

Guide to Digital Innovation



An Introduction to Innovation

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In less than three decades, the internet has transformed the world as we know it, changing the way we operate, the ways we interact with brands and the way we communicate as human beings. Digital products and services have continuously evolved helping accelerate rates of innovation. For example, the digital advertising market alone has grown from 8% market share in 2005 to 52% in 2017.¹

It is becoming more and more apparent that this 'digital world' that many still talk about is no longer a separate world to the one we live in, making it even more important that brands and businesses are preparing for the future.

Helping businesses to prepare for the future is part of the IAB's mission to build a sustainable future for digital advertising and that's why we have put together the IAB Guide to Digital Innovation with companies from across the industry. From technological developments like AI and Voice, to new channel opportunities like Digital Out of Home and developments in Search, this guide features chapters put together by industry experts to help you understand the innovative happenings in the digital advertising industry right now.

But before you get started, we thought we'd ask one of the most future facing figures in the industry to give us his thoughts on what innovation really is and why it's so important.

Dan Calladine

Head of Media Futures, Carat Global

Innovation means doing things differently and testing the boundaries of technology and creativity.

It means using exciting new companies, ideas, and technology to create new experiences and ways of communicating. One fundamental innovation that has set digital aside from other channels is the ability to have a return path for marketing. This means that unlike with broadcast, or radio for example, you can (potentially) track exposure to messages to millions of people and give them a way of immediately responding or finding out more. This ability has revolutionised marketing – just look at the LUMAscape to see the companies created to optimise aspects of this.

An idea does not have to be successful to be innovative. You could have a truly interesting idea but it may be that it does not achieve any sort of business success. However, this same idea may well stimulate other thoughts, and lead to other innovations that do get results. Some innovations could simply be proposed too early, not ready for practical application in the real world; for example, early uses of smart phones for marketing that brought lots of learnings but could not actually reach many people.

What's important for businesses across all sectors, but particularly in digital advertising, is that they need to keep innovating and testing boundaries, to avoid being left behind by competitors and new disruptors in the market. Technology that people use is continuously evolving and, as a result businesses need to keep up too.

In doing so, companies need to pay attention to various factors such as a balance of reach, the addressable market, experimentation and the halo that can come with eye-catching campaigns, to really prepare for the future. Two of the most interesting trends at the moment are augmented realities and 'shared experiences', and it will be so exciting to see how businesses and people use these opportunities. However, as digital continues to expand, these trends will become the norm and future trends will continue to test businesses who are not prepared.

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01

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New Sources of Disruptive Data

Getting Under the Skin of Advertising

Written by
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The Telegraph

It doesn't take a psychologist to tell you that the human mind is a pretty complicated thing.

It's a mess of learned behaviours - of generalisations, of neuroses and aspirations. It's powered by 100 billion neurons transferring information across more than a kilo of white and grey matter, providing us with a completely unique mental footprint of both who we are and who we think we should be. It's so complicated that, if you had a pound for every synapse in your brain, you would have a net worth two-hundred times greater than that of Apple.

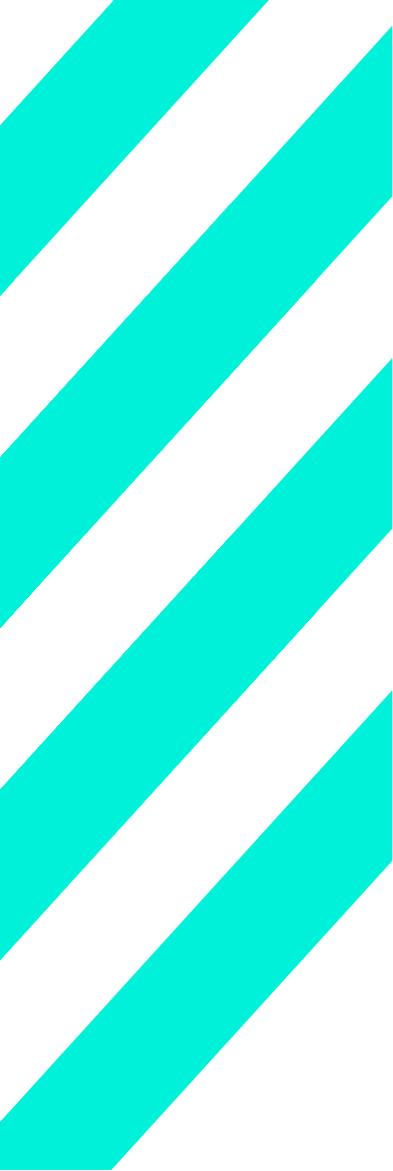
To add another layer of complexity, the brain is truly multifaceted in the way it works. Neuroscientists have been busy demystifying these various functions for the past 50 years, with some fairly heated debates along the way. However, nearly all agree that one clear split exists between implicit activity; your subconscious reactions, habits and 'gut feelings', and explicit activity; your inner voice, measured decision-making and strategic view of the world.

This neuro dichotomy has proved a particularly stubborn opponent for those of us tasked with decoding the 'why' of audience behaviour.

Market research has been effective at testing the explicit part of the brain through traditional methods such as focus groups and surveys. However, as neuroscience and behavioural economics become more honed, implicit brain activity has been recognised as being vital to every aspect of our lives - including spending. In fact, by current reckoning, implicit thinking accounts for 95% of all of our purchases, so it's an incredibly important driver of our consumption behaviours¹ In simple terms, that's 95% of your purchases carried out without you consciously thinking about them.

So, a difficult question emerges - how do we test these largely subconscious actions, when even the respondents can't tell us why they're making them?

Thanks to advances in technology, we don't even need to ask.



By studying the physiology (biometrics) of a respondent as they engage with stimuli, we can observe perceptions, reactions and memory encoding without any kind of explicit filter. This negates the impact of overclaim or group dynamics in a focus group and generates an entirely new set of metrics with which to model against a KPI. In some cases, we can even use it to ensure branding occurs precisely where memories are being formed.

It's an entirely new frontier for research and insight and something we take very seriously here at The Telegraph.

As our largest organ, it is not surprising that our skin carries a huge amount of information about us. What may be surprising is that it can also reveal our emotional state, reacting to everything we experience through each of our senses. This reaction changes the way electric signals are conducted by our skin, which can be measured utilising Galvanic Skin Response technology (GSR).

Using our brand campaign as a stimulus, we tested the reactions of 50 media agency staff to what they saw on screen, including a number of historical and global events². Our findings revealed a commonality among the test subjects as they were reacting to similar events throughout the video. Despite the presence of highly charged, emotive imagery such as the First World War, the Suffragette movement and Martin Luther King, the most pronounced reaction was actually caused by imagery of Meghan Markle.

We don't really know how to feel about that either.

For advertisers, GSR means you can now check whether your content elicits very specific reactions for creative new KPIs. What type of content encourages goosebumps? Which of your creative executions for a scary film terrifies the most? GSR is a cheap and brilliantly effective way of providing the answers.

Going one step further is EEG, sometimes known as neuro-mapping. This fascinating technology opens up a wealth of optimisation avenues as it actively scans the brain while a respondent engages with a piece of stimulus.

Neuroscientists can even isolate the parts of the brain responsible for memory encoding, identifying when imagery or messaging is more likely to be retained. Coupled with the ability to detect lean-in/lean-out moments, EEG can help content creators ensure their work is fully optimised, reinforcing positive messaging that is certain to be remembered.

Although this technology is now well developed, its overall take-up is still relatively limited. EEG is currently too expensive for tactical use and GSR really needs other forms of research to give it context. That said, our early trials are already beginning to inform The Telegraph's larger campaigns and it's only a matter of time until EEG software becomes so user-friendly it can be in-housed or the costs become more conducive to frequent use.

When that day comes, we'll all be that little bit better at reaching the hearts (but mainly the minds) of our customers.

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Location Data

Location is Nothing New

Written by Alex Wright
Head of Insight, Blis



Chapter Sponsored by Blis

Blis is the global pioneer in location data. Our proprietary technology and platform helps agencies and brands use location data to better understand consumer behaviour, allowing for effective targeted advertising to drive business outcomes. We believe that where you go defines who you are, and advertisers must capitalize on these insights for meaningful marketing experiences across devices. Our technology filters and scales location data, giving advertisers access to the most accurate location events, location data, and unique devices. The data is then applied across the apps that matter most to their consumers for targeting based on rich insights. Clients are supported by our location experts or can work in an agnostic service model of their choice. Since creating the world's first location data technology platform in 2004, Blis has grown to be a global company with 25 offices across 5 continents. Blis' clients include all major holding companies as well as leading brands in top verticals including adidas, Samsung, McDonald's, HSBC, Mercedes Benz and Peugeot. To learn more, please visit www.blis.com.



This chapter explores the origin of location data, how its purpose and applications have evolved over time, and in particular, its capabilities that allow marketers to reach relevant audiences in moments that matter.

A History of Location

Location is, and always has been, at the core of our identity. Location and the prevailing environmental conditions are why fish swim, cows eat grass and why giraffes have such long necks! Indeed, this was the central tenet of Darwin's seminal *On The Origin of The Species* and held true throughout the Holocene.

However, since early humans began to cluster into civilisations, they have sought to shape the world around them, as opposed to the world-shaping them. Location, therefore, has become symbolic of lifestyle: a description of someone's key locations – where they live, work or socialise – and the inferences these locations carry can inform your understanding of them.

As we evolved we began to practice sedentary agriculture, leading to the growth of civilisations. These civilisations grew in size, establishing government, religion and culture, all of which increasingly altered their habitat. Since 1800, the world's population has grown from one billion to more than seven billion. Almost four billion of these people live in urban areas. These come with the typical urban accoutrements: houses, apartments, tower blocks, offices, transport infrastructure, restaurants, bars, nightclubs... the various combinations of which become pins in the map of your daily movements.

These accoutrements reflect both the cause and effect of modern urban behaviour. The more we shape our environment, and the way we interact with this world we've created, the better location becomes at predicting behaviour. In essence, this moment in time – 10 millennia ago – was the tipping point at which people began to shape locations, rather than being shaped by them.

Skip forward to the year 2007 when Apple launched the iPhone and the definition of a mobile phone changed forever. Now, thanks to the smartphone and the data it provides, we can measure location behaviour at scale.

Location Accuracy Over Time

The importance of accurate location data can be observed in many forms, from your Uber collecting you from the right side of the road to calculating how long it will take you to walk to work in the morning.

This accuracy for marketers is just as important; it can be the difference between reaching audiences in gyms or audiences at a fast food restaurant with your low-fat drink advert. Data quality and accuracy should be considered a hygiene factor; a minimum expectation.

To ensure accuracy, location data companies require sophisticated technology to filter out bad location data – whether inaccurate, imprecise or deliberately fraudulent – this can include data points that lack precision, are based on centroids or data that reflects non-human behaviour. At any given time, on any given day, as much as half of the location data coming through the bidstream could be unreliable.

Do not blindly trust in the data you purchase from your partners. Ask about sources and request a demo that includes visualisation tools, like heat mapping and location profiling.

Application of Location Data

The first wave of sophisticated location-based advertising was facilitated by the growth of display and programmatic, which allowed marketers to employ location data at scale. At that stage, the focus was heavily skewed towards proximity advertising (reaching consumers near a particular store).

Whilst there's still a lot of value for retailers in the use of location for proximity advertising, the industry has matured in many ways, and now the attention has turned to much more sophisticated applications for location data.

Through movement and location data we can profile, buy and attribute behaviours. Location data gives marketers the opportunity to better define and understand their audiences, ensuring that ads are reaching exactly the right consumers and impressions aren't wasted.

“It means your brand doesn’t have to blindly optimise for reach or shout the loudest”

It means your brand doesn’t have to blindly optimise for reach or shout the loudest, both of which mean spending the most; it means you can talk to the right people, with the right message, at the right time. These are the things that drive awareness, consideration and purchase intent.

The better you understand behaviour, the better chance you have to influence decision-making.

The further down the funnel you go, the better campaigns powered by location data perform. If you’ve bought an audience you’ve profiled based on behaviour that fits the desired audience in the brief, then you’ve got a better chance of getting people who are in-market or may be in-market at some point. This gives your brand a head start over the competition, improving consideration.

So while it’s not the only source, and nor should it be, it’s a single source, and having that red thread from profiling to attribution is extremely valuable for marketers and brands in better understanding their consumers.

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Automation

New Possibilities in Digital

Written by Rubicon Project

Across the UK, automation continues to allow advertisers to increase efficiency with programmatic media buys, and to innovate on new platforms. Once thought of as just a fad, marketers have adopted automated media buying as a best practice – particularly in digital.

While programmatic buying received criticism earlier this year in regards to brand safety and inflated pricing, the industry focus has shifted towards transparency and collaboration, and programmatic has evolved to provide cleaner, leaner, better-lit transactions. Put simply, while automation was once the bugbear of transparency initiatives, it is now being used to promote them. One of the most exciting changes in this arena is the growing utilisation of ads.txt, a text file that enables publishers to make a list of authorised digital sellers available publicly on their websites.

An example of improved collaboration via automation can be found in the adoption of a Universal Identifier as a means of audience recognition. With the meteoric growth of the digital ecosystem, the traditional use of cookies has resulted in inefficiencies within the digital supply chain, and delayed buffering for viewers. As an alternative, the consortium DigiTrust, recently acquired by IAB Tech Labs, is spearheading the initiative to provide an open, neutral, independent, non-profit ID – which means the future of automation could be cookie-less and less crowded.

Across channels, programmatic buying continues to surge. According to eMarketer¹, UK programmatic digital display ad spending is positioned to reach £4.52 billion by 2019. Programmatic video remains a rapid growth story; the digital video ad revenue is expected to grow by 21.7% this year according to Statista². Mobile will continue to dominate, and will account for an estimated 82.1% of total programmatic³ display ad spending, a total of £3.2 billion.

As in home entertainment such as TV becomes smarter and more digitised, the line between linear TV and over-the-top (OTT) is becoming more blurred. As a result, advertisers and media companies are changing how they buy and sell inventory. Television networks may be late adopters to programmatic, but they are now investing in automation and precision targeting to compete in the increasingly competitive media market. In addition, there is a push in TV to develop new platforms for automated buying, and to optimise cross-platform measurement and currency.

“Digital inventory also presents exciting possibilities for automation across new channels and in emerging markets.”

Digital inventory also presents exciting possibilities for automation across new channels and in emerging markets. Programmatic Audio is becoming increasingly important in marketers' programmatic budgets, and the demand for premium audio inventory is only getting louder.

Audio inventory, which ranges from radio to subscription channels, is immersive, geographically targeted, and with more than half of all media time in the UK being spent on mobile devices, it has impressive reach. Already, Spotify engages 100 million users; Pandora does the same with 77.9 million. Podcasts have also seen a significant spike, with 4.7 million adults in the UK listening to podcasts⁴.

In another sector, Digital Out of Home (DOOH) inventory is revolutionising signage in public spaces with the introduction of real-time screens, and live-data feeds in city centres, bus stops, and places of mass transit. The DOOH market encapsulates everything from digital billboards to screens in elevators, to screens on jukeboxes.

Incredibly, according to PwC⁵, DOOH advertising will overtake traditional OOH for the first time this year in the UK. According to eMarketer⁶, DOOH ads traded programmatically are expected to grow at the same rate as ads that are traded programmatically online. DOOH is also forecast to account for nearly half of the total UK OOH market share. The emergence of VIOOH this year, pronounced "view," also heralds a new era for programmatic, allowing for the automation of DOOH transactions in one programmatic buy.

Interestingly, automation is also becoming more targeted and data-driven. AI has a role to play here.

While it's still early days, when programmatic advertising is AI, AI has the power to optimise real-time bidding by allowing for intelligent decision making. Emerging intelligent software is programmed to process bids, sort data and predict conversions without the need for human input. Marketers are now using AI to improve ad performance, and this is a harbinger of things to come.

Overall, with the myriad of formats, channels and platforms becoming increasingly available, digital advertising inventory is extending the standard definitions of display, mobile and video. Automation continues to benefit advertisers because it means targeted messaging, and the delivery of the right product to the right consumer, at exactly the right time. For investors and stakeholders, automation offers the opportunity to maximize profit and multiply market cap. For consumers hungry for relevant content, automated ad buying promises to continue to fuel the sharing of targeted media across platforms as never before.

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Dynamic Ad Serving

Do Androids Click on Dynamic Banner Ads?

Written by Erika Soliven
Product Marketing Manager, dunnhumby media

If we've evolved from Mad Men to Math Men, what's to become of advertising in the distant future? An advertisement that is a living and breathing algorithm so in tune with the customer's needs and interests, that it materialises at the likeliest time with personalised creative, thus enticing a purchase while reinforcing brand affinity?

Allow my imagination to get the best of me, and I'm picturing the consumer of the future alongside androids, representing aspirational lifestyles. Examples of futuristic advertising might have the android within the advert, moving as dynamically as the flow of data.

An upcoming birthday party against budget constraints? And I see the android's image within an advert wearing a carousel of party dresses all well within their price range.

How about a favourite new recipe with consideration for dietary requirements? Then, the android is seen cooking step-by-step, with carefully selected gluten-free ingredients.

A last-minute business trip amidst a marathon-training plan? This advert features running routes stemming from the hotel, accompanied by tunes from a new recording artist intended to last the distance of the run.

While we might be several lightyears away from weighing up Philip K Dick's question, *Do Androids Dream of Electric Sheep?* (in a world that was later re-imagined as *Bladerunner*), the idea that information is digested in order to serve up a personalised, dynamic ad is very much within our scope—our current and future reality.

Dynamic creative optimisation (DCO) is the use of programmatic technologies to automatically optimise the elements appearing in a digital display banner. Examples of these elements, that can be optimised on a per-user-basis, include products and offers, call-to-action, promotions and discounts. The colours or placement of button. The carousel of party dresses. The last available seat on a flight, at its current price. Accessories to complement the item you just purchased.

These elements draw from information ranging anywhere from a customer's diverse transactional information (e.g. past-purchase history, abandoned baskets, product returns, loyalty programme participation) to other data assets, such as product feeds or insights from A/B testing.

Advertisers are already leveraging this technology in tandem with programmatic buying across publisher inventory, however, where Dynamic Creative Optimisation still has potential for growth is across a retailer's own media inventory.

Consider the likes of Tesco, Amazon or eBay. Their websites offer space for brands to take advantage of being featured more prominently as media banners, recommended items, favourite products, and more. In many instances, built-in algorithms serve up products most likely to be purchased based on the customer's shopping behaviour on said retailer's site, whether online only or in addition to in-store.

Imagine, then, a dynamic creative conjuring up elements from not only a customer's in-store purchases synced with their online browsing and buying, but also about a brand's product availability in the nearest store or warehouse?



Brands would unlock another granular level of targeting with the retailer breaking into the publisher's frontier.

A retailer's online site can be a breeding ground for customer insights. Retailers featuring content like recipes, fitness tips and seasonal fashion trends have an understanding of their customer's interests and can segment accordingly.

As a customer, I might be scrolling through my favourite fashion retailer's latest campaign and the story behind it. Today, retailers already provide customers with extra content (more reason to linger on-site). But in a future, that's a hot minute away, this fashion retailer might be working with my favourite brands to dynamically serve up a media banner displaying accessories to accompany a recently purchased dress, drawing in from other information such as: which content I engaged with the most, my average basket order, my nearest store or warehouse or seasonal trends.

When data such as trends or content is combined with actual purchases, advertisers are presented with a rich and credible foundation to power their campaigns with granular targeting capability and accuracy. This data helps brands to make informed strategic investments into specific customer segments.

Again, this isn't prophetic talk, but the marriage of science and creative to deliver this is still in its honeymoon phase, existing only on traditional publisher inventory, as an unappealing retargeting template, or as a not-so-personalised message. When A+ creative services are blended in with data mix, we move closer to a powerful combination of a granular level of targeting offered by science, and the brand affinity delivered by the creative message.

What could be more crucial than certainty? The added element of creativity. Math Men or Mad Men, advertising still relies on creative skills to reach customers with a specified marketing message. Whether the data and the algorithm arrive as a shape-shifting android, as the creative brief itself, or as a dynamically served advert, science and creatives provide an exciting space for brand and retailer to explore innovation together.

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“Math Men or Mad Men, advertising still relies on creative skills to reach customers with a specified marketing message.”

Digital Measurement

Sizing up your
advertising spend

Written by Virginia Falcón
Measurement & Attribution Lead
Google

The internet has changed where people buy, how they buy and also how they interact with products. For example, in the past two years, mobile searches for 'best toothbrush' have doubled.

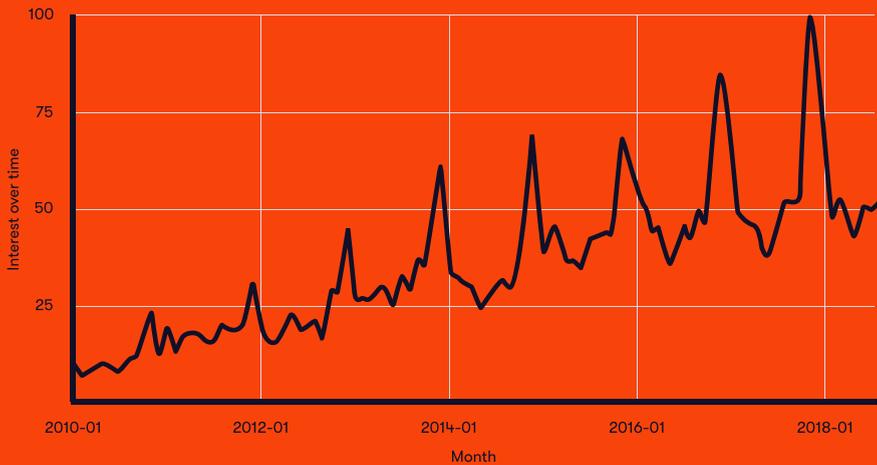


Figure 1. Monthly searches for 'Best Toothbrush' in the UK

Let's reflect on that figure. 10 years ago, a retailer would worry where to place its stores, what would be the right categories to carry and within a category finding the best product mix for its target shoppers at the right price. With consumers growing more curious, demanding and impatient than ever, retailers still need to answer all these questions but also need to follow their customers' increasingly complex journeys to both generate and capture as much of the demand as possible.

In this context, marketers are hard pressed to demonstrate the impact of their investment and how they're influencing business outcomes. Return on Investment (ROI) is often used to evaluate and compare investments. To this end, multiple tools are used by marketers to measure the impact of digital advertising.

Looking back at sales data and building regression models to explain changes and meaningful correlations with marketing spend, distribution, pricing, promotions as well as external factors like weather or inflation is one way to go about it in a top-down approach. These are commonly known as Marketing Mix Models (MMMs), or an application of Econometrics, and have traditionally been the bedrock of ROI measurement of media. The availability of Electronic Point of Sale (EPOS) data is an innovation that has allowed these techniques to flourish. Such models are now even able to bring in intermediate outcomes, such as changes in brand perception, web visits or registrations, and even footfall data. In this way they can understand the role of media in the path to purchase.

Digital media has allowed businesses to produce and capture an almost infinite amount of additional data points. Impressions, clicks, conversions, cookies, sessions... all of these can be tracked at an extremely granular level and help inform marketing spend. Attribution models look at how online revenue can be traced back to individual actions. The amount of data available combined with a new increase in sophistication of the techniques to process data (Machine Learning) have made them incredibly useful for day-to-day decision making in a way that simply wasn't possible before. Based on the digital path a consumer has followed, an attribution model can now predict not only how likely that person would be to convert or the average value of a conversion but also by aggregating the data one could look at how many

conversions had the same touchpoint in their journey to convert. We could then use them to value the contribution of a given touchpoint/channel by aggregating in a bottom-up approach.

Yet an attribution model would only have a partial view of a customer as it looks predominantly at the digital world or a set of channels. Also, while someone may have been exposed to an ad and later bought something, it doesn't explain whether that person bought it because of the ad. In other words, it doesn't prove whether that return was incremental.

Lastly, instead of looking back at what happened at a macro or micro level, one could answer the question by designing a controlled experiment. Test and Control measurement has

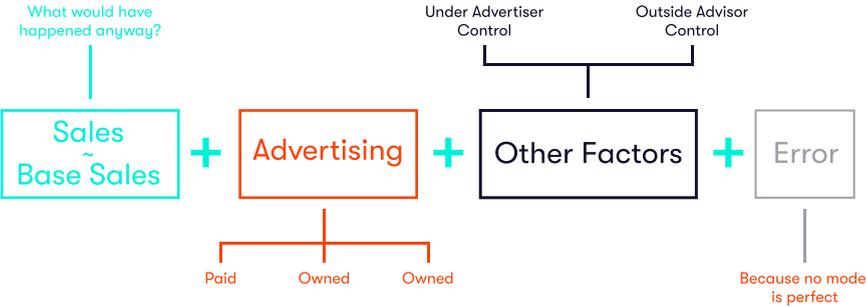


Figure 2. Marketing Mix Model illustration

been widely used to measure business impact. Especially for retailers with a large store footprint, it makes sense to test in a limited number of stores/regions prior to rolling out any strategy. Designing experiments to measure the impact of digital media requires identifying individual users across channels and devices (as to know who is part of the test and control as they surf the web or visit shops) or to understand travel patterns and digital media consumption in order to break down test and control geographically. Both of these methods are used today and allow for an ROI measurement that is consistent with how marketers measure other investments. They establish a causal relationship between spend and return, which is the gold standard in measurement.

One can only test for one or few variables at once, which limits the amount of questions and channels that can be tested simultaneously. They can also disrupt business performance as one needs to artificially hold back a set of users or regions to conduct an experiment.

All three methods covered have their own set of advantages and limitations. Sophisticated businesses rely on them, often a combination of the three, to maximise the returns on their marketing expenditure. Going forward the market is coming up with innovative solutions bringing all of these methods closer together to give a fuller picture of the effectiveness of marketing.

With email



Without email



Figure 3. Attribution model illustration

Attribution models are bridging the gap with the offline world in new ways by incorporating location signals to understand physical consumer journeys as well as merging with the retailers' Customer Relationship Management (CRM) systems and loyalty data. Once there's sufficient coverage of offline signals within attribution models, one could think about experiments being run on an ongoing basis to look at incremental sales. MMMs are also starting to incorporate more variables that reflect the granularity of digital campaigns to better understand the role of individual digital channels. For example, a UK retailer recently learnt from an MMM that the ROI in-store from mobile search was 10x the online return. We could also use experiments, especially those built at regional level, to introduce additional variability to econometric modelling which should help more accurately depict returns from digital media.

Change will surely continue to be a constant in the years to come as well as a laser focus on profit. Understanding business outcomes driven by marketing investment is paramount and we're certainly going to see further sophistication and more intensive use of these methods alongside each other. They will be used to measure short-term impact in performance but also more nuanced questions such as long-term impact of brand advertising, effectiveness of creatives or understanding diminishing returns of marketing spend by channel.

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The Internet of Things
Blockchain
Machine Learning
Voice Technology

02

Tomorrow's Tech, Today

The Internet of Things

The Home of the Future

Written by Elena Corchero
Futurist, Unruly

Increased sales of connected household appliances and smart speakers, like Alexa, are seeing homes become smarter. Intel estimates¹ that the IoT will increase from 2 billion internet connected devices worldwide in 2006 to 200 billion by 2020.

The Here and Now

Imagine you live in the home of the future. A voice-activated coffee maker provides that all important caffeine fix. Need to plan your morning? Just ask your home AI to make sure the trains are running smoothly for your commute and check which meetings are scheduled in for the day. Quickly voice-shop some groceries, schedule same day delivery with Amazon Prime. As you leave the house, adjust the heating using your phone and remotely start the dishwasher and washer dryer.

While you're at work, a doorbell app alerts you that a courier has arrived with your delivery. Trips to the dreaded Royal Mail Collection Office to collect deliveries are a thing of the past now you're able to open the door using your phone and instruct the courier to leave the package in the kitchen. A camera app lets you know when they've gone and you secure the door.

As you head back home in the evening, you can plan dinner by checking what's in the fridge using its internal camera and set up that perfect relaxing welcome with your favourite digital art on the TV. As you get in the door, making dinner is simply a case of voice-commanding your connected oven.

Sounds like science fiction? Far from it. The connected home is already here: Siemens² and Samsung³ have a suite of connected devices; Niiio⁴ provides digital art on demand and Fridgecam⁵ allows you to remotely check your fridge; Ring⁶ and August⁷ provide smart security and Hive⁸ allows you to control your home environment, and of course Google and Amazon have voice assistants to help you access information, services and online retailers. All these products are available right now.

The Future

A recent Unruly study (Clarity and Trust: consumers want it, have you got it? - June 2018) asked consumers how comfortable they were with different types of data they were sharing – with ‘biometric data’ scoring the highest for consumers in US (37%), UK (32%), Australia (29%), Singapore (37%), India (54%), Japan (40%) and Germany (24%). This trend will only continue to grow, enabled by devices like Nokia Sleep (which tracks sleep cycle analysis and heart rate), or activity levels on smartwatches, like Nokia HR Steel watch⁹.

Rapid advancements in machine learning¹⁰, (the ability for a computer to ‘learn’), Artificial Intelligence (AI)¹¹ and Voice tech¹² see today’s Voice Assistant become tomorrow’s Virtual Butler. (I call it our Voice Avatar (VA), much like that portrayed by the voice of Scarlett Johansson, in Spike Jonze’s 2013 sci-fi drama, ‘Her’). This will soon to be accompanied by a digital companion, with a human form, like Siren¹³. A host of AIs will communicate with our central home AI, (possibly Alexa, Google Assistant or Siri), to manage our routine and everyday tasks.

“Through increased use, your AI learns to play only messages that you find useful, according to your criteria of preferences”

Appliances will order their own service and repairs, services like Whisk¹⁴ can shop for groceries and assistants like Google Duplex or Clara Labs¹⁵ can sort out work and life admin.

The Implications and Opportunities

Brands and publishers need to start thinking about how they can provide services, not just products. Say you’re planning dinner and your AI suggests a dish based on your fridge contents. You may be missing some of the ingredients, and at that moment it plays an offer message for those missing items, on behalf of Tesco.

Through increased use, your AI learns to play only those messages that you find useful, according to your criteria of preferences. If you want to buy only organic products, then your AI will bring only those offers to your attention.

As appliances get smarter, brands can generate value from the trust they’ve spent years developing through partnerships with device manufacturers. For example, the Baby Mode feature in Nokia’s Body+ scales¹⁶ enables a parent to weigh their baby, in their arms. Once they get a built-in microphone, parents could ask the scales what sort of food would be good at a baby’s certain age. Perhaps that’s when Nokia provides trusted information in partnership with a baby food brand.

The Benefits

Big Data¹⁷ provides huge benefits to advertisers. Adtech companies like Unruly use data sets¹⁸ to target the distribution of video advertisements; helping brands to reach those consumers most likely to purchase their products and services.

The amount of data in the Digital Universe will increase from 4.4ZB in 2013, to 44ZB, by 2020. Voice Shopping is set to increase from \$2 Billion across the US and UK in 2018, to \$40 Billion+ by 2022¹⁹. These exponential increases in data, voice and IoT usher, what we at Unruly have coined, 'The Ambient Era of Advertising'; enabling brands to share personalised messages with consumers, at the precise moment they want them.

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Blockchain

Can it Save Digital Advertising?

Written by Brian Fitzpatrick
GM EMEA, IPONWEB

If you're confused by the term blockchain, or rather the technology it represents, or perhaps just the omnipresence of the term in ad industry trade publications, or at ad and media conferences, you're probably not alone. The Guardian heralded Blockchain as the buzzword of 2018¹, and, according to a survey from the World Federation of Advertisers, more than 60% of brand marketers consider blockchain a priority for 2018². So, what exactly is blockchain, and why all the hype in media and ad tech conversations?

Blockchain is perhaps best known as the technology that powers popular cryptocurrency, Bitcoin. Because Bitcoin is a virtual currency (i.e. not cash money), it risks easy digital counterfeit. As an immutable, distributed ledger, blockchain allows for the transfer of bitcoin between parties without risk of leakage to middlemen or fraudulent duplication by bad actors. In other words, it creates a simple transcript that can't be altered, verifying the integrity of the transaction and the parties involved.

With words like middlemen and fraud being tossed around, it's not difficult to see why blockchain has made its way more recently into digital advertising conversations. The rise of programmatic buying channels and technology have introduced some opaqueness into the digital media supply chain. In some instances, a not-always-disclosed list of intermediaries are taking not-always-disclosed fees away from media owners and an array of complicated reselling arrangements have popped up with some leading to increased fraud and brand safety concerns. Programmatic is screaming out for a solution like blockchain.

But is blockchain ready to handle the needs of programmatic?

Blockchain: Not Ready for Real Time?

Blockchain, in its earliest incarnations, was designed to handle only a few transactions per second. Bitcoin, for instance, handled only 10 transactions per second (TPS) at its inception. More recent solutions from big names like Microsoft, Intel, and IBM, have sped this up dramatically to anywhere between 1,600 TPS and 3,500 TPS (for comparison, VISA can process at 24,000 TPS).

These numbers are still orders of magnitude slower than what's needed to handle even the smallest real-time ad marketplaces, much less the leading platforms, which can process in excess of 5 million transactions per second. Because of this, any "pure" real-time blockchain solutions for RTB seem not quite ready for primetime. There is hope, however; some of the latest developments in blockchain, like Ternio's Lexicon framework, can potentially support over 1 million TPS. We should also assume that, as in all things computing-based, the technology will catch up to the need. It's just a matter of when, and if we will have found a better solution by then.

Activation Requires Standards and Scale

Though interest in blockchain solutions is high among marketers, only 1% of companies have invested and deployed a blockchain solution according to recent Gartner research³. For blockchain to work at scale it requires a predominance of players in the supply chain to record their transactions using a core set of standards and widely adopted blockchain protocol. All of this needs to happen in an industry that's still bickering over viewability standards and how to measure whether or not an ad was shown. For blockchain to ever become standard across the supply chain will likely require brands implementing the solution and forcing it down to their various partners.

Current Applications for Blockchain

With blockchain not yet up to the task of recording and validating the full media chain, some innovative start-ups are finding novel applications alongside the current media buying process, including campaign reconciliation, value chain tracking, and fraud detection.

Other applications of blockchain technology focus on single point solutions that look to solve specific, real-world problems. For example, NYIAX built a blockchain media exchange to trade digital inventory futures, similar to the upfronts buying process in television. Rebel AI is another solution that is focused on eliminating domain spoofing by using blockchain to verify ad transactions.

What these companies show is that in its current state, blockchain is potentially better suited to automate areas of media trading that are not real-time, like digital out-of-home. In *Blockchain for Video Advertising: A Market Snapshot of Publisher and Buyer Use Cases*⁴, the IAB US suggested that blockchain might also be a better solution for something like OTT, which requires far lower queries per second than digital display. It also puts forward that 2018 will largely be about developing prototypes for applying blockchain to digital advertising issues, with 2019 being the year for potentially more widespread adoption and implementation.

The Future for Blockchain

Looking forward, some of the more transformative applications of blockchain may be those that are built to support its native capabilities, such as the distributed and “trustless” business models within a blockchain ecosystem and programmable transactions known as smart contracts. Both of which are opening new opportunities and trading efficiencies that current programmatic approaches lack. Ultimately, the promise of blockchain technology is to restore trust and transparency to the sometimes frustratingly (at least to marketers, agencies, and media owners) opaque programmatic buying landscape. For blockchain to succeed, however, requires greater participation and cooperation from players across the ecosystem, many of whom will need to redefine their role and value proposition in this new paradigm.

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Machine Learning

How Intelligent is Artificial Intelligence?

Written by Dale Lovell
Co-Founder, Chief Marketing & Partnerships Officer
ADYOULIKE

“AI is one of the most important things humanity is working on. It is more profound than electricity or fire...We have learned to harness fire for the benefits of humanity but we had to overcome its downsides too.....AI is really important, but we have to be concerned about it.”
Sundar Pichai, CEO, Google¹.

While science fiction often portrays AI as robots with human-like characteristics, AI can encompass anything from Google’s search algorithms to IBM’s Watson, to autonomous weapons. Everyone is excited about AI, and

everyone has a view on AI. AI is no longer the preserve of an Alex Garland screenplay, it’s a reality and being used in multiple ways.

We have personal assistants in our pockets and on our desks. Automated factories and self-driving cars being tested daily. Many governments and agencies around the world are researching AI and pouring billions into funding. Many scientists believe that once this lofty goal has been reached, these machines will have similar survival drives as we do.

“Within the next decade, machines might well be able to diagnose patients with the learned expertise of not just one doctor but thousands”

Artificial intelligence powers online algorithms that determine your social news feed and make digital assistants like Siri and Alexa so useful.

Areas of development for the advertising industry include advertising automation and optimisation, chat bots for service and assisting in sales. The Trade Desk brings AI to ad tech to optimise online media buys. Programmatic platforms are increasing their use of AI and machine learning to determine which impressions they're likely to win and should avoid bidding on to reduce their infrastructure costs.

Technology provides a means by which we can know ourselves better and cater to our human behaviour with a greater degree of precision. Many businesses are eager to bring AI capabilities to their organisation. IDC research shows that by 2021, vendor revenue from cognitive software and cognitive server infrastructure will grow to \$10 billion².

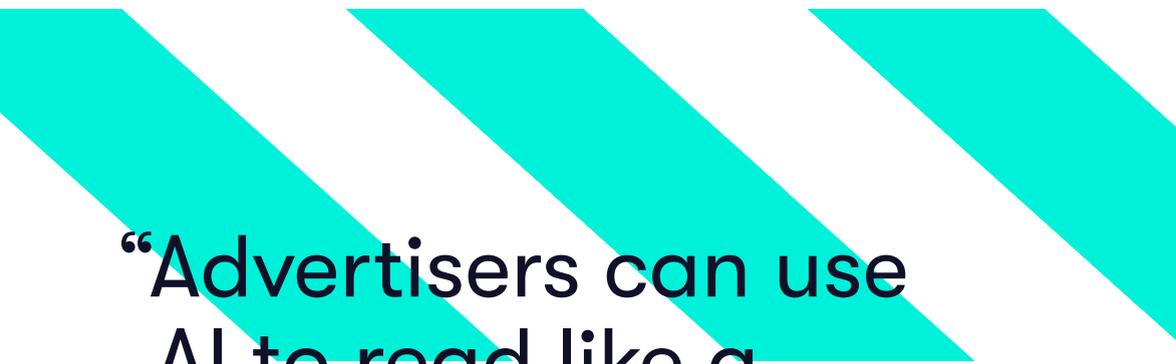
Within the next decade, machines might well be able to diagnose patients with the learned expertise of not just one doctor but thousands, they might make jury recommendations based on vast datasets of legal decisions and complex regulations. Self-driving cars will probably be more widely adopted by 2021, and in the years leading up to 2030, self-driving and remotely controlled delivery vehicles and flying vehicles will most probably be making their debut.

Channel 4 have recently revealed the world's first AI driven TV advertising technology³, that enables the broadcaster to place a brand's ads next to relevant scenes in a linear TV show, will be tested later this year. Over the next ten years, deep learning algorithms will make our current technology much more sophisticated. For example, advertisers will benefit from consumers using visual search to discover products and complete purchases with speed and ease.

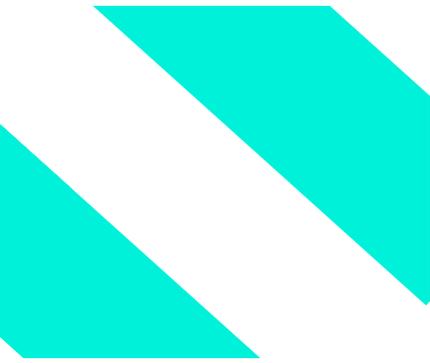
The ability to incorporate AI has been a tremendous addition to the advertising industry, especially with its ability to curtail some of our biggest issues, like ad fraud and brand safety.

Demand Side Platforms (DSPs) have begun to leverage AI to reduce infrastructure costs. With the advents of header bidding and server-side ad insertion (SSAI), DSPs must evaluate more impressions than ever before and infrastructure costs have skyrocketed as a result. By trimming out opportunities they are unlikely to win, DSPs can avoid bidding and reduce their infrastructure costs.

Native Advertising companies in the industry, such as ADYOUNLIKE, are integrating software such as IBM's Watson artificial intelligence to create vastly powerful semantic targeting, providing a wealth of contextual data that examines not just what a publisher is writing about, but why.



“Advertisers can use AI to read like a person, which really gives them the ability to match audience members, content and ads, with deep native advertising benefiting the consumer as they are served more relevant content.”



AI has also had a part to play in content creation. The Institute of Electrical and Electronics Engineers (IEEE) reports that the Associated Press, Fox News and Yahoo! are using AI to construct data-driven stories such as financial summaries and sports score recaps⁴.

Advertisers can use AI to read like a person, which really gives them the ability to match audience members, content and ads, with deep native advertising benefiting the consumer as they are served more relevant content.

AI helps advertisers do the heavy lifting, which gives advertisers more time to work on creative in the long run. Soon we'll see fewer wasted impressions with ads that are more targeted and focused, leading to better campaign results.

Through using artificial intelligence, the hope is consumers will be served ads they are actually interested in. Consumers also benefit from more enhanced interaction with brands, making it easier for them to get what they want, when they want, through improved consumer interaction and as a result, user interfaces should become more effortless.

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Voice Technology

How Advertisers Can Find Their Voice

Written by Anna-Lena Mikoteit
Head of Advertising Product Strategy
Bauer Media Group

As humans, speech is a natural form of communication. Despite this, digital technology often involves scrolling, swiping and typing on a variety of light emitting screens.

However, the age of voice is upon us and technology is finally unlocking the incredible power of speech through the development of voice activated devices. Voice recognition technology [VRT] is defined as 'Technology that allows a computer to recognise different spoken words', be it through recognition of words themselves or the context in which they are spoken. Breakthrough technology, such as smart speakers, are already becoming a part of a consumer's daily life. Amazon's smart speaker, Echo was the best selling product across all categories on Amazon during Christmas 2017 and total smart speaker sales continued to grow by 210% in Q1 2018¹.

Voice technology is becoming widely adopted within our daily routines which means brands need to find a smart and relevant way to be a part of this digital audio evolution.

For successful digital audio brands, this means having a deeper understanding of their audiences, and in particular, when and where they are listening in order to deliver the best possible content experience.

“Brands should have a recognisable and unique audio identity that is delivered across all relevant communications. In the era of smart speakers, this could include brands developing their own literal spoken voice.”

Innovations available in the market, such as Bauer’s logged in listening product InStream and Global’s DAX, are changing the way brands can advertise. InStream, for example, offers advertisers the ability to create personalised audio messages that are adapted to device, location and demographic. It is this pairing of audience and market insights that creates stand out audio advertising experiences and, for advertisers, this means more engaged end users.

In response to voice technology and a greater reliance on sound, audio branding is a huge area of growth. Highly engaging brand experiences such as the partnership between Estee Lauder and Google Home², which features a beauty assistant, gives customers a deeper and more personalised experience.

However, audio branding can and should work on a much more fundamental level as well. Brands should have

a recognisable and unique audio identity that is delivered across all relevant communications. In the era of smart speakers, this could include brands developing their own literal spoken voice.

Voice technology will not only shape the way we deliver audio advertising, but also how consumers are able to respond. Voice responsive advertisements (technology that lets listeners of a digital audio advertisement respond directly via voice) is already making its way to the market and is likely to be introduced to the UK by 2019. The key is to find the balance between advancements in new technology and creating a user experience that consumers feel comfortable with.

Other ‘response innovations’, such as shaking your mobile to trigger an action from an advertisement, have increased response rates as consumers are given the choice to respond in a

way that is seamless. The same might be seen with the introduction of voice responsive advertisements, especially considering people will be able to respond even when they are not able to use their hands – “Alexa, add to basket please!”.

The future of voice technology is really exciting and constantly evolving. For example, Google has just introduced Duplex³, a system that combines VRT with Artificial Intelligence (AI) allowing for conversational understanding and new use cases such as the delegation of day to day tasks. Another example is Amazon’s Auto Software Development Kit (SDK), which enables developers to create Alexa skills specifically designed for cars. Looking further to the future, AI and voice technology will have the ability to control our cars.

As with every new advertising and technology advancement, we have to be on the front foot of innovation to create advertising experiences that will engage and delight consumers in the most positive and relevant way. It is about using advances in technology to give your brand a stand out voice in an increasingly loud environment.

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Virtual Reality
Augmented Reality
Sensory Advertising
Personalised Products

03

Keeping

it

Un-Real

Virtual Reality

A Journey of
Expectation
Management

Written by
Reda Borchardt
CTO, Inskin Media

The innovation trigger for the current Virtual Reality (VR) hype cycle can be attributed to a single young man named Palmer Luckey. As an early backer of his Kickstarter campaign, I was fortunate enough to receive my first Oculus Rift Development Kit 1 in 2013. I have been hooked to VR ever since, both as a developer and as a consumer.

A look at Google trends clearly shows that the peak of inflated expectations was reached around the end of 2016. VR is currently facing some challenges on its path to mass adoption and the consensus in the industry is that it will take somewhere between 5 to 15 years for this nascent space to go mainstream.

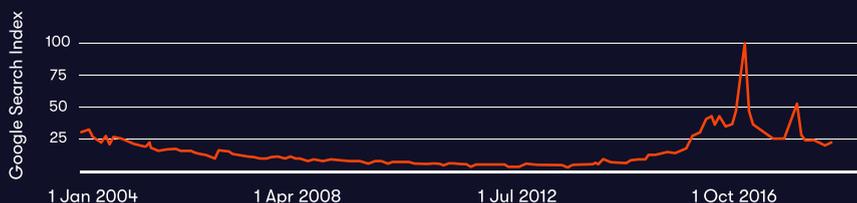


Figure 1.

To truly understand how immersive and fantastical VR can really be, I highly recommend a trip to a local virtual reality arcade to experience the best of what this technology has to offer. Ideally in a group, because virtual reality is at its best when experienced with friends and colleagues. Once you experience what is referred to as Social VR, you will immediately understand why Facebook acquired Oculus VR for more than two billion dollars. The sensation of being able to see each other's virtual self, point at each other and interact with the environment is a magical experience. The implications of how VR will enrich the way we interact with each other at a distance are profound.

To experience the best of what VR has to offer at home is something that is reserved for the techno elite. Aside from being expensive, it's also cumbersome and tedious. Anybody that has unpacked the 19 different parts that come with a HTC Vive can sing a song about it. This pursuit is also exhausting: think Wii Sports and Dance Dance Revolution while sweating inside a contraption on your head with dangling cables and you get the idea.

VR for Brands

My advice for brands who wish to transport consumers into a totally immersive world, with full locomotion and a feel of physical presence, is to fully control the environment, and provide aid and guidance. To make VR work at the highest level of immersion precision is of the utmost importance. The sensations felt inside a VR environment are so convincing and powerful that the slightest miscalibration will lead to virtual reality sickness. Let's be clear, cybersickness is not just a little discomforting. The most common symptoms are general discomfort, headache, stomach awareness, nausea, vomiting, pallor, sweating, fatigue, drowsiness, disorientation, and apathy. I have personally seen people have their entire day ruined by wearing an uncalibrated system on their head for less than a minute. Vertigo and claustrophobia are factors that need to be considered in this new medium.

'VR Best Practices'¹ published by Oculus is a great guide for creative people and content developers before starting with concept or storyboard work. The more you experiment with VR the more you will realise that it's the small magical moments you experience that are the most memorable, rather than the Michael Bay-type experiences.



“Brands need to set realistic targets and learn how to tell stories, educate and engage users using snackable content that is at most 15 minutes in length.”

The Sweet Spot

The opposite end of the vast VR spectrum is currently where the sweet spot lies for the delivery of brand experiences to a broader consumer base. I would describe it as storytelling with light interaction, for example, the driving experience of Volvo's V40 campaign². If you remove many of the variables that can lead to discomfort and technical challenges, you end up with what can be referred to as 360 environments or videos. Right now, these non-photorealistic experiences with limited locomotion and limited sense of presence are the ones that will run the most reliably on WebVR browsers, high-end mobile phones and different VR platforms, all of which are important for campaign penetration.

However, don't be fooled into thinking that a simple 360 video will do. I recommend having a look at vr.google.com and specifically the Jump platform for content creation. VR content creation is tricky, and I won't bore you with the details. However, to give you an example, consider that your skull is shaped so that your eyes aren't above the centre of your neck. When you rotate your head, your eyes don't rotate like a gimbal. Instead, they orbit around a point in space. If this isn't taken into consideration throughout the entire asset creation and rendering pipeline, it will create distortion and discomfort.

This is a highly experimental space where the rules haven't been written yet. Brands need to set realistic targets and learn how to tell stories, educate and engage users using snackable content that is at most 15 minutes in length. Tyler Keenan's article entitled "4 Things You Should Know Before Developing a VR Experience"³ is a good starting point for any brand considering entering the VR space.

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Augmented

Reality

Changing Reality for the Better?

Written by Jeremy Pounder
Futures Director, Mindshare

Augmented Reality (AR) is the technology that allows virtual objects to be added to the physical world by overlaying them on our field of vision, typically by looking through a mobile phone camera.

It is often grouped together with Virtual Reality (VR) (where users are fully immersed in simulated surroundings) under the term 'immersive computing'. There is great excitement about immersive computing in the tech community with many seeing it as the next great platform for innovation.

Google, and particularly Apple, are betting heavily on its potential, releasing developer kits for iOS and Android (ARKit2 and AR Core) in the past 12 months which are acting as catalysts for AR innovation. Tim Cook, Apple CEO has said "I think AR is big and profound. This is one of those huge things that we'll look back at and marvel at the start of it."

AR is being used in many ways. Much of the focus to date has been on delivering 'surprise and delight' experiences, or small moments of playfulness for consumers to engage with. This is epitomised by the highest reaching AR experiences to date – Snap Lenses, Facebook and Instagram filters and AR games (most famously Pokémon Go).

Retailers and beauty brands have been using AR to enable consumers to visualise how products look and facilitate choices (the Ikea Place app is the most recognised example of this). FMCG and food and drink brands are increasingly creating AR experiences delivered through connected packaging that enable consumers to get more out of the product itself, for example through recipes.

AR experiences are becoming increasingly accessible to consumers through a range of mechanisms – native brand apps (such as Ikea Place); social platform apps (e.g. Snap Lenses, Facebook news feed ads); AR platform apps (e.g. Shazam, Zappar); image recognition tools (e.g. Google Lens, Blippar); web AR delivered through the browser (e.g. Google WebXR, Oath).

We are going to see much wider usage of direct purchase from an AR experience. This is in its infancy today (e.g. Snap's launch of Shoppable AR earlier this year) but is likely to prove attractive to both advertisers and consumers, enabling swifter and easier purchase journeys.

Currently, most AR content is user initiated – for example, the scanning of a code to trigger the experience. It is likely that in the future AR content will be 'surfaced' proactively, with automated suggestions for content of interest as we navigate the physical world. For example, Google Lens using image recognition to identify and highlight places the user might be interested in when scanning a high street.

At some point over the next five years we will see the launch of AR eyewear, which will enable the concept of 'surfacing' to come to fruition. AR headsets are seen as the next computing platform beyond the mobile phone. In 2016, Citibank forecast that AR headset sales would begin to replace those of smartphones from 2025 onwards¹, with this vision driven by the long-term investment in AR from Apple in particular.

“Increasingly,
AR will enable
advertisers to go
beyond ‘surprise
and delight’
engagement
and also offer
practical utility”

For advertisers, AR offers a highly engaging way to reach consumers. Mindshare Futures' Layered study² ran a neuroscience experiment with Neuro-Insight and found that AR experiences were twice as engaging and 70% more memorable than equivalent non AR experiences.

Increasingly, AR will enable advertisers to go beyond 'surprise and delight' engagement and also offer practical utility (e.g. how-to visualisations triggered from the product itself).

The advertising industry will need to think how physical surfaces (e.g. packaging, in store environments) can be used as jumping off points for an experience that blends the digital and physical. This is a huge opportunity for enhancing the value of conventional 2D physical touchpoints.

For advertisers, the key benefits of AR are its ability to deliver highly emotionally engaging experiences which are also memorable. Increasingly AR has the flexibility to work for advertisers right across the consumer journey; boosting consideration through brand engagement, helping consumers evaluate product options, providing a moment of purchase and finally offering post-purchase experiences for consumers to get the most from the product.

For consumers, the biggest benefit is that AR can be a much more enjoyable and fun way to interact with content or access information than more conventional digital experiences (i.e. text, static images, video).

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Sensory Advertising

See, Hear and Breathe it

Written by Caroline Moffat
Digital Development Director, Starcom

We are living in world cluttered with advertising and one which is dominated by digital devices - sensory advertising will therefore be vital in attracting attention of consumers. Sensory advertising uses any of the five senses (taste, sight, touch, smell and sound) to communicate key messages to people. By engaging with people's senses, brands are more likely to capture their attention, encoding the advertising message within their memory - a lot of this happens subconsciously.

Research has been undertaken to understand how this actually works, Rezonance¹ worked with Neuro-Insight and found that through their interactive format which uses sight and touch to select an answer linked to the advertising video or image, people's brain activity surpassed the threshold required for significant memory encoding. They compared this to that of an MPU which didn't meet the threshold and this was reflected in the lower ad recall.

There is a wide range of advertising opportunities that currently exist that make use of our senses across a range of media channels. I'm just going to touch on a few examples to hopefully trigger some ideas on how you can incorporate this into your brand's advertising behaviour.

Sight

Brands are constantly finding new ways to use visual cues to capture attention. Some new examples include lights on bus panels which are simple but effective, especially in Winter. 360 video is an exciting way that gives users access to new content. Samsung were the first brand to take advantage of this new format to highlight its partnership with the England Rugby Team. They created a series of short videos entitled "The Samsung School of Rugby," which made use of the gyroscope in mobile devices to change the viewpoint on 360° video, offering users a panoramic view of the action from angles which wouldn't be have been seen before.

In OOH advertising channels, bespoke special builds are also possible, for example, Heinz created the UK's largest steaming billboard for its range of Taste of Home hearty soups to entice hungry commuters during cold winter months.

Exciting things can be done using augmented and virtual reality and these are covered in more detail in an earlier chapter.

Touch

Newsworks² ran some research and found that when people touch ads, it improves brand perceptions and increases purchase consideration. Mobile and tablet devices allow people to touch and interact with ads easily. Display interactive formats exist in which people tap or swipe on the ad, such as quizzes, product hotspots etc. Interactive mobile video ad formats are also becoming more common ranging from the interactive end card which can house additional content, the use of vibrating haptic technology that can be synced to key moments of the video or call to action to draw the user's attention, to more sophisticated formats in which you can actually interact with the video content – an example of this could be a car racing that fills the screen with dust and you can wipe this away using your finger on the screen. When you offer the chance for people to interact in an interesting way, they do so and spend additional time with your brand than they would watching a standard video or seeing a display ad.

Smell

Sense of smell has shown to be most powerful of the senses when it comes to evoking memories. A study³ by the Rockefeller University, New York found that people remember 35% of what they smell and only 5% of what they see. Scented print ads are available and Fiat 500 ran mint scented ads during London Fashion Week promoting their Smooth Mint range.

OOH is also starting to incorporate scent into posters, through infusing them with oil. A wide range of scents can be chosen to best reflect the brand message from strawberry to evoke memories of summer to lavender to trigger a feeling of calm and relaxation.

“A study by the Rockefeller University, New York found that people remember 35% of what they smell and only 5% of what they see.”

Sound

Interestingly there is an opportunity to use sensory cues at point of purchase through owned media. Visa have started to explore this through the use of a bespoke sound and haptic vibrations when a payment is made on mobile. This development was triggered by the increase in the use of mobile payments in which the Visa logo isn't as noticeable which was a vital brand touchpoint. They therefore undertook research⁴ to understand the physical reaction of consumers by employing such cues and found that:

- 81% of study participants would have more positive perceptions of merchants using sound or animation cue.
- 83% of respondents agreed the sound or animation positively impacted their perception of Visa's brand.
- Using haptic technology in advertising can provoke feelings of "happiness" and "excitement".

New opportunities will continue to arise in this space and I urge brands to take advantage of these exciting developments as lots of research exists to show that they do actually work and can now be done at scale rather than just a one-off PR exercise. Consumers are embracing this new method of advertising in a positive way as long as it is not intrusive, for example, ensure that scented OOH posters aren't too strong or sickly. Test different things to understand what works and what is relevant for your brand and audience and it will allow you to really stand out against competitors to ensure that it's your brand that people remember.

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Personalised Products

The Next Big Disruptor?

Written by Sakshi Dewan
Digital Strategy Director, PHD Media

Data is everywhere. That Instagram post of your morning latte, the holiday you booked online, driving your car to work, that card tap to buy lunch at Pret and watching your favourite show on Netflix – all little data signals building a digital footprint.

Marketers already harness this data to deliver personalised advertising to consumers. Studies¹ show that consumers prefer it. I for one was happy to see an ad for a bank holiday getaway deal after spending hours unsuccessfully looking for one. It makes sense for advertisers too, a McKinsey study² found that personalisation can deliver 5 to 8 times greater ROI and boost sales by at least 10% (I did book that weekend getaway!). Thanks to the ubiquity of data and rising consumer expectations, personalisation is the future. Not just personalised advertising, but also personalised products.

Personalised products are not a new idea. In the 90s, I got my mum a mug with her name on it as a special Mother's Day present. It required considerable effort and a substantial chunk of my savings but was worth it. Today, however, the scale and sophistication with which we can personalise products has improved significantly. You don't need to go to the printers to get your mum a personalised bottle of Coca Cola³, you'll likely find it in the super-market aisle.

Many brands offer personalised products to their consumers as a means of self-expression. NIKEiD custom shoes and trainers are very popular. My husband owns a pair with very questionable aesthetics, but he loves it. It's not hard to understand why. Being able to create something that is uniquely your own, creates a much stronger emotional connection with the product and the brand.

Brands are going beyond self-expression to offer real utility that is customised to your needs. Spotify playlists for example are personalised based on your music preference. Amazon targets new parents with baby products based on their shopping behaviour. NakedWines allows you to buy wines and rate them online and gives you personalised picks and recommendations based on your specific tastes.

“Bio signals will bring a new level of sophistication to product personalisation. This will revolutionise established industries like Health and Beauty, Food and Fashion. Imagine Deliveroo 2.0 – food created and delivered specifically for you, using your DNA signals, so it tastes good and is healthy for you”.

A new wave of personalised products based on individual data signals are getting a lot of attention. Function of Beauty sells personalised haircare products and are challenging established FMCG brands. They use a proprietary algorithm developed by world-class MIT engineers and data scientists, that pull from hundreds of ingredients to potentially create billions of completely unique shampoo and conditioner combinations based on individual needs.

This is all very sophisticated, but product personalisation is still in its infancy. We're reaching an inflection point though. Two key market forces will make product personalisation the next big disrupter.

Rapid advancement in technology will be a key catalyst for product personalisation. Most data signals today come from our use of digital devices that capture our behaviour and indicate our needs and preferences. There is another data stream that is fast emerging. “Bio signals” will be data signals about the state of our body – it's unique condition and requirements. Wearable tech is the start of monitoring these bio signals, but the possibilities are immense. The increasingly popular online DNA kits provide a glimpse into the sort of tracking that will become ubiquitous in this space.

‘Bio signals’ will bring a new level of sophistication to product personalisation. This will revolutionise established industries like Health and Beauty, Food and Fashion. Imagine Deliveroo 2.0 – food created and delivered specifically for you, using your DNA signals, so it tastes good and is healthy for you.

Digital commerce and 3D printing will bring down the costs of product personalisation and create scale.

Another big factor is changing consumer expectations. The digital consumer is empowered and expects the best products and services at low prices. As brands get increasingly commoditised, personalisation will offer differentiation and a way of building an emotional connection with customers.

Product personalisation is fast emerging as a big disrupter. Businesses like Function of Beauty are already challenging the status quo, much like Uber and AirBnB. As technology and data signals advance, the scale and sophistication of product personalisation will grow. This will create a range of benefits for consumers beyond self-expression. Personalised products will offer utility, convenience, well-being and ultimately self-improvement by harnessing sophisticated data. This creates a big opportunity for brands to differentiate themselves in a commoditised marketplace and to create loyalty by building emotional connections with customers.

Personalised products are the future and one that brands must embrace.

P.S. If you haven't tried a DNA test kit yet, you'd be amazed at how simple, convenient and affordable it is. I was pretty amazed!

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New Ways to Search
Digital OOH
Micro Media Owners
New Value Exchanges

04

Channel Evolution

New Ways to Search

Finding More Answers

Written by Paul Kasamias
Managing Partner, Starcom

How often do you use a keyboard? Your phone has a touchscreen keyboard that disappears when not in use, you might use a tablet or a smart watch, neither of which has a keyboard. Over time, technology is evolving away from keyboards and as such search is becoming 'keywordless'.

We speak 3x faster than we type¹ and the human brain understands images instantly. In fact, humans are biologically wired to process the world visually. Technology is opening up ways to search without keywords, through voice, images and even codes. Currently, 10% of UK households own at least one smart speaker device² (like Alexa or Google Home) and with the high penetration of smartphones with voice capabilities as well, it is predicted that 50% of searches will be through voice by 2020³.

New Ways to Word Search

C Q A I P P I B H H
P G T U R R Q I B A
C S T Z O O X O I V
I V R L G X Y M F W
U C I D R I K E Q F
H T B Y A M A T X C
Y M U N M I B R Z F
Q O T A M T O I J G
E D I M A Y M C E G
X D O I T L J S C Z
T Q N C I H R G T H
L I C C C Y U K T P
N O A R R M G U D D
P F C E C V Q B U Y
W V G A Z H O X Q M
K I M T T H X Y Z F
E K W I C I Y T A D
S C G V I O O K R G
S B Q E L S L N V F
I M P L I C I T B S

Can you find these hidden words?

Attribution
Biometrics
Implicit
Location

Dynamic Creative
Programmatic
Proximity

Although there is no advertising opportunity yet for voice searches and Google do not currently share data for percentage of searches from voice search in reporting, brands should start to build their audio identity and understand the key searches users might make where they want to build visibility: whether it's location-based ("where is my nearest...?"), informational ("how do I...?") or action-led ("I want to buy a..."). There is also opportunity to develop skills and actions for devices like Alexa and Google Home, and this can be a method to provide a regular vocalised service to customers. In the future, the "middle-man" of a voice device could erode relationships between businesses and their customers or voice could become a powerful method of building a relationship with consumers, moving away from website-led corporate identities.

We are seeing increasingly more devices becoming voice activated such as automobiles, mirrors⁴, TVs and vacuum cleaners and as this technology becomes more prevalent, human behaviour to speak to technology will increase.

Similarly, having a smartphone in our pockets which is also a powerful camera has led to increasing visual communication – some people chat only in emoji! The attention span of a human has dropped to 8s⁵, which is less than a goldfish and since our brains process images faster than text, getting a message across by image is faster and easier. Search engines like Google, Bing and Baidu, as well as Pinterest and shopping sites like ASOS, H&M and eBay, now allow users to search via image. This is possible due to significant advances in visual recognition technology where error rate has now dropped lower than human vision rate⁶.

Data from the US shows that 27% of searches were visual in 2017⁷ and there are more image results in Google search results pages than ever⁸. Another visual search platform is Pinterest, where all the results are images and the launch of their Pinterest Lens in 2017 has led to now 600 million visual searches being conducted monthly⁹. Showing a search engine something is much easier than describing it and the results are becoming increasingly accurate – especially when looking for a product or a specific brand. The applications for retail are very apparent: entering the purchase cycle with an image search removes multiple steps to find the product and brings the user closer to conversion. Therefore, advertisers should work to improve image search within their web inventory and build visibility in relevant visual search results. Outside of retail, there is an opportunity for advertisers to build associations with trending visual searches.

We are moving towards a world where the point of sale is increasingly rapid and frictionless, from self-serve checkouts and contactless payments to same day delivery and shoppable ads. The evolution of search to become keywordless is also a symptom of this: search faster and quicker and receive relevant results more concisely through voice and visuals.

Search is still about discovery. The entry points for search are diversifying and the way a user searches has implications for advertisers:

- Voice searches are more likely to have action intent – a user may use voice search due to their hands being occupied or in order to get to the answer faster.
- Voice search only presents one answer (on devices without screens): this presents the opportunity for authority and ownership.
- A high proportion of visual searches are product-led and conversion rate when visual searching is 8-13% higher¹⁰.

In all cases, search is becoming quicker from an input and output perspective. Advertisers need to embrace this changing search behaviour to deliver on what their customers want.

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“The evolution of search to become keywordless is also a symptom of this: search faster and quicker and receive relevant results more concisely through voice and visuals.”

Digital OOH

The best of
best worlds?

Written by Harriet Swinburn
Account Director, Posterscope

In out-of-home (OOH) the potential of digital is everything, but not yet is everything digital. 2018 is the turning point for digital out-of-home (DOOH) with it set to reach 50% of total OOH spend for the first time¹.

The digitisation of out-of-home is accelerating at pace, accounting for a greater and greater percentage of infrastructure, largely due to sustained media owner investment. Over the past year digital inventory has increased by 29%².

Within planning, for the majority of cases DOOH is still used in conjunction with static outdoor formats to ensure the perfect mix of reach, relevancy and location flexibility. Each format performs different functions: while static formats broadcast a consistent message, providing large cover for a campaign, digital adds a premium or personalised dynamic element.

Digital is key to delivering engaging and targeted campaigns. The rapid progression of digital transformation, alongside the new data and technological advancements, will allow DOOH to increasingly connect with our always-on consumer.

62% of the nation now sees DOOH every week¹, therefore this presents a scaled platform of opportunity for innovation. Improvements in data, technology and creativity will mean the medium continues to grow and integrate with our increasingly media convergent world for some of the following reasons.

“This is a great opportunity for advertisers to create deeper connections with their audience”

Creativity – Dynamic and Engaging

DOOH has never been more flexible and relevant with the capability to now dynamically ad-serve. Neuroscience research conducted by Neuro-Insight UK in association with Ocean Outdoor has found that DOOH improves people's visual attention, memory encoding, desirability and emotional intensity, and currently many advertisers are using the medium to great creative effect³.

DOOH affords advertisers the opportunity to schedule relevant creative based on a range of triggers, this could be anything from weather to news events and traffic conditions. Numerous studies have shown that the more relevant and contextual an advertising message is, the more it resonates with an audience. This is particularly true for DOOH, where 87% of UK adults say they are interested in seeing messages on DOOH screens that are contextually relevant to them in some way⁴.

This is a great opportunity for advertisers to create deeper connections with their audience. Key findings from theoretical VirtuoCity Research⁵ into the effectiveness of the 'dynamic difference' showed that using dynamic DOOH to deliver a more contextually relevant message increased: advertising awareness by 18%, recall of the specific creative message by 53% and creative/brand perceptions by 11%.

Location data – from 2-Week In-Charge to Hourly Optimised

DOOH is also well placed to provide contextual advertising messages in locations and environments relevant to a consumer. This is particularly pertinent as we know 74% of UK adults say they are interested in seeing messages relevant to their location on DOOH screens.

The breadth of data that the OOH industry is now embracing compliments traditional OOH audience measurement. Behavioural data can tell us a lot about people and places, from where people are browsing websites, to places where people frequently spend time.

This in turn is increasing the understanding of consumer behaviours and allowing DOOH across-the-board to offer significantly higher levels of unique targeting and therefore a more effective advertising platform for clients.

Traditionally location data has been used to influence site selection, however with our increased understanding of people and places, DOOH is now in the perfect position to ingest this data. Scheduling relevant content at individual locations split by day part, hour or impression, based on the majority audience in that area is now possible.

“The age
of the
Internet of
Things is
upon us.”

DOOH at the Forefront of Innovation

DOOH is the lead medium on the high street, and therefore becomes part of people's lives. It's a medium that can't be turned off, and perfectly placed to take advantage of context, time of day and innovation. In addition to this, the perfect synergy between mobile, and the high prevalence of double screening, means innovation between mobile and OOH is developing at pace.

No other medium is seeing such a burst of innovation than OOH. Examples of this includes hyper local Wi-Fi content networks, beacon technology, dynamic content capabilities, screen interactivity, facial recognition technology and the ability to change on screen content from your mobile phone.

The next innovation for DOOH will come when the industry adopts programmatic as this will ensure greater planning and reporting effectiveness and efficiency, saving resources for advertisers.

Looking to the Future – A Piece of the Connected Puzzle

The biggest opportunity for DOOH lies in our future convergent smart cities. Consumers currently spend about 3.5 hours a day out-of-home⁶, and with this steadily increasing year-on-year it will become more imperative for DOOH to improve convergent communications in this connected world.

The age of the Internet of Things is upon us. Although not at the stage of mass scale productisation, many UK consumers are increasingly adopting wearables, switching on their mobile connectivity and expecting to have their online and offline world seamlessly linked.

Due to this improved 'digital connectivity,' the DOOH screen will improve communications with connected objects like mobiles and beacons. These connected objects are not only triggers for digital advertising messages, but they also provide insight and audience behaviour data to improve messaging and targeting of future campaigns.

The link between this dynamic content triggering and smart cities is clear – if DOOH can enhance the way people interact with cities then it's being used optimally.

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Micro
Media
Owners

A New Breed of Publisher

Written by
Lisa Targett, UK General Manager, TRIBE

The world's advertising is now being crafted by the very people it is intended to attract. The social media revolution has meant that everyday people with small but devoted audiences are generating branded content that challenges traditional media production. And they're part of a \$2bn industry¹.

Influencers with over 100k followers can earn more than £500 per post, according to TRIBE data. Even micro-influencers, with less than 30k followers earn between £100-£200 a post.

The average micro-influencer earns around £310 a month but could bring in up to £5000 a month depending on their social media presence.

These 'micro media owners' hold great sway over their audience as a trusted source of information and entertainment, usually around a niche subject, like a travel blog, fashion photography or exotic food creations. As brands have come to see the value in smaller followings, influencers have been able to monetise their audience.

What's Possible

Advances in technology have made influencer-specific platforms and apps more accessible to both brands and influencers. Whilst micro-influencers are providing the volume of content required for social campaigns, digital platforms are crucial in providing the speed and scale to make it a truly dynamic resource for brands.

New technology can also protect against one of the biggest plagues of the industry – influencer fraud. Tech platforms are built with algorithms that scan influencer accounts multiple times a day to detect fake followers, bot accounts and unusual account activity. This helps reassure brands that they're receiving genuine advocacy, reach and engagement.

Future Projections

Shoppable content is becoming a staple of social feeds across a number of platforms. It allows you to purchase the items featured in a post with a simple click-through tag. Fashion and cosmetics brands look to benefit greatly from this as it dramatically simplifies their path to purchase.

Upward Trends

The sheer volume of content we create every day is mind boggling. A trillion photos are being uploaded to social media every year – that means that every two minutes people take more photos than ever existed 150 years ago². There's also been a rise in video and motion content, which gets a much higher engagement from audiences and, in turn, delivers a 30-50% higher pay out to creative influencers³.

“Due to the rise of influencers, celebrities are no longer the go-to for brands looking for ambassadors.”

With brands always searching for new ways to capture eyeballs, platforms like Instagram will continue to introduce more creative formats that harness motion, such as boomerangs, cinemographs, stop motion, Instagram Stories and long-form video. Instagram Stories now boasts 400 million daily users⁴, and long-form video has been thrust into the spotlight with the recent launch of IGTV, Instagram’s sister platform.

Opportunity for Advertisers

The shift in advertising towards micro-influencers has changed the traditional buy-in costs of media. Gone are the days where mainstream media was the only option that big budgets demanded. With the introduction of micro-influencers, the buy-in price is much cheaper, allowing small businesses and independents to compete without breaking the bank.

Due to the rise of influencers, celebrities are no longer the go-to for brands looking for ambassadors. Campaigns featuring micro-influencers can hit the same reach as celebrity influencer posts. For example, 1 celebrity post with 1 million followers vs 100 micro-influencer posts with 10,000 followers would give a higher level of engagement and more pieces of content which can then be repurposed, all for a fraction of the price.

Increased investment in ad-distribution networks means that the big issue for brands is no longer where to place ads, but how to produce them. The demand for fresh creative is relentless and crowd-sourcing assets from the very customers you’re targeting is a cost effective, efficient way to meet this demand.

Benefits for Advertisers

User-generated content on Facebook drives nearly seven (6.9x) times higher engagement than brand-generated content.⁵ The return on investment of influencer marketing differs to that of performance marketing. The key benefits are around ad performance, word of mouth and operational ROI.

Cost per engagement on customer-generated content is far more effective than brand-generated content. This is because it generates genuine advocacy of the brand – it's a trusted source saying 'how great is this brand?' as opposed to the brand itself saying 'how great are we?'. Data also shows that the smaller the 'tribe', the more potent the influence. This became even greater after Instagram updated the algorithm that generates people's feeds; moving from a chronological time feed to one based on content deemed most relevant to you. This created an engagement uplift of 62% for influencers with followings of 3K-10K and 43% for followings of 10K-25⁷.

A clear value of influencer marketing with easy measurement is the speed and accessibility that micro media owners operate with. The simple nature of the transaction allows for low-cost, high-value output since engaged audiences have

never been easier to reach in a personalised manner. This provides a great platform for brand partnerships with influencers, many of whom develop professional relationships with brands they're already fans of.

Brands get the best results when the content is not just an influencer holding a product or telling their audience to pay for something that they got for free. Ultimately, if you're not willing to buy the product, you've no right to recommend your audience should.

In summary, the combination of people power and tech has led us to a tipping point for creative solutions. Hotel and taxi businesses have been disrupted by the mobilisation of their consumers, and the advertising industry is poised to follow suit⁸.

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Micro Influencers Generate Higher Engagement

FOLLOWERS	AVG. ENG	BEFORE	AFTER	
3k - 10k	5.71%	3.83%	6.22%	62%
10k - 25k	3.67%	2.83%	4.05%	43%
25k - 50k	2.32%	2.19%	2.39%	
50k - 100k	2.29%	2.05%	2.41%	
100k+	1.84%	1.85%	1.84%	

Data from 19,950 paid Instagram posts through TRIBE.

Figure 2

New Value Exchanges

Everyone's a winner?

Written by Andrea Tricoli,
Co-Founder & Director, Expressly

An Old Concept with New Life

"Advertising value exchange" is not a new concept. For a long time, consumers have paid attention to countless ads in exchange for free TV or radio programmes. It's not so different online; most digital publishers provide their content for free, financed by advertising. However, this model is increasingly in crisis. Advertisers have shifted their budgets to search and social channels, partly due to viewability and fraud issues, and user adoption of adblockers has reduced revenues for publishers.

Banking on continued interest in free content, many publishers have given users a positive choice. For example, mobile game publishers such as Rovio (Angry Birds) make selected in-app content unlockable for free by watching a video ad and Spotify allows users to access a sponsored ad-free 30min session by engaging with an advertiser's content. News sites such as Forbes or London's CityAM were among the first to discourage usage of adblockers¹, requiring users to whitelist them in exchange for access. With technology from companies such as Sourcepoint or Rezonence, publishers get users to engage with ads to unlock specific premium articles whilst other advertisers donate to charity if users watch a promotional video ad as in a recent Knorr campaign².

The expected benefits for all parties are clear: users access premium content for free, advertisers get their ads actively viewed, and publishers get revenues and establish a transparent relationship with users.

Beyond attention: User Data

Digital platforms such as Facebook and Google have extended the traditional value exchange to user and interest data; users enjoy their "free" services and the platforms extract value from advertising thanks to data-rich targeting. Unsurprisingly, advertisers are thirsty for data too. Looking to make the value exchange more explicit, they have also gone direct. Through platforms such as Swagbucks or People.io, they engage users with personal ads or with surveys, in exchange for monetary rewards. With Expressly's new advertising technology, advertisers can transform clicks from publishers into logged-in users, combining offers and extra convenience into the incentive behind the data exchange. In the case of the new Loomia token, consumers choose to add a small sensor to their clothes and digitally share usage data in exchange for vouchers from the same clothes brands.

“Will users actively choose to watch more ads to unlock more episodes of a show?”

Tomorrow, Everything is Digital

Traditional advertising is moving online with existing and new formats; Netflix, Prime Video, Roku are examples of thriving online TV platforms. They are starting to offer ad-sponsored content and are likely to experiment with interactive formats: will users actively choose to watch more ads to unlock more episodes of a show?

In the future, more goods and services are prone to contain ad-funded elements. Users may have the option to watch ads to get a discount on their taxi ride, or on the cost of their dishwasher. Already today, Amazon Fire tablets have discounted prices if users accept ads on the device screen when locked.

Privacy and Choice

Users have long been accustomed to the cost of giving their attention to advertising: their time. By sharing their data, they are accepting a new deal with brands and companies. Survey evidence suggests that users are in favour: 79% of consumers³ are willing to share personal data for “clear personal benefit”. Recent misuse of user data by companies⁴ and consequent public concerns are counter-balancing the benefit of free access to ad-funded services and content, with data privacy regulations such as GDPR getting stricter to protect worried consumers. The resulting balance will evolve over time; however, the interactive nature of digital media is giving users an active choice on when and how to engage, and advertisers a way to establish a relationship earlier in the journey.

Conclusion: Win-Win-Win Propositions Will Thrive

The online environment allows more complex and diverse value exchanges between users, advertisers, and publishers. The basic equation of content in exchange for attention extends both ways, with users able to offer their data, as well as their active participation, and advertisers offering direct incentives, as well as convenience and service. With digital media spaces extending to every aspect of our lives, the balance between benefits and costs, especially privacy loss, will define what value exchanges users will accept. One thing is certain: advertisers will succeed only if they are able to offer consumers a transparent exchange.

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Introduction

¹ IAB / PwC 2017 Digital Adspend Study

New Sources of Disruptive Data

New Sources of Disruptive Data: Getting Under the Skin of Advertising

¹ Stanovich, K E.; West, R F. (2000). "Individual difference in reasoning: implications for the rationality debate?". Behavioral and Brain Sciences. 23: 645–726. doi:10.1017/s0140525x00003435.

² Telegraph Roadshow (2018) "Mythbusting" Editorial & Experimental research, Facial Coding/GSR tracking across 'Words Chosen Well' brand campaign. 50 respondents from 14 agencies.

Automation: New Possibilities in Digital

¹ eMarketer, Programmatic Will Account for Three-Quarters of UK Digital Display Market Next Year, September 2016

² Statista, Digital Video Advertising Revenue Growth in the UK from 2017 to 2022, December 2017

³ eMarketer, Programmatic Will Account for Three-Quarters of UK Digital Display Market Next Year, September 2016

⁴ RAJAR, RAJAR Midas Audio Survey, Winter 2016

⁵ <https://www.pwc.co.uk/industries/entertainment-media/insights/entertainment-media-outlook.html>

⁶ eMarketer, UK Digital Out-of-Home Advertising: Growing Revenues and Growing Potential , November 2017

Tomorrow's Tech, Today

The Internet of Things: The Home of the Future

¹ <https://www.intel.com/content/www/us/en/internet-of-things/infographics/guide-to-iot.html>

² <https://www.siemens-home.bsh-group.com/uk/appliances/connected-appliances>

Appendix

³ <https://www.samsung.com/us/explore/the-frame/highlights/>

⁴ <https://www.niio.com/>

⁵ <https://smarter.am/fridgecam/>

⁶ <https://eu.ring.com/>

⁷ <https://august.com/keyless-entry/>

⁸ <https://www.hivehome.com/products/hive-view>

⁹ <https://health.nokia.com/eu/en/steel-hr>

¹⁰ https://en.wikipedia.org/wiki/Machine_learning

¹¹ https://en.wikipedia.org/wiki/Artificial_intelligence

¹² <https://www.forbes.com/sites/forbesagencycouncil/2018/06/06/five-ways-voice-technology-is-transforming-our-lives-and-businesses/#1100e6c01566>

¹³ <https://venturebeat.com/2018/03/21/epic-games-shows-off-amazing-real-time-digital-human-with-siren-demo/>

¹⁴ <https://my.whisk.com/feed>

¹⁵ <https://claralabs.com/>

¹⁶ <https://blog.health.nokia.com/blog/2017/04/18/introducing-baby-mode-a-new-way-to-weigh-your-baby/>

¹⁷ https://en.wikipedia.org/wiki/Big_data

¹⁸ https://en.wikipedia.org/wiki/Data_set

¹⁹ <https://www.emc.com/collateral/analyst-reports/idc-digital-universe-2014.pdf>

Blockchain: Can it Save Digital Advertising?

¹ <https://www.theguardian.com/technology/2018/jan/30/blockchain-buzzword-hype-open-source-ledger-bitcoin>

Appendix

² <https://www.emarketer.com/Chart/Priority-Level-Understanding-How-Blockchain-Could-Improve-Transparency-Reduce-Fraud-According-Advertisers-Worldwide-Dec-2017-of-respondents/216776>

³ <https://www.emarketer.com/Chart/Adoption-of-Blockchain-According-CIOs-Worldwide-June-2017-of-respondents/218890>

⁴ https://www.iab.com/wp-content/uploads/2018/02/Blockchain_for_Video_Advertising_Publisher-Buyer_Use_Cases_2018-02.pdf

Machine Learning: How Intelligent is Artificial Intelligence?

¹ <https://www.cnbc.com/2018/02/01/google-ceo-sundar-pichai-ai-is-more-important-than-fire-electricity.html>

² https://www.ibm.com/account/reg/uk-en/signup?formid=urx-33520&cm_mmc=Email_Nurture_-_Systems_Systems+++Power_-_IUK_IUK_-_PowerAI-Email-PTB4-button1-ov61663-UKI_ov61663&cm_mmca1=000032LA&cm_mmca2=10008054&cm_mmca3=M00024430&cvo_src=email.Nurture.M00024430&cvo_campaign=000032LA

³ <https://www.campaignlive.co.uk/article/channel-4-test-ai-powered-adtech-places-ads-within-shows-context/1486974>

⁴ <http://theinstitute.ieee.org/technology-topics/artificial-intelligence/how-artificial-intelligence-has-crept-into-our-everyday-lives>

Voice Technology: How Advertisers Can Find Their Voice

¹ <https://techcrunch.com/2017/12/26/the-echo-dot-was-the-best-selling-product-on-all-of-amazon-this-holiday-season/>

² <http://www.marketwired.com/press-release/estee-lauder-and-google-collaborate-on-voice-enabled-beauty-experiences-2241016.htm>

³ <https://mediatel.co.uk/newsline/2018/05/15/back-to-the-future-of-listening/>

Appendix

Keeping it Un-Real

Virtual Reality: A journey of expectation management

- ¹ <https://developer.oculus.com/design/latest/concepts/book-bp/>
- ² <https://medium.com/swlh/5-stunning-vr-marketing-campaigns-that-will-inspire-your-next-business-idea-4f8402598ce0>
- ³ <https://www.upwork.com/hiring/design/4-tips-developing-vr-experience/>

Augmented Reality: Changing reality for the better?

- ¹ <https://www.citibank.com/commercialbank/insights/assets/docs/virtual-and-augmented-reality.pdf>
- ² <https://www.mindshareworld.com/uk/layered-future-augmented-reality>

Sensory Advertising: See, hear and breathe it

- ¹ <https://rezonance.com/#/>
- ² <https://www.newsworks.org.uk/Platforms/Touching-is-believing/75580>
- ³ https://www.warc.com/content/paywall/article/event-reports/visa_taps_the_power_of_sensory_branding/122861

Personalised Products: The Next Big Disruptor?

- ¹ <http://www.bandt.com.au/technology/study-two-thirds-millennials-receptive-ai-advertising>
- ² <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/ebook-big-data-analytics-and-the-future-of-marketing--sales>
- ³ <https://www.coca-cola.co.uk/stories/share-a-coke>

Channel Evolution

New Ways to Search: Finding more answers

- ¹ Sherry Ruan, et al, August 2016. <https://arxiv.org/abs/1608.07323>

Appendix

² YouGov, April 2018.

³ comScore, 2017.

⁴ <https://www.forbes.com/sites/katiebaron/2018/06/07/ambient-tech-that-actually-works-hm-launches-a-voice-activated-mirror/#22eb08024463>

⁵ <https://www.statisticbrain.com/attention-span-statistics/>

⁶ <https://arxiv.org/abs/1501.02876>

⁷ <https://moz.com/blog/state-of-searcher-behavior-revealed>

⁸ <https://moz.com/mozcast/features>

⁹ <https://newsroom.pinterest.com/en/post/celebrating-one-year-of-pinterest-lens>

¹⁰ <https://www.syte.ai/blog/visual-search-disrupting-online-retail-industry/>

Digital OOH

¹ PwC, UK entertainment and media sector to grow by £8bn over the next four years, June 2018, <https://www.pwc.co.uk/industries/entertainment-media/insights/entertainment-media-outlook.html>

² Route, Digital Out Of Home – A State of the Nation Digital OOH, <http://route.org.uk/digital-out-of-home-a-state-of-the-nation/>

³ Ocean Outdoor in association with Neuro-Insight UK, Neuroscience Research, <https://oceanoutdoor.com/neuroscience/>

⁴ Research Live, Posterscope Fuses Route With OCS, March 2018, <https://www.research-live.com/article/news/posterscope-fuses-route-with-ocs/id/5035222>

⁵ Posterscope, VirtuoCity Dynamic Difference Research, <http://www.mrg.org.uk/downloads/Posterscope.pdf>

⁶ The IPA, TouchPoints, November 2017, <http://www.mrg.org.uk/downloads/TouchPoints.pdf>

Appendix

Micro Media Owners: A New Breed of Publisher

- ¹ MediaKix: 'Instagram influences marketing is a \$1billion industry', May 2017, <http://mediakix.com/2017/03/instagram-influencer-marketing-industry-size-how-big>
- ² Mary Meeker's annual Internet Trends report in 2014, <https://www.kleinerperkins.com/perspectives/2014-internet-trends>
- ³ As per TRIBE data.
- ⁴ Business Insider: 'Instagram's Stories feature is now twice as big as Snapchat, with 400 millions daily users.' <https://www.businessinsider.com.au/instagram-stories-400-million-daily-active-users-snapchat-2018-6?r=US&IR=T>.
- ⁵ Facebook UGC Benchmark Report 2017
- ⁶ <https://www.statista.com/statistics/273717/global-internet-advertising-expenditure/>
- ⁷ Data from 19,950 paid Instagram posts through TRIBE
- ⁸ Mary Meeker's annual Internet Trends report in 2014, <https://www.kleinerperkins.com/perspectives/2014-internet-trends>

New Value Exchanges: Everyone's a winner?

- ¹ Digiday, City AM becomes first UK publisher to ban ad blockers (Oct 2015), <https://digiday.com/uk/city-becomes-first-uk-publisher-ban-ad-blockers/>
- ² UKFundraising, Knorr video adverts to generate free donations to three charities (Apr 2018), https://fundraising.co.uk/2018/04/09/knorr-video-adverts-generate-free-donations-three-charities/#.W5_RzP5KjBI
- ³ Deloitte University Press, To share or not to share (Sep 2017), https://www2.deloitte.com/content/dam/insights/us/articles/4020_To-share-or-not-to-share/DUP_To-share-or-not-to-share.pdf
- ⁴ Wikipedia, Facebook-Cambridge Analytica Scandal, https://en.wikipedia.org/wiki/Facebook%E2%80%93Cambridge_Analytica_data_scandal

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