Interaction

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The ink is in the water.

groupm

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Introduction

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Welcome to Interaction 2017. Each year GroupM publishes its overview and speculations on the state of digital marketing and its implications for advertisers. In 2017 it's challenging to discriminate digital marketing from all marketing. Consumers barely separate their digital and analog lives; little media is published in only analog form and enterprises infuse digital processes into every aspect of their organizations. A few years ago we noted that "the digital ink is in the water," it's proved permanent. It's probably true to say that marketing strategy and marketing services remain more siloed than consumer behavior and equally true that marketing and sales organizations remain more separated than they should be given the collapse of the purchase funnel.

Our Worldwide Media and Marketing Forecast predicts that in 2017 digital's share of ad investment in the faster-growth world will at last have caught up with the developed world, to around 33%. The new and old worlds have contributed equally to new digital ad dollars since 2013. If we disregard print, which is negative, then in 2016 we think digital captured 72 cents of every new ad dollar, and TV 21 cents. In 2017 this becomes 77 to 17. We do not consider digital as big as traditional TV yet, with TV's ad share largely stable at 42% in 2016 and 41% in 2017. It rode a five-year 44% peak 2010-2014, and some of the share it appears to have shed since then is an artifact of poor measurement. 10 countries have already witnessed digital overtake TV, with a further five expected in 2017; France, Germany, Ireland, Hong Kong and Taiwan. Digital fuels its growth by recruiting long-tail advertisers and winning share from other media. To this it now adds a serious attempt to win TV's big-brand advertising, an endeavor which will turn as much on digital's quality as on its undoubted quantity.

Last year we were cautious in our estimation of the rate of change and summarized progress as "the same but more so." This year we are less cautious and believe that we are seeing changes in underlying technologies in both hardware and software that are advancing us from the Information Age to the Intelligence Age. 2017 is the 10th anniversary of the iPhone and the beginning of a sequence of changes that will have equally profound implications for society and thus for marketers. We hope that this year's Interaction explains some of these changes and is relevant to advertisers, our partners in media and technology and to our own people.

Specifically we look at: the rising influence of artificial intelligence, developments in augmented and virtual reality, the competition for video advertising between television and other video providers, the impact of "relevance" on the trading of media, developments in the application of data to television along with Over the Top solutions,

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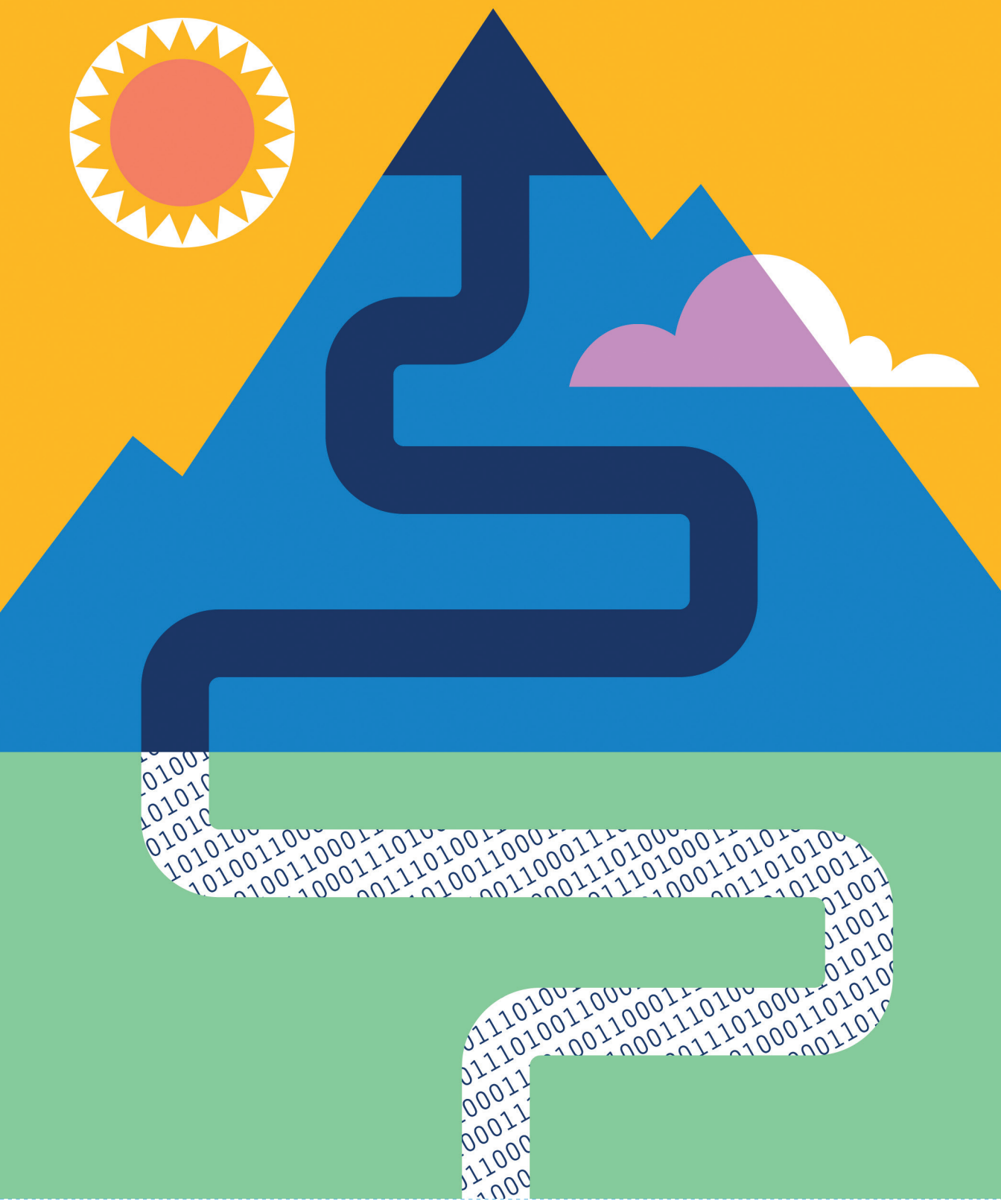
the impact of streaming and on-demand audio, the Google/Facebook duopoly, live video, e-commerce, market place integrity and fake news.

We would like to thank executives from a number of companies for helping us this year in the form of a series of interviews. These include IBM, Amazon, Google, Facebook, NBCU, Turner, ESPN, The New York Times, Twitter, Snapchat, and eMarketer, comScore, the IAB, Pandora, Pinterest, LinkedIn, AppNexus, YouTube, Vox Media, Hulu and DoubleClick.

WHAT'S NEXT FOR MARKETERS?



WHAT'S NEXT FOR MARKETERS?

What is becoming clear, despite some new entrants, is that economic value is coalescing around a very small number of companies with respect to digital advertisers. Perhaps 6 companies are global or nearly so, three are Chinese and a further handful exist in each of the major markets. Today's challenge is to win with the winners and to find ways of aggregating value from what's left particularly when the "minor" participants are still valued by their audiences for their context or authority.

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The only threats to this new status quo are regulatory and a heightened concern about brand safety particularly in reference to YouTube and the Google Display network. 2017 may be hugely significant one in terms of privacy regulation and already is in terms of brand safety as advertisers have begun a mass pull back from some of Google's properties. This is covered in detail in the marketplace integrity section. Organically developed challengers will be exceptional and rare. It would be a mistake, however, to ignore the enduring value of television, audiences remain immense and its communication potential enormous. Descriptions of monopolies and duopolies in either advertising or ecommerce have to be tempered. It's true that Google, Facebook and Amazon are the biggest and most powerful players in their categories but opportunity still abounds for brand builders, direct to consumer and multi-channel retailers in partnership with a broad swathe of digital and analog inventory suppliers. This applies in all parts of the marketing funnel. It's helpful to remember that not very long ago audiences of five million or more for video or print media were considered very large indeed.

It would equally be an error to forget that in all media there has always been a dividend for creativity – more people remember – and relevance – more people act.

The goal for marketers has always been to outperform their competitors at every touchpoint of communication and distribution. Nothing has changed except the exponential complexity of the platforms and enterprises and their multi-functional nature. You can sell goods from a magazine app, you can execute customer service on a social network, you can buy advertising inventory from a retailer. On a single platform you can advertise, sell, fulfill the order, and deliver customer service. A single piece of content, or more accurately, intellectual property, can be watched in linear form or on demand, as a show, a still, a clip, a multi-hour binge and multiply reconfigured for multiple platforms. The complexity is compounded by abundant, even excessive, data, complex measurement and attribution challenges and new creative challenges.

Around a decade ago the industry was swept along by the apparently new idea of media that was paid, owned or earned. At a time of high visitation to brand/corporate websites and then, brand Facebook pages the construct was legitimate. Two simple formulations prevailed:

- Build a website or a YouTube channel (owned media) and drive traffic to it via banner advertising and paid/organic search with the expectation that deeper engagement would follow.

- Build a social media presence and buy "likes" or "followers" in the expectation that the same would happen with the added benefit that your posts would reach those that liked you, and that their interactions with you would be shared with their own social connections. The earned media ambition.

Now, of course, brand websites are largely becalmed and the organic dividend of the Facebook "like" has been diminished.

Only the exceptional survive in any useful form and it's certainly true to say that any exposure you earn is largely a function of the media you own. This means that advertisers have to deliver an exceptionally high degree of usefulness to their audience and in owned media that means telling them something they did not know (how to apply a great make-up look or paint a window frame). It means building apps and digital destinations that allow the user to choose, find, buy or book. It means creating content with a clear understanding of the value it creates and the likelihood of it leading to a share or a recommendation.

High quality data is data that helps you acquire the customer you don't know and to better understand the customer you do know.

All of these are a function of some combination of expertise, well integrated systems, outstanding service and creativity. The objective of these efforts has changed also. Of course sales and lifetime value sit at the top of the hierarchy of marketing but close behind is the gathering of high quality data. High quality data is data that helps you acquire the customer you don't know and to better understand the customer you do know.

To succeed advertisers need to understand and deploy a marketing tech stack, which holds the data on the known customer, with the ad tech stack that enables the activation of that data to the greatest effect. As usual this creates a divide, the more direct the customer relationships, the more easily acquirable and applicable the data. Increased efficiency is relative and even the most "data poor" advertisers have embraced programmatic delivery at scale to good effect. When used to target the right cohorts in the appropriate context the advertiser succeeds in reducing wastage while retaining the value of context. It's not only about the pursuit of the known effect of every impression but also about knowing that every impression has the potential to contribute to a positive business outcome.

The creative challenge persists at four levels:

1. Getting the attention of the consumer in a low attention world. As the buyer pushes the seller towards viewability, the consumer is pushing the brand to greater "watchability."
2. Meeting the costs and measurement implications of the constant iterations of formats and functionality.
3. Finding the balance of enough variation to meet the needs of ever finer segments without undermining the overall brand proposition.

WHAT'S NEXT FOR MARKETERS?

(The Marriott Hotel Bogota has 57 images on Expedia.com. Marriott /Starwood operates over 7,000 properties. That's a lot of images.)

4. The creation of new classes of content for e-commerce environments.

If owned media now requires a higher threshold of usefulness so should advertising itself. The value exchange between the user and the advertiser has become increasingly explicit. Attention is a reward not a right. Useful advertising is a function of relevance which in turn is a function of time, place, context, cognitive targeting and creation, and actionability. The creative brief as well as the media brief now need to reflect this as well as an understanding of the efficient frontier of variety: the point at which the cost of granularity exceeds its value.

We have noted before that every brand needs a data story:

- First an absence of a data story leads to a reduction in discoverability, a reduction of relevance and a loss of advantage in algorithmically mediated platforms.
- Second, as augmented reality teaches consumers to expect a data overlay on the real world, brands might wish to participate in this.
- Third, brands need an actual voice or at least the ability to respond to the human voice. Voice search, voice commands to IoT devices from Echo to the autonomous vehicle will, in some cases at least, require a spoken response.
- Finally, as artificial intelligence becomes part of the taxonomy of everything the structured and unstructured story around the brand, its purpose, origin and the conversation it creates will become part of the consumer experience. It had better be a good one.

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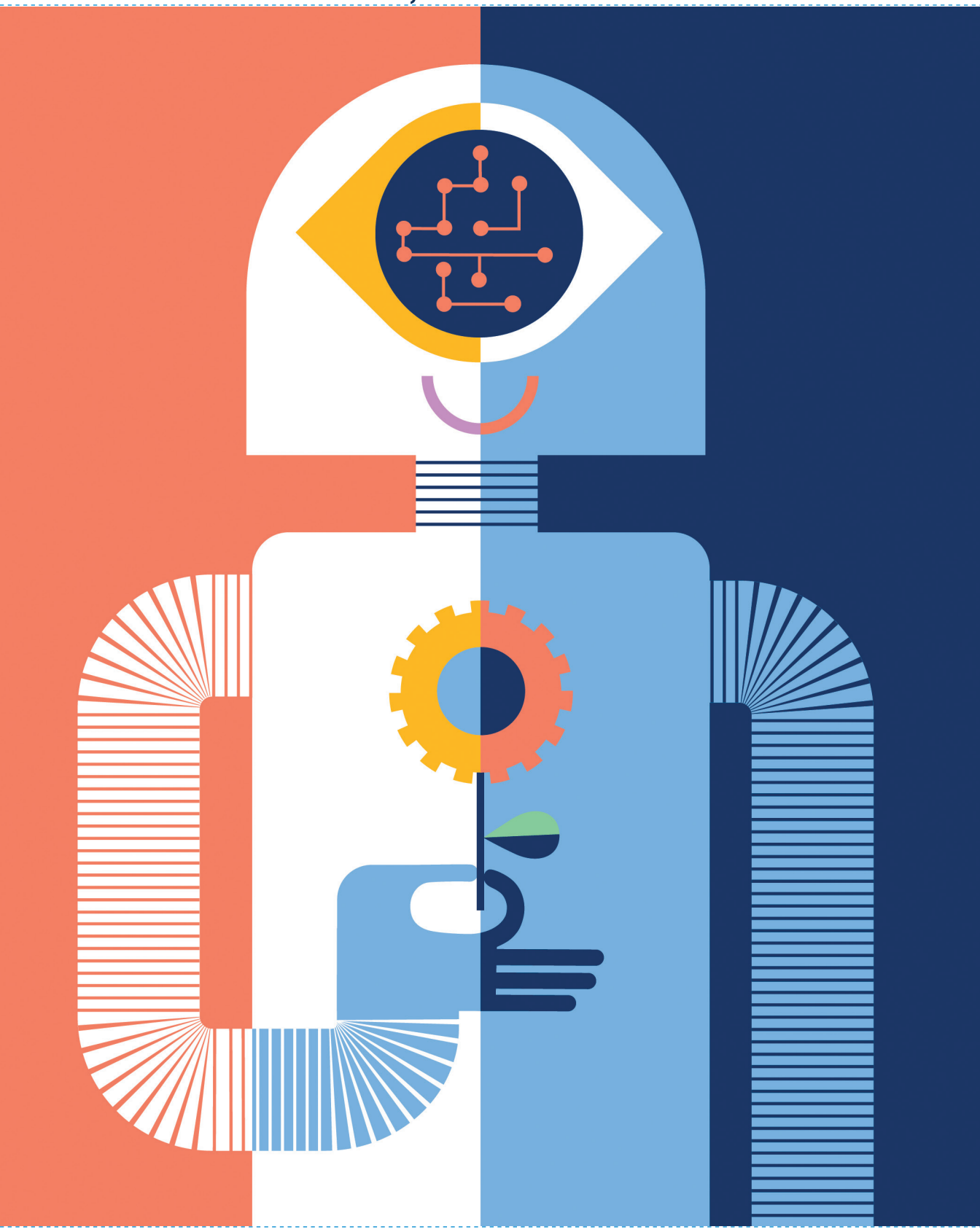
More broadly it's impossible to ignore the political events of 2016. The U.S. Presidential election, the Brexit vote in Europe, the Italian referendum, the failed coup in Turkey and the tragic events in Syria touch lives and by extension economies, markets and marketing. 2017 promises to be as tumultuous. Elections in France and Germany and other events may affect the European Union at its core.

Explicitly, a signal seems to have been sent by the electorate that the uneven distribution of wealth is simply unfair and that for many opportunity is fantasy. Some 70% of the world's population live on less than $10 per day. 38% of all Americans eligible to vote live on less than $55 per day. This report is dominated by tales of innovation and the ascent to power of a few mighty enterprises. More innovation should produce different innovation. Innovation for the less advantaged in terms of function and value of products and services is every bit as important as VR headsets and the world of wonders.

WHAT ABOUT TOMORROW? ARTIFICIAL INTELLIGENCE, THE ROAD TO COGNITION



ARTIFICIAL INTELLIGENCE

When we first published Interaction in 2007, the search query, "what about tomorrow?" would have returned hundreds of thousands of results with no particular commonality other than the words themselves. Today, ask Amazon Echo or Google Home "what's the weather like today?" and it will respond with the forecast. Ask again "what about tomorrow?" and the answer will be another weather forecast.

A decade ago our calendar would have reminded us of an upcoming event, if we had instructed it to do so. Today it will tell us the weather at the destination, the drive time and route to the airport, book the car and tell us the gate number of the departing flight and ...

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We have come a long way from a world characterized by the organization of the world's information and making it readily available, to a world where machines get smarter and learn the context of the query. Such is one "simple" manifestation of machine learning.

Artificial intelligence is manifesting itself in our daily lives, predicting our behaviors, needs and responses and translating that intelligence into everything from serving us an Instagram post that we are most likely to like, to fulfilling our, as yet unspoken or un-typed need for detergent. This is not reversible. J. Walker Smith, Chairman of Kantar Futures, speaks of "the trajectory of convenience," in the end convenience wins. Even greater convenience comes when Alexa and Google Assistant are deployed in Smart TV, automobiles and other devices.

At the heart of these advances are a series of step changes in natural language and image recognition processing, a task that requires more than brute force computing but neural technologies that mimic the function of the human brain.

2017 will mark the 20th anniversary of the defeat of world chess champion Gary Kasparov by IBM's Deep Blue although it's less than a year since Google's Deep Mind AlphaGo beat Lee Sodel, the greatest living Go player. In between these events, in 2011, IBM's Watson beat the best humanity had to offer at Jeopardy.

The 20-year gap between the Deep Blue and AlphaGo victories is partly explained by the greater permutations of Go, but more important was DeepMind's ability to learn by playing against increasingly experienced versions of itself, cultivating its ability to predict and evaluate. This allows it to avoid playing out every permutation before every move and thus economize on processing. In Deep Blue we saw the power of processing and in DeepMind the ability of the machine to learn. DeepMind founder Demis Hassabis calls the former "narrow intelligence" (good at one thing) and the latter "artificial general intelligence" (flexible and adaptable).

IBM's success with Watson represents a different instance. Computers have long been on a trajectory to process structured data at speed; unstructured data presents the different challenge of natural language, syntax and context. Watson has advanced into what might be described as "augmented intelligence" leading to an extraordinary acceleration in processing structured and complex unstructured data ranging from social conversation to Magnetic Resonance Imaging in pursuit of speeding medical diagnoses. "Google Brain," a small group of AI engineers at Google, has meanwhile made breakthroughs in image recognition and translation that promise to revolutionize the functional range of technology.

Alongside Google, IBM, Amazon and Microsoft, AI and machine learning also underpins developments at Facebook, from the deployment of sophisticated chat bots substituting human customer service interactions, to the execution of many trillions of daily transactions placing the most relevant ads into almost two billion feeds around the world. Facebook might describe every "ad/consumer pair" as a test with relatively little prior knowledge of the outcome. The difference between Facebook and everything that predates it is that every impression DOES have a measurable person based outcome, from time of exposure to action.

The Facebook case is specific to advertising, but in all these cases, intelligence – machine, augmented or artificial – advances the frontier of productivity. To capture these efficiencies and ensure a reasonable distribution of their benefits, government, societies and individuals will need to adapt. Learning to play chess or Go has enduring value, but there's diminishing value in knowing what can be stored, processed and interpreted by machines. In contrast there is abundant value in understanding underlying principles, context and the creative (in every sense) process by which the human condition can be advanced. The alternative is unpalatable; AI is highly unlikely to create a trove of mundane well paid jobs. Fortunately all the companies that drive the underlying technologies have done so with the intent of creating parallel development platforms that will allow the ambitious the opportunity to build new applications, new businesses and new sources of employment. Open source, as a concept, separates today's giants from the powers of the industrial age.

In an era where only the machines can improve themselves only they can validate experiments. At the same time humans can't be equaled in the design of those experiments. Long live the imagination economy, and take comfort that while no human will ever beat Deep Blue a team of humans working with Deep Blue will still beat Deep Blue on its own.

To quote Gideon Lewis-Kraus in The New York Times Magazine (Dec. 14, 2016) "The most important thing happening in Silicon Valley

There is abundant value in understanding underlying principles, context and the creative (in every sense) process.

right now is not disruption. Rather, it's institution-building — and the consolidation of power — on a scale and at a pace that are both probably unprecedented in human history."

This is clearly true of Google, Facebook, Amazon, Microsoft and Apple which by market capitalization are among the six most valuable companies in the world. It's true also of Alibaba, Baidu and Tencent. Eight businesses with data at their core that are mapping human behavior and in so doing becoming the wireframe of human experience.

With advances in nanotechnology, quantum computing and the speeding of computer-to-computer data exchanges the reverse seems to be true and we are entering an era of infinite computing power.

Placing your chips

For many the expression "software ate the world" coined by venture capitalist Marc Andreessen in 2011, is some kind of inalienable truth. Even so it's worth noting that software is only as powerful as the hardware available to run it. We don't talk about hardware much outside of finished devices, but what lies beneath – the processors – is where the magic is enabled.

A central processing unit or CPU is used interchangeably with the word microprocessor. It's the hardware device in a computer that executes the instructions of the software that is being run on that machine. A graphics processing unit is also a microprocessor. They are very efficient at manipulating computer graphics and image processing.

Nvidia's website explains the difference: "A simple way to understand the difference between a GPU and a CPU is to compare how they process tasks. A CPU consists of a few cores optimized for sequential serial processing while a GPU has a massively parallel architecture consisting of thousands of smaller, more efficient cores designed for handling multiple tasks simultaneously."

As a consequence GPU's are much more efficient than even the most advanced general CPUs and are so by orders of magnitude for executing algorithms where the processing of large blocks of data simply can't be done sequentially in a useful time frame. This is enormously important in areas such as autonomous vehicle development.

Processor development has largely obeyed Moore's Law for the last half century as more and more, smaller transistors have been crammed onto pieces of silicon. Until recently there was broad agreement that this process was slowing. Now with advances in nanotechnology, quantum computing and the speeding of computer-to-computer data exchanges the reverse seems to be true and we are entering an era of infinite computing power. This prospect is further enhanced by the ability to reprogram microprocessers. In MIT's words, "these are sometimes referred to as FPGAs, field-programmable gate arrays, chips that can be reconfigured to implement any design and that can be very power-efficient."

This will accommodate almost all foreseeable deep learning applications including vehicles that are not only autonomous but connected to each other and the environment in which they operate.

So Marc Andreessen was right; software will eat the world but only because the power of the underlying computing hardware is advancing at such a prodigious rate.

AR AND VR: THE NEW REALITY

In March 2014 Facebook announced its intention to acquire Oculus VR. The greatest accelerator of consumer behavioral change had acquired the most advanced developer of virtual reality technology. At around the same time that it became clear that 3-DTV was dead on arrival. At the time of the acquisition it was clear that Facebook saw Oculus in three ways. First as a heavy horsepower assault on the gaming market; secondly as a long bet on the post-mouse, post-swipe, post-voice, man-machine interface; and thirdly and probably most importantly, as a mechanism to bring "life" to two dimensional and physically distant social interactions. From a consumer point of view the main manifestation of Oculus (other than the PC dependent Oculus Rift itself) has been its integration with Samsung VR Gear headsets.

Statista estimates global sales of VR Gear at five million in 2016, sales of the high powered Oculus Rift at 3.6m, HTC Vive at 2.1 million and Sony Morpheus at 1.4m. It is early days. VR is not always a high tech experience from a device standpoint. Given that Google shipped five million cardboard devices by January 2016 it's likely that there are more Cardboards in use than all other devices in aggregate; at a starting price of "free with The New York Times" it's not surprising. The Times of India pursued a similar strategy although not with Google. Google's Daydream View designed to complement its outstanding Pixel handset was shipped free by Verizon with pre-orders of the device.

For most people the VR experience to date has been a hybrid of 3-D and 360 degree video. It creates a different aperture on content and closes the gap between being here and being there. Truly immersive experiences are still foreign to people in general and seem unlikely to become a significant part of the media consumption experience for some time. It's possible that the eighth iteration of the iPhone may better integrate VR capabilities and a light weight wearable will popularize these experiences sufficiently to encourage advertisers to participate in content creation. There are few technical barriers today but advertisers rarely sink cost into developing technology until the distribution platform is proven.

As always storytelling is at the heart of creative evolution. The book was linear, the movie of the book was linear also. The VR experience requires a creative perspective that it is neither linear nor dependent on a single "lens" on the story. The magic comes when value to the viewer can be curated by adding to the value of the experience in multiple dimensions.

Augmented reality is a different story. AR is a lightweight technology that allows the digital world to be used as an overlay on the physical or built environment. AR came to life at scale in 2016 with the launch of Pokemon Go, created in collaboration between the Pokemon Company (part owned by Nintendo) and Niantic Labs' cloud based Real World

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Gaming Platform. The Pokemon Go app has been downloaded over 500 million times and for a brief period became a headline-news cultural phenomenon. Its significance lies in its encouragement of mass trial of AR, and it is in some ways the Angry Birds of its day, which acted as a catapult to the adoption of mobile casual gaming. Like Angry Birds it also induced a frenzy among marketers and agencies which resembled a soccer match between two teams of six-year-olds; all the players clustered around the ball losing sight of the ultimate objective of the game.

AR creates mass-audience opportunities right now. Marketers should ask four questions:

1. What place, thing or object do I want to augment?
2. What data or assets do I have to augment it with?
3. How will I distribute the experience?
4. What value will I create for the consumer and for my brand, and at what cost?

It's likely that the biggest AR deals in the near term will be collaborations between brands and retailers and between sponsors and events. Further applications can be expected in travel, tourism and real estate. In all cases the momentum needs to exist for the necessary app installs and for sufficient value to be created for all stakeholders.

PEAK STUFF?: DATA, BANDWIDTH, SEGMENTATION AND ADVERTISING

PEAK STUFF

In January 2016 at a Guardian Sustainable Business debate, the head of Ikea's sustainability unit, declared: "In the West, we have probably hit peak stuff. We talk about peak oil. I'd say we've hit peak red meat, peak sugar, peak stuff … peak home furnishings."

This may be true in some areas but it's clear that many peaks have yet to be scaled. We are nowhere near peak data but have clear line of sight into its processing, we are nowhere near peak interpretation of moving images but again the solution is visible. We are only in the foothills of peak bandwidth, the ubiquitous capability to stream the highest resolution content untethered from physical cable and Wi-Fi. The next stage on that journey is the agreement of the global 5G standard in 2018 and its deployment in 2020 and beyond. Even then the data divide between the richest billion people on the planet and the rest will be vast, of India's 200 million mobile subscribers 85% use less than half a gigabyte of data per month. It is worth noting, however, that there are now (Q3 2016) 1.5 billion global 4G LTE connections and while that hugely exceeds the number of 4G connected individuals, it is a three-fold increase since 2015 and will double by 2020. Even in India 4G pricing is falling and Jio, a new entrant, is offering 4G free through the first half of 2017 with the hope of attracting 100 million subscribers. As ever "free" I a disruptive price point.

We are only in the foothills of peak bandwidth, the ubiquitous capability to stream the highest resolution content untethered from physical cable and Wi-Fi.

Ericsson's November 2016 mobility report estimates global smartphone data consumption per device (gigabytes per month) as follows; it's worth noting that HD video streams at approximately 3 GB per hour:

Region	2016	2022
Western Europe	2.7	22
Central and Eastern Europe	1.9	15
Middle East and Africa	1.3	7.6
Asia Pacific	1.7	9.5
North America	5.1	25
Latin America	1.6	9.6

By 2020 it's probable that more than half the world's population will be connected; this is not the same as "everything, anywhere connectivity." Google and Facebook, likely in partnership with existing telcos will make rural and low income connectivity a reality but a high fiber data diet for all remains distant. That said, it might be argued that access to remote diagnosis, marketplaces for local goods and money transfer are rather more socially important than 4K streaming video.

There are peaks that sophisticated markets may be close to scaling. *It's possible for example to consider the idea of peak advertising. The compound effect of multitasking, ad blocking and fragmented attention and viewer/user intolerance may lead to a life of reduced commercial interruption.* It's also possible that we have reached peak audience segmentation for all but those enterprises richest in customer data.

Peak segmentation describes the point at which the value of user data known by sellers just can't be translated into value to the advertiser in the absence of sufficient data about the customer. It may be that the inexorable rush to one-to-one marketing may, on arrival, transpire to be a destination of inefficient allocations and outcomes where the gain in precision is offset by the loss of broader resonance for brands and the costs of manufacture of dynamically deliverable creative assets. This sets up a challenge for all brands; the more you know about the behavior, location and mood of your customer the better equipped you are to leverage data-rich platforms and the prospects that use them.

The conjoined issue of *peak advertising* and *peak segmentation* is one articulation of the opposing positions of the television industry and native digital enterprises like Facebook and YouTube (more about Snap later).

This sets up a challenge for all brands; the more you know about the behavior, location and mood of your customer the better equipped you are to leverage data-rich platforms and the prospects that use them.

VIDEO: THE BATTLE FOR THE BILLIONS

Television's proponents would argue that broad reach delivered simultaneously to large audiences is of unmatched value. It is the only opportunity for advertisers to participate in "watercooler" moments. They would argue also that the linear delivery of advertising in program breaks is the best guarantee to the advertiser that commercials will actually be viewed on big screens with full sound and motion. Alongside this is the belief that long form entertainment in all its forms (sports, drama, etc.) is the peak of consumer engagement and at its best a perfect context for brand marketers. Television is a key driver of social conversation and interaction and has been innovating at scale and speed to find ways of extending the reach and engagement of their intellectual property using the same platforms with which it competes.

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The television industry's biggest concerns remain inadequate measurement of its total audience across platforms, the nonsensical definitions of a video "view," and audience intolerance of long commercial breaks. NBC Universal, Turner and ESPN have been leaders in addressing these issues. NBC uses YouTube to build audience and reach for its marquee programs on YouTube and controls ad sales across all platforms. In addition it is expanding its digital reach through investments in, and partnerships with, Vox and Buzzfeed. With the former it has launched an ad network (Concert) that combines the digital properties of both companies and it would be no surprise if Comcast NBCU acquired one or both companies. ESPN was an early mover with both Twitter and Snap and, notably, with fantasy sports. Turner has experimented with reduced commercial inventory, with ad management that seeks to increase the synergy between ad and program, and with native digital content like the Bleacher Report and a significant investment in esports.

In many markets channels are experimenting with limited commercial interruption on the channel as a whole, or within individual programs. The thesis is this: As user experience improves audiences will stabilize or grow, and at the same time reduced clutter increases recall and value for the advertiser who will then be prepared to pay the premium that offsets the reduction in inventory. The "enhanced" version of the thesis is that better advertising – more native to its environment – will retain audiences better and improve recall further. The desire is for television advertisers to develop more content that reflects the programming context in which it is consumed. In certain categories like sport this is already the case, but elsewhere it is limited. An even grander design is to persuade advertisers to think of programs or series in the same way they might think of a sports event. That would be characterized by dedicated creative assets, further creative development for social and digital extensions and even "off air" activation. A marvelous ambition, but a long road to proof awaits. At the heart of the television model the "forced view" remains.

YouTube's argument is different. Fundamentally Google believes that the "forced view" video advertising paradigm may not be sustainable and that the user experience is undermined by forced completion. For

As a complement to television YouTube has great value but it is rarely a replacement.

TrueView the charging event takes place after the ad is clicked on or after completed viewing or viewing of the first 20 seconds. YouTube argues reasonably that TrueView's unique quality is that the advertiser only pays for ads that consumers choose to watch. When combined with the trove of data in the Google ecosystem, the cocktail of an "opted-in" viewer about whom you know a great deal is irresistible. They are right, but despite YouTube's breathtaking scale, and massively viewed individual videos or memes like the Harlem Shake and the Mannequin Challenge, it never delivers the watercooler moment of significant simultaneous reach. As a complement to television YouTube has great value but it is rarely a replacement. Furthermore, for many advertisers, YouTube still lacks sufficient inventory that the advertiser (or the television industry) would describe as "quality". Even Google Preferred, an aggregation of its highest quality content, deteriorates as campaigns scale and results in a huge percentage of impressions being delivered adjacent to gaming and "social humor" content. Rightly or wrongly, what the viewer wants and what the advertiser deems as "quality" are often not the same thing. The risk to Google of bad content adjacency is now clear. Following a series of news reports multiple advertisers have paused video and some display activity. Ads have been identified appearing in or beside content that is offensive to the public, to advertisers and that is damaging to brand reputation. The story continues to unfold but it is already clear that it poses a significant threat, in the short term at least, to Google's ambitions.

Facebook's video product remains uncertain ground for many advertisers. Advertisers have issues with autoplay (as opposed to user initiated), with "sound off" and with data (based on the aggregate of MOAT scores across the GroupM client base), which suggests that for every 20 video ads served in the news feed, three are watched for three seconds or more and just one is watched for ten seconds or more. This is problematic to every stakeholder. The consumer's news feed is populated by content in which they have little interest; Facebook may partially corrupt its user experience as a result. Advertisers have to modify their valuation of the platform to reflect the reality of actual video ad consumption. Facebook's counter argument is that its targeting is peerless, that even minimal exposure has value and that the problem is really the advertiser's – make better ads that reflect the news feed use case and do that to optimize measurable business outcomes. 2016 has been a huge year for Facebook in video product development and the introduction of the video tab at the top of the app screen has created a new opportunity for brands. The roll-out of a similar video opportunity in Instagram and to Instagram Stories scales the available inventory enormously and almost certainly creates an environment in which longer advertising formats may prosper.

The advertising opportunities in Facebook's Live video inventory will be more familiar to the advertiser simply because the ad will have a frame that is content rather than just the user interface. These ads will be initiated by the producer of the content and Facebook is betting that this is a distinction which will be favored by the user. Facebook will of course determine which ad is seen.

The challenge of measurement is huge. *The end game is obvious: who watched what, where, for how long and on what device.* This is an apples-to-apples comparison, a basic building block to assess relative value. The requirement seems to be a universal "glass-level" methodology involving automatic content recognition. The volume of connected devices already deployed seems sufficient to make this a reality. Not for the first time one of the key industry issues requires common will every bit as much as a technical solution.

In July 2016 we published a taxonomy of video that is reproduced below, it is a hierarchy, in descending order, from television as we have known it, extending to those video advertising experiences that most resemble television's ability to carry video advertising, and then on to those that represent a new video paradigm.

A taxonomy for video

Group 1. TV or "as TV"

- TV: a linear viewing stream with interruptive commercials, default sound on
- On demand and time-shifted TV: a linear viewing stream with interruptive commercials, default sound on
- Digital TV: a linear Over The Top viewing stream of TV program content, full length, sound on; with interruptive commercials – the so-called full episode player, default sound on (Hulu, Fox Now, Watch ESPN)
- Web video **destinations**: shorter (but getting longer) form video; desktop or mobile; mix of sound on or off, with commercials that are often skippable (YouTube Preferred)

Group 2. "As TV" assuming a view duration standard

- In app video; mobile, user initiated, with a content container, sound on when initiated (YouTube mobile, The New York Times)
- Web video: In stream user initiated, desktop dominated, mix of sound on and off. AOL, Yahoo etc.
- Outstream video: mostly desktop, some mobile, autoplay, mix of sound on or off (Teads)

Group 3. Requiring a new class of creative assets

- Vertical video: short form with or without a content container, default (mostly) sound on (Snapchat Discover and Live Stories, Twitter Moments)
- Feed based video: mobile, autoplay, without a content "container," default sound off (Facebook, Twitter Timeline)

Group 4. Advertising not welcome here (yet)

- SVOD: streaming video on demand, often subscriber paid and often commercial free (Netflix, HBO Go, Amazon Instant Video), default sound on

For every 20 video ads served in the news feed, three are watched for three seconds or more and just one is watched for ten seconds or more.

For the advertiser this is a relevant taxonomy and one that might guide both them and their agency partners in the development of creative assets and media plans. It presents a clear case (as they might say in some of Cannes' more traditional restaurants) of horses for courses. Running "conventional" 30-second TV ads in feed shows a similar lack of foresight as would running radio ads on TV. It won't work and tests will only prove that the best possible outcome is some level of brand recall and minimal understanding of the intended communication. *Communication objectives and nothing else should dictate both channel choice and the assets deployed.*

The advertisers that account for 90% of television advertising revenue account for between 30% and 40% of the revenue of the digital behemoths.

In the medium term three dominant scenarios may play out

1. TV and "as TV" experiences: in which commercials as we know them will persist and in which the money will follow the audience. It will evolve; much will be skippable and creativity will either shorten or seek an earlier "hook."
2. A middle ground of mostly short form commercial content which will be traded with guarantees on view duration and "sound on" consumption and, with those guarantees, will be "as TV." **GroupM's current standard applies here; a verified human exposure to 100% of the video window with audio on and 50% of the ad viewed.**
3. An entirely new creative class that recognizes both the constraints (time and attention) and the opportunity (scale and sharing) of the feed. Perhaps those use cases will be focused on the animation of the static images we associate with print rather than a compression of "traditional" video. Perhaps they will be the home of truly immersive experiences. Extreme one way or the other.

Comparisons between Facebook and Google and television will always be imperfect as they are very different businesses from television companies.

The advertisers that account for 90% of television advertising revenue account for between 30% and 40% of the revenue of the digital behemoths. The remaining 70% represents a combination of small and local businesses, businesses that trade exclusively in digital goods and services, direct to consumer e-commerce companies and a vast array of enterprises with the installation of apps as their core marketing objective. These advertisers are often enormously successful on Google and Facebook and their mutual value borders on the existential. Perhaps more importantly the combination of Google and Facebook, independently and in partnership with marketplaces as diverse as Amazon, E Bay, and Etsy, have enabled new enterprises with minimal

infrastructure to compete with major brands and retailers. They have done so by connecting commerce at any scale with a massively distributed source of demand with minimum friction. The identical paradigm operates in China through the auspices of Baidu, Alibaba and Tencent (BAT), and compares with other capital-lite disruptors notably Uber and Airbnb.

For many of these advertisers, like Wish.com and Booking.com, the availability of microsegments is of terrific value. They don't need to be famous to be successful in either the "everyone knows who you are sense" or the "can I get listed in WalMart?" sense. Of course this creates a three pronged threat for the "30%." Barriers to entry in many markets (category and geography) are lower, creating more direct competition; there is greater competition for attention on the key platforms and finally pressure on price in the auction for inventory.

For Wish.com and Booking.com, the availability of microsegments is of terrific value.

We may also have reached peak anxiety in many corners of the media world. Despite their efforts many publishers are failing to accelerate their digital revenues fast enough to offset the cost of legacy operations and falling advertiser demand for their legacy properties. The business model of publishers has always been based on two or three constituents. The "universal two" are revenue from circulation/subscription and revenue from advertising offset by the costs of editorial, printing and distribution. The third leg of the model is a wealthy proprietor. It's been said before, but it has never been truer to say that the best way to make a small fortune in the newspaper business is to start with a big one.

The publishing industry is further challenged by five factors:

1. Direct digital competitors that combine demanded content with lower operating costs like Vox, Buzzfeed, Vice and Refinery 29 (WPP is an investor in the last two).

2. By the inefficient monetization of original content as much is consumed on major social platforms; publishers do not make enough from their owned and operated digital properties. The New York Times is now paid for by more people than ever before, but the aggregate of the subscriber contribution does not fully offset the evisceration of revenue from classified and retail advertising that were for generations the bedrock of commercial success.

3. Newspapers, in particular are also challenged by their content "bundle." There are different advertising and subscriber models for news, sport, travel, finance, technology, arts and automotive content. Hard news has always been the hardest to sell and the most expensive to produce. Many native players have successfully picked apart this bundle both editorially and commercially to the detriment of newspaper publishers.

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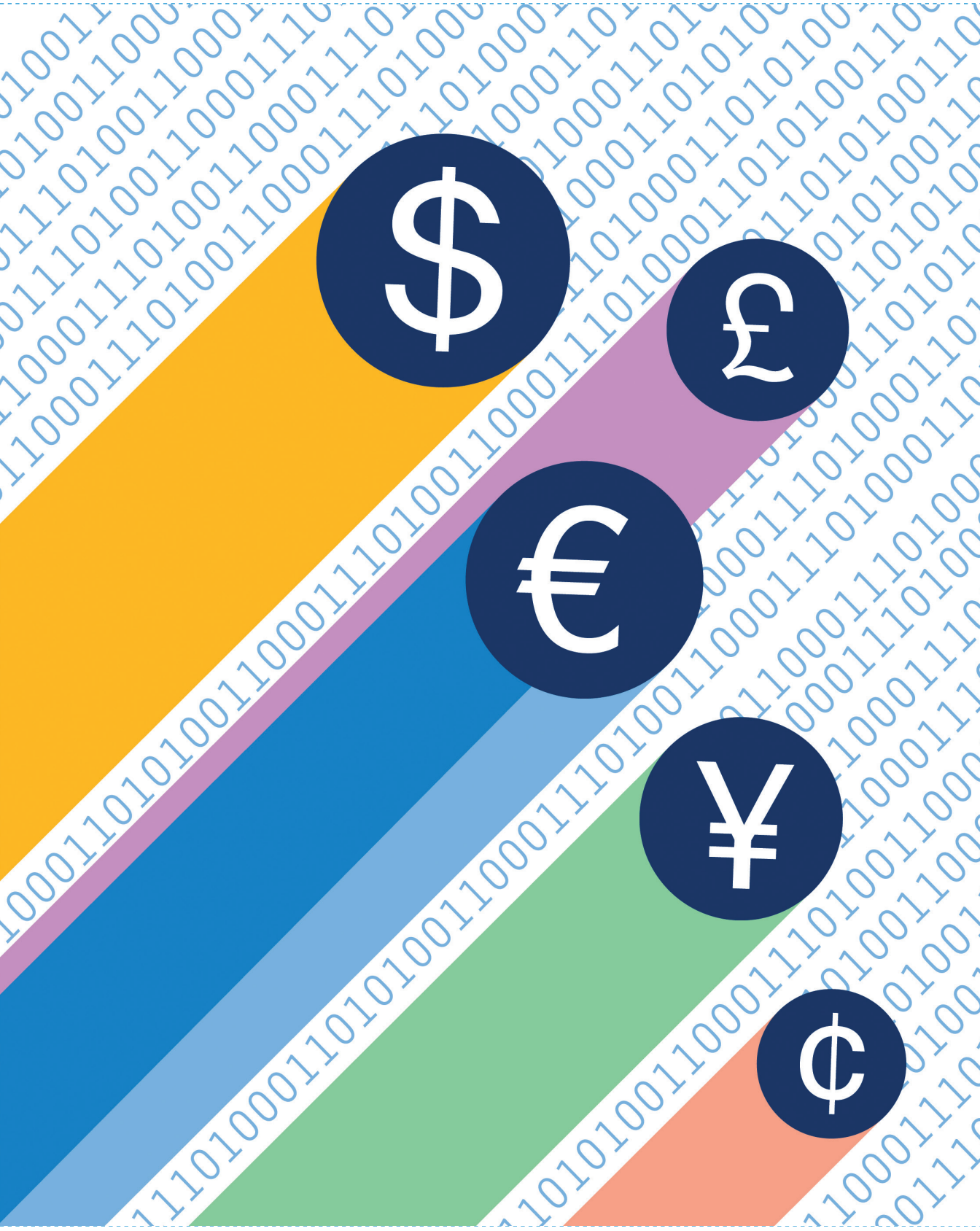
4. Ageing demography. There are few new readers of magazines or newspapers in the traditional sense. Dominance of the newsstand or the doorstep is only of value if there is demand to dominate.

5. Immediate attribution. Without the super scale of television and the biggest digital platforms, publishers are challenged in their inability to attribute outcomes of scale and at speed. This almost certainly undervalues the value of their properties and discounts the worth of committed, influential and affluent audiences.

MEDIA PRICING: THE VALUE OF RELEVANCE



Pricing in media was never simple to understand. Of course it reflected the equilibrium of supply and demand in any given medium but that apparent simplicity belied the fact that different advertisers paid different amounts for the exact same commodity. This differential was based on the category, the advertiser's volume and share of investment and, to a degree, their trading history with the media company in question. This rewarded high-volume early movers, with the ability to fund upfront commitments, with persistent allocation strategies and a high tolerance for flexibility to gain a market advantage over time.

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Google disrupted this process. No one paid Google until an action occurred. The original AdWords auction was straightforward: a generalized second price auction. Bid a cent more than the other guy and the top position was yours. That did not last long. In 2005 Google introduced the quality score. The premise was that it should take more than money to win a bid and provide a pricing incentive to the bidder with the most relevant response to the query. The dominant factor in the quality score was click-thru rate. Google got paid when the click was made. Clicks were a decent proxy for relevance. Since then relevance has becoming an increasingly important part of the advertising ecosystem. Never more so than in the Facebook family of apps.

If Facebook makes in excess of 25 trillion ad placement decisions per day it must make 200 trillion or more decisions to determine what content populates each individual feed. Optimizing user experience and commercial outcomes is a fine balance. It's logical that the "news" we see from the friends with whom we interact most frequently should be most prominent in our feeds. It's a social network. By extension messages (paid or otherwise) from brands we have "liked" or that have been liked by our friends should be the most prominent. But, as with Google, relevance is about economic outcomes for the company as much as it is about quality of user experience. Those economic actions result from people viewing and responding to advertising. The winning advertisers, measured by the price they pay for the results they get, are those with the ability to create extremely high volumes of messaging that allow a broad range of nuanced communication and thus the greatest probability of a response.

It's not remotely surprising that the most successful advertisers in this context are part of the 70% that are not pillars of the television market. Relevance-driven market pricing rewards short term advertising effect; advertisers that drive performance for themselves and the platform tend to force up pricing for advertisers who are either less effective or are pursuing longer-term marketing goals that don't precipitate immediate actions.

Achieving relevance in this sense is an extremely difficult thing to do for individual brands that don't luxuriate in the pool of data available to retailers and multi-location businesses at one end, and hyper-local ones at the other. Perhaps the idea contains a bigger message for both

advertisers and media owners that may be rich in context and audience but that are lacking user- or event-level data.

Today those media don't give pricing advantage to brand advertisers on the basis of relevance. Perhaps they should. The creation of some kind of engagement ranking for advertisers that combined positive viewer feedback and impact on short and long term business outcomes would create a more efficient and ultimately profitable outcome for everyone. A more data-informed market will help.

Ultimately of course pricing is most important as part of an allocation decision between channels and between sellers within channels. 2017 will be a big year in the practice of both allocation and attribution. A combination of zero-based budgeting and a need for growth means that every channel will need proven measures and proven value to a greater degree than ever.

In late 2016 GroupM announced a reorganization. We created [m]PLATFORM to bring together all our data collection, analytics, attribution and audience trading practices. We did so because only through aggregation can we move towards an anonymized unified user identity that can be applied across every source of media inventory and put the power of data firmly on the side of the advertiser.

Perhaps the idea contains a bigger message for both advertisers and media owners that may be rich in context and audience but that are lacking user or event level data.

TELEVISION: DATA POWERED AND OVER THE TOP

Programmatic television at scale remains a distant promise. The automation and dynamic/real-time ad delivery that defines the term is simply not part of the television infrastructure. It would be wrong, however, to assume that television planning and trading has not been radically changed by the application of data.

Addressable TV can be defined as the application of third- or first-party data to pay TV subscriber files in order to match a brand's target audience to a household that matches that profile. The science is leading-edge, but the concept is simple: It inserts ads into linear and time-shifted TV ad breaks which are seen in homes selected by criteria of location, income, demography, purchasing behaviors and potentially myriad other characteristics. By contrast, traditional linear television advertising relies on broad program audience profiles to stand proxy for the brand's designated consumer target. TV still serves advertisers well. Addressability just makes it serve them better.

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Scale and distribution remain challenging; addressable TV is presently available in only the U.S. via pay TV providers including Comcast, Time Warner Cable, Cablevision, AT&T/DirecTV and Dish; and in the U.K. via Sky AdSmart.

In economic terms, eMarketer estimates addressable TV ad spending amounted to $400 million in 2015. Growth will depend on more TV distributors in more countries deploying the technology to enable household addressability, but addressable TV could be a U.S. $2 billion medium by the end of 2017, or 1% of total TV investment.

GroupM's Modi Media billed about $100 million in 2015 in the U.S. alone; there is however no shortage of advertiser demand and it could have billed twice this amount had sufficient inventory been available. U.K. addressable is unmeasured, but would have been in the order of $50m in 2015.

Connected TV/Over-the-Top (OTT) refers to "television" content delivered via streaming over the internet to a smart TV, streaming Player (such as Apple TV, Roku, Chromecast, Amazon Fire TV) or gaming console. It is an ever-expanding part of how viewers consume television content.

OTT services promise new choice to consumers, new distribution for program and channel owners and in some cases (Netflix, Amazon Prime, HBO Go and Apple's new service excepted) new opportunity for advertisers.

The OTT market represents a relatively new class of inventory that is currently limited in reach but growing rapidly and becoming increasingly targetable and measurable. When executed properly, this presents advertisers with a premium platform for reaching audiences in

broadcast-quality content across a brand-safe, on-demand environment. Proper execution requires looking at the creative opportunity through a lens of "Television," while taking advantage of the digital backbone for ad serving and real-time campaign optimization.

The key to targeting on television is connected device distribution. As OTT devices proliferate and (in the U.S. in particular) set top boxes are modernized, our expectation is of a targetable future which has the potential of creating significant value for advertisers and program distributors. The most powerful viewer experience of the best content combined with rich data and the dynamic delivery of advertising to households and individuals at scale can't come soon enough.

With the OTT revolution comes a new game of musical chairs.

With the OTT revolution comes a new game of musical chairs. Players as diverse as AT&T, Turner, Google, Verizon, Hulu, CBS, Sony, Sling (Dish Network) and others in the U.S. alone are launching what have become known as skinny bundles combining on-demand and live linear television. The general thesis is that a market opportunity exists for a reduced channel lineup that requires a broadband connection (fixed or wireless), and a smart device but NOT a conventional cable or satellite box. This is based on long-term received wisdom that the packages provided by cable companies were bloated by channels you might not want and that some channels, notably ESPN, took too big a share of the pie. The general strategy of the skinny bundles is to aggregate as many broadcast networks as possible, plus ESPN, to ensure that sports fans are accommodated, and a selection of more or less premium cable channels as an anchor for drama.

The monetization of these bundles is straightforward. Subscription sales plus highly targeted advertising less the cost of re-transmission fees. From the advertiser's point of view few will be big enough to represent meaningful sources of advertising inventory and it will be up to the agencies to aggregate the pool and harmonize both delivery and measurement.

Distribution has always been central to the success of channel owners. Without widespread distribution carriage fees are reduced as is the potential audience for advertising. In theory the new bundles would satisfy consumer needs in terms of value and simplicity, and give wide distribution and the lion's share of the money to the leading content companies. This may not be the case especially when two "mega-bundles" already exist in the form of Amazon Prime (a bundle that goes far beyond video and includes streaming music and unlimited free home delivery) and Netflix. What these newcomers are missing are three things:

- Live sports
- Live news
- First-run drama, comedy and unscripted shows excluding their own output

At 70% of the price of HBO, Amazon Prime and Netflix are absurdly good value for money and it won't be a surprise if they come to form the anchor of the new entertainment landscape. If they do the strategies of all the other players look suspect. Each of NBC, Fox, CBS, Time Warner and Disney have bundles of their own. Within those bundles there is also the potential to distribute close to 100% of U.S. sports rights. If you are a sports fan and impatient it's complex and expensive. If you are neither, it is easy and cheap.

A key factor in the development of OTT and related bundles in the U.S. is that of net neutrality. Current regulation means that carriers must treat all content equally; that is to say, you cannot speed the delivery of the content you own or prefer at the expense of content you don't. As administrations change so do regulations. It's a possibility that neutrality may be neutered. This is good news for the mobile and fixed wire infrastructure owners and bad news for almost everyone else.

One potentially decisive factor is the as yet unproven demand for "TV anywhere:" delivery to any device any place. Television makers and distributors would like to believe that "TV is the sigh of the oppressed creature, the heart of a heartless world, and the soul of soulless conditions. It is the opium of the people." Karl Marx said as much of religion in 1844, but as knowledge undermines faith so multitasking undermines the passive attention to television. Failure to create something that people are prepared to pay for or perceive as an indispensable utility is itself a prescription for failure. And so, the prescription to make TV ubiquitous is simple even if complex to activate.

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AT&T launched DirecTV Now late in 2016. It allows subscribers to consume video over wireless networks without incremental data charges. This is a genuine realization of TV everywhere and others are betting on a similar strategy, Verizon with the NFL and Go90 and soon Comcast NBCU in partnership with Verizon.

This creates a whole new technical challenge. TV Everywhere is largely a matter of authentication — the ability to watch on any device as long as you can prove that you are paying for the pleasure TV Anywhere is different. With relatively low adoption rates the LTE wireless networks will cope with video traffic. With mass adoption, they won't. The issue is contention. Contention, in the simplest terms, is the issue of traffic overload at a single network node. Anyone with home Wi-Fi attempting to stream a movie while three kids are playing different online streaming games over the same network will be familiar with the problem, as will people who try and post social media updates in a 50,000 capacity stadium. For this to be resolved in the home one gigabit broadband (currently in narrow deployment) can't come soon enough. For the issue to be resolved over wireless networks the arrival of 5G is required. 5G won't make devices work faster but will allow all of them to fulfill their potential simultaneously.

TELEVISION

Television has always had three masters: advertising, distribution and user experience. Prioritizing the co-dependencies has never been more complicated especially when a player like Amazon has an asymmetrical model in which video use is funded both by subscriptions and by services that have nothing to do with video at all.

For the consumer it's every bit as complicated. Perhaps someone needs to create an eHarmony for personal entertainment and communications that allows people to optimize their personal price value equation.

Television has always had three masters: advertising, distribution and user experience.

THE AUDIO REVOLUTION

AUDIO

Ask any brand to describe its strategy for mobile, social, search, video or commerce and you will get a more or less robust response. Ask the same about their audio strategy and most likely it will be less clear. “The soundtrack of a brand” is an elusive concept.

This is somewhat surprising. Radio and music in particular are massive consumer behaviors and ones that have been revolutionized by streaming media. Spotify, Pandora, Apple Music, iHeart Radio and Amazon Prime dominate the U.S. market.

Beyond a basic demographic snapshot, listening behavior can help determine activity, emotion and a degree of intent.

For brands and marketers, these on-demand, on-the-go streaming services have the potential to provide unprecedented levels of consumer understanding. Beyond a basic demographic snapshot, listening behavior can help determine activity, emotion and a degree of intent. This level of contextual data could take segmentation in a new direction, letting advertisers reach a specific qualified audience at key points throughout their day.

Spotify is generally recognized as the market leader with 100 million users (globally, June 2016) and 40 million subscribers (August 2016), more than double that of Apple Music. Pandora is far behind in paying users and far ahead in advertising revenue. Spotify’s revenue is approximately $2 billion from subscribers and $300 million from advertisers. Subscribers are worth 15 times as much as listeners per head. Pandora’s revenue is $1 billion from advertisers and $300 million from subscribers. iHeartMedia generates around $5 billion in total revenue but that is dominated by its huge network of FM radio stations and live events. iHeartMedia makes an operating profit but that is wiped out by its immense $20 billion debt burden. Neither Pandora nor Spotify are profitable, as some 80% of their revenue is returned in royalties to artists and labels.

Pandora and Spotify, to date, are entirely different businesses. Spotify is an online on-demand music collection enhanced by the ability to find playlists from others and to customize your own and download music for offline listening. This combines the record collection with music discovery. The “download” factor may be the single biggest contributor to Spotify’s lead in subscriptions and be the defining incentive to pay – we call this “The Spotify Test.” Pandora is a discovery oriented radio service. Pandora has been sequencing the music “genome” for more than 15 years. Experts have been decoding music on hundreds of vectors (a task still beyond the capability of AI) and used it to create departure points for custom “stations.” Pandora has now launched an on demand service (including offline downloads) bringing it closer in product offering to the Spotify model. Challenging Spotify and the inertia of its installed base won’t be easy but the genius of the genome may preserve long term differentiation and, combined with product parity in the library/download space, may be enough to achieve escape velocity.

From an advertising perspective Pandora has unique attributes. It has 80 million active users, 70% of them using the advertising funded service. This represents a substantial audience targetable by everything from location to mood. Pandora suffers from a multi-generational drought of creative output for audio by advertisers and agencies, which reduces its adoption by major brands. It lacks the perfectly trackable action signals of the rest of the digital advertising ecosystem for advertisers driven by direct response. It's not hard, however, to imagine, both Pandora and iHeartMedia becoming major players in branded content. Audio is cheaper and quicker to execute at scale than video.

2017 will be a big year for both Pandora and Spotify. Rumors of Pandora's sale began to swirl in late 2016 and Spotify is expected to go public, and along with Snapchat, create the next two major publicly traded native digital media companies. In the meantime, against a backdrop of rising interest rates iHeartMedia's immense mortgage obligations may be a barrier to progress.

THE DUOPOLY: GOOGLE AND FACEBOOK AND THEIR CHALLENGERS

We estimate that in 2016 Google accounted for 13% of all advertising globally and 42% of digital advertising. Facebook accounted for 5% and 15% respectively. Neither Facebook nor Google operate in China so the number is marginally understated. The magnitude of their influence is greater still, especially in the case of Google as many publishers are dependent on the Google Display Network and YouTube for part of their revenues. This position may be impregnable but nothing is certain and neither can afford complacency. For comparison the BAT oligopoly in China will account for close to 70% of digital advertising investment in 2017.

Google

Google operates seven platforms with more than a billion users globally: Google itself, Google Play, Gmail, Chrome, Android, YouTube, Google Maps. It operates five of the top 10 apps. That creates a data set of human behavior that is hard to match. Google monetizes its data through paid search, through the Google Display Network (GDN) and through YouTube.

Google operates seven platforms with more than a billion users globally: Google itself, Google Play, Gmail, Chrome, Android, YouTube, Google Maps.

Google has had an 80%+ share of search revenues for a decade. Much of that revenue comes from "monetizable brand queries." The conjoined development of Amazon, Pinterest, verticals such as travel and health and retailer-operated e-commerce means that large numbers of people are starting and finishing their transaction journey without touching Google. They have built trust in a given platform and believe that the relevant choice and value requires minimal inquiry. It has been suggested that the growth of voice search may present a second challenge both for advertisers and Google; this is likely an inaccurate assessment as voice commands simply surface clickable results. While total searches grow and headroom for ad load increases Google will be untroubled but over time the proportion of those queries from which money will flow to Google may fall.

The Google Display Network seems extraordinarily robust, just so long as the creators of original content stay in business and just so long as Google can deploy brand safety measures effectively. Google's DoubleClick persists as extraordinarily effective connective tissue between publishers, advertisers and agencies. It allows publishers to manage inventory and yield, agencies to deliver and track campaigns and Google to have an "Oz like" view of a large swathe of the market. DoubleClick has many barriers to exit, not least for its efforts in protecting the ecosystem from fraud. The rise of "header bidding," a technique that allows publishers to permit multiple sources of demand to bid on impressions prior to the "call" to the DoubleClick ad server, may however weaken the golden thread between DoubleClick and the Google Display Network.

THE DUOPOLY

More users, more watch time, more money. YouTube is already a very successful business but Google's attempt to create a massive "quality" TV-like inventory pool has been less successful and thus less differentiated from other sources of online video. Google will launch an OTT service in 2017 and already has a subscription service called YouTube Red. In video quality you get what you pay for.

The large scale transfer of television advertising budgets to YouTube has not taken place at the speed that some market commentators might have thought. Nonetheless YouTube does remain dominant in all but the shortest formats of online video, with the most views and the longest viewing session times. In this sense it has a particular value to advertisers as ads are almost always more acceptable to consumers in extended viewing sessions. This would seem to create an unexplored opportunity for both YouTube and its advertisers. Currently ads are not sold on a "session" basis and it seems attractive to give advertisers the opportunity to deliver a sequence of messaging in a session. Sequenced storytelling works well.

Amazon's revenue is far more diversified than Google's with only 1% coming from advertising as opposed to 80% plus for Google.

Of course YouTube's revenue is not confined to video and is a large source of inventory for GDN and, by extension, the enormous pool of long tail advertisers that are core to the business.

A significant challenger to Google may be Amazon itself. Amazon has always been a product search platform and is now successfully monetizing search with the addition of promoted listings. The Google Display Network may also be challenged as Amazon unlocks its trove of transaction data to enable the Amazon Media Group as a mechanism for advertisers to target communication based on actual purchase histories. If Google's house is built on intent, Amazon's is built on actions. Amazon Web Services is also a leader (the leader?) in cloud computing and it's not impossible to imagine how, together with Amazon Marketing Services, it could create an alternative to Doubleclick in the provision of inventory monetization for publishers. Amazon, through Twitch, also competes with the gaming assets of YouTube and is beginning to expand into broader content categories, they compete in music, in IoT (ask Google if it is concerned with Alexa), in cloud computing and elsewhere.

Amazon and Google's combined market capitalization is around $1 trillion and their revenues total approximately $200 billion. This represents significant competitive firepower. Amazon's revenue is far more diversified than Google's with only 1% coming from advertising as opposed to 80% plus for Google. The key indicators over the next year or two will be Amazon's ability to expand its margins and Google's ability to diversify its revenue streams. Famous for its "moonshots," Google may find the cloud more profitable than the moon.

A further challenge to Google and perhaps also to Facebook (in itself a challenger to Google), albeit at a smaller scale, is emerging from

Pinterest. Founded in 2011, just a year before Snapchat, Pinterest is not an "everyone" platform. It has approximately 150 million monthly users of whom around half are in the U.S. Pinterest is unusual among the larger platforms in that its focus is anything but ephemeral. People use the platform to collect and share images that inspire them. This is sometimes hobbyist but is often of high commercial potential especially in highly monetizable areas like food, design, home renovation and fashion.

Pinners are both self-actualizing and expressive and the platform could be described as network of intent, inspiration, aspiration and validation. This makes it unique. It's not a social network but it is a sharing and influence network.

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Pinterest started at the tipping point of the desktop-to-app transition and it's likely that its commercial progress was slowed by its immaturity and a need to build for the desktop platform for which it was conceived and for the mobile one which would come to dominate its use.

Inevitably this affected monetization strategy, but having resolved this with a combination of promoted pins and search, we believe Pinterest may be a serious challenger as a natural link between interest (not quite the same as intent) and commerce and in particular a venue for multi- product display advertisers who are challenged by the economics of video production at scale.

An aspect of Pinterest that we find interesting is the duality of a user population that knows what it likes (the proof is in the Pin) and knows what it does not know (getting inspiration from other pinners). This suggests that Pinterest may be capable of attracting advertising that will take a share of the intent market (bottom of the funnel), the consideration market (mid-funnel) and the awareness market (top of the funnel). This implies the opportunity for advertisers to generate new demand rather than focusing on capturing demand that already exists.

If Pinterest does succeed in search then a combination of it, Amazon and a newly energized Bing (subject to the AOL/Yahoo merger) may increase advertiser choice to a significant degree.

Facebook

More than 1 billion people use Facebook every day, 600 million use Instagram, and the 1 billion user mark has been reached for both Messenger and WhatsApp. Messenger now features close to 50,000 chat bots. Three or four of the 10 most used apps are operated by Facebook. It's staggering.

Facebook decided in 2016 to exit the ad tech business – Live Rail and the Atlas ad server platform – and concentrate on its own platforms and

the Facebook Audience Network that competes with GDN among mobile publishers. The company is becoming increasingly video centric and not for the first time seems at something of an inflection point. Last time it was the shift from desktop to mobile, the same service but delivered on a different class of device. The move to video is different and relies on significant content contributions from outside of the personal social network of users.

More than 1 billion people use Facebook every day, 600 million use Instagram, and the 1 billion user mark has been reached for both Messenger and WhatsApp. Messenger now features close to 50,000 chat bots.

One way of describing any media company's scale and opportunity is to multiply daily users by daily average minutes, and modify that by income per user or personal GDP. Growing the first increases reach, and growing the second increases the number of ads that can be safely delivered to the user. The third can't be grown but can be easily diluted and the lower the GDP per user the lower the value of that user to advertisers. Facebook has planted this thought with investors already, yet it keeps growing users of the core platform and Instagram is growing faster still. In aggregate, across all its platforms Facebook occupies almost one hour per day of its daily users.

The challenge to Facebook will come when it faces competition for attention amongst its wealthiest users or at least those most valued by advertisers. Facebook also needs to be alert to "the moment of adoption;" they must maintain their share of 13-year-old "first-timers" as the competitive landscape at that stage is intense. This competition comes from multiple sources. Most notable is the rise of Snapchat.

Snapchat has grown quickly. It has over 100 million users and it won't be a surprise if their daily user number is close to 200 million and the daily number over 100 million as a newly public company.
Among their daily users they have almost certainly reached at least 50% of the daily average minutes spent on Facebook.

Snapchat is a revolutionary as Facebook and possibly the first of the internet titans with no legacy desktop history. The conception of the "camera company" could only have been realized on mobile devices and the notion of the camera as the key device input is clearly resonating with an audience that is comfortable with multimedia person-to-person communication. The camera has also enabled ad products. The Snapchat Lens is the most innovative digital ad product since the keyword and the news feed post. All three are uniquely native to their platforms. In Snapchat's view this makes the company the most widely distributed augmented reality interface in the world. Lenses enable users to take brand assets and incorporate them into their own communication. The entry price is high but their sharing potential makes Lenses perhaps the most significant opportunity for earned media today. It's difficult to predict the durability and scalability of such sharing.

"Snap to unlock" allows advertisers to integrate Snapcodes into any off line communication. The user snaps a code to unlock other digital

content. This is an update on QR codes which have similar functionality but which had only minor success perhaps as a consequence of not being native to an app.

Snapchat also believes that their geo-filters product will grant them access to the long tail of local businesses that have supported the business models of their established competitors. This is critical if revenue is to scale rapidly and continuously.

Advertisers have embraced Snapchat. They like the audience, they like the innovative ad products and they like the vertical video product that fills the screen with tolerable but arresting interruption as well as the opportunity to "swipe up" to see more. Snapchat appears to have a long runway in user penetration, in publisher partnerships via Discover and in the creation of shared experience through Stories, a process likely to be accelerated if Spectacles becomes a feature of fan attire.

Advertisers have embraced Snapchat. They like the audience, they like the innovative ad products and they like the vertical video product that fills the screen with tolerable but arresting interruption.

Facebook has responded. Not for the first time. As photos became a major medium for social sharing it purchased Instagram, when messaging became a threat to its communication platform it bought WhatsApp and developed Messenger. This time Facebook has responded organically rather than through acquisition, using new features on Instagram (Stories) and Messenger's new native camera that features 3-D masks, style transfers, frames, stickers and more. All this to ape the Snapchat experience and stall user defection. Imitation is the most commercial form of flattery. It's easy to dismiss imitation as a substitute for innovation but the speed of reaction, like its relentless ad product innovation, is testament to Facebook's extraordinary engineering architecture that allows execution of product development and global deployment at breathtaking speed.

In many ways the success or failure of Snapchat is directly related to the development of Instagram. The latter now matches or exceeds Facebook itself in terms of brand engagement per user. If its metrics in that area are superior to Snapchat's then the latter's debut on the public market could be significantly compromised.

If Instagram effectively duplicates the Snapchat experience for both users and advertisers the latter may view the opportunity to deliver at Instagram's scale with its data richness and embedded commerce features as irresistible. This would not be great news for Snap. We have been wrong before.

Twitter's move into live video in partnerships with sports leagues and other events may not lead to a stratospheric increase in its user base but users have grown for three consecutive quarters for the first time in the recent past. Twitter is seen as a legitimate environment for brand video advertising and for brands to achieve proximity to cultural immediacy.

THE DUOPOLY

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Twitter is the eternal paradox. Despite its revenue challenges (relatively) its social significance is unquestioned, after all it now promises to replace all other communications channels of the U.S. Government. Twitter's revenue is likely to be a tenth of Facebook's in 2017 and it struggles to turn that revenue into profit. Twitter's threat to Google and Facebook is minor but it matters. Its subsidiary MoPub is the world's largest real time bidding mobile ad exchange and generates approximately $100m or 5% of Twitter's revenue. If Twitter is to prosper as an independent enterprise and become sustainably profitable, the leading indicators from 2017 will be the success of both MoPub and its aggressive push into live video which will include (at last) the integration of Periscope into the core Twitter app.

Twitter summarizes its value to user as being the place to answer the question "what's happening." If its interface and ad products could make it easier for consumers to ask and advertisers to respond to "what's happening ... now, here, when, then, where?" its potential might be more easily realized.

All of YouTube, Instagram and Snapchat are at the center of Influencer Marketing – the pursuit of relatable voices and faces and "authenticity" (the great non sequitur of marketing). The challenge for many advertisers is how to pull off the magic trick of simultaneously ceding creative control AND maintaining the purpose and effectiveness of messaging. There's a new contract between consumers and brands — the details of which have yet to be written but the creators, at least, will tell you — that brand messaging expressed in the authentic voice of the creator which the fan chooses to follow is NOT automatically rejected. The implication is that there is a difference between a home for advertisers and a home for advertising.

AOL/Verizon – the third force? For the first decade of digital marketing AOL and Yahoo were synonymous with the internet. It's easy to forget that the two brands still have immense audiences from the Huffington Post, Yahoo Finance and Sports, and advertising revenues that, in combination, exceed any player in the market other than Google and Facebook. Additionally there is no question that, while not as potent as it was a decade ago, the Yahoo brand has enduring value.

AOL no longer reports its revenue numbers, as it is now wholly owned by Verizon. Based on the last reported data and a recent Verizon statement that AOL's revenues had grown by 10%, we would estimate the annual total at around $3 billion. That's under half of Facebook's most recently reported quarterly revenue. In the event of the Yahoo acquisition being finalized the revenue of the combined entity would be $8 billion.

The promise of the combined entity is as the world's third largest aggregation of ad impressions with scaled "channels" in news, sports

and finance, enriched by significant ad tech assets and first party data from Yahoo Mail. To this (in the U.S. at least) add Verizon's mobile subscriber data, fixed wire broadband and TV and go90 a new video asset, the Verizon mobile and OTT TV service. There is undoubted potential in that combination.

The question is simple. Can Verizon make the whole greater than the sum of the parts and activate enough content, context and data to grow an audience of sufficient value to erode the share of its competitors?

Can Verizon make the whole greater than the sum of the parts?

Our view is that the new entity, if realized, will be of enduring value to advertisers but that, while the combination is certain to set the company on a new trajectory, it may not challenge the duopoly. To do so will require flawless execution of the integration, delivery on the data promise and significant evidence of user growth in terms of time spent on the new platform. Its cause would be greatly enhanced by any strategy that also makes the company a valuable trading and technology partner to other content creators and by a massive increase in its TV and/or digital footprint.

It's interesting to observe where Verizon sits in share of paid TV homes. At 4.8 million homes it lags AT&T at 25.3 million, Comcast at 22.4 million, Charter at 17.3 million and Dish at 12.5 million. The market capitalization of Dish is roughly one-tenth Verizon's (albeit at double the price/earnings ratio). Under the new administration in the U.S. it's likely that regulation will be less of an impediment should Verizon wish to acquire either Dish or Charter and take third place as a consequence. A further possibility lies in following AT&T's strategy of combining wireless infrastructure and service with both distribution and content. For example, the value of CBS is similar to that of Dish with a P/E ratio closer to that of Verizon. These scenarios would significantly embolden Verizon in its home market.

Most radically, the company could determine that Snap offers the greatest opportunity for global expansion and access to growth. It's rare for an imminently or newly public company to be acquired but if valued as expected, at $25 billion plus a takeover premium, Snap would be affordable and potentially the most disruptive acquisition available.

LinkedIn became a unit of Microsoft in December 2016. It will join Microsoft's Productivity and Business Processes Group alongside Office, its CRM products and Skype. Via Azure, Microsoft is already a leader in cloud services and the integration of LinkedIn would appear to set up the company to compete with Salesforce and Oracle in the B2B marketing cloud segment. It is intriguing to contemplate the theoretical fusion of Outlook's immense user basis with 300 million monthly active Skype users and 500 million LinkedIn users. LinkedIn has long believed that its future from a marketing point of view has been in lead development or "nurturing," and if the data sets can be integrated and permissioned, the potential seems considerable.

Integration of that kind, however, has always been a challenge for Microsoft. Facebook, Google and Amazon benefit from a single login that gives the user access to everything and the companies a single source deterministic view of their users. Microsoft never achieved this across Outlook, MSN and Xbox. Doing it now would create a unique position in the market and create real opportunities for businesses to target business users and enterprises.

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LinkedIn is unlikely to have the B2B space to itself. Mark Zuckerberg now seems to be relenting on the idea of the single persona, by allowing an additional work persona to exist on the new Facebook Workplace platform. Designed to be a challenger to Slack, "Workplace by Facebook" is Facebook's attempt to bring an enterprise social networking platform to market. It will offer organizations functionality such as Groups, chat, live video, calling, translation and collaborative working spaces. Starting at $3 per user per month, this is a paid-for platform that is already being used by 1000 organizations – including the whole Singaporean civil service.

And of course new challengers appear in the blink of an eye. In July 2016, musical.ly reached 90 million downloads, with over 12 million new videos posted every day and in June 2016, Coca-Cola launched its #ShareACoke campaign on musical.ly, which introduced musical.ly's "User-Generated Ads" model. These platforms may die away as quickly as they appear or they may become the new Snapchat, but high levels of innovation – particularly targeted at younger audiences – force the major platforms to keep evolving. Live.ly, a live streaming spin-off from Musical.ly, has 4.6m Monthly Active Users in the U.S. – overtaking Periscope in just 2 months.

New models and interfaces might also disrupt (or cement) the duopoly. In January 2017 Tencent, the owner of WeChat, launched Mini Program. Mini Program allows WeChat users to user a QR code reader built into the app to access content and services as needed rather than by downloading a further specific app. For advertisers in China this presents a challenge: how to balance WeChat's enormous reach (in excess of 750 million users) with the desire to create a persistent presence on user devices.

IS THERE LIFE IN LIVE VIDEO?

LIVE VIDEO

Facebook launched Live Video across its whole user base on April 6th 2016. YouTube streamed the Coachella Music Festival ten days later. Twitter launched its first live sports stream at Wimbledon in June and amplified its effort with its National Football League partnership for Thursday night games in September. Yahoo had streamed a single live game in October 2015. A year earlier, albeit to a smaller user base Snapchat launched Live Stories. All had the same ultimate purpose; the more time people spend on a platform the greater the range of opportunities for monetization.

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Of course, Live has been a mainstay of the video industry forever. Sports, news, events like the Academy Awards and the rest have seen the highest monetization per minute of any media in history so it was no surprise to see the video strategies of the digital players unfold. Of all of them Google seems less convinced by the potential of Live. They perceive YouTube as an on demand environment. They observe that only 20% of TV is live and believe that live video online will be a fraction of that. Further its costs are unlikely to be offset as live content outside of content with significant associated rights fees is hard to monetize. This may well be true but may also be reflective of the one area in which Google has not succeeded: as a social network.

The approaches to Live are very different. Snapchat's approach is simple. Individuals attending major events have a personal and unique perspective that is different from the television broadcast. That's a set of views that can be aggregated and curated for the enjoyment of others who enjoy the "being there" view of their peers. Twitter has two approaches. Periscope is most similar to Facebook Live but its big bet is on delivering a live TV experience to the mobile device enhanced by user tweets and commentary. It's a bold initiative but its success could be constrained by the simple notion that people watch the most important events on the best available screen and, only some of the time will that be a mobile device.

Facebook has spent millions on training its audience to "go live" anticipating the engagement possibilities of those experiences being greater than pictures and text. Users have responded in delightful and terrifying ways. Unfiltered live streams are entertaining, sometimes valuable but also extraordinarily risky and an invitation to the basest human behavior. In addition Facebook is partnering with major media outlets to produce segments of live video exclusive to the platform which will, we assume, become the home of a pre- and mid-roll advertising product. This strategy resembles Snapchat Discover and may be a resolution to the challenges described earlier in respect of completed views in stream-based environments. It's notable that Twitter, Facebook and Snapchat are paying legacy media owners directly for content.

The economics of Live beyond sports are uncertain. Fandom, narcissism and voyeurism are inexpensive. Snapchat has low acquisition costs

with relatively obvious monetization. Facebook has low acquisition costs at the consumer generated level and less direct monetization potential beyond its existing ad product portfolio. Professional content has greater potential for monetization but at a price as the creators demand big rewards. As ever, Twitter is the mystery. It is probably the most value enhancing to creators and potentially represents the easiest transition for advertisers, but can it execute at scale?

E-COMMERCE: AMAZON, ALIBABA – THE OTHER DUOPOLY?

Less than 10% of goods in the U.S. are purchased online and the number is far lower elsewhere. Of the native e-commerce enterprises Amazon and Alibaba are the biggest by far. It's worth comparing them at two levels:

Gross merchandise volume (GMV) is the amount of sales recorded by each. In Amazon's case this was $225 billion in 2015, in Alibaba's $466 billion. (For comparison, and to illustrate the dominance of the big two, eBay's GMV was $82 billion, around 20% of the size of Alibaba.) This disparity is explained by the business models of the companies. Alibaba is a marketplace that owns almost no inventory while Amazon, also a marketplace, is predominantly a retailer in the "conventional" sense in that it takes inventory risk and commensurately higher margins.

This is reflected in the revenue of the two companies. For 2015 Amazon booked revenue of $107 billion opposed to $14 billion by Alibaba. The scale of Alibaba can be summarized in three data points. Half a billion monthly customers, nine million active merchants and 85% of China's mobile e-commerce market. The dominance of Alibaba and Tencent's JD.com is largely a function of China's mediocre physical retail infrastructure and provincial regulation that has hampered the development of national retail brands.

Outside China, if media companies are asked to identify the companies by whom they feel most challenged almost all answer Google and Facebook. If the same question is asked of retailers and many brand owners, the answer is Amazon.

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Amazon has a unique and interlocking business model. It is a retailer, a marketplace, a device manufacturer, a logistics business, a content producer and distributor and a provider of cloud services. In each it is either the world leader or may have the potential to be. The operations of the business act as a flywheel for each other, the commonality between is scale, speed and choice. Amazon has a vast array of businesses that it competes with and an even vaster array of businesses that are dependent on it. The 22-year history of Amazon can be split into two 11 year periods. The first 11 years saw the world's biggest bookstore become the "everything store;" the second 11 years starting with the launch of Amazon Prime has seen the transition we see in progress today. Prime launched in 2005, Unbox (the forerunner of Prime Video) in 2006, Kindle and Amazon Fresh in 2007, Amazon Studios in 2010, Subscribe and Save in 2012, and Fire TV, Prime Now, and Echo in 2014. Amazon's media sales network and its Dash Button instant ordering device launched in 2015. Its first planes flew and its first drone delivered in 2016. "Manchester by the Sea" may be its first Academy Award Winner in 2017 and if you buy your popcorn on the way to the theater from an Amazon Go store you will need no interaction with the staff, a cash register or even your wallet. Amazon Studios has already won Golden Globes for both "Mozart in the Jungle" and "Transparent."

E-COMMERCE

In the narrower field of e-commerce Amazon has massively expanded its range of categories and critically has removed the last barrier to e-commerce purchase, being the wait between desire or need and satisfaction. A story is told of an iPhone charger ordered by a hotel guest in Seattle via Amazon Now. It took 22 minutes to arrive (plus the time it took the guest to get from his room to the front desk).

There seem few barriers to Amazon's growth. Five years ago you may not have not considered buying a tomato from Amazon much less a car. The former is a reality and the latter is around the corner. Amazon has built the world's most comprehensive database of vehicles, specifications and parts in history and will likely be the biggest parts seller in the U.S. in 2017. It knows, from purchase history, what vehicle people own and what age and condition it is in. It's a baby step from there to a massive used vehicle marketplace and another to becoming a challenger to existing new vehicle retailing models.

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Amazon and Alibaba together most likely represent much more than half of all native e-commerce excluding the travel category. Almost all other e-commerce outside of omni-channel retail is massively fragmented. The one exception may be Wish. Peter Szulczewski, founder and CEO is not as well-known as Jeff Bezos, Jack Ma and others. Wish has however has raised over $1 billion dollars in capital and has taken a contrarian approach to e-commerce. While Amazon has pursued assortment, value and exceptional service, Wish has pursued value and utility, eschewing brand names and speed of delivery. Wish is a marketplace; it is the intermediary between Western consumers and manufacturers of unbranded goods in China and other Far Eastern markets, it delivers by mail direct from manufacturer to consumer in 10 to 13 days and takes a 15% share of the transaction. Wish competes with Walmart and discount retailers around the Western world. Wish is built on discovery and serendipity and will probably reach a gross merchandise value run rate of $10 billion in 2017. Wish is also believed to rank in Facebook's top three advertisers globally. Anecdotally Wish is believed to have in excess of 60,000 different ads in the Facebook system at any time.

If there is a threat to the current structure of e-commerce it seems likely to come from one or more of three sources:

- Brand owners will support an "Alibaba-like" model in more markets.
- Multiple participants from retailers to brand owners will embrace massively distributed e-commerce, most likely to be driven by Facebook, Pinterest and Google together with attendant chat bots and "buy now" buttons on all digital communications.
- Manufacturers and retailers will form hybrid partnerships in which transactions occur on manufacturer platforms while retailers will provide fulfillment and customer service.

The second scenario is more likely; right now the platforms take their share of e-commerce revenues indirectly through burgeoning retargeting ad products and that will grow as more retailers organize their product listings in a way that allows huge catalogs of goods to be automatically surfaced at the point of need and relevance.

Further developments will most likely come as small e-commerce platforms and direct to consumer brands are slowly absorbed by established retailers and brand owners as access to "new" money and public market exits become challenging for cash-negative businesses. The sale of Jet.com to Walmart and of Dollar Shave Club to Unilever are symptomatic of the needs of the sellers to exit and the need of the buyers to disrupt and accelerate their own business processes often in pursuit of first party customer data. Perhaps Alibaba will acquire Wish.

Counter-intuitively, one barrier to massively distributed e-commerce in the West may be the sophistication of the banking system and ubiquity of debit and credit cards. Their availability means that the consumer can buy anything from anyone, anywhere. In China and many other markets from India to Africa this is not the case. In China in particular Tencent's WeChat messenger platform is becoming a significant e-commerce player because its integrated wallet, like AliPay, creates a seamless transaction for the huge percentage of the population that operates outside of the traditional banking system. There may be as few as one billion debit and credit card holders in the world; the WeChat model may work best for everyone else.

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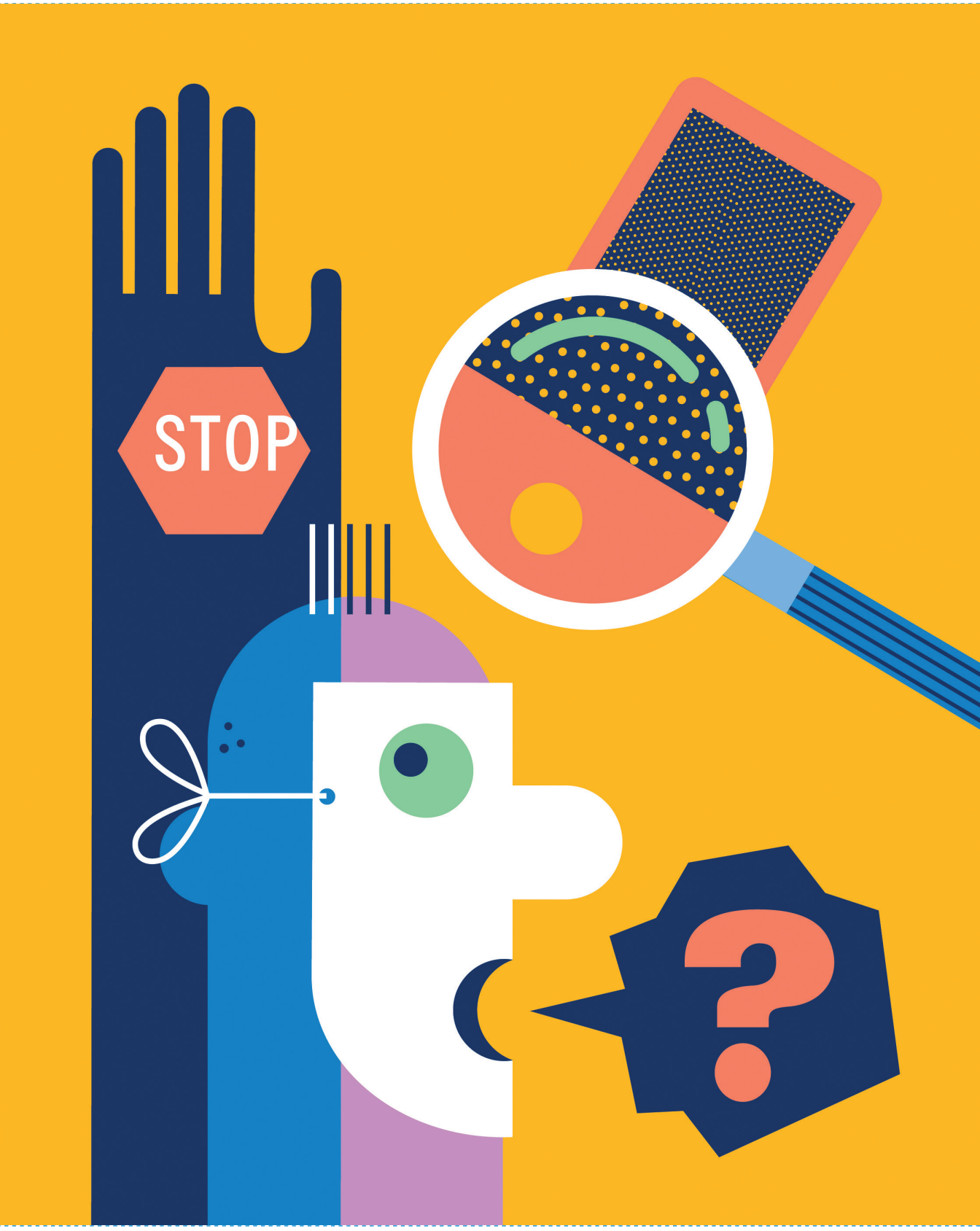
MARKETPLACE INTEGRITY A YEAR ON



In **Interaction 2016** we wrote at length about the integrity of the digital supply chain. This is a complex issue that includes, if not conjoins, fraud, viewability, measurement and ad avoidance.

A year on, at a headline level the report card reads "The industry has responded aggressively to the threat with some success but cannot be complacent."

We believe that enough is understood and quantified about the issues for advertisers to make informed decisions about the real value of inventory.

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Fraud

Instances of ad fraud have not gone away, but we believe that it is significantly contained.

Some will be shocked at that assertion; headlines often emanating from the east of Europe rightly create discomfort for advertisers and publishers and it's likely that 2% of the impressions purchased by the biggest advertisers in Western markets remain non-human. Bad as this is (0% is a good number for fraud), the speed of detection and countermeasures seem to have caught and outpaced the development of new fraud strategies. It's only three years since The Wall Street Journal estimated that over 30% of ad impressions were not legitimate. The fightback has been three-pronged: new and better detection tools, a coalition of advertisers, publishers and buyers (The Trustworthy Accountability Group TAG) to deploy those tools; and a reduction in the demand for bad supply. A highly publicized incident at the end of 2016 acts as a useful illustration of the issue and the response.

White Ops, a specialist in ad fraud detection announced that it had uncovered a massive fraud called Methbot:

> *Controlled by a single group based in Russia and operating out of data centers in the U.S. and Netherlands, this "bot farm" generates $3 to $5 million in fraudulent revenue per day by targeting the premium video advertising ecosystem.*

This is shocking but it's likely that the initial reports exaggerated the problem as our own work with partners including The Trade Desk and AppNexus suggest that only 0.5% to 1% of video inventory was affected. TAG and its industry partners have set about blocking the 571,000 fraudulent IP addresses that form the core of the botnet. From report to action the process took less than a week.

Google and Facebook (and Twitter via MoPub) are as ever key actors in fraud protection. If you capture a massive share of the market by

acting as a technology intermediary and as a marketplace for others' inventory, you place yourself at the front line of fraud detection and elimination.

Viewability

With respect to viewability progress has been made. Advertisers who choose to use the tools made available by Moat, Integral Ad Science and DoubleVerify are now extraordinarily well equipped to assess if the impression they purchased was "human viewable" for a given duration. For some this has created a new currency for the purchase of media inventory; for others the data acts as a modifier to the trading currency of the publisher. If only a fifth of my ads are fully viewable with a vendor my basis for comparison is 5x the price when compared with a vendor where all my ads are viewed. As long as the comparison is calculable the market, and, crucially, budget allocation can operate successfully. It's worth noting that such comparisons have never truly been available in other media where at best they were based on small samples and generalities. No one ever really knew who saw the ad on page 383 of Vogue. GroupM has been at the forefront of the viewability issue in the U.S. and is now collecting data across the world with which to create modifiers and standards that are specific to use cases and vendors.

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In the macro, measurement remains challenging and troubling. Nowhere in the world does a single data set exist that reliably calculates total video viewing on an apples-to-apples basis across all platforms. It would help if the notion of a view could be defined at all. Currently, such definitions range from the first pixel rendered to 50% of the pixels in view to all the pixels in view and then modified by sound on or off and duration. GroupM's view of this is simple: view duration and sound both matter and are huge determinants of the recall and depth of recall of brand advertising. As a consequence we believe that some channels are significantly over-valued.

The issues are compounded if the measurement methodology is controlled by the seller. In competitive markets this rarely happens but when a few sellers acquire a hegemonic position the situation changes. In the first phase of the digital advertising boom advertisers and agencies paid media sellers based on the seller's count of impressions. The demand side of the market pushed hard for third party ad serving and measurement and in so doing revealed significant discrepancies in the seller's favor. Today there is simply no justification for publishers to expect advertisers to pay on counts that are unaudited using methodologies that are equally unaudited. To date advertisers have been remarkably tolerant but recent self-reported (to their credit) errors by Facebook and Twitter make the case for third party validation irresistible.

A further and less-discussed issue persists. Advertisers have always enjoyed the knowledge that they could deliver their communication

to any or all users of a particular medium. Those sellers who are able, will optimize the delivery of advertising, in the particular case of video, to those users with the highest propensity to consume a lot of video advertising. The reasoning is straightforward: why try and show ads to people unlikely to consume them? This is the "user experience" argument. The commercial argument is that yields are reduced if ads are skipped before any given payment threshold is reached. This represents a pair of entirely logical arguments but it does not serve the advertiser if an important consumer cohort is persistently out of reach.

Ad blocking

Ad blocking remains an issue. Driven by opportunity (why not block ads?), the irresponsible use of invasive ad units and careless use of data, ad blocking threatened the digital advertising ecosystem at its core. Perhaps surprisingly the practice appears to have peaked. This stabilization is probably the function of two things; first the increased percentage of ads that are delivered in app environments that are closed to ad blocking technology and second, because of better advertising. The latter will be accelerated by the Coalition for Better Ads, a cross industry initiative set up in the U.S. in September 2016. Its purpose is summarized in its charter:

- **Create consumer-based, data-driven standards** that participants in the advertising and media ecosystem can utilize that improve the consumer advertising experience. The standards will be developed with participation and input from across the multitude of geographies, stakeholders and participants in the advertising ecosystem, including publishers, advertisers, agencies, and buy-side and sell-side technology providers. It is expected that the standards will continue to evolve with the online ecosystem and consumers' evolving preferences.
- In conjunction with the IAB Tech Lab, **develop and deploy technology to implement these standards.**
- **Encourage awareness of those standards and tools among consumers and businesses** in order to ensure wide uptake and elicit feedback.

Encouraging as this is, a piece of analysis remains undone. What is the immediate and longer term economic value of the ad blockers that do persist, and how does that translate into lost opportunity for the advertiser?

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Democratization has its price

The democratization of information and publishing comes at a price. That price is societal and commercial risk. The societal price is highest:

- The publishing, discovery and sharing of content designed to induce criminality and hatred
- The exposure to the public of criminal and hateful acts
- The exposure to the public of information that is designed to distort or pervert the truth

In response, some advertisers have removed themselves from the platforms in question, some in public, others more discretely.

The simple truth is that the same technology that allows the posting of a recipe, the joyous video of a child or the exposure of an excessive act from law enforcement allows the creation, posting or sharing of the video of a murder. The simple truth is that the same technology that allows tweeting your love of a team allows the tweeting of hatred of religions, races, genders or elected officials on a continuum that runs from disagreement and ignorance to mendaciousness and incitement. The uncomfortable truth is that one man's freedom fighter is another man's terrorist.

Commercially the risks are different:

- The damage to brand reputation from advertising being juxtaposed with the worst content, assuming that consumers equate and implied endorsement; after even the briefest consideration, this seems unlikely in the extreme
- The amplification of that issue through "outing" in press reports
  - With inevitably greater reach than the original exposure
- Damning by association with a platform or publisher under attack for allowing the societal risk in the first place

Several British and U.S. news outlets have reported in the last weeks on the appearance of advertising in proximity to content ranging from the distasteful to the despicable on YouTube, Facebook, Snapchat and other platforms. This adds to earlier commentary in respect of bullying, harassment and other equally unpleasant user behavior on Twitter. This has included the naming (shaming?) of multiple businesses, brands, charities and Government bodies. In response, some advertisers have removed themselves from the platforms in question, some in public, others more discretely. Other advertisers have not. The dilemma is easy to understand. There is value in the platforms and their audiences almost all of the time, yet in a tiny fraction of occasions something bad might/could/be inferred to be happening. When the content is very bad, however, brand safety is a zero tolerance game.

Google has been in the cross hairs of the media reports; the principal villain of the piece, the enablers of and profiteers. Facebook are not far behind albeit for the presence of bad content rather than specifically for ad adjacency. Advertisers (and sometimes their agencies) have been positioned as "accessories to the crime." Their money enables Google and Facebook directly, and the perpetrators of the content indirectly. Yet and yet, in the grand scale of YouTube, Facebook and advertising expenditure the numbers are tiny tens of thousands in a world of billions.

The only real good is that the power of the platforms will be balanced by increased pressure on them to be socially responsible and accountable. Complex and inadequately deployed content detection, user protection and brand safety tools will get simpler, more effective and better distributed. Some governments will "incentivize" the platforms with financial sanction if they fail to return the genie to the bottle. Just maybe some media outlets, with integrity of their own, might turn the head of advertisers back to content origination businesses redressing the balance with massive distribution platforms.

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It remains to be seen if Google can regain the trust of the market and if the issue is contained to their properties or if wider contagion will occur engulfing other platforms and, more widely the process of programmatic advertising itself.

PRIVACY: UNINTENDED CONSEQUENCES?

2016 may have been a quiet time for data privacy related to targeting and data collection, but it was an alarming year for the theft of personal information through data breaches.

In aggregate, the number of records stolen adds up to no less than half of all of the internet users in the world. The one theft alone, announced by Yahoo in December, equaled more than a billion records. As much as this data does not account for duplication (the same person's data may have been stolen twice) these are staggering numbers.

While on the face of it, these hacks have nothing to do with advertising data (there is little incentive to steal pseudonymous log files) they do try the patience of a weary public, who associate all types of data collection with something that could imperil their internet security.

Next time we ask internet users to share some of their data with us, as we may have to in the near future, we could hardly blame them for turning us down.

In addition, it's entirely feasible for us to suspect that the bad news generated by lax data security in companies storing first party data, has made the call for the regulation of data collected for marketing purposes more urgent.

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In December, there was a leaked document from the European Commission's ePrivacy directive, which alarmed companies collecting and using third party data. The concern was justified when the formal release was published in January with few significant changes.

In simple terms, the draft regulation prevents companies from using an individual's data unless they have direct consent from the consumer. This includes most types of data (including cookies) used for targeting. Almost everything that invisibly follows a user across the web will have to make itself known to individuals and ask for express permission to collect data.

The proposal takes a very restrictive approach towards third party data-driven business services providers. In our data fuelled economy, the ability to collect and process data responsibly and legally represents a key competitive advantage. By essentially changing the current data practice from an opt-out to an opt-in model, the ePrivacy draft risks discriminating against third party data collectors like marketers, agencies and data brokers (where risks of data breaches are extremely low) while all but ignoring the data collection practices of the first party data collectors who are exempt because users have to agree to their data terms as part of accessing the service.

If the proposal is to be translated into law as it stands, "walled data gardens" would be further emboldened and competition could be even

more distorted. Marketers, their agencies and other third party data-driven business-to-business providers would be disadvantaged and obliged to work with a limited number of dominant companies capable of circumventing limitations imposed by the law.

The ePrivacy directive threatens to move the whole digital dynamic away from third parties and force advertising and technology companies to leverage media owners' direct relationships with their readers and viewers or form relationships of their own through acquisitions or other means.

If promulgated, this could be effective from May 2018. Violators risk massive fines, up to 4% of their global annual turnover.

While this is only a European proposal, it will probably inform marketers' global data collection practices as the common denominator will likely be set by the most restrictive regulation.

The industry will need to work hard to help the EC to understand the unintended consequences of this draft regulation; otherwise, it risks being a disruptive force in audience selection and targeting.

The industry will need to work hard to help the EC to understand the unintended consequences of this draft regulation; otherwise, it risks being a disruptive force in audience selection and targeting.

FAKE NEWS

Fake news is not a matter of opinion. Something either happened or it did not.

In 1807 Thomas Jefferson, then President of the United States wrote "Nothing can now be believed which is seen in a newspaper. Truth itself becomes suspicious by being put into that polluted vehicle." In late 2016, Mark Thompson, the CEO of The New York Times said "Whatever its other cultural and social merits, our digital ecosystem seems to have evolved into a near-perfect environment for fake news to thrive." How times change. Two of the more noted political events of 2016: the U.K.'s vote to leave the European Union and the U.S.'s presidential election have given new prominence to the idea of fake news. As the first quote illustrates it's hardly a new phenomenon and far from restricted to these two events. Governments, commercial entities and individuals have long created and disseminated news and opinion that Winston Churchill may have described as "economical with the truth." Today we can add the concept of "alternative facts." So what's new?

As is often the case in advertising two issues become conflated. Last year it was ad fraud, a criminal issue and viewability, a commercial issue. In 2016, a year of political surprise, the issues of fake news and extremism in the media also became conjoined. The latter is clearly a matter of opinion. A number of advertisers have very publicly withdrawn from Breitbart News Network on the grounds that it supported what has been termed an "alt-right" agenda and that some of its content promoted activity with which they did not want their brands associated. More surprisingly one famous advertiser took similar action with respect to the U.K.'s Daily Mail. The Mail's editorial stance was clearly not aligned with the values of the advertiser.

Fake news is not a matter of opinion. Something either happened or it did not.

Three aspects of the new bout of fake news seem to have excited attention. The first is the role of social and search media and its unintended but inevitable ability to allow fake news to be published, promoted to specific groups and then shared widely. The second is the reporting of fake news by real news outlets. The thesis goes that once an item is reported even as fake a simple screen shot or edit shared through social platforms can use the authentic source as an apparent validation of the fake one. The third and of greatest concern as marketing professionals rather than as citizens is the incentive to create and disseminate fake news. The calculus is simple. Fake news drives traffic, traffic equates to consumer attention, and attention creates advertising revenue. It's a bad thing for sure and compounded by the (political) extremity of the fake.

The response to the fake news crisis has been loud. Google and Facebook do not want to be tarnished with the suggestion that their businesses benefit. Consequently both are rapidly examining the source domains of fake news and attempting to block them from their platforms. In addition they are creating mechanisms for their

respective communities to flag what they believe to be fake in order to suppress them algorithmically. To suppress is not to eliminate. This is an important nuance as truth in news has always been elusive. Neither platform has suggested an approach to the dissemination of fake, questionable or exaggerated news from established sources. Extreme bias creates ratings and sells newspapers and is rewarded by advertising sales. Disappointing as it is, one can only question the potential for the elimination of fake news in a world that seems distressingly comfortable with post-truth politics.

Despite this the economic crisis facing real news is challenging. The world is inevitably diminished if real reporters cannot be on the ground reporting real events with the support of editors and the discipline of fact checking behind them. This speaks to the societal role of advertisers and of the digital platforms that are inexorably increasing their share of the advertising pie. For the former, news needs to be reevaluated as a communication environment; perhaps we should call this "purpose driven media selection?" For the latter it may be appropriate to provide resources in the form of hardware and software to ensure that some costs of news collection are defrayed. The most shared and most monetized stories come from authentic news sources. A way of decreasing the incentives to the bad guys is to increase the incentives to the good guys. A simple adjustment in the revenue sharing model would go a long way. Amidst all this it's an ill wind that blows nobody any good. The week after the U.S. election saw The New York Times, biggest net subscriber increase ever.

A way of decreasing the incentives to the bad guys is to increase the incentives to the good guys. A simple adjustment in the revenue sharing model would go a long way.

And finally...

A note of thanks to our many collaborators: to the interviewees, to GroupM Futures Director Adam Smith, John Montgomery, J. Walker Smith, Bryan Gildenberg, Mike Bologna, Samantha Kops, Lisa Taormina, Elaine Stroumboulos and David Grabert and to colleagues around the world of GroupM for their contributions great and small. For the reader who got this far, thank you. As ever, we would be delighted to answer your questions and hear your thoughts.

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A Walk Through the Numbers

The media day

On a population-weighted average, the media day grew nine minutes again in 2016, to eight hours, pulled along by a 14-minute rise in online. Mobile is of course the reason, as the devices find their way into more corners of more lives, and do more when they are there. This time Germany gives us an impressive A/B test, formerly reporting only desktop time online and now adding mobile, which stretched the media day a whole hour. Linear TV's share of the day fell a point to 39%, but average daily minutes viewed barely fell. Looking at the alternative average, weighted by each country's share of ad investment, the media day runs almost an hour longer at nearly nine hours. The shares are the same as the pop-weighted ones, but it is evident people consume more of every medium in more heavily-advertised countries. If our 2017 forecast is right, then we do appear to be approaching saturation, which echoes the idea of "peak advertising" in the main text.

The world's media day weighted by population

Agg avg. hours	2014	2015	2016	2017
Online	2.36	2.50	2.73	2.90
Linear TV	3.24	3.27	3.19	3.15
Print	0.56	0.54	0.50	0.50
Radio	1.56	1.54	1.58	1.57
Total	**7.72**	**7.86**	**8.01**	**8.11**

Shares	2014	2015	2016	2017
Online	31	32	34	36
Linear TV	42	42	40	39
Print	7	7	6	6
Radio	20	20	20	19
Total	**100**	**100**	**100**	**100**

Avg. minutes	2014	2015	2016	2017
Online	141	150	164	174
Linear TV	195	196	191	189
Print	34	33	30	30
Radio	93	92	95	94
Total	**463**	**472**	**481**	**487**

The world's media day weighted by local media investment

Agg avg. hours	2014	2015	2016	2017
Online	2.39	2.59	3.13	3.28
Linear TV	3.67	3.63	3.60	3.52
Print	0.56	0.52	0.50	0.48
Radio	1.67	1.66	1.71	1.69
Total	**8.29**	**8.41**	**8.94**	**8.97**

Shares	2014	2015	2016	2017
Online	29	31	35	37
Linear TV	44	43	40	39
Print	7	6	6	5
Radio	20	20	19	19
Total	**100**	**100**	**100**	**100**

Avg. minutes	2014	2015	2016	2017
Online	144	155	188	197
Linear TV	220	218	216	211
Print	34	31	30	29
Radio	100	100	102	101
Total	**497**	**504**	**536**	**538**

E-commerce

35 countries supplied e-commerce totals in our survey this year. The dollarized total for 2016 comes to USD 1,874 billion, which is fully 20% more than the USD 1,558 billion we have for 2015. We had forecast 15% growth. This helps to explain the acceleration in paid search in 2016. Our forecast for 2017 is 18% growth, taking us past the 2-trillion mark to USD 2,205 billion.

We predict the average online shop per user will be USD 869 in 2017, which at 9% above 2016 is still running just ahead of the 8% growth in the number of online users in our universe. 62% of the population in this year's survey is an internet user today.

E-COMMERCE	2010	2011	2012	2013	2014	2015	2016	2017f	CAGR 2014-2017
World total USD bn	352	420	742	959	1,261	1,558	1,874	2,205	**20%**
Average spend per user USD	355	365	485	563	641	721	801	869	**11%**

Despite adverse currency movements, the U.K. remains home to the world's most intrepid online shoppers. We expect them to break USD 4 thousand per user in 2017, once again followed by Denmark at USD 3,605.

Brazil's economic pressure revealed itself in another sluggish year in per-cap e-commerce growth of 2% 2016, and Russia's actually tracked backwards 8% in 2016. India turned in zero growth, which is surely a statistical oddity related to the 21% surge in reported netizens. By the way, India's total 12+ population will pass one billion in 2017.

The World Bank tells us household final consumption was USD 43 trillion in 2015, or 62% of global GDP. If we assume half this is retail, then total retail in 2017 should be in the order of USD 23 trillion, allowing for 4% annual growth. E-commerce of USD 2.205 trillion in 2017 would represent 10% of this, two points higher than a similar calculation produces for 2016.

Programmatic and video

For present purposes "programmatic" means any online display investment which is transacted automatically as opposed to being a manual "insertion order." We asked our correspondents to estimate what percentage of local digital display ad investment was automated. The result (after dollarized weighting) is a global average in 2016 of 31% (2015 like-for-like = 27%). Excluding the U.S., this is 13% (10%). We also asked what percentage online video comprised of local digital display. The global answer: 19% (17%), or 14% (12%) ex U.S. Individual values appear in each country entry. ■

16-24s

What has happened to the 16-24 linear TV audience 2014-2016? In general, is linear TV pricing rising or falling for 16-24s?

The reason we chose 16-24s is that this is TV's scarcest age group, which means one of them seeing your ad is more likely to add to your total campaign reach than anyone 25+. This does not mean TV is necessarily the wisest choice for reaching this audience. As GroupM's chairman Irwin Gotlieb put it, "People who don't watch TV shouldn't be chased on TV." The loss of younger viewers is, however, linear TV's gravest problem. This is why it is urgent that broadcasters/channels/networks improve their measurement of their digital diaspora. If it isn't measured, it isn't monetized.

As GroupM's chairman Irwin Gotlieb put it, "People who don't watch TV shouldn't be chased on TV."

16-24 population, millions

	2014	2016
World	1,076	1,065
% of total population	15.0	14.5
More developed countries	134	130
% of total population	10.7	10.3
Less developed countries	779	765
% of total population	15.6	15.0

Source: U.S. Census Bureau
"Less developed" excludes "Least developed"

The world's supply of 16-24s shrank 1% between 2014-2016. In "less developed countries," by 2%; and in "more developed," 3%. The average loss of 16-24 linear TV audience "tonnage" in our survey was 16%. (Of course, this decay started long before 2014.) Notice that the most extreme losses are around 30%. A big question for TV is whether these are outliers or imminent destiny. Denmark: "YouTube and Facebook have higher reach of the under-30s than prime-time TV. Among older groups, these social media platforms are now bigger than some mainstream TV channels."

If audiences fell to zero, so would reach. As the saying goes, "everything converges at zero." But the decay rates are not the same, in TV or any other medium, because audiences are more likely to grow more casual or occasional than go cold turkey. The average loss of reach in our survey was five points. (This is mostly weekly reach.)

The relationship of price to tonnage indicates advertiser elasticity of demand. It is dangerous and usually impossible to generalise about media unit pricing (cost per mille; less commonly, cost per rating point; less commonly still, cost per point of reach). Some respondents stuck their necks out all the same, and the average of these gives inflation of 16%. This suggests inelasticity of demand and lack of substitute media.

This is consistent with our impression that Google Preferred does not really trade at a premium to linear TV.

Reach is TV's most valuable asset. It should therefore mine this wherever it can. More comprehensive cross-platform measurement is one answer, and so is addressable TV. Meanwhile, we might wonder why online a/v 16-24s can be so abundant, yet not dilute the price advertisers are willing to pay for impressions on linear TV. The problem is not quantity. The answer must lie in other matters like quality, saliency, and transparency. ■

The 16-24 linear TV audience, 2014-2016

	Volume %	Reach Points	Cost
Australia metro	-11		7.7
Austria		-3.5	15
Brazil		-4	Up+
Canada	-19	-2.7	
Chile	-22	-10.5	Up
China	-22	-9.5	
Czechia	-3.5	-3	Stable
Denmark	-30		30
Finland	-18		Up+
France		-5	Up+
Germany	-13		14.2
Greece		-7	12
Hong Kong	-19		Up
Hungary	-17		Up
India			Up
Indonesia			16
Italy 15-24	-15		3
Japan	-3	-2.6	3.3
Latvia	-25	-3	35
Lithuania u39s		-4	11
Malaysia (free TV)	~par		15
Malaysia (pay-TV)	~par		10
Netherlands	-29		
New Zealand	-30		Up
Norway	-8	-3.2	Up
Poland	-3		Stable
Russia	-7		Up
Singapore			Up
Spain	-10		Up
Sweden	-31		Up+
Thailand 15-24	-10		Up
Turkey	-1		Up
UK	-20	-4.5	38
Ukraine		-5	
USA 18-24		-2.5	Up
Average of values	**-16**	**-5**	**16**

Ad Blocking

Is ad blocking still growing?

The short answer is "yes," but we cannot say at what rate. Our evidence suggests an average ad block use/install rate of 16% at early 2017 (see appendix). This is a combination of PageFair's published estimates from January and other sources preferred by our local GroupMs, including themselves. Four countries thought PageFair underestimated and five that it overestimated.

Several countries in western Europe remark that uptake has turned slower and lower. U.S. consensus expects steady growth. There is more concern in Asia where mobile is more dominant, with echoes in other markets such as Turkey and South Africa. It is Germany, where blocking is high, which points out that mobile growth stimulates the ad blocking industry. Argentina notes that rapid growth in mobile ad investment can do the same.

Several countries in western Europe remark that uptake has turned slower and lower.

There are gaps in our knowledge, and material qualifications to what we are told. China has no independent data so is the biggest gap, but GroupM thinks PageFair's 13% on mobile chimes with Kantar's reckoning of iOS market share and from that a reasonable inference of Safari blocking. France notes with concern Kantar's 34% by respondent declaration, but Norway thinks actual blocking is much lower than users declare. India observes that popular Android browsers like UC (Alibaba) and Opera often have ad block enabled as the default, but most phones have multiple browsers which users switch between. To this the U.K. adds that while ad blockers don't work in apps, they do not always work very well in mobile browsers either.

Canada and Italy repeat the familiar theme that younger males block the most, with Hong Kong specifying their intolerance of interruptions to game-play. GroupM Italy, which runs the IAB blocking survey, notes again the leading reason is excessive or intrusive advertising, followed by privacy and data concerns. Japan is generally tolerant of advertising, but this year its three leading telcos (DoCoMo, Softbank, and KDDI) launch device-embedded ad blocking in response to laggy performance and "impaired content experience," with lesser but still substantial concerns about data.

Portugal's local publishers estimate 13% blocking, somewhat below PageFair's 21%. GroupM suggests this gap might reflect the difference between the publishers' audiences and those who use long-tail content. Russia and the U.K. note that GroupM's Plista gives accurate readings, with block rates on Russia's top 70 sites ranging between 15% and 25%, and the U.K. finding Plista consistent with PageFair's January 2017 reading of 16% on desktop and 1% on mobile.

AD BLOCKING

The best strategy remains to tackle the causes not the symptoms of blocking. Indonesia reports that the main publishers have struck deals with the UC browser to block the blockers, but Hong Kong notes more positively that brands are becoming more expert in video on social media, and more aware of the importance of quality content to discourage blocking. ■

The best strategy remains to tackle the causes not the symptoms of blocking.

Ad Fraud

Do you believe you have ad fraud under control?

This is a lawyer's question, as successful fraud is undetected and possibly undetectable. The large majority of respondents gave a guarded "yes" with words to the effect we trust the suppliers we choose, we use all the tools at our disposal, and prevention is better than cure. No one claims to have eliminated fraud, but the global platforms and marketplaces are helping much more than say two years ago.

When demand exceeds supply, there are rich pickings for the same professional fraudsters who also infiltrate online payments and banking.

When demand exceeds supply, there are rich pickings for the same professional fraudsters who also infiltrate online payments and banking. We predict it will take five to 10 years for advertising to become as secure as banking is today. The rise of machine-learning and AI puts us in an arms race. We have never been better equipped than we are today, but we face a competent enemy in dynamic territory.

Several countries regard 1%-2% fraud as being "under control." Australia cites a 2.8% result from 4 billion impressions checked by Moat. Hungary reports a current 5% fraud rates in manual buys, which is a concern, and even worse in automated buying.

Two countries admit that fraud is not yet controlled. South Africa is still adopting the technology. It is expensive, so only larger clients are using it. Many others rely instead on only trusted premium publishers, and avoid biddable inventory, which are sensible strategies. The other is Russia ,where local ad servers do not track fraud, and global ad servers have low penetration.

Some countries admit they could do better. Brazil, which mentioned complacency last year, says verification is growing but subordinate to viewability, though this invites discussion of fraud. Japan reports Integral Ad Science found 6% fraud in the second half of 2016. This is unsatisfactory. The problem is poor take-up of third-party ad serving. Yahoo Japan comprehensively permitted this only in 2017 (by Sizmek). This should increase awareness of ad fraud among Japan's big domestic advertisers, and raise expectations of publishers. Taiwan says only the big international vendors have controls, leaving general and network inventory unpoliced. South Korea and Hong Kong both claim ad fraud is not a serious problem. Hong Kong adds that few advertisers are willing to pay for detection, but a few large publishers have integrated third-party tech to track their impressions.

Interaction 2016 set out the two main types of ad fraud. "Impression fraud" (ghost sites and malicious non-human traffic) and "non-impression fraud" (ad stacking, substandard sites, wilful non-compliance, etc). China also distinguishes between bot fraud and fraud by human "click farms." It is confident about managing bot fraud,

but notes click-farm countermeasures are not so advanced and still require case-by-case manpower.

Premium sites and private marketplaces are much safer than open exchange inventory. In Italy, 90% of programmatic buying is conducted in private and controlled markets, as opposed to the open market. This keeps fraud down to 1%. The Philippines and Singapore use the same approach to safeguard high client expectations of orderly "adjacency" and find this disqualifies about 40% of all potential supply. GroupM U.K.'s Trusted Marketplace is a direct channel to leading publishers which sets standards in veracity, and typically detects 1%-2% fraud, for which payment is of course withheld. Unreliable vendors are thrown out.

Premium sites and private marketplaces are much safer than open exchange inventory.

There are many tools and techniques for managing "open inventory," and some of our agencies use these on every transaction. In order of spontaneous mentions the top scorers are Integral Ad Science, Moat, Grapeshot (only works on text); white/blacklists; Methbot ("white-hat" hacker); Sizmek, Adform and DoubleVerify.

Other practices mentioned from around the world include Canada forbidding insertion-order suppliers selling our clients "audience extensions" (behavioral look-alikes often passed off as first-party). Malaysia manually cross-checks visits and interactions on-page to uncover bot fraud anomalies: As we have noted before, results which look too good require a good looking-at. GroupM U.K. funds bespoke tech development and employs a team of specialists under a Director of Digital Risk. ■

Latest Innovation

Which recent innovation in online advertising has given the most practical benefit to brand advertisers?

Many countries were unable to confine themselves to one answer. This is a positive sign given we welcome anything which makes digital a more responsible and deserving haven for brand advertising. Brand advertising is only a minority of digital ad investment, but demands higher standards of environment and saliency than the response majority which has shaped so many digital business practices. Here is how the digital ecosystem has been treating brands better lately.

Given that automated buying is as old as paid search, it is interesting that most nominations are for **programmatic and targeting** which Norway summarizes as "the use of data and technology to build and target audiences more effectively, improving ROI." Austria adds "cross-device geo-location targeting and Xaxis real-time data." Singapore appreciates that "marketing analysis with cross-device tracking gives marketers a better view of the customer journey, offering deep insights to the impact of marketing spends both offline and online" with Hong Kong recording improved management of "high demand for video on multi screens." Ukraine is happy simply to celebrate programmatic's arrival.

Coming in a close second is **improved measurement and mitigation** to address digital deficits in value, viewability and verification. The U.S.'s nomination for the most practical benefit to brands is "recent improvement and acknowledgement in measurement across the online ecosystem. Measurement of viewability and of walled gardens will allow advertisers to make more informed decisions when buying." The U.K. concurs almost word for word. Spain lists "advances in viewability measures, brand safety, and protection from ad fraud" and Australia speaks for many in welcoming "trading on viewability;" Belgium hails "the rise of ad verification, which introduces a new currency in the market." Namechecks include IAS, Nielsen DAR and Moat, Japan willing its local advertisers and publishers to follow international example and adopt these and other standards in order to force up the quality of local inventory.

Equal second is innovation in **creativity and formats**. Several respondents cited native advertising. China, Taiwan and New Zealand called out interactive ads, NZ crediting these with "a lift in all engagement metrics and view-through rates." The U.K. is pleased to have "quality online video at scale." Malaysia and Thailand agreed on "adaptable ads which automatically adjust their size, appearance and format to fit just about any available ad space."

Brand advertising is only a minority of digital ad investment, but demands higher standards of environment and saliency than the response majority which has shaped so many digital business practices.

Fourth comes **praise for vendors**. India and the Czech Republic voted for Facebook's Carousel format, the Czechs also approving Facebook's Canvas; Argentina and the Czech Republic again for ad-hoc brand studies by Google and Facebook; China for clickable in-feed native ads on WeChat Moments; the Philippines for Facebook's enabling e-commerce; and Thailand calling out LINE's adaptable-format Business Connect. Ireland singled out audience verification with Atlas.

The runners-up are influencer marketing, AI, outcome pricing and addressable TV. The U.K. even predicts its next winner: identity-based targeting and frequency control (as opposed to proxy targeting by browser, app or device). ■

The U.K. even predicts its next winner: identity-based targeting and frequency control (as opposed to proxy targeting by browser, app or device).

The Richest 20%

In general, do you see big changes in how the richest 20% use media? Are they becoming harder to reach?

It is the young and the wealthy who usually constrain campaign reach because they see fewer ads, and because it can be expensive to buy a big audience when you only need a small part of it. Out-of-home scores well, being naturally more visible to the mobile and economically active, and its share of global advertising investment has consequently remained 6% throughout the rise of the internet. Brands fixate on the young for good reasons, but the rich have more money. Being older might affect their media usage, which was the point of this question.

Brands fixate on the young for good reasons, but the rich have more money.

What it means to be "rich" obviously varies from country to country. We expressly invited generalizations not in hopes of revealing universal truths but to help readers frame better questions for their particular circumstances. A couple of countries still answered in numbers, which we happily include as these also show what you can ask for.

The rich will always be with us

Many will recognise France's observation that the rich have always been hard to target because of their lower TV viewing time, but being older, they still consume traditional media. Malaysia adds that although reach is high, time spent can be low as they are relatively time-poor. Slovakia, Brazil and Hungary report that online or special-interest media targeting is necessary to compensate for their scarcity on linear TV. Several countries point out the heavier use of OTT and VOD, some of course without ads, and nearly everyone agrees the rich are more digitised than the average. Thailand warns "these are digital-savvy early adopters whose lives are as online (and mobile) as can be. They expect brands to keep up, or be left behind." Spain usefully notes "the rich are early adopters, so their media usage changes all the time. This group is becoming more heterogeneous as the "new rich" multiply. They are dispersed and atomised so tend not to form a mass audience."

Most countries conclude that reaching the rich is no harder now than it was a few years ago. The U.S. summarized how the *components* of this reach have shifted in that market since 2014:

- Traditional TV is up slightly, but place-based video exposure is up more.
- Radio is up slightly, but online audio is up significantly.
- Printed newspapers and magazine reading is down significantly, while online reading is up.
- Internet usage is about the same, but with big increases in mobile and social media.

Changes

Brazil says it is becoming much harder to reach this audience with TV spots. Portugal looked back five years to find its AB group (18% of adults) had notably transferred from free to pay-TV, but maintained the same hours and were using much less print and radio and much more internet. Denmark notes the rich are increasingly using digital as an information source. Turkey reports a high intent to use ad blockers. The Netherlands makes a general observation that everyone is using mobile more, but unsatisfactory measurement is holding back mobile ad investment and therefore campaign reach.

Effect

Ukraine accentuates the positive: "The rich audience has become easier to identify and reach with the development of finer targeting on digital media." Turkey cites success with "quality native content" which gets around blockers. Thailand blows the agencies' trumpet: "Our top spenders understand digital and make good use of it. Brands have trouble keeping up on their own, but agencies have the expertise – so we can still reach this audience OK." Chile notes strong competition to sponsor events for this target.

The rich by numbers

Italy analysed its top 15% by income and education. From 2014 to 2016, daily TV reach fell from 73% to 71%; watching TV online rose from 10% to 15%; daily radio reach rose from 68% to 71%; and daily newspaper reach fell from 31% to 29%. Weekly newspaper reach remained 34%.

China tells that its richest 20% are relatively easy to reach because they use more media generally (though their TV and Radio use is below average). Heavy media use does however carry the risk of excess clutter and frequency. For this reason the market prizes high quality editorial environment. ■

Thailand blows the agencies' trumpet: "Our top spenders understand digital and make good use of it."

CHINA				
Media	Index	Y2016		
		All adults	Richest 20%	Variance
Newspaper	Daily reach (%)	32	38	+6
	Daily time spent (min)	26	28	+2
Magazine	Weekly reach (%)	15	25	+10
	Weekly time spent (min)	47	57	+9
TV	Daily reach (%)	70	60	-10
	Daily time spent (min)	142	110	-31
Radio	Daily reach (%)	13	22	+9
	Daily time spent (min)	58	51	-7
Internet	Daily reach (%)	76	85	+9
	Daily time spent (min)	201	227	+26
OOH	Daily reach (%)	84	85	+1
Cinema	Monthly reach (%)	15	22	+7

Premium for Google Preferred

What is the typical CPM premium for Google Preferred compared to TV? Why is this justified?

Google Preferred packages YouTube's "top" or "most popular" content for advertisers. We describe it as a complement to TV rather than a substitute. It is not available in all countries, and in at least one country it has a different name (Malaysia: "Prime Packs").

There seems to be a widespread but mistaken assumption that Google Preferred trades at a premium to TV. Its audience is certainly younger than TV's, but its audience is much smaller; much if not most of its content is not broadcast quality; and the advertiser cannot control "adjacency" beyond specifying genres. There is also the argument that "completion" or "view-through" rates can disappoint, but linear TV has a similar difficulty in that what it optimistically calls an "impact" or "impression" is merely an "opportunity to see" (OTS).

One must always take care with media pricing. There is no "standard" or "typical" price for anything. Every discount is negotiated. No two advertisers are the same. TV is particularly tricky, as the price is rarely a simple "rate per minute," but usually reconciled to the OTS against a defined segment of the audience.

The first step is to make sure we are comparing apples with apples; what price the market will bear for the same audience segment on Google Preferred as on TV. The U.K. TV market is efficient, and here we find Google Preferred trades at about the same price as TV for its core audience of 16-34s. The "premiums" would only crystallize if one was abusing Google Preferred for segments it is less naturally suited to delivering: ABC1 adults for example (which would cost 2x or 3x) or even worse, "all adults" (4x to 6x). Square pegs in round holes.

The first step is to make sure we are comparing apples with apples; what price the market will bear for the same audience segment on Google Preferred as on TV.

Sweden, Belgium and Hong Kong report Google Preferred trades at an apples-to-apples discount to TV, with Germany frankly commenting TV is worth double for its screen size and quality alone. Brazil and Australia say it trades around par. Several say it trades at a small premium, but we would not give much weight to this given the inherent lack of precision in "typical pricing" exercises.

France mentions a 3x premium against a broad 13+ audience and notes "Google has simply aligned pricing with video, which is more expensive than TV" – another form of price illusion.

Malaysia points out that YouTube reaches six million 18-34s, beating the top-rated TV channel at 5.7 million. Google's Prime Packs run 5x free-to-air TV and 2x pay-TV, which does not seem so extreme given sport content, which is very popular, runs 10x free-to-air. "As

GOOGLE PREFERRED

the most engaging platform in a heavy smartphone market, Prime Packs is positioned as a premium to free-to-air and cost-efficient with respect to pay-TV." Malaysia appreciates Google's versatility in an expressively multicultural society, adding Prime Packs are segmentable by interest group to degrees impractical for normal TV; e.g., "Generation Y," gaming and "female beauty." Indonesia justifies a notional 3.4x premium only for the "younger urban audience (high digital/mobile users)." Spain puts the premium at 2.5x but thinks this is mitigated by the shortage of good quality TV inventory, and adds that the Google price is falling. Chile mentions a 12x premium to what is no doubt a broad TV audience, but concedes Google's value in segmentation, targetability and incremental reach.

Spain puts the premium at 2.5x but thinks this is mitigated by the shortge of good quality TV inventory, and adds that the Google price is falling.

Japan was unable to give an opinion because Google Preferred is available only as a resold bundle via Dentsu, which does not disclose prices. ■

Platforms Growing Other Than Google And Facebook

Apart from Google and Facebook, which digital publishers or platforms are growing most?

The walled garden duopoly attracted the vast majority of incremental digital ad investment growth in 2016.

The walled garden duopoly attracted the vast majority of incremental digital ad investment growth in 2016. By our estimate, 2016 global digital billings rose USD 20.6 billion. Google's advertising revenue grew USD 9.3 billion net of "traffic acquisition cost" (revenue sharing), and Facebook's rose USD 9.8 bn. In total, 93% of our estimate. In some instances these behemoths will be accounting for more than 100% of net growth as smaller vendors/publishers/platforms sink lower in the water. This is GroupM's experience in the U.K., where the main dynamic outside Google and Facebook is small moves in market shares and networks sucking in spend.

Our respondents were split about equally on domestic or international vendors proving most resilient. A few said both.

One name missing from the international list was Yahoo, though the U.S. remarked "the Yahoo/Verizon alliance may become interesting, using full mobile identity and registered data in combination with a huge content estate and tech platforms/advertising stack." The U.S. was also one of the countries which looked at growth in users rather than advertising necessarily, naming Vice, TripAdvisor, Snapchat, Spotify, Expedia and Washington Post, for the period 2014-2016.

International

Snapchat garnered the most citations, and from the most big markets, although Germany qualified this as "potentially in 2017." Next in the market-weighted list came Amazon, Italy going as far to say "Amazon's data-rich AAP is emerging as a rival to Google and Facebook." This report does not pretend to give accurate subscriber numbers for Amazon Prime or anyone else, but our respondent total for Amazon TV doubled from last time. Two large markets nominated Twitter. Spotify comes next: Our subscriber/user total comes to 166 million this time, a 60% increase like-for-like. Netflix follows, with 45% like-for-like growth in our sample. LINE is doing well in Japan, where it is the primary 20-39 communications platform, and in Thailand, which praises its reach and its diverse and distinctive platforms. Other notables were Pinterest, Teads and Instagram.

Local

Without giving a long list of names, there are a few themes to draw out. China is the world's Number 2 digital ad market, far exceeding all Europe's digital ad volume put together. "BAT" (Baidu, Alibaba, Tencent)

claims more than two-thirds of China's online ad investment. Other notable growers are iQiyi (online TV, having overtaken Youku-tudou as market leader) and Weibo (social media) with 313 million users by end-2016. Google and Facebook are recessive in Russia, where established local names Yandex, Mail and VK mop up growth.

Growth by acquisition is another theme, cited by New Zealand, Poland and Ukraine, and by bundling (Xaxis, in Austria). Several examples of organic online growth arise from established newspaper and TV owners, and among pure-play online publishers specializing in news and social media.

Function not form

Several countries led with functions rather than specific sites. Canada mentioned retail, kids and gaming and streaming entertainment. Other things in demand are programmatic, native, content, mobile, and "outstream video" (advertising placed directly in editorial text). ■

Argentina

SNAPSHOT

69%
2017e
INTERNET USERS %

171
2016e E-COMMERCE PER
ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	25	31	37	41
Tablet penetration %	13	15	18	20
E-commerce in ARS bn (excluding travel)	**30.1**	**45.1**	**68.1**	**79.3**
E-commerce per adult internet user ARS	1,111	1,555	2,285	2,600
Adult media usage (hours per day in decimals)				
Online (15+, ex mobile)	0.62	0.70	0.64	0.88
TV (18+)	3.20	3.15	3.60	3.55
Print (18+)	0.62	0.60	0.60	0.56
Radio (18+)	5.30	5.30	5.90	5.86
Total	**9.74**	**9.75**	**10.74**	**10.85**
Adult media usage (percentages)				
Online	6	7	6	8
TV	33	32	34	33
Print	6	6	6	5
Radio	54	54	55	54
Total	**100**	**100**	**100**	**100**

Historic sources: Emarketer, Euromonitor, comScore, TGI

TOP WEBSITES	UNIQUE 000s*	AV MINUTES PER MONTH
Google Search	19,787	51
Facebook	17,513	490
Youtube	16,254	514
Live.com	10,804	8
Mercadolibre.com.ar	10,575	57

TOP APPS	USERS 000s	AV MINUTES PER MONTH
Whatsapp	2,444	4
Spotify App	2,079	n/a
Dropbox App	1,937	n/a
uTorrent App	1,741	n/a

OTT SVOD	ESTIMATED HOMES 000s	DAILY MINUTES PER SUBSCRIBER HH
Netflix	747	32
Cablevisión on demand	59	n/a
Directv on demand	35	n/a

STREAMING AUDIO	ESTIMATED USERS 000s**
Spotify App	2,079
Soundcloud.com	393
MiMP3.com	168
SiMP3.com	154
TuneIn.com	143

*Dec 2016, ex mobile **Dec 2016

Australia

SNAPSHOT

86%
2017e INTERNET USERS %

964
2017e E-COMMERCE PER 16-64 INTERNET USER USD

23%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

20%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Roy Morgan Asteroid, Nielsen, eMarketer, TNS, Quickflix, FetchTV, Akamai

	2014	2015	2016	2017f
Smartphone penetration % of online population	61	69	72	75
Tablet penetration % of online population	76	78	80	82
Online retail in AUD bn	**16.4**	**19.1**	**21.7**	**25.0**
E-commerce per adult internet user AUD	930	984	1,099	1,250
Adult media usage (hours per day in decimals)				
Online	2.56	2.57	2.78	2.85
TV	2.68	2.64	2.47	2.30
Print	0.48	0.45	0.35	0.30
Radio	1.82	1.87	2.23	2.30
Total	**7.54**	**7.53**	**7.83**	**7.75**
Adult media usage (percentages)				
Online	34	34	36	37
TV	36	35	32	30
Print	6	6	4	4
Radio	24	25	28	30
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s*	AV MINUTES PER USER
Google	18,276	17
Facebook	16,005	33
YouTube	15,476	8
MSN/Outlook/Bing/Skype	13,885	5
eBay	11,818	3

TOP APPS	ESTIMATED USERS 000s*	AV MINUTES PER USER
Facebook	11,680	30
Facebook Messenger	11,029	5
Google Maps — Navigation & Transit	8,443	2
YouTube — Watch and Share Videos, Music & Clips	8,011	8
Google app — Search made just for mobile	7,496	4

OTT SVOD	ESTIMATED HOMES 000s*
Netflix	572
Foxtel	286
Stan	242
Foxtel Play	220
Fetch	176

STREAMING AUDIO	ESTIMATED USERS 000s*
Apple	3,090
Spotify	687
Pandora	211

* Nielsen

Austria

SNAPSHOT

83%
2017e 14+
INTERNET USERS %

25%
2016e VIDEO AD INVESTMENT
OF ONLINE DISPLAY

5-10%
2016e AUTOMATED AD
INVESTMENT OF ONLINE
DISPLAY

Historic sources: Media Analyse, ÖWA, AIM

	2014	2015	2016	2017f
Smartphone penetration %	59	63	65	69
Tablet penetration %	37	40	41	42
Adult media usage (hours per day in decimals)				
Online	0.97	3.14	3.29	3.40
TV	2.42	3.14	3.14	3.20
Print	0.51	0.82	0.79	0.75
Radio	3.18	3.39	3.39	3.40
Total	**7.08**	**10.48**	**10.61**	**10.75**
Adult media usage (percentages)				
Online (average for whole 14+ population)	14	30	31	32
TV	34	30	30	30
Print	7	8	7	7
Radio	45	32	32	32
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s*
Orf.at	2,005
Willhaben.at	1,723
Herold.at	1,346
Gmx.at	1,254
Derstandard.at	1,194

TOP APPS	ESTIMATED USERS 000s
All apps together 2016 Q3 A14+	3,912

OTT SVOD (LAST FOUR WEEKS)	ESTIMATED HOMES 000s
Amazon Video (Prime)	358
Netflix	187
2016 Q3 / A14+	n/a

STREAMING AUDIO (LAST FOUR WEEKS)	ESTIMATED USERS 000s
AppleMusic/iTunes	265
Spotify	68
2016 Q3 A14+	

*ex mobile. Unique sites (not network aggregates)

Belgium

SNAPSHOT

74%

2017e 12+ INTERNET USERS %

40%

2016e AUTOMATED % AD INVESTMENT OF ONLINE DISPLAY

	2014	2015	2016	2017f
Smartphone penetration % of all 12+	43	58	48	52
Tablet penetration % of all 12+	30	39	30	33
Adult media usage (hours per day in decimals)				
Online				
TV	4.28	4.86	4.35	4.40
Print	n/a	4.37	4.35	4.36
Radio	4.25	n/a	n/a	n/a
Total	**8.53**	**9.23**	**8.70**	**8.76**

Historic sources: CIM TV/Radio/ Digital, CIM/GfK

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
HLN.be	2,693	121
Nieuwsblad	2,456	115
2dehands.be/2ememain.be	2,329	76
Yellow Pages	1,925	4
Knack/Levif	1,810	16

OTT SVOD	ESTIMATED HOMES 000s
All new TV linear and OD	307
Within which Netflix	75

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	680

Brazil

SNAPSHOT

6%
2016e AUTOMATED % OF ONLINE DISPLAY (EX FB AND ADWORDS)

85%
2017e 15+ INTERNET USERS %

115
2017e E-COMMERCE PER ADULT INTERNET USER USD

Historic sources: TGI Ibope; comScore, ABComm, PwC, Anatel, J Walter Thompson Brazil

	2014	2015	2016	2017f
Smartphone penetration % of phone users	42	62	75	89
Tablet penetration % of whole population	13	17	25	27
E-commerce in BRL bn (excluding travel)	**39**	**41**	**44**	**50**
E-commerce per adult internet user BRL	381	361	367	363
Adult media usage (hours per day in decimals)				
Online (per online user)	3.40	3.49	3.44	3.44
Online (average for all 15+)	2.25	2.53	2.59	2.94
TV	4.60	4.45	4.35	4.25
Print	1.00	1.01	1.00	0.95
Radio	2.50	2.48	2.45	2.40
Total	**10.35**	**10.47**	**10.39**	**10.59**
Adult media usage (percentages)				
Online	22	24	25	28
TV	44	42	42	40
Print	10	10	10	8
Radio	24	24	24	24
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Google Sites	101,802	1,036
Facebook	91,416	1,652
Globo	73,322	100
UOL	67,093	84
R7 Portal	65,897	26

TOP APPS APPS	ESTIMATED USERS 000s
WhatsApp	128,000
Facebook	85,000
YouTube	72,000
Messenger	68,000
Pokemon	50,000
Instagram	35,000
Snap	10,000

OTT SVOD

NET estimated 8m subscriber homes;
Netflix estimated 6m subscriber homes
Note: NET is widely bundled and we estimate has 3m active users

Canada

SNAPSHOT

65%
2016e AUTOMATED % OF ONLINE DISPLAY

87%
2017e ADULT INTERNET USERS %

1,184
2017e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration % of whole 18+ population	66	73	77	81
Tablet penetration % of whole 18+ population	49	52	54	56
E-commerce in CAD bn (excluding travel)	**25**	**30**	**34**	**39**
E-commerce per adult internet user CAD	1,065	1,219	1,374	1,551
Adult media usage (hours per day in decimals)				
Online (average for all 18+)	3.46	4.08	4.23	4.35
TV	3.29	3.25	3.22	3.18
Print	0.28	0.26	0.24	0.23
Radio	1.39	1.38	1.36	1.34
Total	**8.42**	**8.97**	**9.05**	**9.10**
Adult media usage (percentages)				
Online	41	45	47	48
TV	39	36	36	35
Print	3	3	3	3
Radio	17	15	15	15
Total	**100**	**100**	**100**	**100**

Historic sources: eMarketer, MTM, comScore, CBC News

TOP WEBSITES	UNIQUES 000s*	AV MINUTES PER MONTH
Google Sites	21,858	662
Microsoft Sites	19,730	5,640
Facebook	16,219	8,965
Yahoo Sites	13,865	2,664
eBay	10,752	1,921

TOP APPS	ESTIMATED USERS 000s**	AV MINUTES PER MONTH
Facebook	17,362	16,527
Google Sites	16,680	12,203
Apple Inc.	12,737	5,941
Pelmorex Media Inc Weather	7,116	380
Yahoo Sites	6,574	758

OTT SVOD	ESTIMATED HOMES 000s	WEEKLY MINUTES PER SUBSCRIBER
***Crave TV	740	45
****Netflix	5,200	127
Crackle	n/a	49

STREAMING AUDIO (E.G. SPOTIFY)	ESTIMATED USERS 000s	MONTHLY UNIQUE VISITORS
Spotify	3,033	4,312
Soundcloud	1,482	2,783
Applemusic*****	1,814	7,530
Slacker	252	78
Deezer	87	101
iHeartRadio	n/a	1,479
Pandora	152	51
Tidal	46	63
GooglePlay*****	2,179	7,933

* desktop only annual average **mobile annual average ***individual subscriber numbers unavailable ****no numbers yet on Amazon Prime Video, which launched December 2016 *****Canada-English only

Chile

SNAPSHOT

72%

2017e ADULT INTERNET USERS %

310

2017e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration % (of whole population)	64	76	80	82
Tablet penetration % (of whole population)	16	19	22	34
E-commerce in USD bn (excluding travel)	**2.0**	**2.3**	**2.6**	**3.0**
E-commerce per adult internet user USD	303	319	355	310
Adult media usage (hours per day in decimals)				
Online (per 18+ user)	1.05	0.95	0.97	1.18
Online (average for whole population)	0.53	0.52	0.53	0.85
TV (18+)	3.75	3.83	3.82	3.75
Print	0.40	0.37	0.35	0.42
Radio	4.00	3.17	3.00	2.90
Total	**8.68**	**7.89**	**7.70**	**7.92**
Adult media usage (percentages)				
Online	6	7	7	11
TV	43	49	50	47
Print	5	5	5	5
Radio	46	40	39	37
Total	**100**	**100**	**100**	**100**

Historic sources: comScore, TGI, Camara de Comercio, Ibope, Ipsos

TOP WEBSITES	UNIQUES 000s	AV DAILY MINUTES
Google.cl	8,379	4
Google.com	6,110	9
Youtube.com	5,993	29
Facebook.com	5,928	18
Live.com	3,541	4

TOP APPS
WhatsApp Messenger
Messenger
Facebook
Youtube
Instagram

China

SNAPSHOT

56%

2017e 20+ INTERNET USERS %

1,533

2017e ONLINE SHOPPING PER 20+ INTERNET USER USD

9%

2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

Historic sources: China National Resident Survey, CNNIC, iResearch China Online Shopping reports, MIT, iResearch

	2014	2015	2016	2017f
Smartphone penetration % of phone users	45	56	71	77
Tablet penetration % of whole population	17	16	16	16
E-commerce in CNY billion (including B2B, travel, O2O, excluding group buying)	**13,100**	**15,900**	**19,700**	**23,200**
Online shopping only	2,785	3,900	5,000	6,200
Online shopping via PCs	1,844	1,736	1,590	1,686
Online shopping via mobile devices	941	2,164	3,410	4,514
(online shopping only) per adult internet user CNY	5,686	7,459	8,929	10,333
Adult media usage (hours per day in decimals) Ages 15-69 36 cities				
Online (per online user)	3.58	3.37	3.38	3.50
TV (per viewer)	2.61	2.61	2.41	2.30
Print (per reader)	0.61	0.56	0.55	0.55
Radio (per listener)	1.11	1.04	1.02	1.00
Total	**7.91**	**7.57**	**7.36**	**7.35**
Adult media usage (percentages)				
Online	45	44	46	48
TV	33	34	33	31
Print	8	7	7	7
Radio	14	14	14	14
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Baidu.com [百度]	454,848	92
Qq.com [腾讯]	447,771	116
Sina.com.cn [新浪]	334,660	37
Taobao.com [淘宝网]	324,935	103
So.com [360搜索]	324,776	22

TOP APPS	DEVICES 000s	AV MINUTES PER MONTH
Wechat [微信]	916,903	1,228
QQ for mobile [QQ]	605,957	609
iQiyi [爱奇艺]	480,715	696
Taobao for mobile [手机淘宝]	473,808	119
Ali Pay [支付宝]	411,127	44

STREAMING AUDIO (PC)	MONTHLY USERS 000s
Xiami.com [虾米音乐]	30,830
Kugou.com [酷狗音乐]	14,217
1ting.com [一听音乐网]	9,931
Yinyuetai.com [音悦Tai]	8,999

STREAMING AUDIO (MOBILE)	MONTHLY USERS 000s
QQ Music [QQ音乐]	150,714
Quanmin K Ge [全民K歌]	80,689
Kuwo [酷我音乐]	70,354
Netease Yun Music [网易云音乐]	51,341

Czech Republic

SNAPSHOT

74%
2017e ADULT INTERNET USERS %

435
2017e E-COMMERCE PER ADULT INTERNET USER USD

14%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

7%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: MML-TGI, NetMonitor, Mediaresearch, APEK

	2014	2015	2016	2016f
Smartphone penetration % of phone users	33	45	52	55
Tablet penetration % of phone users	13	18	32	37
E-commerce in EUR bn (excluding travel)	**1.9**	**2.1**	**2.5**	**2.8**
E-commerce per adult internet user EUR	274	301	357	397
Adult media usage (hours per day in decimals)				
Online (per 15+ user)	2.40	2.70	2.50	2.60
Online (average for whole population)	1.75	1.98	1.83	1.92
TV	3.68	3.70	3.50	3.65
Print	0.20	0.20	0.18	0.12
Radio	2.28	2.40	2.20	2.20
Total	**7.91**	**8.28**	**7.71**	**7.89**
Adult media usage (percentages)				
Online	22	24	24	24
TV	47	45	45	46
Print	3	2	2	2
Radio	29	29	29	28
Total	**100**	**100**	**100**	**100**

TOP LOCAL WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Seznam.cz	6,224	185
Idnes.cz	4,329	47
Novinky.cz	4,206	43
Super.cz	3,456	24
Heureka.cz	2,935	17

OTT SVOD	ESTIMATED HOMES 000s
O2 TV	220
Netflix	n/a
UPC Horizon Go	n/a

Denmark

SNAPSHOT

100%

2016e ADULT INTERNET USERS %

3,605

2016e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	73	81	82	83
Tablet penetration %	58	69	73	76
E-commerce in DKr bn excluding travel	**69.7**	**87.8**	**102.0**	**115.0**
E-commerce per adult internet user DKr	16,607	20,845	21,814	24,468
Adult media usage (hours per day in decimals)				
Online	1.62	1.70	2.67	3.20
TV	2.21	2.19	1.90	1.80
Print	0.46	0.45	0.40	0.36
Radio	1.33	1.32	1.23	1.18
Total	**5.62**	**5.66**	**6.20**	**6.54**
Adult media usage (percentages)				
Online	29	30	43	49
TV	39	39	31	28
Print	8	8	6	6
Radio	24	23	20	18
Total	**100**	**100**	**100**	**100**

Historic sources: TNS Gallup, Dansk Erhverv

TOP WEBSITES	UNIQUES 000s
Dr.dk	2,952
Tv2.dk	2,751
Berlingske	1,499
Bt.dk	2,342
Krak.dk	2,228

TOP APPS	ESTIMATED USERS 000s	AV MIN PER SESSION
DR TV	1,137	16
Rejseplanen	571	1
DBA	715	15
Tv Tid	444	0
DR Ramasjang	440	0

OTT SVOD	ESTIMATED HOMES 000s
Netflix	1,768
Viaplay	464
Tv2 Play	157
HBO	568
C More	161

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	791
TDC Play	863
Tidal	n/a
Deezer	n/a
Napster	n/a

Finland

SNAPSHOT

79%
2016e ADULT INTERNET USERS %

2,897
2016e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration % of whole population	66	70	78	83
Tablet penetration % of whole population	40	46	51	55
E-commerce in EUR bn (excluding travel)	**6.7**	**7.5**	**8.5**	**9.3**
E-commerce per adult internet user EUR	1,926	2,113	2,367	2,642
Adult media usage (hours per day in decimals)				
Online (per online user)	2.45	2.60	3.15	3.20
Online (average for all 18+)	1.95	2.10	2.56	2.54
TV	2.53	2.45	2.36	2.31
Print	0.83	0.80	0.78	0.73
Radio	1.60	1.55	1.52	1.58
Total	**6.96**	**6.91**	**6.90**	**6.98**
Adult media usage (percentages)				
Online	28	30	35	35
TV	37	36	33	32
Print	12	12	11	10
Radio	23	22	21	22
Total	**100**	**100**	**100**	**100**

Historic sources: TNS Atlas, comScore

TOP WEBSITES	UNIQUES 000s
Google	3,321
MSN	2,205
Facebook	2,118
Iltasanomat	1,916
YLE	1,906

TOP APPS
Facebook
Youtube
Google Maps
WhatsApp
Gmail

OTT SVOD SVOD	ESTIMATED HOMES 000s
Netflix	821

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	1,397

France

SNAPSHOT

84%
2017e 12+ INTERNET USERS %

1,910
2017e E-COMMERCE PER ADULT INTERNET USER USD

35%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

53%
2016e AUTOMATED AD INVESTMENT OF ONLINE DISPLAY

Historic sources: Médiamétrie, 126 000, NetRatings, GroupM, IP, Les Echos, ARCEP, SRI UDECAM

	2014	2015	2016	2017f
Smartphone penetration % of whole population	56	58	68	71
Tablet penetration % of whole population	36	38	41	43
E-commerce in EUR bn (including travel)	**57.0**	**65.0**	**72.0**	**81.0**
E-commerce per 12+ internet user EUR	1,317	1,479	1,592	1,742
E-commerce excluding travel is not available				
Adult media usage (hours per day in decimals)				
Online	1.61	1.77	2.37	2.65
TV	3.85	3.88	3.83	3.81
Print	0.78	0.75	0.77	0.68
Radio	2.38	2.37	2.35	2.33
Total	**8.62**	**8.77**	**9.32**	**9.47**
Adult media usage (percentages)				
Online	19	20	25	28
TV	45	44	41	40
Print	9	9	8	7
Radio	28	27	25	25
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Google	43,548	2.27
Facebook	39,668	4.90
YouTube	34,832	2.52
Orange	24,771	0.58
Microsoft	24,261	2.40

TOP APPS	ESTIMATED USERS 000s
Google	22,399
YouTube	14,161
Facebook	14,082
Orange	6,374
WhatsApp	6,099

OTT SVOD	ESTIMATED USERS 000s
Netflix	4,363
CanalPlay	2,618
Amazon	1,727
SFR Play	1,339
OCS	1,200

STREAMING AUDIO	ESTIMATED USERS 000s
Deezer	6,834
Spotify	4,927
France Inter	2,899
NRJ	2,929
La Coccinelle du Net	1,583

Germany

SNAPSHOT

81%
2017e 10+ INTERNET USERS %

874
2017e E-COMMERCE PER ADULT INTERNET USER USD

29%
2014e VIDEO AD INVESTMENT OF ONLINE DISPLAY

9%
2016e AUTOMATED INVESTMENT OF ONLINE DISPLAY

Historic sources: ZDF/ARD, Statista.de, AGOF, Goldmedia, Bitkom

	2014	2015	2016	2017f
Smartphone penetration %	50	55	61	67
Tablet penetration %	33	38	43	46
E-commerce in EUR bn (excluding travel)	**37.1**	**41.7**	**44.0**	**47.5**
E-commerce per10+ internet user EUR	667	743	759	797
Adult media usage (hours per day in decimals)				
Online (desktop to 2015, plus mobile from 2016, whole population)	1.80	1.78	2.71	2.93
TV	3.68	3.47	3.72	3.72
Print	0.48	0.50	0.58	0.58
Radio	2.50	2.89	3.33	3.33
Total	**8.46**	**8.64**	**10.34**	**10.56**
Adult media usage (percentages)				
Online	21	21	26	28
TV	44	40	36	35
Print	6	6	6	5
Radio	30	33	32	32
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s
T-Online	345,528
gutefrage.net	241,320
eBay.de	211,701
FOCUS Online	223,776
Web.de	232,092
Bild	225,312

OTT SVOD	ESTIMATED HOMES 000s
Amazon Prime	13,056
Maxdome	4,488
Netflix	6,936
Watchever	1,224
Sky	4,896

TOP APPS	ESTIMATED USERS 000s
Web.de	103,164
Wetter.de	3,204
GMX	76,416
Mobile.de	67,380
TV Spielfilm	55,272

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	48,335
Google Play Music	12,547
Deezer	9,838
Napster	8,056
Simfy	5,988
Apple Music	1,000

Greece

SNAPSHOT

78%

2017e INTERNET USERS % OF 13-74s

	2014	2015	2016	2017f
Smartphone penetration % of phone users	45	52	60	70
Tablet penetration %	11	15	18	20
Adult media usage (hours per day in decimals)				
Online	2.20	2.35	2.35	2.50
TV	2.50	2.50	2.50	2.50
Print	0.59	0.50	0.50	0.40
Radio	1.90	1.90	1.95	1.95
Total	**7.19**	**7.25**	**7.30**	**7.35**
Adult media usage (percentages)				
Online	31	32	32	34
TV	35	34	34	34
Print	8	7	7	5
Radio	26	26	27	27
Total	**100**	**100**	**100**	**100**

Historic sources: TGI, FocusBari, Web-id, Ened, Google Analytics

TOP WEBSITES	UNIQUES 000s
Protothema.gr	4,702,678
Newsbomb.gr	4,608,861
Lifo.gr	4,223,940
Gazzetta.gr	4,091,776
Newsit.gr	4,047,330

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	660,000

Hong Kong

SNAPSHOT

89%

2016e 18-64 INTERNET USERS %

	2013	2014	2015	2016e
Smartphone penetration %	72	84	90	91
Tablet penetration %	28	37	48	49
Adult media usage (hours per day in decimals)				
Online	2.60	2.70	4.30	4.80
TV	3.95	3.90	3.70	3.60
Print	0.89	1.09	1.17	1.05
Radio	1.00	1.03	1.10	1.10
Total	**8.44**	**8.72**	**10.27**	**10.55**
Adult media usage (percentages)				
Online	31	31	42	45
TV	47	45	36	34
Print	11	13	11	10
Radio	12	12	11	10
Total	**100**	**100**	**100**	**100**

Historic sources: Nielsen Media Index, comScore

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Yahoo.com.hk	4,360	113.0
Google.com.hk	3,681	82.0
Yahoo.com	3,078	88.0
Facebook.com	2,656	253.0
Google.com	2,648	69.0

TOP APPS

Next Media Interactive Ltd.
Oriental Press Group
Yahoo Sites
HKET Holdings
OpenRice

OTT SVOD

Netflix
LeTV

Hungary

SNAPSHOT

72%
2017e 18+ INTERNET USERS %

323
2016e E-COMMERCE PER ADULT INTERNET USER USD

33%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Gemius-Ipsos, Nielsen Audience Measurement, TNS Hoffmann - TGI and radio audience measurement, Ipsos/GfK, IAB

	2014	2015	2016	2017f
Smartphone penetration % of whole population	31	41	48	57
Tablet penetration % of whole population	11	15	19	23
E-commerce in HUF bn (including travel)	**273**	**355**	**447**	**530**
E-commerce per adult internet user HUF	54,688	69,690	79,821	90,598
Adult media usage (hours per day in decimals)				
Online (per online user)	1.90	2.55	3.10	3.70
Online (average for all adults)	1.17	1.60	2.14	2.67
TV	5.02	4.98	4.65	4.50
Print	0.35	0.35	0.47	0.45
Radio	2.85	3.00	2.73	2.60
Total	**9.39**	**9.93**	**9.99**	**10.22**
Adult media usage (percentages)				
Online	12	16	21	26
TV	53	50	47	44
Print	4	4	5	4
Radio	30	30	27	25
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
blog.hu	3,000	4
origo.hu	2,400	25
jofogas.hu	2,100	21
index.hu	2,050	49
nlcafe.hu	2,000	5

TOP APPS	ESTIMATED USERS 000s
Facebook	2,700
Facebook Messenger	2,000
Youtube	1,800
Viber	1,600
Instagram	800

OTT SVOD	ESTIMATED HOMES 000s
Netflix	140

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	180
Deezer	100
Soundcloud	70

India

SNAPSHOT

50%
2017e 12+ INTERNET USERS %

66
2017e E-COMMERCE PER 12+ INTERNET USER USD

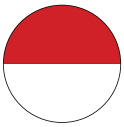
32%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

Historic sources: IAMAI, PwC, comScore, publishers, GroupM estimates

	2014	2015	2016	2017f
Smartphone penetration % (of all handset users)	21.0	26.0	30.0	33.0
Tablet penetration % (of all internet users)	2.7	3.9	11.0	14.0
E-commerce in USD bn (including travel)	**16**	**21**	**26**	**33**
E-commerce per 12+ internet user USD	63	61	61	66
Adult media usage (hours per day in decimals)				
Online (average of 12+users)	3.77	3.90	3.27	3.50
Online (average for all 12+)	1.03	1.41	1.41	1.76
TV	2.59	2.66	3.15	3.36
Print (top 10 titles)	0.28	n/a	n/a	n/a
Radio	0.47	n/a	n/a	n/a
Total	**4.37**	**4.07**	**4.56**	**5.12**
Adult media usage (percentages)				
Online	23	n/a	n/a	n/a
TV	59	n/a	n/a	n/a
Print	6	n/a	n/a	n/a
Radio	11	n/a	n/a	n/a
Total	**100**	**n/a**	**n/a**	**n/a**

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Google Sites	71,778	209
Facebook	37,560	119
Microsoft Sites	35,783	33
Yahoo Sites	29,280	78
Amazon Sites	23,735	28
BitTorrent Network	20,927	0
Flipkart sites	17,254	19
Times Internet Limited	22,303	35
Jabong.com	14,624	5

OTT SVOD	ESTIMATED HOMES 000s
Hotstar (Star India)	4,887
Sony Live	753
dittoTV (Zee)	705
ErosNow	161
VOOT (Viacom)	2,212
ALT Digital Balaji	n/a
HOOQ (Sony/Warner)	n/a



Indonesia

SNAPSHOT

43%

2017e iNTERNET USERS %

73

2017e E-COMMERCE PER INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration % of phone users	24	29	40	43
Tablet penetration % of whole population	8	10	13	14
E-commerce in USD bn (excluding travel)	**1.6**	**3.4**	**6.2**	**8.2**
E-commerce per internet user USD	19	36	60	73

Historic sources: eMarketer, comScore, Techinasia, Jakarta Post, Merdeka.com

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Google Sites	723,000	10
Facebook	316,824	18
Yahoo sites	175,995	1
Lazada Sites	48,000	7
Wordpress.com	43,354	4

TOP APPS	ESTIMATED USERS 000s
Facebook	88,000
BBM	55,000
Instagram	30,000
LINE	n/a
Whatsapp	n/a

STREAMING AUDIO	AV MONTHLY VISITS 000s
Guvera	2,000,000
Spotify.com	1,297,280
Deezer	418,760
langitmusik.co.id	33,878
Melon.co.id	26,495

Ireland

SNAPSHOT

90%
2017e ADULT INTERNET USERS %

2,436
2017e E-COMMERCE PER ADULT INTERNET USER USD

32%
2065e VIDEO AD INVESTMENT OF ONLINE DISPLAY

46%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: TGI Eir Household Survey, Deloitte Global Mobile Consumer Survey 2016, Ecommerce Europe, GroupM, comScore

	2014	2015	2016	2017f
Smartphone penetration % of phone users	70	74	80	86
Tablet penetration (% of population having access to a tablet)	29	31	49	60
E-commerce in EUR bn	**5.3**	**6.0**	**7.0**	**7.5**
E-commerce per adult internet user EUR	1,558	1,744	2,034	2,222
Adult media usage (hours per day in decimals)				
Online (per online user, ex streaming)	n/a	n/a	3.39	3.14
Online (average for all 18+, ex streaming)	2.40	2.50	3.15	2.83
TV	2.60	2.55	2.28	2.06
Print	n/a	n/a	0.83	0.59
Radio	2.42	2.42	1.74	2.10
Total	**7.42**	**7.47**	**8.00**	**7.58**
Adult media usage (percentages)				
Online	32	33	39	37
TV	35	34	29	27
Print	0	0	10	8
Radio	33	32	22	28
Total	**100**	**100**	**100**	**100**

TOP WEBSITES*	UNIQUES 000s
RTE.ie	555
Inpdependent.ie	572
Irish Times	604
Wikipedia	481
BBC	505

OTT SVOD	ESTIMATED HOMES
Netflix	439
Google Play	n/a
Sky Go	71
BBC iPlayer	36
Vimeo	n/a

TOP APPS	AV MINUTES PER DAY
Color Switch	n/a
FB Messenger	14
Whatsapp	16.3
Snapchat	7.8
Facebook	43.7

STREAMING AUDIO**	MAU
iTunes	n/a
Spotify	391

*ex mobile **Average user streams 21.85 min/day (all streams)

Italy

SNAPSHOT

51%
2017e 15+ INTERNET USERS %

553
2017e E-COMMERCE PER ADULT INTERNET USER USD

32%
2016e VIDEO AD INVESTMENT OF INTERNET DISPLAY

27%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Eurisko, Audipress, Audiweb, Auditel, Politecnico di Milano, Mobile Next, Sinottica/TSSP, comScore Mobilens, Ookla Net Index

	2014	2015	2016	2017f
Smartphone penetration % of all 15+	48	57	58	60
Tablet penetration % of households	23	24	24	25
E-commerce in EUR bn (excluding travel)	**7.5**	**8.8**	**11.0**	**13.8**
E-commerce per adult internet user EUR	288	333	409	504
Adult media usage (hours per day in decimals)				
Online (average for all adults)	0.85	0.90	0.98	1.07
TV	4.45	4.32	4.03	3.77
Print	0.25	0.23	0.22	0.20
Radio	2.20	2.20	2.28	2.30
Total	**7.75**	**7.65**	**7.52**	**7.34**
Adult media usage (percentages)				
Online	11	12	13	15
TV	57	56	54	51
Print	3	3	3	3
Radio	28	29	30	31
Total	**100**	**100**	**100**	**100**

TOP WEBSITES*	UNIQUES 000s	AV MINUTES PER MONTH
Google	26,057	262
Facebook	22,724	850
YouTube	21,172	126
Amazon	16,999	55
MSN/Outlook/Bing/Skype	15,855	60

TOP APPS	UNIQUES 000s	AV MINUTES PER MONTH
WhatsApp	18,582	624
Google Play	17,081	25
Facebook	15,876	895
Youtube	15,390	119
Google Search	15,089	64

OTT SVOD (E.G. NETFLIX)	ESTIMATED 000s
Netflix (unique users websites)	16,589
Sky online (unique users websites)	7,672
Infinity (unique users websites)	5,115
Sky Ondemand (mysky connected)	2,300
Premium Play (subscription users)	1,072
Sky Go (active unique users)	662

STREAMING AUDIO (E.G. SPOTIFY)	UNIQUES 000s
Spotify	3,763
SoundCloud	428
TIMmusic	352
Deezer	259
TuneIn	122

*PC + Mobile (with apps)

Japan

SNAPSHOT

95%
2017e ADULT INTERNET USERS %

830
2017e ONLINE SHOPPING PER ADULT INTERNET USER USD

11%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

	2014	2015	2016	2017f
Smartphone penetration %	40	41	44	47
Tablet penetration %	24	27	29	30
E-commerce in JPY tn (excluding travel)	**6.4**	**7.5**	**8.6**	**9.0**
E-commerce per adult internet user JPY	62,684	72,394	81,818	85,714
E-commerce in JPY tn (total)	**9**	**10.7**	**12.0**	**12.3**
E-commerce in JPY tn (travel only)	**3**	**3.2**	**3.3**	**3.3**
Adult media usage (hours per day in decimals)				
Online	2.31	2.45	2.94	3.08
TV	2.52	2.55	2.55	2.52
Print	0.64	0.55	0.57	0.55
Radio	0.52	0.48	0.50	0.50
Total	**5.88**	**6.03**	**6.57**	**6.65**
Adult media usage (percentages)				
Online	39	41	45	46
TV	42	42	39	38
Print	11	9	9	8
Radio	9	8	8	8
Total	**100**	**100**	**100**	**100**

Historic sources: Video Research, Nielsen, comScore, Hakuhodo

TOP WEBSITES*	UNIQUE 000s	AV MINUTES PER MONTH
Google	48,912	11
Yahoo Japan	52,899	9
LINE Corp	32,620	3
FC2.com	31,003	2.5
Amazon.co.jp	30,896	8.9
Rakuten	27,993	7

TOP APPS	ESTIMATED USERS 000s
LINE	41,100
Facebook	21,400
Twitter	17,100
Yahoo Japan	13,900

OTT SVOD	ESTIMATED SUBSCRIBERS 000s
Amazon Prime	6,000
dTV	5,000
Hulu	1,300
U-NEXT	1,000
Netflix	1,000

STREAMING AUDIO	ESTIMATED SUBSCRIBERS 000s
Amazon Prime Music	6,000
Google Play Music	1,000
Apple Music	1,250
AWA	200
LINE Music	200

*comScore Jan 2017

Latvia

SNAPSHOT

80%
2017e ADULT INTERNET USERS %

23%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

7%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: TNS, Gemius, Media House estimates

	2014	2015	2016	2017f
Smartphone penetration % of whole population	28	32	55	60
Tablet penetration % of whole population	12	20	22	25
Adults who ever shop online %	40%	50%	54%	65%
Adult media usage (hours per day in decimals)				
Online (average per user)	0.96	0.98	1.10	1.20
Online (average for all adults)	0.71	0.74	0.85	0.96
TV	2.86	2.81	2.35	2.15
Print	0.38	0.35	0.35	0.35
Radio	4.27	4.33	4.35	4.50
Total	**8.22**	**8.23**	**7.90**	**7.96**
Adult media usage (percentages)				
Online	9	9	11	12
TV	35	34	30	27
Print	5	4	4	4
Radio	52	53	55	57
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Draugiem.lv	482	415
Delfi.lv	744	242
Inbox.lv	790	190
Tvnet.lv	740	141
Kasjauns.lv	365	110

TOP APPS	ESTIMATED USERS 000s
Google	376
Facebook	365
Youtube	312
WhatsApp	327
Inbox	186

OTT SVOD	
Netflix	7.7 K users

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify (free)	68
Spotify (paid)	20-30

Lithuania

SNAPSHOT

70%

2017e ADULT INTERNET USERS %

	2014	2015	2016	2017f
Smartphone penetration %	34	44	53	59
Tablet penetration %	7	14	20	23
Adult media usage (hours per day in decimals)				
Online	2.15	2.31	2.59	2.92
TV	3.65	3.87	3.92	4.00
Print	0.57	0.51	0.43	0.35
Radio	2.42	2.57	2.33	2.45
Total	**8.79**	**9.25**	**9.26**	**9.71**
Adult media usage (percentages)				
Online	24	25	28	30
TV	42	42	42	41
Print	6	6	5	4
Radio	28	28	25	25
Total	**100**	**100**	**100**	**100**

Historic sources: TNS, TG,emius

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Google	1,514	n/a
Delfi.lt	1,289	272
15min.lt	1,224	198
Facebook	1,113	n/a
YouTube	1,012	n/a

OTT SVOD	UNIQUE 000s	AV MINUTES PER MONTH
YouTube	1,012	n/a
Delfi TV (free, local)	491	24
Lrytas online TV (free, local)	424	19
TV3Play (free, local)	221	156
LNKGo (free, local)	265	100
Netflix	53	n/a

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	76

*Source: TNS LT (international sites), Gemius 2015 dec (local sites)

Malaysia

SNAPSHOT

86%
2017e INTERNET USERS %

36%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

18%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: MCMC Pocket Book Of Statistics, 3D Malaysia, comScore, Statista

*2014 drop explained as a reduction in average dwelltime on free-to-air channels

	2014	2015	2016	2017f
Smartphone penetration % (of all 15-54)	65	79	84	92
Tablet penetration % (of all 15-54)	8	12	11	13
Adult media usage (hours per day in decimals)				
Online (average per user)	2.72	2.45	2.50	2.42
Online (average per person)	1.82	1.94	2.00	2.07
TV*	1.88	1.89	1.75	1.71
Print	0.82	0.49	0.66	0.65
Radio	1.57	0.95	1.22	0.89
Total	**6.09**	**5.27**	**5.63**	**5.32**
Adult media usage (percentages)				
Online	30	37	35	39
TV	31	36	31	32
Print	13	9	12	12
Radio	26	18	22	17
Total	**100**	**100**	**100**	**100**

TOP WEBSITES*	UNIQUES 000s	MILLION MINUTES PER MONTH
Google.com	10,759	1,363
Youtube.com	9,436	3,548
Facebook.com	8,366	2,220
Lazada.com.my	4,969	131
Yahoo.com	4,881	589

OTT SVOD	ESTIMATED HOMES 000s
Total all providers	1,32 m users

TOP APPS (FREE DOWNLOADS)
WhatsApp Messenger
Facebook
WeChat
Facebook Messenger
Instagram

STREAMING AUDIO**	ESTIMATED USERS 000s
Spotify	1,251.797
Kuwo.cn	455.84
Soundcloud.com	406.371
Billboard Music	211
Joox.com	94.088

*comScore Media Metrix – Multiplatform December 2016 **comScore Media Metrix – Multiplatform December 2016

Mexico

SNAPSHOT

54%
2016e 6+ INTERNET USERS %

257
2017e B2C ECOMMERCE PER INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration % of whole population	25.0	38.0	53.2	57.8
Tablet penetration % of whole population	8.0	12.0	14.4	20.2
E-commerce in USDbn (all B2C)	**9.8**	**11.4**	**13.5**	**15.4**
E-commerce per adult internet user USD	207	224	245	257
Adult media usage (hours per day in decimals)				
Online (average per user)	2.40	2.50	2.75	2.90
Online (average for all 6+)	1.07	1.18	1.38	1.57
TV	2.53	2.45	2.33	3.10
Print	0.60	0.50	0.40	0.66
Radio	0.56	0.70	0.74	0.78
Total	**4.75**	**4.83**	**4.85**	**6.10**
Adult media usage (percentages)				
Online	22	24	28	26
TV	53	51	48	51
Print	13	10	8	11
Radio	12	14	15	13
Total	**100**	**100**	**100**	**100**

Historic sources: TGI, eMarketer, comScore, Apple

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Google Sites	446	5,309
Microsoft Sites	348	1,028
Facebook	346	4,368
Yahoo Sites	219	715
Wikimedia Foundation Sites	149	89

OTT S VOD	ESTIMATED USERS 000s
Netflix	3,335
Claro	878

TOP APPS	ESTIMATED DOWNLOADS 000s
Spotify	10,064
Shazam Entertainment Ltd	3,872
TuneIn	1,699
Soundcloud	3,001
Prisa	9

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	6,346
Apple Music	3,841
Deezer	1,415

Netherlands

SNAPSHOT

93%
2017e ADULT INTERNET USERS %

1,456
2017e E-COMMERCE PER ADULT INTERNET USER USD

20%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

30%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: MMS, GfK, SKO, NLO, GroupM estimates, GWI

	2014	2015	2016	2017f
Smartphone penetration % of whole population	76	80	83	84
Tablet penetration % of whole population	61	65	67	67
E-commerce in EUR bn (excluding travel)	**8.7**	**11.9**	**14.6**	**18.1**
E-commerce per 13+ internet user EUR	681	925	1,093	1,328
Adult media usage (hours per day in decimals)				
Online (average for whole population)	2.00	2.16	2.33	2.50
TV	3.47	3.32	3.20	3.09
Print	0.37	0.35	0.33	0.31
Radio	2.97	2.93	2.87	2.81
Total	**8.81**	**8.76**	**8.73**	**8.71**
Adult media usage (percentages)				
Online	23	25	27	29
TV	39	38	37	35
Print	4	4	4	4
Radio	34	33	33	32
Total	**100**	**100**	**100**	**100**

TOP WEBSITES*	UNIQUES 000s	AV MINUTES PER MONTH
Google (excl YT)	12,727	159
Facebook	11,941	402
YouTube	11,217	108
WhatsApp Messenger	8,974	169
Marktplaats	8,195	38

TOP APPS	ESTIMATED USERS 000s	AV MINUTES PER MONTH
Google (excl YT)	9,438	49
Facebook	9,300	235
WhatsApp Messenger	8,974	169
YouTube	8,561	40
Facebook Messenger	7,255	8

ON-DEMAND/OTT MUSIC AND VIDEO SERVICES % WHO USED THE FOLLOWING SERVICES LAST MONTH**

Netflix	29.8	Deezer	2.7
Spotify	23.4	Google Play Music	1.8
Google Play	17.6	Apple music	1.5
RTL XL	12.2	BBC iPlayer	1.0
iTunes	7.8	Disney Life	0.9
Soundcloud	4.9	Tidal	0.6
Vimeo	2.9	Audible	0.5
HBO Go	2.9	Musify	0.3
Videoland	2.8		

*sites and apps, all platforms **GWI (16-64 year), Q3 2016

New Zealand

SNAPSHOT

98%
2017e ADULT INTERNET USERS %

1,284
2017e E-COMMERCE PER ADULT INTERNET USER USD

4%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

3%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Colmar Brunton, Nielsen, Roy Morgan, IAB NZ

	2014	2015	2016	2017f
Smartphone penetration % of whole population	59	67	73	76
Tablet penetration % of whole population	39	48	52	55
E-commerce in NZD bn	**4.2**	**4.7**	**5.2**	**6.0**
E-commerce per adult internet user USD	1,332	1,446	1,571	1,777
Adult media usage (hours per day in decimals)				
Online	2.54	3.51	3.53	3.90
TV	2.69	2.49	2.48	2.45
Print	0.33	0.45	0.43	0.39
Radio	2.37	2.17	1.95	1.97
Total	**7.93**	**8.62**	**8.39**	**8.71**
Adult media usage (percentages)				
Online	32	41	42	45
TV	34	29	30	28
Print	4	5	5	4
Radio	30	25	23	23
Total	**100**	**100**	**100**	**100**

TOP WEBSITES*	UNIQUES 000s	AV MINUTES PER MONTH
Google	3,414	301
Microsoft	3,010	121
Facebook	2,671	569
Fairfax (Including Stuff)	2,239	134
NZME (Including nzherald.co)	2,092	101

OTT SVOD**	ESTIMATED HOMES 000s
Netflix	724
Lightbox (Spark)	301
Neon (SKY TV)	95
Quickflix	43

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	469
Pandora	455
iHeartRadio	290

*Nielsen Answers **Roy Morgan

Norway

SNAPSHOT

91%
2017e ADULT INTERNET USERS %

1,619
2017e E-COMMERCE PER ADULT INTERNET USER USD

8%
2016e VIDEO AD INVESTMENT OF ALL ONLINE

23%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Advantage, Interbuss, Postnord, Forbruker & Media/TNS Gallup

	2014	2015	2016	2017f
Smartphone penetration % of whole population	84	87	89	90
Tablet penetration % of whole population	63	66	68	69
E-commerce in NOK bn (excluding travel & events)	**32.3**	**38.9**	**45.0**	**50.0**
E-commerce per adult internet user NOK	8,820	10,542	11,870	13,189
Adult media usage (hours per day in decimals)				
Online (average for whole population)	2.12	2.60	2.78	2.80
TV	2.89	2.88	2.78	2.75
Print	0.76	0.72	0.68	0.65
Radio	2.15	2.17	1.42	1.40
Total	**7.92**	**8.37**	**7.66**	**7.60**
Adult media usage (percentages)				
Online	27	31	36	37
TV	36	34	36	36
Print	10	9	9	9
Radio	27	26	19	18
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Startsiden.no	320	2340
NRK.no	937	1230
Sol.no	138	630
VG Nett	1,207	1200
Tekniks Ukeblad.no	24	810

TOP APPS
Vipps by DNB
Snapchat
Æ - Rema
Instagram
Kahoot

OTT SVOD	ESTIMATED HOMES 000s
Netflix	989
Tv2 Sumo	345
Viaplay	322
HBO	276

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	2,202
Wimp	571
Apple Music	326

Philippines

SNAPSHOT

60%

2017e INTERNET USERS %

	2014	2015	2016	2017f
Smartphone penetration % of whole population	23	59	70	75
Tablet penetration % of whole population	18	21	25	26
Adult media usage (hours per day in decimals)				
Online (average for whole population)	1.60	2.70	1.08	1.08
TV	4.80	4.80	4.90	4.90
Print	0.80	0.77	0.05	0.05
Radio	1.30	1.30	1.72	1.72
Total	**8.50**	**9.57**	**7.75**	**7.75**
Adult media usage (percentages)				
Online	19	28	14	14
TV	56	50	63	63
Print	9	8	1	1
Radio	15	14	22	22
Total	**100**	**100**	**100**	**100**

Historic sources: ITU/IWS, Nielsen/CMV, Arianna, Radio Advisor SimilarWeb, Upgrademag.com, Sunstar.com, comScore

TOP WEBSITES	AV MONTHLY VISITS, M
Lazada.com.ph	41
Wikipedia.org	38
Abs-cbn.com	17
Ask.com	16
Alibaba.com	14

TOP APPS
Facebook
Messenger
YouTube
Go SMS Pro
Facebook Lite

OTT SVOD	ESTIMATED SUBSCRIBERS
ABS CBN BlackBox	n/a
Netflix	n/a
HOOQ	>100,000
iFlix	2.4 m

STREAMING AUDIO	ESTIMATED USERS
Spotify	1.7 m

Poland

SNAPSHOT

76%
2017e 7+ INTERNET USERS %

372
2017e E-COMMERCE PER ADULT INTERNET USER USD

14%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

19%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: NetTrack/SMG, AGB Nielsen, PBC/SMG, Radio Track/SMG, GUS, Megapanel, Interaktywnie.com/IAB, PMR, IAB

	2014	2015	2016	2017f
Smartphone penetration %	58	60	73	75
Tablet penetration %	18	21	14	16
E-commerce in PLN bn (excluding travel)	**27**	**33**	**36**	**40**
E-commerce per 7+ internet user PLN	1,267	1,500	1,440	1,465
Adult media usage (hours per day in decimals)				
Online (online users only)	1.30	1.83	1.78	2.30
Online (average for whole population)	0.78	1.12	1.24	1.75
TV	4.30	4.27	4.33	4.30
Print	0.47	0.27	0.23	0.23
Radio	4.48	4.45	4.53	4.50
Total	**10.03**	**10.11**	**10.33**	**10.78**
Adult media usage (percentages)				
Online	8	11	12	16
TV	43	42	42	40
Print	5	3	2	2
Radio	45	44	44	42
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Google	23,194	712
Facebook	20,729	445
YouTube	18,491	146
WP.pl	18,841	328
Onet.pl	18,912	212

OTT SVOD	ESTIMATED HOMES 000s
cda.pl	6,392
vod.pl	3,949
player.pl	4,494
ipla	1,708
vod.tvp.pl	1,658

TOP APPS	ESTIMATED USERS 000s
OpenFM	207
GG	1,751
ipla	603
tlen	74

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	912.75
iTunes	532
Tidal	346
Deezer	121
Google Play Music	1,630

Portugal

SNAPSHOT

64%
2017e ADULT INTERNET USERS %

25%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

18%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Bareme Internet, MRW TGI, Netpanel, MMW Telereport, MMW Radioreport, MMW Multimeios

	2014	2015	2016	2017f
Smartphone penetration % of whole 15+ population	50	59	66	72
Tablet penetration % of whole 15+ population	28	40	43	45
Adult media usage (hours per day in decimals)				
Online (average of home users, desktop only)	1.45	1.28	1.33	1.40
Online (home destop average over whole poplulation)	0.87	0.79	0.84	0.89
TV	5.07	4.85	4.92	5.00
Print N/A				
Radio	3.27	3.18	3.17	3.20
Total	**9.21**	**8.82**	**8.93**	**9.09**
Adult media usage (percentages)				
Online (from home)	9	9	9	10
TV	55	55	55	55
Print	0	0	0	0
Radio	35	36	36	35
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
Google.pt	5,740	147
Facebook.com	5,460	1,177
Youtube.com	5,366	711
Google.com	5,332	204
Sapo.pt	4,834	257

Russia

SNAPSHOT

82%

2017e URBAN 16-64 INTERNET USERS %

509

2016e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration % of 12+ population	42	45	50	58
Tablet penetration % of 12+ population	24	28	24	24
E-commerce in RUB bn (payments, retail, content, games)	**1,150**	**1,430**	**1,624**	**1,850**
E-commerce per adult internet user RUB	25,732	31,066	28,663	31,708
Individual 10+ media usage (urban; hours per day in decimals)				
Online (desktop only, average for whole population)	2.16	2.13	2.28	2.45
TV	2.70	2.71	2.63	2.58
Print	0.26	0.25	0.19	0.19
Radio	1.91	1.90	2.01	1.98
Total	**7.04**	**6.99**	**7.12**	**7.19**
Media usage (percentages)				
Online	31	30	32	34
TV	38	39	37	36
Print	4	4	3	3
Radio	27	27	28	28
Total	**100**	**100**	**100**	**100**

Historic sources: TNS, Russian Association for Electronic Communications (RAEC) annual report, DataFriend, comScore

TOP WEBSITES*	UNIQUES 000s	AV MINUTES PER DAY
Mail.ru Sites	73,626	11
VK.com	67,041	12
Odnoklassniki	57,230	30
Yandex Sites	55,258	33
Google Sites	40,715	7

TOP APPS**	ESTIMATED USERS 000s	AV MINUTES PER DAY
Vk.com	10,734	37
WhatsApp	10,200	10
Search Google	8,925	28
YouTube	8,788	4
Viber	8,024	7

*comScore, urban 6+ ** TNS, cities 700 000+, 12-64, October 2016

Singapore

SNAPSHOT

82%

2017e INTERNET USERS %

496

2016e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	87	90	90	95
Tablet penetration %	45	50	54	54
E-commerce in SGD bn	**1.7**	**2.5**	**3.0**	**3.3**
E-commerce per adult internet user SGD	377	543	638	688
Adult media usage (hours per day in decimals)				
Online	7.33	7.33	7.45	4.00
TV	2.33	2.20	2.10	2.00
Print	0.33	0.30	0.27	0.20
Radio	0.25	0.25	0.25	0.84
Total	**10.24**	**10.08**	**10.07**	**7.04**
Adult media usage (percentages)				
Online	72	73	74	57
TV	23	22	21	28
Print	3	3	3	3
Radio	2	2	2	12
Total	**100**	**100**	**100**	**100**

Historic sources: ITU, World Internet Stats, SingStat/Google/ Nielsen, Alexa, Netindex

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER VISIT
Google Sites	3,111	14
Yahoo Sites	2,671	10
Microsoft Sites	2,385	4
Facebook	1,792	14
SPH Digital	1,680	8

TOP APPS	UNIQUE 000s	AV MINUTES PER VISIT
EndGods	n/a	n/a
Color Switch	n/a	n/a
SG Live	n/a	n/a
Grab	27	3.7
What'sApp	417	1.5

OTT SVOD	UNIQUE 000s	AV MINUTES PER VISIT
StarHub Go	22	3.3
Netflix	88	3.5
Toggle	293	6.7
HOOQ	n/a	n/a

STREAMING AUDIO	UNIQUE 000s	AV MINUTES PER VISIT
Spotify	461	2.6
Guvera	n/a	n/a
Deezer	1	2
Lastfm	n/a	n/a
8tracks	n/a	n/a

Slovak Republic

SNAPSHOT

84%

2017e ADULT INTERNET USERS %

252

2016e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	60	62	72	85
Tablet penetration %	16	20	32	45
E-commerce in EUR bn (excluding travel)	**0.7**	**0.7**	**0.8**	**0.9**
E-commerce per adult internet user EUR	197	203	215	230
Adult media usage (hours per day in decimals)				
Online	1.32	1.18	1.23	1.25
TV	3.50	3.94	4.12	4.15
Print	0.41	0.10	0.13	0.12
Radio	2.86	2.29	2.10	2.00
Total	**8.09**	**7.51**	**7.58**	**7.52**
Adult media usage (percentages)				
Online	16	16	16	17
TV	43	52	54	55
Print	5	1	2	2
Radio	35	30	28	27
Total	**100**	**100**	**100**	**100**

Historic sources: AIMmonitor, Median SK (MML-TGI), TNS PMT, Connected Life

TOP THREE LOCAL WEBSITES	WEEKLY UNIQUES 000s	AV MINUTES PER WEEK
Azet.sk	2,509,339	51
Zoznam.sk	1,972,548	21
Sme.sk	1,909,184	20

TOP APPS	ESTIMATED USERS 000s
Instagram	650
WhatsApp	600
Snapchat	195

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	130
Deezer	n/a

South Africa

SNAPSHOT

52%

2017e INTERNET PENETRATION % OF 16-64S (000S)

33

2016e E-COMMERCE PER 16-64 USER USD

	2014	2015	2016	2017e
Smartphone penetration % of phone users	85	85	85	90
Tablet penetration % of phone users	43	53	54	55
E-commerce in ZAR bn (excluding travel)	**6.0**	**6.0**	**8.0**	**8.5**
E-commerce per adult internet user ZAR	359	354	456	462
Adult media usage (hours per day in decimals)				
Online (average of users)	4.95	4.92	4.77	4.53
Online (average of all 16-64)	2.43	2.41	2.40	2.36
TV	2.37	2.34	2.32	2.37
Print	0.74	0.69	0.70	0.67
Radio	2.08	1.98	1.98	1.93
Total	**7.61**	**7.42**	**7.40**	**7.33**
Adult media usage (percentages)				
Online	32	33	32	32
TV	31	32	31	32
Print	10	9	9	9
Radio	27	27	27	26
Total	**100**	**100**	**100**	**100**

Historic sources: GWI, Worx

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER MONTH
News24	6,059	11
Gumtree.co.za	5,097	19
Timeslive.co.za	3,650	6
Iol.co.za	2,714	8
Msn.co.za	2,638	18

TOP APPS	ESTIMATED USERS 000s
Google Maps	n/a
Facebook	14,000
WhatsApp	11,000
YouTube	8,400
Facebook Messenger	8,000

OTT SVOD	ESTIMATED USERS 000s
Netflix	440
Amazon Video	n/a
Hulu	n/a
HBO Go	n/a

STREAMING AUDIO
Google Play Music
SoundCloud
Apple Music
Rdio
Spotify

South Korea

SNAPSHOT

74%

2017e ADULT INTERNET USERS %

1,992

20167e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	85	86	87	89
Tablet penetration %	14	18	20	20
E-commerce in KRW bn (excluding travel)	**58,664**	**67,463**	**74,209**	**76,000**
E-commerce per adult internet user KRW 000s	1,799	2,045	2,221	2,235
Adult media usage (averaged from monthly)				
Online (average of 12+ users)	4.18	4.31	4.50	4.80
Online (average all 12+)	3.11	3.23	3.41	3.56
TV	2.83	2.79	2.75	2.40
Print	0.49	0.49	0.49	0.45
Radio	1.07	1.08	1.07	1.07
Total	**7.50**	**7.60**	**7.72**	**7.48**
Adult media usage (percentages)				
Online	41	42	44	48
TV	38	37	36	32
Print	7	6	6	6
Radio	14	14	14	14
Total	**100**	**100**	**100**	**100**

Historic sources: Korea Communications Commission, Statistics Korea, KISA, Korea Online Shopping Assoc., Nielsen Koreanclick, Akamai, Xaxis, HRC Media Index

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Naver.com	33,698,072	416
Daum.net	26,245,355	200
Tistory.com	22,169,841	13
Google.co.kr	18,635,732	23
Gmarket.co.kr	17,246,970	17

TOP APPS	ESTIMATED USERS 000s	AV MINUTES PER MONTH
Google Play Store	29,555,194	33
Kakao Talk	29,135,178	888
Youtube	22,611,422	767
Naver (search)	20,870,714	721
Google (search)	17,098,855	18

OTT SVOD	ESTIMATED HOMES 000s	DAILY MINUTES PER SUBSCRIBER HH
Tving.com	3,152,924	67
Pooq.co.kr	937,231	423
Skbtv.co.kr	189,022	11
Netflix.com	155,486	46
Watcha.net	73,608	9

STREAMING AUDIO	ESTIMATED USERS 000s
Melon	7,043,017
Genie (KT Music)	1,939,996
Mnet	1,218,651
Bugs	1,133,319
Soribada	151,915

Spain

SNAPSHOT

77%
2016e 16+ INTERNET USERS %

762
2016e E-COMMERCE PER ADULT INTERNET USER USD

22%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

6%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: EGM, CNMC, GWI, comScore

	2014	2015	2016	2017f
Smartphone penetration % of all 14+	37	59	70	75
Tablet penetration % of all 14+	15	26	32	35
E-commerce in EUR bn (excluding travel)	**9.7**	**12.6**	**16.3**	**22.0**
E-commerce per 16+ internet user EUR	353	436	539	695
Adult media usage (hours per day in decimals)				
Online (average per online user)	1.65	1.69	1.77	1.89
Online (average for whole 16+ population)	1.13	1.21	1.32	1.46
TV	3.98	3.98	3.74	3.81
Print	1.01	0.92	0.80	0.68
Radio	1.82	1.77	1.74	1.71
Total	**7.94**	**7.88**	**7.60**	**7.66**
Adult media usage (percentages)				
Online	14	15	17	19
TV	50	51	49	50
Print	13	12	11	9
Radio	23	22	23	22
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Google	28,072	129
YouTube	27,098	159
Facebook	21,799	253
El Pais	14,690	20
El Mundo	14,345	20

TOP APPS	ESTIMATED USERS 000s
WhatsApp	20,142
Facebook	10,822
YouTube	16,236
Google Maps	11,943
Facebook Messenger	7,533

APP USAGE	ESTIMATED USERS 000s	AV MINUTES PER MONTH
Spotify	4,352	654
Shazam	2,420	11
Marca	1,466	127
Elmundo.es	313	104
Expansión	96	62

OTT SVOD	ESTIMATED HOMES 000s	DAILY MINUTES PER SUBSCRIBER HH
		Average (all platforms) 60
Wuaki.TV	136	
Movistar	3,771	
Vodafone	1,115	
TV Orange	385.876	
Euskaltel	264	

STREAMING AUDIO	ESTIMATED USERS USERS 000s
Spotify	8,157
Souncloud	2,711
GoEar	50
Deezer	287

Sri Lanka

SNAPSHOT

36%

2017e INTERNET USERS %

4

2017e E-COMMERCE PER INTERNET USER USD

	2016	2017f
Smartphone penetration % of whole population	29	37
Tablet penetration % of whole population	29	37
E-commerce in Rs bn	**3.0**	**4.5**
E-commerce per internet user Rs	500	563
Adult media usage (hours per day in decimals)		
Online (per 15+ user)	0.50	0.55
Online (average for whole population)	0.13	0.20
TV	0.11	0.13
Print		
Radio	0.25	0.25
Total	**0.49**	**0.58**
Adult media usage (percentages)		
Online	27	34
TV	22	23
Print	0	0
Radio	51	43
Total	**100**	**100**

TOP WEBSITES	UNIQUES 000s (MONTH)
Google	n/a
Youtube	n/a
HiruFM	2,500
Yahoo	n/a
Ikman	2,200

TOP APPS	UNIQUES 000s (MONTH)
Viber	5,000
Facebook	3,650
Whats up	1,200
Pickme	1,000
Instagram	8,000

Sweden

SNAPSHOT

95%

2017e 16-80 INTERNET USERS %

1,035

2017e E-COMMERCE PER 16-80 INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	74	76	82	83
Tablet penetration %	53	55	59	60
E-commerce in SEK bn (excluding travel)	**42.9**	**50.0**	**57.9**	**67.0**
E-commerce per adult internet user SEK	6,173	7,194	8,116	9,149
Adult media usage (averaged from monthly)				
Online	1.75	1.80	1.91	2.02
TV	1.95	2.10	1.73	1.73
Print	0.44	0.42	0.42	0.42
Radio	0.94	0.94	1.01	1.01
Total	**5.08**	**5.26**	**5.07**	**5.18**
Adult media usage (percentages)				
Online	34	34	38	39
TV	38	40	34	33
Print	9	8	8	8
Radio	19	18	20	19
Total	**100**	**100**	**100**	**100**

Historic sources: Orvesto Konsument, E-barometern, KIA-index, Twitter, Google, Internetstatistik, IRM, iis.se

TOP WEBSITES*	UNIQUES 000s	AV MINUTES PER VISIT
Aftonbladet.se	226,362	8
Expressen.se	146,210	8
Blocket.se	111,359	n/a
Hitta.se	81,185	n/a
Dn.se	66,234	11

OTT SVOD	ADULT WEEKLY REACH %
Netflix	25
SVT play	23
Viaplay	11
TV4 play	13

TOP APPS**	PENETRATION % 2016
Chrome	n/a
Facebook	71%
Kamera	n/a
BankID	65%
Gmail	n/a
Messenger	n/a
YouTube	85%
Instagram, Maps (47%)	44%
Maps	n/a
Hangout	n/a
Spotify	62%
Snapchat	25%

* Web only. Not mobile. ** Internet users 12+ that sometimes use these services on any platform. Not app specific.

Taiwan

SNAPSHOT

77%
2017e 12+ INTERNET USERS %

2,576
2017e E-COMMERCE PER 12+ INTERNET USER USD

28%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

26%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: Nielsen, UDN.com, twnic.net.tw, comScore, DMA

	2014	2015	2016	2017f
Smartphone penetration % of all 12+	65	71	83	83
Tablet penetration % of all 12+	29	33	30	30
E-commerce in NTD bn (excluding travel)	**883**	**1,069**	**1,197**	**1,329**
E-commerce per 12+ internet user NTD	54,422	65,988	74,090	81,046
Adult media usage (hours per day in decimals)				
Online (average for whole population 12+)	2.75	3.00	3.02	3.02
TV	2.48	2.51	2.35	2.20
Print	0.33	0.34	0.32	0.30
Radio	0.65	0.68	0.65	0.63
Total	**6.21**	**6.52**	**6.34**	**6.16**
Adult media usage (percentages)				
Online	44	46	48	49
TV	40	38	37	36
Print	5	5	5	5
Radio	11	10	10	10
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s*	AV MINUTES PER MONTH
Yahoo.com.tw	11,877	2,570
Google.com.tw	10,364	983
Facebook.com	8,596	2,858
Google.com.tw	10,364	983
Yahoo.com.tw	11,877	2,570

TOP APPS	ESTIMATED USERS 000s	AV MINUTES PER MONTH
AppleDaily Taiwan	1,183	207
104	452	27
Shazam	422	7
Twitch	293	424
SoundHound	269	5

OTT SVOD	ESTIMATED HOMES 000s
CHT MOD	1,310

STREAMING AUDIO	ESTIMATED USERS 000s
Shazam	459
SoundHound	257
Spotify (free)	2,700
SoundCloud	112
TuneIn Radio	65

*Three-month average

Thailand

SNAPSHOT

67%
2017e INTERNET USERS %

60%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

70%
2016e AUTOMATED % OF ONLINE DISPLAY

	2014	2015	2016	2017f
Smartphone penetration % of whole population	n/a	40	48	56
Tablet penetration % of whole population	n/a	4	2	2

Historic sources: World Bank, DAAT, Truehits, Comscore

TOP WEBSITES*	UNIQUES 000s	AV MINUTES PER MONTH
Google	12,921	7,453
Facebook	10,374	5,197
LINE	6,604	174
Sanook	3,938	62
Kapook	4,638	80

TOP APPS**	ESTIMATED USERS 000s	AV MINUTES PER MONTH
LINE	39,000	n/a
Facebook	42,000	n/a
Youtube	15,389	n/a

OTT SVOD	ESTIMATED HOMES 000s	DAILY MINUTES PER SUBSCRIBING USER
LINE TV	12,000	90

STREAMING AUDIO (E.G. SPOTIFY)	ESTIMATED USERS 000s
Joox	26,500
LINE Music	n/a

* comScore ** DAAT; IMS

Turkey

SNAPSHOT

63%

2017e INTERNET USERS %

399

2016e E-COMMERCE PER ADULT INTERNET USER USD

	2014	2015	2016	2017f
Smartphone penetration %	29	37	45	53
Tablet penetration %	12	16	18	19
E-commerce in TRL bn (including travel)	**18.9**	**24.7**	**54.4**	**62.0**
E-commerce per adult internet user TRL	461	553	1,140	1,223
Adult media usage (hours per day in decimals)				
Online (average of users)	2.54	2.73	2.80	2.90
Online (average of whole population)	1.33	1.54	1.66	1.82
TV	3.10	3.27	3.36	3.45
Print	0.44	0.42	0.40	0.38
Radio	1.05	0.99	0.97	0.93
Total	**5.92**	**6.21**	**6.40**	**6.58**
Adult media usage (percentages)				
Online	22	25	26	28
TV	52	53	53	52
Print	7	7	6	6
Radio	18	16	15	14
Total	**100**	**100**	**100**	**100**

Historic sources: Statista, eMarketer, BKM, Tübisad

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER VISIT
Google.com.tr	33,185	2.9
Facebook.com	27,938	15.6
Youtube.com	27,716	28.4
Yandex.com.tr	84,000	2.6
Live.com	15,954	3.1

TOP APPS	ESTIMATED USERS 000s
Shazam	4,000
Mackolik	7,400
Spotify	4,640
Sahadan	4,500
Bloomberg	703

OTT SVOD	ESTIMATED HOMES 000s
Digiturk	3,600
Dsmart	926
Tivibu	162
Netflix	n/a
Filbox	40

STREAMING AUDIO	ESTIMATED USERS 000s
Spotify	8,000
Karnaval	8,500
Deezer	n/a
Apple Music	n/a

United Kingdom

SNAPSHOT

87%
2017e 16+ INTERNET USERS %

4,014
2017e E-COMMERCE PER ADULT INTERNET USER USD

33%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

60%
2015e AUTOMATED % OF ONLINE DISPLAY

Historic sources: IMRG Cap Gemini, Ofcom (internet smartphone and tablet penetration), IPA Touchpoints (hours), BARB 2016 Viewing Report (SVOD hours), comScore (websites), TGI (apps, SVOD and streaming audio reach)

*Averaged Mon-Fri and Sa-Su

	2014	2015	2016	2017f
Smartphone penetration % of all 16+ (q1)	61	66	71	74
Tablet penetration % of households (q1)	44	54	59	63
E-commerce in GBP bn (including travel)	**104**	**112**	**130**	**150**
E-commerce per 16+ internet user GBP	2,440	2,521	2,879	3,269
Adult media usage (hours per day* in decimals)				
Online	2.12	3.32	3.58	4.10
TV	3.46	3.61	3.86	3.80
Print	0.37	0.33	0.38	0.36
Radio	1.52	1.67	1.59	1.60
Total	**7.47**	**8.94**	**9.41**	**9.86**
Adult media usage (percentages)				
Online	28	37	38	42
TV	46	40	41	39
Print	5	4	4	4
Radio	20	19	17	16
Total	**100**	**100**	**100**	**100**

TOP WEBSITES*	UNIQUES 000s	AV MIN PER VISITOR	AV MIN PER VISIT
Youtube.com	44,464	594	17
Google.co.uk	42,408	147	2
Facebook.com	39,958	664	6
Google.com	38,465	115	3
BBC.co.uk	36,776	65	3
Amazon.co.uk	32,214	46	5

TOP APP GENRES**	000s DOWNLOADED
Games	15,839
Social Networking	16,315
Instant Messaging	14,819

OTT SVOD	ESTIMATED HOMES 000S
Netflix	5,200
Amazon Prime	1,600
Now TV	800

STREAMING AUDIO***	ESTIMATED USERS 000s
Spotify	9,656
Soundcloud	2,543
Google Play Music	2,555
Tune in Radio	1,525
Last FM	1,454

*Jan 2017 **Q1 2017 ***Q4 2016

Ukraine

SNAPSHOT

66%
2017e 15+ INTERNET USERS %

46
2017e E-COMMERCE PER 15+ INTERNET USER USD

29%
2016e VIDEO AD INVESTMENT OF ONLINE DISPLAY

4%
2016e AUTOMATED % OF ONLINE DISPLAY

Historic sources: TNS, GfK, Nielsen, Gemius

	2013	2014	2015	2016f
Smartphone penetration %	24	28	30	35
Tablet penetration %	7	10	12	11
E-commerce in UAH bn (excluding travel)	**16.8**	**21.2**	**26.9**	**29.0**
E-commerce per adult internet user UAH	844	882	1,120	1,193
Adult media usage (hours per day in decimals)				
Online	1.08	1.48	1.70	2.31
TV	4.45	4.15	4.15	4.06
Print	0.26	0.20	0.19	0.16
Radio	0.61	0.60	0.60	0.68
Total	**6.40**	**6.43**	**6.64**	**7.21**
Adult media usage (percentages)				
Online	17	23	26	32
TV	70	65	63	56
Print	4	3	3	2
Radio	9	9	9	9
Total	**100**	**100**	**100**	**100**

TOP WEBSITES	UNIQUES 000s	AV MINUTES PER MONTH
Google.com	15,593	385
Vk.com	13,277	301
Mail.ru	11,028	116
Youtube.com	13,010	118
Yandex.ua	11,953	162

USA

SNAPSHOT

80%

2017e PC INTERNET PENETRATION % OF 15+

2,188

2017e E-COMMERCE PER 15+ PC INTERNET USER USD

	2014	2015	2016	2017f
HH PC with internet %	76	74	74	76
HH Smartphone Penetration %	n/a	n/a	80	85
HH Tablet Penetration %	27	44	56	61
HH Multimedia Device %	0	14	22	29
HH Smart TV Penetration %	0	13	22	27
HH Netflix Penetration %	26	31	38	42
Retail e-commerce in USD bn	**298**	**342**	**393**	**450**
Retail e-commerce per 15+ PC with internet USD	1,486	1,677	1,997	2,188
All retail sales USD bn	4,632	4,705	4,800	4,900
Retail e-commerce % of all retail	6%	7%	8%	9%
Adult media usage (hours per day in decimals)				
Online	2.18	2.40	3.57	3.68
TV	4.68	4.58	4.58	4.47
Print	0.53	0.48	0.45	0.42
Radio	1.85	1.82	1.87	1.84
Total	**9.24**	**9.28**	**10.47**	**10.41**
Adult media usage (percentages)				
Online	24	26	34	35
TV	51	49	44	43
Print	6	5	4	4
Radio	20	20	18	18
Total	**100**	**100**	**100**	**100**

Historic sources: Nielsen, eMarketer, U.S. Dept. of Commerce/Census Bureau, Netflix

TOP WEBSITES*	UNIQUES 000s age 2+	MINUTES PER MONTH (MM)	AV DAILY MINUTES PER UNIQUE
Google Sites	243,343	241,156	31.97
Facebook	205,476	233,607	36.67
Yahoo Sites	202,635	42,736	6.80
Microsoft Sites	185,406	20,463	3.56
Amazon Sites	184,044	17,269	3.03
Comcast NBC Universal	168,922	8,296	1.58
CBS Interactive	167,493	3,730	0.72
AOL, Inc.	161,703	10,172	2.03
Apple Inc.	145,316	32,979	7.32
Turner Digital	140,997	5,113	1.17

TOP MUSIC SITES*	UNIQUES 000S AGE 2+	MINUTES PER MONTH (MM)	AV. DAILY MINUTES PER UNIQUE
Pandora.com	83,664	87,604	33.78
Spotify	58,677	27,166	14.93
Vevo	47,146	3,043	2.08
Warner Music	43,800	1,396	1.03
Soundcloud.com	32,479	16,250	16.14

TOP VIDEO SITES*	UNIQUES 000S AGE 2+	MINUTES PER MONTH (MM)	AV. DAILY MINUTES PER UNIQUE
Google Sites	184,680	67,106	11.7
Facebook	70,466	12,896	5.9
Yahoo Sites	55,476	2,368	1.4
Comcast NBCUniversal	55,341	2,390	1.4
CBS Interactive	55,132	1,254	0.7
BroadbandTV	48,219	1,501	1.0
Vevo	47,631	3,029	2.1
Warner Music	43,330	1,393	1.0
Vimeo	41,412	1,056	0.8
Microsoft Sites	40,708	790	0.6
Netflix Inc	23,381	18,712	25.8

*Based on ComScore Video Metrix Key Measure Jan 2017

Vietnam

SNAPSHOT

76%

2017e 16-64 INTERNET USERS %

	2014	2015	2016	2017f
Smartphone penetration % of whole population	30	36	42	50
Tablet penetration % of whole population	n/a	n/a	12	14
Adult media usage (hours per day in decimals)				
Online (average for whole population)	1.08	1.05	2.56	2.80
TV	n/a	1.80	1.31	1.20
Print	n/a	0.67	0.60	0.60
Radio	n/a	0.10	0.12	0.12
Total	n/a	**3.62**	**4.59**	**4.72**
Adult media usage (percentages)				
Online	n/a	29	56	59
TV	n/a	50	29	25
Print	n/a	18	13	13
Radio	n/a	3	3	3
Total	**n/a**	**100**	**100**	**100**

Historic sources: Global webIndex, comScore, Nielsen, wearesocial, GroupM estimates

TOP WEBSITES	UNIQUE 000s	AV MINUTES PER USAGE DAY
Google.com	18,606	12.7
Coccoc.com	15,322	2.2
Zing.vn	12,947	11.3
Facebook.com	12,679	47.2
Lazada.vn	8,889	4.8

VIDEO	ESTIMATED VIEWERS 000s	MINUTES PER VIEWER
YouTube.com	21,018	514
Blueseed.tv	10,772	12
BroadbandTV @ YouTube	10,637	25
Facebook.com	10,063	77
Admicro.vn	8,953	5

TOP APPS	ESTIMATED USERS 000s
SoundCloud	346
100,000 Free Books Wattpad	326
Speedtest.net Mobile Speed Test	161
Shazam	138
Angry Birds 2	100

STREAMING AUDIO	ESTIMATED USERS 000s
Zing MP3	8,340
Nhaccuatui.com	7,358

Appendices

E-commerce Per User USD

	2014	2015	2016	2017f
NORTH AMERICA				
Canada	813	930	1,048	1,184
USA	1,486	1,677	1,997	2,188
LATIN AMERICA				
Argentina	73	102	150	171
Brazil	120	114	116	115
Chile	303	319	355	310
Colombia				
Dominican Republic				
Ecuador				
Mexico	207	224	245	257
Peru				
Puerto Rico				
Uruguay				
Venezuela				
WESTERN EUROPE				
Austria				
Belgium				
Denmark	2,447	3,071	3,214	3,605
Finland	2,112	2,317	2,595	2,897
France	1,444	1,622	1,746	1,910
Germany	732	815	832	874
Greece				
Ireland	1,709	1,912	2,231	2,436
Italy	316	365	449	553
Netherlands	747	1,014	1,198	1,456
Norway	1,083	1,294	1,457	1,619
Portugal				
Spain	387	478	591	762
Sweden	698	813	918	1,035
Switzerland				
UK	2,995	3,096	3,534	4,014
CENTRAL & EASTERN EUROPE				
Bulgaria				
Croatia				
Czech Republic	300	330	392	435
Estonia				
Hungary	195	249	285	323
Latvia				
Lithuania				
Montenegro				
Poland	322	381	366	372
Romania				
Russia	413	499	460	509
Serbia				
Slovak Republic	216	223	235	252
Slovenia				
Turkey	150	180	372	399
Ukraine	33	34	44	46

	2014	2015	2016	2017f
ASIA-PACIFIC (all)				
Australia	717	759	848	964
Bangladesh				
India	63	61	61	66
Japan	607	701	792	830
New Zealand	962	1,045	1,135	1,284
Pakistan				
Sri Lanka			3	4
NORTH ASIA				
China	844	1,107	1,325	1,533
Hong Kong				
South Korea	1,603	1,823	1,980	1,992
Taiwan	1,730	2,097	2,355	2,576
ASEAN				
Indonesia	19	36	60	73
Malaysia				
Philippines				
Singapore	272	391	460	496
Thailand				
Vietnam				
MIDDLE EAST & AFRICA				
Egypt				
GCC and Pan Arab				
Israel				
Jordan				
Kenya				
Lebanon				
Nigeria				
South Africa	26	26	33	33
Mean	**641**	**721**	**801**	**869**
Median	**510**	**600**	**591**	**762**

Total E-commerce in USD

(Billions)

	2014	2015	2016f	2017f
NORTH AMERICA				
Canada	19	23	26	30
USA	298	342	393	450
LATIN AMERICA				
Argentina	2	3	4	5
Brazil	12	13	14	16
Chile	2	2	3	3
Colombia				
Dominican Republic				
Ecuador				
Mexico	10	11	14	15
Peru				
Puerto Rico				
Uruguay				
Venezuela				
WESTERN EUROPE				
Austria				
Belgium				
Denmark	10	13	15	17
Finland	7	8	9	10
France	63	71	79	89
Germany	41	46	48	52
Greece				
Ireland	6	7	8	8
Italy	8	10	12	15
Netherlands	10	13	16	20
Norway	4	5	6	6
Portugal				
Spain	11	14	18	24
Sweden	5	6	7	8
Switzerland				
UK	128	138	160	184
CENTRAL & EASTERN EUROPE				
Bulgaria				
Croatia				
Czech Republic	2	2	3	3
Estonia				
Hungary	1	1	2	2
Latvia				
Lithuania				
Montenegro				
Poland	7	8	9	10
Romania				
Russia	18	23	26	30
Serbia				
Slovak Republic	1	1	1	1
Slovenia				
Turkey	6	8	18	20
Ukraine	1	1	1	1

	2014	2015	2016f	2017f
ASIA-PACIFIC (all)				
Australia	13	15	17	19
Bangladesh				
India	16	21	26	33
Japan	62	73	83	87
New Zealand	3	3	4	4
Pakistan				
Sri Lanka		0.02	0.02	0.03
NORTH ASIA				
China	413	579	742	920
Hong Kong				
South Korea	52	60	66	68
Taiwan	28	34	38	42
ASEAN				
Indonesia	2	3	6	8
Malaysia				
Philippines				
Singapore	1	2	2	2
Thailand				
Vietnam				
MIDDLE EAST & AFRICA				
Egypt				
GCC and Pan Arab				
Israel				
Jordan				
Kenya				
Lebanon				
Nigeria				
South Africa	0.4	0.4	1	1
WORLD USD bn	**1,261**	**1,558**	**1,874**	**2,205**

Adult Internet Users

(Thousands)

	2014	2015	2016f	2017f
NORTH AMERICA				
Canada	23,823	24,309	24,747	25,140
USA	200,302	203,653	196,800	205,637
LATIN AMERICA				
Argentina	27,100	29,000	29,800	30,500
Brazil	102,387	113,700	119,800	137,700
Chile	6,593	7,208	7,325	9,678
Colombia				
Dominican Republic				
Ecuador				
Mexico	47,400	51,000	55,000	59,950
Peru				
Puerto Rico				
Uruguay				
Venezuela				
WESTERN EUROPE				
Austria	5,938	6,032	6,273	6,318
Belgium	6,700	8,871	7,108	7,300
Denmark	4,197	4,213	4,676	4,700
Finland	3,489	3,550	3,591	3,520
France	43,290	43,950	45,227	46,500
Germany	55,600	56,100	58,000	59,600
Greece	5,002	5,033	6,457	6,550
Ireland	3,401	3,440	3,441	3,376
Italy	26,052	26,411	26,884	27,366
Netherlands	12,785	12,900	13,363	13,630
Norway	3,662	3,690	3,791	3,791
Portugal	5,480	5,604	5,742	5,850
Spain	27,517	28,901	30,256	31,642
Sweden	6,950	6,950	7,134	7,323
Switzerland				
UK	42,627	44,419	45,158	45,884
CENTRAL & EASTERN EUROPE				
Bulgaria				
Croatia				
Czech Republic	6,940	6,974	6,994	7,050
Estonia				
Hungary	4,992	5,094	5,600	5,850
Latvia	1,242	1,251	1,255	1,275
Lithuania	1,594	1,570	1,602	1,626
Montenegro				
Poland	21,539	22,000	25,000	27,300
Romania				
Russia (urban)	44,691	46,032	56,648	58,347
Serbia				
Slovak Republic	3,306	3,547	3,729	3,920
Slovenia				
Turkey	41,000	44,700	47,700	50,700
Ukraine	19,907	23,997	24,000	24,300

	2014	2015	2016f	2017f
ASIA-PACIFIC (all)				
Australia	17,641	19,417	19,695	20,000
Bangladesh				
India	260,000	350,000	426,000	503,000
Japan	102,100	103,600	104,500	105,000
New Zealand	3,116	3,250	3,309	3,376
Pakistan				
Sri Lanka			6,000	8,000
NORTH ASIA				
China	489,806	522,880	559,946	600,000
Hong Kong	3,982	4,186	4,484	4,377
South Korea	32,602	32,985	33,405	34,000
Taiwan	16,225	16,200	16,156	16,398
ASEAN	**123,470**	**218,403**	**246,481**	**271,688**
Indonesia	83,700	93,400	102,800	112,600
Malaysia	20,140	24,209	24,704	26,887
Philippines	39,471	47,100	54,400	63,000
Singapore	4,515	4,608	4,699	4,800
Thailand	34,890	39,316	42,000	46,000
Vietnam	36,592	39,772	47,300	50,050
MIDDLE EAST & AFRICA				
Egypt				
GCC and Pan Arab				
Israel				
Jordan				
Kenya				
Lebanon				
Nigeria				
South Africa	16,705	16,928	17,560	18,400
WORLD (million)	**1,967**	**2,162**	**2,340**	**2,538**

Ad Blocking Rates % of Users

(PageFair January 2017 unless stated)

	Desktop	Mobile	Overall	Non-PageFair
NORTH AMERICA				
Canada			17	GroupM opinion of consensus
USA	18	1	18	
LATIN AMERICA				
Argentina	14		14	
Brazil			15	JWT Brazil opinion
Chile			26	eMarketer
Colombia	8	2	8	
Dominican Republic	4		4	
Ecuador	9		9	
Mexico	8		9	
Peru	10		10	
Puerto Rico	5		5	
Uruguay	11		11	
Venezuela	3		3	
WESTERN EUROPE				
Austria			32	GroupM 3/15
Belgium	12		12	
Denmark			10	GroupM
Finland	23		23	
France			34	Kantar 2/17
Germany	29	1	29	
Greece	34	3	20	IAB 2016
Ireland			7	GroupM publisher survey
Italy			22	GroupM CAWI interview
Netherlands	29	11		GroupM NL
Norway	19	3		Audience Project 2016
Portugal	21		21	
Spain		3	26	INE (Statistics National Institute)
Sweden	23	6	4 (tablet)	GroupM Sweden
Switzerland	18		18	
UK	22	1		GroupM (Plista) 2/17
CENTRAL & EASTERN EUROPE				
Bulgaria	21		21	
Croatia	22		22	
Czech Republic	10		10	
Estonia	26		26	
Hungary	16-18	1-3		IAB
Latvia	17		17	
Lithuania	21		21	
Montenegro	8		8	
Poland			36	IAB
Romania	21		21	
Russia (urban)			15-25	GroupM/ top 70+ sites
Serbia	17		17	
Slovak Republic			29	GroupM
Slovenia	23		23	
Turkey			8	IAB Turkey
Ukraine	13		13	
ASIA-PACIFIC (all)				
Australia			8	GroupM
Bangladesh	2		2	
India	1	28	28	
Japan			10	GroupM
New Zealand			10-15	IAB
Pakistan	2	32	32	
Sri Lanka	2	2	2	
PageFair/				GroupM
NORTH ASIA				
China	1	13	13	
Hong Kong	10	2	10	
South Korea	4		4	
Taiwan				No data
ASEAN				
Indonesia			20	GroupM
Malaysia	5	8	8	
Philippines	7	3	7	
Singapore	29	9	29	
Thailand	6	1	6	
Vietnam	4	2	4	
MIDDLE EAST & AFRICA				
Egypt	3	2	5	
GCC and Pan Arab (Saudi)	6	21	21	
Israel	19		19	
Jordan	3		3	
Kenya				
Lebanon	2		2	
Nigeria		2	2	
South Africa		20		GroupM
WORLD average	**13**	**7**	**15**	

Interaction Ad Investment USD m

(from This Year Next Year December 2016)

	2014	2015	2016f	2017f
NORTH AMERICA	**46,591**	**51,943**	**56,327**	**61,519**
Canada	3,039	3,495	4,124	4,743
USA	43,552	48,448	52,203	56,776
LATIN AMERICA	**2,012**	**3,227**	**3,108**	**3,640**
Argentina	427	815	1,303	1,824
Brazil	847	1,524	994	915
Chile	122	158	182	200
Colombia	88	110	134	160
Dominican Republic				
Ecuador				
Mexico	425	509	356	371
Peru	38	47	56	71
Puerto Rico	29	40	55	63
Uruguay	19	22	27	36
Venezuela	18	2	1	0
WESTERN EUROPE	**25,269**	**28,287**	**31,755**	**35,113**
Austria (gross)	593	661	741	830
Belgium	443	444	480	498
Denmark	813	928	1,029	1,117
Finland	290	314	351	384
France	3,175	3,526	3,735	3,906
Germany	4,563	4,837	5,103	5,434
Greece				
Ireland	180	200	227	258
Italy	1,734	1,907	2,051	2,196
Netherlands	1,532	1,659	1,820	1,981
Norway	738	803	960	1,033
Portugal	93	116	139	153
Spain	1,180	1,370	1,562	1,765
Sweden	1,207	1,474	1,768	2,039
Switzerland	731	578	607	637
UK	7,997	9,471	11,183	12,882
CENTRAL & EASTERN EUROPE	**2,989**	**3,394**	**3,946**	**4,513**
Bulgaria	18	19	21	23
Croatia (gross)	17	25	32	41
Czech Republic	149	149	152	156
Estonia	16	19	21	24
Hungary	140	162	175	189
Latvia	12	13	19	20
Lithuania	15	17	18	19
Montenegro	3	4	4	4
Poland	649	680	711	732
Romania	39	48	57	68
Russia	1,359	1,558	1,895	2,210
Serbia	18	20	22	25
Slovak Republic	75	92	99	107
Slovenia	14	14	15	16
Turkey	386	484	594	730
Ukraine	82	92	111	148

	2014	2015	2016f	2017f
ASIA-PACIFIC (all)	**40,787**	**51,958**	**64,111**	**75,763**
Australia	3,702	4,640	5,460	6,073
Bangladesh	4	10	16	22
India	510	742	1,095	1,423
Japan	10,184	11,225	12,403	13,784
New Zealand	426	491	565	621
Pakistan	11	14	16	19
Sri Lanka	6	7	8	9
NORTH ASIA	**25,405**	**34,025**	**43,487**	**52,497**
China	22,787	31,368	40,628	49,382
Hong Kong	414	508	603	668
South Korea	1,690	1,534	1,445	1,515
Taiwan	514	615	811	933
ASEAN	**539**	**804**	**1,061**	**1,314**
Indonesia	144	204	268	321
Malaysia	131	164	205	246
Philippines				
Singapore				
Thailand	175	232	262	302
Vietnam (gross)	89	204	326	446
MIDDLE EAST & AFRICA	**1,476**	**1,606**	**1,724**	**1,833**
Egypt				
GCC and Pan Arab				
Israel (gross)	1,330	1,400	1,450	1,500
Jordan (gross)				
Kenya				
Lebanon (gross)				
Nigeria	35	54	59	65
South Africa	111	152	214	268
WORLD	**119,126**	**140,416**	**160,971**	**182,381**

Interaction Share of All Media Investment

	2014	2015	2016f	2017f
NORTH AMERICA	**25.9**	**28.4**	**29.9**	**31.8**
Canada	31.8	35.9	41.9	46.8
USA	25.6	28.0	29.2	30.9
LATIN AMERICA	**6.2**	**9.3**	**8.5**	**9.4**
Argentina	17.5	22.3	25.2	27.6
Brazil	4.3	7.3	4.8	4.3
Chile	12.4	15.8	17.6	18.8
Colombia	5.6	6.7	8.0	9.1
Dominican Republic				
Ecuador				
Mexico	10.7	12.2	8.2	8.1
Peru	5.5	7.2	8.3	10.0
Puerto Rico	5.1	7.2	10.3	12.9
Uruguay	7.5	8.2	11.9	14.9
Venezuela	15.0	17.5	19.7	21.8
WESTERN EUROPE	**29.3**	**31.8**	**34.5**	**37.0**
Austria	15.2	16.0	17.1	18.6
Belgium	20.1	20.1	20.5	21.4
Denmark	43.1	47.3	51.6	55.0
Finland	22.5	24.8	27.8	30.4
France	26.9	29.4	30.8	32.0
Germany	24.7	26.0	27.1	28.5
Greece				
Ireland	22.3	24.2	27.4	30.7
Italy	21.9	23.5	24.5	25.8
Netherlands	37.5	40.3	43.3	46.2
Norway	36.6	40.1	46.6	50.1
Portugal	15.3	18.5	21.1	22.1
Spain	23.1	24.9	26.8	28.5
Sweden	42.4	48.9	54.9	59.6
Switzerland	19.9	16.9	18.1	19.0
UK	43.7	47.2	52.0	55.8
CENTRAL & EASTERN EUROPE	**23.6**	**27.2**	**29.2**	**30.8**
Bulgaria	6.2	6.5	7.0	7.4
Croatia	9.2	12.8	15.7	18.4
Czech Republic	21.8	21.1	21.1	21.1
Estonia	18.5	20.4	22.5	24.6
Hungary	25.9	29.6	31.1	33.5
Latvia	14.1	15.3	21.2	22.2
Lithuania	13.4	15.1	15.6	16.0
Montenegro	8.8	11.2	12.6	14.8
Poland	32.2	32.7	33.3	33.2
Romania	12.2	13.8	14.7	15.8
Russia	24.9	31.5	35.0	37.2
Serbia	10.3	11.1	12.0	13.1
Slovak Republic	25.6	29.4	30.0	31.1
Slovenia	12.3	13.1	13.3	13.5
Turkey	19.9	22.9	24.7	27.0
Ukraine	24.3	25.8	26.0	27.6

	2014	2015	2016f	2017f
ASIA-PACIFIC (all)	**25.9**	**31.2**	**36.3**	**40.4**
Australia	37.1	42.5	47.2	50.4
Bangladesh	1.4	2.6	4.8	6.2
India	7.8	9.9	12.9	14.9
Japan	23.3	25.5	27.3	29.5
New Zealand	25.9	28.6	31.4	33.1
Pakistan	1.5	1.6	1.7	1.9
Sri Lanka	3.0	3.2	3.4	3.6
NORTH ASIA	**31.0**	**38.9**	**46.6**	**52.6**
China	33.1	42.3	50.8	57.2
Hong Kong	16.1	20.1	26.0	29.8
South Korea	19.2	17.3	16.0	16.2
Taiwan	28.6	34.1	43.5	46.0
ASEAN	**4.4**	**5.8**	**7.3**	**8.3**
Indonesia	6.9	9.2	10.9	11.8
Malaysia	10.7	13.6	17.1	19.9
Philippines				
Singapore				
Thailand	5.9	7.5	9.5	9.7
Vietnam	5.0	9.7	13.4	16.1
MIDDLE EAST & AFRICA	**9.4**	**9.5**	**9.9**	**10.2**
Egypt				
GCC and Pan Arab				
Israel	24.3	25.6	26.6	27.5
Jordan				
Kenya				
Lebanon				
Nigeria	7.9	13.0	16.0	16.4
South Africa	8.7	11.7	16.6	20.7
WORLD	**24.6**	**27.9**	**30.7**	**33.3**

Interaction Ad Investment Change Year-on-Year %

	2014	2015	2016f	2017f
NORTH AMERICA	**12.1**	**11.5**	**8.4**	**9.2**
Canada	13.0	15.0	18.0	15.0
USA	12.1	11.2	7.8	8.8
LATIN AMERICA	**-1.0**	**60.4**	**-3.7**	**17.1**
Argentina	62.5	90.8	59.9	40.0
Brazil	-24.2	79.9	-34.8	-7.9
Chile	24.7	29.3	15.0	10.0
Colombia	18.7	25.0	22.0	20.0
Dominican Republic				
Ecuador				
Mexico	18.0	20.0	-30.1	4.0
Peru	22.0	24.3	19.5	25.7
Puerto Rico	18.0	38.9	37.5	15.0
Uruguay	18.8	15.8	22.7	33.3
Venezuela	-63.7	-89.0	-38.2	-93.9
WESTERN EUROPE	**11.4**	**11.9**	**12.3**	**10.6**
Austria	11.9	11.5	12.0	12.0
Belgium	10.0	0.1	8.0	3.8
Denmark	11.5	14.1	10.9	8.6
Finland	10.8	8.0	11.8	9.4
France	3.8	11.0	5.9	4.6
Germany	6.6	6.0	5.5	6.5
Greece				
Ireland	13.9	11.0	13.7	13.8
Italy	7.6	10.0	7.6	7.0
Netherlands	11.3	8.3	9.7	8.8
Norway	7.8	8.8	19.6	7.6
Portugal	18.9	25.2	20.0	10.0
Spain	20.1	16.1	14.0	13.0
Sweden	15.3	22.1	20.0	15.3
Switzerland	12.6	-20.9	5.0	5.0
UK	17.2	18.4	18.1	15.2
CENTRAL & EASTERN EUROPE	**11.8**	**13.6**	**16.3**	**14.4**
Bulgaria	10.2	10.0	10.0	10.3
Croatia	1.7	43.6	30.0	30.0
Czech Republic	4.1	0.3	2.0	2.5
Estonia	11.8	16.3	12.5	10.8
Hungary	18.7	15.8	7.7	8.2
Latvia	-9.7	11.0	43.2	9.0
Lithuania	17.9	14.8	5.9	4.9
Montenegro	38.9	28.0	9.4	14.3
Poland	5.0	4.8	4.5	3.0
Romania	18.5	21.9	21.0	18.6
Russia	18.0	14.7	21.7	16.6
Serbia	14.3	12.5	11.1	15.0
Slovak Republic	13.3	23.2	8.1	8.1
Slovenia	4.2	4.0	7.7	7.1
Turkey	6.6	25.4	22.7	22.9
Ukraine	3.2	11.3	21.2	32.8

	2014	2015	2016f	2017f
ASIA-PACIFIC (all)	**27.0**	**27.4**	**23.4**	**18.2**
Australia	20.4	25.3	17.7	11.2
Bangladesh	169.2	114.3	66.7	40.0
India	35.0	45.5	47.5	30.0
Japan	12.1	10.2	10.5	11.1
New Zealand	25.1	15.4	15.0	10.0
Pakistan	100.0	25.0	13.3	17.6
Sri Lanka	13.3	17.6	15.0	17.4
NORTH ASIA	**34.6**	**33.9**	**27.8**	**20.7**
China	39.6	37.7	29.5	21.5
Hong Kong	23.7	22.8	18.6	10.8
South Korea	-5.3	-9.2	-5.8	4.8
Taiwan	18.3	19.6	31.8	15.0
ASEAN	**55.3**	**49.0**	**32.0**	**23.9**
Indonesia	43.7	41.3	31.0	20.0
Malaysia	40.2	25.0	25.0	20.0
Philippines				
Singapore				
Thailand	43.9	32.2	13.2	15.1
Vietnam	180.0	130.0	60.0	36.7
MIDDLE EAST & AFRICA	**34.9**	**8.8**	**7.3**	**6.4**
Egypt				
GCC and Pan Arab				
Israel	33.0	5.3	3.6	3.4
Jordan				
Kenya				
Lebanon				
Nigeria	69.2	54.5	10.0	10.0
South Africa	50.7	36.7	41.0	25.0
WORLD	**16.6**	**17.9**	**14.6**	**13.3**

Interaction Ad Investment Per User USD

	2014	2015	2016f	2017f
NORTH AMERICA				
Canada	128	144	167	189
USA	217	238	265	276
LATIN AMERICA				
Argentina	16	28	44	60
Brazil	8	13	8	7
Chile	19	22	25	21
Colombia				
Dominican Republic				
Ecuador				
Mexico	9	10	6	6
Peru				
Puerto Rico				
Uruguay				
Venezuela				
WESTERN EUROPE				
Austria	100	110	118	131
Belgium	66	50	67	68
Denmark	194	220	220	238
Finland	83	88	98	109
France	73	80	83	84
Germany	82	86	88	91
Greece				
Ireland				
Italy	67	72	76	80
Netherlands	120	129	136	145
Norway	202	218	253	273
Portugal	17	21	24	26
Spain	43	47	52	56
Sweden	174	212	248	278
Switzerland				
UK	188	213	248	281
CENTRAL & EASTERN EUROPE				
Bulgaria				
Croatia				
Czech Republic	21	21	22	22
Estonia				
Hungary	28	32	31	32
Latvia	9	10	15	16
Lithuania	9	11	11	11
Montenegro				
Poland	30	31	28	27
Romania				
Russia	30	34	33	38
Serbia				
Slovak Republic	23	26	27	27
Slovenia				
Turkey	9	11	12	14
Ukraine	4	4	5	6

	2014	2015	2016f	2017f
ASIA-PACIFIC (all)				
Australia	210	239	277	304
Bangladesh				
India	2	2	3	3
Japan	100	108	119	131
New Zealand	137	151	171	184
Pakistan				
NORTH ASIA				
China	47	60	73	82
Hong Kong	104	121	134	153
South Korea	52	47	43	45
Taiwan	32	38	50	57
ASEAN				
Indonesia	2	2	3	3
Malaysia	32	38	50	57
Philippines				
Singapore				
Thailand				
Vietnam	32	38	50	57
MIDDLE EAST & AFRICA				
Egypt				
GCC and Pan Arab				
Israel				
Jordan				
Kenya				
Lebanon				
Nigeria				
South Africa				
WORLD USD bn	**61**	**65**	**69**	**72**

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