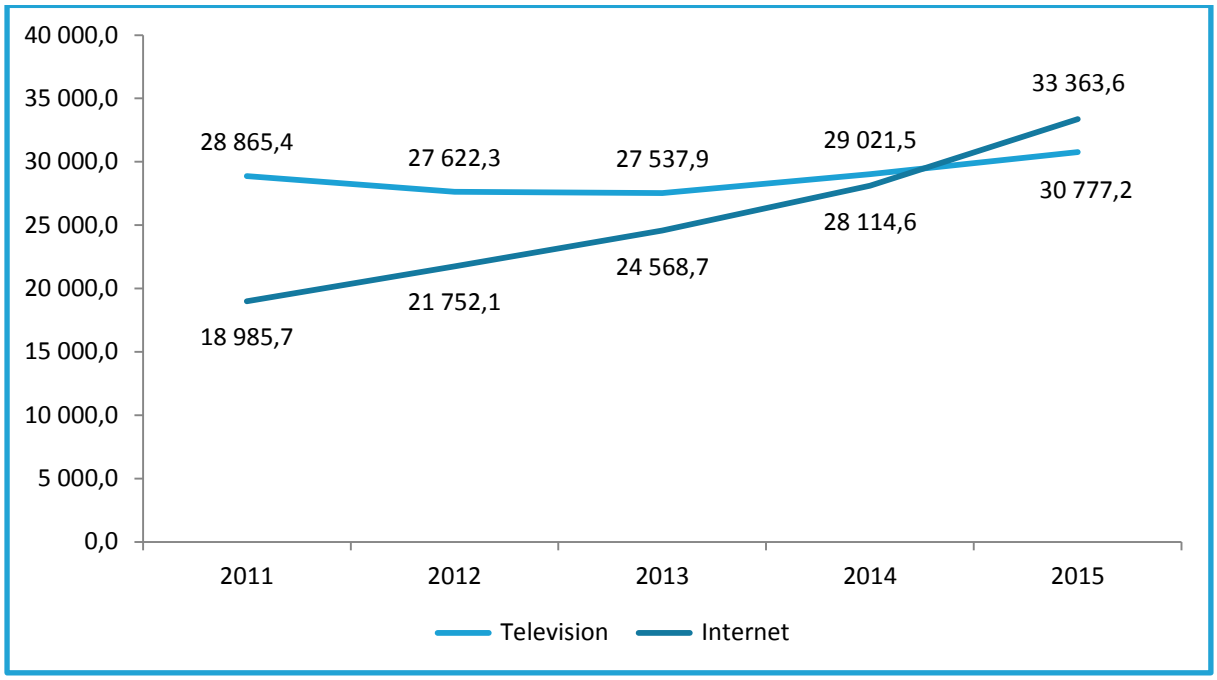
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 9 Europe (27 IAB countries) Ad spend y category in EUR billion, in 2015



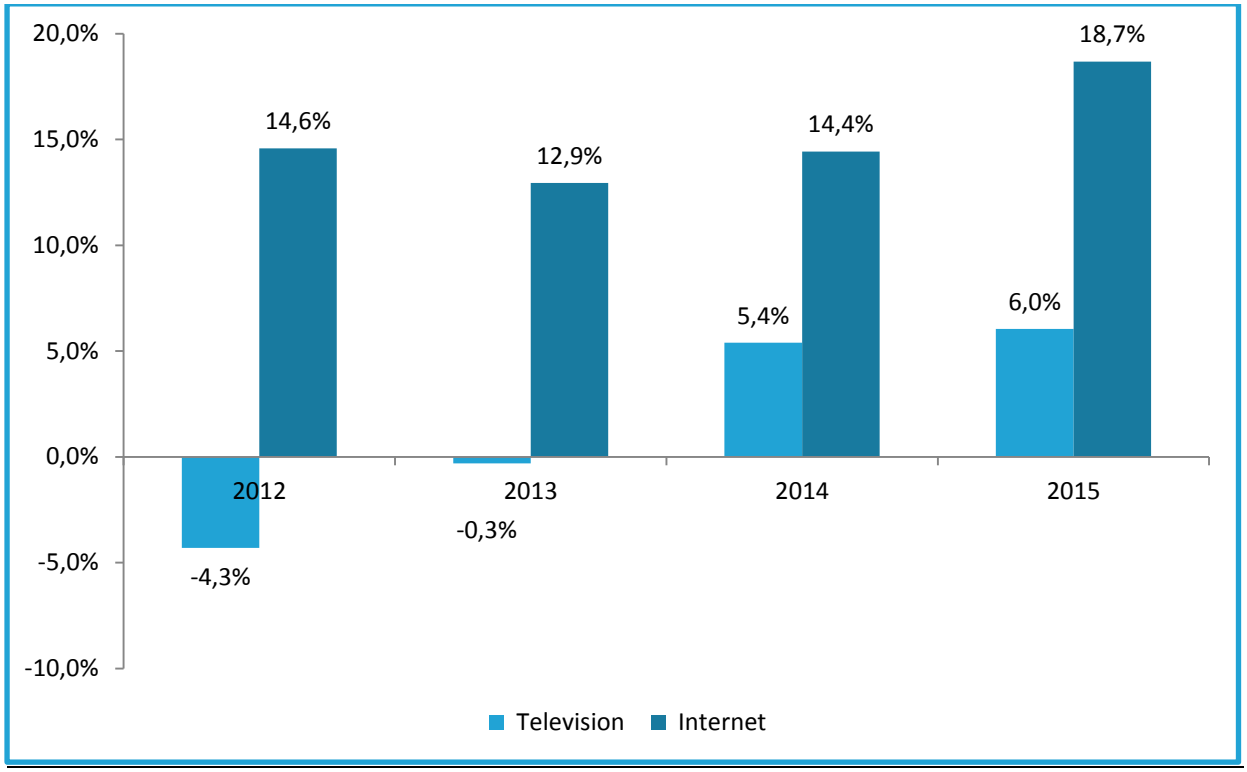
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 10 WARC – EU 28 Advertising expenditure TV and Online 2011 – 2015 in, EUR million



Source: Warc

Figure 11 WARC – TV and Online advertising expenditure growth rates 2012-2015, in %



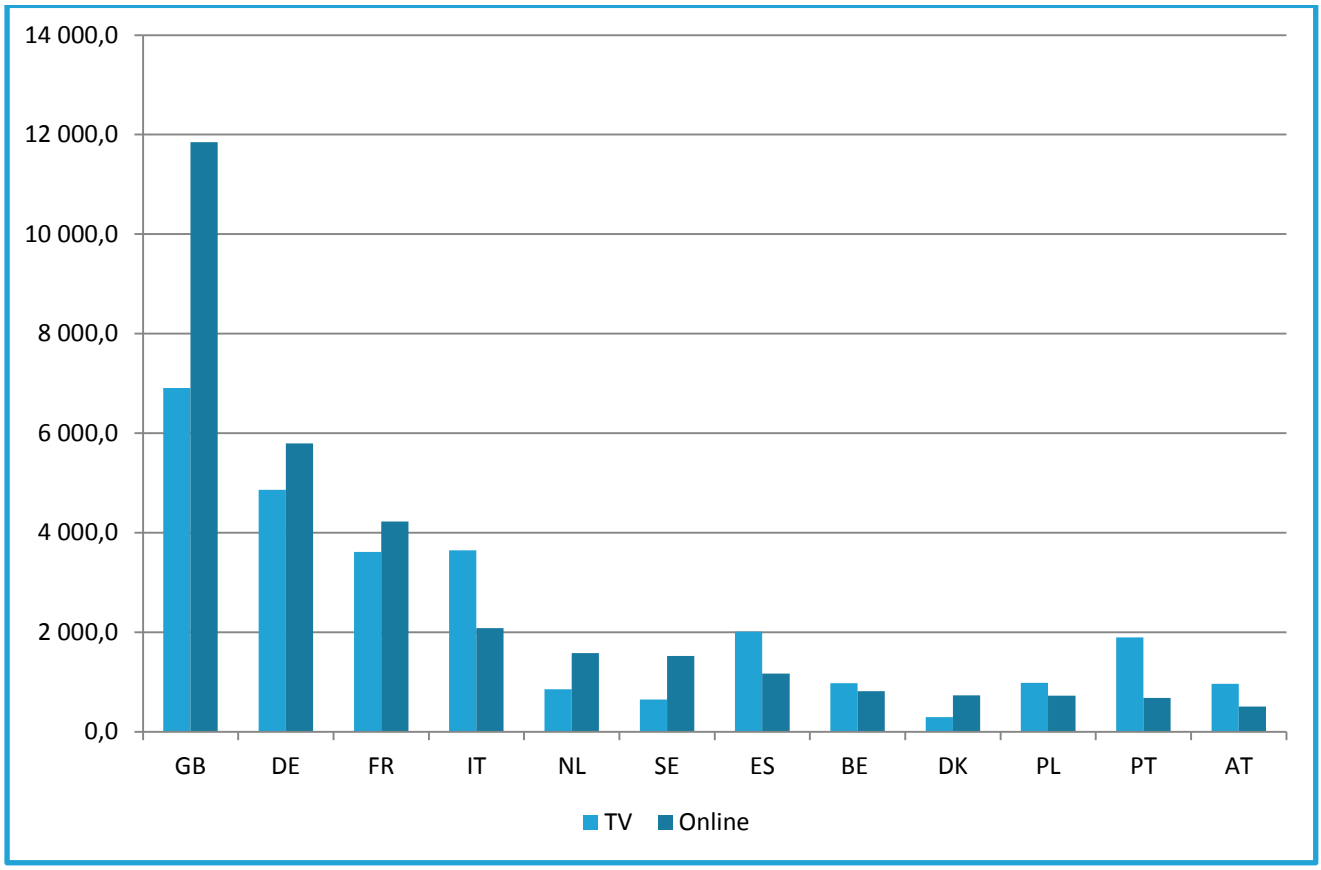
Source: Warc

Table 2 WARC – TV and Online ad expenditure 2015, by country, in EUR million

Country	TV	Online	Online ad expenditure higher than TV
GB	6 906,1	11 848,5	**Yes**
DE	4 864,1	5 794,0	**Yes**
FR	3 614,8	4 227,0	**Yes**
IT	3 649,5	2 085,0	No
NL	855,8	1 584,5	**Yes**
SE	646,4	1 525,8	**Yes**
ES	2 011,3	1 168,6	No
BE	978,0	816,7	No
DK	295,4	733,0	**Yes**
PL	985,4	723,6	No
PT	1 895,7	683,8	No
AT	962,9	509,4	No
CZ	341,2	383,2	**Yes**
IE	325,1	337,6	**Yes**
FI	284,2	327,7	**Yes**
HU	335,8	181,5	No
GR	534,6	156,2	No
SK	315,3	99,3	No
RO	198,1	34,0	No
BG	385,1	31,0	No
SI	136,7	27,6	No
HR	97,3	22,0	No
EE	25,4	17,2	No
LT	46,1	15,3	No
LV	33,3	14,7	No
LU	12,3	10,4	No
MT	10,3	3,2	No
CY	31,0	2,8	No
Total	**30 777,2**	**33 363,6**	

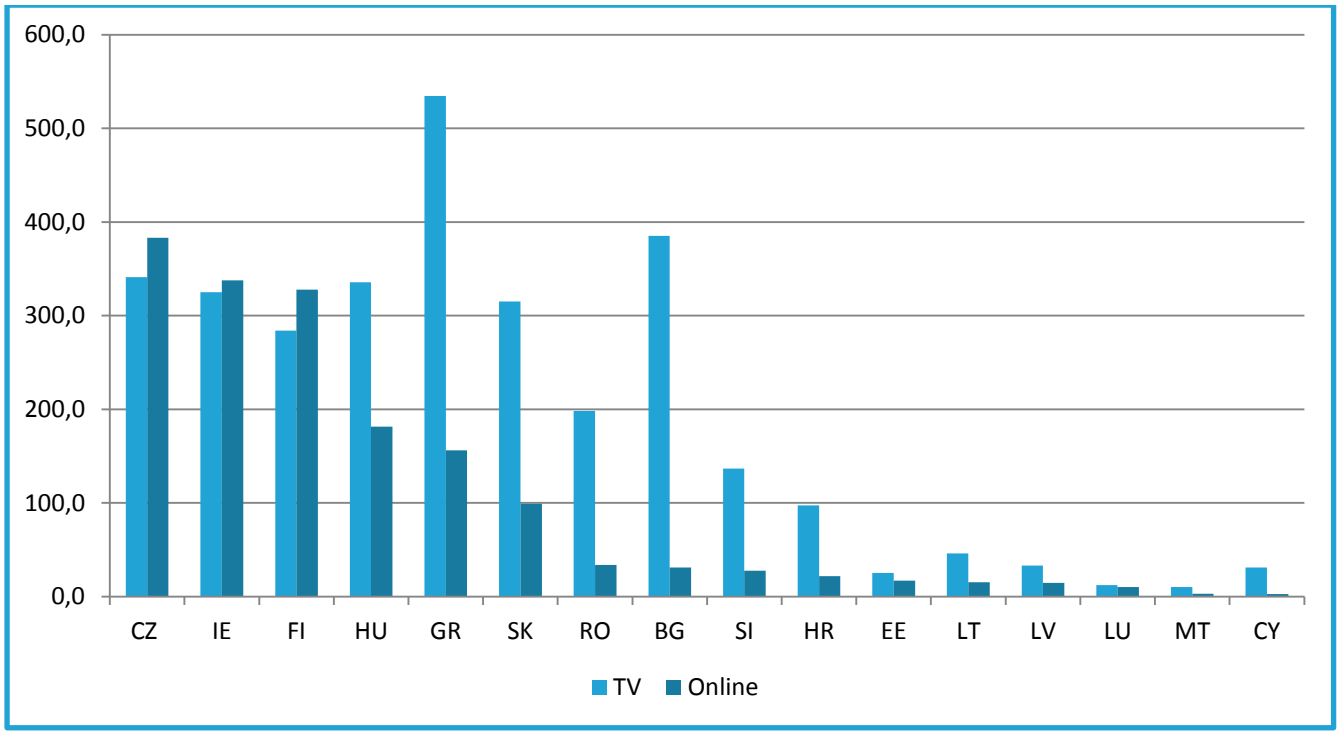
Source: Warc

Figure 12 WARC – TV and Online ad expenditure 2015 - Top 12 EU countries by Online ad expenditure, in EUR million



Source: Warc

Figure 13 WARC – TV and Online ad expenditure 2015 - Bottom 16 EU countries by Online ad expenditure, in EUR million



Source: Warc

1.7 Analysis of advertising formats

1.7.1 Three main formats of online advertising: display, classifieds & directories and paid-for-search

IAB Europe (and also IAB USA) divides the online advertising into three major categories:

- **Paid-for-Search advertising:**[3] "Fees advertisers pay Internet companies to list and/or link their company site or domain name to a specific search word or phrase (includes paid search revenues)." As this form of advertising often happens before the person searching makes a purchase, this is the form of advertising most valued by advertisers (e.g. user searching for a hotel, plane ticket, product, etc.)

- **Classified advertising and directories:**[4] "A form of advertising which is particularly common in newspapers, online and other periodicals which may be sold or distributed free of charge. Classified advertising is called such because it is generally grouped under headings classifying the product or service being offered (headings such as Accounting, Automobiles, Clothing…) and is grouped entirely in a distinct section, which makes it distinct from display advertising. Display advertising typically contains graphics or other art work and which is more typically distributed throughout a publication adjacent to editorial content."

- **Display advertising:** "a form of online advertising where an advertiser's message is shown on a destination web page, generally set off in a box at the top or bottom or to one side of the content of the page" (examples include banner ads, online video ads, pop-ups, etc.)

- In the case of audiovisual markets and advertising media, the category of most interest is display advertising. When looking at the competition between the online advertising sector with traditional TV advertising, the 2 sub-categories of online display advertising which are the most relevant are video advertising and mobile display/video advertising. Paid-for-search advertising and Classifieds & Directories are not in direct competition for advertising budgets with TV advertising. The situation of the European display advertising market is further exposed in section 1.8 of this report and in chapter 2 with a special focus on programmatic display advertising. The main trends in display advertising a the rapid growth of video advertising and mobile display as well as the rapid uptake and adoption in many countries of programmatic transactions for display advertising.

[3] IAB, "Glossary of Interactive Advertising Terms v. 2.0", available at: www.iab.net/media/file/GlossaryofInteractivAdvertisingTerms.pdf

[4] IAB UK, "Jargon buster", available at: www.iabuk.net/resources/jargon-buster

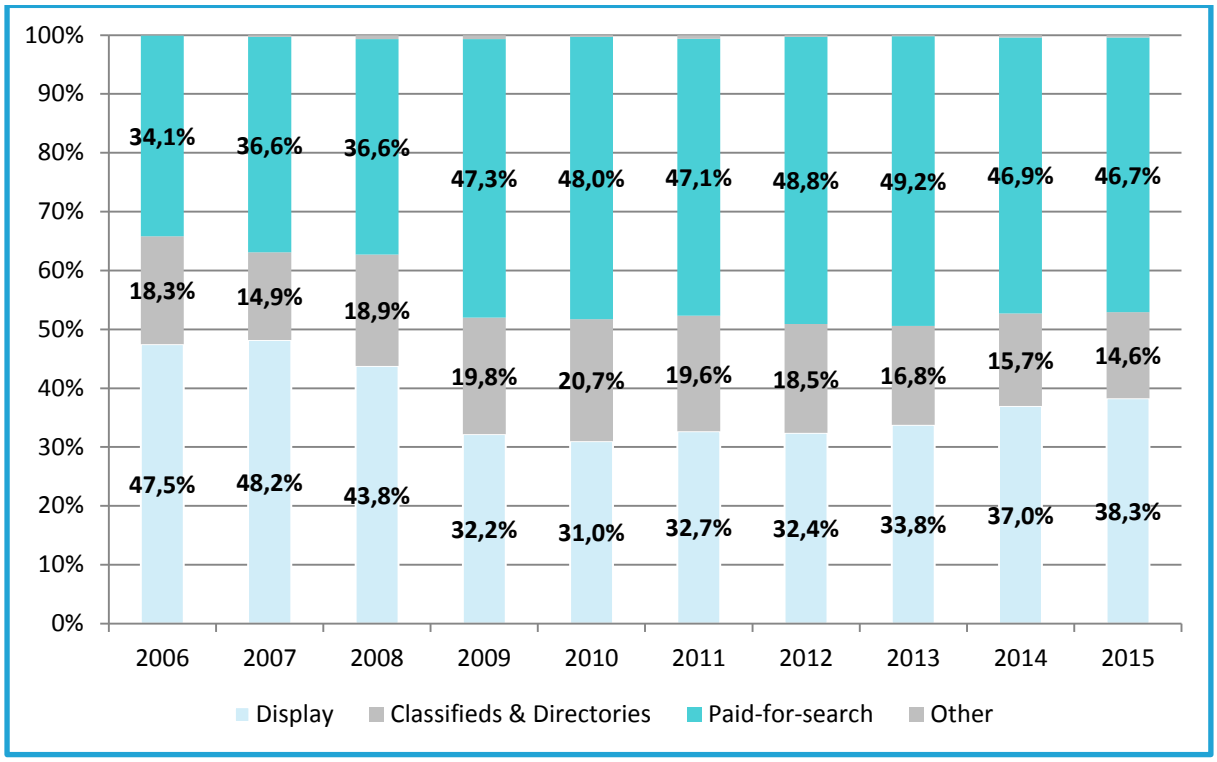
1.7.2 Display advertising still the second format in Europe in 2015, behind paid-for-search

- Paid-for-search advertising continues to take the largest share of online advertising with 46.7% of online ad spend in 2015. Even if the overall share of paid-for-search is declining over the past 3 years (from a 10-year high of 49.2% in 2013 to 46.7% in 2015, see Figure 14), paid-for-search remains the main advertising format in Europe with advertising expenses of EUR 17 billion (+12.5%). An important growth driver for paid-for-search is mobile search, which grew by 57.4% this year, from EUR 2.1 billion in 2014 to EUR 3.7 billion in 2015. IHS estimates that 25% of European search revenues are generated on mobile in 2015. According to IHS, as paid-for-search is the most mature advertising format it is expected that it will "*demonstrate some cyclicality*" and be "*more exposed to economic fluctuations going forward*". As paid-for-search is essentially buying key words on search engines in order to appear among the firsts on the search results (and with the hopes of attracting the searching customer just before he makes a purchase decision) for mostly commercial activities (e.g: flight, hotel booking, retail, e-commerce…), it has become an essential part of commercial and sales strategies by economic players and is therefore exposed to their economic aleas. The growth rates year-on-year for paid-for-search advertising have varied between 11% in 2009 to 18% in 2011 (see Figure 15).
- For the 21 Member States of the EU, paid-for-search advertising expenditure represented EUR 14.9 billion in 2015 or 45.9% of total ad spend in these 21 EU countries. However, paid-for-search advertising is the largest online advertising format in only 9 countries, among the most important online ad markets in the EU (GB, DE, FR, SE, ES, DK, IE, GR and HR), with the exception of GR and HR all in Western Europe. In the other 12 countries (IT, NL, BE, PL, AT, CZ, FI, HU, SK, RO, BG and SI), display advertising is the largest online format.

- Display advertising remains the second advertising format in Europe in 2015 with a share of 38.3% (see Figure 14). The overall share of display in total online ad spend is increasing since 2010 (when display advertising represented 31%) but has not returned to its highest share of 2007 when display represented 48.2% of overall ad spend. Display advertising was the fastest growing ad format in 2015 with +17%. Display advertising profited from the change in media consumption of Europeans: as more content is consumed online (video, text, social networks…), more opportunities have arisen to show internet users display ads. The rapid rise of online video consumption on sites such as YouTube, Facebook and general media (newspapers online websites integrating a larger share of video, broadcasters using YouTube and their website to make content available to additional monetization through advertisments) combined with the expontential growth of mobile online/digital media consumption[5] have led this surge in display advertising. A special focus on display advertising is provided in section 1.8.

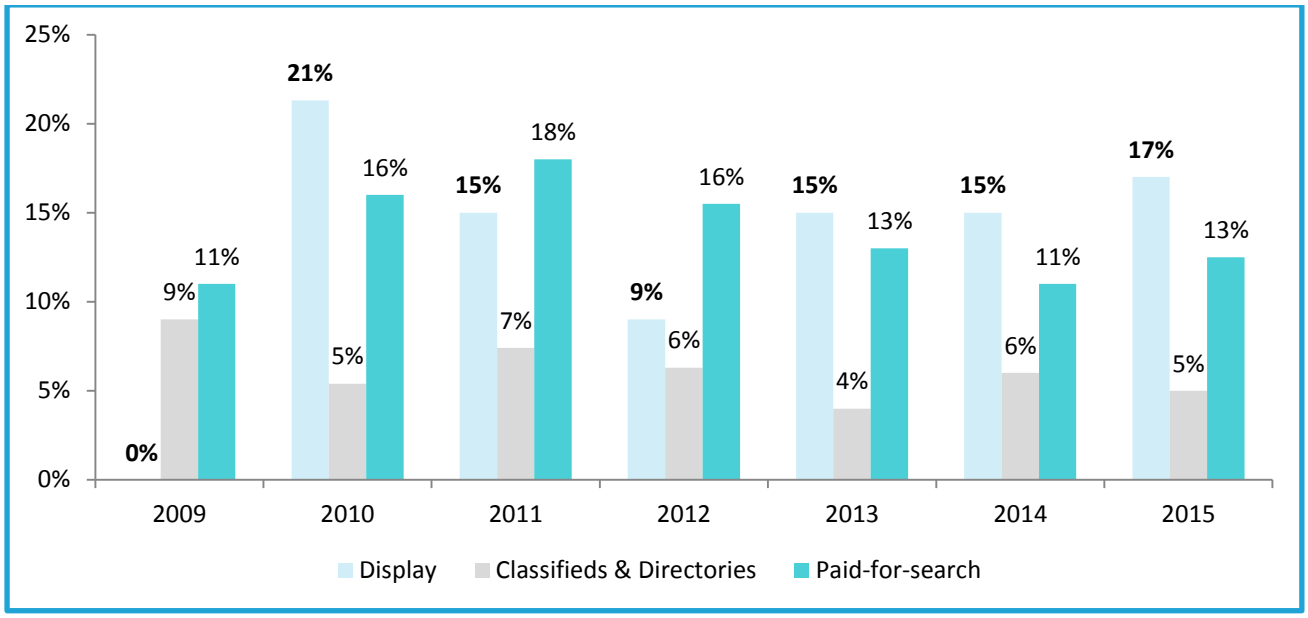
[5] as an example, eMarketer estimates that in the UK time spend by day with major media by UK adults on mobile has risen from 53 minutes in 2012 to 2 hour 18 minutes in 2016 and will further rise to 3 hours 11 minutes by day in 2018; furthermore eMarketer estimates that digital media consumption will pass a milestone in 2016, accounting for half of total media consumption in the UK http://www.emarketer.com/Article/Smartphones-Drive-Increased-Time-Spent-with-Digital-Media-UK-Adults/1013884

Figure 14 Europe (27 IAB countries) Format shares of online ad spend in %, 2006-2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 15 Europe (21 IAB countries) Online ad formats year-on-year growth rate in %, 2009 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

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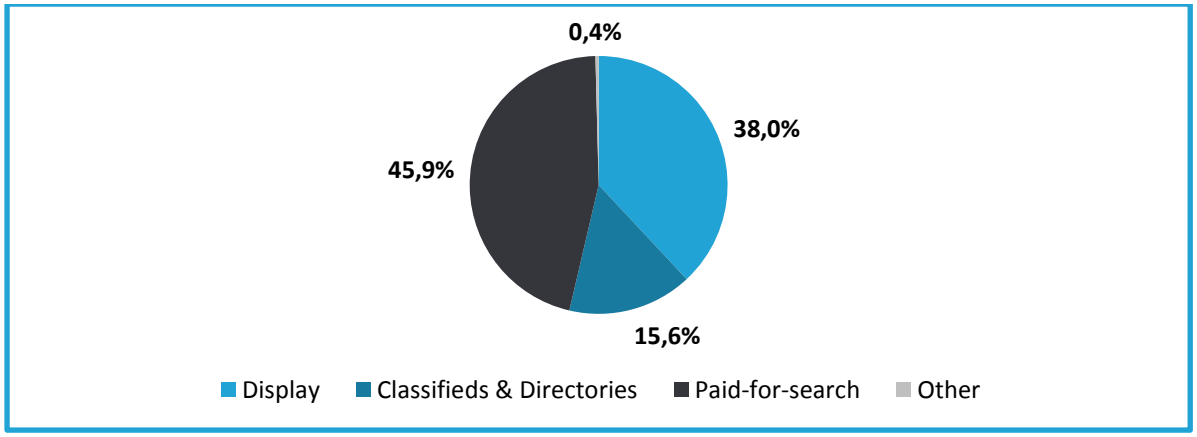
See furthermore Standard Eurobarometer 82: Media use in the European Union November 2014 http://ec.europa.eu/public_opinion/archives/eb/eb82/eb82_media_en.pdf

1.7.3 Strong differences in main ad formats between Western Europe and CEE

- As seen before, differences in the share of advertising formats in total online ad spend exists between Western European countries and CEE. Paid-for-search remains the largest advertising format in Western European countries with 45.9%, as it is often an indication of purchase intent by the user (and GDP per inhabitant is higher than in Eastern European countries). Also, Western European countries generated more ecommerce sales (on average, 7.3% of total retail sales value in 2015, according to eMarketer) than in CEE countries (2.8% of overall retail sales) which helps to explain these differences in the share of advertising formats (see Figure 16).

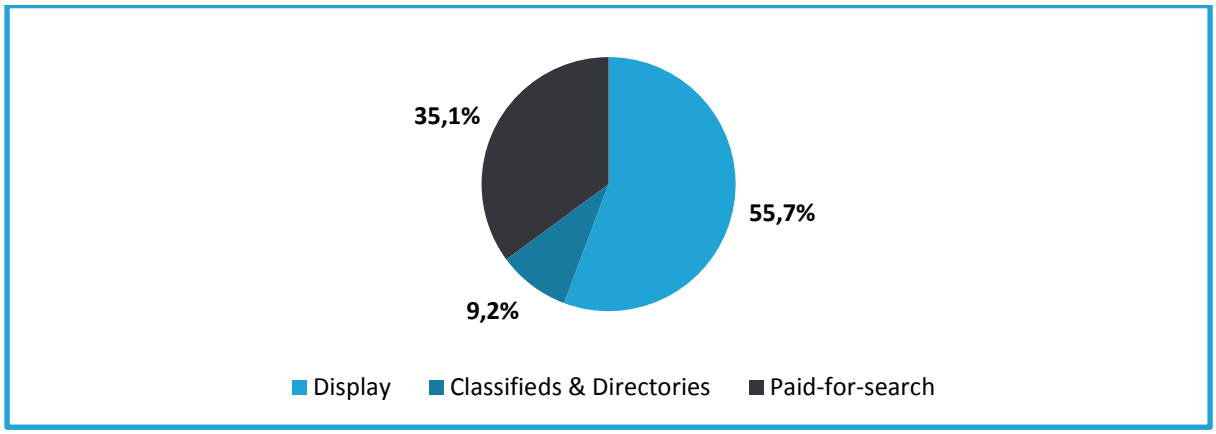
- Advertisers in CEE countries on the other hand rely more on display advertising in order to promote their brands, raise awareness of their products and services and achieve general branding/storytelling purposes. This explains why display advertising is with 55.7% the largest online advertising format in CEE countries (see Figure 17).

Figure 16 Western Europe: share of formats in %, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 17 CEE excluding Russia: share of formats in %, 2015

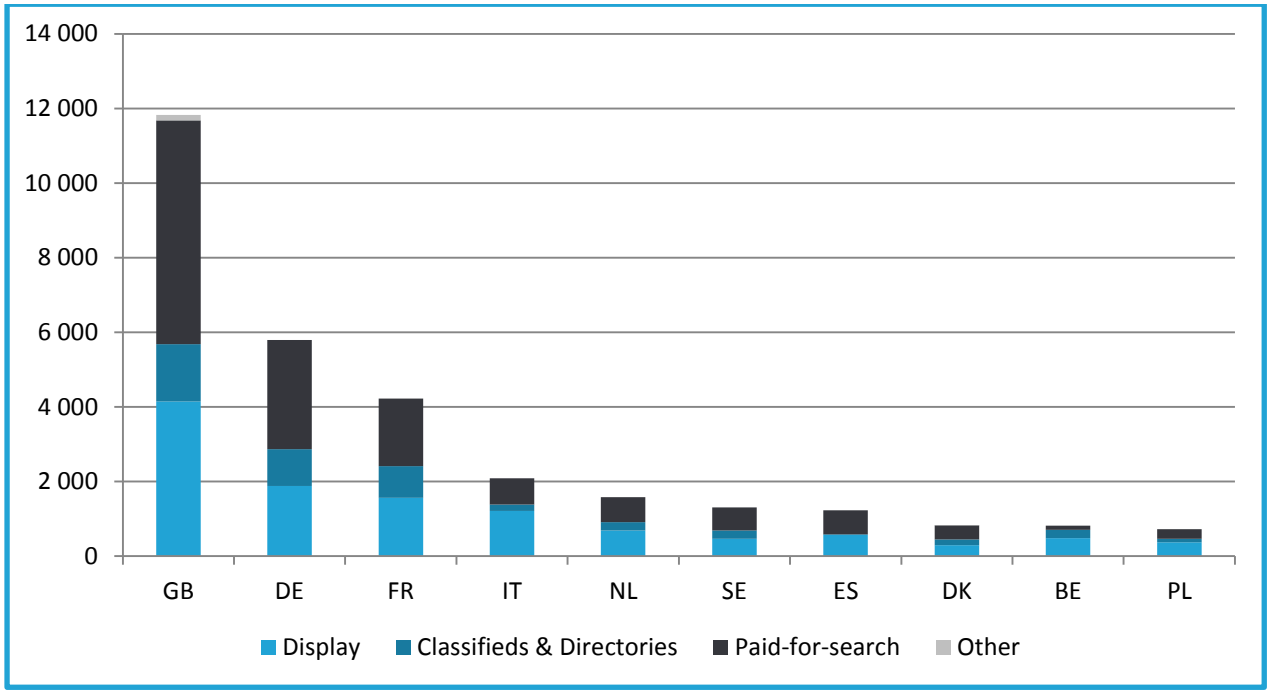


Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.7.4 Ad formats by country in 2015

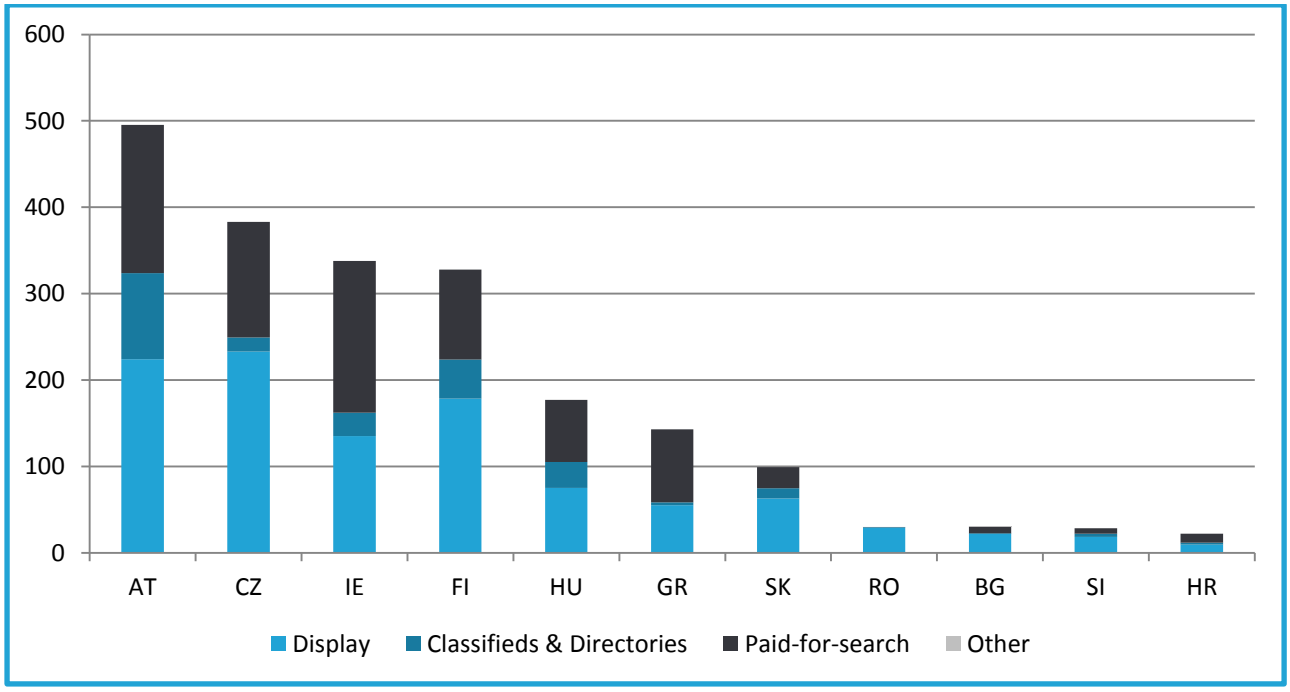
- In this section the advertising mix of online formats of each EU country is listed (ranked by market size), in absolute values and in shares of total online advertising spend by country.

Figure 18 EU - Online ad spend by format and by country Top 10 EU in EUR million, 2015



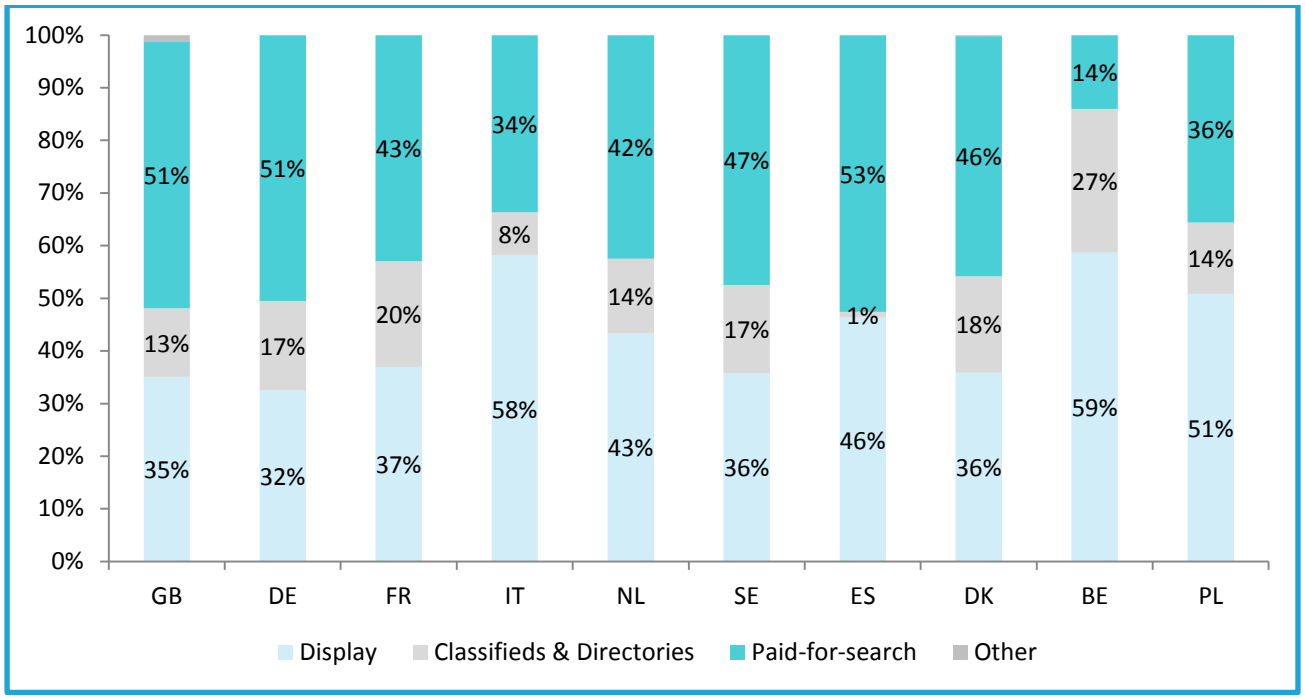
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 19 EU - Online ad spend by format and by country Rest of EU in EUR million, 2015



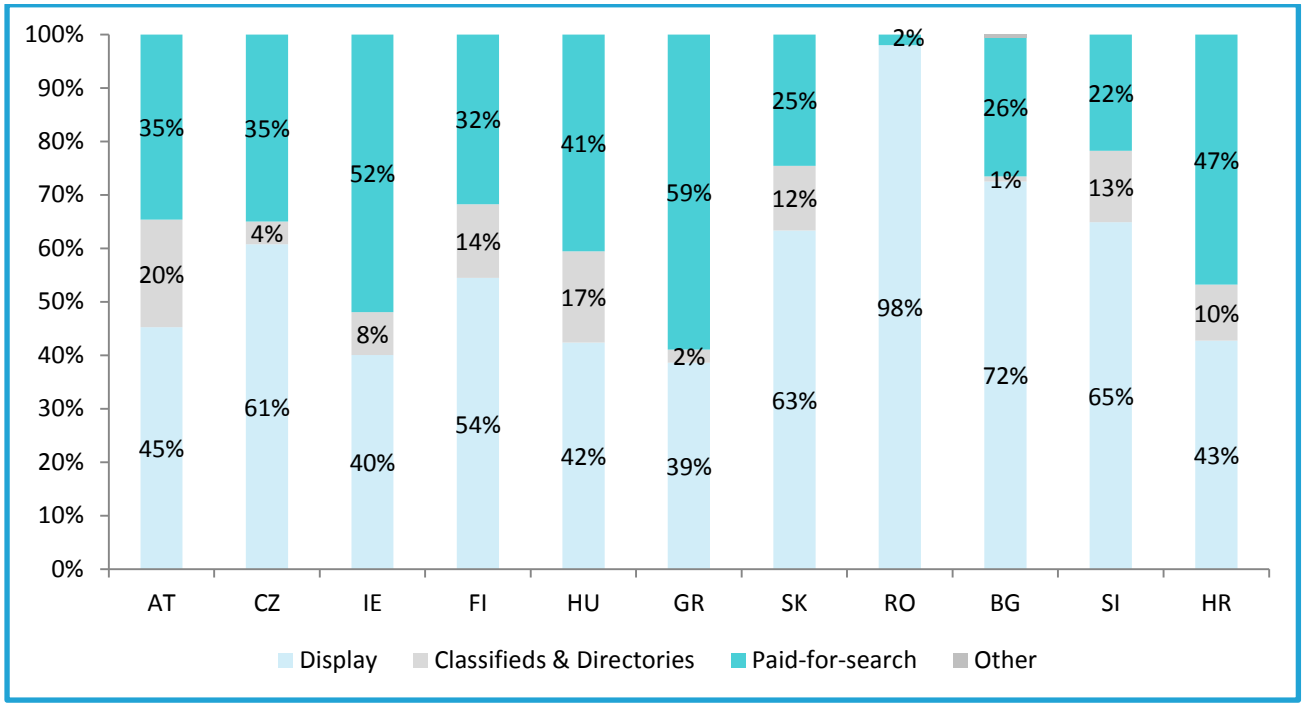
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 20 Top 10 EU – Share of formats in % of total online ad spend, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 21 Rest of EU – Share of formats in % of total ad spend, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.7.5 Key players worldwide in the digital ad ecosystem

- Google remains the number one player on the worldwide digital ad market, with an estimated share of 30.9% of net digital ad revenues in 2016 (revenues of USD 57.8 billion). Facebook is number 2, however at a distance with an estimated share of worldwide digital ad revenues of 12% and revenues of USD 22.37 billion, growing by almost +31%. These 2 players are also dominating the European online ad market. Together these 2 companies take a 42.9% of the worldwide digital ad market (see Table 5 and Figure 22).
- None of the worldwide top players in the digital ad market is of European origin: the companies are either of US or Chinese origin.
- Other players (the myriad of websites, broadcasters, and digital content providers having advertising inventory) share 1/3 of the total digital ad market among them in 2016. The trend is downward, having still shared 35.7% of the worldwide market in 2014 among them and showing the dominance of global ad tech players such as Google, Facebook, Twitter or the recently acquired Yahoo (by Verizon in July 2016 which already owns AOL and Millenial Media).

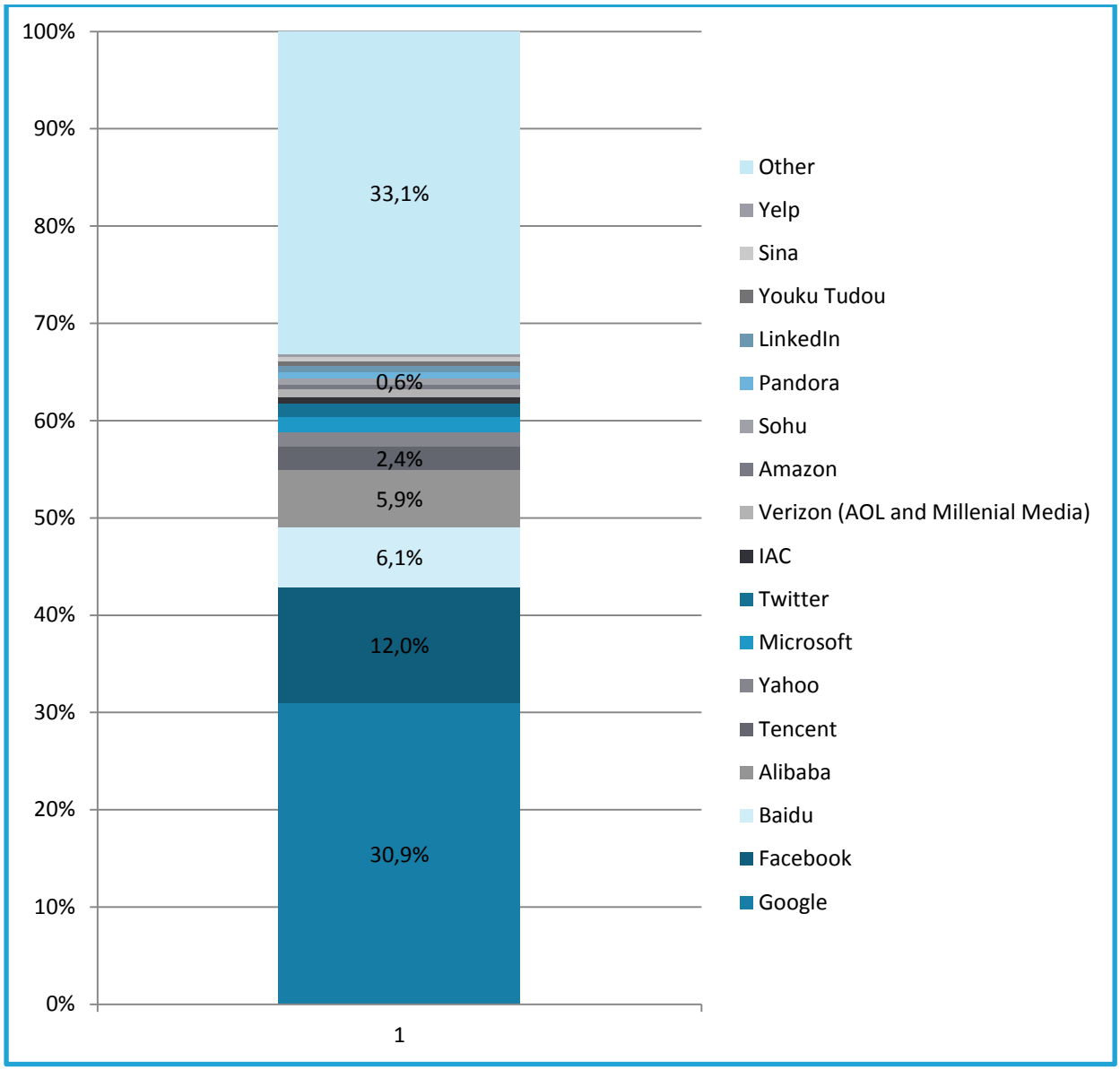
Table 3 Net Digital Ad revenues worldwide, by company 2014-2015, in USD billion

	2014	2015	2016	Growth 2015/2016	Share of worldwide net digital ad revenues 2016
Google	46,13	53,05	57,8	9%	30,9%
Facebook	11,49	17,08	22,37	31%	12,0%
Baidu	6,77	8,97	11,46	28%	6,1%
Alibaba	6,05	8,12	10,99	35%	5,9%
Tencent	1,24	2,48	4,48	81%	2,4%
Yahoo	3,46	3,28	2,83	-14%	1,5%
Microsoft	2,11	2,55	2,94	15%	1,6%
Twitter	1,26	1,99	2,61	31%	1,4%
IAC	1,21	1,21	1,24	2%	0,7%
Verizon (AOL and Millenial Media)	1,25	1,33	1,39	5%	0,7%
Amazon	0,88	0,94	0,99	5%	0,5%
Sohu	0,8	0,97	1,16	20%	0,6%
Pandora	0,73	0,95	1,22	28%	0,7%
LinkedIn	0,75	0,96	1,06	10%	0,6%
Youku Tudou	0,57	0,76	1,03	36%	0,6%
Sina	0,6	0,67	0,74	10%	0,4%
Yelp	0,35	0,48	0,58	21%	0,3%
Other	47,68	53,54	61,92	16%	33,1%
Total digital	133,33	159,33	186,81	17%	

Source: eMarketer based on company reports March 2016

Note : includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices, and includes various formats of advertising on those platforms; net ad revenues after company pays traffic acquisition costs (TAC) to partner sites

Figure 22 Net Digital Ad revenues worldwide, by company, in % of share of total net digital ad revenues, 2016



Source: eMarketer based on company reports March 2016

Note : includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices, and includes various formats of advertising on those platforms; net ad revenues after company pays traffic acquisition costs (TAC) to partner sites

1.8 Focus on display advertising in the EU

- Display advertising, which grew by 17.5% in 2015 to EUR 12.7 billion in the 21 EU countries for which IAB/IHS provides data (see Table 6), is driven by the surge in mobile display and video advertising. Display advertising profits from the changing media consumption patterns by European citizen, increasingly online and towards video; the increase in growth rates for online display advertising over the last 4 years demonstrates this ongoing change in media consumption – as time spent online increases, so does advertising spending.

- The growth in display advertising was mainly driven by the growth in video advertising (in EU 19 countries, a yearly growth of +37.2% to EUR 2.1 billion in 2015, see Table 7) and mobile display advertising (in EU 17 countries, a yearly growth of +62% to EUR 3.3 billion, see Table 9). Advertising on social networks, mainly done through display ads, is another growth driver.

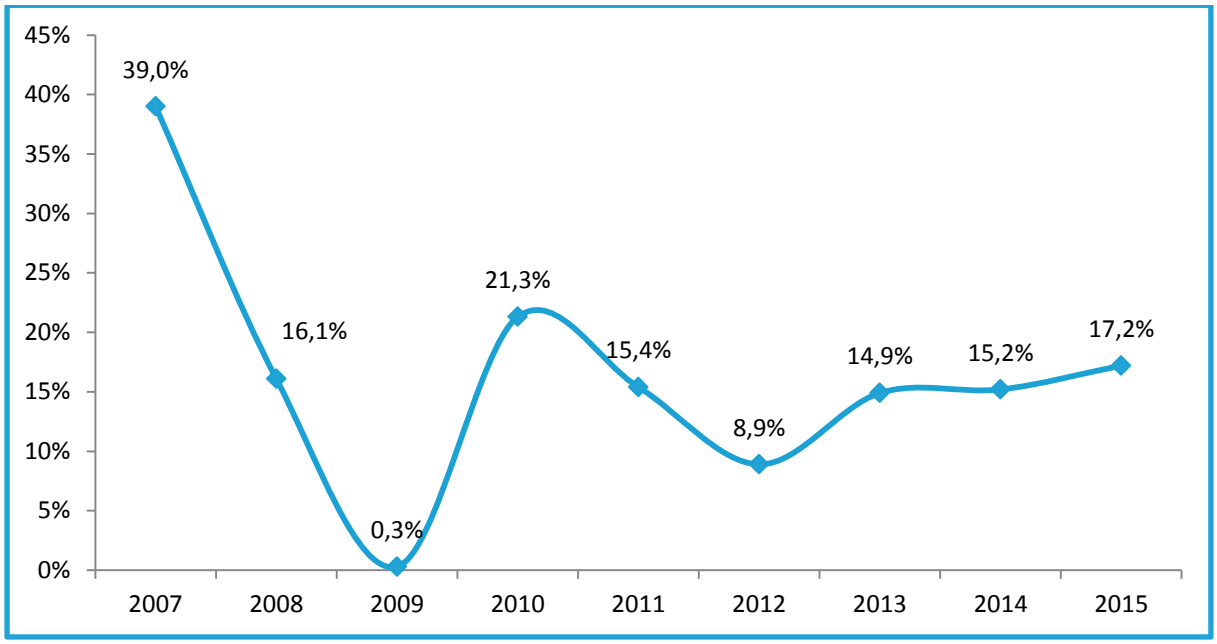
- The top 5 EU countries by size in 2015 are the United Kingdom (EUR 4 148 million), Germany (EUR 1 880 million), France (EUR 1 562 million), Italy (EUR 1 212 million) and the Netherlands (EUR 687 million) (see Table 6).

- 9 EU countries grew by more than the EU 21 average of 17.5% in 2015. The top 5 EU countries by growth in 2015 are Slovenia (+58.6% to EUR 19 million), Ireland (+38.1% to EUR 135 million), Poland (+32.5% to EUR 368 million), Croatia (+25% to EUR 9 million) and the United Kingdom (+24.5% to EUR 4 148 million) (see Figure 24).

- However, 2 markets declined in display advertising spend in 2015: Romania by -11.4% from EUR 33 million to EUR 29 million and Greece by -15.3% from EUR 65 million to EUR 55 million (see Figure 24).

- Total EU display advertising expenditure, as other advertising spends online or on traditional media, reflects the importance of larger markets. The top 3 markets (GB, DE and FR) account for 60% of total display advertising spend in the EU, the top 5 markets for 75% and the top 10 for 92% (see Figure 27).

Figure 23 Europe (27 IAB countries) Year-on-Year Growth in display advertising in %, 2007 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

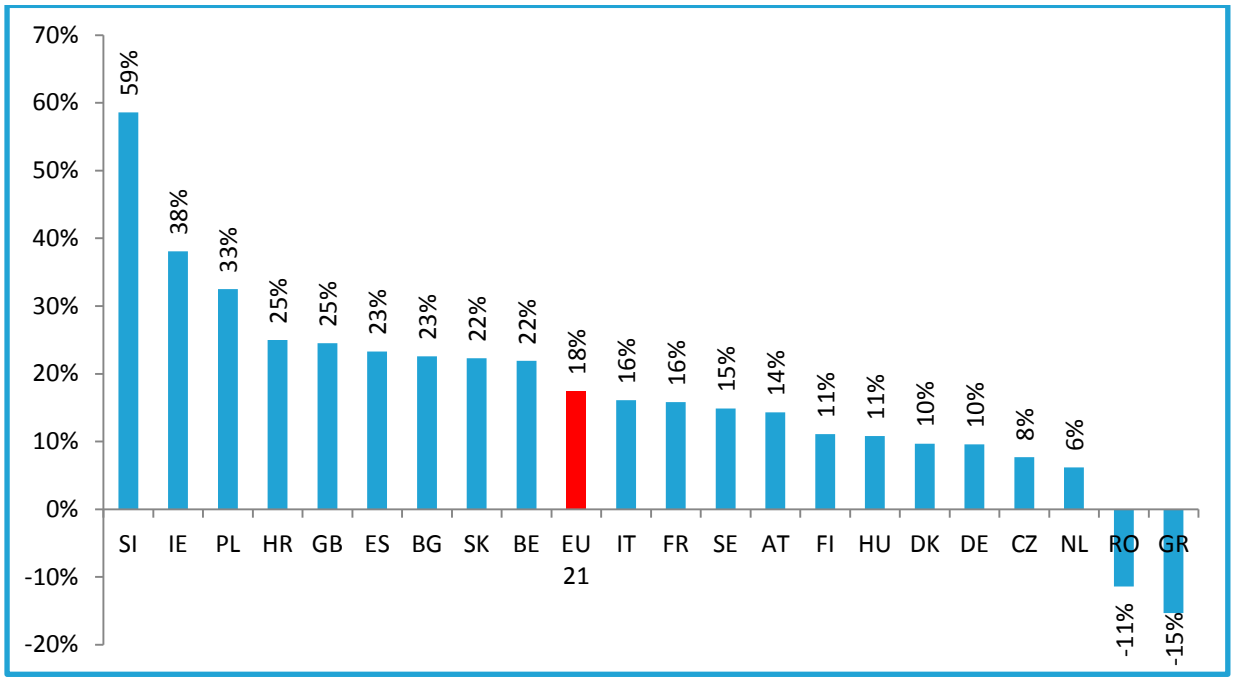
Table 4 EU 21 - Display advertising by country in EUR million and growth in %, 2014 - 2015

	2014*	2015	Growth rate
GB	3 332	4 148	*24,5%*
DE	1 715	1 880	*9,6%*
FR	1 349	1 562	*15,8%*
IT	1 043	1 212	*16,1%*
NL	646	687	*6,2%*
ES	464	572	*23,3%*
BE	393	479	*21,9%*
SE	407	468	*14,9%*
PL	278	368	*32,5%*
DK	271	298	*9,7%*
CZ	216	233	*7,7%*
AT	196	224	*14,3%*
FI	161	179	*11,1%*
IE	98	135	*38,1%*
HU	68	75	*10,8%*
SK	51	63	*22,3%*
GR	65	55	*-15,3%*
RO	33	29	*-11,4%*
BG	18	22	*22,6%*
SI	12	19	*58,6%*
HR	8	9	*25,0%*
Total EU 21	**10 825**	**12 716**	***17,5%***

Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

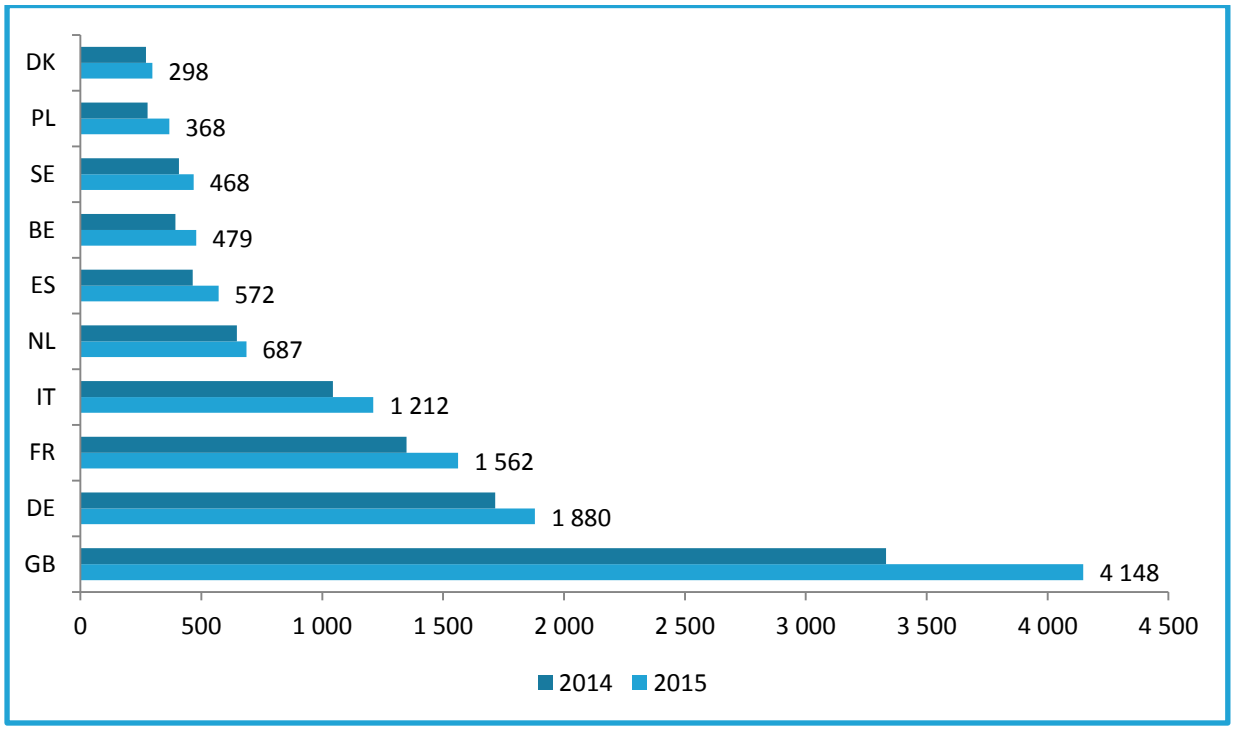
**Calculated by OBS based on growth rates provided in the report*

Figure 24 EU 21 – Year-on-year growth rate of display advertising in %, 2015



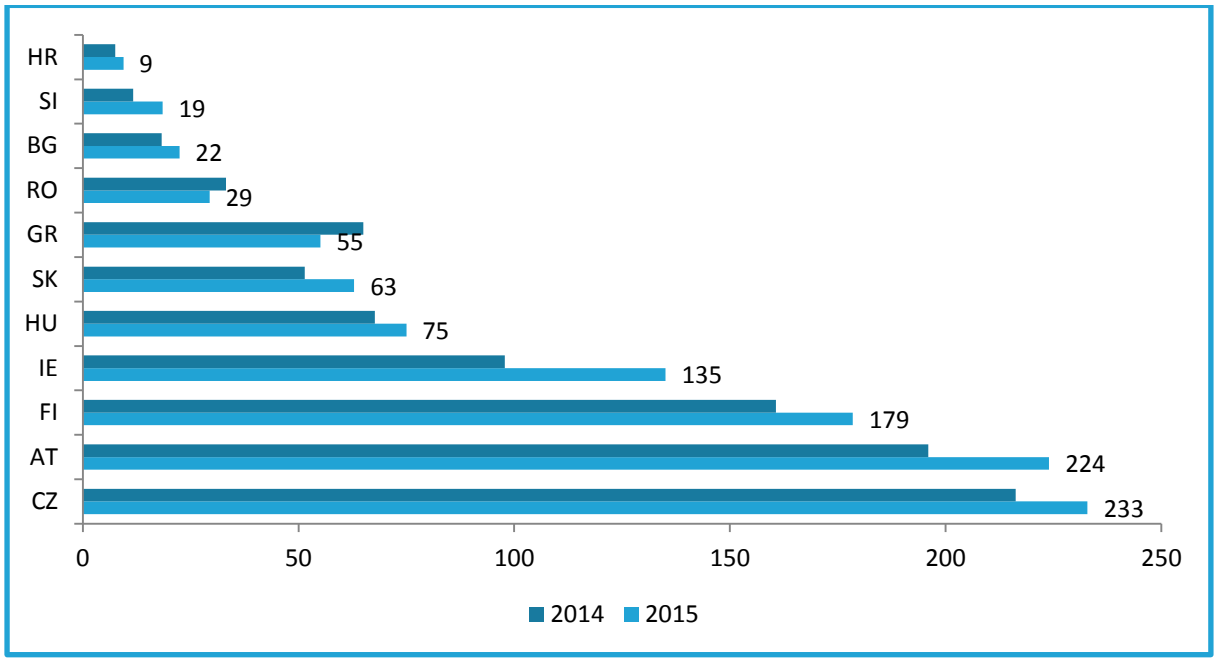
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 25 EU Top 10 Display advertising markets in EUR million, 2014 - 2015



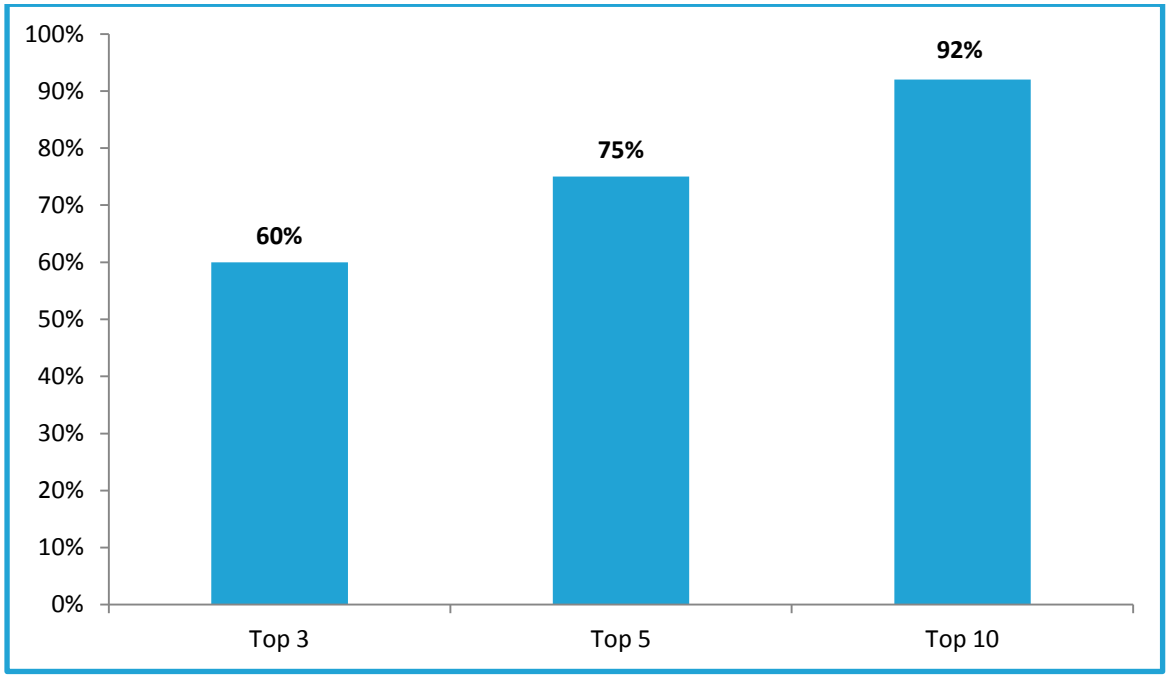
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 26 Rest of EU Display advertising markets in EUR million, 2014 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 27 EU 21 – Concentration of online display advertising in % of total EU21 online display advertising, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

**Calculated by OBS*

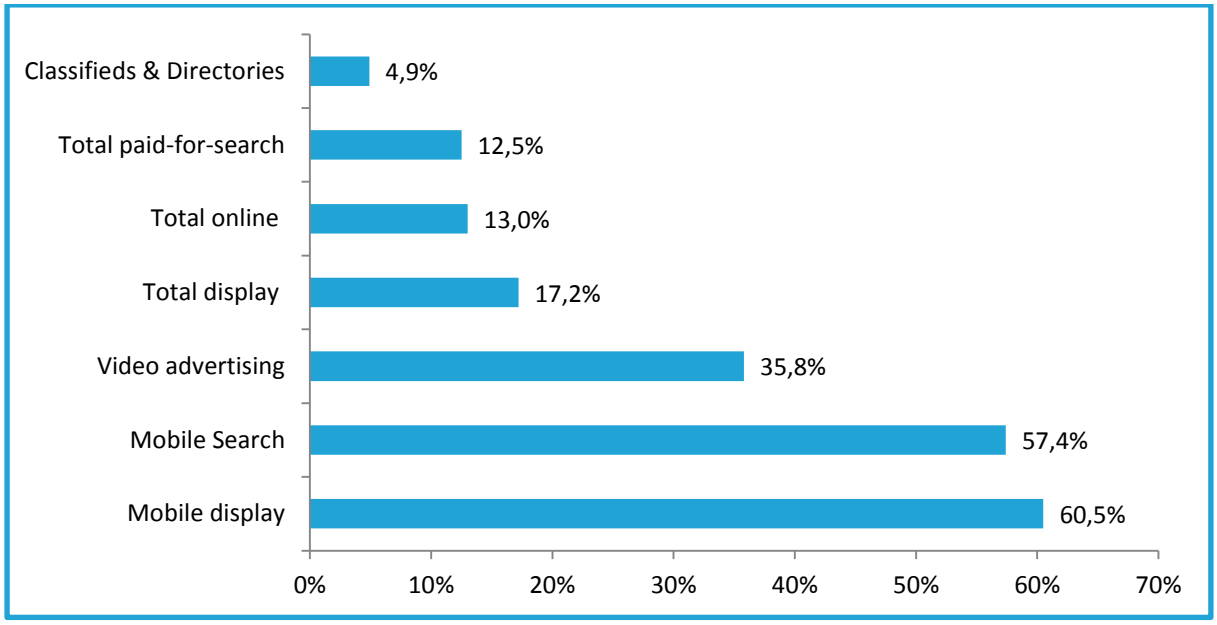
1.8.1 Key trends in display advertising – Surge in video and mobile advertising

- Mobile display grew by +60.5% in Europe in 2015 to EUR 3.5 billion (see Figure 28), outperforming all other formats and thus demonstrating the increased importance of mobiles in the advertising ecosystem. (Mobile paid-for-search grew by 57.4% to EUR 3.7 billion).

- Video advertising experienced a similar fast growth, increasing by +35.8% in 2015 to EUR 2.3 billion in the European countries tracked by IAB/IHS. As online video consumption increases, advertisers are increasingly investing in online video ad to reach fragmented audiences. For the foreseeable future, online video advertising will continue to grow, as will innovation in ad technology to permit better targeting and more efficient transactions and monetization for content producers.

- Advertising on social networks is another key driver for online display ads, as the penetration of social networks keeps increasing in Europe (eMarketer estimates that the penetration of social networks in Western Europe is at 63.2% of internet users and 47.4% of the total population in 2016). As Facebook, Snapchat, LinkedIn and Twitter grow their user base, online display advertising spendings on these social networks continues to increase. The increased consumption of videos (and therefore inventory for video ads) on social networks will continue to be a growth driver. Furthermore, eMarketer estimates that Facebook has 67.9% and Twitter 7.9% of worldwide social ad revenues, estimated at USD 32.97 billion in 2016.

Figure 28 Europe (27 IAB countries) – Online ad format year-on-year growth in %, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.8.2 Online video advertising

- For the 19 EU countries for which data are available on video advertising (no data for Croatia and Slovakia), the video advertising market generated EUR 2.1 billion in 2015, growing by +37.2% from 2014s EUR 1.5 billion (see Table 7).

- Video ad spend grew by double-digits in every market of the 19 EU countries, and in 2 even with triple-digits (Italy +128.5% and Belgium +120.4% - see Figure 32). However, the market sizes vary enormously; from EUR 746 million in the United Kingdom to EUR 1 million in Romania and Slovenia (see Table 7).

- The United Kingdom is by far the largest video advertising market, worth EUR 746 million in 2015 (or 2.5 times more than the second biggest market, Germany) and growing by +23.9% (also the UK accounts for 35.3% of total video advertising spending in EU 19, see Figure 29).

- As with other online advertising formats and segements, ad spend is concentrated in the EU. The top 3 markets (GB, DE and FR) represent 61% of total online video ad spend in the 19 EU countries, the top 5 (plus IT and NL) 78% and the top 8 (plus SE, ES and BE) 90% (see Figure 24).

- However, non withstanding this fast growth, video advertising still represents a small share of overall display advertising with an EU 19 average share of 16.7% of the total online display advertising market. As the transition from other online display formats (mainly banner ads, interstitals) is on the way, online video advertising has room to grow in the future. This growth will be sustained with more internet users watching video online, on-demand and live streamed. The highest share for online video ads is found in Bulgaria with 31.3% of display ads, the lowest in Romania with 3.1% (see Figure 33).

- ZenithOptimedia is expecting mobile to become the main platform of online video in 2016 in its report *Online Video Forecasts 2016*, with consumers worldwide spending an average of 19.7 minutes watching online video on mobile devices and 16 minutes on fixed devices.

- The growth factors behind online video advertising are changing media consumption patterns, increasingly online and video, the use of programmatic audience buying (automation of online advertising) allowing for a better targeting (according to IHS, 47% of European online video advertising are traded programmatically in 2015 and this share will rise to 72.8% by 2020) and increased effiencies through improvements in ad technology. The rise of programmatic video buying has lead all players, of which traditional broadcasters, to adopt some form of programmatic solution for their advertisers.

- Video allows for better branding than other display ad formats like banner ads (although TV advertising remains the preffered advertising medium for branding purposes, having a larger reach). Online video is used to enlarge audiences beyond TV and to target specific audiences.
- Online video is more used by publishers which produce more video content in order to enlarge their audience base, thus allowing for more ad inventory for video ads. Also, the increased types of video advertising[6] (vertical videos on mobile phones, in-text videos, video without audio) allow for more advertising inventory on publishers websites.
- IHS estimates that by 2018, 57.2% of online video advertising generated in EU-5 (DE, ES, FR, GB, IT) will be captured by Google and Facebook. European broadcasters are expected to only capture less than ¼ of the European online video ad market (see Figure 34).
- According to eMarketer, YouTube generated in 2016 advertising revenues (not only video ads) of USD 5.18 billion of which USD 2.29 billion or 44.2% outside of the US (not only in Europe) (see Table 8).

Table 5 EU 19 – Online video advertising in EUR million and %, 2014-2015

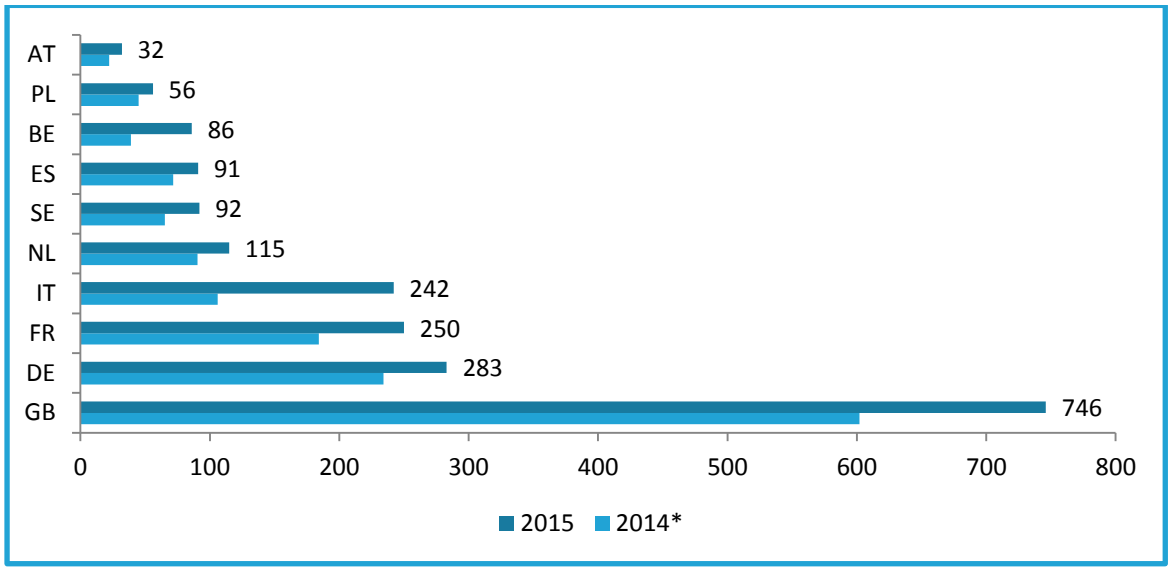
	2014*	2015	Year-on-year growth	Share of display advertising
GB	602	746	*23,9%*	18,0%
DE	234	283	*20,9%*	15,1%
FR	184	250	*35,8%*	16,0%
IT	106	242	*128,5%*	20,0%
NL	90	115	*27,3%*	16,8%
SE	65	92	*41,0%*	19,8%
ES	72	91	*26,9%*	15,9%
BE	39	86	*120,4%*	18,0%
PL	45	56	*24,9%*	15,3%
AT	22	32	*44,0%*	14,4%
DK	15	26	*77,0%*	8,7%
IE	14	24	*71,0%*	18,1%
CZ	15	20	*29,6%*	8,4%
FI	16	18	*15,9%*	10,1%
GR	11	14	*25,0%*	26,1%
BG	4	7	*85,0%*	31,3%
HU	4	6	*60,4%*	8,5%
SI	n.a.	1	*n.a.*	8,1%
RO	n.a.	1	*n.a.*	3,1%
Total EU 19*	1 538	2 110	*37,2%*	16,7%

Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

**Calculated by OBS based on growth rates provided in the report*

[6] IHS tracks for the Adex Benchmark only online video advertising as defined by IAB Europe Video Working Group 2012 : in-stream video advertising (pre-rolls, mid-rolls, post-rolls).

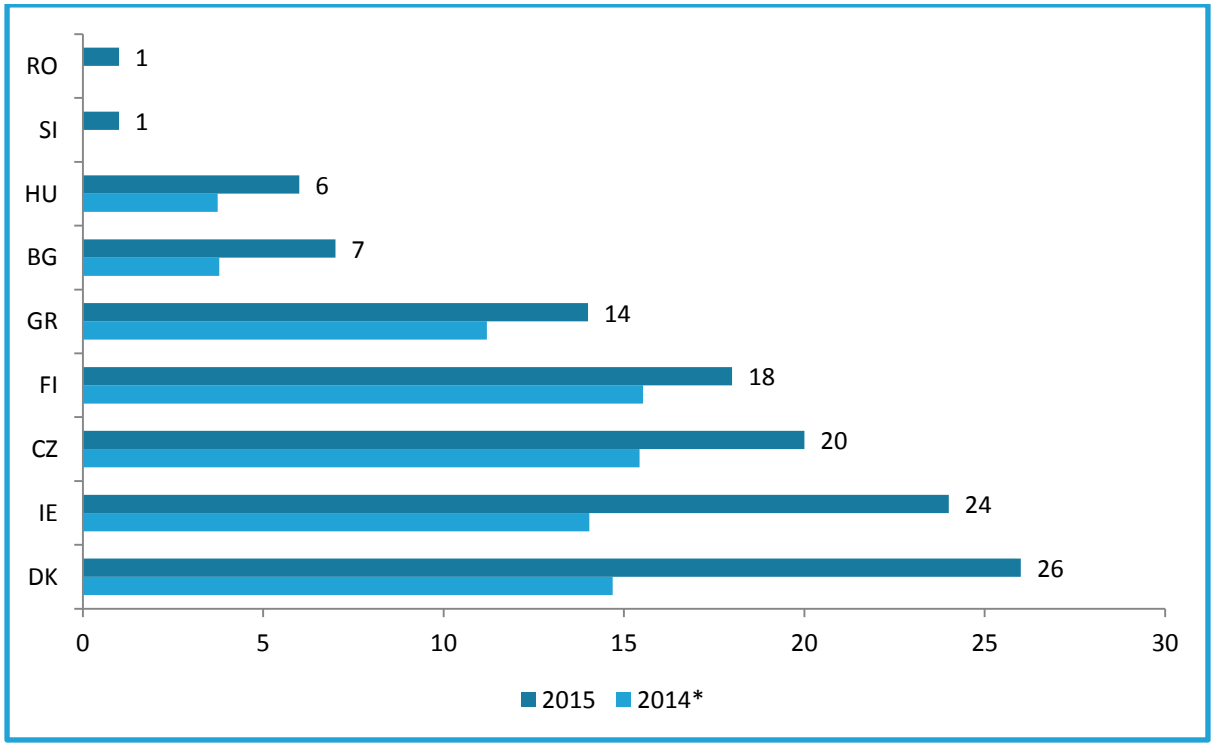
Figure 29 EU Top 10 Online video advertising in EUR million, 2014 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

**Calculated by OBS based on growth rates provided in the report*

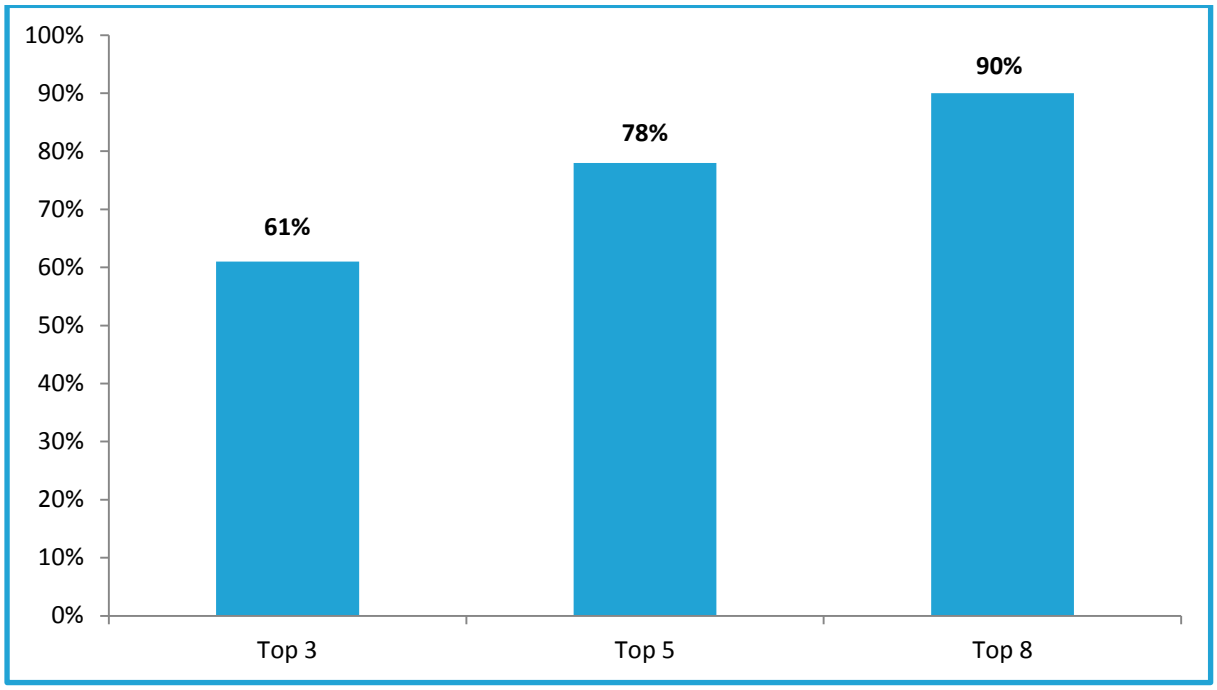
Figure 30 Rest of EU Online video advertising in EUR million, 2014 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

**Calculated by OBS based on growth rates provided in the report*

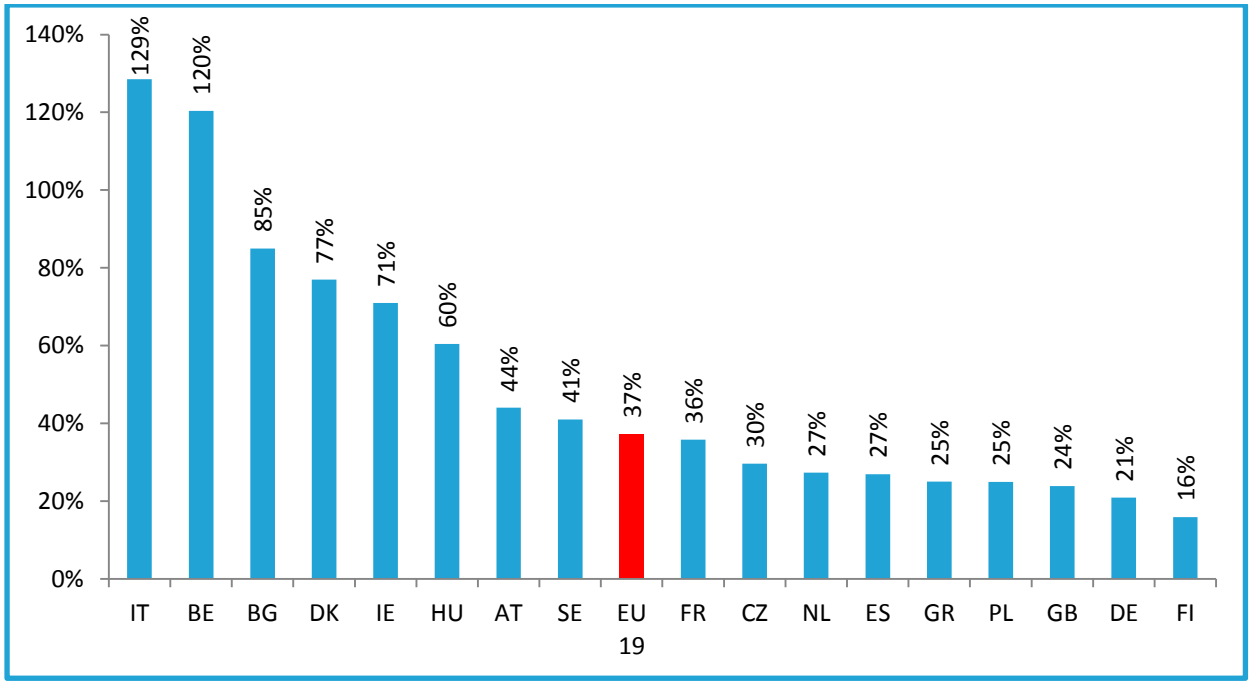
Figure 31 EU 19 – Concentration of online video advertising in % of total online EU video advertising, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

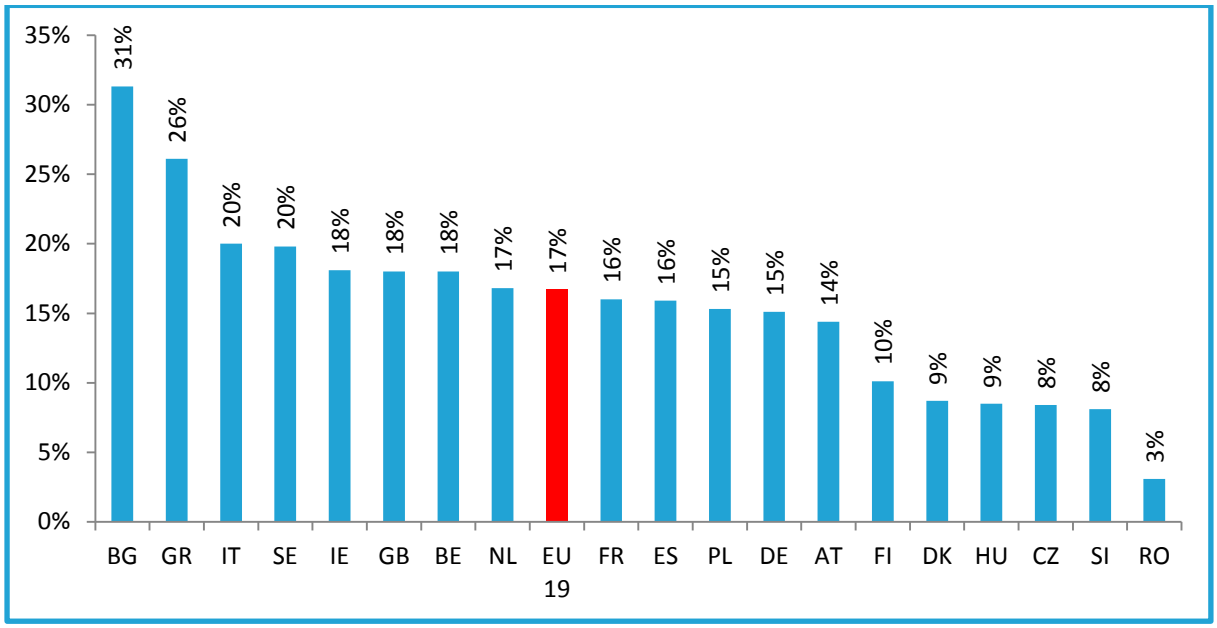
**Calculated by OBS based*

Figure 32 EU – Online video advertising year-on-year growth in %, 2015



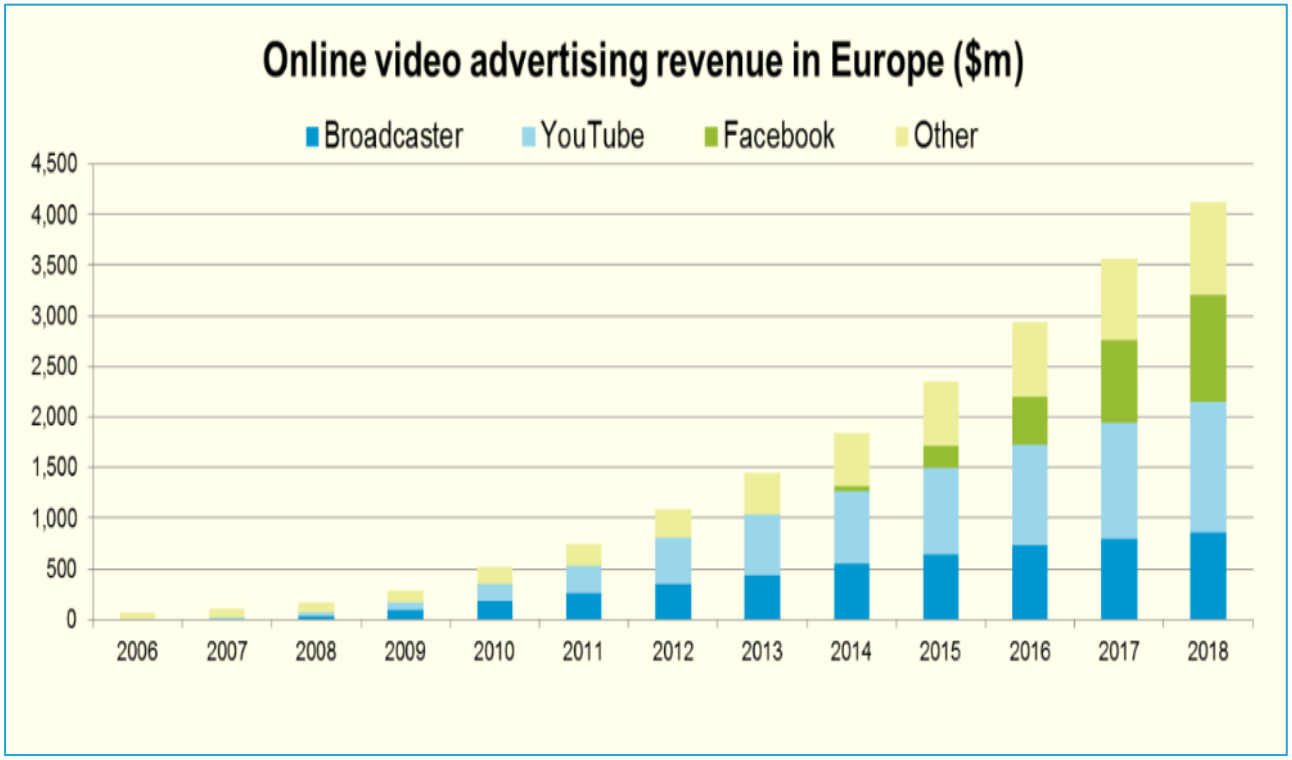
Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 33 EU 19 – Share of video advertising of total display advertising in %, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 34 Online video advertising revenue in Europe, 2006-2018 in USD million



Source: IHS

Table 6 YouTube net ad revenues worldwide, US vs. Non-US 2014-2016, in USD billions and % of total

	2014	2015	2016
US			
Net ad revenues	1,53	2,22	2,89
% of total	*50,4%*	*51,9%*	*55,8%*
Non-US			
Net ad revenues	1,51	2,05	2,29
% of total	*49,6%*	*48,1%*	*44,2%*
Worldwide	**3,04**	**4,28**	**5,18**

Source: company reports, eMarketer, March 2016

Note : net ad revenues after company pays traffic acquisition costs (TAC) and content acquisition costs (CAC) to partner sites ; includes banners, rich media, search and video ads

1.8.3 Mobile display advertising

- The other important growth factor for online display advertising in 2015 (and for the next couple of years) is mobile display advertising[7]. The increased use of mobile devices for media consumption, video viewing or social network use (to name a few) has offered new possibilities for advertisers and publishers to expose to ads their mobile users.

- Mobile display advertising grew by 62% in the 17 EU countries (no data for BE, GR, SI and SK) for which IAB/IHS are able to provide data, from EUR 2 billion in 2014 to EUR 3.3 billion in 2015. Mobile display was the fastest growing format in 2015, reflecting the increased importance of the mobile web and mobile devices in a user journey on the web (see Table 9).

- The growth in mobile display advertising is however very disparate in the 17 countries (see Figure 38). This year's top performer in growth was Poland with a year-on-year growth rate of 325.8%. 5 EU market grew by triple-digits: Poland, the Czech Republic (+214.4% to EUR 20 million), Romania (+191.8% to EUR 1 million), Ireland (+121.8% to EUR 51 million) and the Netherlands (+103.1% to EUR 203 million). No market has seen a growth rate below 20%; however as the market is still nascent in several countries with a low share of mobile display advertising in overall display advertising spend, this rapid uptake is a logical consequences of the increased use of mobile devices for media consummation by internet users.

- Mobile advertising already represents, on average, 28.7% of display advertising in the 17 EU countries (see Figure 39). However, as for video advertising, strong differences appear between countries. In the United Kingdom, the share of mobile display advertising of the total display advertising spend was 43.1%, the highest in the EU. On the other side of the spectrum, mobile display advertising only had a share of 3.5% in Romania. 7 countries had an advertising market where mobile display share was above 10% of their display advertising market. 4 countries had a share of mobile display above the EU 17 average of 28%, namely the United Kingdom, Italy, Ireland and the Netherlands.

- Mobile display advertising spend in the EU is very concentrated. The United Kigndom alone represents more than half of mobile display ad spend in 2016, with 53% of mobile display ad spend. The top 3 countries (GB, IT and FR) accounted for 75%, the top 5 (+Germany and the Netherlands) for 87% and finally the top 10 markets for 95% of total mobile display advertising spend in the EU in 2016 (see Figure 35).

- It is expected by IHS that mobile display advertising will become the majority of display advertising spend in the United Kingdom and Ireland. The growth of mobile display will be

[7] IAB/IHS defines mobile display advertising as « *any display advertsing viewed or read on a mobile phone including rich media advertising. This could be browser-based as well as in-app.*

furthermore enhanced in the EU by the growth of mobile video ads and native display advertising. However, as IHS notes it, mobile display ads are still largely driven by mobile app-install ads.

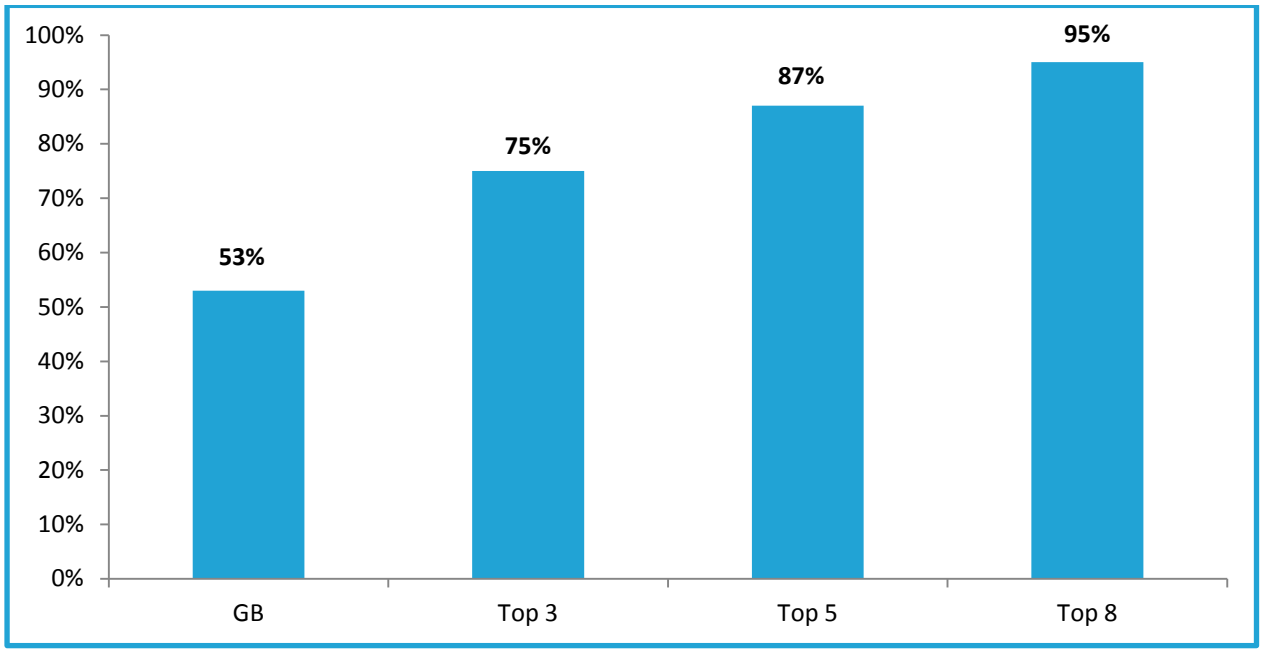
Table 7 EU 17 – Mobile display advertising in EUR million and growth & share in %, 2014 – 2015

	2014*	2015	Year-on-year growth	Share of display 2015
GB	1 125	1 787	*58,8%*	43,1%
IT	261	400	*53,2%*	37,5%
FR	201	326	*62,0%*	20,9%
DE	134	204	*52,2%*	10,9%
NL	100	203	*103,1%*	29,5%
SE	90	122	*35,5%*	26,1%
PL	18	76	*325,8%*	20,6%
IE	23	51	*121,8%*	37,5%
FI	34	49	*43,6%*	27,5%
ES	33	42	*26,0%*	7,3%
DK	17	25	*43,9%*	8,5%
CZ	6	20	*214,4%*	8,5%
AT	14	18	*28,2%*	7,9%
HU	8	15	*95,4%*	19,6%
RO	0,3	1	*191,8%*	3,5%
BG	0,7	1	*38,0%*	4,5%
HR	0,4	1	*20,0%*	5,3%
Total EU 17*	**2 067**	**3 341**	***62%***	**28,7%**

Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

**Calculated by OBS based on growth rates provided in the report*

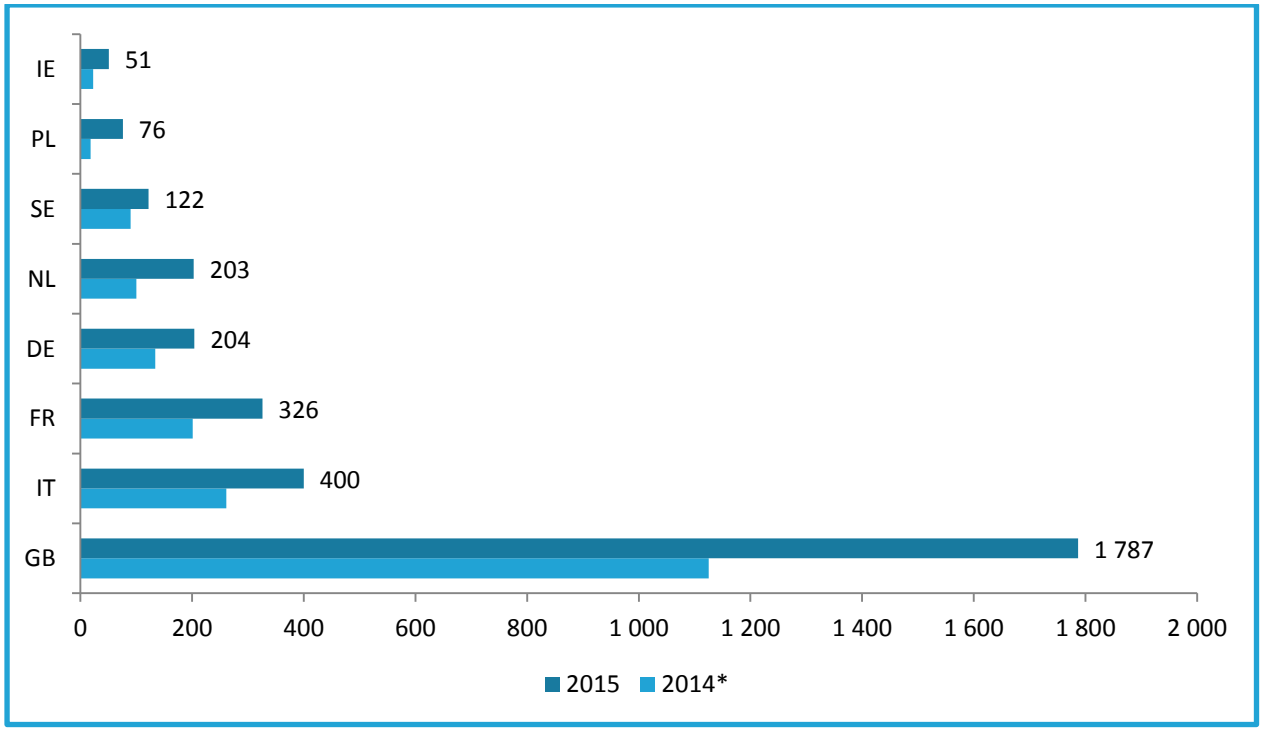
Figure 35 Concentration of mobile display advertising in % of total mobile EU display advertising, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Calculated by OBS

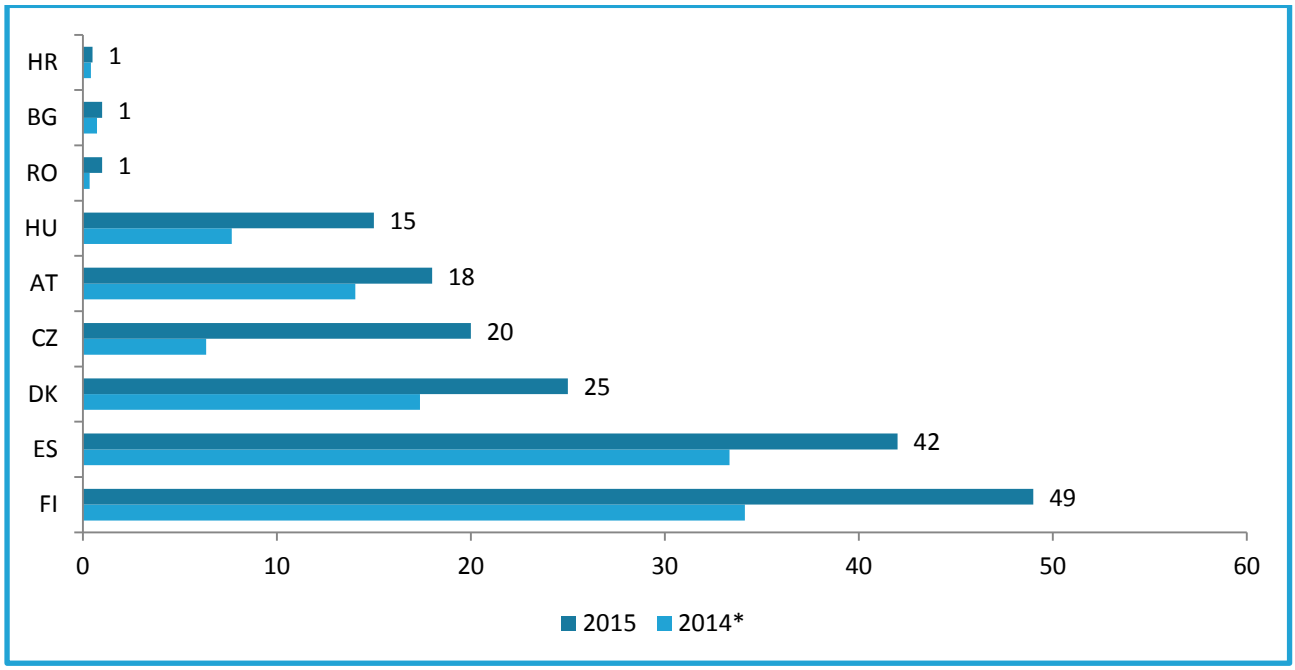
Figure 36 EU Top 8 Mobile display advertising markets in EUR million, 2014 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

**Calculated by OBS based on growth rates provided in the report*

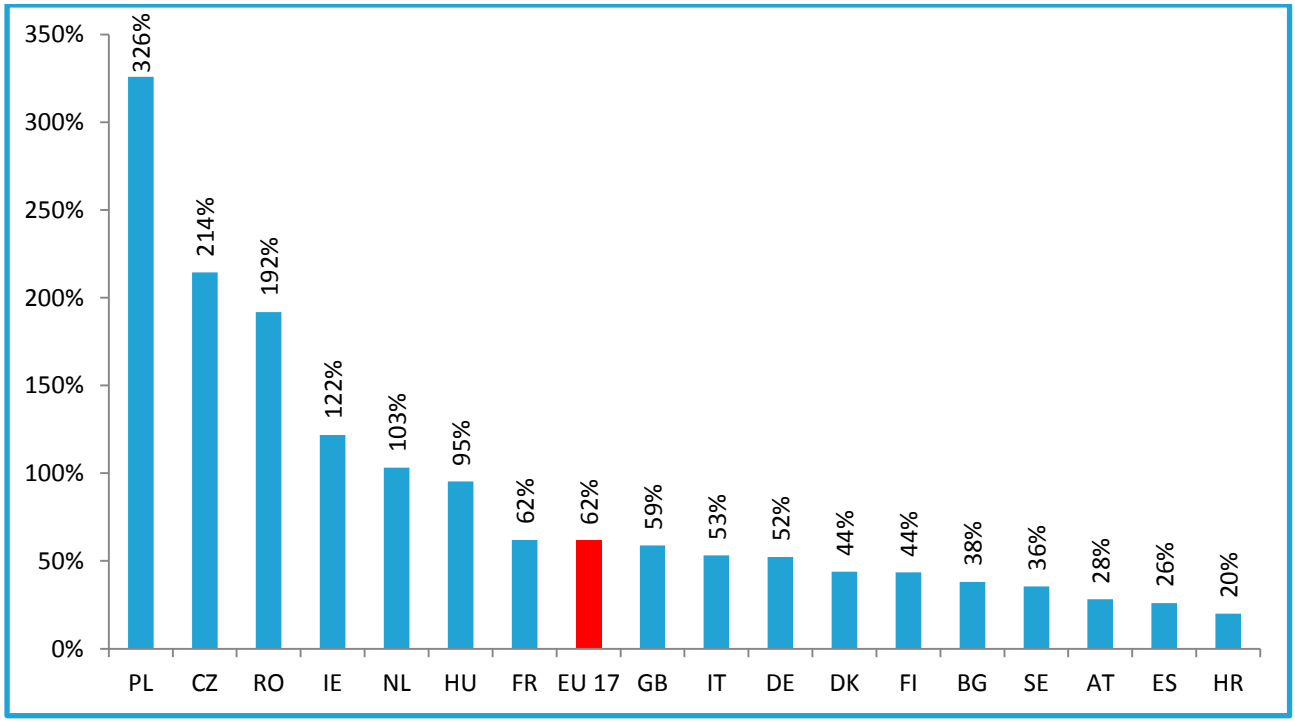
Figure 37 Rest of EU - Mobile display advertising markets in EUR million, 2014 - 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

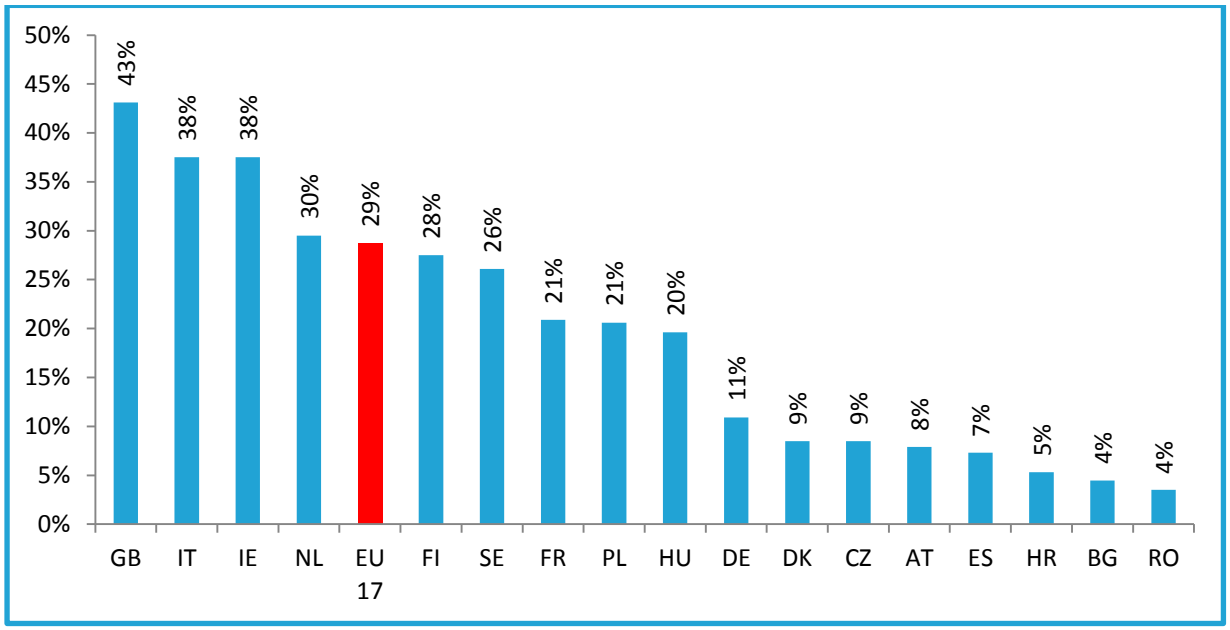
**Calculated by OBS based on growth rates provided in the report*

Figure 38 EU 17 – Year-on-year growth of mobile display advertising in %, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

Figure 39 EU 17- Share of mobile display advertising of total display advertising in %, 2015



Source: IAB/IHS Adex Benchmark 2015 – European online advertising expenditure

1.8.4 Key players worldwide in display advertising

- As it was the case for total worldwide online ad spend, the display advertising ad spend market is dominated by a handful of companies. In 2015, Facebook with USD 17.08 billion (up by +48.6% due in large part to mobile advertising which represented more than 80% of Facebook's ad revenues in 2015; in the second quarter of 2016, more than 90% of Facebook's users are on mobile devices) dominated the worldwide digital display ad market and captured a share of 25.1% of total worldwide net display ad revenues (see Table 10).

- Google, Twitter and Yahoo were the other US companies to capture an important share of worldwide net display ad revenues. The remaining 3 other companies of the top 7, as given by eMarketer, are of Chinese origin. As it was the case with total worldwide net ad revenues, no European company is present in this top list established by eMarketer (see Table 10).

- Judging by the results of the second quarter 2016 of Google's parent company Alphabet (quarterly revenues of USD 21.5 billion, +21.3% growth rate mainly driven by strong advertising sales on mobile devices and video content) and Facebook (quarterly advertising revenue of USD 6.2 billion, +59% growth rate and +80% growth rate for ads on mobile; 84% of advertising sales are now generated on mobile devices with 90% of Facebook users being mobile-first users), these players are striving on the switch to mobile as the main platform for internet users to consume online videos. These 2 worldwide top players in the display advertising sector will certainly continue to dominate the display ad market and it will be difficult for other players to challenge their prominent position in mobile and video ad sales.

- However, in the display ad market "other" companies were able to capture over 40% of total net display ad revenues generated, a situation sensibly different from the one when total net ad revenues are considered, where Google's dominance in paid-for-search ads explains the dominance of a few (other companies had a market share of 33.1% of total worldwide net digital ad revenues in 2016). With increased use of mobile phones to access the internet, more time spent on social networks (for which most are of US origin) and the dominance of major tech players in the online video market, European companies will have to adapt in order to be capable to compete with these major players.

- As audiences are becoming increasingly fragmented, reaching the right audience with the right advertising message becomes of vital importance for advertisers. In order to reach these audiences across different devices and screens, ad players, publishers, agencies and advertisers are turning to programmatic advertising which allows for better targeting and, hopefully, to deliver the right message at the right moment to the right audience. Investments in ad tech therefore become crucial on the digital advertising market and publishers have to adapt to this shift towards programmatic advertising.

The next chapter presents an overview of the programmatic advertising ecosystem.

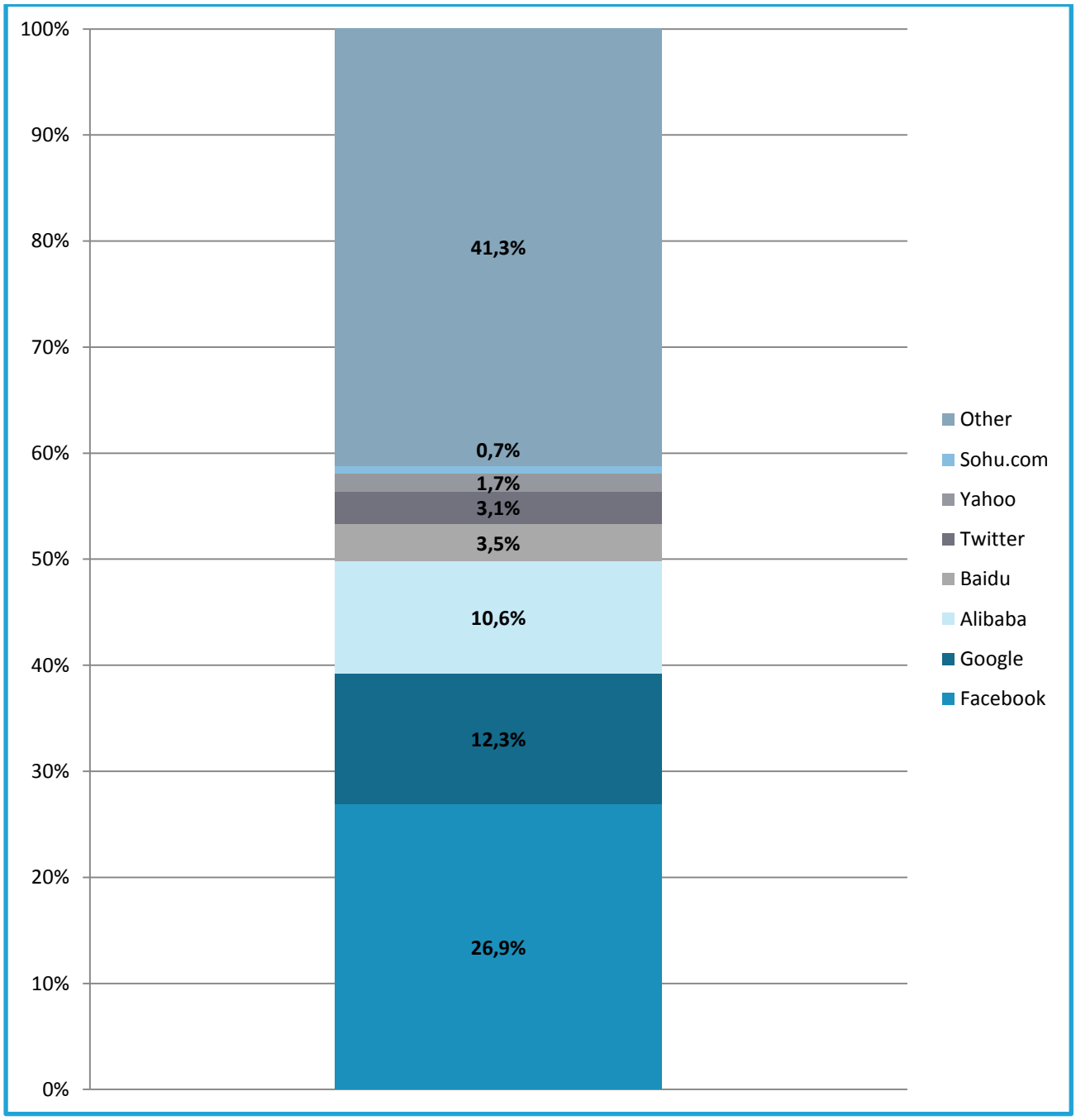
Table 8 Net Display Ad revenues worldwide, by company, 2014-2016, in USD billion, % change and % of total

	2014	2015	2016
Facebook	**11,49**	**17,08**	**22,37**
% change	*64,5%*	*48,6%*	*31,0%*
% of total	*21,0%*	*25,1%*	*26,9%*
Google	**7,72**	**9,07**	**10,23**
% change	*26,8%*	*17,5%*	*12,9%*
% of total	*14,1%*	*13,3%*	*12,3%*
Alibaba	**4,84**	**6,50**	**8,79**
% change	*26,1%*	*34,1%*	*35,3%*
% of total	*8,8%*	*9,5%*	*10,6%*
Baidu	**1,51**	**2,18**	**2,90**
% change	*94,2%*	*44,6%*	*33,1%*
% of total	*2,8%*	*3,2%*	*3,5%*
Twitter	**1,26**	**1,99**	**2,61**
% change	*111,2%*	*58,8%*	*30,8%*
% of total	*2,3%*	*2,9%*	*3,1%*
Yahoo	**1,66**	**1,67**	**1,41**
% change	*-4,3%*	*0,1%*	*-15,1%*
% of total	*3,0%*	*2,4%*	*1,7%*
Sohu.com	**0,48**	**0,50**	**0,55**
% change	*25,0%*	*4,0%*	*9,5%*
% of total	*0,9%*	*0,7%*	*0,7%*
Other	**25,85**	**29,18**	**34,35**
% change	*10,7%*	*12,9%*	*17,7%*
% of total	*47,2%*	*42,8%*	*41,3%*
Total display spending	**54,81**	**68,17**	**83,22**

Source: eMarketer, company reports, March 2016

Note : includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices; net ad revenues after company pays traffic acquisition costs (TAC) to partner sites; includes banners (static display), rich media, sponsorships and video (including advertising that appears before, during or after digital video content in a video player)

Figure 40 Share of worldwide net display ad revenues by company, in % of share, 2016



Source: eMarketer, company reports, March 2016

Note : includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices; net ad revenues after company pays traffic acquisition costs (TAC) to partner sites; includes banners (static display), rich media, sponsorships and video (including advertising that appears before, during or after digital video content in a video player)

2. Focus On Programmatic Display Advertising

2.1 What is programmatic advertising?

- Programmatic advertising (or more accurately the programmatic buying and selling of digital advertising inventory) has gone from a "buzzword" several years ago to a **widely adopted practice by digital advertising players** – publishers, advertisers and agencies who aim to harvest the promised efficiencies of programmatic advertising in display advertising.

- Programmatic advertising is **used in display advertising**, mostly for **display banner ads** (static and rich media banners) **and online video ads, on the fixed and mobile web**. Increasingly, with the rapid rise of the online video ad market thanks to a greater use and adoption by advertisers, publishers and tech players, online video advertising benefits from the increased efficiencies and simplification of the buying and selling process. In the beginning, programmatic advertising was rather used on remnant inventory (low value) by publishers in order to monetize these unused ad spaces but since a couple of years programmatic transactions are increasingly used for higher value ad inventory and premium ad spaces in some cases.

- The aim of display advertising is to display/show the **right advertising message** (videos or banners which are of interest to the viewer, based on his preferences) in front of the **right audience** (target audience) at the **right time** (rendered possible through real-time advertising). Programmatic advertising, through the automation of ad buying and real-time bidding, helps advertisers to target the right audience by using the data gathered and stored on each individual user. The explanation of the rapid rise of programmatic transactions for ad buying and selling is the promise of **serving advertisements on an individual level rather than on a broad basis based on assumptions of visitors of a specific website**.

- Programmatic advertising stands for the **automated buying and selling mechanism for online display advertising**. It is **technology-driven**, as the purchase and selling process passes through a **machine-to-machine automation**, involving **no human input in the transaction** (however, human input is required to create the rules for both the buy and sell side, define the profiles which should be targeted, set price limits in auctions). Through the use of algorithms and computers, advertisers and agencies are facilitating the buying of ad spaces on a publisher's website as it no longer involves a human exchange between sellers and buyers; a costly process involving time and man power which is considered as not efficient in the digital advertising landscape. In general, the purchase process of an advertisment through programmatic means lasts less than 200 milliseconds, as the transaction is an exchange between machines and no longer humans.

Objectives and functioning of programmatic advertising

- Programmatic buying and selling can take the form of **Real-time Bidding** (hereafter **RTB**), an auction process for each ad placement between different prospective advertisers, where prices are established through an auction, similar to exchanges taking place on the stock market. Often programmatic is reduced to only RTB transactions; however programmatic ad buying and selling can also take the form of a direct purchase with fixed prices known in advance between publishers and advertisers, called **Programmatic Direct**.

- To understand the transformation that programmatic buying and selling represents, one has to understand how the traditional ad buying process worked. Before the use of machines and algorithms to buy and sell ad space and audiences, the buying and selling process involved human interactions, a cumbersome and time-consuming process. The buying and selling process required negotiations, and prevented advertisers from targeting internet users individually (users were targeted "in advance" on a **contextual basis**, mainly based on the knowledge of the publisher's audience – similar to TV targeting). Advertisers or their agencies would exchange with publishers in order to buy ad impressions on their web site. This process involved telephone conversations, e-mails, fax and one-on-one negotiations. The required amount of time needed for this process was/is seen as not being efficient, both for ad buyers and sellers, as it is being costly in humain resources.

- Ad buyers would buy ad inventory on a publisher's website based on their presumptions/assumptions/knowledge of actual and future visitors. This form of advertising, mainly **contextual** (advertising cars on a website specialized in automobile news for example), **did not allow the use of data on individual users and therefore did not permit ad targeting based on this knowledge of users**. Also, a share of the advertising expenses was not optimally used as users which where not at all interested in the specific product or service advertised would nevertheless see the ad; these "wasted" ad impressions would be billed to the advertiser (see Schema 1).

- In this setting, it was difficult, if not impossible, to display the right advertising message to each individual user. Users were mostly **contextually targeted** (based on the content of the website on which the ad was served or visitor demographics of a publisher's website) as opposed to **individual targeting based on the user's behaviour** (actions previously taken, which are trackable such as web pages visited, content viewed, social network data on user's interests, and increasingly purchase made online and offline). The **need for data on individual visitors** to a website has created an **ecosystem of data exchanges and third-party data providers** which advertisers and publishers use in order to efficiently target their advertisments towards interesting profiles.

- The increased use of **mobile devices** in addition to desktops and laptops to navigate the web and consume content has added a third type of targeting, **cross-device targeting** which is identifying a user by matching different data points across multiple devices and serving the user with ads across these different devicess on the mobile and fixed internet.

- **Programmatic advertising** allows agencies and advertisers to **individually target users no longer on an assumptions on their interests but by actually knowing** (or knowing somewhat better) **their individual preferences and interests through data gathered** (see Schema 2 Programmatic buying). Programmatic advertising, in short, **enables advertisers to focus on the 'who' rather than the 'where'**, as it was done before programmatic advertising through contextual targeting.

The different forms of programmatic advertising – 2 main categories

- This is done in real-time by using either an auction-based buying mechanisms, called **real-time bidding** where the price of the ad placement is fixed through an auction among the prospective advertisers, either by being directly in contact with the publisher, where the price od an ad is fixed in advance, called **programmatic direct**.

- Programmatic advertising can be categorized in **two main categories**, based on wheter the **selling process is auction-based or not** (if not the price is fixed, so called **programmatic direct**). The first auction-based category is called **real-time bidding** purchase; the category involving fixed prices known in advance by advertisers is called **Programmatic Direct**. Each of these two buying mechanism has 2 sub-categories (See Schema 3).

- For RTB, the 2 categories depend on the fact if the auction is open to everyone or not, if it is an open auction the process is called **Open Exchange (or Open Auction)** (see Schema 6), if it is only open to invited advertisers it is called a **Private Marketplace (or Invitation-Only Auction)** (see Schema 7).

- Programmatic direct, where a publisher and advertiser are in direct contact, can either be on reserved inventory which is called **Automated Guaranteed** or on unreserved inventory, called **Unreserved Fixed Rate**. (The names for each category vary according to sources).
- **Table 9 gives an overview of the four different types of programmatic transactions and their alternative names in the industry.**

- **Real-time bidding** (RTB), or the auction-based sale of each individual ad impression, furthermore **allows advertisers to bid on the value of each individual visitor** in order to show him/her advertisements. As each advertiser valorises profiles of visitors differently (based on data gathered on the profile, interest, data on behaviour, location and demographics), this allows for a reduction in costs, as an advertisement will only be shown when the profile is of interest to the advertiser under the condition that the advertisers wins the auction (see Schema 4 and Schema 5). Normally, the whole auction process takes less than 1 second to complete. RTB can take place in an open auction where all advertisers can participate or in an invitation-only auction where the publisher selects the potential advertisers (in order to keep control on what is advertised on his website, safeguard its brand reputation…).

- Programmatic advertising is not only RTB (it can also be non-auction based) but the real-time advertising element with refined targeting is seen as one of the main benefits of programmatic advertising, whether auction-based or not. The 2 other forms of programmatic advertising

involving fixed prices agreed upon between the publisher and advertiser in advance are called **Programmatic Direct** (or **Automated Guaranteed**) when the ad is place on a reserved ad space (the ad buyer knows in advance where his ad will be place on the publishers side), and **Unreserved Fixed Rate** (or **preferred deals**) when the ad is placed on a publisher's website but on an unknown place in advance. (see Table 9 for more details).

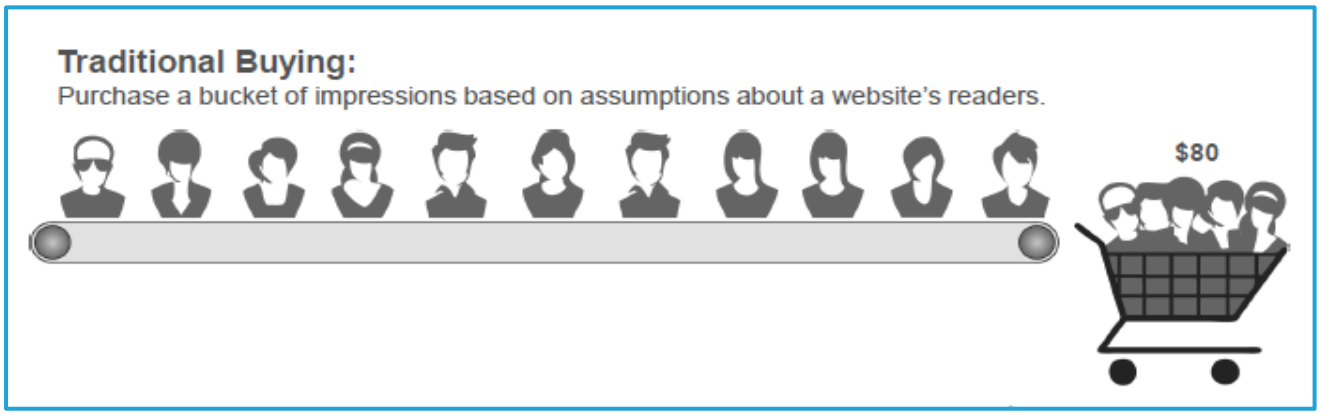
IAB gives the following definition of each of these 4 types of transactions[8]:

- **"Automated Guaranteed"**: This type of transactionmost closely mirrors a traditional digital sale. The dela is negotiated directly between buyer and seller, the inventory and pricing are guaranteed, and the campaign runs at the same priority as other direct deals in the ad server. The programmatic element of the transaction differentiates it from a traditional direct sale is the automation of the RFP (request for bids) and camapaign trafficking process. Negotiation through to fulfilment can be, should the publisher desire, completed within the technology platform providing the automated reserve functionality
- **"Unreserved Fixed Rate"**: Transactions that fall into this category exist within an exchange environment, but have prenegotiated, fixed pricing (Cost-per-Mille, Cost-per-Click, etc). Typically, Unreserved Fixed Rate deals sit at a higher priority than the Open and/or Invitation-Only Auction. A deal of this type typically is necessitated by advertiser demand for a more predictable offering within the exchange space.
- **"Invitation-Only Auction"**: This auction type is very similar to an Open Auction except a publisher restricts participation to select buyers/advertisers via Whitelist/Blocklist. A publisher may choose not to participate in an Open Auction and only run an Invitation-Only Auction. It is important to note that an Invitation-Only Auction is an auction and buyers will be expected to bid on inventory. A publisher may choose to expose different information such as transparency or data through the use of Deal IDs (a unique string of characters that are used as an identifier for buyers and sellers) or Line Items to add value to this select group of buyers while participating in this tactic.
- "**Open Auction**": An Open Auction is the Wild West of auctions. A publisher will generally allow any and all buyers to participate in accessing their inventory through this tactic. Usually there is no direct relationship with the buyer. Publisher may choose to Blocklists and floor pricing to prevent advertisers from gaining access. On the advertisers side they are often unaware of what publisher they are buying on. DSP (Demand-Side Platforms) usally present a list of exchanges/SSPs (Supply-Side Platforms) to the buyer that they automatically opt into. Buers may not know or care that they are buying a publisher's inventory. Because of this, publishers can participate in the Open Auction on a blind basis.

Section 2.2 gives an overview of the players involved in programmatic advertising, section 2.3 gives the main benefits but also limits/challenges to programmatic advertising for each distinct group involved on the supply (publisher) and demand (advertiser and agency) side and section 2.4 details the state of the programmatic advertising market, globally and in Europe.

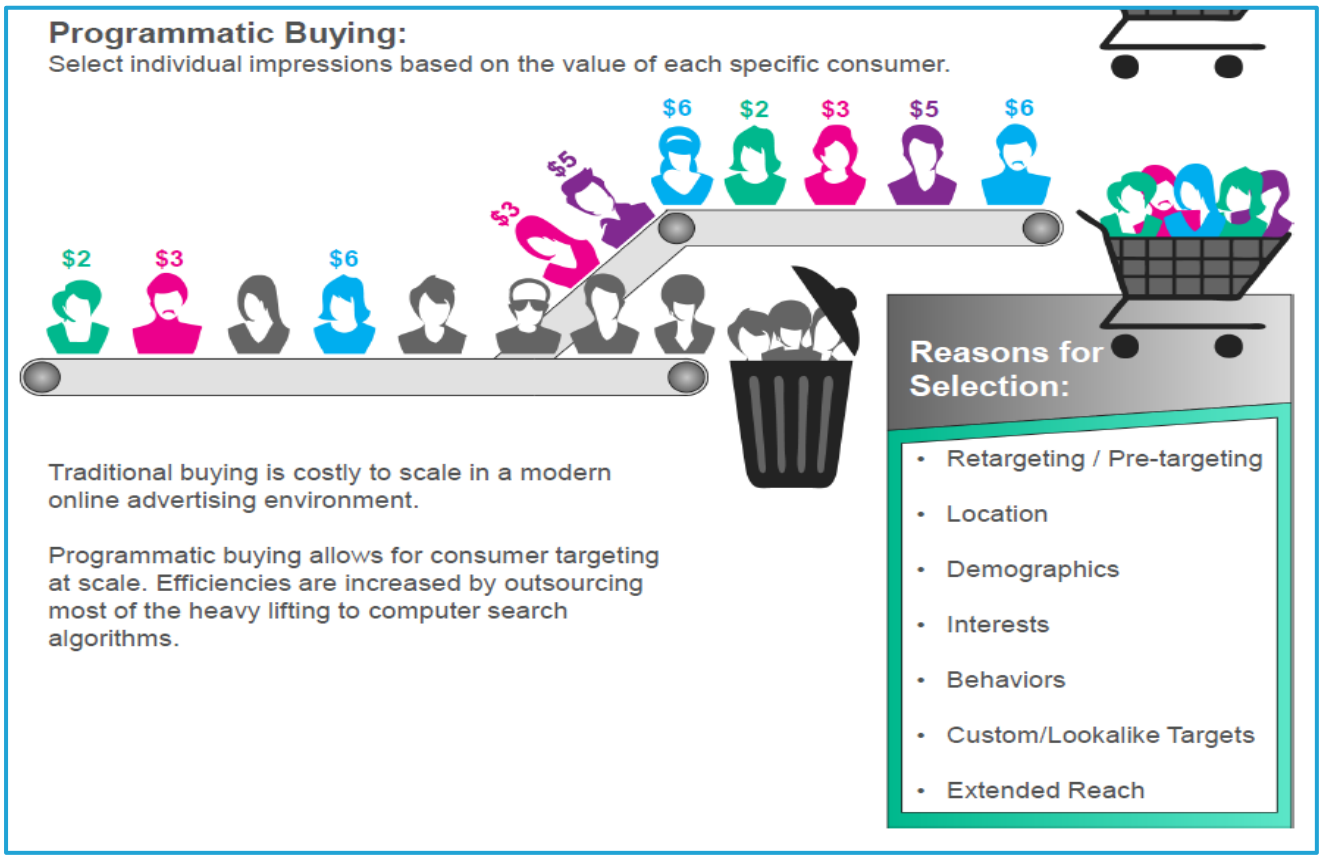
[8] http://www.iab.net/media/file/IAB_Digital_Simplified_Programmatic_Sept_2013.pdf

Schema 1 Traditional advertising buying



Source: Programmatic 2015 Roadmap for Growth, Magna Global

Schema 2 Programmatic buying



Source: Programmatic 2015 Roadmap for Growth, Magna Global

Table 9 The four types of programmatic transactions

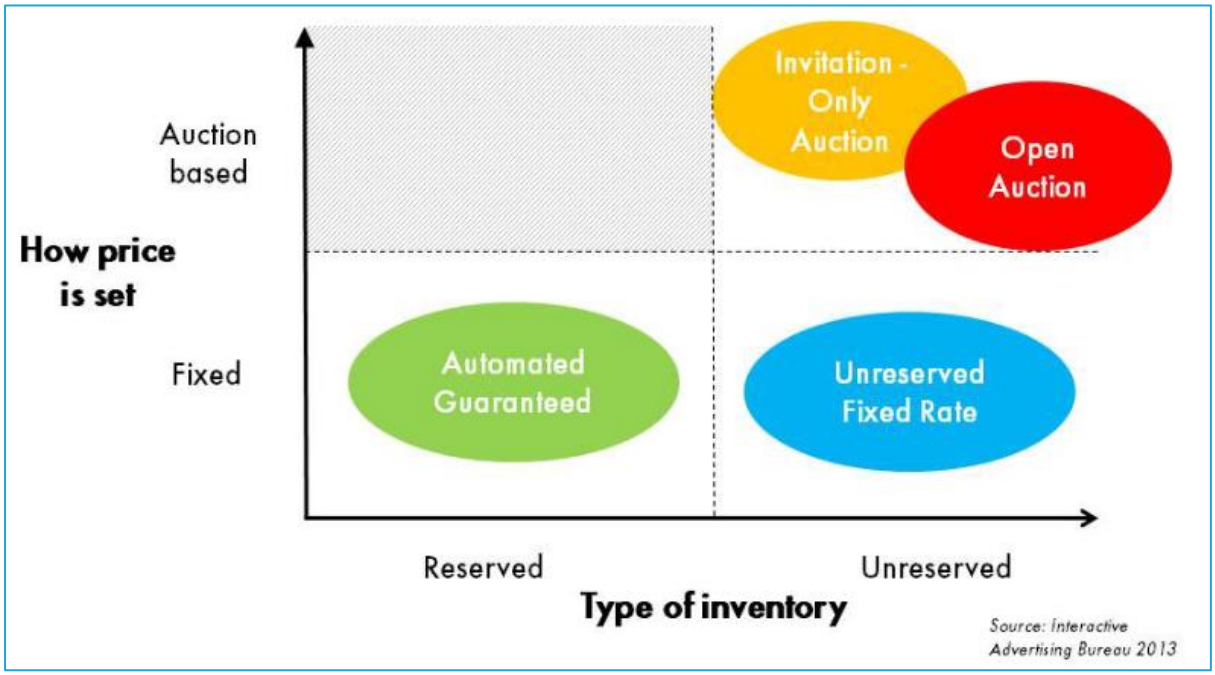
	Type of inventory (Reserved[1], Unreserved)	Pricing (Fixed[2], Auction)	Participation (One Seller-One Buyer, One Seller-Few Buyers, One Seller-All Buyers)	Other Terms used
Automated Guaranteed	Reserved	Fixed	One-One	Programmatic guaranteed Programmatic Premium Programmatic Direct Programmatic Reserved
Unreserved Fixed Rate	Unreserved	Fixed	One-One	Preferred deals Private Access First right of refusal
Invitation-Only Auction	Unreserved	Auction	One-Few	Private Marketplace Private Auction Closed Auction Private Access
Open Auction	Unreserved	Auction	One-All	Real-Time bidding (RTB) Open Exchange Open Marketplace

Source: IAB 2013

Note: 1 - Reserved Inventory is advertising space on a publisher's site that is put aside for a specific advertiser on an agreed price

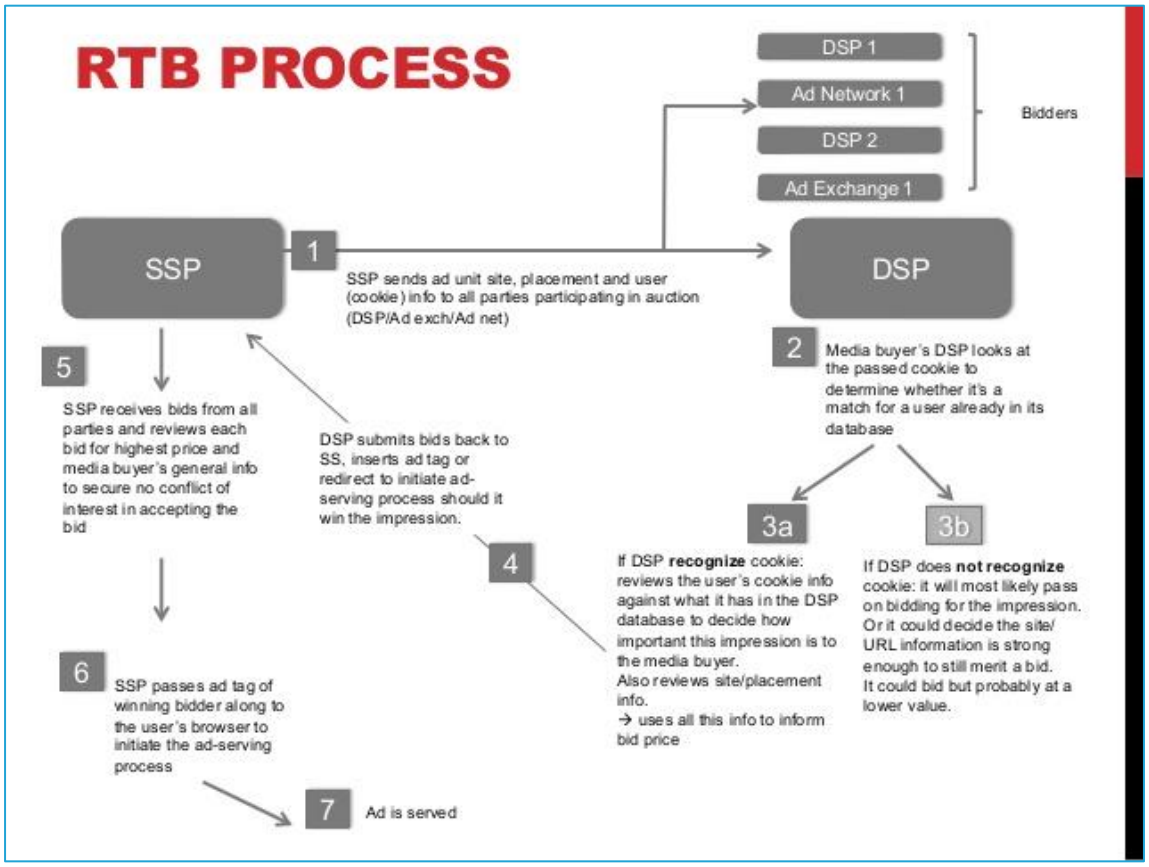
2 – Fixed Price is any arrangement where the buyer & seller agree on a flat price that the buyer pays rather than the highest bidder in an auction environment

Schema 3 The 4 types of programmatic advertising



Source: IAB

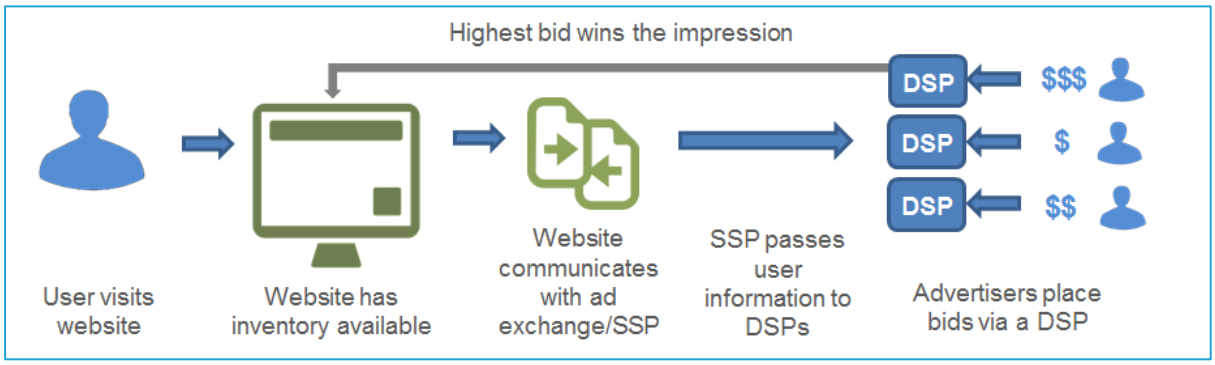
Schema 4 The Real-Time bidding process between Supply-Side Platforms (Publishers) and Demand-Side Platforms (Advertisers)



Schema 5 The Life of an Ad – Buying Advertising in Real Time

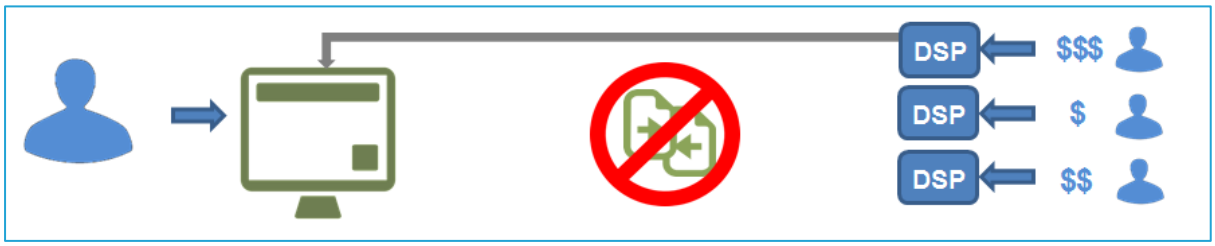
Source: Exchangewire/Turn https://www.exchangewire.com/wp-content/uploads/2013/11/Life-of-an-Ad_A4-1.jpg

Schema 6 Real-time bidding on Open Exchanges



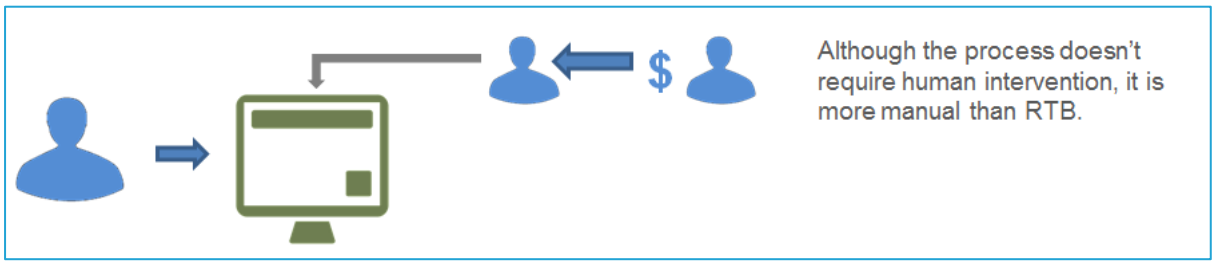
Source: Mediative

Schema 7 Real-time bidding on private marketplaces



Source: Mediative

Schema 8 Programmatic Direct between a publisher and an advertiser, either for reserved or unreserved inventory



Source: Mediative

2.2 Main players in programmatic advertising

- In the programmatic advertising landscape, **three different types of players** intervene: **publishers** (suppliers of ad inventory - in the display ecosystem media owners, websites, video sites, mobile applications, social networks…), **advertisers and their agencies** whishing to advertise (demand side) and **ad tech intermediaries** (providing the technology and data needed to buy and sell an ad, measurement and verification companies to verify that an ad has been delivered, companies providing analytics for publishers and advertisers). On the supply side (where the ad will ultimately be placed), publishers make available ad inventory which will be purchased by the demand side, the advertisers and their agencies (service or product companies wishing to advertise their brands and services).

- Programmatic advertising has been widely adopted by both sides of the digital advertising ecosystem in Europe in 2016. According to IAB Europe's survey of the demand and supply side in the recently published report *IAB Europe Attitudes towards Programmatic Advertising June 2016*:
    - **87% of the 105 surveyed advertisers** do use programmatic advertising (see Figure 41)
    - **92% of the 432 surveyed agencies** do use programmatic advertising (see Figure 42)
    - **93% of the surveyed 302 publishers** do use programmatic advertising (see Figure 43)
- The Digital programmatic ecosystem can be schematized as IAB Spain has done it in 2014 (see Schema 9). The purchase transaction is rendered possible through the use of various ad tech intermediaries on the buy and demand side, providing the technology required in exchange of a fee/commission of the advertising amount spent. IAB USA provides in its definition various estimations of the percentage ranges of these commissions for each intermediary (see definition and examples of players in Europe below). The World Federation of Advertiser has also published a report in which the value chain of the programmatic advertising system is detailed and models of how the advertising revenues should be split between the ad tech intermediaries and the publisher (see Schema 11).

Definitions of ad tech intermediaries and players involved in the programmatic advertising ecosystem in Europe

- For a simplified overview of the ad tech players involved on the supply and demand side of the programmatic advertising transaction, please refer to Schema 10. More in-depth details about players in the European online display market can be found in Schema 14 and for the European video advertising market in Schema 15. Additionally, country-specific digital ad ecosystems can be accessed by following the link for Belgium, France, Germany, Italy, Spain, Netherlands and the Nordics as each country has national players in the ad tech ecosystem. The overview of players in the following paragraphs is not exhaustive. (maps made by Improve Digital, as the company also sells solutions for publishers, the "selling solutions" case on the map is far from complete)

Buy side ecosystem[9]

- Advertisers: Advertisers and their media agencies are **purchasing digital ad inventory from publishers** in order to advertise their services and products. In Europe, almost each consumer brand or service company is advertising and with digital advertising solutions such as these provided by Facebook for small and medium enterprises, even smaller businesses not used to advertising on the web (or at all) have the possibility to target their desired audiences.

- Trading desks/Agency Trading Desk (ATDs): Trading desks, known for their programmatic trading expertise, play the **day-to-day campaign management role**. These trading entities can be independent or within an agency holding company.
  ATDs are the trading arm (or trading entity) of agencies or holding companies. During 2014 this was the most common form of trading desks. ATDs, while **leveraging their buying technology**, can **purchase programmatic digital inventory on ad networks, ad exchanges and SSPs**. ATDs often charge a percentage of media spend, averaging 5% to 15%.

  In Europe **leading agencies** are Havas, Omnicom Media Group, WPP, IPG, Publicis, Dentsu Aegis network (list not exhaustive) and their **Agency trading desks** include Vivaki (Publicis), Xaxis (launched by WPP and GoupM), Cadreaon (IPG), Amnet (Dentsu Aegis Network), Accuen (Omnicom Media Group), Affiperf (Havas), Connect (GroupM) (list not exhaustive).
  Europe's Trading desks include RTB House, DQ&A, Pervorm, Tradelab, Simpli.fi, ExchangeLab, InfectiousMedia and others. For an overview of trading desks and ATDs, see Schema 14 and Schema 15)

- Demand-Side Platforms (DSPs): A demand side platform (DSP), also called "buy side optimizer" and "buy side platform" is a **technology platform that provides centralized and aggregated media buying from multiple sources including real-time bidding capabilities**. Leveraging a DSP gives marketers, advertisers and/or agencies **greater access to programmatic digital inventory made available through ad networks, ad exchanges or SSP**s. DSPs typically charge based off a percentage of media transacted model. DSP fees can range from 6% to 25% of media spend depending on the level of managed services associated with the agreement.

  In Europe**, leading demand-side platforms** include Mediamath, DoubleClick Bid Manager (Google/Alphabet), AppNexus, The Trade Desk, Adform, DataXu, Invite Media, Turn (Facebook most notably stopped plans to launch a DSP in 2016 into its ad server Atlas) (list not exhaustive).

[9] Definitions for players in the programmatic advertising ecosystem are taken from the *IAB Programmatic Revenue Report 2014 Results*, PwC, http://www.iab.net/media/file/PwC_IAB_Programmatic_Study.pdf

Hybrid ecosystem – Buy side and sell side

- Ad Networks: Ad networks provide an **outsourced sales capability for publishers and means to aggregate inventory and audiences from numerous sources in a single buying opportunity for media buyers**. Ad networks may provide specific technologies to **enhance value to both publishers and advertisers,** including **unique targeting capabilities, creative generation and optimization**. Historically, ad networks sold their aggregated, packaged inventory and audiences in bulks of impressions. With the rise of programmatic, ad networks began **buying and selling some of their inventory at the individual impression** level as opposed to bulks of impressions**. Ad networks can sit on the buy side as they can purchase programmatic digital inventory through ad exchanges** or other ad networks by leveraging DSPs. **Ad networks can also be on the sell side as they offer up their inventory through private market places**. Ad networks typically add 30% - 50% value-add mark-up fees with a few networks charging greater than 50%.

  A **multitude of ad networks exist in Europe and worldwide**. Leading players are Google's Ad network, Criteo, Conversant, RadiumOne, Xaxis Publisher Network, Rocket Fuel, Yahoo Audience Network, Amobee, Vibrant Media, Facebook's Audience Network, TremorVideo, Videoplaza, BrightRoll, SpotX (RTL Group), YuMe, Unruly, Adroll, quantcast, Tradedoubler, Inmobi, Teads, and many more (list not exhaustive, see Schema 14 and Schema 15)).

Sell side ecosystem

- Publishers: They **monetize their audience** (visitors on their website, mobile application, web services) **by selling ad inventory to advertisers**. Advertising is a two-sided market, on one side publishers attract audiences through the media content published on their website, on the other side they monetize these audiences by letting advertisers show them their advertisments. Economies of scale and network effects can lead to winner-take all results, as it almost the case in social network advertising with Facebook or video sharing platforms with Google's YouTube.
  Leading national publishers vary according to each European country (newspapers, broadcaster websites, ISP's, …), Google sites, Facebook, Microsoft, Amazon sites, eBay are among the top visited web sites in almost every country surveyed by IAB in its Adex Benchmark Report 2015 (see p.38 to p.46 of the report for a list of Top 20 and Top 10 websites and video sites by country).

- Ad Exchanges: Online ad exchanges are **auction-based marketplaces that facilitate the buying and selling of inventory across multiple parties**. Ad exchanges typically sell their inventory to DSPs, ATDs (who either license or build an in-house DSP), ad networks and to other exchanges. Ad exchanges generate revenue from a percentage of media revenue transacted, ranging from 7% to 20%. Ad exchanges give buyers access to more digital inventory in real-time, more control of ad pricing at the impression level and other benefits. Similarly, ad exchanges give sellers the ability to make their inventory available to more advertisers in real-time, simplify reporting within a single view when leveraging a single ad exchange and more.
  Leading Ad exchanges include DoubleClick Ad Exchange (Google), Microsoft Media Network, Marketplace by AdTech (AOL/Verizon), OpenX, AppNexus, ClearPier, Yahoo Ad Exchange

(Verizon, formerly RightMedia), SpotX (RTL Group), Liverail (closed in 2016, owned by Facebook), Adapt.tv, Rubicon Projet, AdECN, BidPlace, AdBrite, StickyADS (Comcast) and others.

- Supply-Side Platforms (SSPs): A sell side platform (SSP), which may also be referred to as a "sell side optimizer", "inventory aggregator" and/or a "yield optimizer", is a technology platform that **provides outsourced media selling and ad impression inventory**. An SSP does not provide services for advertisers. **SSPs help publishers yield the highest price for their unsold inventory in a programmatic environment including real-time bidding**. SSPs sell digital inventory on behalf of the publisher through DSPs, ad exchanges or ad networks. SSPs generally price based off a percentage of media revenue transacted through their platform. The percentage charged is typically 10-20%.
  Leading SSPs in Europe are Google AdX/AdMeld, OpenX, PubMatric, Rubicon Project, AppNexus, AOL, AppNexus, Facebook's Exchange (FBX) and Audience Network (FAN) and others.

Online video publishers can be categorized into 4 categories, each with a different approach towards programmatic advertising transactions[10] (see Schema 12)

- Broadcaster VOD: characterised by large audiences, premium content where ad space is in short supply, high CPMs (cost-per-thousands/mille impressions - ad prices) and little remnant inventory (less need for programmatic advertising, preferring direct sales). These players have significant market power as demand for ad space exceeds supply (e.g. RTL Group, TF1, ProSieben, ITV…). Fear of cannabilising their existing ad business adds barriers to the adoption of programmatic advertising.

- Premium non-broadcaster video: emerging players in the online video ecosystem without offline video businesses such as newspapers or VICE (no longer true in 2016 with the launch of linear Vice TV channels in several countries). They have sufficient scale in audiences and brand recognition to sale their ad inventory at a premium. Shorter content length than broadcaster VOD leading to shorter ad formats, lower ad prices (CPMs), lower completition rates and viewability. They move quickly into programmatic for differentiation purposes, to grow at scale or simply because they are not afraid of cannabilising an existing video ad business such as TV. They primarly adopt programmatic direct or private marketplaces. (e.g. The Guardian, Le Figaro, VICE and Buzzfeed)

- Global social media platforms: distributing both user-generated and professional content internationally to large audiences. Large amount of inventory with a small number of players, selling through closed marketplaces using data-driven and automated selling capabilities. This category makes up the largest share of the online video ad market and a large share of online video ads sold programmatically. Typically used for their large audience reach and scale. Their

[10] Source : MTM/Ooyala, *Towards a New Balance in Programmatic Video,* May 2016, http://go.ooyala.com/wf-whitepaper-towards-programmatic

scale allows them to push agencies and advertisers to buy through their own proprietarian ad tech platforms which makes it difficult to to compare and measure the results of an ad campaign with other ad inventory supply sources. Large users of programmatic advertising, the 2 dominant players in this category are YouTube and Facebook.

- The long tail: small publishers which sell video ad inventory through ad exchanges and networks as they lack the necessary scale and/or brand value to sell directly. Low CPMs, mainly used to aggregate audiences across niche sites by advertisers. Lower quality of video inventory therefore concerns over brand safety, viewability and completion rate of ads exists on the advertisers' side. Main beneficiaries of programmatic advertising as they lack the scale and the resources to efficiently monetise their audiences. A high number of small publishers exist on the web (in the millions) which gives advertisers opportunities to aggregate data from these sources. Fraud and brand safety are concerns for larger brands however to advertise on these websites.

Data and Metrics providers for both sell and buy side – The "fuel" of programmatic advertising

- Other players are involved in the programmatic advertising ecosystem, namely **data providers, retargeters and measureament and analytics companies**. These players provide in addition to publisher's or advertiser's first-party data, third-party data in order to establish a correct profile of the web visitor. Data is the fuel/oil of the programmatic advertising ecosystem and a majority of ad tech companies involved in the purchase and selling process (Ad Networks and Exchanges, DSPs and SSPs) provide also data solutions. Data is what makes it possible to deliver the right message at the right time to the right person. The unique combination of data with media and advertisments is what makes programmatic advertising attractive to advertisers. In order to be able to identify the right person, data is needed. Measurement, analytics and tracking of the performance of ads are also needed in order to identify the success of an advertising campaign, the return on investment and to be sure that the ad was rightly delivered and viewed (one of the main challenges for online display advertising, and therefore programmatic advertising, are the viewability of ads, measurement, ad fraud through false traffic such as robots and the control of the environment in which the ad was delivered for brand safety reasons). Several companies have specialized themselves in order to provide those services to advertisers and publishers.

- Leading specalized data providers are Axciom, Adobe, Criteo, weborama, VisualDNA, dunnhumby, Exense, eyeota, Facebook (data on its users for ads), Google, Adex, Lotame, Exelate, AudienceScience, crimtan, Experian, SirData, DataXu and others.
  Leading measurement, verification and analytics companies are comScore, Outbrain, Moat, OpenX, Google Analytics, The Media Trust, MetrixLab, Integral AdScience, Sticky, Truste, Mediaplex, MetaMarketers, Nielsen, Peer39, Adobe Analytics, Maxifier, Double Verify and others.

Data is generally classified into 3 categories[11], depending on the origin of the data:

- First-Party Data: Data that the publisher or advertiser has collected and owns. Mainly this type of data can come from pixels placed on the website and be used for retargeting/remarketing to previous visitors. Data can also come from customer relationship management (information the customer has provided), cross-platform traffic, logged-in user data and audience data from associated social channels and networks. Gathering its own data on visitors and customers is a competitive advantage for most publishers and advertisers, even more with the proliferation of "Do Not Track" options or cookie blocking in web browsers.
- Second-Party Data: The sharing of first-party data through a partnership between players (publishers and advertisers), either directly, either through data management platforms (see Schema 13). Often taking the form of an exclusive partnership between, for example, a small niche website and a larger publisher, the data is used to resell the audience or for purposes of targeting optimisation.
- Third-Party Data: collected by a third-party that serves to inform a buyer's knowledge of individual users. The data is generally housed within a data management platform (see Schema 13) or plugins to larger demand and supply-side platforms, and available to all interested players againts payement. It provides an ad buyer with additional knowledge of an audience and scale.

Data is broken down into five different types for audience segementation purposes and the optimisation of display advertising buying by advertisers:

- Demographics: age, gender, occupation information gathered in sign-up process or through social networks
- Interest: tracked through social networks and site visits, hobbies and general interest the visitor has given away.
- Intent: information the visitor gives away through searching terms, visiting sites and pages on social networks.
- Site Retargeting: gathered through the use of pixels on a homepage of a website and is used to identify a visitor who has made visits without a purchase (on an airline's website for example without having made the purchase of a flight or a booking site without having reserved a hotel). When intent by the visitor is identified but has yet to be converted into a sale, this form of data is very useful.

  Existing customer upsell: pixels place on a confirmation page in order to recognize a buyer who has recently made a purchase (a flight or hotel reservation for example), the data is used to sell to the buyer a higher priced good (business class for example) or other products and services.

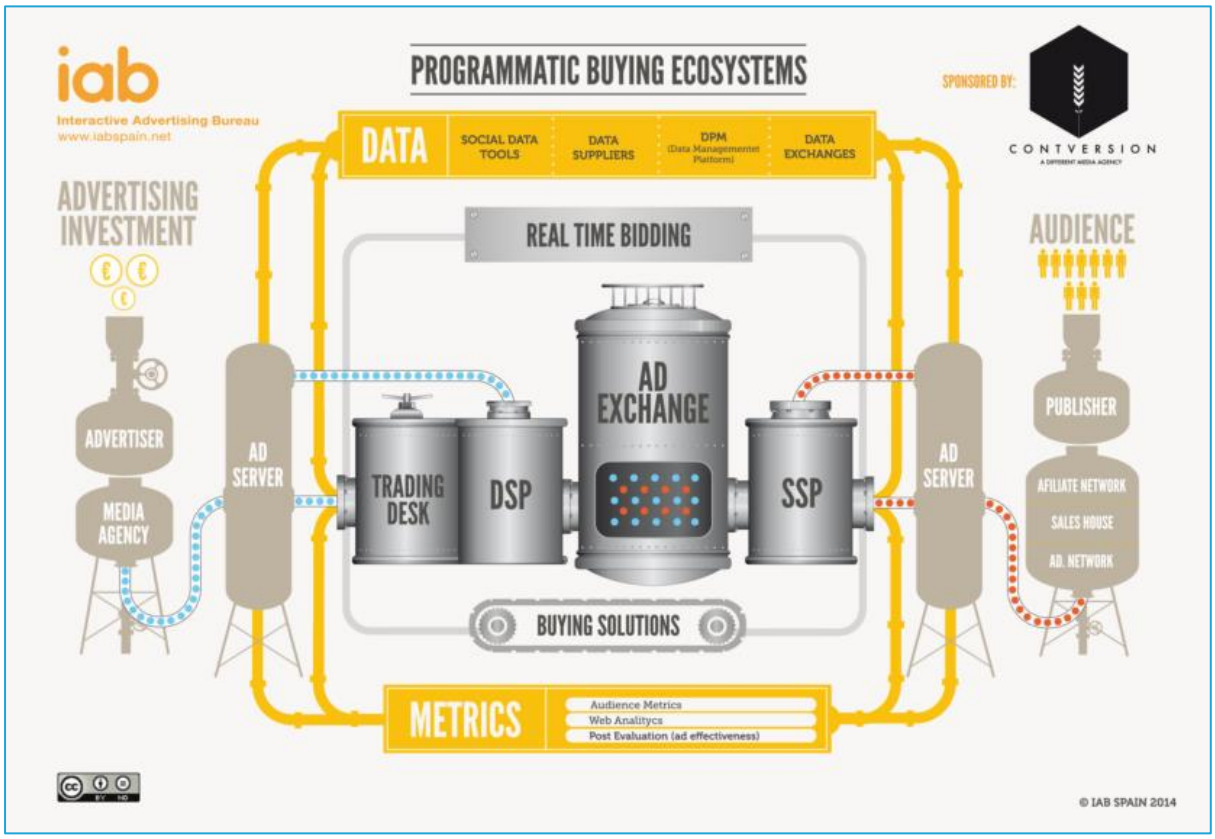
Data is mainly collected by:

- Tracking site visits and on-site behaviour
- Searches made, via first-party data from bigger search engines or site in-bound searches
- Logged-in user data, matched to a user ID or email address, often only collected by larger publishers (such as broadcasters, newspaper).

[11] Source: IAB Europe, Programmatic Trading – An IAB Europe White Paper, July 2014

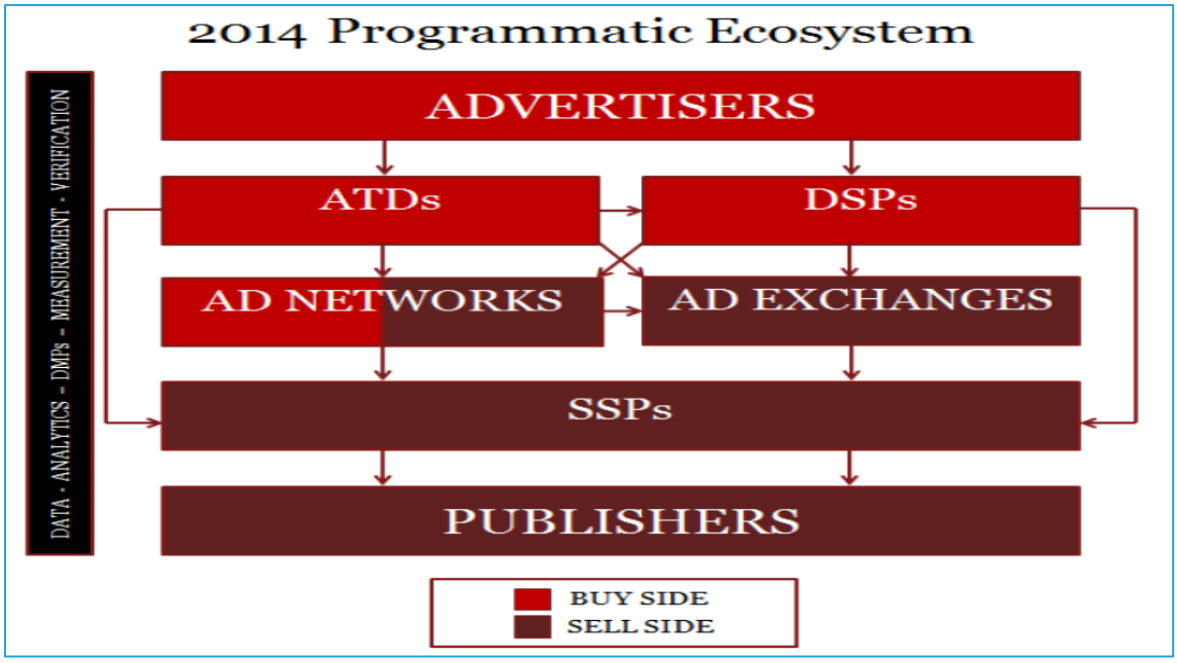
With privacy laws revised throughout the EU, data collected directly needs the consent of users (first-party data) and for third-party data the necessity to ensure that the data was collected legally.

Schema 9 The Programmatic Buying ecosytems



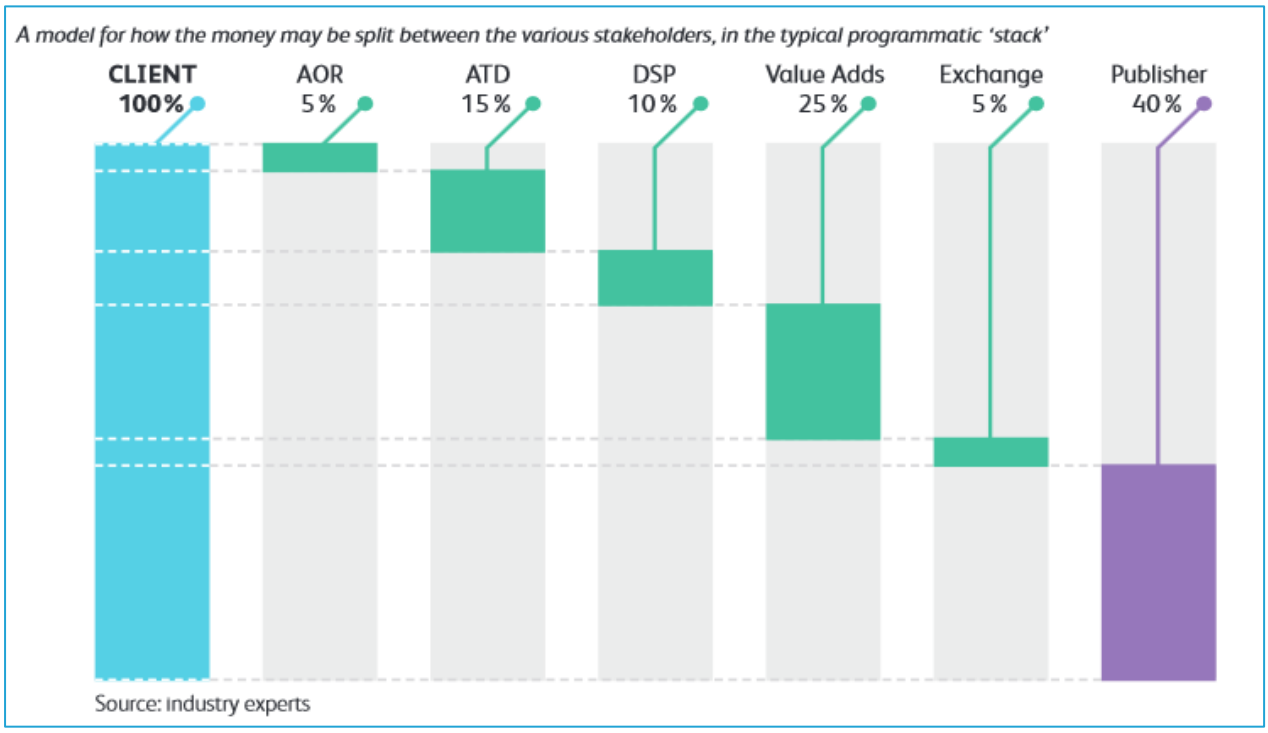
Source: IAB Spain

Schema 10 Programmatic ecosystem Buy Side and Sell Side



Source: IAB/PwC Programmatic Revenue Report 2014 Results

Schema 11 Possible value chain for programmatic advertising ecosystem

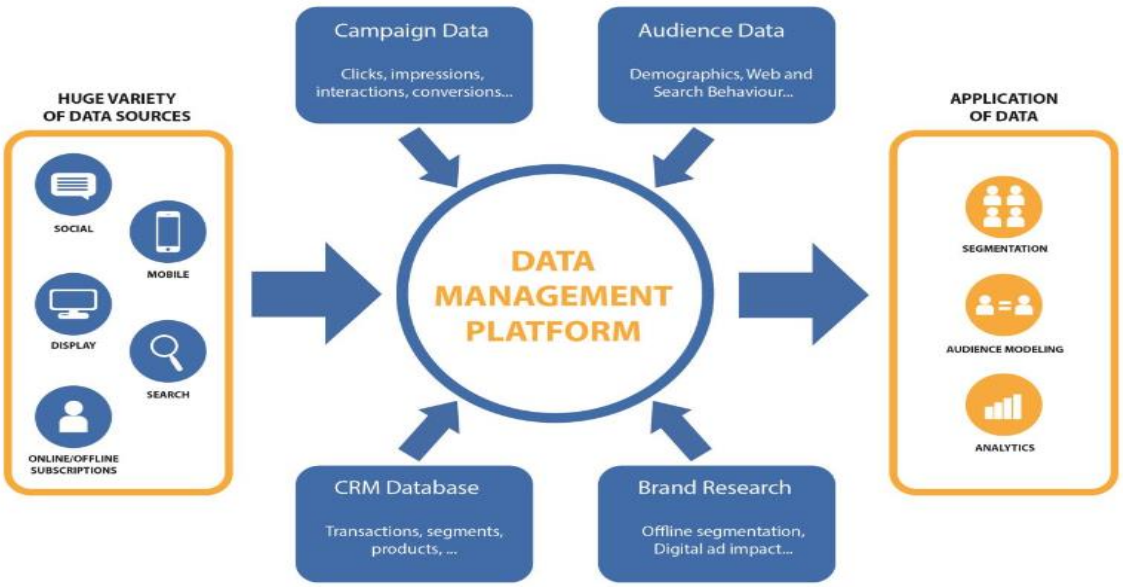


Source: WFA guide to Programmatic Media, World Federation of Advertisers, 2014

Schema 12 Four categories of online video publishers

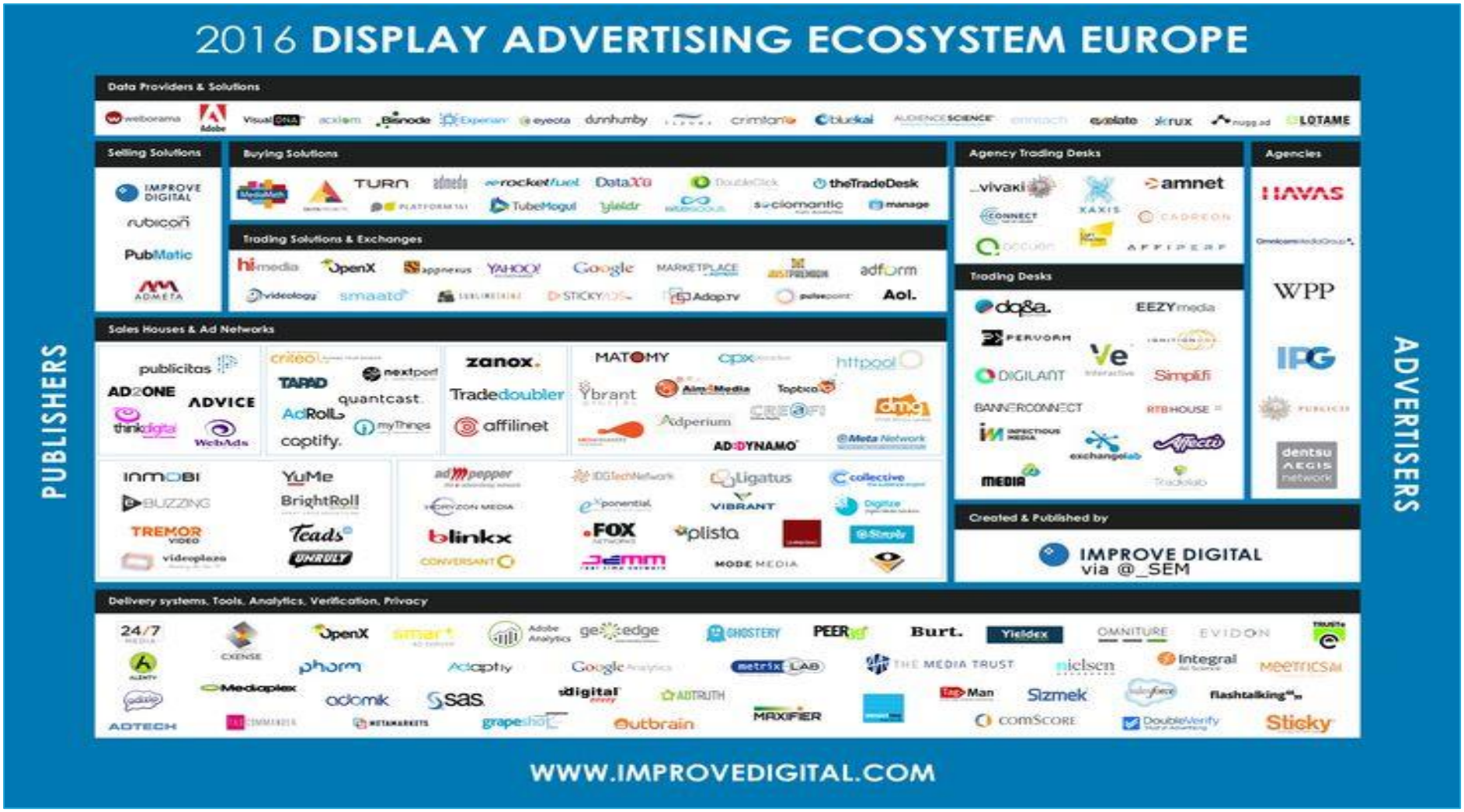
Source: MTM/Ooyala, Towards a New Balance in Programmatic Video, May 2016

Schema 13 Data Management Platform



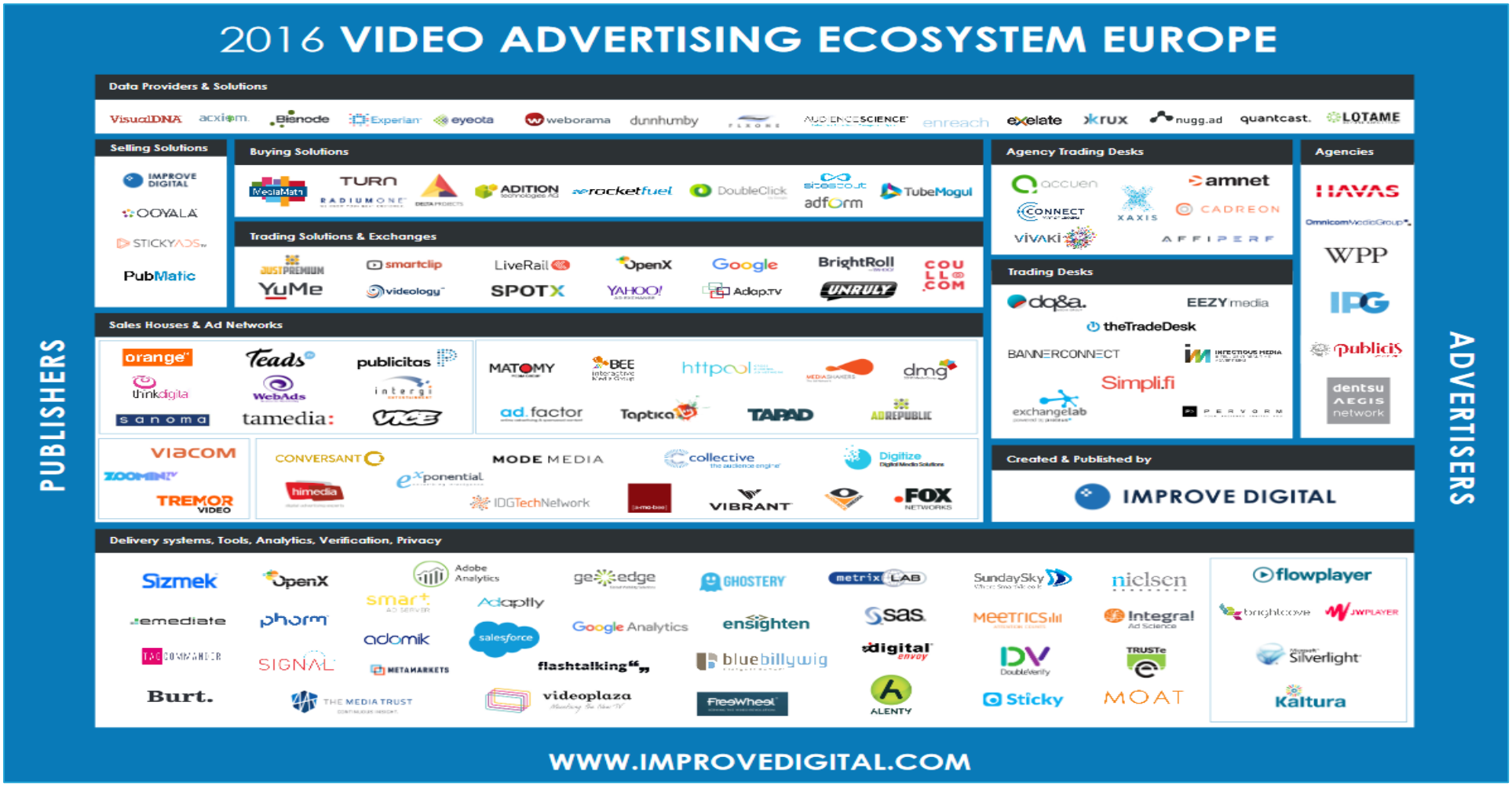
A Data Management Platform
Source: Xaxis 2014

Schema 14 The Digital Display Advertising ecosystem in Europe 2016



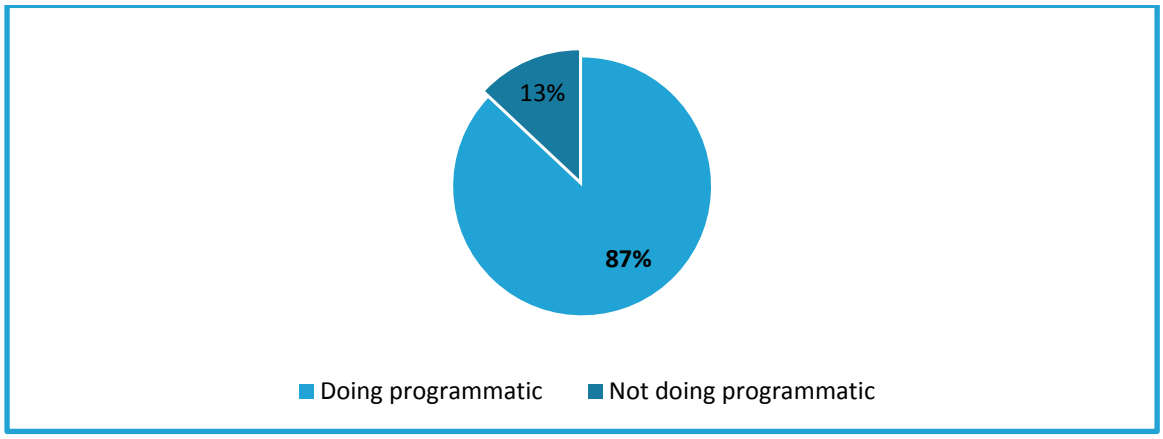
Source: Improvedigital http://www.improvedigital.com/main/wp-content/uploads/2016/02/MarketMap_EU_2016_web.pdf

Schema 15 The Digital Video Advertising ecosystem in Europe



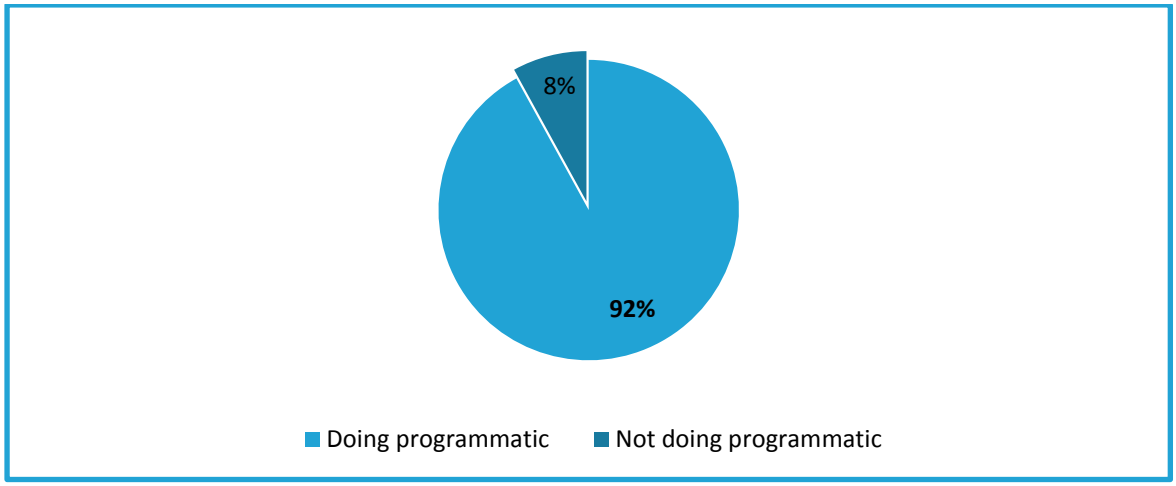
Source: Improvedigital http://www.improvedigital.com/main/wp-content/uploads/2016/02/MarketMap_EU_Video_2016_web.pdf

Figure 41 Advertisers in Europe doing programmatic 2016, in % of respondents (n=105)



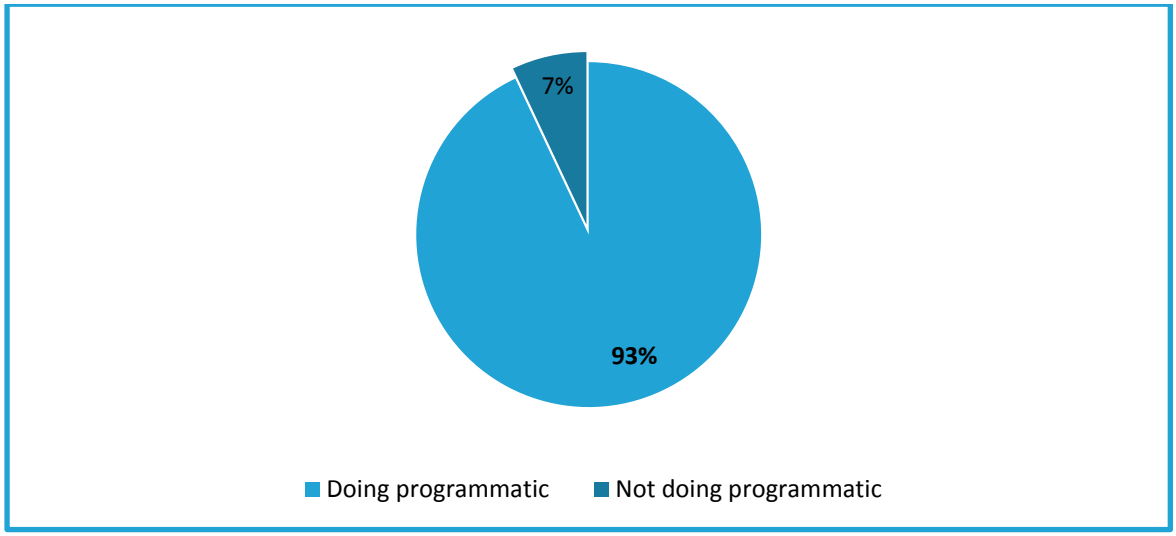
Source: IAB Europe Attitudes towards Programmatic Advertising Report, June 2016

Figure 42 Agencies in Europe doing programmatic 2016, in % of respondents (n=432)



Source: IAB Europe Attitudes towards Programmatic Advertising Report, June 2016

Figure 43 Publishers in Europe doing programmatic 2016, in % of respondents (n=302)



Source: IAB Europe Attitudes towards Programmatic Advertising Report, June 2016

2.3 What are the reasons and barriers of programmatic advertising to advertisers, agencies and publishers?

From an economic point of view, 4 different factors are growth drivers/barriers of programmatic advertising, as identified in MTM/Ooyala's report *Towards a New Balance in Programmatic Video* by ad industry executives in Europe (France, Germany, Sweden and the United Kingdom) and the USA. Each EU market is different in regard to these 4 factors and national structures of the TV advertising market play also a role. In Germany for example, the major broadcasters control the video ad market through their ad sale houses, therefore they are still able to sell directly their advertisements and are slowing down the adoption of programmatic. In Sweden, younger generations are switching faster than in other EU countries from linear TV to online viewing, therefore advertisers increase their presence on the web and accelerate their adoption of programmatic advertising.

These 4 factors influence the adoption and growth of programmatic advertising, according to the executives surveyed in the report:

- Shifts in video consumption towards the online space

- Broadband penetration (online video needs high broadband penetration in a country in order to increase multi-screen and online viewing by its population. The higher the broadband penetration and broadband speed, the higher the potential online video consumption and thus use by advertisers of programmatic to reach a fragmented audiences across screens and platforms)

- Data and Privacy regulation (barrier to growth as web users are increasingly concerned about the misuse of their personal data for targeted advertisments, which can be seen in the rise of ad blockers and privacy regulations being updated. New regulations on the use of data and privacy are seen by ad exectutives as barriers for the development of the programmatic ad market)

- TV and online video ad market convergence (driven by the need to track and measure audiences across digital platforms to monetize these eyeballs)

As seen in the section above, 87% of advertisers, 92% of agencies and 83% of publishers are doing programmatic digital advertising. Each of these players on the demand and supply side have however different reasons and barriers to do programmatic advertising. In this section, these reasons and barriers are more detailed, based on the report of IAB Europe *Attitudes towards Programmatic Advertising June 2016.*

Advertisers and Marketers

- The main benefit to advertisers and marketers of programmatic advertising is improved targeting (stated by 54% of 454 European advertising and marketing professionals – see Figure 44), as quoted by marketing professionals in Europe. Targeting is also seen by marketers and advertisers as the most important factor behind a successful advertising campaign (stated by 24% of 598 European marketing professionals, see Figure 45 Advertisers - Most important factor behind a successful advertising campaign according to 598 European marketing professionals). Other important reasons for programmatic advertising are to react in real-time (50% of respondants), to reduce wastage (35% of respondants, meaning effiency of advertising expenses through better targeting) and to personalize adverts (33% of respondants).

- It is clear that for advertisers the use of data in real-time to advertise their products and services is a large step forward from the time when viewers/consumers could not be targeted on an individual basis but broadly through contextual advertising, as it was the case in TV advertising (where advertisers select the programs during which to run their campaign on broad statistics on the program's audiences, similar to the contextual targeting based on the assumptions of a website's visitors). Therefore it comes to no surprise that reduced media wastage (cost of advertising) is cited by 56% as a key business impact and lower media cost by 47% of advertisers (see Figure 46). Being able to change the strategy (through selecting websites or target audience) is cited by 34% as a key impact. Analytics and insights gained through better measurement and reporting of advertising campaigns is cited by 29% as another impact and for 33% of advertisers programmatic advertising has enabled them to launch their ad campaign faster.

- In summary, **better targeting, real-time advertising and quicker campaign set up, lower advertising costs, flexibility and insights gained through better analytics are the main benefits** for advertisers.

- Barriers to invest in programmatic advertising are related to data quality for 37% of advertisers (see Figure 51), ad viewability (relating to ad fraud, false traffic, robot traffic, ad blocking, unseen ads as already stated in the 2015 report on online advertising written by the Observatory last year) is an issue for 30%. Brand safety (not placing an ad on a website not suited for the brand like adult websites or others) is a barrier for 30% of the surveyed advertisers. In an open exchange with RTB, an ad could be placed on a website deemed not suited for a brand. Advertisers need to be reassured that their ad will not be shown on a site or situation which could result in brand damage. Unsurprisingly, one main barrier is also to find adequate human resources for a programmatic advertising campaign; as the technology continues to evolve and the ecosystem to complexify, it is harder to hire the right people to efficiently deploy a programmatic ad campaign. Another barrier is the ROI of programmatic advertising for 31% (having a clear understanding of the impact on total revenue). Advertisers need to have the proof that the ad campaign is effective and will in the end increase sales or achieve the advertising goals set up for the campaign. As display advertising aim is rather to build a brand, it is hard to measure the true impact of fragemented ad viewing across the digital landscape.

Major ad tech players are working on the issue to demonstate that display advertising will effectively increase sales/revenues for advertisers or can achieve the objectives aimed at.

Agencies

- Agencies, acting on the behalf of their clients, are most often running the advertising campaign of advertisers if they do not manage their advertising campaign in-house, which is most often the case for larger companies which rely on agency to transmit their ad message. Therefore, agencies are a major actor on the demand side for programmatic advertising and have also reasons, mostly alignate with their clients, and barriers towards programmatic advertising.

- It is therefore with no surprise that targeting efficiencies are also cited as the main reason for investing in programmatic advertising by 78% of respondents (see Figure 47). Programmatic also allows agencies to be more efficient in their operations (55% of respondents). The worries on data quality have led 52% of respondents to cite that they have invested in programmatic in order to increase the data quality. Deliver an ad campaign at scale to the target audience is seen by 45% as a main reason to adopt programmatic advertising. For 44%, a gain in competitive advantage was another reason, mainly to be able to propose to clients (advertisers) the option to lead a programmatic campaign and to have an edge over competitors who have not yet adopted programmatic advertising.

- Agencies also see as the key business impact a reduction in media waste, cited by 72% (see Figure 48). As they depend on delivering successful campaigns at lower costs in order to improve their margins, this result comes to no surprise. They are more efficiently targeting and therefore less wasting the resources of their clients, which have a positive effect on their P&L. 48% cite lower costs of media as a key impact and 58% flexibility in the ad campaign, close to the key impacts stated by advertisers. Better reporting achieved through increased analytical tools is cited by 42% of agency respondents and for 44% a key impact was to launch ad campaigns faster.

- Key barriers to programmatic advertising for agencies are ad fraud (45%), quality of data (45%), brand safety (40%) and viewability of advertisments (37%) as can be seen in Figure 52 . As agencies are finally responsible for delivering an effective ad campaign to their clients, the issues surrounding ad fraud/viewability and brand safety are logical. Both advertisers and agencies place issues with the quality of data at the top of their concerns, showing that even if we life in a “big data” world, this is not yet fully exploited to its potential. Also, finding the right people with the needed skill set comes at the third place of barriers for agencies, the same problem advertisers have in a fast evolving ad ecosystem. Training and experience seem to be needed in order to adapt employees to this new paradigm of programmatic advertising.

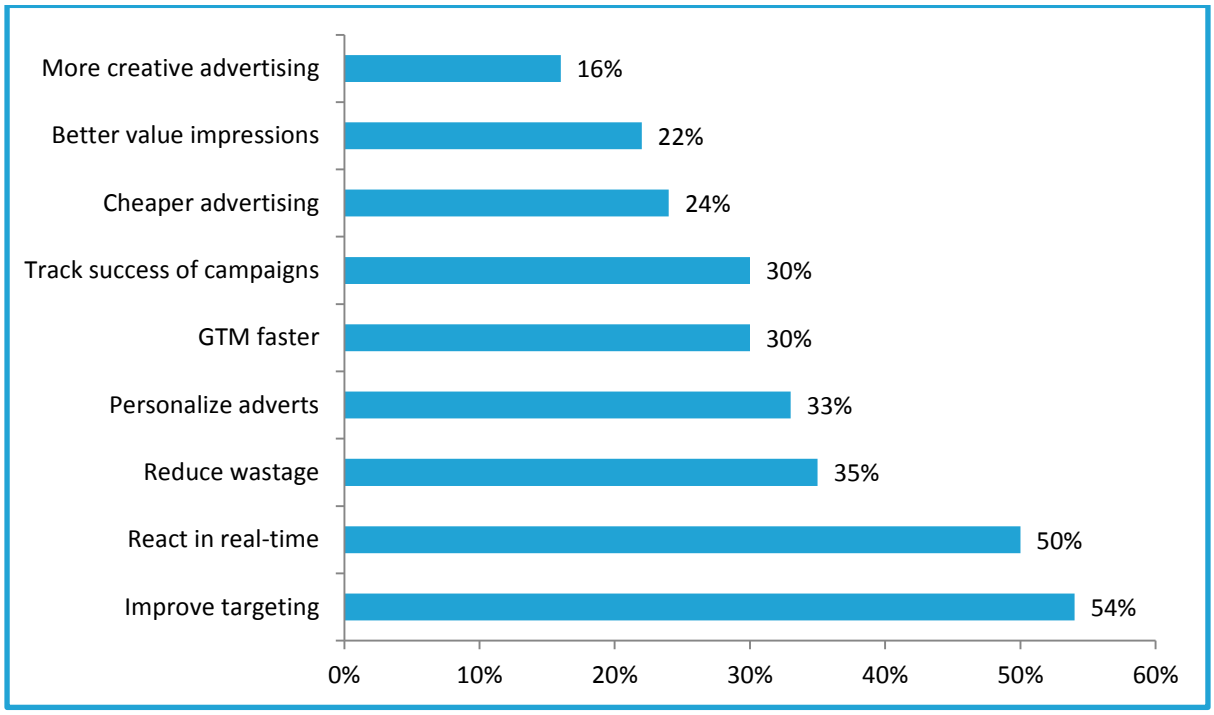
Publishers

- Publishers' started to adopt programmatic advertising in order to monetize effectively their remnant unsold inventory. However, as programmatic has evolved and is increasingly used by advertisers and agencies, even those who did not have unsold inventory issues had to adapt. 60% of publishers surveyed by IAB cited client demand as their main reason to invest in programmatic selling technologies (see Figure 49). Maxmising their media value, through the use of auctions, is cited by another 55%. Being efficient in their operations and trading (selling of ad space) is for 49% another main reason. 44% use programmatic advertising to gain a competitive advantage (being able to sell their inventory through auctions or at a larger scale to clients with whom they would not have been in contact). Finally, as confidence in programmatic rises and not only remnant inventory is sold through this mechanism, for 44% a key reason was to make available their premium inventory (inventory most seen by their visitors, higher end inventory/content than those sold before) to clients at a larger scale. Programmatic has allowed them to extend their reach to advertisers and agencies, and now that confidence is fostered, publishers can demand higher prices (CPMs, CPCs, CPAs...) from advertisers by letting them advertise in their premium space that was before sold the traditional way.

- For the majority of publishers (68%, see Figure 50), the key business of programmatic advertising is to have a more efficient trading process. The selling of ad space the traditional way is time-consuming and programmatic sale mechanisms allow for a much more efficient way to sell, involving less human resources and therefore reducing the cost of the whole process. Control of their inventory (knowing who is advertising on their website) is cited by 42% as is the increased value of their ad inventory. In summay, publishers are improving their P&L through programmatic advertising.

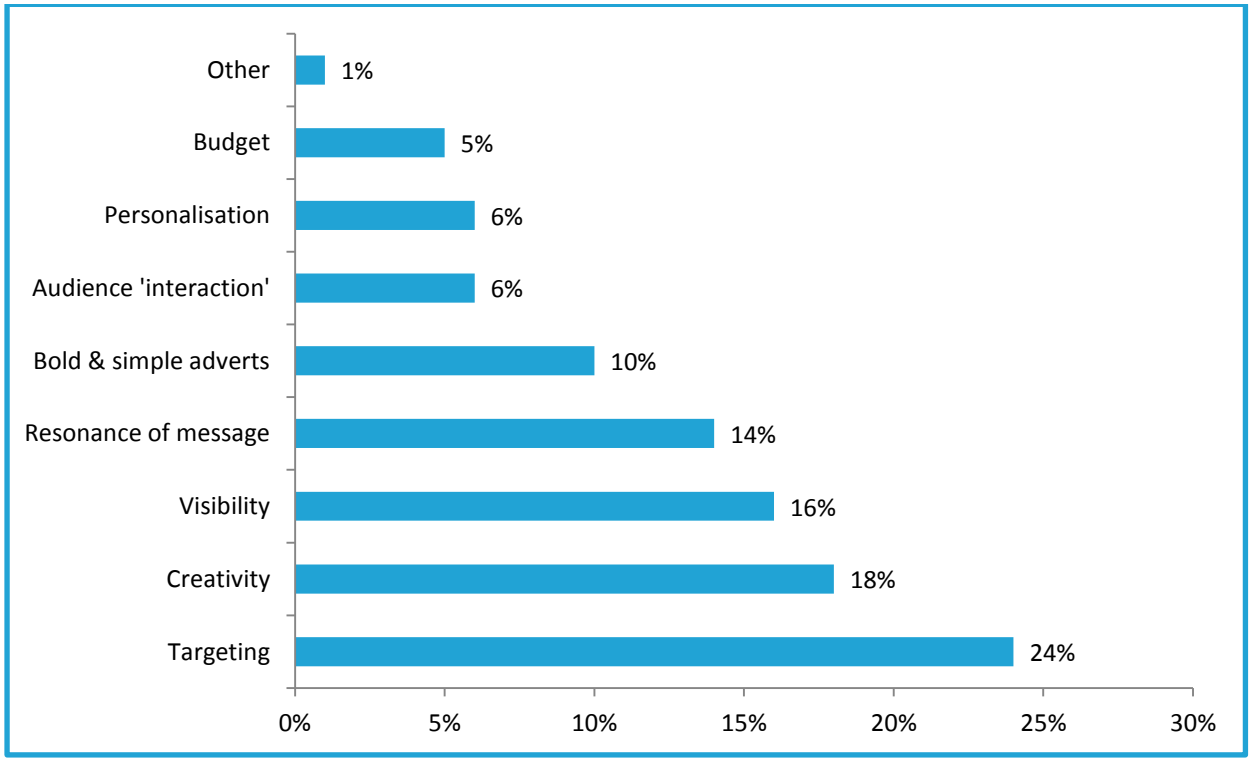
- For a large part of publishers (46%, see Figure 53) finding the right employees with the needed skill set is a main barrier to the adoption of programmatic advertising (as it was for agencies and advertisers). They are also afraid of cannabilising their inventory, mostly broadcasters and other big publishers who could command high prices for their ad inventory (cited by 42% of respondents). Finally, the last 3 main barriers all have to do with the cost of programmatic technologies (37%), cost in training people adequately (40%) and choosing and setting up the right technology (40%). The change of paradigm from the traditional ad sale process towards programmatic involves heavy investments in new technologies and as always with technology-driven changes, major new process which take time and demand an effort. Once, programmatic is more generalized throughout the ecosystem, best practices established and standards set, these costs will diminish and/or seem less risky to smaller publishers, which, judging by the figures in the next section, do not have much choice than to adopt this new technology.

Figure 44 Advertisers - Key benefits of programmatic advertising according to 454 European marketing professionals



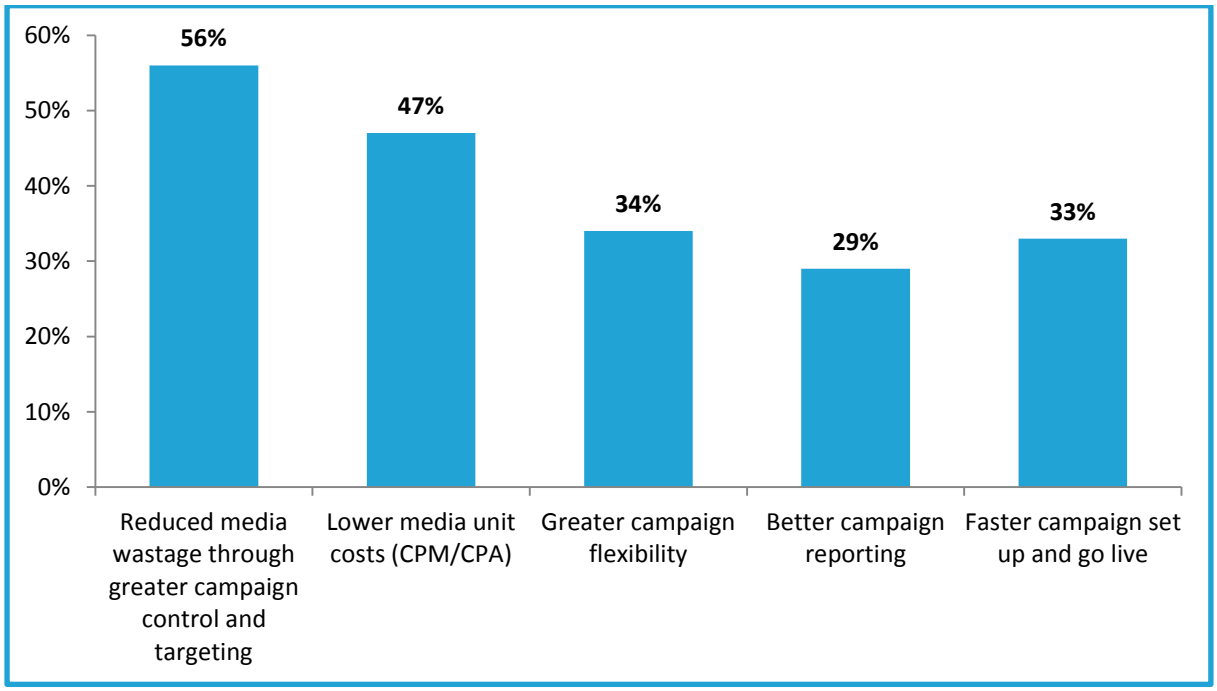
Source: Programmatic Trading – An IAB Europe White Paper July 2014, IAB Europe

Figure 45 Advertisers - Most important factor behind a successful advertising campaign according to 598 European marketing professionals



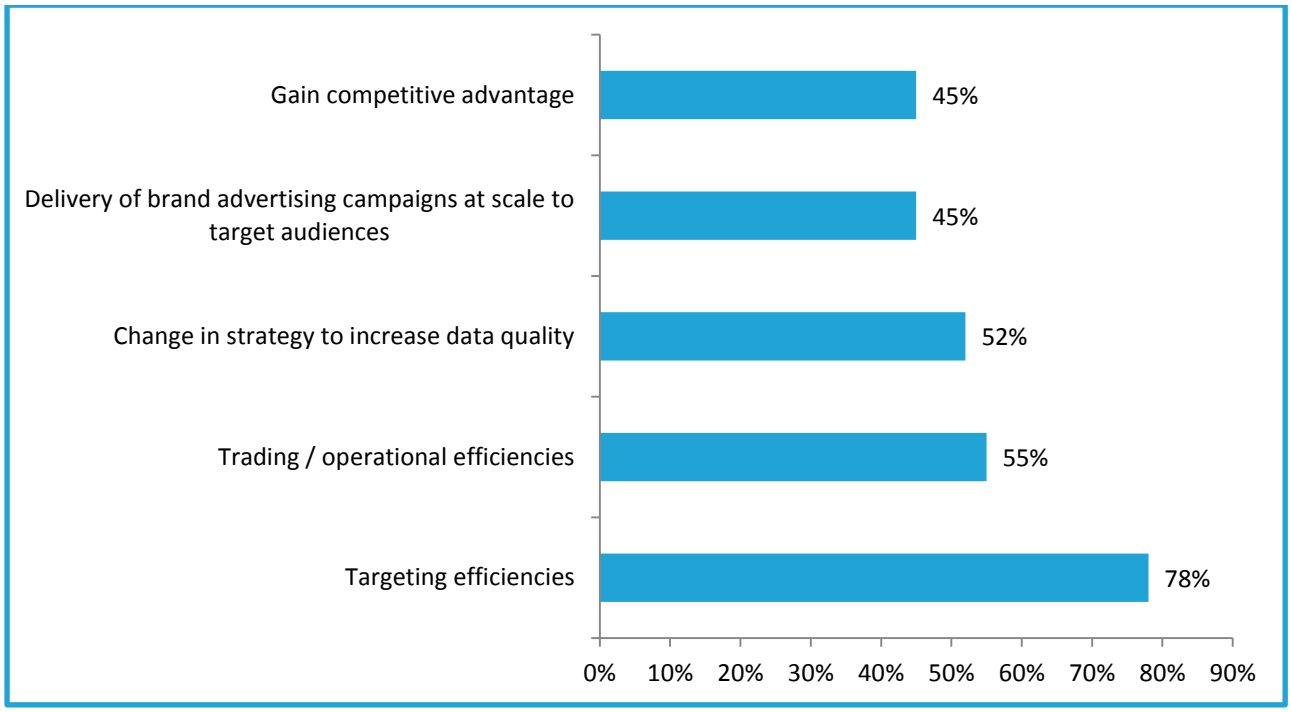
Source: Programmatic Trading – An IAB Europe White Paper July 2014, IAB Europe

Figure 46 Advertisers – Key 5 business impacts of programmatic investment in % cited by respondents (105 European advertisers)



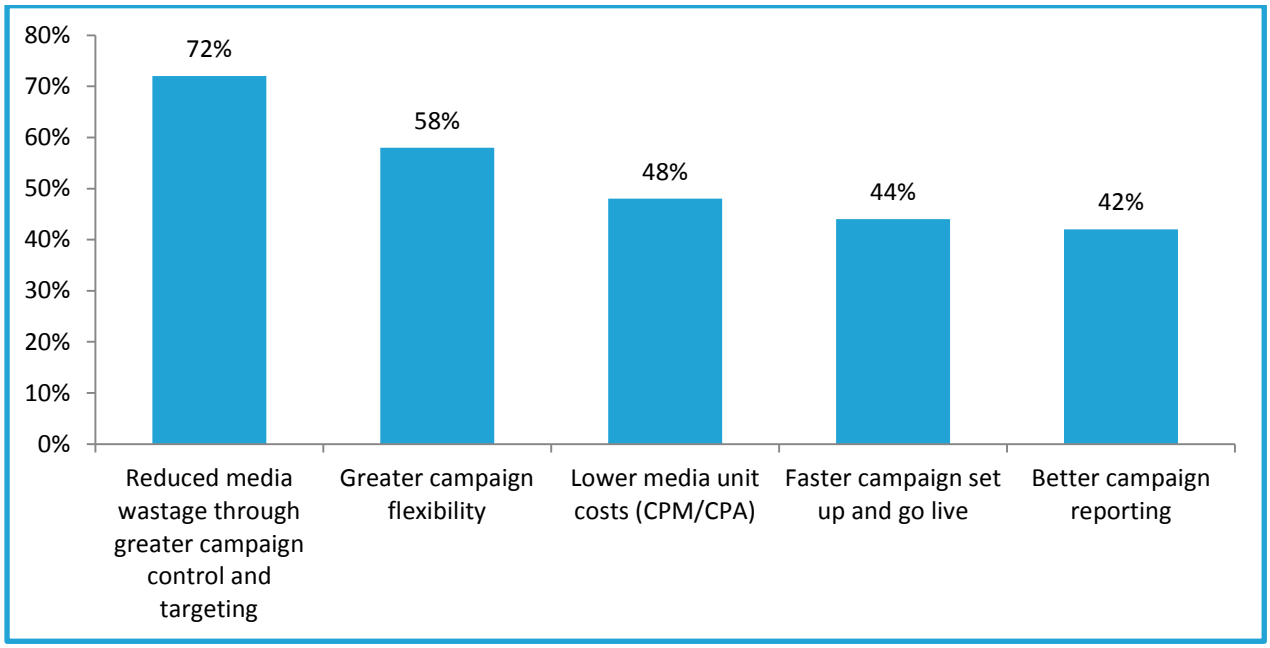
Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 47 Agencies - Top 5 reasons for investing in programmatic advertising (432 European agencies), June 2016



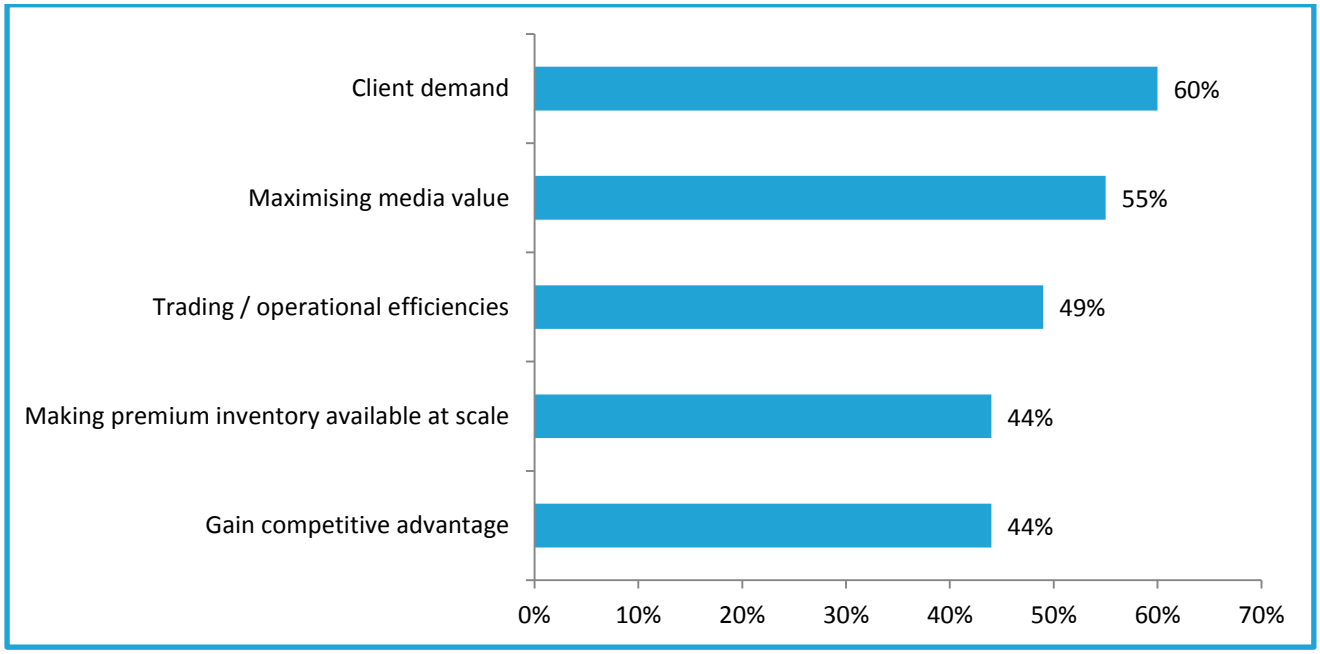
Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 48 Agencies – Key 5 business impacts of programmatic investment, in % cited by respondents (432 European agencies)



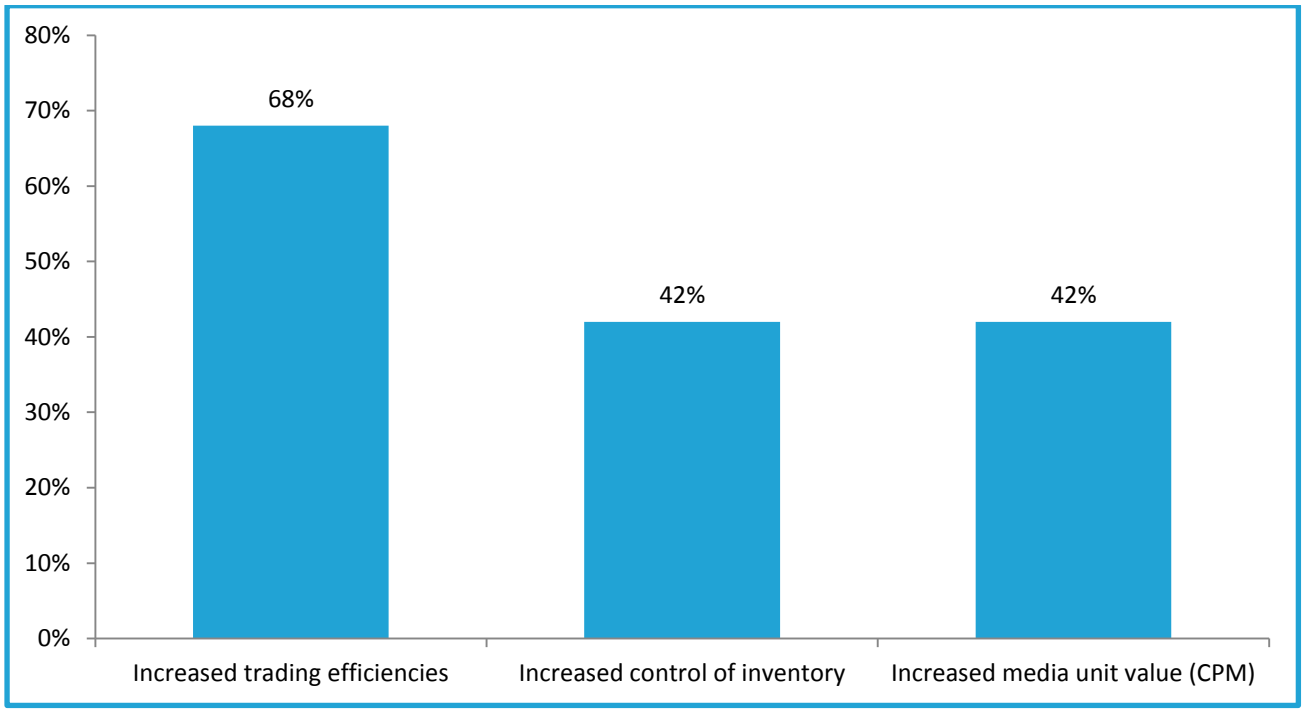
Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 49 Publishers – Top 5 reasons for investing in programmatic advertising, in % cited by respondents (302 European publishers)



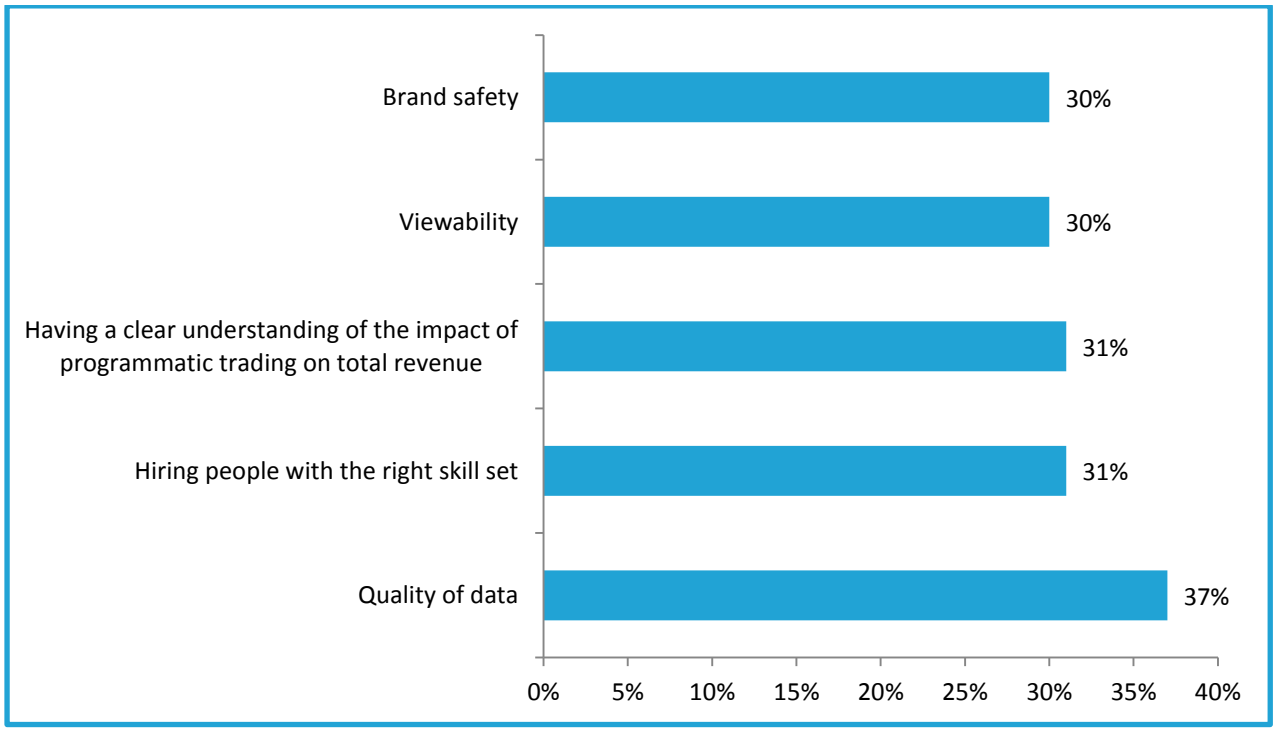
Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 50 Publishers – Key 3 business impacts of programmatic investment, in % cited by respondents (302 European publishers)



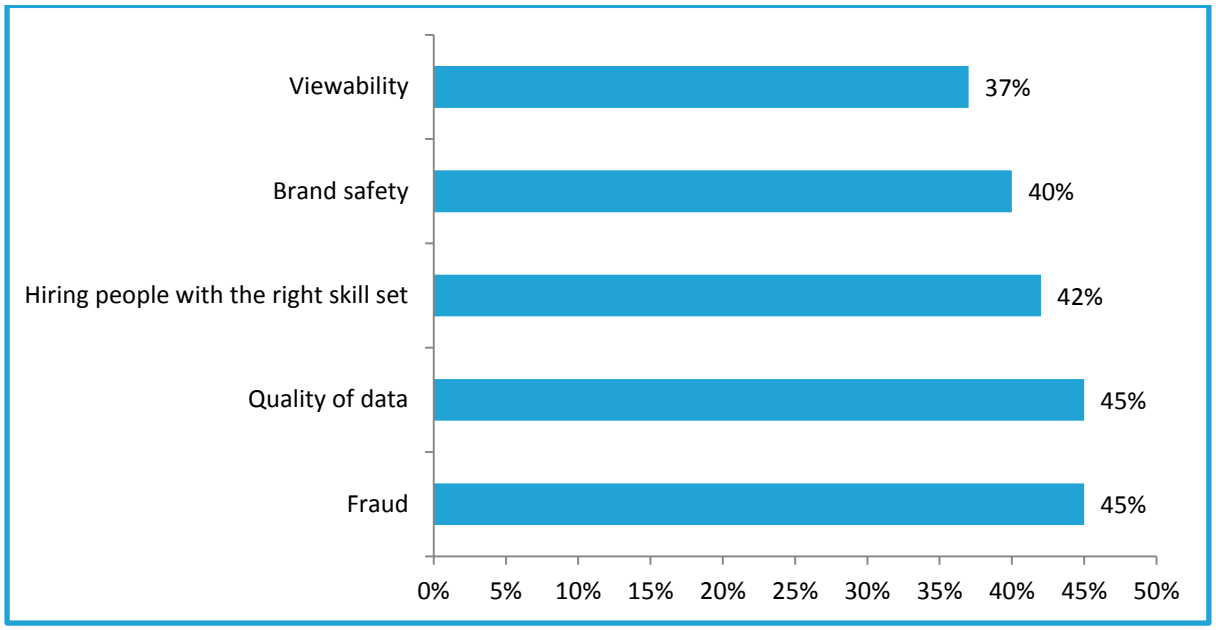
Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 51 Advertisers – Top 5 barriers to investing in programmatic advertising



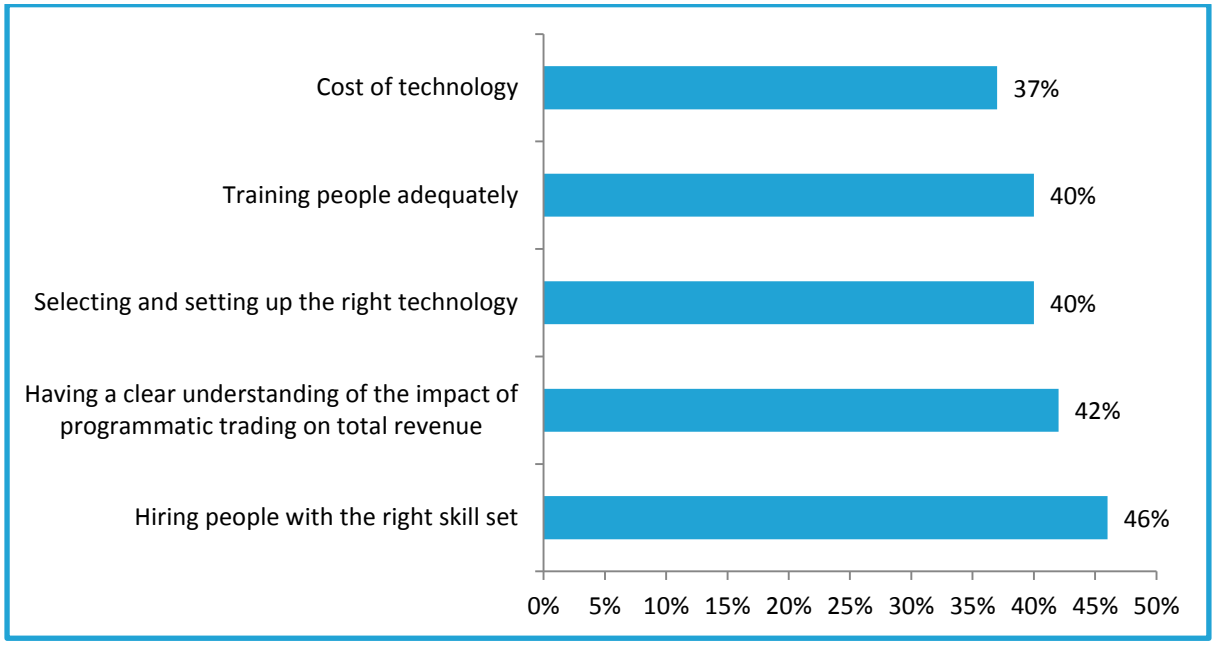
Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 52 Agencies – Top 5 barriers to investing in programmatic advertising



Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

Figure 53 Publishers – Top 5 barriers to investing in programmatic advertising



Source: IAB Europe Attitued towards Programmatic Advertising Report, June 2016

2.4 The Programmatic advertising market – A global and European perspective

In this section, the programmatic markets worldwide and in Europe and their trends are explained in more detail. Due to the lack of data on the European programmatic advertising market (and not only on programmatic video advertising, see 2.4.3) and in order to capture the trends and foreseeable evolutions of the programmatic advertising market, section 2.4.1 shows the evolutions on the global market for programmatic advertising before detailing the numbers available for the European programmatic advertising market in section 2.4.2 and 2.4.3.

2.4.1 Global programmatic advertising trends by the numbers 2015 to 2019

- On a global basis, the trend is towards more mobile programmatic advertising and programmatic video advertising by 2019. However, in 2015 the majority of programmatic ad spend is still allocated towards desktop advertising and banner ads but the share of video and mobile programmatic advertising is expected to rise rapidly (see Figure 61).

- The global[12] programmatic advertising market for the programmatic advertising universe (display advertising: banner and video advertisments) totals USD 14.2 billion in 2015, up by 49% year-to-year (see Figure 54). Programmatic advertising represents in 2015 31% of adspend on banner and video ads and is expected to grow to a 50% share in 2017, totalling USD 37 billion (see Figure 55).

- However, programmatic still has only a small share of total digital advertising spend, USD 14.9 billion out of total digital ad spend of estimated USD 159 billion in 2015, or just under 9%. The five largest markets worldwide for programmatic advertising are the United States, the United Kingdom, Japan, China and Germany, representing over ¾ of global programmatic ad spend (see Figure 57)

- Programmatic advertising in the EMEA region (Europe Middle East & Africa, the only data available in the report for Europe) totalled USD 3 billion in 2015 and will rise to USD 8 billion by 2019 (see Figure 56).

- Real-time bidding is, in programmatic advertising, the most used method of purchase as 25% of total display advertising spend in the programmatic universe (banner and display) is generated through RTB in 2015. Non-RTB programmatic spend (programmatic direct and preferred deals) represent 6% of the programmatic universe. However, the majority of ad spend (69%) in the is

[12] The figures in this section are taken from Magna Global's « Programmatic 2015 – Roadmap for Growth », published in September 2015 and available under this link: http://www.cadreon.com/wp-content/uploads/2015/12/MAGNA-GLOBAL-Programmatic-Intelligence-Report-Sept-2015.pdf . Global in this report represents 41 countries worldwide, from the highly developed programmatic markets (such as the USA, Western Europe, Australia) to the emerging programmatic markets (Poland, Vietnam, Romania, Korea). Additionnaly, the report includes for the first time data on programmatic advertising from Belgium, Italy, Switerland, Finland, Norway and Uruguay.

still done through traditional buying methods not involving programmatic mechansims (see Figure 59).

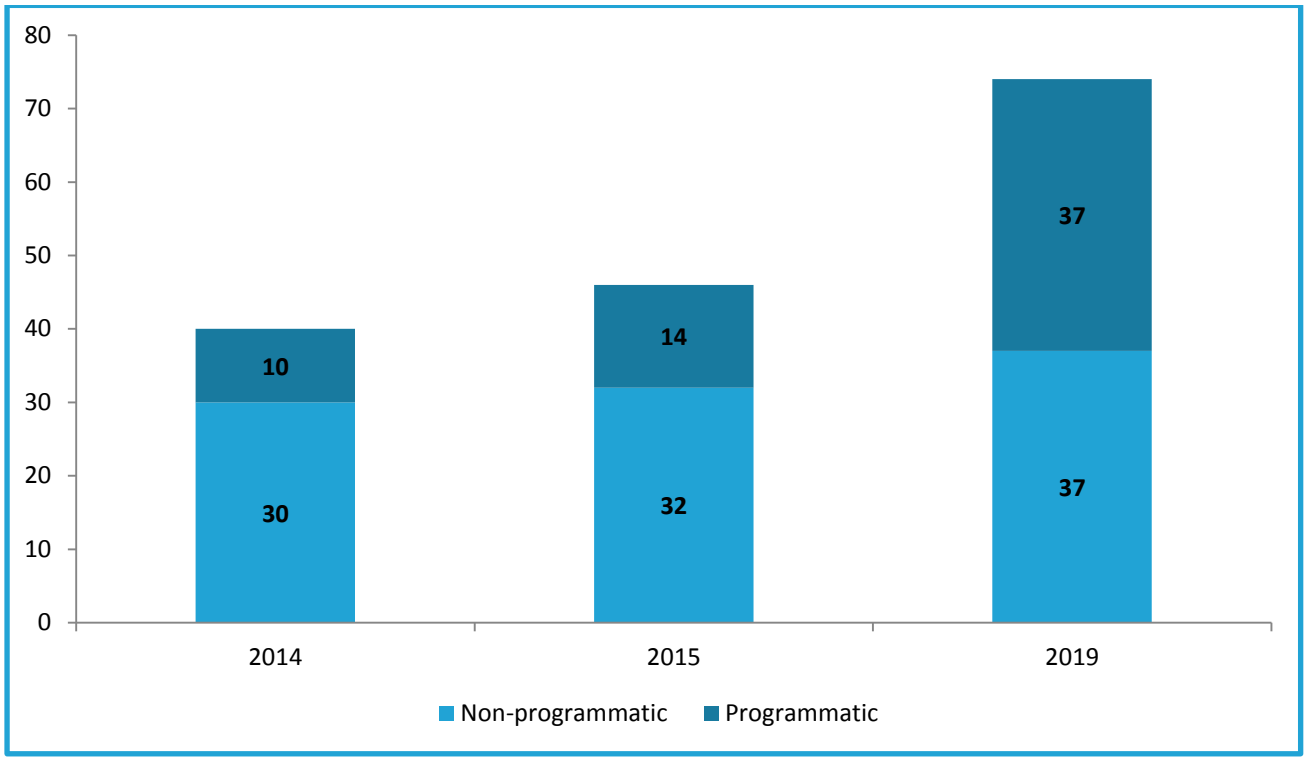
- By 2019, it is expected that RTB will represent 41% of the ad market, non-RTB programmatic buying 10% and traditional buying methods will shrink to 49% of the programmatic universe market. The majority of online video and banner advertisments will therefore be sold and purchased programmatically by 2019, of which 41% in auction-based transactions (see Figure 59).

- Regarding devices, in 2015 the majority of programmatic spend is still on desktop and the fixed internet with 72% of total programmatic spend, or USD 10.2 billion. Mobile programmatic spend represents 28% or USD 4 billion. This will dramatically change as mobile web usage expands; the share of mobile programmatic advertising will rise to 50% of programmatic spend in 2019, or an expected spend of USD 18.5 billion (see Figure 60)

- This shift from the fixed internet to the mobile one can also be seen in the share of formats which are bought programmatically. In 2015, the majority of programmatic spend is desktop banner display with 54% of total programmatic spend, compared to 18% spend on mobile banner advertising. Desktop video represents 18% of programmatic spend and mobile video only 8% (see Figure 61). This however, will completely change by 2019: the majority of programmatic spend will be on mobile videos (28%) and mobile banners (22%), reflecting the expected use and time spend by users on mobile devices by 2019. Desktop banners will shrink to 24% of programmatic spend while desktop videos spend will represent 27%.

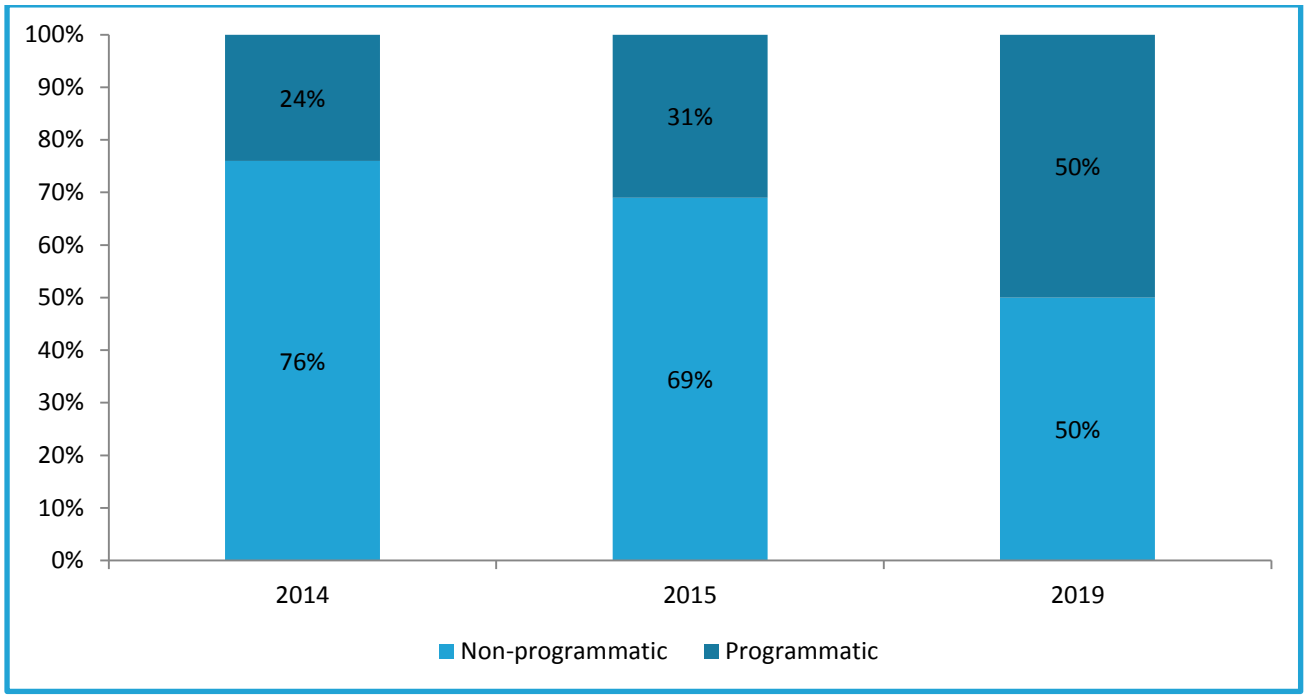
- Video advertising, on the mobile and fixed internet, will represent 55% of advertising spend on programmatic in 2019, a complete reversion from 2015 where mobile and desktop banner represented 73% of programmatic spend. As marketers and advertisers are getting increasingly confident with programmatic advertising for online video ads (and also, as video ads are generally expected to undergo a strong growth period), they will shift their advertising budgets accordingly. The expected compound annual growth rate (CAGR) 2014-2019 for each format reflects this shift: desktop banner will grow by only 8%, mobile banner by 40%, desktop video by 46% and mobile video by 80% (see Figure 62). Furthermore, by 2019, almost 50% of these four formats will be sold and purchased programmatically whereas in 2015, for desktop banner and video the share is only 1/3 and for mobile formats only ¼ and 29% (see Figure 63). Magna Global points out that while there are additional hurdles for accurate targeting on mobile devices, the concentration of inventory in several market places by a few players such as YouTube or Facebook will allow these players to take a high share of the total programmatic ad spend.

Figure 54 Global Programmatic spend in USD billion, 2014 -2019



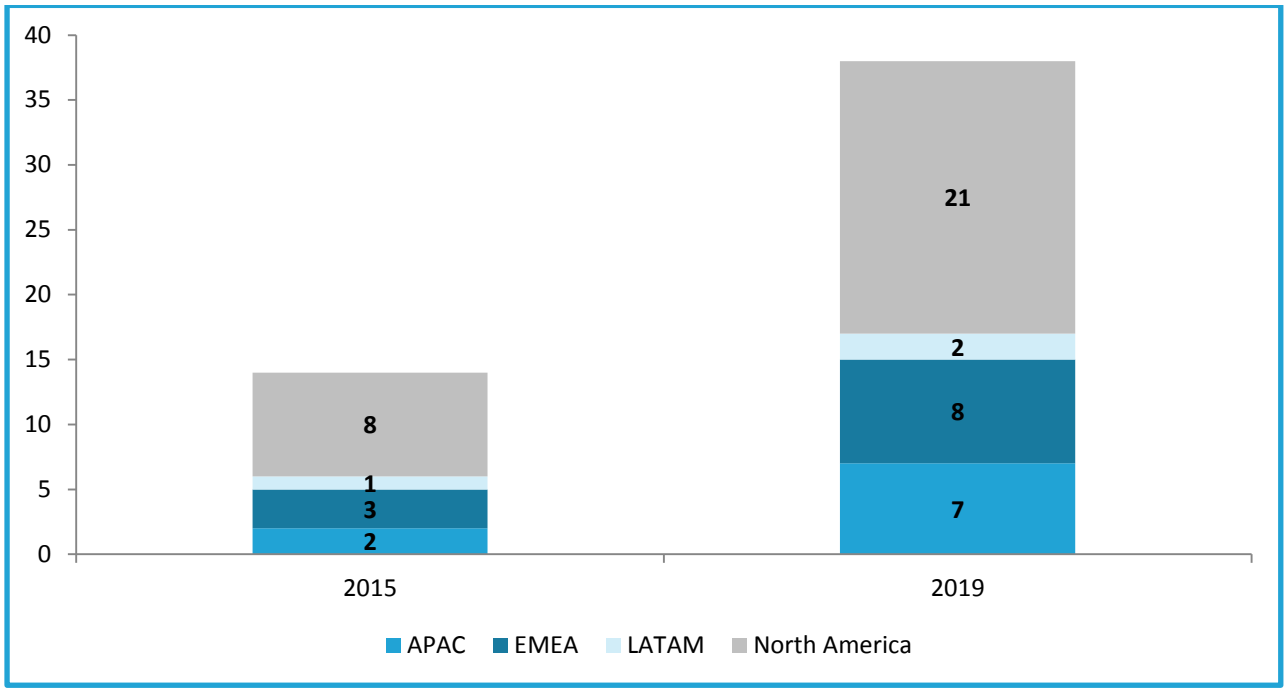
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 55 Global Programmatic penetration in % of total online banner and video advertising, 2014-2019



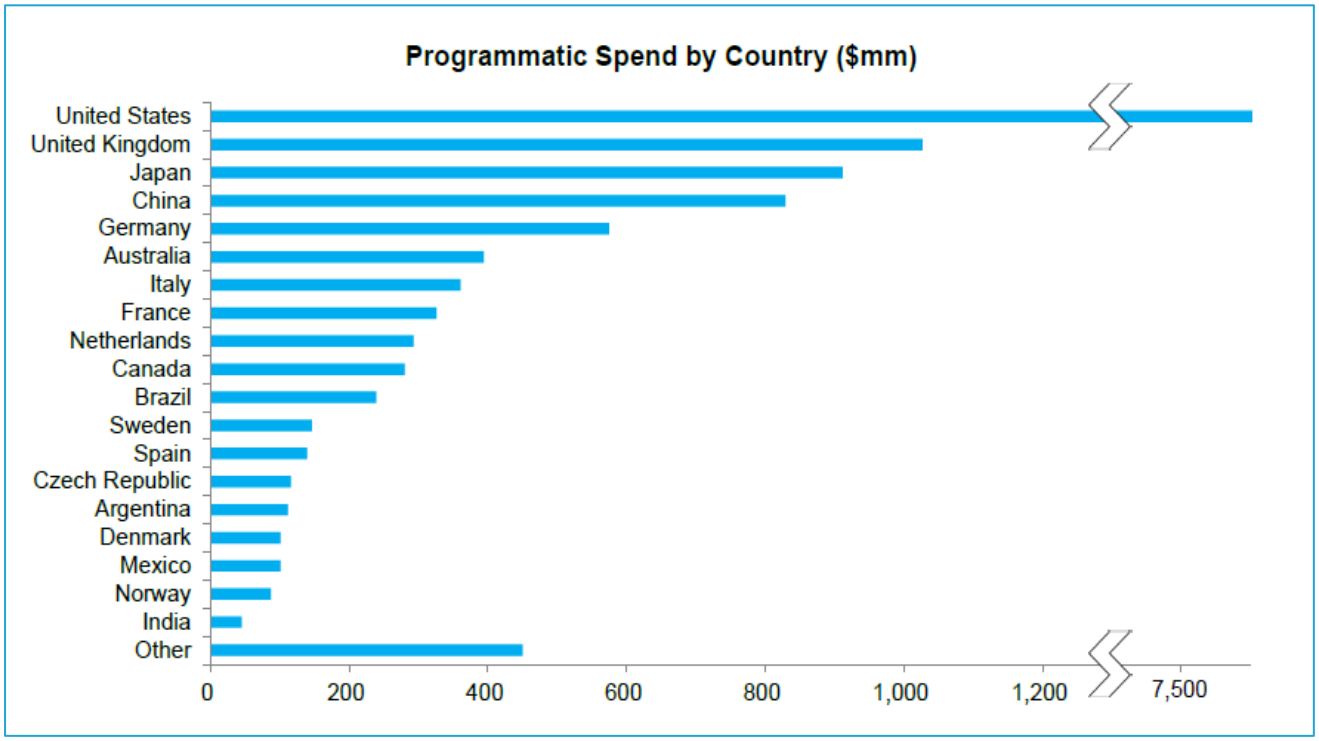
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 56 Programmatic spend by region in USD billion, 2015 and 2019



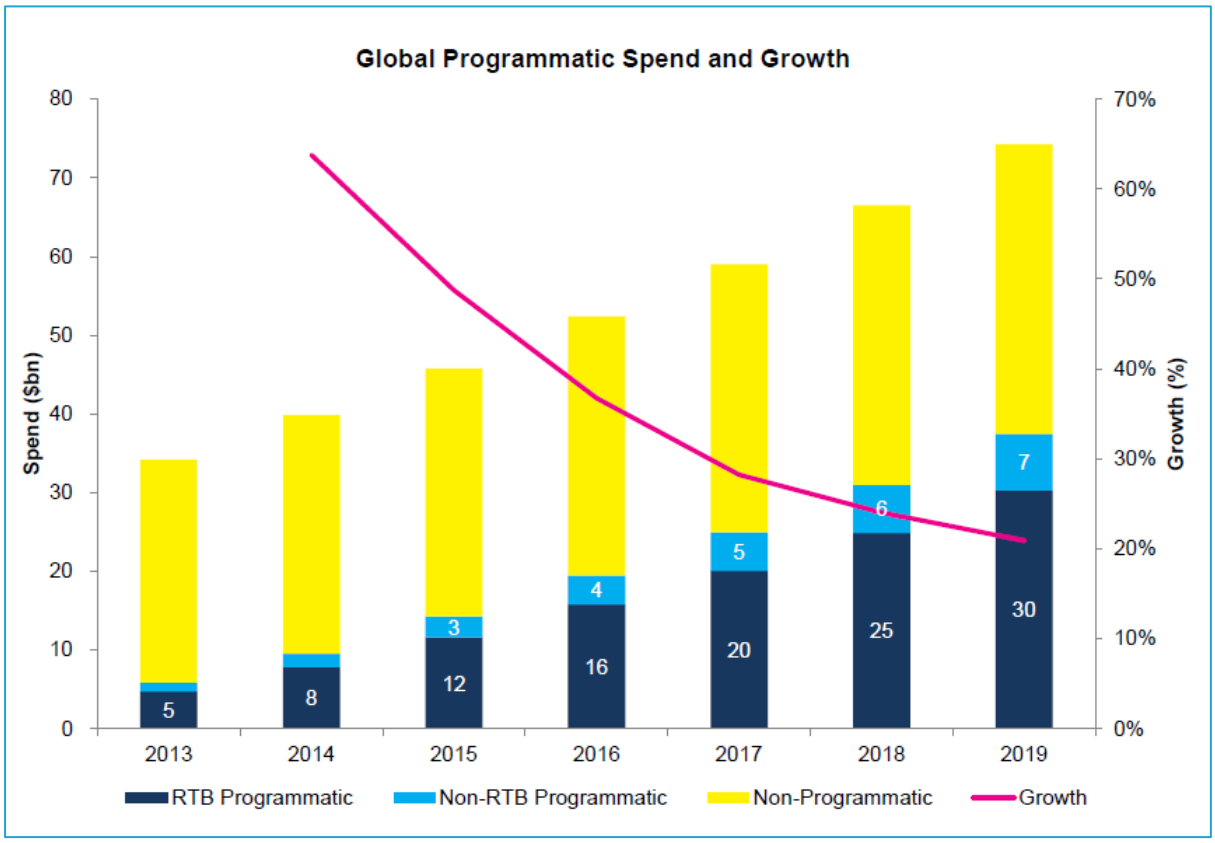
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 57 Programmatic spend by country in USD million, 2015



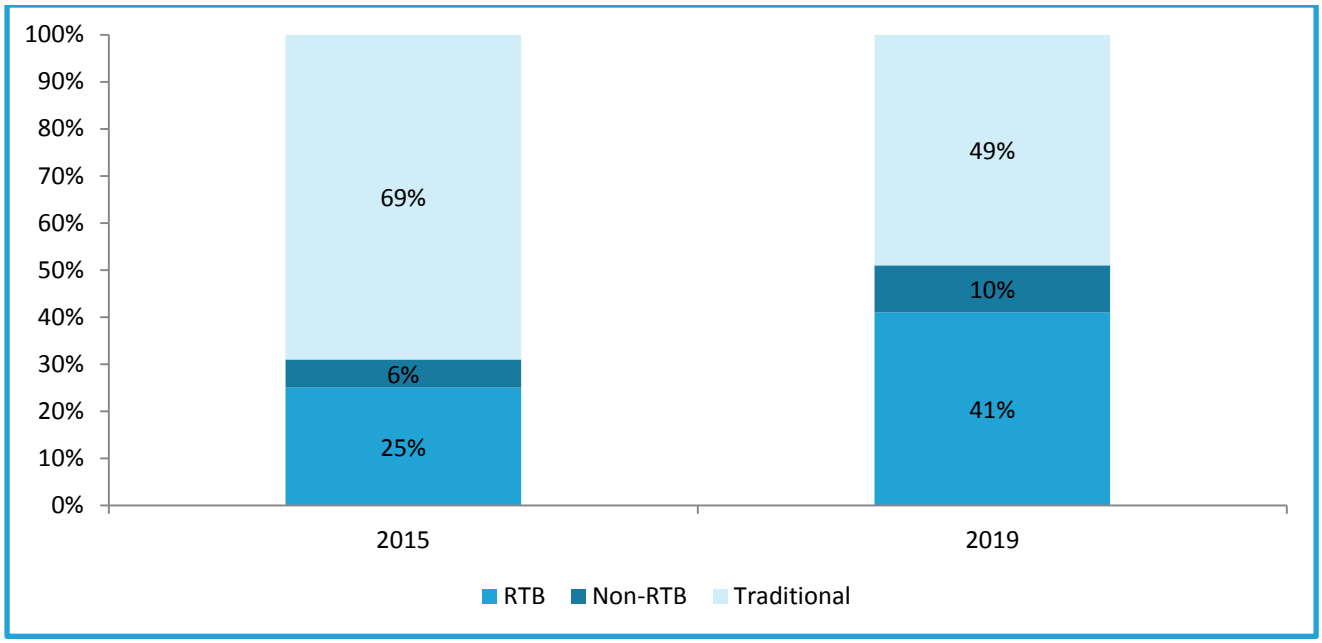
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 58 Global Programmatic spend and growth in USD billion and %, 2013 - 2019



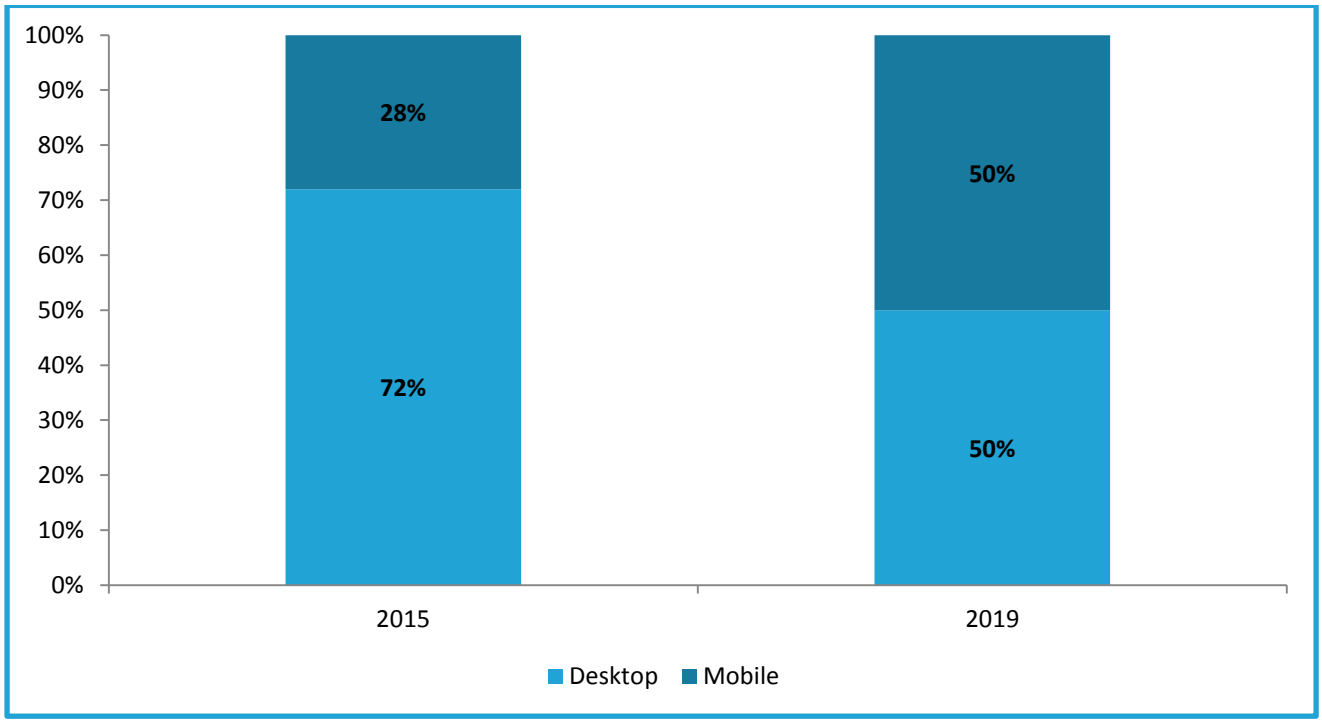
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 59 Programmatic spend by method: Real-time bidding, non-RTB and traditional (non-programmatic), in % of total online banner and video advertising spend, 2015 - 2019



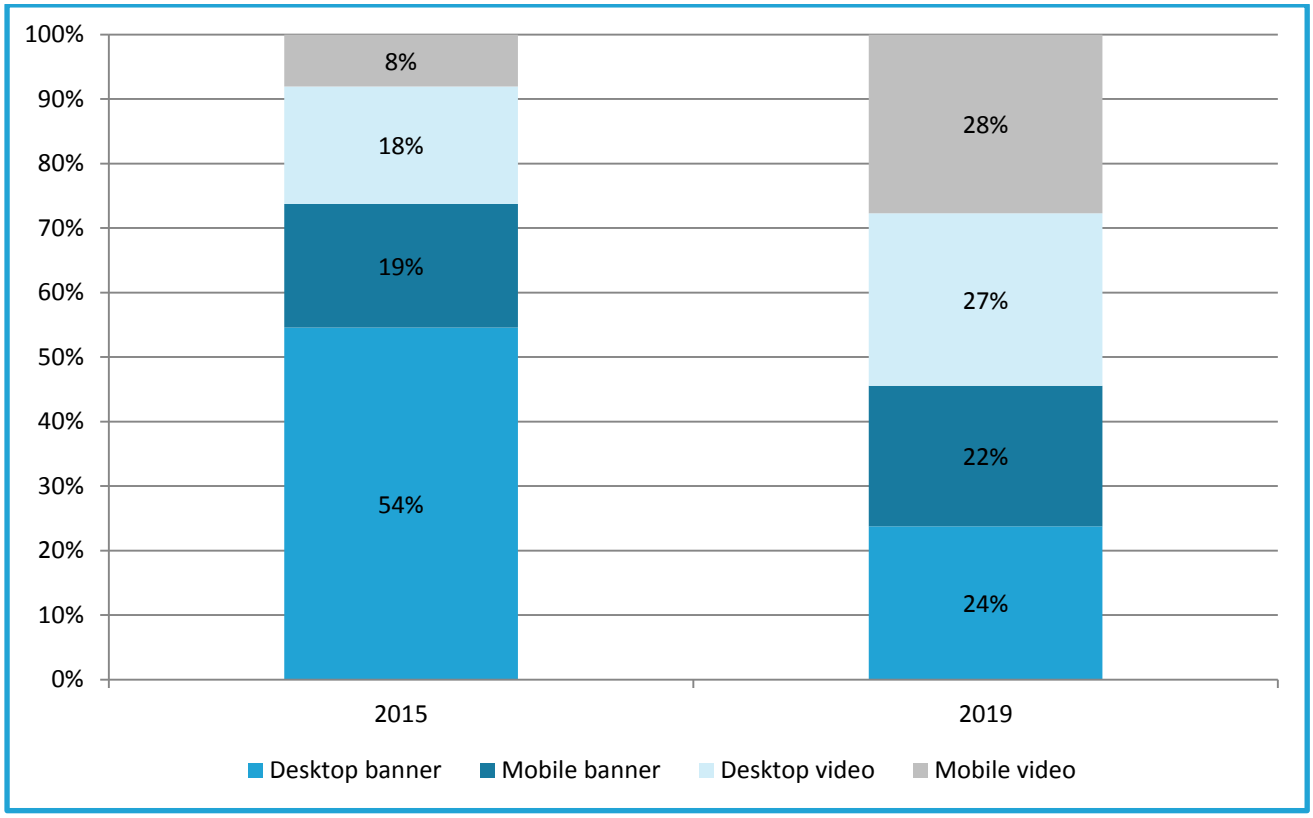
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 60 Global programmatic spending by device, in% of total online banner and video ad spend, 2015 - 2019



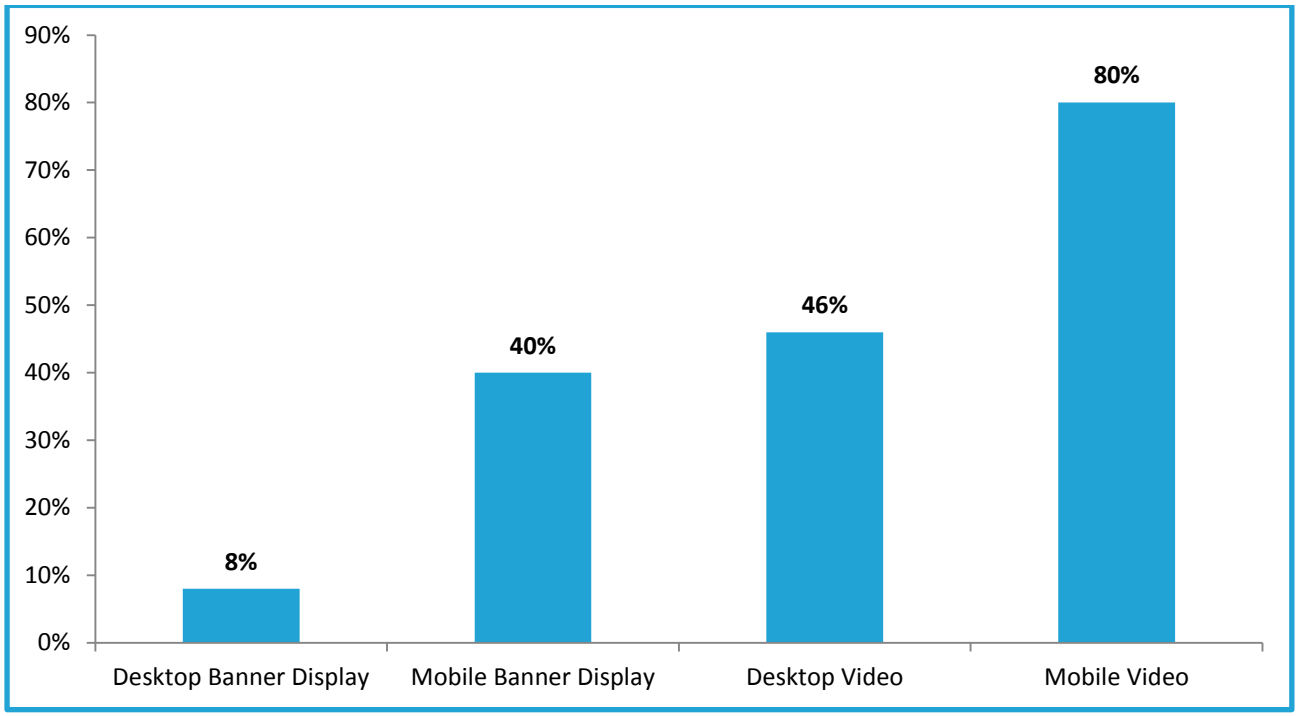
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 61 Global Programmatic spend by format in % of total online banner and video advertising, 2015 - 2019



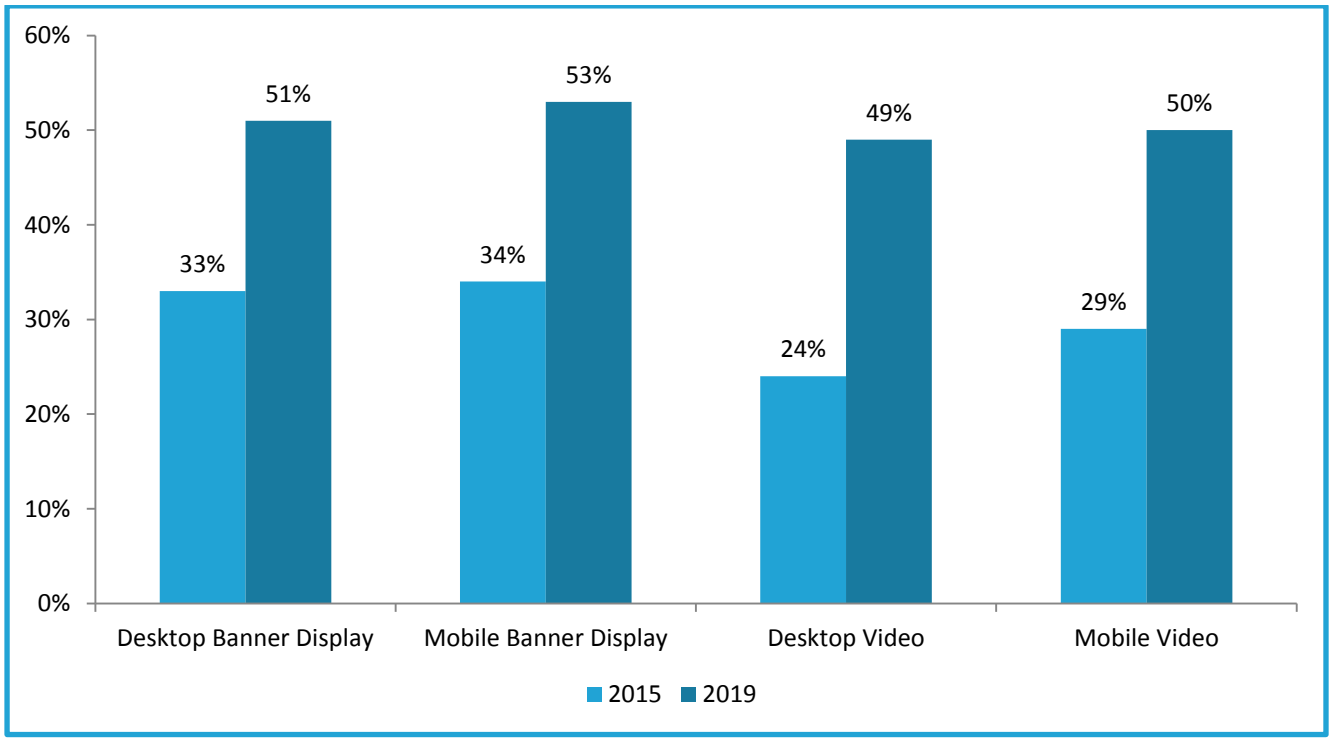
Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 62 Programmatic Compound Annual Growth 2014-2019 by format/device, in %



Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 63 Programmatic penetration by format, in % of total ad spend on format, 2015 - 2019



Source: Programmatic 2015 Roadmap for Growth, Magna Global

2.4.2 Programmatic advertising in Europe

- The most recent data published by IAB Europe and IHS is from 2014 for the European programmatic market, published in September 2015 in the *European Programmatic Market Sizing 2014*[13] report. However, another publication dealing only with the European programmatic video advertising market was published by SpotX and IHS in 2015, *Video advertising in Europe – The Road to Programmatic Ubiquity*[14] and is explained in more detail in section 2.4.3.

- European markets are very heterogeneous when it comes to the adoption of programmatic ad buying transactions. Structural differences on the advertising market with different relationships between publishers, advertisers and agencies, render the task of giving a general assesement of the European programmatic market difficult. Also, the lack of data on each individual EU market in available publications makes it difficult to to give a precise overview of EU markets and the adoption of programmatic advertising by national players.

- However, as IHS and Magna Global assessed it, the United Kingdom, the Netherlands and France (Magna Global considers also Denmark to be a leading market in Europe) can be considered as the most advanced countries in the adoption of programmatic advertising. The Nordics, Spain and Italy are seen as high potential markets for programmatic advertising, with Germany lagging behind due to structural differences. Emerging markets for programmatic advertising adoption are considered to be Belgium, Austria and Poland.

- The European programmatic advertising market generated EUR 3.66 billion in net advertising revenues (NAR) in 2014, up by 70.5% compared to 2014's EUR 2.14 billion (see Figure 64). Programmatic advertising is growing fast as advertisers and agencies become more confident with this solution of buying online display ads. Magna Global estimates that the EMEA region (mostly however Western European countries in their data) generated USD 3.6 billion in programmatic advertising in 2015 (see Figure 56).

- The majority of programmatic NAR is allocated to desktop display with EUR 2 900 million in 2014, up by 57.6% and representing 79% of total programmatic NAR. In 2014, almost 40% of all European desktop display NAR was generated programmatically (see Figure 64).

- Mobile programmatic generated NAR of EUR 552 million, growing by 240.2% from 2014's EUR 230 million (see Figure 64). The market is still small compared to other formats but the explosive growth shows the rising importance of mobile devices, and therefore mobile advertising in the online economy - a trend which is ongoing worldwide. As mobile advertising will still grow in the years to come, so will programmatic mobile advertising. Big players such as Facebook (which is

[13] Available here: http://www.iabeurope.eu/files/4114/4429/1267/IAB_Europe_Programmatic_Market_Sizing_Report_Sept_2015.pdf

[14] Availalbe here : https://www.spotxchange.com/resources/downloads/research/ihs-report-video-advertising-in-europe-the-road-to-programmatic-ubiquity/

generating more than 80% of its advertising revenue from mobile devices in 2016) and Google offer convenient solution for advertisers, and Facebook increasingly becomes attractive to small business to advertise to targeted audiences. The share of programmatic mobile display advertising revenues of total mobile display revenues is 27.3% in 2014, a share that will surely increase in the years to come (and is certainly higher in 2015 and 2016).

- Online video advertisements purchased and sold programmatically represented EUR 205 million in 2014, up by 176.6% (see Figure 64). The share of revenues of online video ads bought programmatically was 12.1% of total European online video advertising revenues. However, more recent figures (see section 2.4.3) indicate that in 2015 programmatic video ads already generaterd EUR 375 million and increased their share in online video revenues significantly in several EU countries.

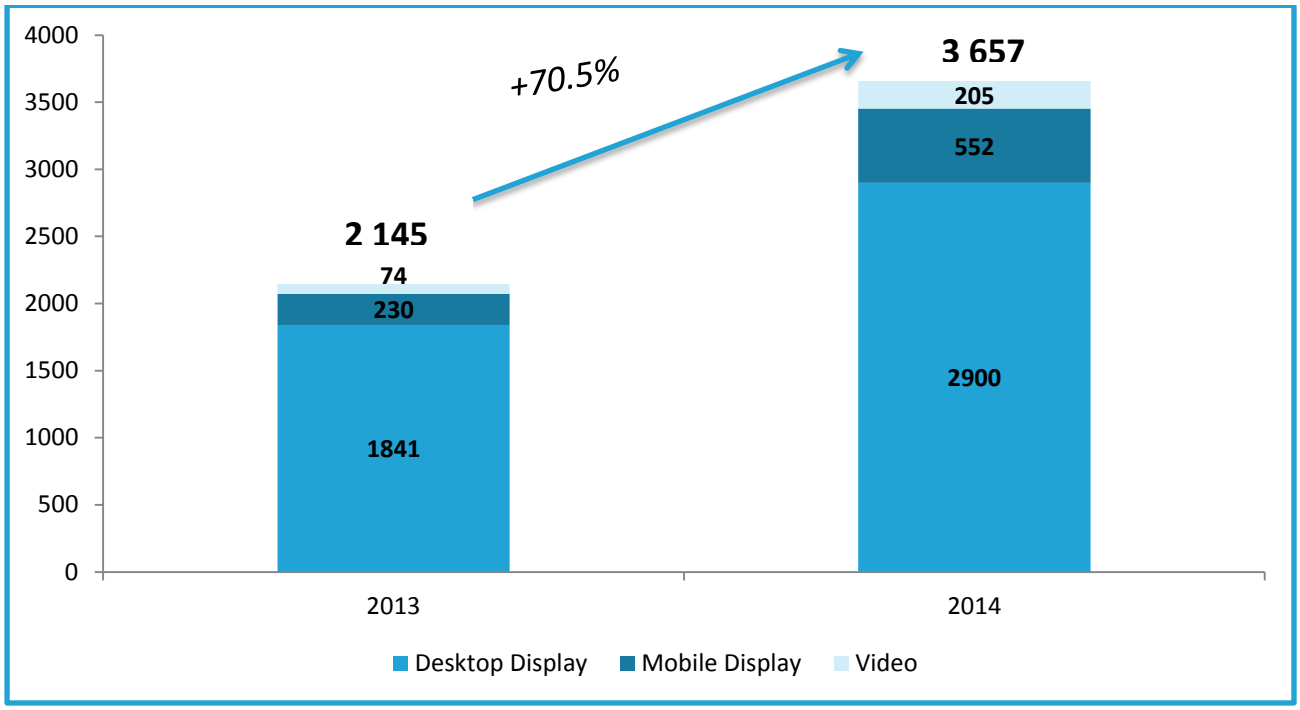
- As it is the case for online advertising, Western Europe represents the lion share of programmatic advertising revenues in Europe, and grew by 68.2% from 2013 to 2014 (see Figure 66). Central and Eastern Europe still represents a little share of total European programmatic ad spend but is growing fast, by 112.6% from 2013 to 2014.

- Magna Global data on the buying mechanisms used in transactions for online display advertising shows that RTB transactions generated 25% of EMEA's display advertising spend. Programmatic direct and preferred deals (where an advertiser is directly in contact with the publisher and ad inventory is not bought through the use of an auction) represented 7% of display advertisng spend. The bulk of online display ad spend however was still generated through traditional ad buying transactions with 69% of total EMEA's ad spend (see Figure 67).

- By 2019, Magna Global forecasts that 43% of all online display advertising spend will be generated through RTB mechanisms, non-RTB programmatic ad transactions will only increase slightly from 7% in 2015 to 10% in 2019. However, traditional ad buying and selling transactions will shrink from 2015's 69% to 49% in 2019. **By 2019 therefore**, **the majority of online display advertising will be bought through programmatic transactions**, according to Magna Global's forecast (see Figure 67).

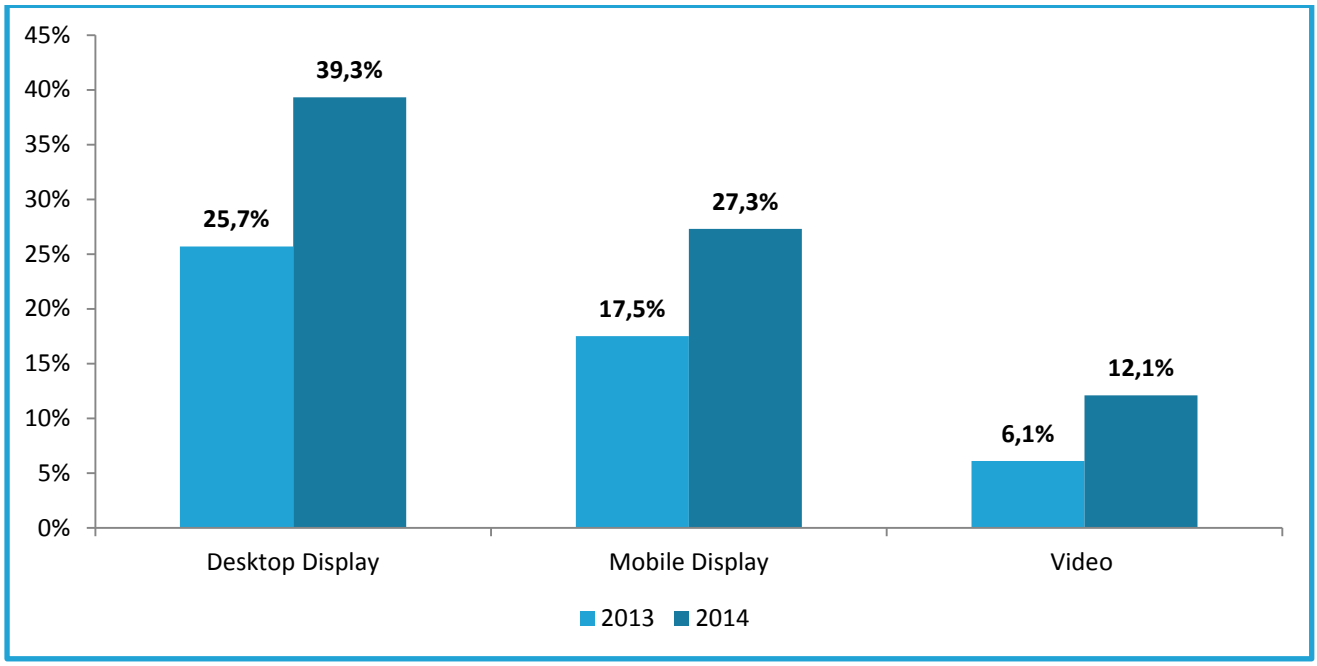
- In 2015, programmatic transactions for online display advertising represented already a significant share in several countries which are leading Europe in the adoption of programmatic ad buying solutions. In the United Kingdom, programmatic represented 47% of online display advertising spend, in the Netherlands 45%, in Denmark 44%, France 37%, in Belgium and Sweden 31% and in Italy 30% (see Figure 68).

Figure 64 Programmatic Display and Video net advertising revenue, in EUR million, 2013 - 2014



Source: IAB Europe/IHS, European Programmatic Market Sizing 2014, September 2015

Figure 65 Share of format revenue that is generated programmatically, in % of total revenue by format, 2013 -2014



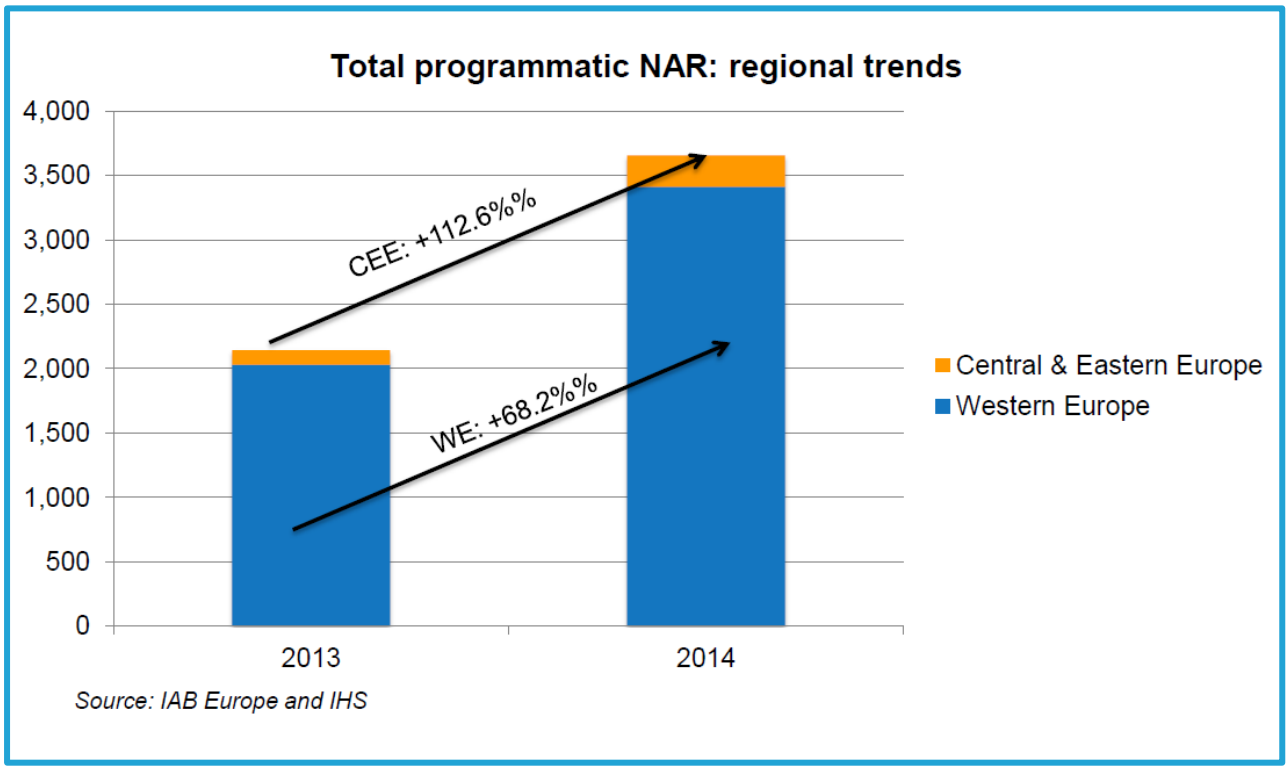
Source: IAB Europe/IHS, European Programmatic Market Sizing 2014, September 2015

Note: Desktop display net advertising revenue: display data excluding mobile and video

Mobile display: Display data excluding desktop and video

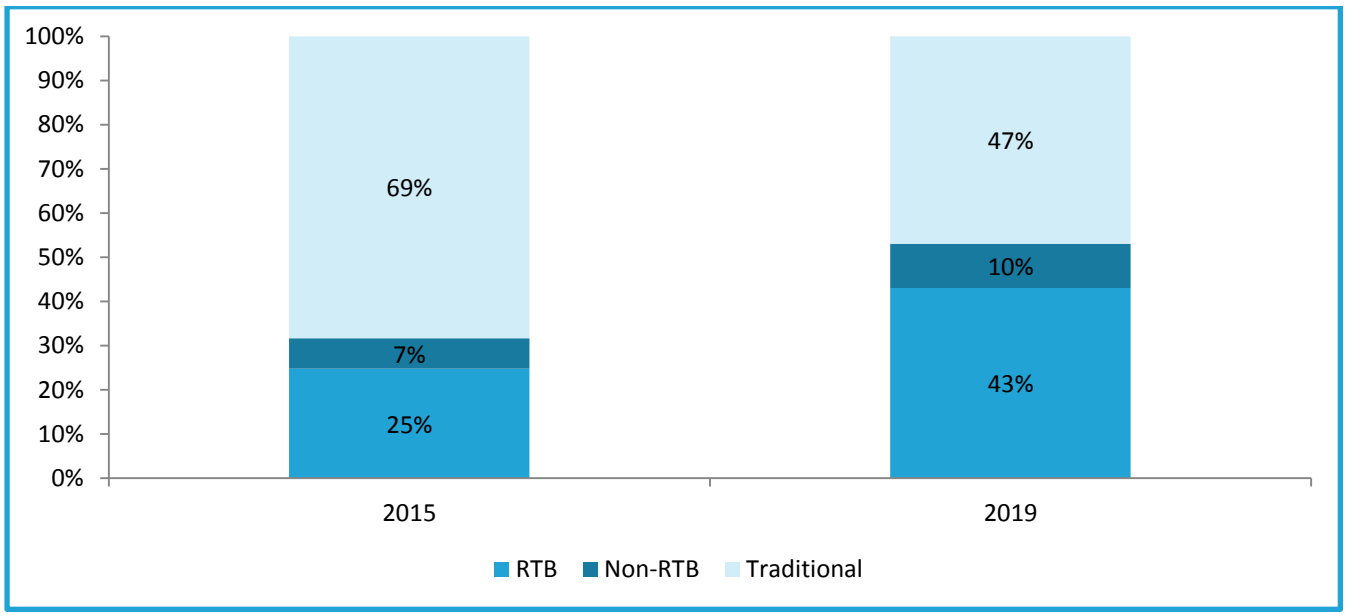
Video: desktop and mobile video

Figure 66 Total programmatic net advertising revenue: regional trends, in EUR million



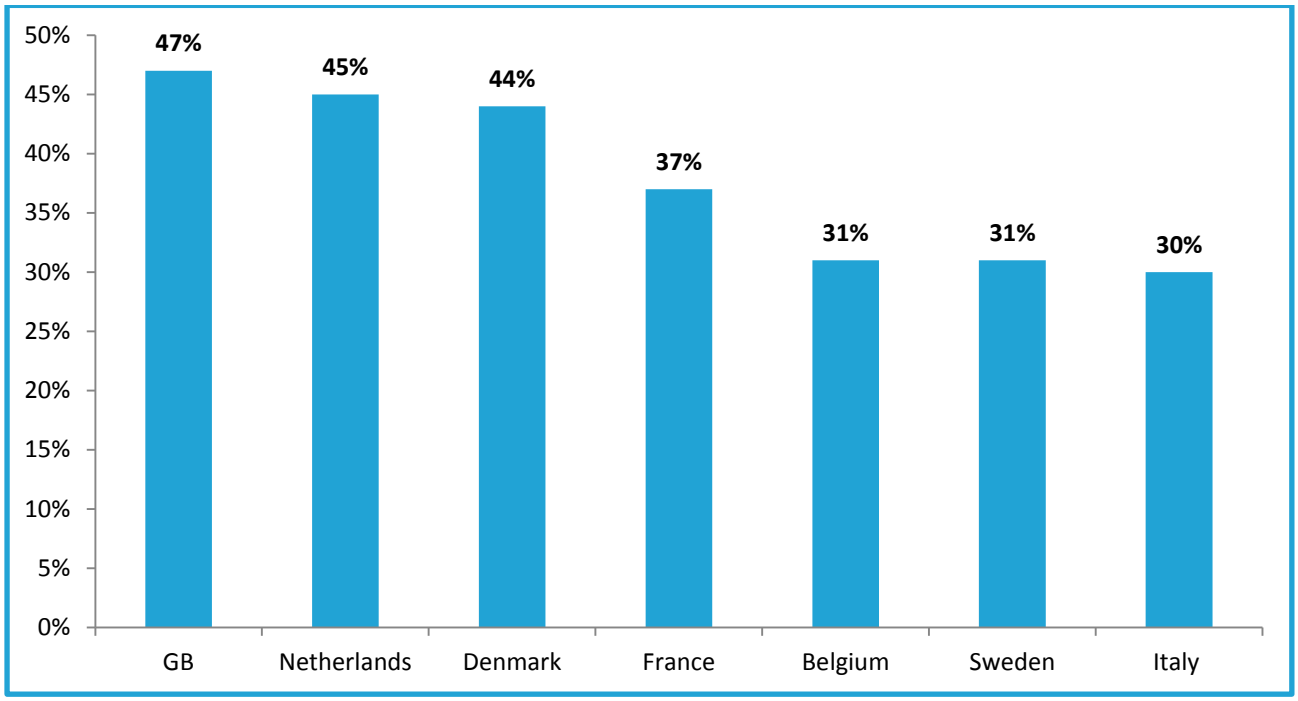
Source: IAB Europe/IHS, European Programmatic Market Sizing 2014, September 2015

Figure 67 EMEA - Programmatic spend by method: Real-time bidding, non-RTB and traditional (non-programmatic), in % of total online banner and video advertising spend, 2015 - 2019



Source: Programmatic 2015 Roadmap for Growth, Magna Global

Figure 68 Programmatic penetration by country, in% of total online banner and video advertising, 2015



Source: Programmatic 2015 Roadmap for Growth, Magna Global

2.4.2.1 Country data (GB, DE, FR, IT, ES, NL and DK)

- eMarketer estimates that the programmatic display advertising market in the **United Kingdom wil represent GBP 1.8 billion in 2015 and GPB 2.46 billion in 2016** (this will represent 70% of total display ad spend in 2016 in the United Kingdom, see Figure 70). As the market for programmatic advertising becomes mature in the United Kingdom, growth rates stabilize, from +198% in 2013 to +37% in 2016. The increase of the share of programmatic ad spend in total display advertising spend is impressive, from 24% in 2013 to 70% in 2016. The United Kingdom is by all measures the most advance market in the EU in regard to programmatic advertising (and online advertising in general as it has been stated in chapter 1). Another interesting fact is that **mobile programmatic advertising is already in 2016 the largest share of programmatic display ad spend in the United Kingdom with 56.1% of total programmatic ad spend**. This figure shows, for the most advanced countries in the digital economy, the increasing importance of mobile devices for media consumption (see Table 10).

- Magna Global estimates the **German programmatic market size to be USD 575** million in 2015, still not yet developed for a country this size (see Figure 71)**. eMarketer and the BVDW estimated the German programmatic ad spending market to be worth EUR 390 million in 2015 and EUR 566 million in 2016**, up by +45% for two consecutive years (see Figure 72). However, with 23% of total display ad spending in 2015 and an estimated share of 32% in 2016, programmatic advertising has still room to grow. Significant hurdles such as too little control of advertiser's own data, lack of transparency about how their data was used by other parties involved and a lack of clarity about where campaigns and individual ads were run remain.

- Magna Global estimates the **French programmatic market to have reached USD 325 million** in 2015, growing by 47% (see Figure 73). France is a pioneer market in programmatic advertising due to the adoption of French publishers of "media cooperatives": several media publishers uniting in order to make their ad inventory available programmatically. The most known are La Place Media, Audience Square, The Place to Bid (Adverline), Adexchange.com and 3WRegie. The **French Observatoire de l'e-Pub estimates the French programmatic market to be worth EUR 423 million in 2015**, a higher estimation than the one made by Magna Global. The market represents in 2015 40% of total French display ad spend and grew by +61% from 2014's EUR 263 million. In 2014, programmatic display only represented a share of 27% of total display ad spend; the growth in the share outlines the rapid adoption of programmatic advertising by French marketers and publishers.

- **Italy's programmatic market is estimated at USD 359 million in 2015** by Magna Global, growing by 66% compared to 2014. Programmatic ad inventory is concentrated in the hands of powerful publishers but, according to Magna Global, media owners have been hesitant towards adopting programmatic transactions on a broader basis. Programmatic transactions are therefore mainly done in private marketplaces through invitation-only auctions. Transparency of data, media and fees and viewability of ads have been in the center of concerns for brands, as Italian publishers and brands are focused on brand safety and transaction transparency. Therefore, third-party

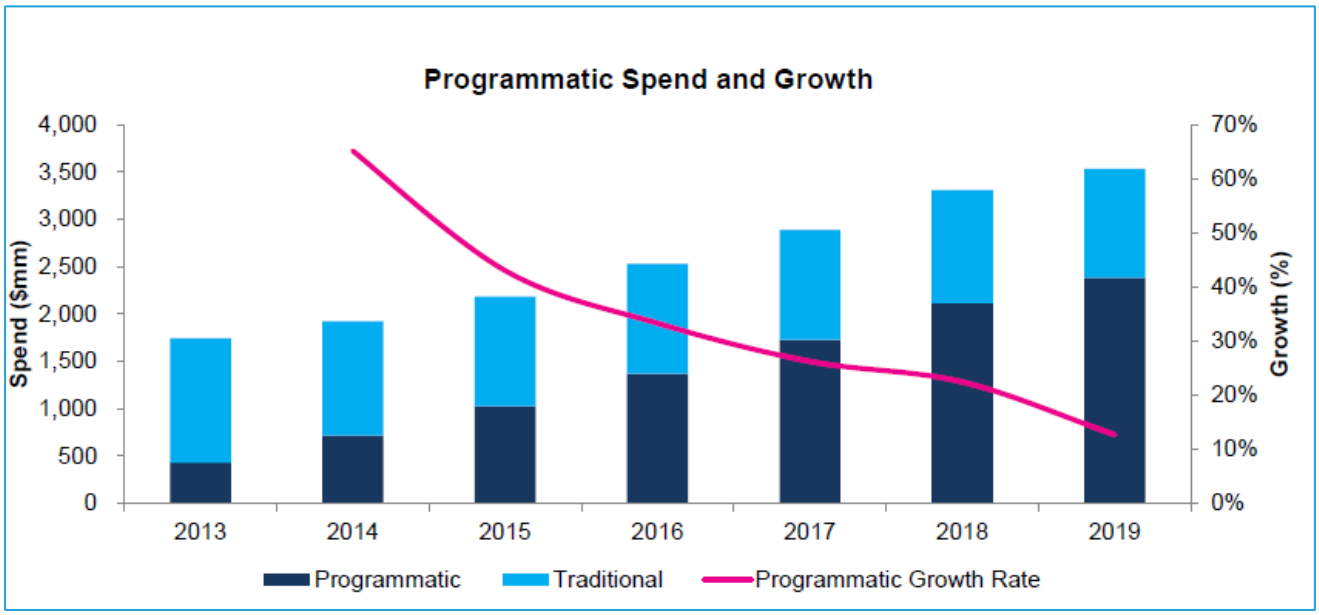
measurement companies have been include in programmatic campaigns of which the most known are comScore VCE, Nielsen OCR and Integral AdScience.

- **Spain's programmatic ad market is the smallest of EU-5 with an estimated ad spending on programmatic advertising of USD 139 million in 2015**, up by +43% from 2014's USD 97 million, as stated by Magna Global in its report.

- The **Dutch programmatic ad market is one of the most advanced in Europe with an estimated ad spending on programmatic of EUR 182 million in 2015**, up by +28% as stated by IAB Netherlands (see Figure 74). Programmatic advertising is becoming the norm in the Netherlands with rapid adoption by publishers and advertisers. Programmatic advertising is also expanding into other media such as radio advertising and outdoor advertising, as stated by Deloitte Netherlands. By 2016, programmatic ad spend is expected to reach EUR 236 million, representing a share of 34% of digital display ad spending. Drivers of programmatic advertising are mobile and video ads, with mobile programmatic already representing 26% of total programmatic display ad spend in 2014.

- According to **IAB Denmark, programmatic display ad spending generated DKK 600.5 million in 2014 (or USD 106.9 million**), almost the double of 2013 and represented 1/3 of display ad spending in 2014 (see Figure 75). As neither Facebook, nor Google is included in these figures, it is highly probable that the actual market was worth more than these figures. Mobile video increased by +83% to DKK 44 million (USD 7.8 million) and programmatic video ad spending by +81% to DKK 49 million (8.7 million) in 2014.

Figure 69 United Kingdom – Programmatic spend and growth in USD million and %, 2013-2019



Source: Programmatic 2015 Roadmap for Growth, Magna Global

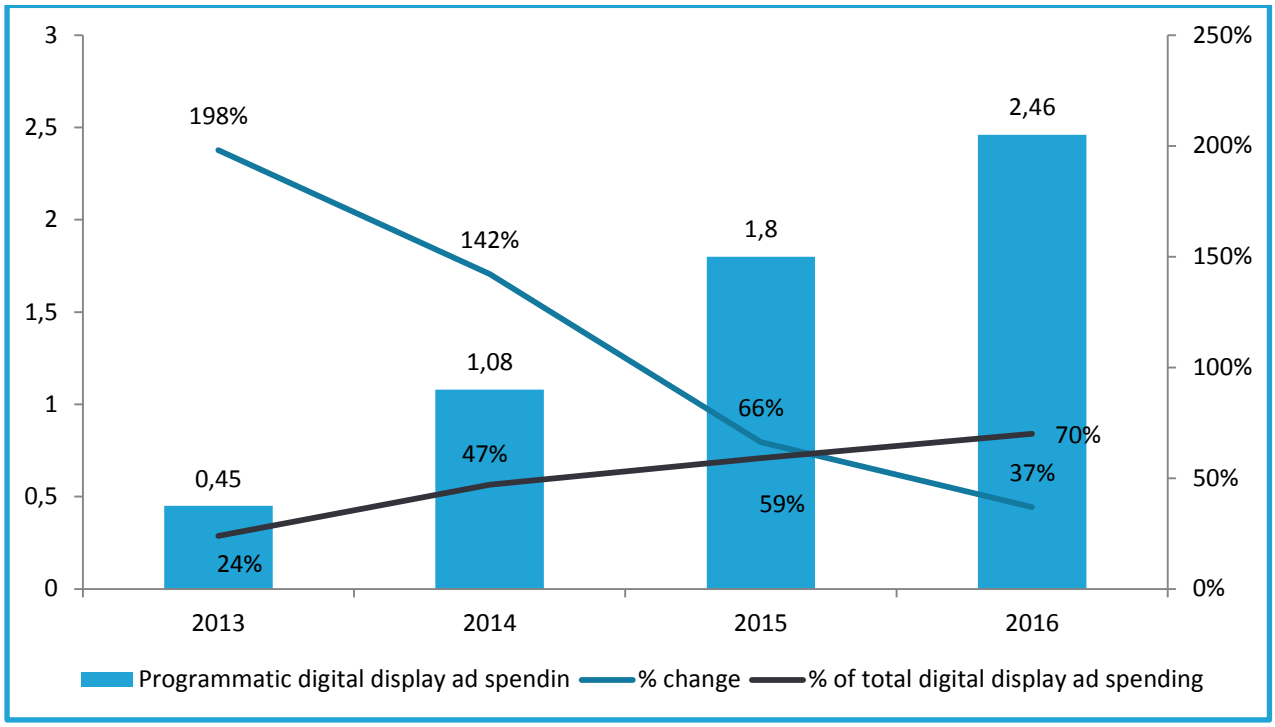
Table 10 UK Programmatic Digital Display Ad Spending, by Device, GBP million and %, 2013 - 2016

	2013	2014	2015	2016
Mobile	**157**	**538**	**1008,8**	**1445,6**
% change	328,9%	242,7%	87,5%	43,3%
% of total programmatic digital display ad spending	35,1%	49,7%	56,1%	58,7%
Desktop/Laptop	**289,9**	**544,2**	**790,2**	**1018,3**
% change	155,8%	87,7%	45,2%	28,9%
% of total programmatic digital display ad spending	64,9%	50,3%	43,9%	41,3%

Source: eMarketer, September 2015

Note : digital display ads transacted via an API, including everything from publisher-erected APIs to more standardized RTB technology; ad spending on tablets is included

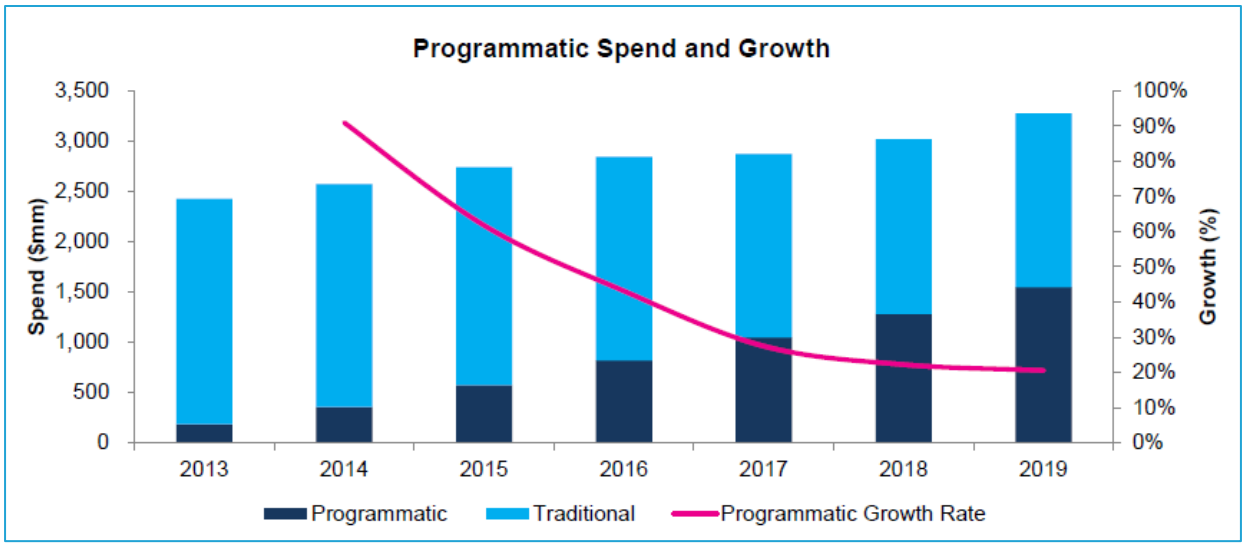
Figure 70 UK Programmatic Digital Display Ad Spending, in GBP billion and %, 2013 - 2016



Source: eMarketer, September 2015

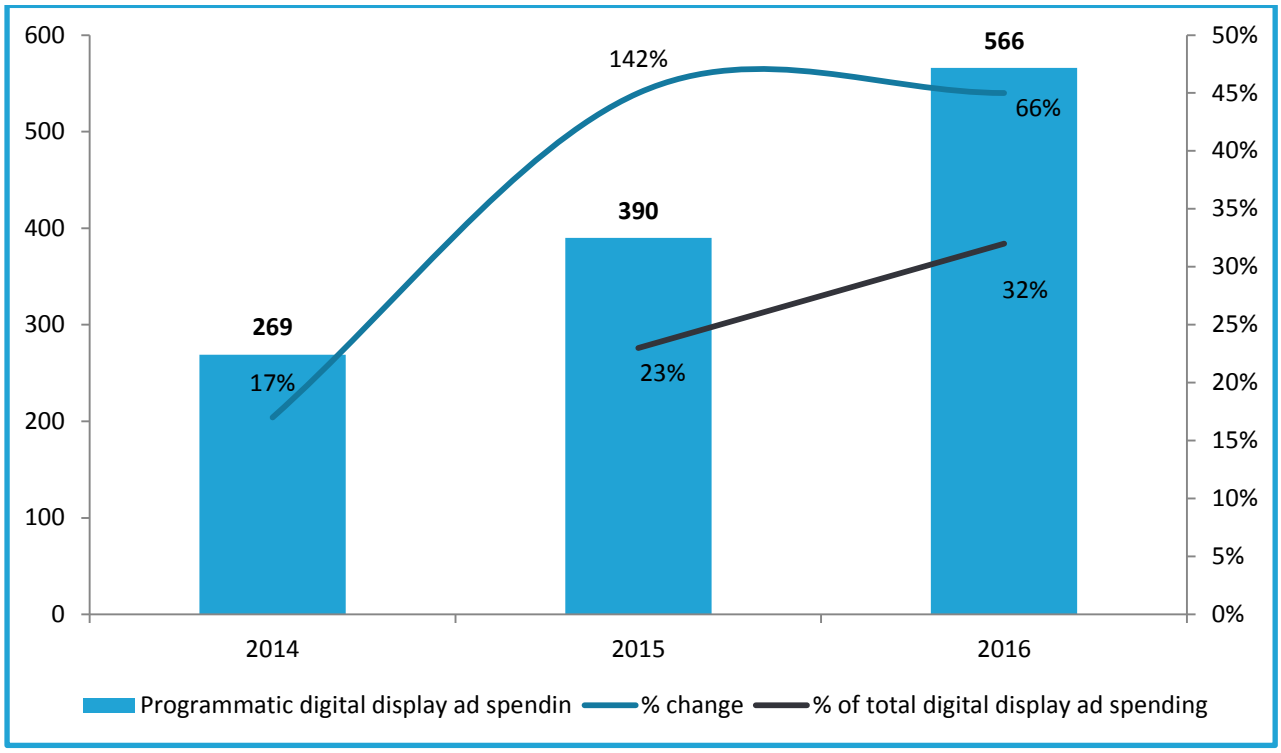
Note : digital display ads transacted via an API, including everything from publisher-erected APIs to more standardized RTB technology, includes advertising that appears on desktop/laptop compuyters as well as mobile phones and tablets, includes banners, rich media, sponsorship, video and other

Figure 71 Germany – Programmatic spend and growth in USD million and %, 2013-2019



Source: Programmatic 2015 Roadmap for Growth, Magna Global

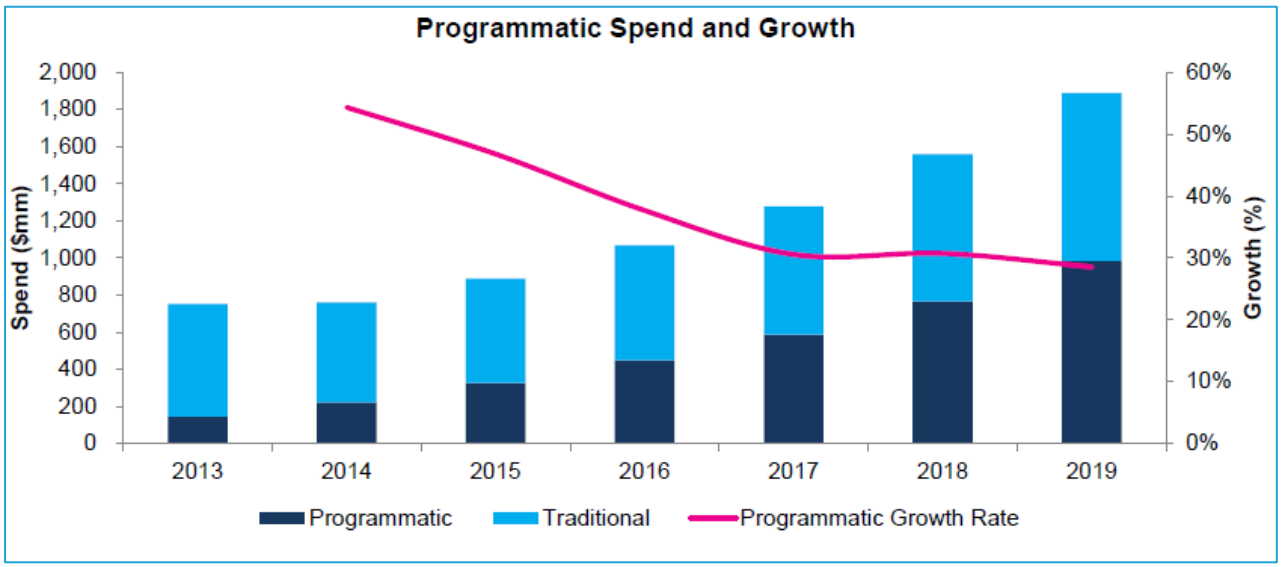
Figure 72 Programmatic Ad Spending in Germany, in EUR million and %, 2014 - 2016



Source: Fokugruppe Programmatic Advertising and Bundesverband Digitale Wirtschaft (BVDW), BVDW-Werbestatistik Programmatic Advertising 2016/01, June 2nd 2016

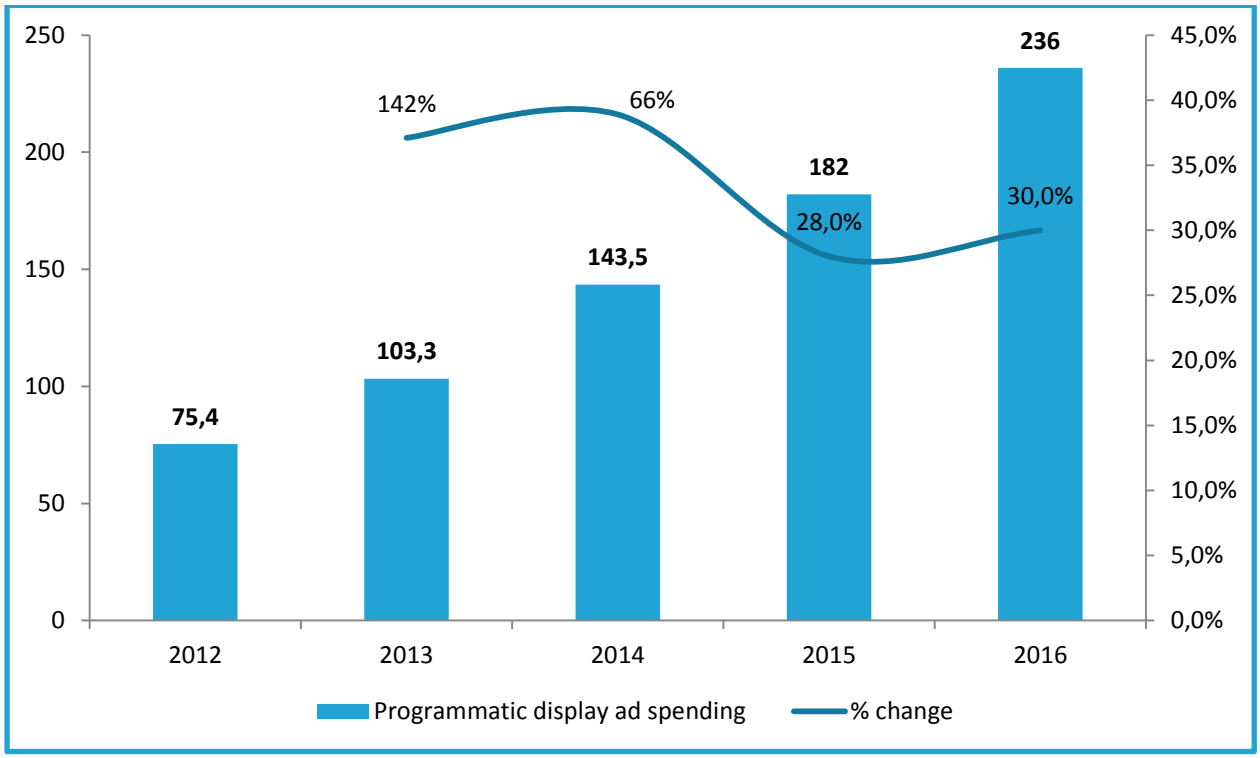
Note: total digital display ad spending in 2014= EUR 1.58 billion, in 2015= EUR 1.68 billion and in 2016= EUR 1.78 billion

Figure 73 France – Programmatic spend and growth in USD million and %, 2013-2019



Source: Programmatic 2015 Roadmap for Growth, Magna Global

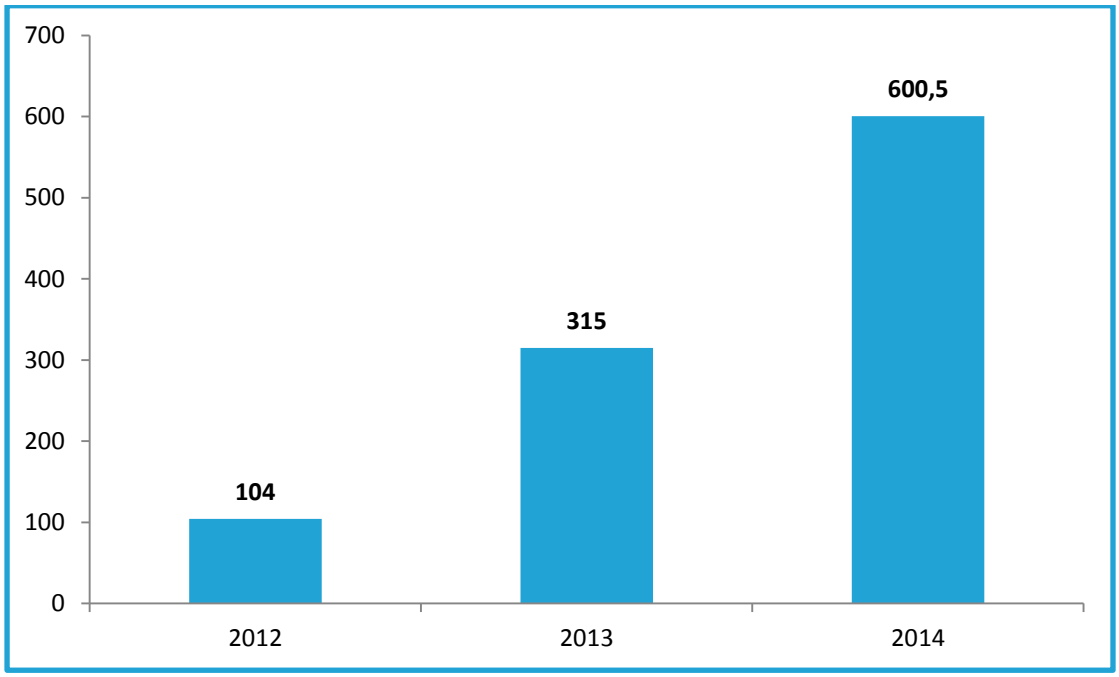
Figure 74 Programmatic Digital Display Ad Spending in the Netherlands, in EUR million and %, 2012 - 2016



Source: IAB Netherlands, Programmatic Trading The Netherlands 2014 in conjunction with Deloitte, April 1st 2015

Note: 2012 and 2013 figures have been adjusted due to revised and additional respondent data

Figure 75 Programmatic Digital Display Ad Spending in Demark, in DKK million, 2012 - 2014



Source: Danske Medier (IAB Denmark) and Deloitte, Online Markedsstatistik 2014, April 24th 2015

Note: excludes Facebook and Google

2.4.3 Programmatic video advertising in Europe

- Video advertising and mobile ads are the driving force behind the growth in online display advertising (chapter 1). As the online display advertising market matures and advertisers and publishers gain confidence in programmatic transactions, video ads are poised to benefit from this change. Data on the programmatic market in Europe are still scarce and unified sources rare. In this section, it is mainly the report commissioned from IHS by SpotX (an online video advertising platform for premium publishers and broadcasters, acquired by RTL Group for USD 144 million in July 2014) which is used. The report "*Video Advertising in Europe – The Road to Programmatic Ubiquity"* can be downloaded for free.

- Data for all EU markets are not available; EU countries included in the report are France, Germany, Italy, Spain, the United Kingdom, Denmark, Finland, Sweden, Belgium, the Netherlands, Austria, Poland (and Switzerland, Norway for non-EU member states).

- The report makes forecasts up to 2020; these forecasts should be taken with caution. All forecasts are limited and based on hypotheses and should be used as general trends rather than hard figures.

- **Programmatic** in this report is defined as:
  "Advertising revenue that is generated through transactional or workflow automation mechanisms embedded in an infrastructure that relies on a set of rules applied by software and algorithms, commonly known as 'ad tech'. Following the IAB's proposed taxonomy, 'programmatic' here is an aggregate category that is composed of four discrete transactional models, each of which we consider a sub-set:
  1. Automated Guaranteed 2. Unreserved Fixed Rate 3. Invitation-Only Auction 4. Open Auction.
  Advertising revenues are recognized as 'programmatic' whenever any of those mechanisms applies, irrespective of the inventory owner's awareness of their involvement. This means that revenue is also considered programmatic if inventory that is originally sold to an intermediary through non-programmatic means (e.g. agency bulk buying) is re-sold to an end-buyer programmatically. Revenue is recognized as programmatic irrespective of whether the inventory owner acts directly or indirectly via an intermediary." (Source: IHS, IAB Europe)

- **Video advertising** in this report is defined as *"display advertising which principally takes the form of:*
  - *In-stream video advertising (pre-rolls, mid-rolls, post-rolls)*
  - *In-stream banner overlays*
  - *Out-of-stream video advertising (e.g. self-play video on social networks, not embedded in non-advertising video content)*
  - *In-banner video advertising*
  - *In-text video advertising*
  - *Contextual video advertising (e.g. branded video players, contextual banner advertising sold against video content)*

- **Net advertising revenue (NAR)** is defined as *"a rate of revenue. NAR means revenue generated by a media owner (e.g. publisher, broadcaster) that is net of any fees, commissions, service charges and any other deductions."*

- **Programmatic video advertising was worth EUR 375 million in 2015**, up by +56% from 2014's EUR 241 million (see Figure 76). The market is expected by IHS to grow to EUR 1.86 billion in 2020. Since 2012 and a programmatic video market of EUR 22 million, the market has grown by +1 605% to 2015 EUR 375 million; a rapid up-take and adoption by market players. The United Kingdom represents in 2015 a share of 36.1% of the European programmatic video advertising market, France a share of 17.8% and the Netherlands 15.4%. Together these 3 markets generated almost 70% of net programmatic video advertising revenues in Europe in 2015.

- Net video advertising revenues from programmatic video ads vary widely throughout the observed countries, ranging from EUR 135 million in the United Kingdom to only a tiny EUR 2 million in Austria and Poland in 2015. EU-5 countries are leading, with the notorious exception of the Netherlands (EUR 58 million), where programmatic solution have been adopted more rapidly than in other EU countries, therefore making it the third market in terms of size and relegating Spain to the 6th place with EUR 15 million, behind France's market of EUR 67 million, Italy's EUR 38 million and Germany's EUR 31 million programmatic video advertising markets (see Figure 80).

- The **share of programmatic video in total video ad revenues represented 16.8% in 2015 and this share will grow to 51.4% by 2020**, or put in other words, the majority of online video ads will be sold and bought programmatically by then, if the forecasts came to be realised. IHS furthermore states that programmatic video advertising will become **the predominant source of video advertising in France, the United Kingdom and the Netherlands** by the end of 2020 (see Figure 79).

- As of 2015, the share of programmatic video advertising varies widely throughout the countries included in the report. Five countries had a share of programmatic video advertising of total video advertising revenues below the 10%-mark: Germany (9.3%), Switzerland (8.2%), Belgium (8.1%), Austria (6.5%) and Poland (2.9%). The only three countries above the European average share of 16.8% for programmatic video advertising were France (18.6%), the United Kingdom (22.8%) and the Netherlands (34.2%), the countries most advanced in the adoption of programmatic transactions in Europe (see Figure 78).

- The share of programmatic advertising is expected to rise in all countries above 30% by 2020, except for Poland where it is expected to taje a share of 27.7% of total video revenues. Three countries will have a share of programmatic video ads of total video ads above 50%; the Netherlands with 63.3%, the United Kingdom with 60.1% and France with 54.1%. However, all European markets will see the share of programmatic video ads attain 40%, if the uptake of programmatic solutions by advertisers and publishers will take place be as expected. The reasons cited for this uptake are the on-going harmonisation among the different markets

combined to the establishment of best practices and technologies - principles of ecosystem creation. In smaller markets *"the need for aggregation, large markets for single companies and cooperation between large media owners"* will drive an explosive adoption of programmatic video advertising.

- As can be seen from the yearly growth rates for programmatic video advertising and non-programmatic video advertising in Figure 77, programmatic video is set to grow rapidly throughout the next years whereas video bought non-programmatically will actually decline by 2018. This shows an inclination of markets players towards programmatic video ad buying solutions. However, non-programmatically video advertising will still represent almost 50% of the video ad market by 2020 (EUR 1.86 billion, -3% compared to 2019's EUR 1.92 billion).

- Another proxy used by IHS to show the increase of programmatic video ads in Europe is the rapid rise in the number of video demand-side-platforms (DSPs) in Europe in 2014, passsing from 67 DSPs at the beginning of 2014 to 116 at the end of 2014, or an increase of 73.1%, reflecting the demand of advertisers for technological solutions for programmatic video buying (see Figure 81).

2.4.3.1 Country data

For additional informations on each market, please refer to the country profiles of the SpotX/IHS report in which insights into each individual advertising market are given, gathered through interviews with professionals and complemented by knowledge of IHS analysts.

- AT – Austria: The Austrian programmatic video advertising market is expected to rise from 2015's EUR 2 million to EUR 19 million in 2020; programmatic video will represent a share of 38.9% of total online video spend (see Figure 82).

- BE - Belgium: The Belgian programmatic video advertising market is expected to rise from 2015's EUR 3 million to EUR 26 million in 2020; programmatic video will represent 38.9% of total online video spend (see Figure 83).

- DE – Germany: The German programmatic video advertising market is expected to rise from 2015's EUR 31 million to EUR 254 million in 2020; programmatic video will represent 44.9% of total online video spend (see Figure 83).

- ES- Spain: The Spanish programmatic video advertising market is expected to rise from 2015's EUR 15 million to EUR 98 million in 2020; programmatic video will represent 46.5% of total online video spend (see Figure 83).

- FR – France: The French programmatic video advertising market is expected to rise from 2015's EUR 67 million to EUR 358 million in 2020; programmatic video will represent 54.1% of total online video spend (see Figure 86).

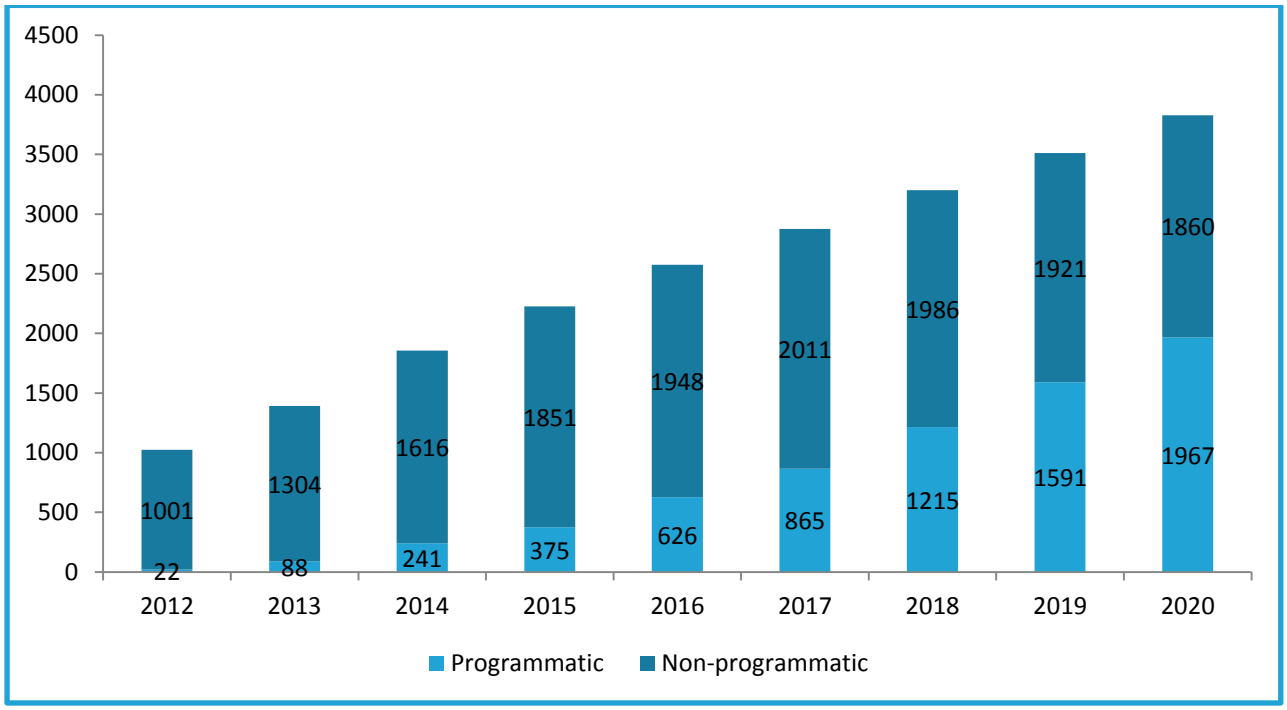
- GB – United Kingdom: The British programmatic video advertising market is expected to rise from 2015's EUR 135 million to EUR 602 million in 2020; programmatic video will represent 60.1% of total online video spend (see Figure 87).

- IT – Italy: The Italian programmatic video advertising market is expected to rise from 2015's EUR 38 million to EUR 245 million in 2020; programmatic video will represent 46.6% of total online video spend (see Figure 88).

- NL – Netherlands: The Dutch programmatic video advertising market is expected to rise from 2015's EUR 58 million to EUR 172 million in 2020; programmatic video will represent 63.3% of total online video spend (see Figure 89).

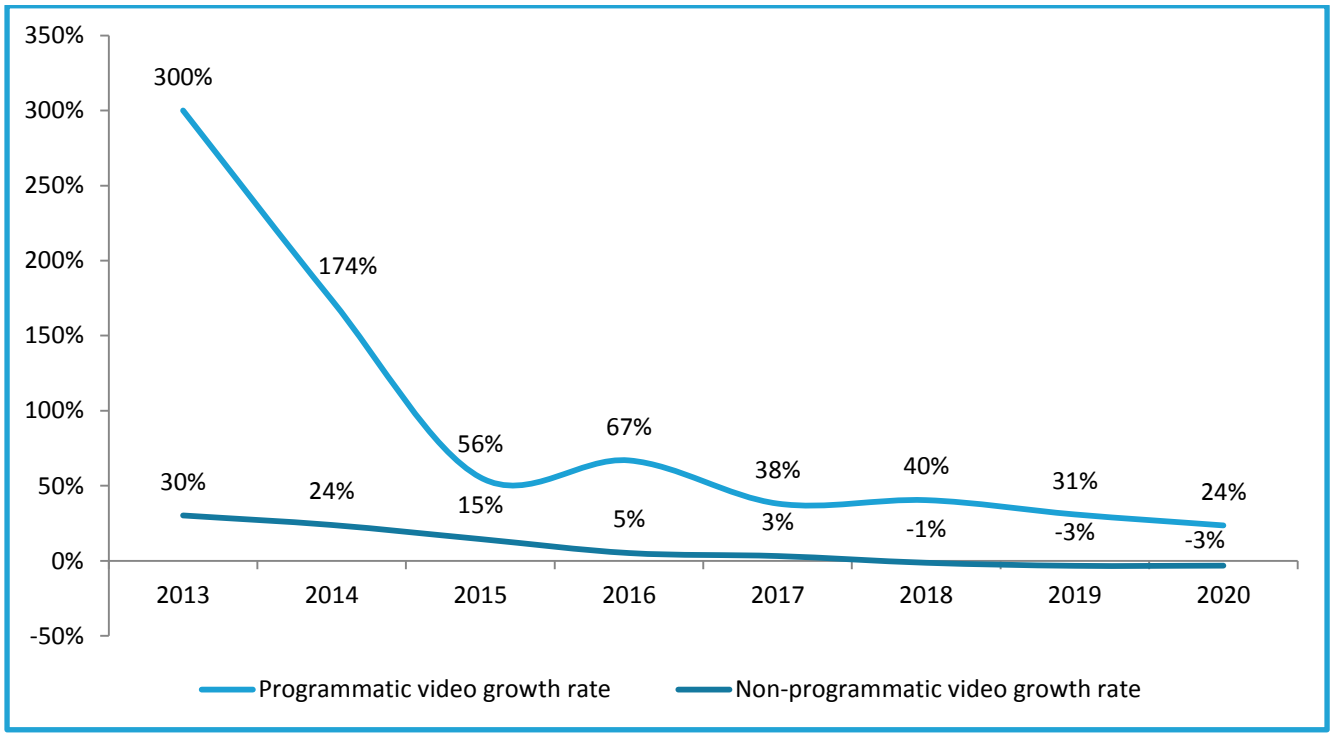
- PL – Poland: The Polish programmatic video advertising market is expected to rise from 2015's EUR 2 million to EUR 31 million in 2020; programmatic video will represent 27.7% of total online video spend (see Figure 90).

Figure 76 Europe: Video net advertising revenue by transaction mechanism, in EUR million, 2012 - 2020



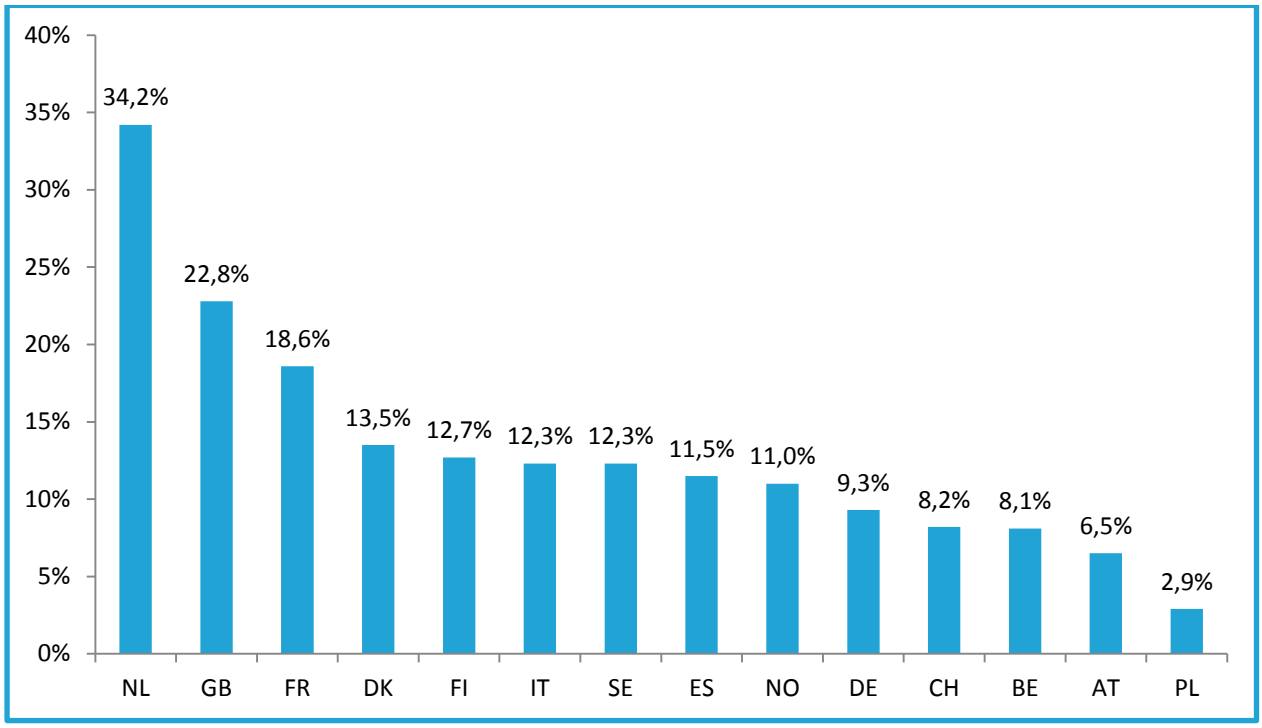
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 77 Annual Growth rate for programmatic and non-programmatic video net advertising revenues, in %, 2013 -2020



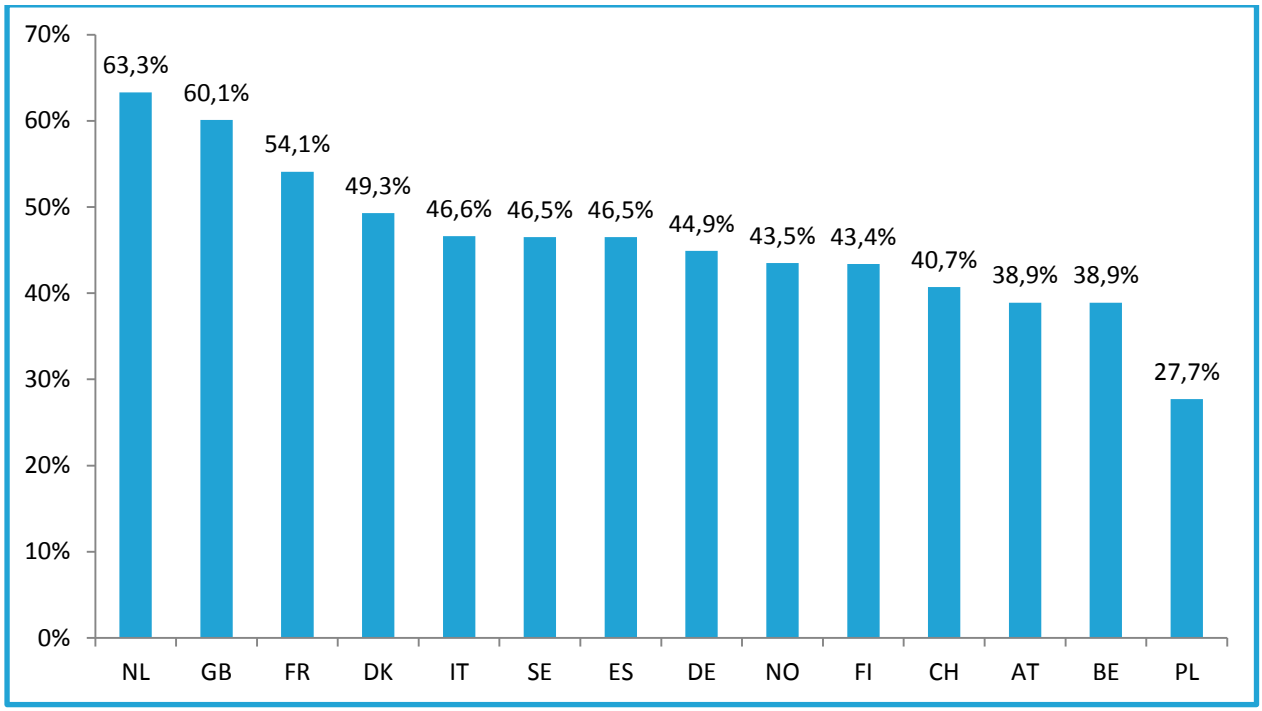
Source: OBS based on IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 78 Programmatic share of video advertising revenue in 2015, in %



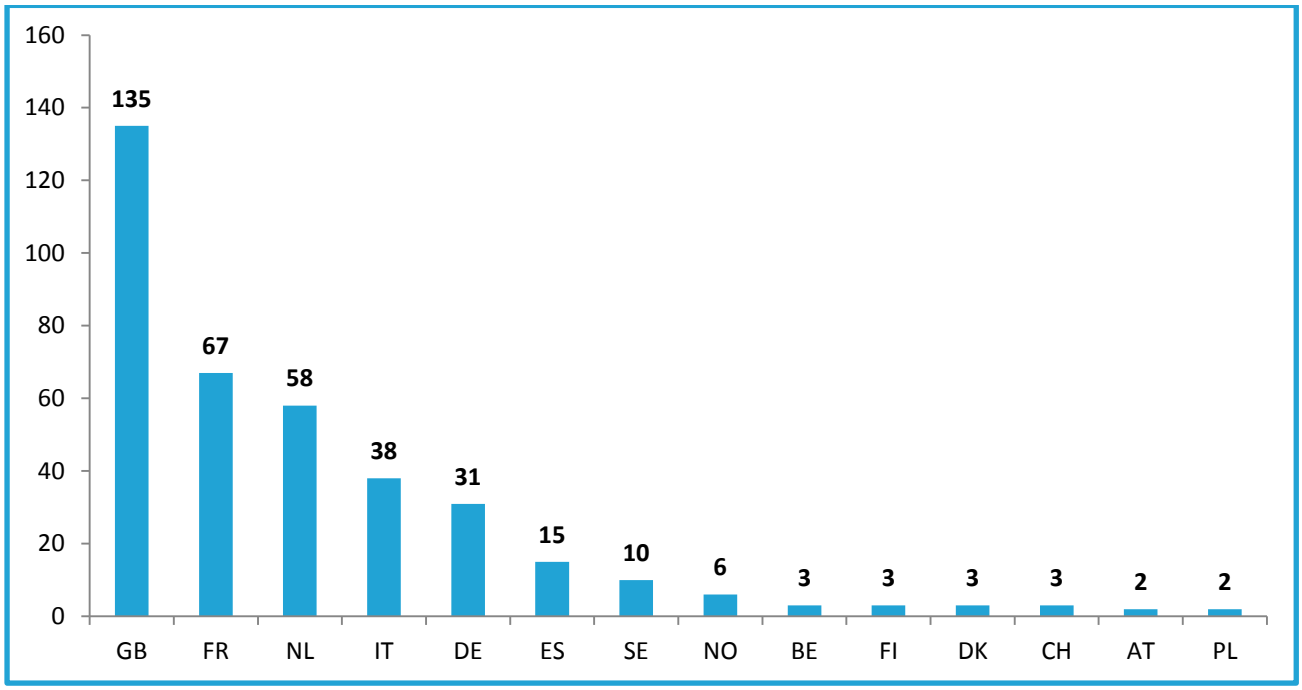
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 79 Programmatic share of video advertising revenue in 2020, in %



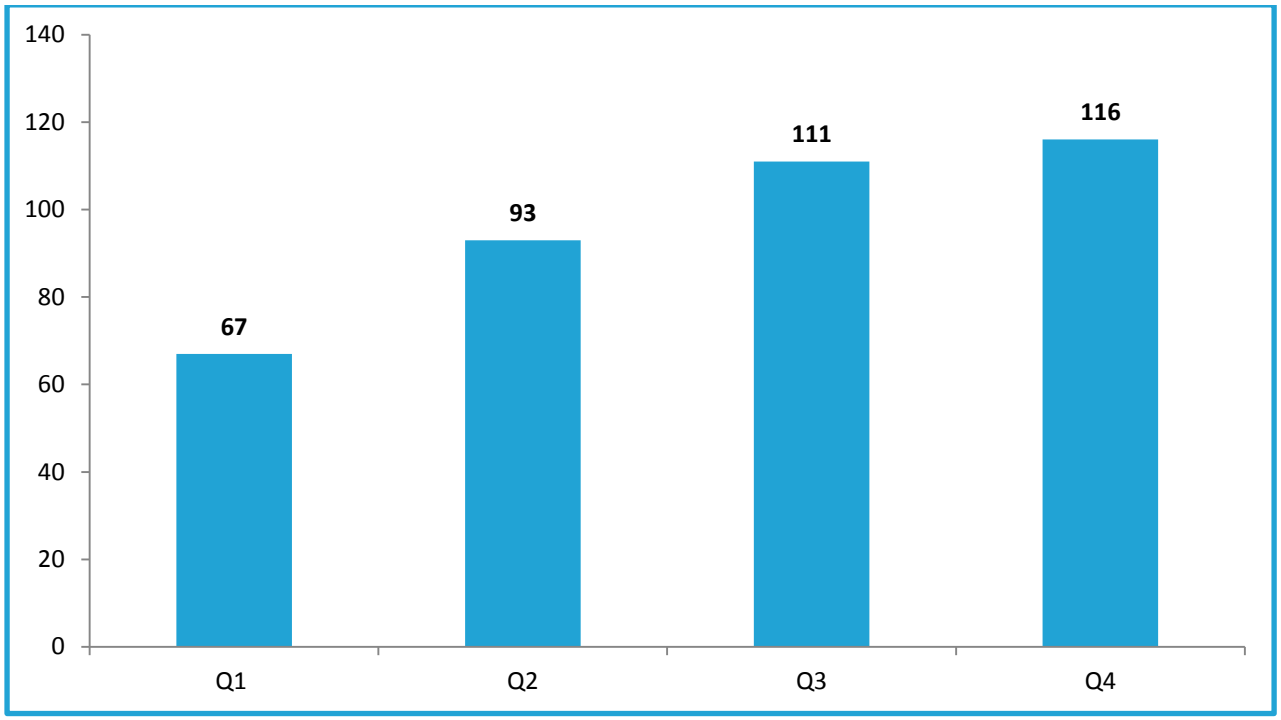
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 80 Programmatic video ad revenue in 2015, in EUR million



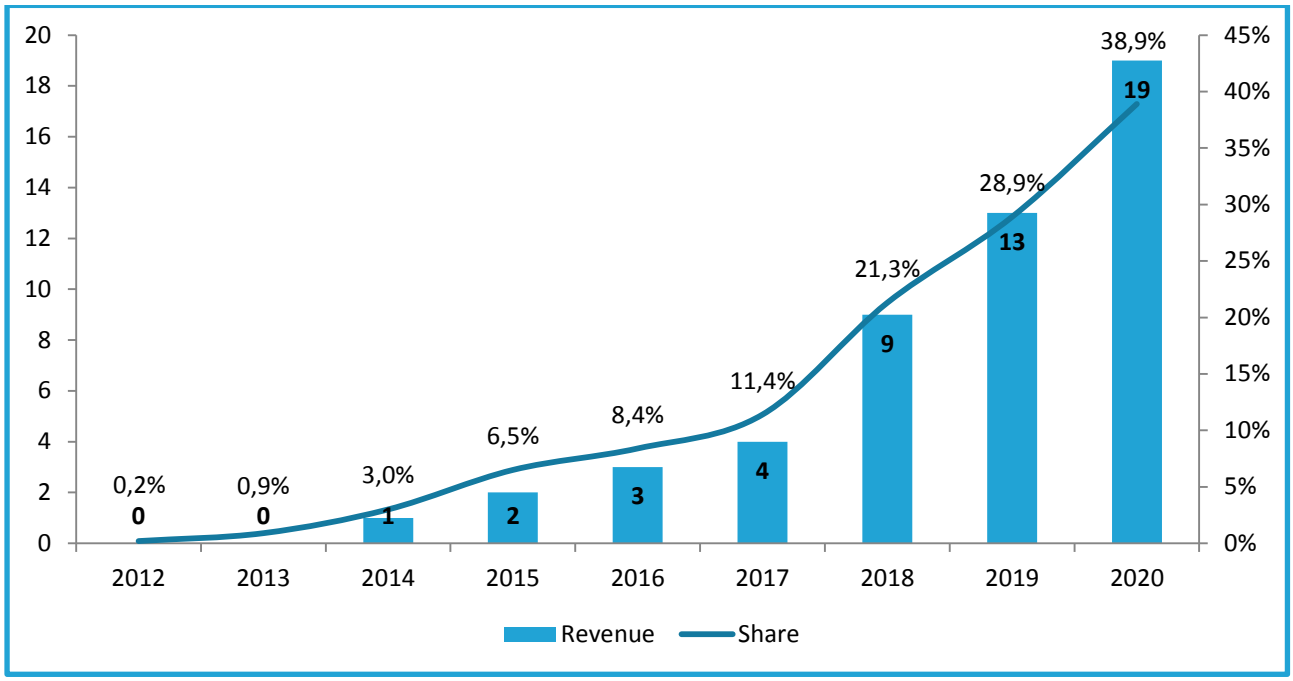
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 81 Active Video demand-side-platforms in Europe in 2014



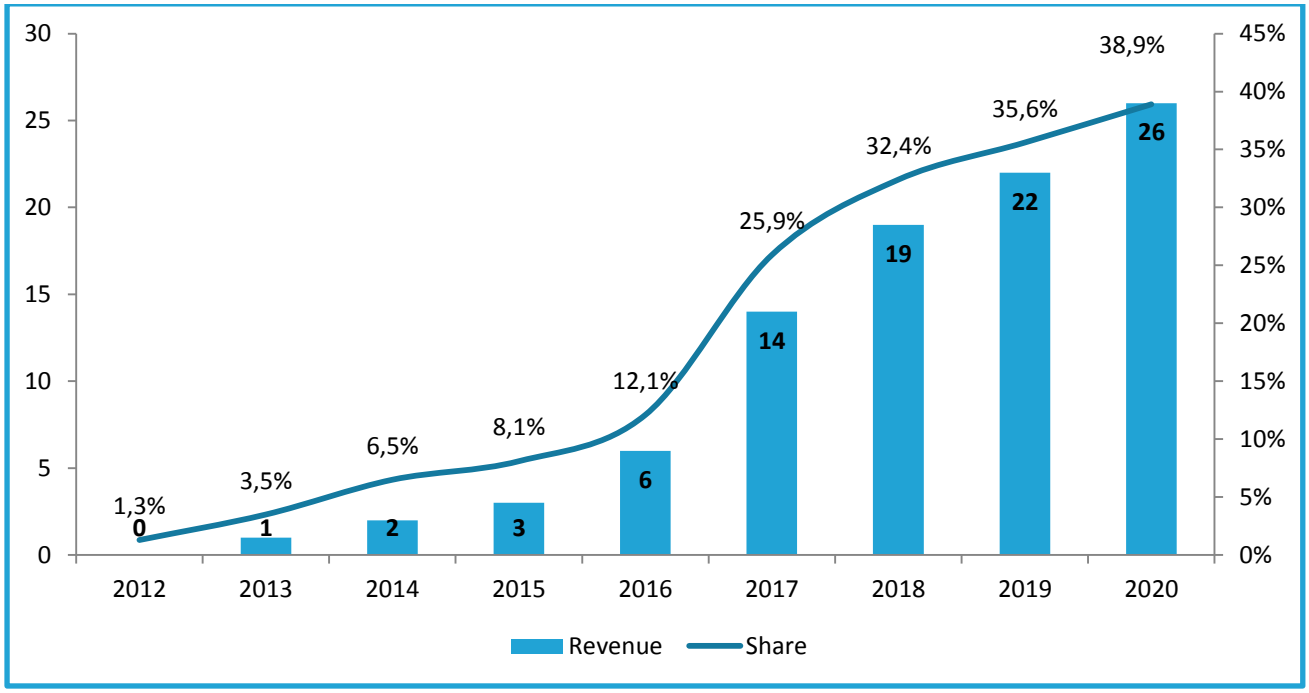
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 82 AT - Austria video programmatic market size and share, in EUR million and %, 2012-2020



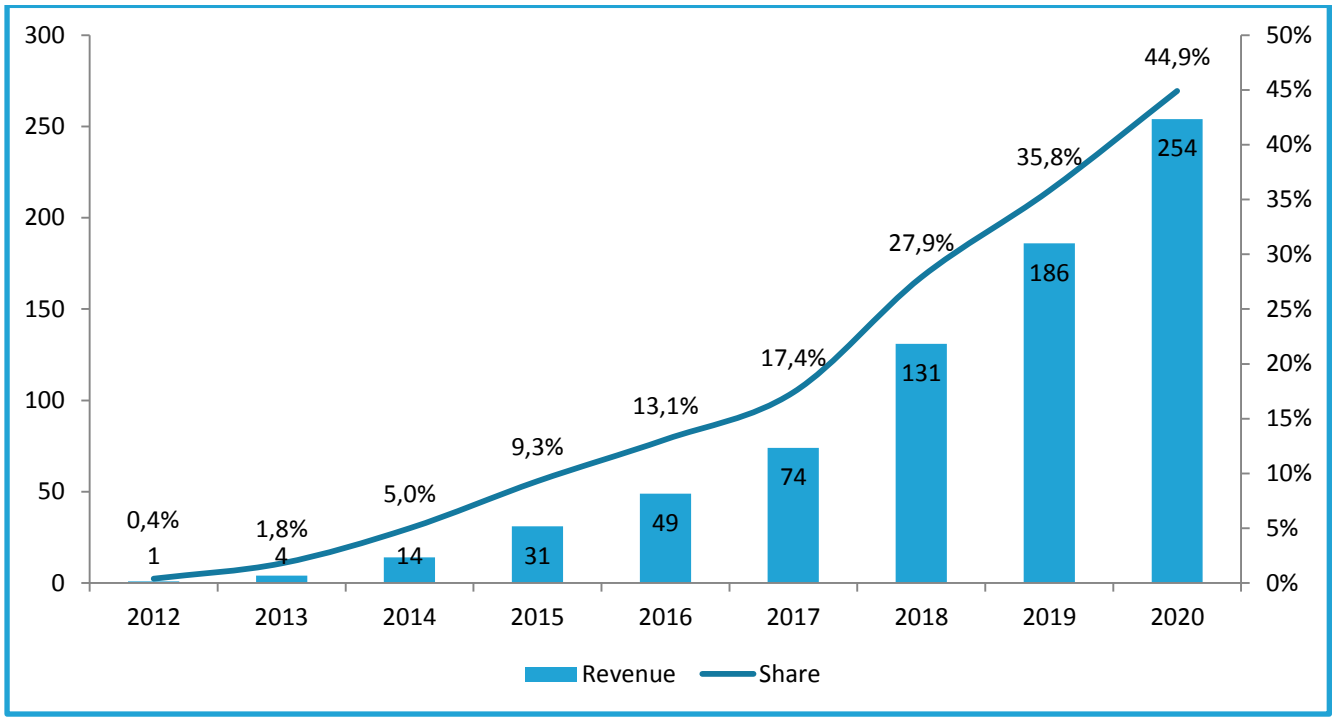
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 83 BE - Belgium video programmatic market size and share, in EUR million and %, 2012-2020



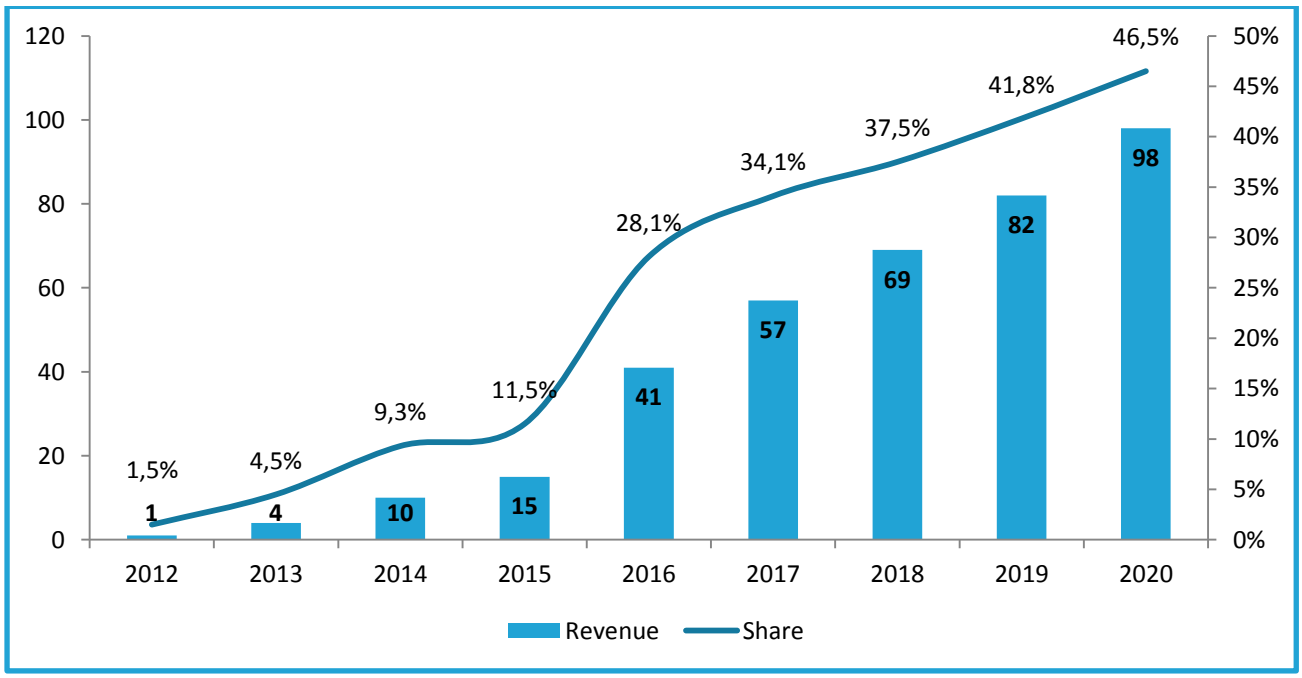
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 84 DE - Germany video programmatic market size and share, in EUR million and %, 2012-2020



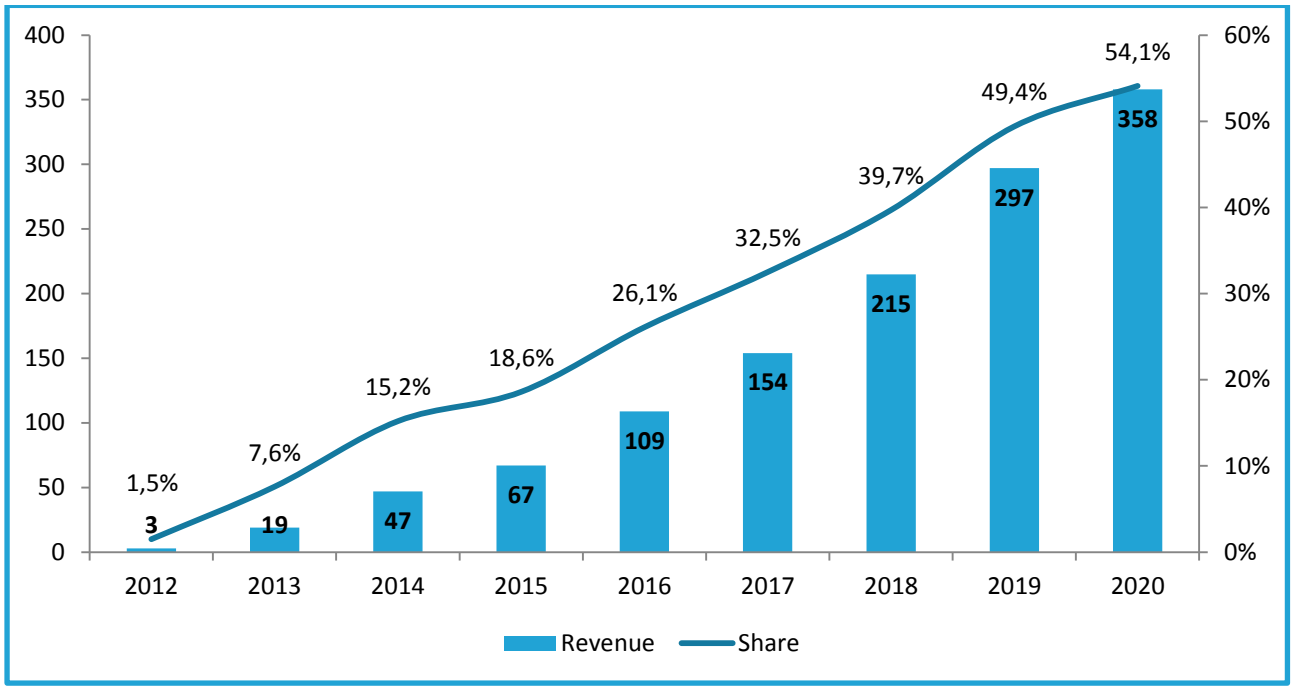
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 85 ES - Spain video programmatic market size and share, in EUR million and %, 2012-2020



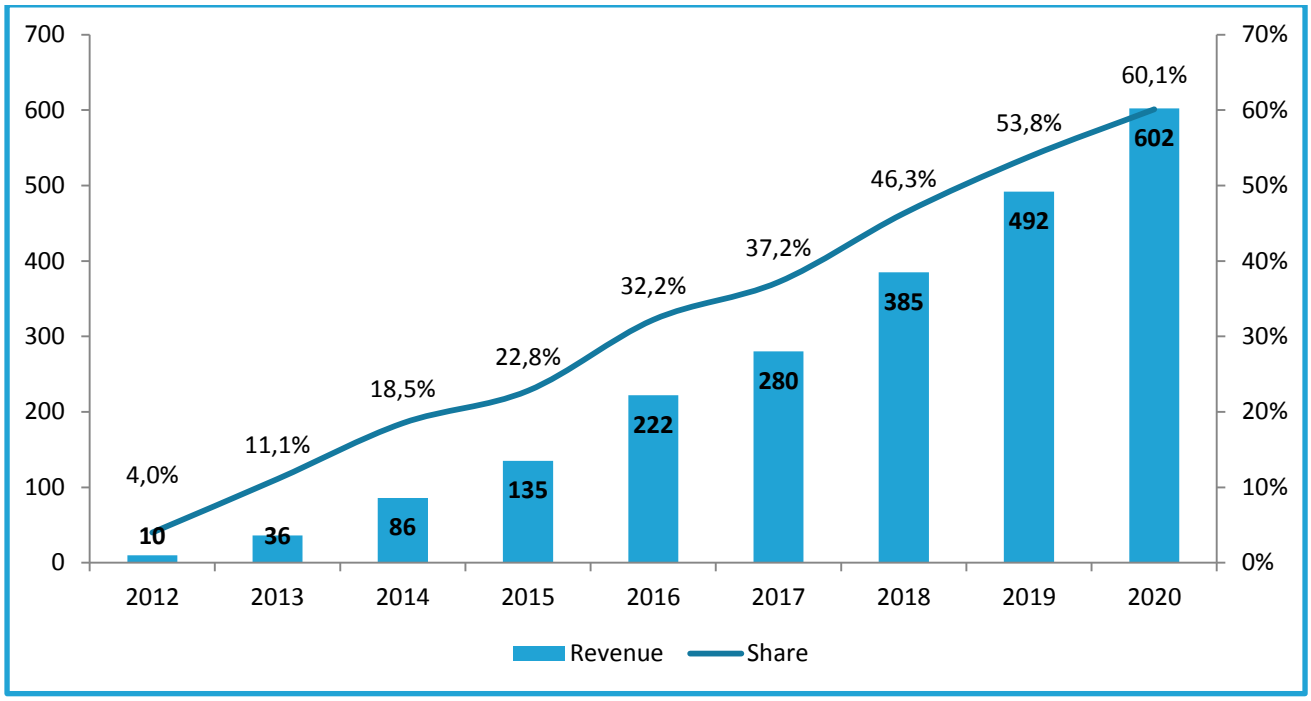
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 86 FR - France video programmatic market size and share, in EUR million and %, 2012-2020



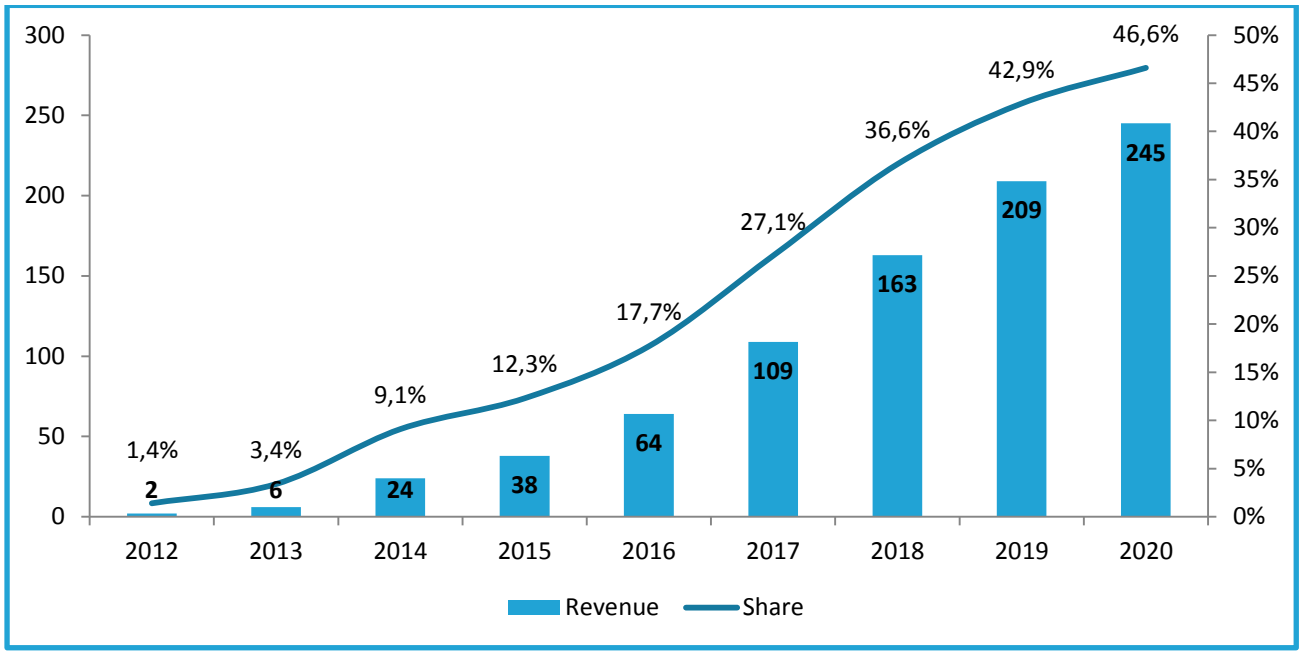
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 87 GB - United Kingdom video programmatic market size and share, in EUR million and %, 2012-2020



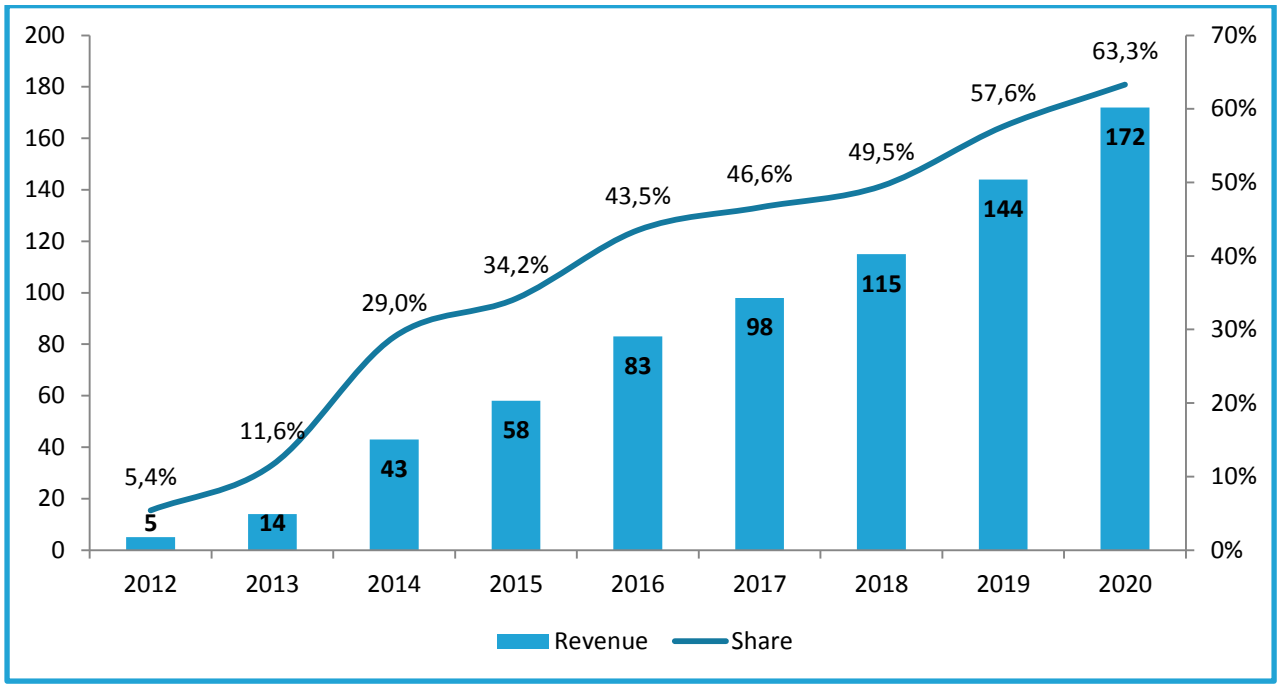
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 88 IT - Italy video programmatic market size and share, in EUR million and %, 2012-2020



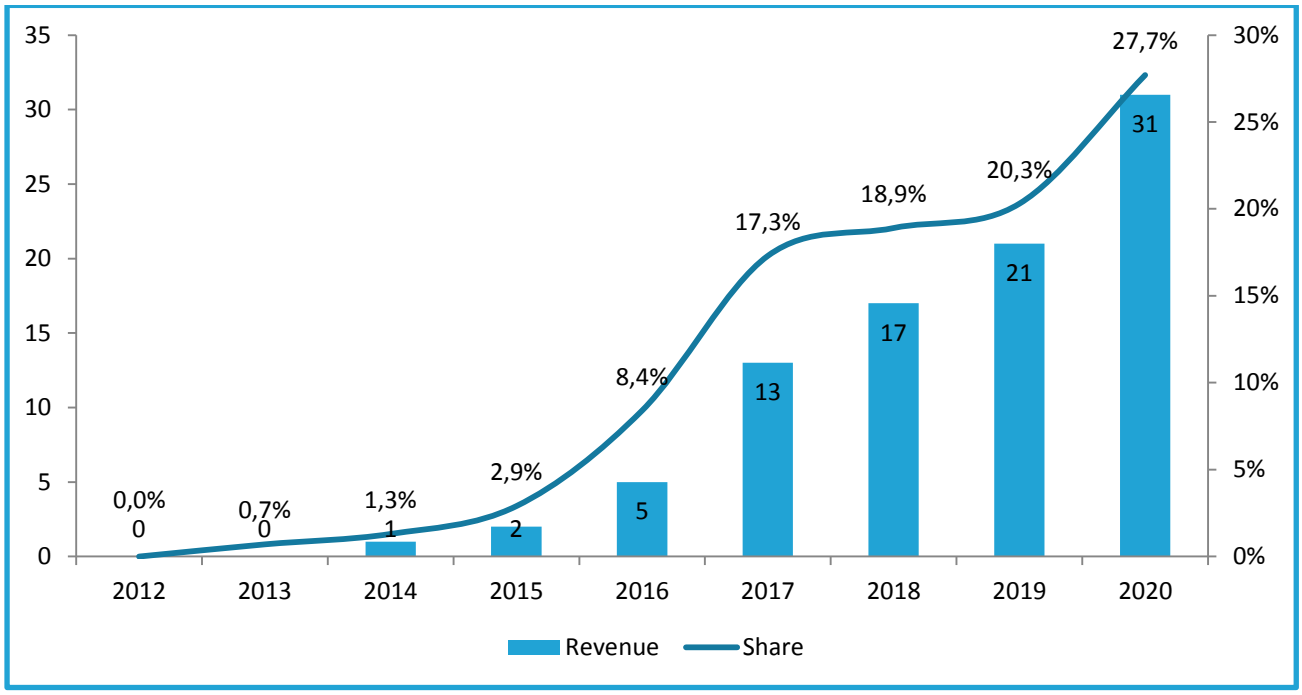
Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 89 NL - Netherlands video programmatic market size and share, in EUR million and %, 2012-2020



Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

Figure 90 PL - Poland video programmatic market size and share, in EUR million and %, 2012-2020



Source: IHS/SpotX, Video Advertising in Europe – The Road to Programmatic Ubiquity, September 2015

2.5 Programmatic/Adressable TV advertising: the beginning?

- Programmatic TV advertising is the promise to bring digital programmatic transactions to the TV advertising ecosystem. The technology is in its infancy and not yet widely adopted. For TV channels it bears the promise to be more competitive in light of the challenge with the digital ad ecosystem through an increased use of viewer data of connected and smart TVs (set-top boxes, media players) and the automation of ad inventory selling and buying process. Programmatic TV can be defined as the use of software platforms to automate the workflow of TV advertising and to improve the effectiveness of TV advertising through the use of advanced TV audience data. For now, it is not auction-based (no RTB) but rather done through direct sales. Programmatic TV is advertising on linear TV channels distributed via cable, satellite and IPTV. It can also refer to advertising within VOD distributed by IPTV, cable and satellite networks and content in digital video recorders, through much lesser used.

- One of the advantages of programmatic TV is to flatten the TV advertising buying process (still very much based on human interactions – campaign planning, requests for proposals, price negotiation, scheduling ad insertions, reporting and billing) and to render it more efficient, requiring less human input. The other main advantage is to improve the targeting of ads, done on a contextual basis in traditional TV advertising (based on the demographics of a TV programmes audience – age, gender, profession, income when available), through the use of advanced audience data.

- The promise is to target subsets of demographics through data gathered from various sources. Sources are panel-based set-top boxes, data from Rentrak, Kantar, Mediametrie, TiVo Research and Analytics, data from third-party providers and data management platforms, data that TV channels own of their viewers (logged-in, pay TV subscription data) and those advertisers have of their customers. However, integrating this data in order to target individual viewers is a complex task, not accessible to the majority of players.

- Opportunities for TV channels (sellers of advertising) are the increase in their sales through the use of advanced audience data which allows their advertisers to better target viewers, selling unsold inventory and to reduce the costs associated with the ad selling process through automation.
- Challenges for programmatic TV are the fear of TV channels to cannabalize their existing business, the fear of losing control over the sales process to third-party providers (typically ad tech firms) and a general risk of hurting their traditional business, selling ads for large audiences. Therefore, programmatic TV will need to convince broadcasters of the benefits for their business and will need to guarantee to them control over their inventory and transparency of the whole sale transaction for an increased adoption.

- For advertisers, programmatic TV represents an opportunity to reach audiences across devices (mobile, desktop, TV), better targeting (typically, in traditional broadcast advertising, a large share of advertising is lost as it is not shown to interested audiences stated by 57.7% of 215 US

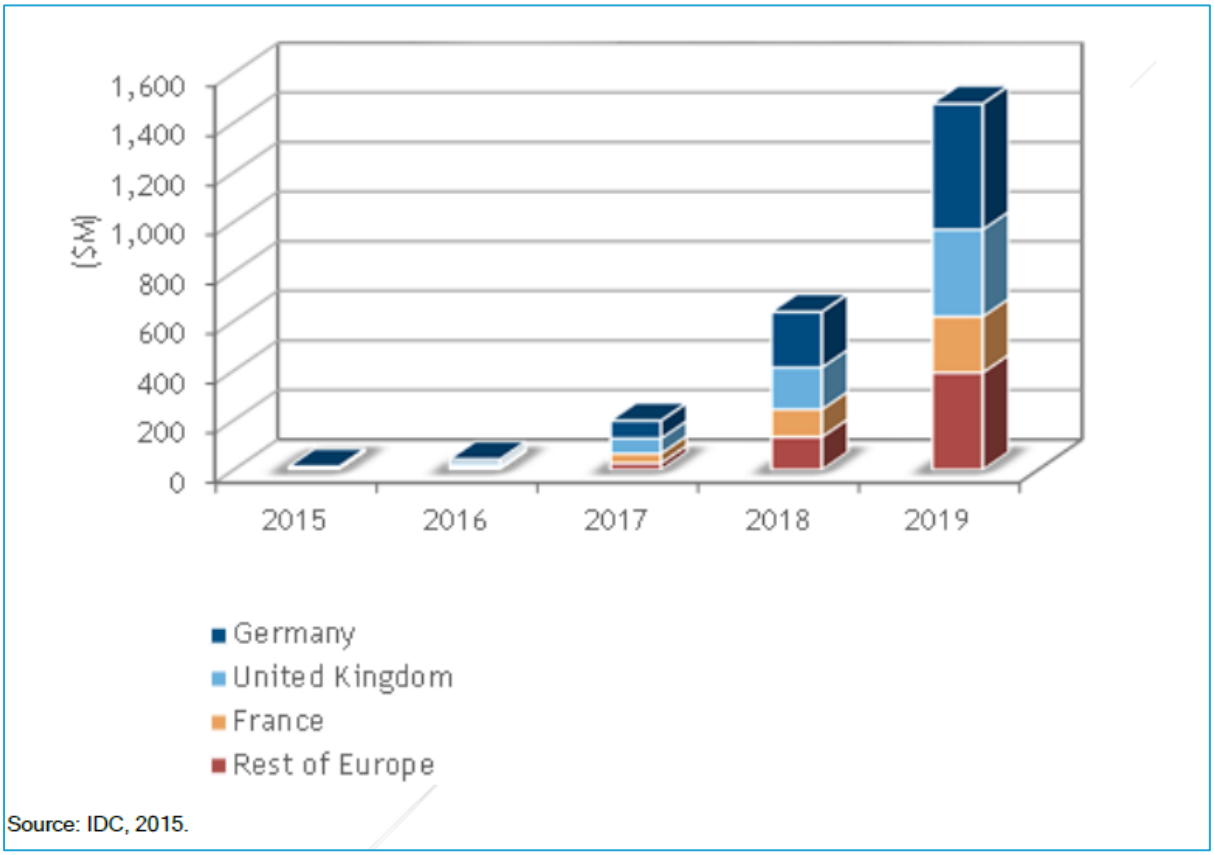
Marketers as the main benefit, according to WideOrbit) and the simplification of the ad buying workflow. Ultimatley, they could gain time and money and improve their return on investment, the same promises of programmatic digital advertising.

- In Western Europe, programmatic TV will not be adopted rapidly as commercial broadcasters are reluctant to commoditise their main business. Larger broadcasters may start trials (as did Sky in the United Kingdom with Sky IQ and Sky AdSmart) but the technology will not become mainstream in the coming years. Programmatic TV is expected by IDC to grow from 0% of TV advertising in 2014 (USD 6 million) to 4% in 2019, or an expected USD 1.5 billion (see Figure 91). The United Kingdom, Germany and France are expected to be the biggest market (see Table 13).

- In the US, programmatic TV represented 0.5% of TV ad spend in 2015 (USD 310 million) but is expected to rise to USD 4.4 billion by 2018 and 6% of TV ad spend, as stated by eMarketer.

- Programmatic TV will grow from a 0% share in worldwide TV advertising revenues (USD 69 million) in 2014 to USD 17.3 billion and 5% of the TV advertising market by 2019, with an compound annual growth rate of 201% as estimated by IDC. In 2019, the US will represent 66% of the worldwide programmatic TV market, Japan 9%, China 8%, Germany 3% and the United Kingdom 2% (see Figure 92).

Figure 91 Western Europe – Total Programmatic TV advertising spend in USD million, 2015 - 2019



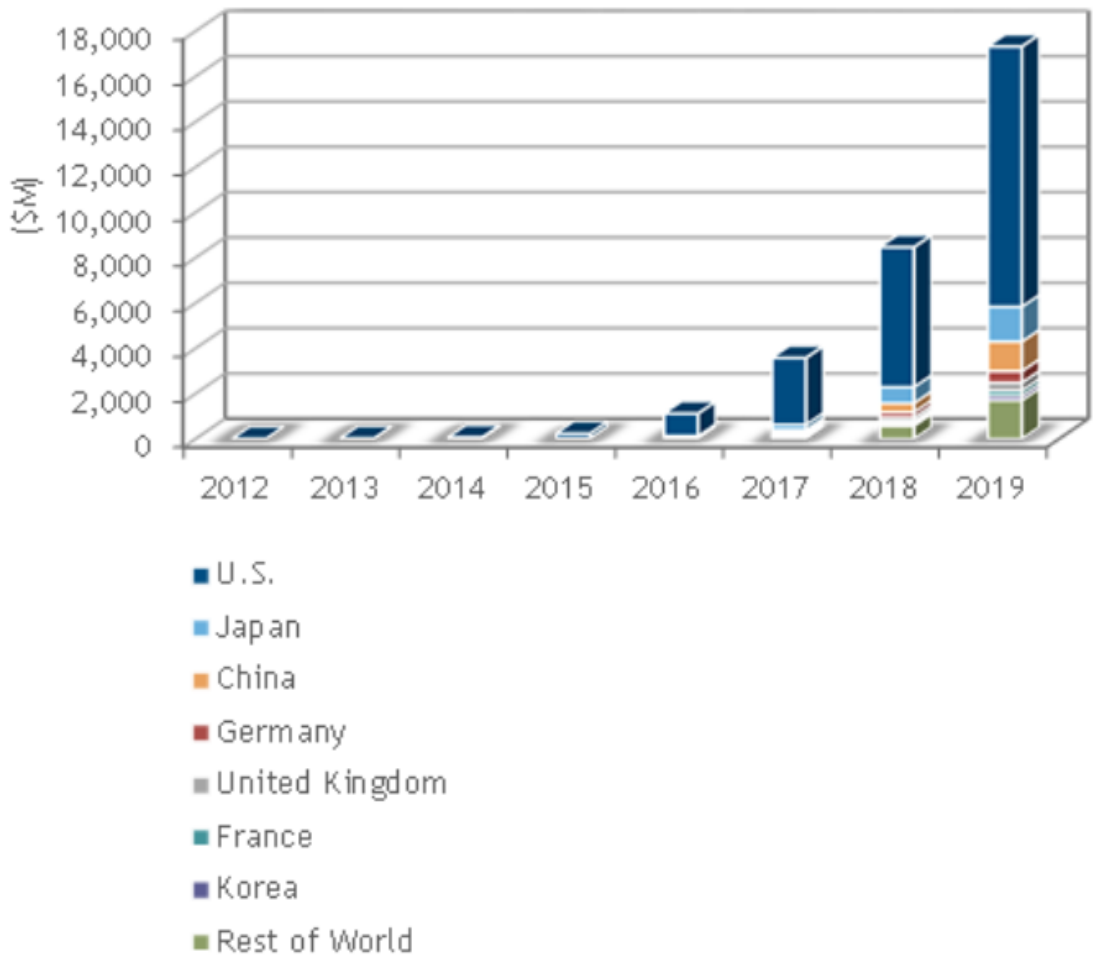
Source: IDC, Programmatic TV Advetising: Bigger Than RTB by 20191, White Paper August 2015

Table 11 Programmatic TV advertising spend in USD million, FR DE GB, 2012 - 2019

	2012	2013	2014	2015	2016	2017	2018	2019	CAGR 2014-2019
France	0	0,6	1,1	2,3	8,2	39,1	111,2	226,3	
Growth			*97%*	*110%*	*248%*	*379%*	*184%*	*104%*	*189%*
Germany	0	0,6	1,3	3,7	13,7	71,6	223,9	507,5	
Growth			*124%*	*187%*	*273%*	*422%*	*213%*	*127%*	*231%*
United Kingdom	0	0,9	1,8	3,9	13,8	60,9	169,4	351,2	
Growth	*0%*	*0%*	*103%*	*113%*	*253%*	*342%*	*178%*	*107%*	*186%*

Source: IDC, Programmatic TV Advetising: Bigger Than RTB by 20191, White Paper August 2015

Figure 92 Total Programmatic TV advertising spend in USD million, 2012 - 2019



Source: IDC, 2015.

Source: IDC, Programmatic TV Advetising: Bigger Than RTB by 20191, White Paper August 2015

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