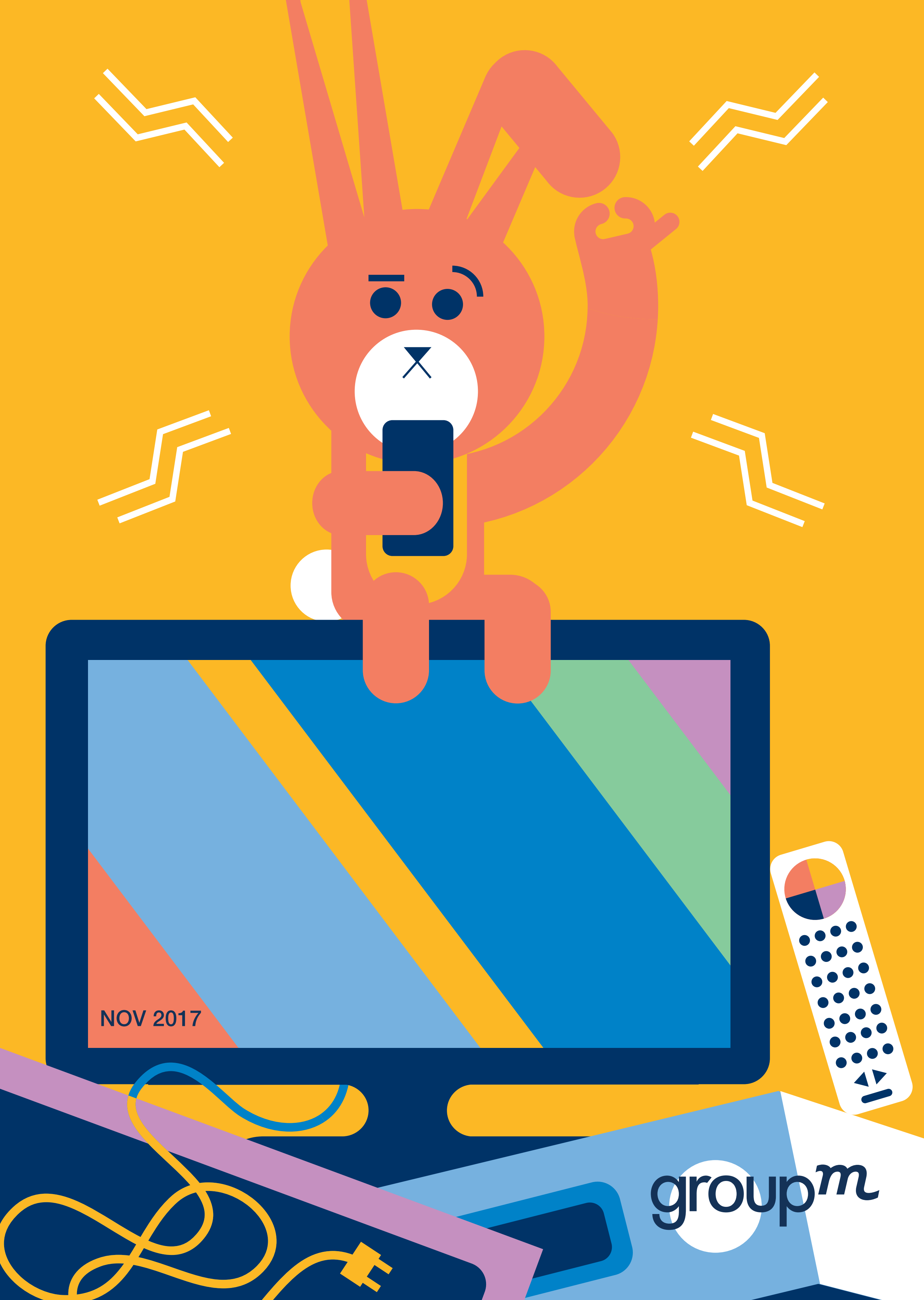
The State of Video

A GROUPM PUBLICATION



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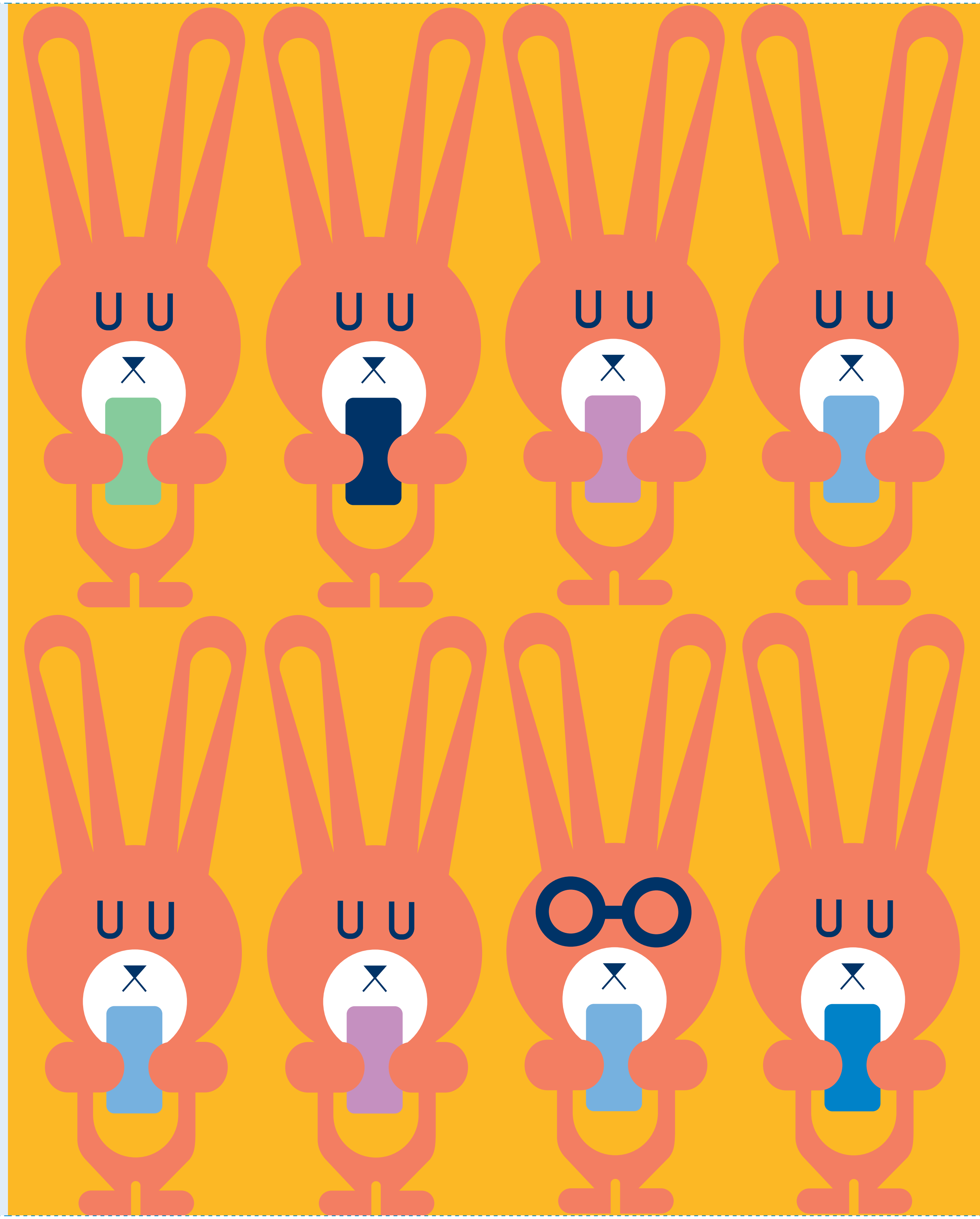
INTRODUCTION



The video experience has changed in almost every way and for many is no longer constrained by schedules, location, devices or a narrow choice of content.

In the U.S. alone, Nielsen (May 2017) estimates that 45 billion person viewing hours a month are spent watching television (on all devices) and a further 4 billion person hours are spent watching YouTube. Comparable "video only" data is not available for Facebook, Snap and others, but comScore data suggests video accounts for 14% of time online, with YouTube's total minutes around 10 times Facebook's and 100 times AOL and Yahoo video combined. For reference, all forms of digital media occupy about 30 billion person-hours per month.

Video, particularly linear television, remains the dominant form of entertainment and, as many "web-endemic" businesses will confirm, the dominant vehicle for brand building among all advertising channels. All over the world, however, the supply of high-rating, passively consumed, linear-delivered, commercial-funded video and television programs is in decline. Cheap mass reach remains extraordinarily effective, but for younger audiences in particular, supply is becoming rationed.

The video landscape around the world is unrecognizable from how it was just a decade ago. Within 90 days during late 2006, Google acquired YouTube, Apple announced the iPhone and Netflix launched its streaming service, now in 90 million homes around the world. These three events, with the arrival of the personal video recorder (or digital video recorder, DVR) in 1999, are all catalysts of change even greater than the stuttering transition from black and white to color that started 65 years ago.

Television has always had three masters: distribution, advertising and user experience. For 60 years, the user came third, but now nearly every innovation seeks to liberate the user from the imposed schedule and commercial break. Producer interest yields to consumer interest.

The video experience has changed in almost every way and for many is no longer constrained by schedules, location, devices or a narrow choice of content. We live in a world of abundance which democratizes creation, atomizes audiences and fragments attention. Almost none of these changes benefit the original advertisers who helped build the television economy in return for the brand competitive advantages accruing from reach, scarcity and high barriers to entry. The 70-year symbiotic relationship between advertisers and television is threatened.

Advertisers, both traditional and new, are therefore increasingly in the business of re-thinking audiences, and using advanced segmentation in what was once the paragon of mass marketing. In disruption lies opportunity. Television and video increasingly take on the data-rich, addressable characteristics of the internet. New forms of video allow previously unimaginable segmentation by context, using data to target according to actual or probable behavior rather than program proxies.

With all this comes the potential for direct and rapid response, the ability to think of narrower population cohorts, and to address whole new categories of video consumption, such as gaming in general and e-sports in particular.

It is GroupM's perspective that we and our clients need to pursue three paths with equal vigor:

1. Identify and leverage to the fullest extent the still-significant value in scheduled linear television.
2. Embrace the evolution of the most compelling consumer experience from broadcast to addressable and on-demand, and use data and targeting to compensate for declines in reach.
3. Actively embrace new forms of content and new channels of distribution which foster deliberate consumer choice and engagement.

The ascendance of Google and Facebook is no longer a matter of conjecture, anymore than is the disruptive role of Amazon and Netflix. To misquote L.P. Hartley, "The future is a foreign country; they do things differently there."

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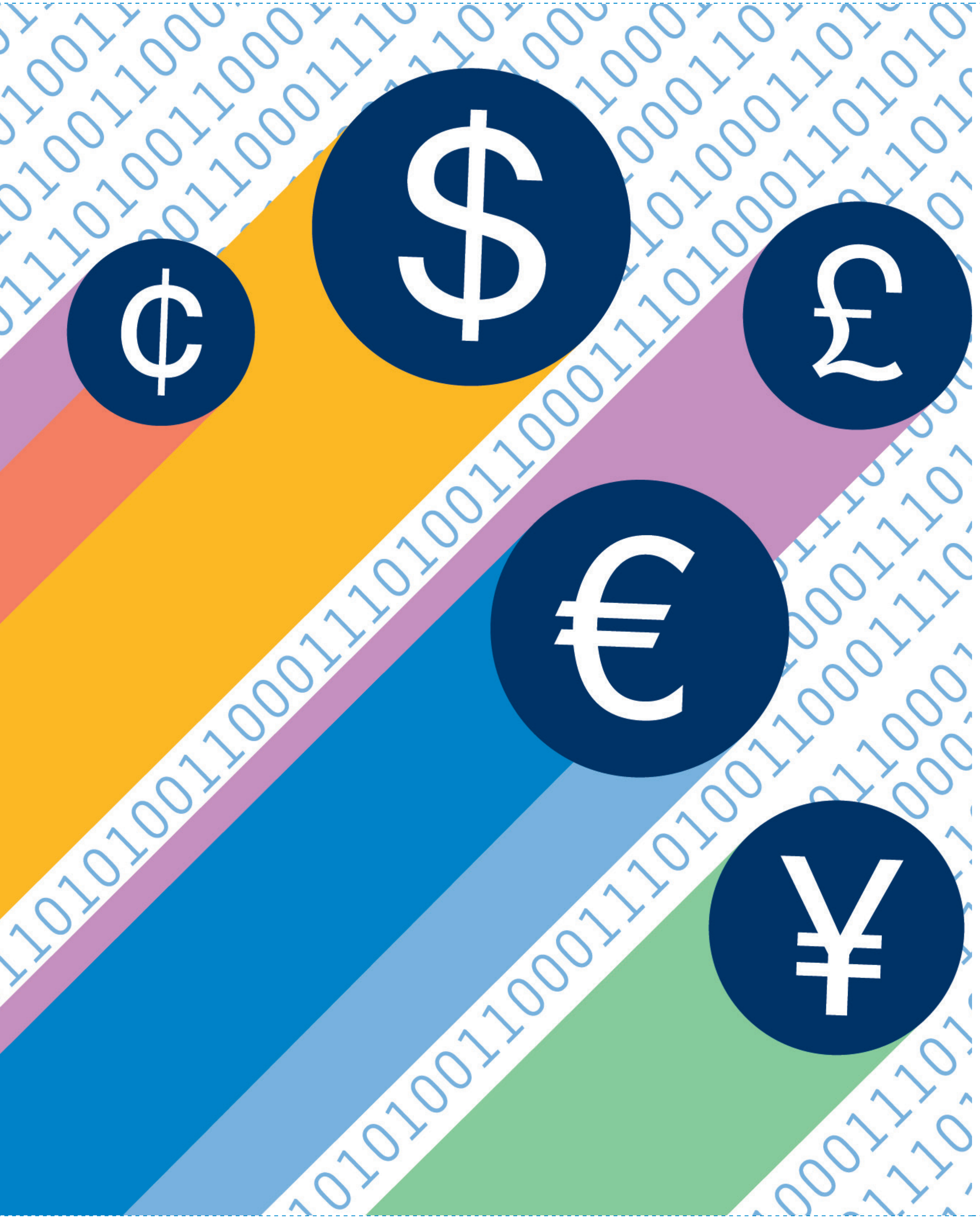
THE ECONOMICS OF TELEVISION



THE ECONOMICS OF TELEVISION

Print's share of global advertising investment was 60% in 1980. Today it is 17%. For 20 years, digital media has accelerated print's loss of share to between one and two points a year. TV's share peaked at around 44% from 2010-2014. TV's decay rate since then has been about a point a year, but this is exaggerated by China, an immense market where rising TV regulation drives advertisers to digital. Without China, TV decay is much less pronounced, with share (not value) loss in the old world being largely offset by gains in the new.

TV has another mitigation. It has been winning shares from the other traditional media. It was 40% of the world's traditional media domain in 2000. Now it is 60% and still rising.

Forecasts for TV range from the optimistic to the apocalyptic.

Much of the profitability of ad-supported television has relied on:

- high barriers to entry created by scarcity of spectrum or bandwidth and the high costs of production, particularly for sports and drama – less for game shows and soaps,
- restricted and scheduled consumer choice,
- enormous advertiser demand for restricted supply, and
- unequal bargaining power with a tightly-owned distribution system.

Here also, everything has changed. Bandwidth is abundant; production tools are as common as smartphones; the consumer has unlimited content options and as a consequence, so does the advertiser.

Forecasts for TV range from the optimistic to the apocalyptic. With some justification, the optimist sees TV as undersold and under-appreciated, but regaining credibility among planners and procurement with every evidence-based study into reach, conversion and ROI. Optimism flows from the idea that the market for programming has never been more vibrant as the SVOD (Subscription Video On Demand) and OTT (Over The Top) bundlers enrich their consumer propositions and bid content ever higher. Interestingly, in the short term, despite the lack of high reach or high impact substitutes for TV, advertiser demand seems unaffected by these static, and in some cases falling, audiences. In addition, the enhancement of ad targeting and, eventually, extensive addressability, will unlock economic value in two ways:

- the ability for sellers to "share a spot" between multiple buyers based on the value and relevance of the household or individual,
- the opening up of the "long tail" to television sellers by transforming the geographic precision of delivery. At what point does airtime become more valuable to 30,000 restaurants with capacity than to one brand of detergent? Enable the market to decide.

THE ECONOMICS OF TELEVISION

The relationship of price to audience supply indicates advertiser elasticity of demand.

The catastrophists focus on the potential collapse of the traditional television bundle which will simultaneously harm the sellers of infrastructure and remove subsidy for channels few would choose to pay for in isolation. They reference Netflix and Amazon in particular as potential captors of the affluent, although the richest 20% of Western populations have always been among TV's lighter viewers. Further, they argue that the current inflationary bargain with advertisers is unsustainable and that absent a substitute for television, this money will simply move to online video or away from advertising altogether. Finally, some suggest, in the West at least, that the ad categories which underpin TV — consumer packaged goods, retail and automotive — are so vulnerable to disruption that many will exit the battle and thus undermine the video economy.

In Australia, for example, the rot may have already set in. TV advertising revenue fell 2.8% from 2015 to 2016, while audiences fell 10%, as they did in Canada. Small falls in revenue can translate into devastating profit decline. Australia's Network 10 went into bankruptcy in June 2017, prompting government to help the industry by cutting license fees payable by broadcasters. In the U.K., HJ Heinz, the archetypical brand of the broadcast age and the ultimate "beanz counter," reported a 16% sales decline in 2016.

Sixteen to twenty-four year-olds are 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 or ever has been necessarily the wisest way for an advertiser to reach this audience. The loss of younger viewers is, however, a serious problem for TV's future. Between 2014 and 2016, on a 25-country sample, the 16-24 linear TV audience fell 16%, with the most extreme loss around 30%. Denmark commented "YouTube and Facebook have higher reach of the under-30s than primetime TV. Among older groups, these social media are now bigger than some mainstream TV channels."

The relationship of price to audience supply indicates advertiser elasticity of demand. It is dangerous and usually impossible to generalize about media unit pricing, but this average 16% drop in supply appears to have fueled reciprocal 16% price inflation. This suggests extreme inelasticity of demand and lack of substitute media. We might wonder why access to 16-24s via online video 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, such as quality, saliency, and transparency.

Perhaps the single greatest threat to the leading incumbents in the current television economy is the choice between heavy price inflation to keep live sports or risk losing them to Amazon, Facebook, Google or Apple. The turn of the current decade will be pivotal. The U.S. domestic National Football League television rights are perhaps *the* anchor property of the market. The league supplies almost all the highest-rated shows and almost all the highest-priced advertising inventory. The current rights agreements dominated by Fox, Disney (ESPN), CBS and NBC expire in 2022. It's likely that the great disruptors will join the bidding for streaming rights at a time in which almost all economically valuable U.S. households will have streaming capability. They have already started, but it's clear that 21st Century Fox (IPL rights), BSkyB (The English Premier League rights) and Turner (all platform U.S. rights to UEFA Champions League) have no intention of going quietly into the night."

Sports dominates the U.S. top 20 broadcast ratings table, as it does in 15 other territories of the 41 IP Network's annual *TV Key Facts*. It is a major presence in a further eight. Notable exceptions are the U.K., where much soccer coverage has been in the pay domain for 25 years, and China, where drama and variety shows rule the public airwaves.

From the perspective of both the advertisers and the sports leagues, it has to be hoped that the next generation of rights holders add to and do not deplete the existing broadcast, cable and satellite experience, leading to larger and more engaged audiences for sports and brands.

In this report GroupM will attempt to summarize the state of video for advertisers around the world but first we should offer:

A glossary for video

Linear TV
- TV: a linear viewing stream with interruptive commercials
- On-demand and timeshifted TV: a linear viewing stream with interruptive commercials

Ad-supported OTT and advertiser-supported video-on-demand
- OTT: "Over the top" viewing of streamed TV programs using fixed or wireless broadband. Full-length programming with interruptive commercials (Fox Now, Watch ESPN, Hulu Live), often requiring authentication or subscription.
- VOD: Distributor supported on-demand viewing of programs reached through the distributor's interactive programming guide.

Subscription video-on-demand
- SVOD: Streaming Video On Demand, subscriber-paid and often commercial-free (Netflix, HBO Go, Amazon Instant Video, Hulu No Commercials)

Native online video
- Web video destinations: shorter (but getting longer) form video; desktop or mobile; with commercials that are often skippable. (YouTube, Vevo)
- In-app and browser publisher pre- or mid-roll video; user initiated, with a content container (The New York Times, Vox)
- Outstream video: desktop and some mobile; mix of user-initiated and autoplay, mix of sound on or off (Teads).

In feed video
- Feed-based video: mobile, autoplay, without a content "container." (Facebook, Twitter)
- Vertical video: short form with or without a content container, default (mostly) sound on (Snapchat Discover, Stories; Instagram and Facebook Stories; Twitter Moments)

TELEVISION – AN EVOLVING PRESENT

Television thrives in plans across brands, categories and markets. Its proponents argue that linear delivery of advertising in program breaks is the best guarantee to the advertiser that commercials will actually be viewed, and are 100% viewable, on big screens with full sound and motion. They may also argue that broad reach delivered simultaneously to large audiences is of unmatched value. It is the only opportunity for advertisers to participate in “water-cooler” moments; some of which are real (sports and season finales), others synthesized by planned ad placement.

For many advertisers, “reach is reach” and the ability to deliver it at speed or over time means that television is and was king. TV ad pricing is prone to inflation, but we mitigate this in the short term by accessing the audience to a long tail of cheaper channels and programs. The only long-term ways to beat inflation are either to sustain the commercial audience with content it is willing to watch with advertising, or match shrinking supply with better (data-driven) allocation, or both.

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. It innovates furiously to extend its reach and engagement, using the same platforms as its new competitors. But there is more it could do.

Television is a key driver of social conversation and interaction.

Television has significant concerns:

1. The precipitous decline in the number of shows with significant simultaneous reach and the continued escalation of rights costs, for sports in particular, in the face of mostly declining audiences. Eighty-eight of the top 100 rated television shows in the U.S. in 2016 were live sports; the number was 39 of the 100 in 2012. In Australia, only 2% of spots deliver a 9+ rating; 90% deliver three rating points or less. The market discounts atomized audiences without data.

2. There is competition for programming and audiences from Netflix, Amazon and others who operate on an economic and valuation model quite unlike the legacy industry, in that it is presently based solely on growth, not operating profitability.

3. For advertisers and broadcasters, the inexpensive long-tail route to market and profit (lowly viewed niche channels) is imperiled as consumers self-schedule. In an on-demand world, second-rate is hard to sell.

4. A significant migration away from large bundles to skinnier ones further imperils the economics of the long tail of channels and programs.

Growing older does not increase one's viewing like it used to.

5. Inadequate measurement of its total audience across platforms and non-standard definitions of a video "view." The challenge of measurement is huge. The goal is obvious: who watched what, where, for how long and on what device. This means an apples-to-apples comparison, a basic building block to assess relative value. The ideal would be a universal, any-screen, respondent-level method with automatic content recognition. The volume of connected devices already deployed seems sufficient to make this a reality, if only the industry would unite to get behind it, as it has to meet past challenges. It knows better measurement would "recover" a good part of the audience missing and presumed lost, and therefore calm exaggerated fears about audience decline. Cooperation does not preempt competition. TV companies compete on content, not computation.

6. Audiences are becoming intolerant of long commercial breaks. In many markets, channels are experimenting with limited commercial interruption on the channel as a whole, or within individual programs. The theory is that audiences will stabilize or grow, that less clutter would boost ad performance, so the advertisers would be prepared to pay a premium sufficient to offset the reduction in inventory. The "enhanced" version of the theory is that "better" advertising – more native to its environment – will retain audiences better and improve recall further. TV has a responsibility to the consumer to make advertising relevant.

7. Time shifting, though only a small proportion of TV hours, its impact on the commercial audience is multiplied if ads are skipped during primetime, in prime content, by a prime audience.

8. Legacy airtime trading conventions are unsuited to shorter planning cycles and adaptive management.

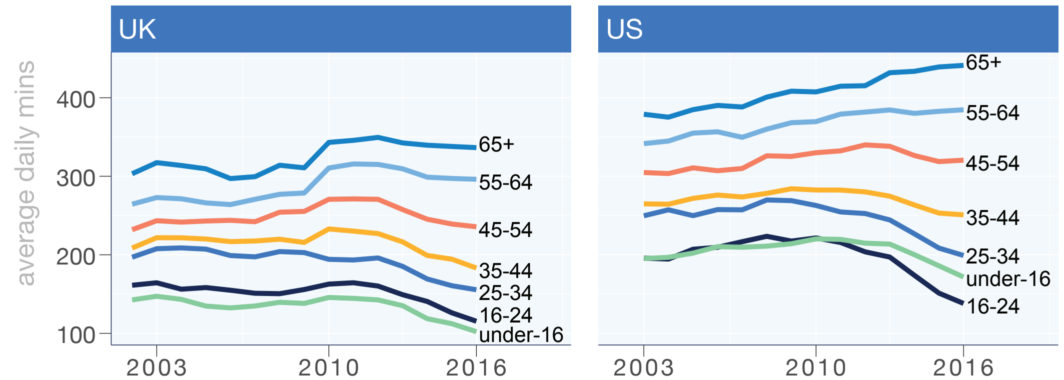
The "forced view" remains at the heart of the television model, there being little proof consumers voluntarily watch advertising. As one digital marketer says, "I have yet to see the skip button that I don't like." Some think television advertising should be more chameleon-like, adapting to its editorial context. In certain categories like sports, this already happens, 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, commissioning dedicated creative assets, social and digital extensions, and even "off air" activation. This is a marvelous ambition but a long road to proof lies ahead.

Future audiences

While total video viewing across all formats and devices has likely grown, traditional TV viewing[1] in the U.S. and U.K. by GenY (aka Millennials) has fallen about 4.5% annually since 2012, and nearer 9% for GenZ. That's not news. What is news is that growing older does not increase one's viewing like it used to. We calculate that middle-aging GenY and GenX will erode viewing equivalent to about one percentage point a year over the next decade.

TV viewing by year & age group

Mean daily viewing minutes



source: BARB,Nielsen

TV viewing, Annual Growth Rates
(CAGR) 2012-2016

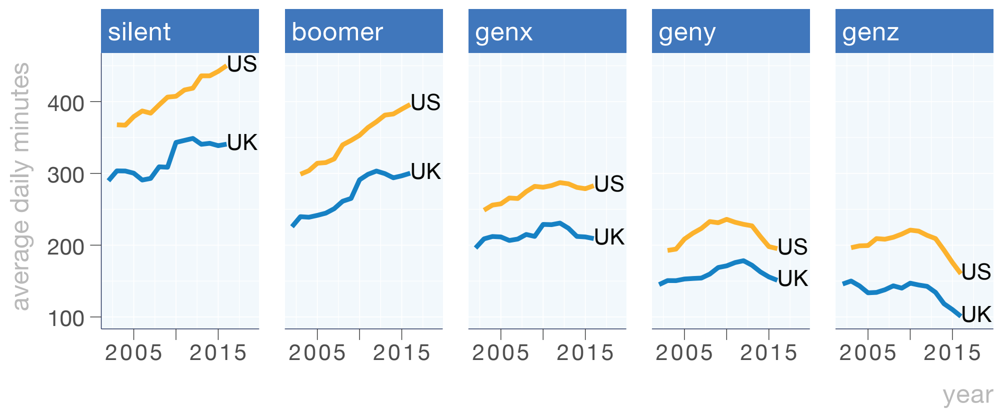
age group	U.K.	U.S.
under-16	-8.5%	-5.9%
16-24	-8.2%	-10.4%
25-34	-6.1%	-6.3%
35-44	-5.4%	-3.0%
45-54	-3.5%	-1.8%
55-64	-1.6%	0.1%
65+	-0.9%	1.4%

Interestingly, and despite the differences in the U.S. and U.K. TV market, viewing patterns across the generations are fairly similar: increasing for the older generations and peaking in 2012 for the younger.

[1]Data includes live, catch-up and DVR/PVR — U.S. Nielsen HUT/PUT; U.K. BARB

TV viewing by year & generation

Mean daily viewing minutes

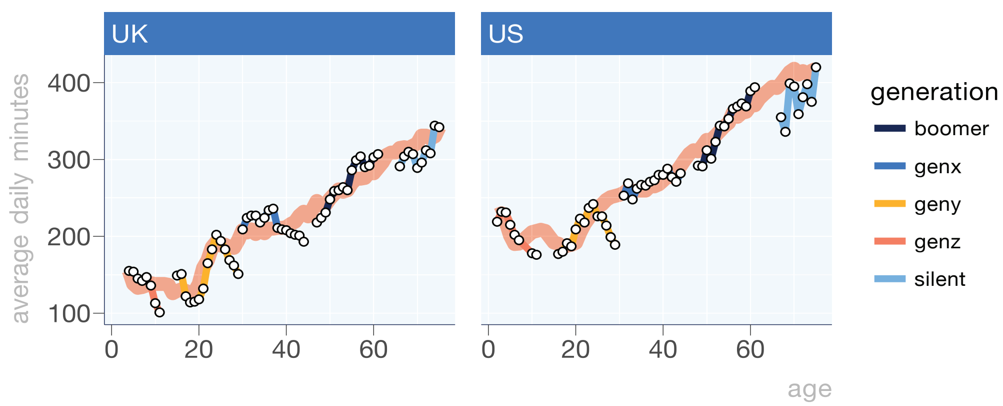


source: BARB,Nielsen

In startling opposition to history, GenY and GenZ are actually watching less as they age. The chart below shows viewing for the typical cohort (e.g., born in 1975 for GenX) versus the simple average by age over the last 15 years. It clearly shows that GenZ and GenY TV-viewing is falling in absolute terms and even more against expected lifestage.

TV viewing by age & cohort

Daily minutes, averaged from 2002-2016



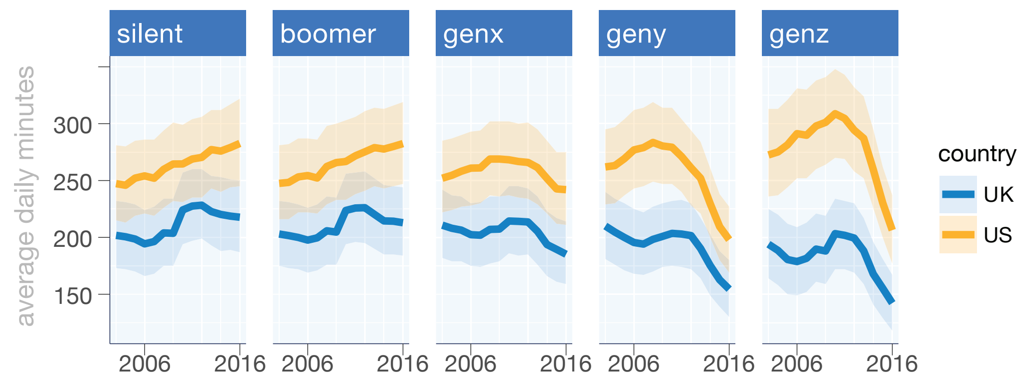
source: BARB,Nielsen

TELEVISION – AN EVOLVING PRESENT

The graph below shows how TV viewing has changed since 2003 for a hypothetical 30 year old. It shows the intergenerational inflection occurred in 2012 in the U.K. and the U.S., with similar subsequent evolution.

Viewing by generation

Model simulation (at age = 30)



source: Hierarchical Bayes model with age & cohort splines

GenY and GenX viewing is falling 60% faster than the historical norm.

TV viewing by cohort, Annual Growth Rates (CAGR)

2012-2016, model/underlying vs raw data

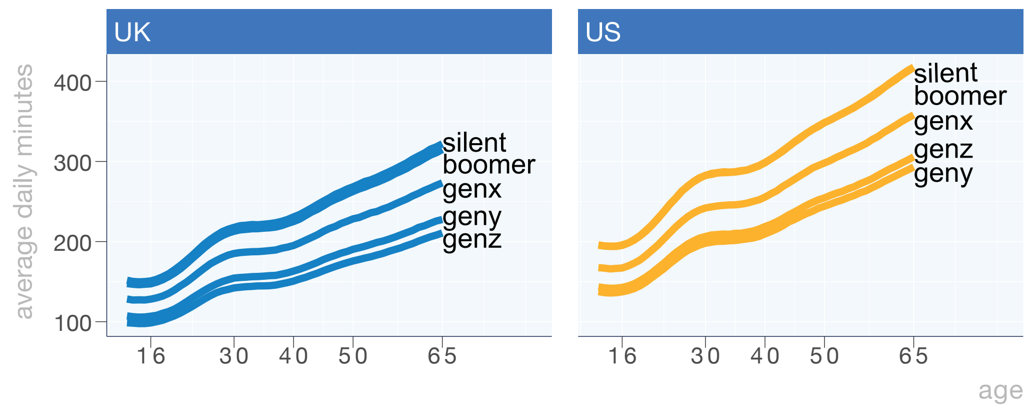
	raw data		modelled	
generation	U.K.	U.S.	U.K.	U.S.
GenZ	-8.9%	-7.5%	-8.5%	-9.2%
GenY	-4.3%	-4.6%	-6.9%	-7.4%
GenX	-2.5%	-0.5%	-3.7%	-2.7%
boomer	-0.3%	1.5%	-1.6%	0.4%
silent	-0.5%	1.6%	-1.1%	1.0%

TELEVISION – AN EVOLVING PRESENT

We cannot know how generations will age, but if we take a conservative view that the underlying aging pattern remains, as in the past, then we can use the model to project TV viewing for each age. The chart below isolates the impact of aging. It assumes technology freezes in 2016, with no further uptake of OTT or online video.

Viewing by age & generation

Model simulation, no further tech adoption



source: Hierarchical Bayes model with age & cohort splines

Putting these predictions together with forecast U.S. and U.K. demographics, we calculate that the negative drag to 2030 from cohort-aging is 0.6% a year in the U.S. and 0.8% in the U.K. Even conservatively, as GenY ages, it will pull 35-54 viewing down by over 1% a year in both the U.S. and the U.K.

We emphasize this is for scheduled linear viewing, not video on any screen. It still challenges the fundamental economics of advertiser-supported television, based as it is on schedules promoted to and consumed by largely predictable and large audiences. This raises the risk of audience shortage and CPT price inflation, which tests advertiser perceptions of value.

A DATA-RICH FUTURE?

Programmatic TV advertising at scale remains a distant prospect. Automatic, dynamic, real-time ad serving 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.

In April 2017, Turner, Fox and Paramount, with others to follow, announced "OpenAP." This uses first- and third-party data and granular audience segmentation to better match programs with advertisers. It is both a baby step and a bold leap. A baby step, as the data has been available for some time: Analyst BMO puts it as "enabling advertisers to begin to approach addressable TV advertising in earnest." A leap, for being long-overdue public collaboration between important legacy incumbents in a valuable market now in the crosshairs of some of the world's richest and most powerful enterprises. It is also conceivable such methods could materially relieve ad loads in the long term.

OpenAP is not a technical precursor to addressability, ad delivery at the household or individual level and a key characteristic of the internet media economy, based on identity rather than contextual proxies. Similar efforts are underway in Australia in a partnership between Foxtel and AOL, but in this case it involves data-informed ad insertion in IP-delivered content.

Addressable TV around the world

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 households likely to match 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 only 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. There is no universal rule for how addressable a brand's advertising should be. Different purchase cycles require different degrees.

Scale and distribution remain challenging. Addressable TV is presently available at scale 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. Within Sky, the "AdSmart" name is applied to a number of advanced targeted advertising capabilities, through linear TV, digital VOD, set top box VOD, and digital simulcast dynamic ad insertion. But in the main, it refers to the in-broadcast, linear TV ad substitution product.

In the U.K., Sky AdSmart said in January 2017 that it had run over 7,000 household-level campaigns for more than 1,000 advertisers.

Since launch, most AdSmart advertisers have been new to TV, arriving particularly from the direct mail and to a lesser extent print realms, largely for AdSmart's geo-targeting capability. National advertisers are equally welcome, but often constrained by the terms of existing "share deals" – a common TV airtime trading arrangement – which limit freedom to make discretionary incremental ad investments.

Some of the most-used targeting discriminators are related to geography and drive time. It is believed addressable yields in the order of 10% of Sky's total TV ad revenue, which is certainly far in excess of the percentage of impressions it commandeers. Sky reports addressable impressions trade at eight times the cost-per-thousand of the broad TV average. As addressable picks out people, not programs, the idea of "prime time" or program type is extraneous to impression valuation, unlike traditional TV, where these dimensions are indicators or proxies for reach, and therefore price.

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Addressable requires scale in technology and suitable inventory. Sky first built scale by including as many channels as practical from its Sky Media sales house, and then by growing the number of its homes with addressable set-top boxes. Alliances are another obvious route to scale. Liberty Global's Virgin, the dominant U.K. cable TV operator, and a serious competitor, has given Sky AdSmart access to the participating Sky Media streams via the installed Virgin technology. This is a useful template for other operators with different "tech stacks" to follow. Alliances must of course comply with data-sharing regulation such as the EU's forthcoming General Data Protection Regulation.

The ads are delivered to the set-top boxes by satellite, but the return path for measuring audience is the internet. Sky's sampling hierarchy currently comprises 30,000 households crossmatched with TNS, the main 500,000 sample submitting daily viewing behavior data and the whole AdSmart universe which is taggable for managing response and retargeting. The 500,000 is the principal source for AdSmart's probabilistic modelling. At the time of writing, Sky intended to multiply this to 5 million to achieve deterministic campaign data.

In Ireland, AdSmart tests ran throughout summer 2017 with full roll out of service expected in the third quarter. Sky and Virgin's partnership applies here too, to take effect by the end of the year, and across Liberty/VMS owned channels (including TV3, the second largest channel in Ireland) from 2018. TV3 is the first channel to adopt AdSmart "dry," independently of Sky Media.

In response, Conor Mullen of national broadcaster RTE identifies its Player as its key AV opportunity: "We've been looking at dynamic ad insertion [into RTE's catch-up and live streaming service] … we've started an internal trial on that this summer [2017] with the view that, if it works, we'll roll it out, probably a pilot this year with commercial full load next year."

A DATA-RICH FUTURE?

In Canada, at August 2017, no broadcaster was trading either programmatically or offering addressability.

Instead, buyers and broadcasters are working on the advanced TV solutions that are available, such as dynamic insertion of commercials on VOD platforms. This is currently available only on Rogers' set-top boxes in Ontario, on programming sold by Bell Media, Corus and Rogers. Cadent provides the adserving technology and Videology is poised to enable programmatic execution for direct booking and ad delivery decisioning.

Connected TV is growing thanks to wider app adoption. As examples, Rogers has launched Sportsnet Apps and Bell Media can sell Vevo impressions. Rogers selected Freewheel as its ad server. Data-enhanced buying of custom audiences on linear TV is gaining traction via Rogers, Corus and Bell Media. Using Numeris (panel) and set top box/mobile subscriber data, advertisers can target customized audience segments in programming they index highly against. Videology's integrations with Rogers, Bell and Corus TV scheduling systems allow advertisers to create an optimized linear TV schedule for custom audience profiles.

GroupM is leading the charge in all these areas, helping to develop each opportunity in partnership with broadcasters so that advanced TV advertising lends incremental reach to our advertisers.

In Germany, most private TV stations presently offer only limited addressability using "hybrid broadcast broadband" (HbbTV). Jens Mittnacht, managing director of ProSieben's sales arm, SevenOne Media, and CEO of its ad tech division remarks, "Germany could significantly expand its TV advertising footprint … So many products are regional, and a lot of that money is still in print."

Feasible options of booking and targeting vary slightly per station:

- Time slot (booking)
- Week day (booking)
- Target group (booking)
- Gender (targeting)
- Regional (targeting)
- Frequency capping (targeting)

The main addressable TV vendors are SevenOne Media with the channels of ProSiebenSat.1 and IP Deutschland/smartclip with the channels of Mediengruppe RTL, RTL2, Discovery, Tele5, Sport1, Viacom, Disney Channel and N24.

The most-used advertising formats are the SwitchIn and the Branded RedButton. In the second half of 2017, the first campaigns were delivered programmatically. In 2018, automatic buying linked to different data sources will certainly increase.

Sky is expected to offer AdSmart by the end of 2018. This caches ads in the set-top box to switch out complete full-screen ads in the main stream, as opposed to the overlay presentation of HbbTV.

In the Netherlands, by June 2017, 400,000 households were able to receive HbbTV signals (about 5% of households), but by 2020 all households could have at least one TV capable of receiving HbbTV. So far, there have been several trials which have added interactivity and extra information to advertising addressed to specific homes.

In Italy, Sky started testing addressable TV from February 2017 and is active on linear TV channels of Cinema, Sports and Entertainment. It was expected to launch with a small number of audience groupings but to multiply quickly, as was the case in the U.K. The service was anticipated to first reach "My Sky" subscribers, meaning 2.6 million of Sky Italia's 4.7 million homes. According to PubblicitàItalia, Sky Italia has the capacity to substitute one linear spot with up to 250 addressed variants.

Mediaset started testing addressable TV from autumn 2016 on on-demand channels. Their stated aim was to implement this on national free TV to reach a broader audience, and this will be done by this fall. Information on reach was unavailable at the time of writing.

In Belgium, Liberty-owned cable operator Telenet conducted tests in 2016 using Invidi technology. According to ZDNet, addressable advertising will be available on the SBS channels VIER and VIJF in the initial "trial" phase, and will be limited to a maximum of ten advertisers reaching 1.1 million households in total. SBS has been slow to update the market on developments in 2017 but we hope for clarity in September.

In the U.S., addressable TV advertising on linear TV is available at scale via pay TV providers Altice, AT&T/DirecTV, Charter, Comcast, Cox, Dish and Verizon.

In the U.S., efforts to increase the adoption of advanced capabilities are also galvanizing among these TV distributors. In April 2017, Cross MediaWorks launched one2one Media, a new company that will help create industry standards and seamless turnkey execution for the U.S. addressable video marketplace. The company's addressable video solutions will extend across inventory provided by pay-TV providers including most of the above-named. This coordination signals that the distributors are committed to scaling linear addressable TV and other advanced television advertising. one2one Media will also offer a targeted, data-driven approach to the growing over-the-top marketplace with a focus on cross-channel attribution capabilities on mobile, online and traditional TV platforms with each distributor.

A DATA-RICH FUTURE?

OTT promises new choice to consumers, new distribution for program and channel owners, and in some cases new opportunity for advertisers.

One2one estimates the total number of addressable U.S. TV households (linear plus VOD) stands at 68 million, up from 50 million in 2016.

All addressable advertising is currently inserted from caches in set-top boxes into local "avails," (the two minutes of airtime per hour reserved from multichannel video programming distributors – MVPDs – aka the cable, telco and satellite providers). Under its "Spark" banner, Sorenson Media is trialing an alternative method of IP-delivered insertion, via connected TVs, into any break. As presently configured, STB addressability takes possession of spots in bulk across many households, and then allocates these to multiple targeted advertisers. The Sorenson method preselects households, leaving the remainder to see whichever ad originally occupied the spot. Preselection is the Sky AdSmart model, which Sky originally termed "targeted substitutional advertising."

Connected and Over the Top

Connected TV (CTV) /Over the Top (OTT) refers to on demand television content delivered via streaming over the internet to a smart TV, streaming players (such as Apple TV, Roku, Chromecast, Amazon Fire TV), or gaming console. It is an ever-expanding part of how viewers consume television content. It is possible OTT will become the dominant form of distribution by the middle of the next decade. In the short term, it is the great hope for recapturing the declining reach of linear TV. It is notable that Roku, the largest player highlighted, in its recent pre-IPO filing that 45% of viewing was ad supported.

OTT promises new choice to consumer, new distribution for program and channel owners, and in some cases (Netflix, Amazon Prime, HBO Go and BBC iPlayer excepted), new opportunity for advertisers. In June 2017 comScore estimated 51 million U.S. households had some OTT capability, or 54% of all households with Wi-Fi. It found these households averaged 49 hours of OTT viewing per month, dominated by Netflix with 40%, Hulu 14% and Amazon 7%. The same study estimated one-third of OTT households do not subscribe to traditional cable or satellite TV packages.

The U.S. suffers from a phenomenon not shared by other large markets. Cable started in the U.S. as early as 1948 and created a series of local monopolies as the broadcast spectrum filled up in the 1960s. The lack of competition brought high prices and a degree of consumer resentment. In other countries, multichannel evolution was either more regulated (e.g., the Netherlands and Germany, where innovation is consequently slower) or more competitive in price, customer service and technology. The on-demand era added still more competition. This has acted as a brake on the growth of SVOD in many markets: "If it isn't broken (like cable, in the opinion of some, is in the U.S.), why fix it?"

From an advertising perspective, OTT 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, live and 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 source of finer TV targeting is data-rich distribution such as OTT and addressable set-top boxes. As this expands, we look to a targetable future with the potential to create significant value for advertisers and program distributors. The most powerful viewer experience, combined with the best content and targeted household/individual delivery at scale, can't come soon enough.

Until then, targeting is still in its infancy on connected TV devices, impeded by platform fragmentation and a lack of standards relating to identity. DSPs that rely on cookie data to assemble, target and measure audiences have to work around this any way they can. This often includes passively collecting data from ad calls through video exchanges and appending it to their device graphs. While this offers a potential solution to match multiple devices in a household, there are no third parties to verify how accurate all this is, and a large portion of CTV households may not be included. IP addresses and device IDs are the primary identifier, although companies like Roku and Hulu have specific subscriber files and can use this information for dynamic ad insertion. Keep a watchful eye out for another giant, as Facebook's push into original content could propel its conquest of TV advertising. It currently helps publishers monetize CTV inventory through the Facebook Audience Network. With mobile logins paired to a household Wi-Fi and its own CTV app, Facebook Video can help it to formulate robust 1:1 targeting.

With the OTT revolution comes a new game of musical chairs. Players as diverse as AT&T, Turner, Disney, Google's YouTube TV (as distinct from YouTube Red), Verizon, Hulu, CBS, Sony, Sling (Dish Network), Comcast and others in the U.S. alone are launching or will launch what have become known as skinny bundles combining on-demand and live linear television. They believe demand exists for a reduced channel line-up delivered by broadband via a smart device but *not* a conventional cable or satellite box. This is based on the received wisdom that packages provided by cable/satellite/telco companies were bloated by channels consumers might not want and that some, notably ESPN, took too big a share of the economic pie. It has been suggested people will pay for choice even if they never exercise it. In practice this usually meant viewers had a "repertoire" of 10-20 favored channels, relegating the long, long tail of an enormous electronic program guide to a form of residual on-demand status. The newer dimensions of time-shifting, genuine on-demand, auto-recommendation and "services" displacing "channels" has improved the quality of choice, and therefore how it is valued.

The idea of skinny bundles is to aggregate as many broadcast networks as possible, plus ESPN for sports fans, and a selection of more or less premium cable channels for drama.

With the OTT revolution comes a new game of musical chairs. Players as diverse as AT&T, Turner, Disney, Google's YouTube TV, Verizon, Hulu, CBS, Sony, Sling, Comcast and others in the U.S.

In a world of falling “scheduled viewing” supported by sub-par data, it seems only OTT offers advertisers practical remedies to replace reach and provide targeting.

Nowhere is the sports-led skinny bundle exemplified than by Hotstar, an Indian subsidiary of 21st Century Fox. Launched to coincide with the 2015 Cricket World Cup, Hotstar has evolved into a multi-channel OTT platform funded by advertising. The launch was also significant as it involved withdrawing content from YouTube in India. In consequence, Hotstar now captures 20% of Indian online video ad expenditure, trailing YouTube's 58% but ahead of Facebook's 16%. It may have less than half the monthly active users of its rivals, but 100 million may still make it the biggest skinny bundle in the world.

Monetizing these bundles is straightforward, comprising subscriptions plus highly-targeted advertising investment, minus whatever the bundler is paying in carriage fees. From the advertiser's point of view, few skinny bundles will be big enough to bother with individually, so it will as likely fall to media agencies to aggregate the pool and harmonize both delivery and measurement.

Access to distribution has always been vital to channel owners. You need wide distribution to command decent carriage fees and audiences for advertising. In theory, skinny bundles should satisfy consumer need for value and simplicity, and sustain distribution for channels in the bundle in the face of cord-cutting, and direct the lion's share of the money to the leading content companies.

That is the theory. In practice, the skinnies face two “mega-bundles” in particular in the form of Amazon Prime (a bundle that goes far beyond video and includes streaming music and unlimited free home delivery) and Netflix.

At 70% the price of HBO, Amazon Prime and Netflix are mega bundles in their own right and very good value for money. It won't be a surprise if they come to form the anchor of the new entertainment landscape. If they do, all the other U.S. players' strategies may be suspect. NBC, Fox, CBS, Time Warner and Disney all have bundles. 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 is complex and expensive to get everything you want. If you are neither, it is easy and cheap – go to Netflix or Amazon. No national media company has the resources to compete on a global basis. Google, Facebook and Apple are the only others with table stakes in this game.

In a world of falling “scheduled viewing” supported by sub-par data, it seems only OTT offers advertisers practical remedies to replace reach and provide targeting. This may indeed grow to become of existential importance for brands which rely on video.

With respect to selling attention to advertisers, there is one simple issue that is too often ignored. If you do not control inventory, and access to that inventory, you control nothing. Over many years, entities as diverse as mobile operators and even smart TV manufacturers such as Panasonic in Japan have attempted to insert or replace ads only to

discover that's just not how commercial arrangements and rights work. This is not to say that companies like Telefonica, Reliance Jio and NTT DoCoMo cannot drive ad revenue, but they have had to secure the content and the rights to do so.

It is also true that advertising-dependent businesses are often the great innovators in advertising. Google and Facebook have no other source of revenue and relentlessly drive change. By contrast, three of Canada's four commercial broadcasters are also telecommunications companies. Only 10% of their revenues are derived from advertising and they have seemingly little appetite for automation in targeting and trading. Note that Canada has the highest Netflix penetration in the world, at 60%. GroupM hopes that this catalyzes the market and encourages Bell (Alt TV), Rogers (Sportsnet 360) and their competitors to move to common OTT, VOD and addressable standards to form a coherent targetable market.

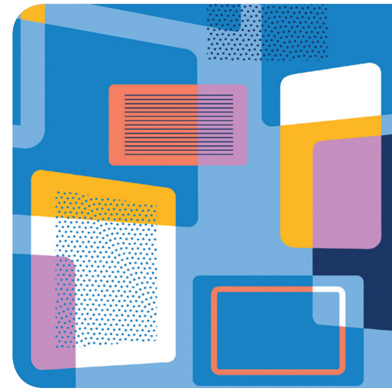
Regulation, infrastructure and the future of “TV everywhere”

Net Neutrality is a key factor in the development of the U.S.'s OTT and related bundles. Current regulation requires carriers to treat all content equally. You may not speed the delivery of content you own or prefer at the expense of content you don't. As administrations change, so do regulations. Neutrality might get neutered. This would be good news for the gatekeeper mobile and fixed-wire infrastructure owners and bad news for almost everyone else. In Europe, 2016 regulation from the Body of European Regulators for Electronic Communications (BEREC) appears to have enshrined net neutrality and it seems unlikely that Britain will break ranks after Brexit. The BEREC regulations do, however, except:

- high-quality voice calling on mobile networks
- real-time health services, such as video feeds for use in remote surgery
- live broadcasts over internet TV services

The last could create some tension if internet service providers and OTT players choose to bid directly for sports streaming rights which have to play out live. Broadcast TV is practically instantaneous. A “neutral” net may not be.

AT&T launched DirecTV Now in late 2016. It allows subscribers to watch video over wireless networks without extra data charges. This is real “TV Everywhere,” and followers include Verizon with the NFL and Go90 and soon Comcast NBCU, perhaps partnering with Verizon. In Europe, Telefonica, a multi-market voice and data network, operates Spain's top pay-TV service, Movistar Plus. It is expected to create around 15 new Spanish-language drama series in the next year at a cost of £100m. In India, Jio offers subscribers a gigabyte of data (eight hours of video to a



Net Neutrality is a key factor in the development of the U.S.'s OTT and related bundles.

mobile device) for less than U.S. $3 per month which includes hundreds of channels of live and on-demand video. Unsurprisingly this is highly disruptive and potentially catastrophic for telco and TV incumbents.

This creates a whole new technical challenge. At its inception, TV Everywhere was largely conceived as a matter of authentication — the ability to watch on any device, as long as you can prove that you are paying for the pleasure. Almost all TV Everywhere is consumed over Wi-Fi. Elsewhere the issues are different. As long as demand for video traffic remains relatively low, LTE wireless networks will cope. With mass adoption, they won't. "Contention" is the name for traffic overload at a single network node. Anyone with home Wi-Fi attempting to stream a movie while three kids play different online streaming games over the same network will be familiar with the problem, as will be people who try and post social media updates in 50,000-capacity stadiums. One-gigabit broadband (still rare) will solve the problem in the home and cannot come soon enough. To remove contention on wireless networks requires 5G, which won't make devices work faster but will allow all of them to work properly at the same time.

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The growth of digital to date has come mostly from newspapers, directories, classifieds, and more recently from magazines with relatively low slippage in total tv spending. Indeed, TV's share peaked in 2014, whereas print (newspapers plus magazines) began its long slide in 1981.

We assume the challenge to television's advertising will come primarily from Google and Facebook, and secondarily from Snap and Twitter and, in some form, Amazon. In China, and increasingly across Asia, it is Alibaba and Baidu which dominate online video with their respective Youku/Tudou and IQiyi services, along with Tencent Video.

The video and revenue models of the key western players are complicated. A broad classification:

YouTube: On demand (pre- and mid-roll)

Oath and the web: In-stream and outstream

Facebook: In-feed but not interstitial in "Stories" and mid-roll in longer video

Snapchat: Interstitial

YouTube

YouTube is a $10 billion business that dominates short-form video outside of China. Even in Japan, YouTube has a 49% share. Every YouTube video is viewed on demand, and most YouTube ads (exceptions being six-second "bumpers" and some units up to 20 seconds) are skippable after five seconds: Google does not think the "forced view" fits the future. For TrueView, the charging event takes place after 30 seconds' viewing or on completion if shorter. YouTube argues reasonably that TrueView's unique quality is that the advertiser only pays for ads that consumers choose to watch and evidence suggests that only between one-third and one-quarter of skippable ads are watched to completion. Harnessed to Google's trove of data, the cocktail of an "opted-in" viewer, about whom you know a great deal, is irresistible. (GroupM's spend for clients is approximately evenly split between skippable and non-skippable formats.)

Despite YouTube's breathtaking scale, even massively-viewed videos like Despacito and See You Again or memes like the Harlem Shake and the Mannequin Challenge cannot deliver the water-cooler moment of big simultaneous reach. If not simultaneous, many ad categories like retail, entertainment and automotive will happily settle for big, swiftly achieved, unduplicated reach. YouTube's limitation here is the concentration of all but its lightest users in a narrow demographic.

Google learns more about its logged-in users all the time. Facebook associates identity with an individual. Google alternately sees an impression as the sum of many signals as varied as location and search history, sometimes with transaction history woven in. For these, Google derives a measure of the relevance of the relationship between advertiser, context and viewer. When successful, Google creates a perfect value exchange. As a consequence, however, advertiser access to Google data shrinks with every signal which increases the chance of identifying the consumer. Marketers and agencies call this a "walled garden." Google, Facebook and Amazon would agree, arguing "the wall" protects the consumer rather than impedes the advertiser.

User-generated has come far since the "video selfie" of YouTube's early days, now testing limits of human creativity, ingenuity, stupidity, cruelty, love and hate. There is, however, much to like about user- generated context. More often than not, online content does not find you; you find it, actively, searching and browsing your own "schedule." It's your choice, your judgement (not always good), your click. Dishonest ads and other links may lead the unwary astray, often to fake news and commercial scams. However, users rarely arrive unwittingly at extremist sites.

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In all those cases, the platforms have a social and sometimes legal responsibility to eliminate the most egregious examples to protect users, and certainly to choke off dishonest monetization and thus protect advertisers from the risk of unacceptable content adjacency.

With that disclaimer, out of the way, let us explore how user-generated context relates to advertising. In a May 2017 update to clients, Brian Wieser of Pivotal Research, noted that YouTube now constituted 10% of video viewing among U.S. adults (18+) and 15% of all ad-supported video. This suggests YouTube should be a significant part of most video schedules, particularly those seeking younger demographics.

In many cases, it is significant, but far short of its "natural" weighting. One reason is continued advertiser discomfort with large swathes of YouTube content, notably gaming, social humor and profane music. This is understandable given the long reign in which content followed rules. Understandable, but open to question. We should address, and maybe even embrace, the new disorder. If we accept that numbers of views are a proxy for public taste, then user preferences are not reflected in the creative output of agencies and advertisers.

Even among advertisers embracing YouTube, there is considerable "creative dissonance" between the ads and the content. For every Dollar Shave Club ad, there are hundreds less attuned to the platform. More "familiar content" would be no bad thing on YouTube, but the real responsibility lies with advertisers and agencies to produce communications that are engaging, relevant, a disincentive to ad blockers, and employ the lower-cost production techniques so effectively adopted by the content creation community.

YouTube is a great complement to television but it is rarely a replacement. Furthermore, for many advertisers, YouTube still lacks sufficient inventory that the advertiser (or the television industry) would

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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. Much is original and well-made, but there is a general acceptance that the professional and the user-generated are not cut of the same cloth.

User behavior may change this. In August 2017 Ad Age reported U.S. viewership of YouTube on TV grew 90% in 2016, and is set to grow another 90% in 2017. The article plausibly suggested that viewers returning to the 'main screen' could favor professional content at the expense of user-generated. It quoted one study which found a YouTube viewer will spend 30% more time watching NBC's content on a TV screen than a mobile or laptop. This is an example of users selecting what we call the "best available screen."

No one would argue that attention is at a premium nowadays. In a world of Netflix and other ad-free platforms, and myriad multi-tasking, it seems careless not to make full use of big ad-supported platforms, YouTube and others, however unconventional their content. Non-participation guarantees failure, and success awaits those making ads that don't look like they were made for another place or another time. "When in Rome," wherever you roam.

YouTube Red (subscription) is available in the U.S., Mexico, Korea, Australia and New Zealand. It is YouTube without ads combined with Google Play Music and offline video playback. YouTube TV is completely different; OTT delivery in a number of (but not all) U.S. markets featuring original programming and a live TV lineup similar to other OTT skinny bundles and supported by subscription and advertising. There is no public data for adoption of either service but it is significant that Google is at least testing subscription services for the first time. Perhaps YouTube TV will escalate if Google buys sports rights. Its restricted distribution is also a reminder how complicated territorial licensing can be. For organizations that are used to globalization at the flick of a switch, navigating these issues requires corporate dexterity and a far more textured view of the economics of content.

Facebook

Facebook has a unique definition of video: If it moves, it's video, from a GIF to a slideshow to conventional video. This unconventional definition, combined with short attention, may point to ways of using Facebook video quite unlike television. Rather than compete to make shorter films, why not animate images that were formerly static? All advertising aims to intrigue and engage, and this is not confined to traditional linear narrative. This matters especially given Facebook's scale and level of consumer adoption.

Advertisers have issues with autoplay (as opposed to user-initiated), and with data. Aggregate Moat scores across our own client base suggest no more than a fifth of ads are watched for more than two seconds. Analysis by GroupM agency, Wavemaker, suggests conversion from impression to a three-second view is in continued decline. Advertisers should therefore vary their valuation of the platform to reflect actual video ad consumption. Facebook reasonably argues that its targeting is peerless, and advertisers succeed when they make better, more relevant ads suited to news feed, and optimize for measurable business outcomes. Facebook is doctrinaire about this. Its campaign set-up interface pretty much mandates an objective be chosen from awareness or site traffic or app installation. Note that most Facebook ad innovation is in Live, Stories and Messenger – all outside the scrolling feed.

Recent moves at Facebook suggest it aims to capture more of the "traditional" video advertising formats. Facebook Live opened to all users in April 2016 to join the professionals Facebook had encouraged to produce live material to increase engagement on the platform. Facebook publishes no usage or monetization data about Live. It seems Live's commercial emphasis is now much reduced, and Facebook is more focused on long-form programming in general.

The August launch of Facebook Watch takes it into direct competition with YouTube and television. It is expected that advertising will be the only source of revenue, and programing will be firmly mainstream in terms of brand safety. Facebook is also slowly building a sports portfolio, including limited packages in Major League Baseball, The NFL and the UEFA Champions League – another indication of vibrant demand for content. Not even Facebook wins all the time; its $600 million bid to stream Indian Premier League Cricket failed.

Long-form programming and long-form advertising go together. It is highly likely Facebook will have a video product that launches from the news feed but is a linear viewing experience, so a much more television-like advertising experience.

Long-form programming and long-form advertising go together. It is highly likely Facebook will have a video product that launches from the news feed but is a linear viewing experience, so a much more television-like advertising experience.

This strategy is both bold and conservative: conservative in content, and bold in the potential for two billion users to move their TV time to Facebook in a big way. This is of profound significance to the entire industry and, in theory at least, could resemble the effect Craigslist and others had on newspapers at the turn of the millennium. While TV has made some progress in targeting it is not at the "people-based" granularity that Facebook can offer. We may witness a major disruption if by the end of 2018 Facebook has a large hour-a-day audience for ad-supported TV.

Many will reasonably ask "is this why people go to Facebook?" To which an answer might be that few expected the platform to grow as it has on the publication and sharing of news. Moving to long-form video reflects ambitions which stretch from communications to commerce, and customer service to content, with a goal to become the one-stop digital destination used by everyone, everywhere. The next two years will tell.

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Amazon

Amazon's video ambitions are wide. Connecting content to commerce is central. Amazon is in the content business to promote and prolong membership of Amazon Prime. Prime members spend more on Amazon than do non-members: Statista estimates an annual average ratio of $1,300 to $700.

Amazon Prime is now in around 65% of U.S. households. Yet only around 18% of U.S. Wi-Fi households watch Amazon Instant Video. The company may already be a major competing with Netflix and Hulu but has enormous headroom to grow, in the U.S.and worldwide.

> Amazon is moving ever more aggressively into original programming. It is estimated that it and Netflix together now spend $10 billion per year on content creation and acquisition.

To this end, Amazon is moving ever more aggressively into original programming. It is estimated that it and Netflix (a big user of Amazon Web Services) together now spend $10 billion per year on content creation and acquisition. Amazon finds itself in a classic "frenemy" relationship with free-to-air broadcasters. In Europe, most Amazon original productions are made in partnership with local broadcasters, and air first either on the broadcast platform or simultaneously with Amazon. Short-term this boosts utilization of legacy producer/broadcasters, but long-term it erodes their income from "back end" secondary markets, which shifts to Amazon.

Amazon's move from on-demand only to live linear OTT and live streaming has attracted much attention. From September 2017, the company streams live Thursday Night National Football League games in the U.S. and across the world. Amazon would expect this to increase Prime Membership to an extent, but to have a greater impact on Instant Video. It also represents Amazon's first serious foray into in-stream advertising. Advertising is endemic to sports coverage, and though the audience may be small, the prospect of user-level targeting fused with shopping history may represent a new horizon in video advertising. It's unlikely this inventory will be cheap, but highly likely it will be occupied by advertisers wanting a preview of this particular version of the future.

Forecasting Amazon's ambitions in video advertising is challenging. It will certainly enter any territory as a data-fueled video and display ad network, but that is not the same as running an "owned and operated video environment" competing with TV incumbents. Sports may be the gateway. Amazon has acquired audio rights to the German Soccer Bundesliga and some international streaming TV rights for the same property via Discovery and is associated with most big rights auctions. The first, the NFL, may prove the biggest portent when extensive rights come up in 2020 and beyond. The league is highly motivated to expand the bidder pool beyond the existing network buyers. Amazon has also acquired the U.K. streaming rights for ATP Tennis.

Amazon, of course, is also a distributor of channels (like HBO) as well as a "streamer" of programs. Recently, speculation has risen that Amazon may be a potential acquirer of multiple channels that are in danger of exclusion from new (and skinnier) bundles. If they execute this strategy at scale, it seems highly likely that an ad-supported model will become significant on the platform.

It seems likely Amazon will become a bigger direct competitor to YouTube. Self-reported behavior collected by the Center for the Digital Future suggests that, in 2016, 18–34s in the U.S. spent a little over eight hours a month playing video games on- and off-line, which is time which would otherwise most likely be spent watching video.

But these days, of course, people don't play games, they watch games being played. Josh Kappa is known to users of Twitch, the Amazon video-game streaming service, and almost no-one else. Mr. Kappa was an early Twitch employee, and an image of his face became an "emote" (a Twitch emoji). Twitch gamers and viewers use the Kappa Emote to convey sarcasm and mischief and used it 413 million times in 2016. Twitch has 10 million daily viewers around the world with an average watch time of 106 minutes per day.

Twitch already goes head-to-head in a key YouTube channel category. Furthermore, Amazon Video Direct allows publishers to stream to Amazon Prime members. Amazon pays publishers $0.15 per hour screened in the U.S. ($0.06 elsewhere) and has an ad-supported model in which the publisher share is $0.55. It's too early to predict the effect of this on the market, but it's another direct challenge to YouTube.

Hulu

Hulu is unique. Its 30% each shareholders are The Walt Disney Company, 21st Century Fox, and Comcast NBC Universal. Time Warner holds 10%. The business was conceived as an aggregation play to distribute current and past series of the shareholders' shows to counter Netflix and rising demand for PC video consumption. Hulu has since expanded its horizons. It has become a big creator and distributor of original programming and has launched a "live OTT" service. Hulu operates only in the U.S.; Nippon TV own Hulu Japan.

Hulu's business model is of particular interest to advertisers. It is the only U.S. SVOD service with a two-tier subscription model, one with advertising and one without. The ad-supported option retails at a 33% discount. Hulu does not disclose its subscriber profile, but has often stated that "the vast majority" of subscribers chooses the ad-supported option. That discount is an interesting measure of what someone is prepared to pay for three hours of ad-free TV per day. Hulu now offers a third new "skinny bundle" option of a live OTT service at $40 per month. This combines the $7.99 ad-supported service with 50 live TV channels and a cloud DVR service with 50 hours of program storage.

It is reported Hulu may cease making available day-after catch-up for its shareholders' programming. There is no news about what other windowing it might then create.

Hulu accounts for 14% of all U.S. OTT video viewing, well behind Netflix, but for now ahead of Amazon Video. Beyond this headline, Hulu has the most daily viewing hours: comScore reports 2.9 hours per day vs 2.2 hours for Netflix and 2.0 hours for Amazon. Absolute shares are of course determined by market penetration, and Netflix has almost three times as many homes as Hulu.

Twitter

The previous owner of the NFL streaming package, lately acquired by Amazon, was Twitter, the most-focused of the digital players on live and live sport in particular. "What's happening?" is Twitter's ethos. Rights holders see Twitter as enhancing fan engagement and thus potentially growing the size and value of audiences. Twitter's partners do well from the arrangement and Twitter's users get an enhanced experience even if few abandon other screens to use Twitter alone.

From an advertiser's perspective, Twitter's live video ad products are among the most attractive of the in- feed options. Ads run adjacent to or within brand-safe content and score highly on viewability and completion metrics.

Approximately half of Twitter's $2 billion revenue now arises from video. Twitter's main constraint is "time spent on platform." Though not "apples to apples," monthly U.S. users range between 120 million to 150 million adults for Facebook, YouTube and Twitter. Time spent, however, polarizes spectacularly with core YouTube and Facebook at over 30 hours per month and Twitter at two. "Monetizable time spent" is the key to economic success from advertising and the imperative for Twitter. Wall Street obsesses about user growth, but this is much less important.

A big unknown is Twitter's usage distribution. We have long speculated the 80/20 "Pareto Principle" pertains here and on YouTube, but that Facebook and Snapchat, being more about communication, have flatter profiles.

Projecting usage distribution (other than for YouTube) is extremely difficult and one of the principal data shortcomings in the market.

Snapchat

Snapchat has half the U.S. penetration of the longer-established platforms at around 68 million users, including 78% of 18-24s and 48% 25-34s. It reaches less than a quarter of over 34s. By contrast, Facebook reaches 90% of the entire internet population.

More interestingly, Snapchat averages six hours monthly in time spent. SNAP does not break out time spent "by activity" on the platform between person to person communication, Discover and Stories. This makes it difficult to project volumes of available video inventory. From

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a placement perspective, however, Snapchat video is highly attractive to advertisers, which appear in interstitial format thus eliminating "shared screen" issues and some brand safety risk.

The Snapchat video format is equally attractive. Full screen, vertical video with a 10-second maximum view time and the option to see more. The interstitial format will be fascinating to track in comparison with feed-based video. Is the swipe mightier than the scroll when it comes to ad attention or avoidance?

Snap's global usership is double the U.S. number. The company has made clear its focus is richer countries. Snap appears undistracted by mission statements.

Web, desktop, mobile, in-app video: beyond the giants

"Endemic" video publishers mean mostly legacy TV and OTT. In its May 2017 Video Metrix report (desktop and mobile), comScore paints a polarized picture of "non-endemics" in the U.S. On monthly minutes viewed, YouTube and Facebook are half of the market. Netflix (ad-free of course) is 10%. Oath is approximately one-fiftieth the size of YouTube by this measure. Barely more than a quarter of Oath's global viewing is outside the U.S., which depresses hopes it might soon emerge as a "third force" in digital video.

Most sobering is this: The aggregate video minutage of Time Inc., The Washington Post, New York Times, Buzzfeed, Vox, The Mail Online, Hearst and U.S. today is well under 1% of the market. (This excludes the volume of their video that might appear on Facebook and other platforms who monetize the content rather than the original publisher.) Endemic video publishers, mostly legacy TV and OTT, account for 20% of all online video time spent.

We think advertisers could make more use of the relatively new category of "outstream video." The market leader, Teads, was founded in 2011, and acquired by Altice in March 2017. 'Outstream video' can be defined as "video advertising that runs independently of other video content in real estate previously occupied by rich media and other display advertising." Outstream enables publishers with text-based content to host video advertising even though they have limited capacity to produce video content of their own.

Advertisers and publishers would all benefit if publishers agreed on Outstream standards and measurement.

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ONLINE VIDEO IN CHINA

In August 2017, the Chinese media regulator SAPPRFT issued a directive which changed the prime-time landscape. Until then, content on the national flagship China Central Television (CCTV) was always more tightly controlled than Provincial Satellite Television (PSTV). Chinese television audiences have already seen consecutive years of double digit decline. The August directive levelled PSTV up to the conservative end of the cultural spectrum, creating yet more opportunity for the digital competition.

To understand China's online video, imagine YouTube and Netflix merging, and launching a live OTT service. That is what the leading players in the Chinese online video market look like.

UBS estimates the annual advertising revenue of the sector at U.S. $10 billion; roughly equivalent to YouTube, globally. UBS also estimates that revenue to the big three online video players (Baidu, Alibaba and Tencent) already exceeds the top-tier cable companies. Citing GroupM's 2017 forecast of 21.7% growth in online ad spend UBS expects online video ad spend to grow still faster.

Baidu, Alibaba and Tencent ("BAT") command a combined market capitalization of almost U.S. $800 million, and almost 75% of the online video advertising audience. Baidu is the smallest, but its iQiyi makes the most in subscriptions and equals Alibaba's Youku in advertising. Alibaba and Tencent are running away from Baidu in size, spanning commerce, communications, gaming and payments. Baidu, therefore, focuses on its strongest area. Tencent's gaming revenue alone is double that of its advertising business, and Alibaba's advertising revenue is less than a tenth of its total. It's hard to pick winners but Tencent's content joint ventures, social reach and payments may well propel its video business to the top spot.

Most interestingly, perhaps, the three video giants operate an average 80/20 advertising-to-subscription model seemingly more effectively than their Western counterparts. The ad-supported audience far exceeds the total 80 million or so subscriber audience. These businesses do not depend on user-generated content. They are the richest buyers of premium content from drama to sports in the world's second-biggest economy. More than half of all viewing hours are long-form. As Alibaba and Tencent extend their reach across Asia this may be the shape of things to come. Already, Chinese online ad spend (all formats) indexes at 180 versus television, the highest in the G20 by far.

China is also characterized by the dominance of mobile devices. The IAB estimates that over 70% of China's smartphone users watch full-episode video at least once a week. This is more than double the rate of the U.S. Critically, consumers tolerate in-stream advertising as a fair exchange for longer formats.

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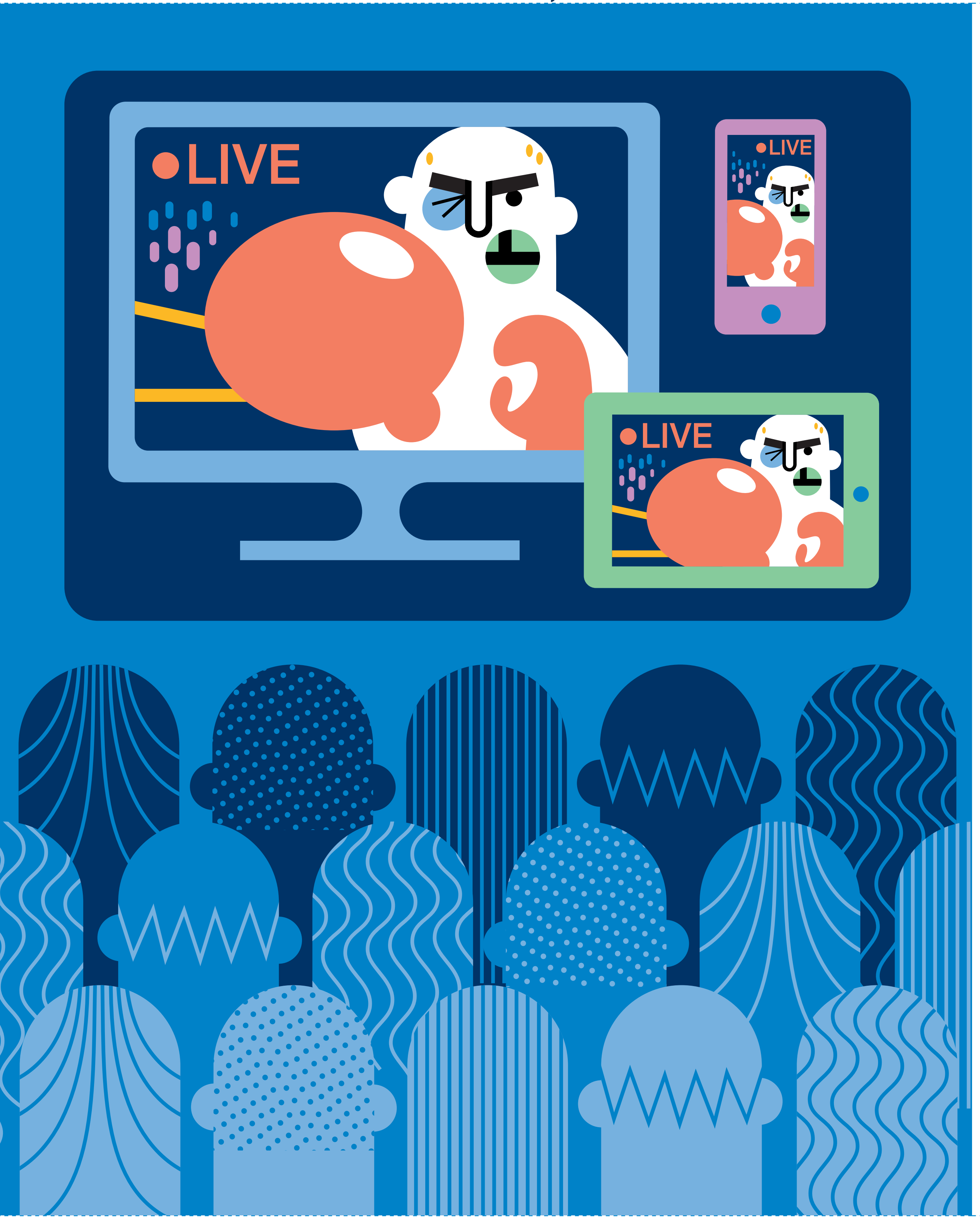
LIVE SPORTS: “MUST SEE,” BUT HOW?



LIVE SPORTS: “MUST SEE,” BUT HOW?

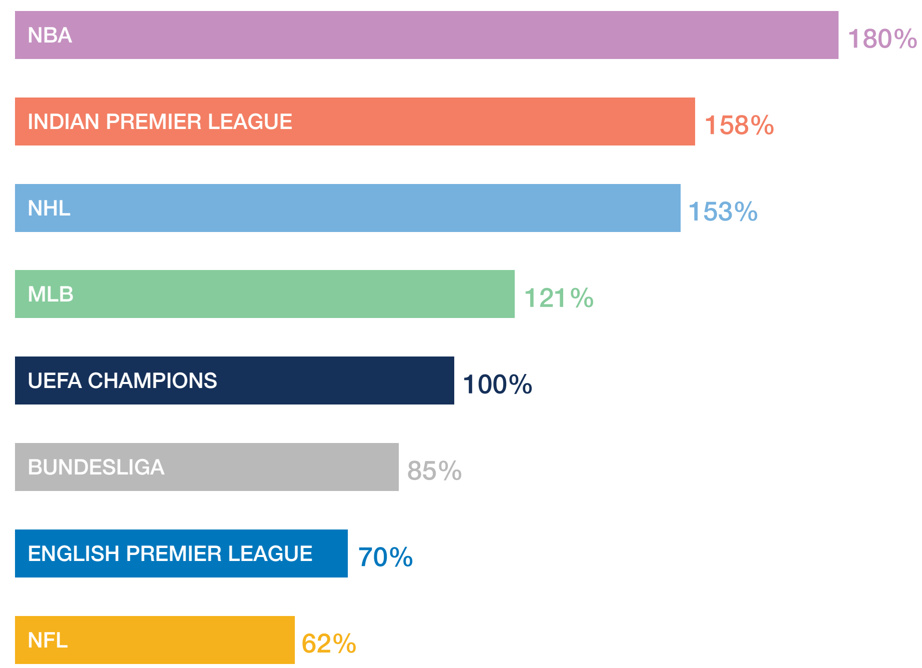
Live sporting events sit in the endangered category of “appointment television,” where big audiences still conform to the traditional linear TV schedule for their sport, team, player, league or club. This devotion remains of major interest to brands and a big support to the advertiser-funded model of linear TV. To understand sports’ resilience to the broader challenges faced by broadcasters, we need to think about the economics behind the entertainment.

There are more ideas than money to fund them. Much video entertainment faces disruption from the democratization of content creation. 400 hours of video are uploaded to YouTube every minute. What keeps sports events relatively scarce are barriers to entry from the physical through to creative content capture.

There are also entry barriers to creating a league or competition format which creates loyal fans. In a TV audience world challenged by the atomization of audiences and fragmentation of attention, live sports offer proven, brand-safe reach sustained by loyalty and engagement.

Over the last decade, such factors explain the steady rise in the billions of dollars broadcasters invest in rights and the corresponding ad dollars they collect.

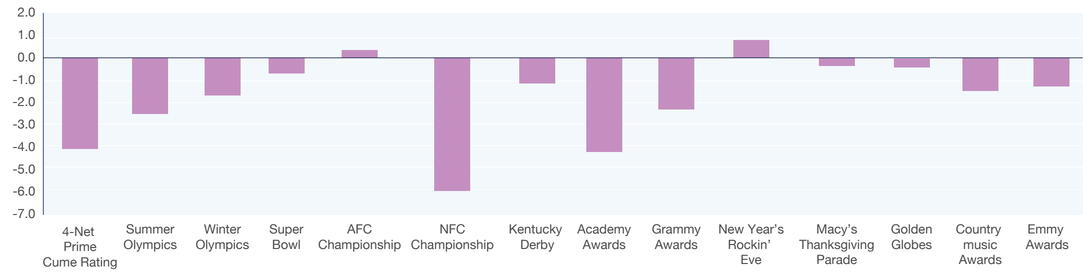
Increase in latest TV rights agreements



- All deals represented in this chart are domestic/national except for Indian Premier League (Global) and UEFA Champions League (France and MENA Territories)
- NHL includes U.S. and Canada
- NFL does not include deal with DirecTV (Sunday Ticket)

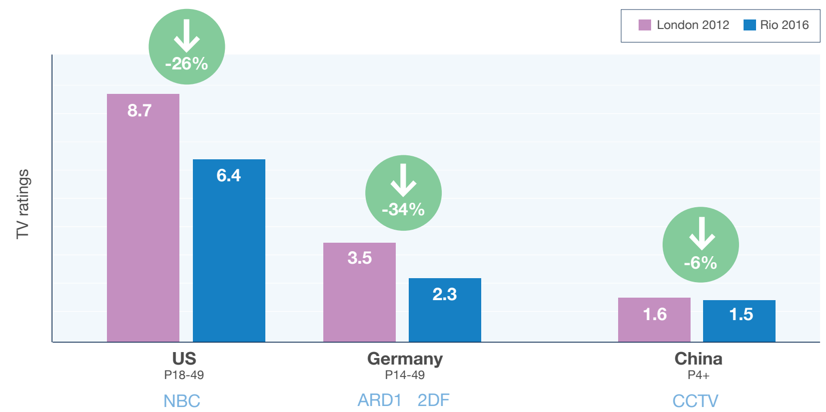
The picture is changing. Research shows TV audiences falling for live sporting events. Robust though live sports certainly is, the reality of how and where fans want to watch is catching up with the industry, and the landscape is changing for the good.

Live Event Viewing: Change in U.S. adults 25-54 ratings 2010 to 2016



source: GroupM

London 2012 and Rio 2016 TV Ratings



Though lost time on linear is largely recovered on a range of digital devices, live streaming has not been enough to offset the fall in sports TV viewership, indicating a fundamental shift in how consumers want to engage with live sports.

New challenges for sports rightsholders

In the digital realm, there is simply more convenient and attractive stuff competing for our time. It is especially hard to reach the young who will become the future live sports audience, and will not pay for masses of channels on a screen it spends less time with. Disney's recent OTT moves including the launch of the ESPN OTT channel in early 2018 are designed to entice young audiences back.

Rights holders are understandably worried smaller audiences mean smaller broadcast rights fees, their main income. Rights holders such as the NFL and MLB, and their broadcast partners, are responding with new formats and brand integration, and lower ad loads. This may not be enough to secure the next generation of fans for whom watching an entire game, match or tournament takes up too much time, and does not deliver the truly interactive and social experience they demand. To do this we need live stats powered by new data technology, real-time highlights and other innovation.

Digital holds great potential to create this richer, more engaging environment. Embracing this will allow sports properties to extend their relationships with audiences far beyond event windows. It will attract new fans by reaching them where they want to be reached, and it will create new advertising formats for advertisers.

The role for brands

Brand marketers are critical to the economics of live sports, so must figure out their place in the new ecosystem. Digital programming innovation paves the way to reduce interruptive advertising and increase watchable branded content. Modern technology has lowered production barriers, but brands, their agencies, properties and media partners must walk a fine line between enough and too much. It is scarcity which drives value and premium pricing. Overbranded environments lead to complaints about too much commercialism. We have seen over time how brands and their agencies can manage this successfully. To sustain this underscores the value of marketing services.

Sports properties and brands have already entered the digital content realm, mostly through short-form video offering behind-the-scenes access, personality-driven vignettes focused on athletes, and other features. The next step is to expand the "live product" beyond the traditional games-and-shoulder programming formula.

An evolving market for sporting rights

Media tech platforms are muscling in. Over the next decade, they might disrupt how live sports events are consumed. They have reach, data, cash and business models unlike that of traditional broadcasters. Amazon buying the ATP rights in the U.K. is an example. Even at a relative bargain of $13.2 million, how does a TV company selling advertising or subscriptions compete with a retailer using the content to sell tennis gear? Apple has enough cash to buy the NFL, NBA, MLB and NHL rights, and all the teams too, if it wanted. Facebook's TV ambitions may tempt it into the fray. Google can continue to dabble and explore with formats and modes on YouTube, working out how to make live sports pay in the digital ecosystem before making a move.

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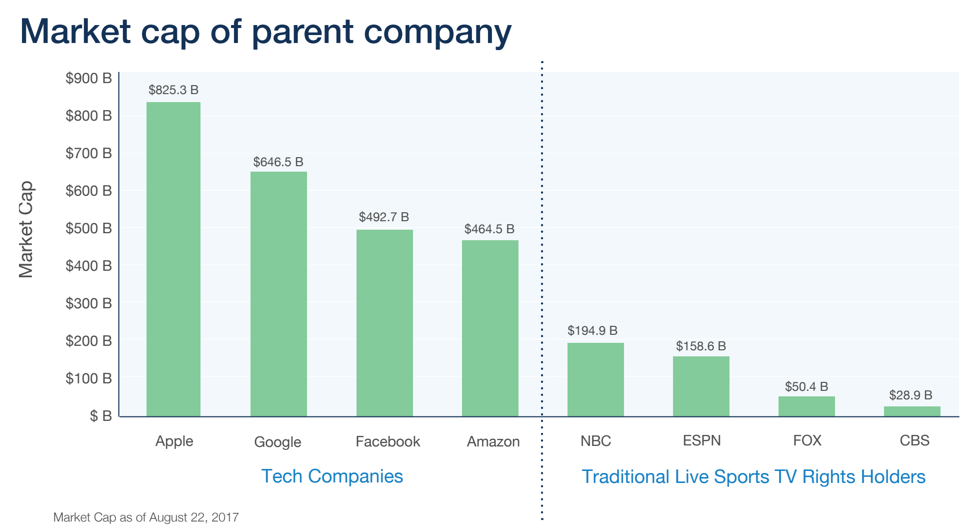
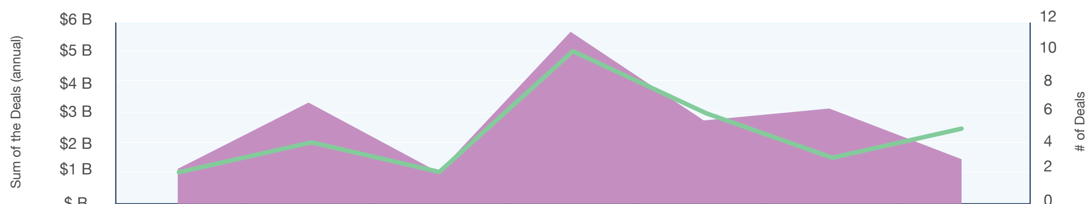
Comparison of Market Caps Between Tech Companies and Traditional Live Sports TV Rights Holders



2021 could be a milestone for live TV sports media rights. NFL Monday Night and MLB rights come up in the U.S., and the UEFA Champions League and Bundesliga fall for renewal in Europe. Beyond 2021, key contests will include the FIFA World Cup (ex U.S.), NFL Sunday Ticket in 2022, NFL's NBC/CBS/Fox deal in 2023, and Olympics (ex U.S.) in 2024.

Expiring media rights deals

Properties w/annual media rights over $500M



	2018	2019	2020	2021	2022	2023	2024
Deals Value	$1.1 B	$3.3 B	$1 B	$5.7 B	$2.8 B	$3.1 B	$1.4 B
# of Deals	2	4	2	10	6	3	5
Major Sports Rights Available (Current Broadcasters)	SERIE A Domestic (Sky & RTI Mediaset)	PREMIER LEAGUE Domestic (Sky & BT Sport); LA LIGA Domestic (Mediapro & Telefonica S.A)	LIGUE 1 Domestic (beIn Sports France & Canal Plus)	UEFA CHAMPIONS LEAGUE All*; NFL Monday Night (ESPN); MAJOR LEAGUE BASEBALL Domestic (Fox, ESPN, & Turner); BUNDESLIGA Domestic (Sky & ARD)	FIFA Mutliple (Not USA); NFL Sunday Ticket (AT&T); NHL USA (NBC)	NFL Multiple (CBS, Fox, NBC)	OLYMPICS Multiple (Not USA); NASCAR USA (Fox, NBC)

Chart Notes: All deals are domestic only, except for UEFA Champions League, FIFA World Cup, and Olympic Games
- *UEFA Champions League value includes France, Spain, United Kingdom, Middle East and North Africa. UEFA sells the broadcast nights in a three-seaon basis and various packages are available for bidders.
- FIFA World Cup value includes United Kingdom, Brazil, Germany and Asia. Typically, broadcasters bid to win the World Cup rights for the next two editions. In this case, 2026 and 2030.
- Olympic Games includes Europe, China and Japan.
Olympics and FIFA World Cup fees were calculated per event, not annually.

Note that these properties have more deals than what is represented in this chart. Only deals over US $200 million annually were included.
Source: Multiple sources.
ESP Properties

Looking ahead

Sports rights holders have bargaining power now. How they set out their stalls for new types of partners will be critical. The sun is setting on the monolithic model of bundled rights supporting big TV and cable. One envisages rights unbundled for those multiple distribution partners best suited to commercialize the way viewers want to consume sports content.

Bargaining power will accrue to the media tech platforms in future. Rights holders will need to assess bidders in terms of both cash and the preservation of audience and fan engagement at scale. It may be broadcasters remain the best at TV production and the big-screen experience, with rights sliced accordingly. Such broadcasters might themselves seek to sub-license new technology and digital partners to reach the markets and fans they are unable to service.

We cannot predict who would win any future competition to acquire new rights, or whether traditional broadcasters might be working with technology businesses. What we do know is big changes are coming to the ways we engage with live sporting events away from the live TV schedule, and from whom we will receive these services.

Big changes are coming to the ways we engage with live sporting events away from the live TV schedule.

FINALLY — WE NEED A BETTER WAY TO MEASURE THE MARKET

In China and across the world, the pace of change in the video marketplace continues to accelerate as consumers, supported by new technologies and viewing platforms, access video content across devices whenever and wherever they want. Where once they gathered in front of the family's one TV, today's audiences are viewing their favorite TV programs across multiple screens both in and out of their homes.

Regrettably, viewing measurement has not kept pace with this rate of change, and what appears to be a loss of linear audience is in fact largely a measurement illusion. As audiences increasingly migrate to view content on poorly or completely unmeasured screens, this situation will only get worse. What goes unmeasured cannot be fairly or fully monetized and thus may not exist in the future. Creating separate measurement systems that value audiences differently will tend to overstatement. This would further obscure the true value of media and audiences and is not the answer.

Unfortunately, current MTA and Market Mix models compare multiple video streams that use different impression calculations. Adopting a single impression methodology would clean up these differences and enable models to produce more accurate cross-screen allocations. We need to develop better strategies to build our clients' business. The lack of holistic measurement is holding us back.

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In the U.S., GroupM has a history of leading the industry into more robust measurement, as our previous efforts to improve TV's time-shifted measurement (C3, C7) and digital's viewability and brand safety demonstrate. GroupM is now working with audience sellers and research companies to further develop and finalize our plan to extend commercial measurement to all professionally-produced episodic long form video content across all video platforms. Our holistic-unit-based approach aggregates program level commercial audiences across all distribution platforms following many of the same rules GroupM laid out when developing the original C3 linear measurement methodology. Most critically, it incorporates the key components of GroupM's on-line video viewability standard to create a commonly-defined impression that aligns linear commercial-minute measurement with digital viewable impressions:

- Duration-weighted commercial viewing,
- Same or consistent commercial load,
- Viewing within seven days of original air date, and
- Viewable to GroupM standards. (100% of pixels on screen, NHT/SIVT removed, audio on)

Better is certainly not easy. The path to holistic measurement of linear and online video is strewn with obstacles that directly affect current and future business practices. A key rule of linear commercial measurement is consistent ad loads, which conflicts with several major online video

FINALLY — WE NEED A BETTER WAY TO MEASURE THE MARKET

sellers' commercial agreements. Our contracts with SAG-AFTRA on commercial clearance and payment must be considered, and the current limitations on digital ad serving must be recognized and dealt with. Ad and content tagging rules must be established. For this to happen in a timely manner, the current planning and buying systems must work with the new data. We propose methods that address each of these obstacles, and have refined our approach in consultation with key industry participants.

The proper application of this approach will produce a commonly-defined cross-screen impression, enabling a marketplace currency with which audience sellers and agencies can intelligently plan, trade, monitor and report results. Our goal is to level the playing field by inviting traditional and nontraditional media companies to be measured on a common currency, which will provide greater benefit to our clients. GroupM envisages moving to this methodology within the next 6–12 months, with continuing efforts to add additional online video tiers at a regular pace.

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