



**1 PREDICTING OUR NEEDS**

**2 SPEED IS THE NEW BLACK**

**3 ALWAYS-ON INSIGHTS**

**4 CROSS-DEVICE STORYTELLING**

**5 SHOPPABLE CONTENT**

**6 SMART VR**

**7 THE RISE OF THE CHATBOT**

**8 PLAYING TO OUR EMOTIONS**

**9 DYNAMIC PRICING**

**10 AUTOMATED ASSISTANCE**

# METHODOLOGY

Zenith followed a three-step approach to curating the 2017 Trends:

## 1. ASSESSING HOW TRENDS EVOLVED

We studied how new technologies will interact with existing technologies to predict the impact on brands, consumers, and the media and entertainment industry. Where appropriate, we brought back trends from previous reports, once they had hit tipping point or promised new value. We looked ahead to predict which consumer segments will be most affected by the trend, how it will evolve, and identified brands that are leading the way.

## 2. IDENTIFYING THE NEEDS, WANTS AND BEHAVIOURS OF PROGRESSIVE CONSUMERS

We looked to both millennials and generation Z to provide signals on what is new and what is changing. They are the early adopters of new technology.

Millennials – those born after 1982 – are adept at making the most of technology to create a world of difference for themselves. Technology has given them the freedom to redefine the way they work, play, shop and to take control of their daily activities. Their dependence on their smartphones and other new technologies sets their expectations for how they want to engage with brands.

Generation Z – defined loosely as those born after the late 1990s – are the first true digital native generation, and are the native speakers of the digital language of computers, video games and the internet. With the

oldest members of this cohort barely out of high school, the tweens and teens of today are primed to become the dominant youth influencers of tomorrow.

## 3. MAPPING THE TRENDS TO THE CONSUMER JOURNEY

As part of our analysis, we assessed what opportunities the latest trends present for enhancing user experiences along the consumer journey.

With such a rigorous approach to identifying and applying our trends, we believe this report will be invaluable in helping brands to better achieve their marketing goals and deliver better return on investment.

# INTRODUCTION

Our ten trends for 2017 are really all aspects of a single macro-trend – the rise of artificial intelligence (AI). AI has existed for more than half a century, undergoing several periods of hype and disappointment, but several factors have now converged to bring AI back to the forefront of research, promising to fundamentally change how we live and the way businesses work. AI can provide businesses with better-informed decisions to drive top-line growth, deliver meaningful experiences for consumers and smooth their path along the consumer journey.

Artificial intelligence is a topic that creates confusion and excitement in equal measure. The widely understood definition of AI involves the ability of machines or computers to emulate human thinking, reasoning and decision-making. A Narrative Science study in 2015 identified that AI was being used primarily in voice recognition, machine learning, virtual assistants and decision support. In most cases these applications were directed towards the automation of repetitive or menial tasks. This study also highlighted the many branches of AI, and that techniques and their definitions are being used interchangeably. One of the most common techniques is machine learning, where algorithms are used to perform tasks by learning from historical data. Another growing branch of AI is natural language processing, where machines interpret human or natural language as opposed to computer code. This technique is already heavily used in search engines but is now being used to mine very large datasets and to interpret spoken or printed words. This branch of AI is vital for allowing non-specialists to make use of the wealth of possibilities offered by AI.

As an industry AI is dominated by technology giants such as IBM, Facebook, Microsoft, Apple and Google. IBM has deployed AI solutions in 45 countries and 20 different sectors. Market research firm Tractica estimates that annual AI revenues will reach \$36 billion by 2025 from \$1 billion in 2015.

Consumers want a relationship with technology that is conversational, personalised and contextual – an experience that fits seamlessly within their everyday lives. Millennials and generation Z are dependent on their smartphones to organise and manage their lives, and these smartphones are becoming more powerful and personal. New technologies such as the Internet of Everything are transforming the smartphone into a gateway.

Advances in cloud computing, chip technology and high-speed data-manipulation techniques – often open source – have now given us the technology to unlock the power and insight that big data has promised to provide.

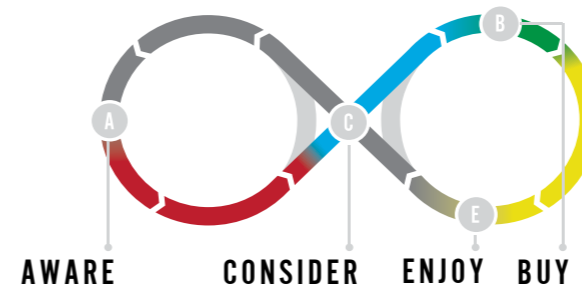
Our 2017 report provides valuable insights into advances in AI and the trends that will influence the consumer journey. We have also interviewed AI experts on how these trends can change the way we work and better engage with our consumers.

As a business, we are investing in AI talent and technology and believe it will have a dramatic effect on our industry and the solutions we bring to our clients.

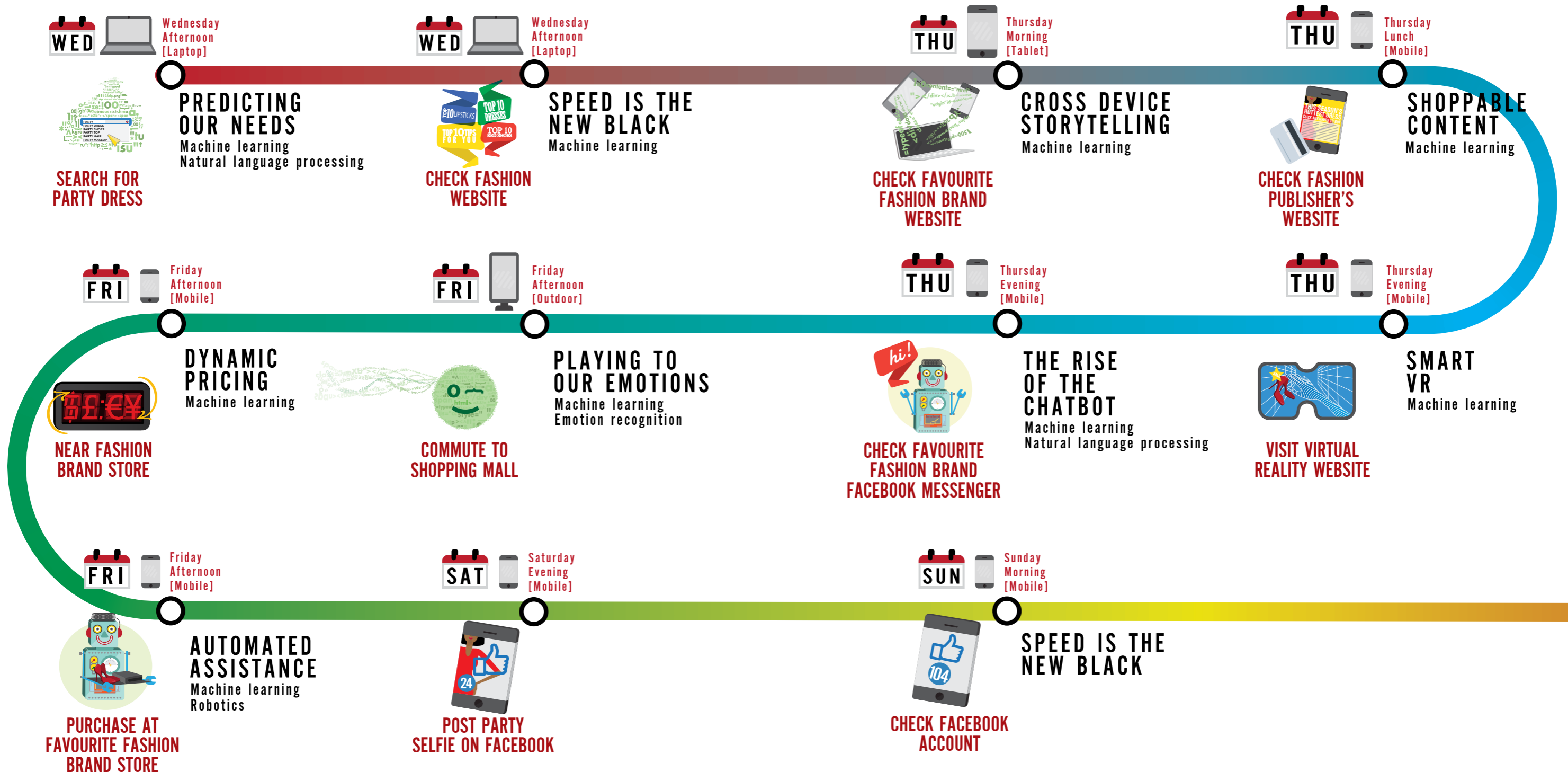
# THE AI POWERED CONSUMER JOURNEY

## SHOPPING FOR A PARTY DRESS

### ZENITH'S CONSUMER JOURNEY



To help you understand how AI technologies power the consumer journey, we have mapped out where these trends and the embedded AI technologies fit into the consumer journey of our hero Linda, who is shopping for a party dress. Zenith believes the consumer journey is not linear but an endless loop, so we have colour-coded the shopping experience according to our consumer journey loop.





# SPEED IS THE NEW BLACK

## TURBO-CHARGING THE DELIVERY OF TREND CONTENT

According to IBM, 90% of the data that exists today has been created in the last two years. This huge explosion of data gives brands the opportunity to quickly spot and react to the latest trends, fashions and fads among its customers and potential customers. This will allow companies to better engage with younger consumers, who gain influence with their peers by displaying their access to the latest trends, and use the brands they associate with to help define who they are as individuals.

The spread of digital media – and social media in particular – means that consumer trends and fashions can spread more rapidly and more widely than ever before. Brands have to identify and make use of them before consumers move on, but the vast quantity of data available makes this a resource-intensive task.

Machine learning can streamline the process, by digesting data from a variety of sources to identify the underlying patterns. Humans will still need to interpret and explain the trends, but they will be able to concentrate on responding to the trends instead of the drudge work of finding out what they are.

For example Lesara, a Berlin-based online clothes store, uses machine learning to inform its product

decisions after gathering information from internal and external sources. One of its most popular products – shoes with LEDs – started life when its trend-spotting software flagged up a blogger wearing similar shoes. Now Lesara has a range of over 20 styles and sells hundreds of pairs a day. Its focus on giving consumers the very latest trends allows Lesara to develop an average of 50,000 new items each year, compared to 11,000 for its competitor Zara.

Netflix uses data on the viewing habits of its 86 million subscribers not just to recommend titles they will find most interesting, but also to decide which new shows it will put into production, based on how popular it calculates they will be.

The amount of data generated online will continue to grow, and so marketers will need more help from artificial intelligence in making sense of it. This will also give them the ability to spot trends earlier and take advantage of them while they remain fresh.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TREND?

This trend enables brands to stay ahead of the trend curve and to use fast-turnaround insights to inform product development and logistics. There is a great opportunity to stay ahead of the competition by setting trends and constantly surprising consumers with new products and designs.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

The identification of underlying patterns from an increasing pool of real-time data will create enormous opportunities for content specialists to create stories and pools of assets that can be easily and quickly adapted. This speed of insight delivery will also create opportunities for product development teams, enabling them to stay on top of the latest category demands. If we look at the cosmetics category, brands will use the trends to build products and stories that they will be confident are most likely to resonate with consumers. In grocery retail, brands will stock and advertise products in anticipation of consumer demand rather than once trends become evident.



# ALWAYS-ON INSIGHTS

## NON-STOP DATA COLLECTION THROUGH THE PASSIVE USER INTERFACE

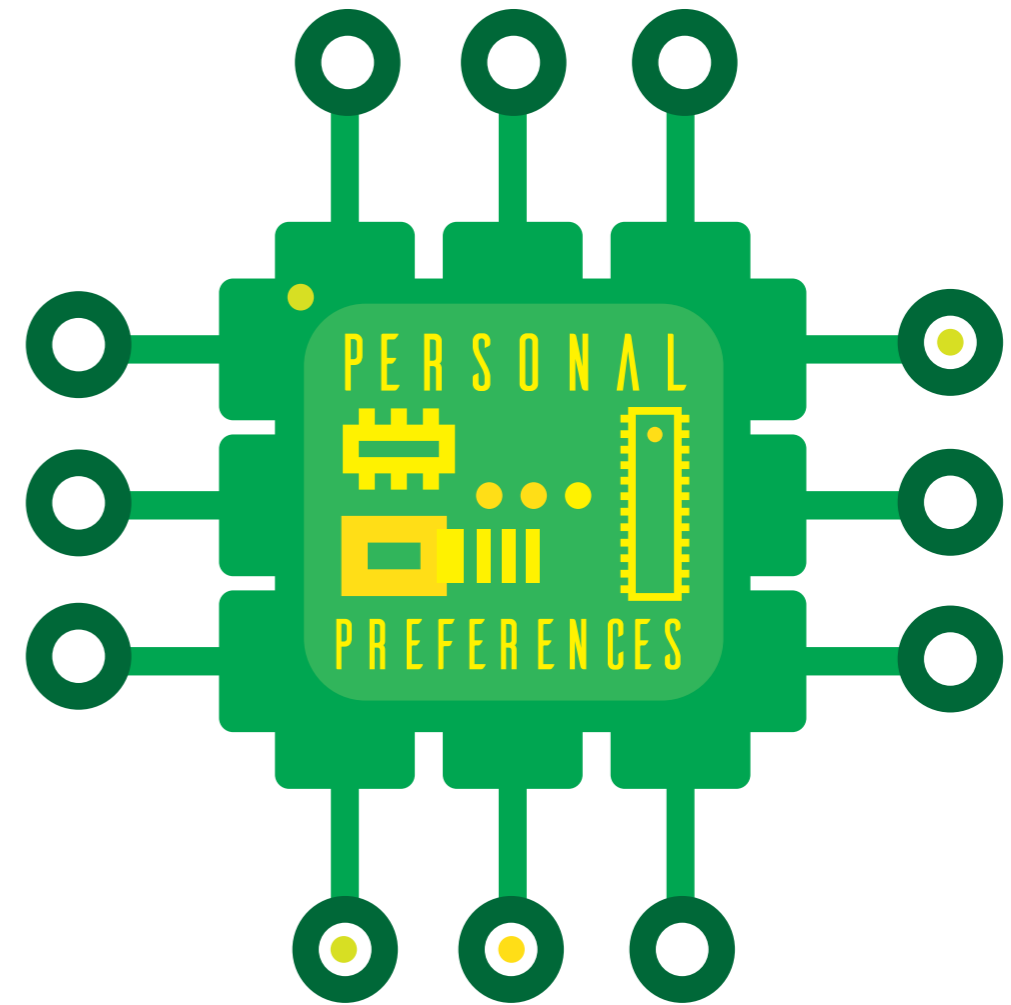
The passive user interface continually collects information about consumers' behaviour and uses it to gain additional understanding of them through machine learning. It is done passively, by collecting data in the background, and can give brands the ability to customise the consumer's user experience. This will make the experience more enjoyable for consumers, and allow advertisers to deliver them more relevant messages by understanding the context of the experience.

The rise of always-on insights has been driven by the rapid spread of internet-enabled devices. According to Adobe Digital Index, the average internet user in Europe has 6.1 such devices, and millennials have nearly seven. Many of these devices passively collect and distribute information about consumers' actual behaviour, and the number of devices that do this will increase throughout 2017, as more consumers demand connectivity as standard on consumer electronics.

A wide variety of brands already collect this data. Spotify's running platform – released in 2015 – uses data from fitness trackers to customise its playlist to the user's performance by machine learning. The Aviva Drive app passively monitors a user's driving, and after 200 miles allocates a score based on their ability, which can save them up to £150 on their car insurance. Panasonic and Allianz have collaborated to produce a home sensing kit and app that notifies the

user whenever one of the sensors placed around their home (such as a window sensor or motion detector) is activated.

There is a huge wealth of data available to brands – so much that brands risk paralysis with indecision if they do not have a clear end-goal in mind. Brands should also consider where this data fits into their wider eco-system of information, and whether it should be collected by their own branded devices or software, or through partnerships with other brands. Most importantly of all, brands should respect an individual's privacy and the permissions they have granted.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TREND?

The passive user interface will enable brands to better understand consumers' usage of brand apps. In turn, this will help them to design personalised content and services and to set appropriate pricing strategies enabling consumers to pay in accordance with usage. In the future, with high adoption of Internet of Things, brands can also understand how their products and services are used alongside others. There is also great opportunity for brands to collaborate across categories in order to design personalised services, or in the future even to cross-sell products.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

The collection and analysis of more passive data will enable brands to negotiate more app-based data partnerships with complementary companies. Passive data on consumer behaviour could be shared and used across a range of categories, eg health/wellbeing, travel, music and fashion (with the requisite permissions of course). The collection of passive data for wellbeing brands will enable them to understand more about the context in which consumers use their products and services and allow them to offer customised advice. In fashion, passive data could enable fashion brands to connect moods with browsed garments, enabling them to tailor wardrobe suggestions to better suit consumer needs.





# SHOPPABLE CONTENT

## BUYING DIRECT FROM BRANDED CONTENT ENHANCES CONSUMER EXPERIENCE

Shoppable content is online content – videos, articles, reviews, photos and so on – from which consumers can buy the items featured within it directly, without being redirected to another site. Content is a vital contributor to brand experience, and in recent years the lines between content and commerce have become blurred. In 2017 shoppable content will turn the smartphone into a mobile shopping experience.

New technology is weaving together content and shopping. Consumers can take pictures of items they like, search visually online and get personal recommendations based on AI-generated models. Machine learning can analyse every click on an online inventory in real time to understand customer preferences and create a personalised shopping experience. Evolutionary algorithms – a class of AI technique, inspired by the principle of survival of the fittest – can tweak and optimise content in response to consumers' navigation, creating live content. Universal shopping carts recreate the functionality of e-commerce sites without consumers having to create new accounts and provide credit card details for each new site they visit.

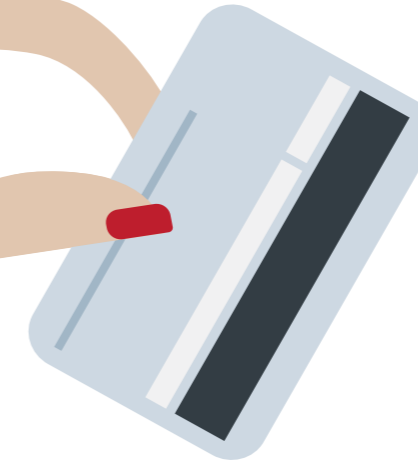
Consumers respond well to shoppable content, finding it persuasive and easy to navigate. By creating a unique content experience, brands can gain invaluable consumer data and insights, which can then be used to target consumers on multiple channels. For example, fashion brands can aggregate their Instagram feeds, YouTube videos, and blogs into a mobile content

marketing experience, such as a microzine with clickable content based on the consumer's interests. Transforming brand-centric content into a personal shopping activity gives the shopper an exclusive experience they are likely to remember and tell their friends about.

For example, it is now possible to purchase items from Vogue's Instagram account through the LikeToKnow.it application. Shoppers have to sign in to LiketoKnow.it first, and each time they like a Vogue image on Instagram, they will get an email with the product page.

Content providers are also beginning to wake up to the potential of shoppable content. Publishers such as BuzzFeed, Business Insider and Gawker have employed e-commerce editors and specialists to produce content that can be more easily monetised. Most publishers, though, still think of content first, with shopping as an afterthought.

Companies such as Bringhub are developing platforms that add full commerce functionality to publishers' content. These new tools are empowering brands and publishers to monetise their content without requiring developer resources or complicating existing infrastructure and workflows. They allow users to engage with their favourite sites and blogs in a new way, by exploring, discovering, and purchasing products directly from the content they view.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TREND?

This trend enables advertisers and publishers to keep consumers on both their owned sites and editorial platforms rather than forcing them to go elsewhere to buy. Today's shoppers enter and exit purchase decisions at various points during a site visit, so content providers have to plan their strategies around a circular consumer decision journey rather than a linear sales funnel.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

The key part of content creation is to drive more action; that means to make it instantly shoppable. Brands need to make the route from discovery to purchase as easy as possible. Content creation is no longer only about relevant text. Rather, it has to be a great combination of visually compelling images and interactive features. Turn visual content into a shopping experience.

Brands will need to provide a great purchasing experience. Consumers are interested in the stock, ease of payment, prompt delivery and free returns. Brands must not only optimise the whole customer experience, but also emphasise it in their marketing and messaging.

# SMART VR

## BRAND OPPORTUNITIES AS VIRTUAL REALITY MOVES TO SMARTPHONES

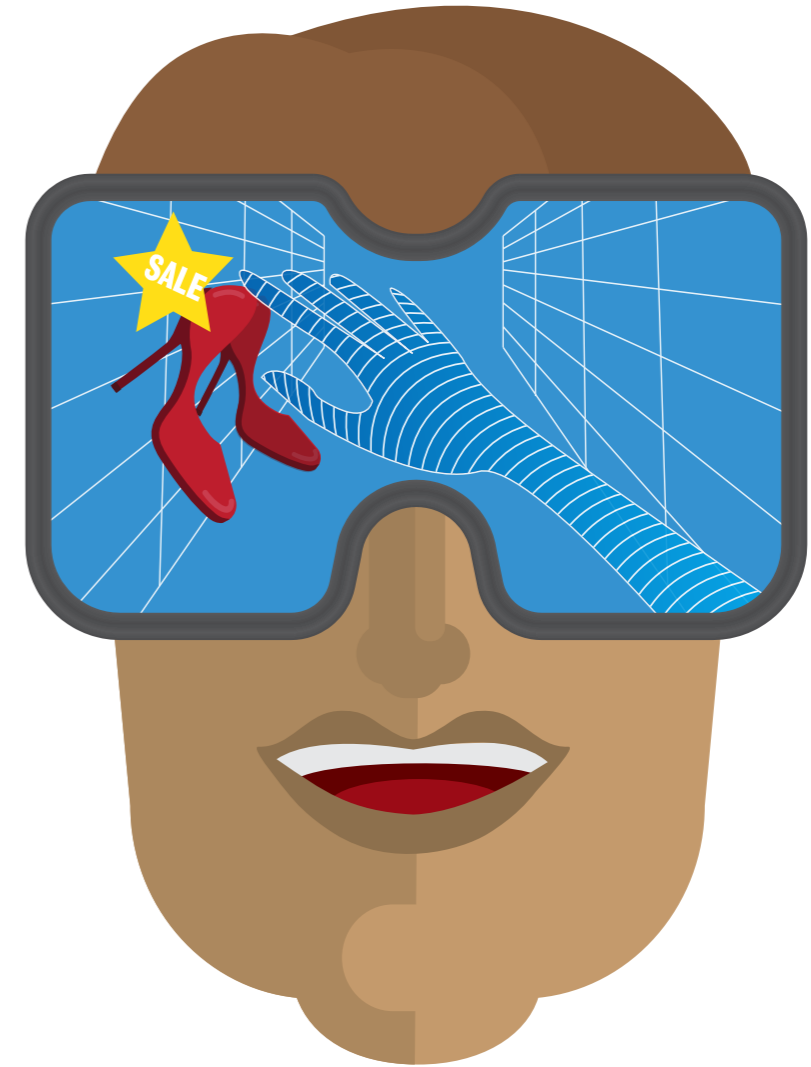
In our 2016 trends report we highlighted the emergence of mobile virtual reality as a mainstream consumer technology. Media owners, tech firms and venture capitalists are stepping up their interest in this area for 2017. Virtual reality (VR) will be far more than wearing a headset. As more smartphones are built with virtual reality in mind, consumers' mobile devices will become the main driver of VR experiences.

Consumers can already experience VR video on their smartphones. Facebook and Twitter have enabled live streams to and from VR headsets, creating an infrastructure for instant full-immersion experiences accessible to any brand. As more people gain access to virtual reality, it becomes more important for media owners and advertisers to consider using it to bring their brand to life.

Film studios such as Twentieth Century Fox, Disney and Warner Brothers have already turned to virtual reality to give viewers a new way to experience their content through special VR trailers and bonus content. Void – the world's first VR theme park – opened in Utah in 2016 and allows users to freely walk through and explore a virtual world. There is even a new virtual reality social network called vTime that uses head-tracking and spatial audio to create the illusion of social presence in detailed virtual environments. In early 2017 Facebook will launch Carmel, a VR web browser. This will enable brands to develop virtual reality experiences such as virtual aisles, allowing consumers to shop from the comfort of their headset.

Virtual reality has often been criticised for being socially isolating, but this is changing. For example, 'Punchdrunk' is a leader in immersive theatre, in which the audience is free to choose what to watch and where to go, and occasionally interact with performers. The problem it faces is how to manage the audience's attention. One approach is to use sound design to choreograph the audience's response to virtual environments. Another is to use actors to direct its attention.

The core lesson for VR content creators is to think in terms of what works in physical space, not just the flat screens that a century of media production has learned to accommodate. Think of it as theatre's revenge on the silver screen – an opportunity to bring some of the old magic back, thanks to new tech.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TRENDS?

Virtual reality presents retailers with the opportunity to transform how people shop – they can try out products without ever having to visit a bricks and mortar store. VR applications have the ability to eliminate customer 'pain points', elevate customer service, and create personalised customer experiences. The successful incorporation of virtual reality into retail also has the potential to vastly change the way retailers design the stores of the future.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

To build a business case for virtual reality, brands need to determine what users expect from a VR experience, and ascertain whether this meets its needs given the price of production, consumer demand, relevancy and point of entry.

Brands should assess how in-store VR experiences could add real value for customers, for the purposes of entertainment, product visualisation, promotion and so on. They should produce VR content for mobile consumers on the go and strive to make this content link up with the in-store experience to create a consistent consumer journey.

Brands must think about the big picture and virtual reality should be treated as part of larger marketing campaigns, rather than one-time events. For example, make use of existing platforms such as YouTube to create and post immersive videos to engage consumers, and invite them to create their own VR content.

# THE RISE OF THE CHATBOT

## ALL HAIL FRICTIONLESS COMMUNICATION BETWEEN BRANDS AND CONSUMERS

Chatbots are automated services, powered by rules and machine learning, that allow consumers to interact with brands online via a messaging interface (eg Facebook Messenger, WeChat, Slack and Telegram), without having to download an app.

Rapid progress in machine learning and natural language processing led us to identify voice search as one of the key trends in 2016. The natural development of this trend in 2017 will be the rise of the chatbot. Messaging is already widely established, and the popular Messaging platforms such as Slack, Telegram and Facebook Messenger are opening up their platforms to developers and brands. In 2017 we expect to see thousands of chatbot launches to take advantage of these new opportunities and the reduced cost of building bots.

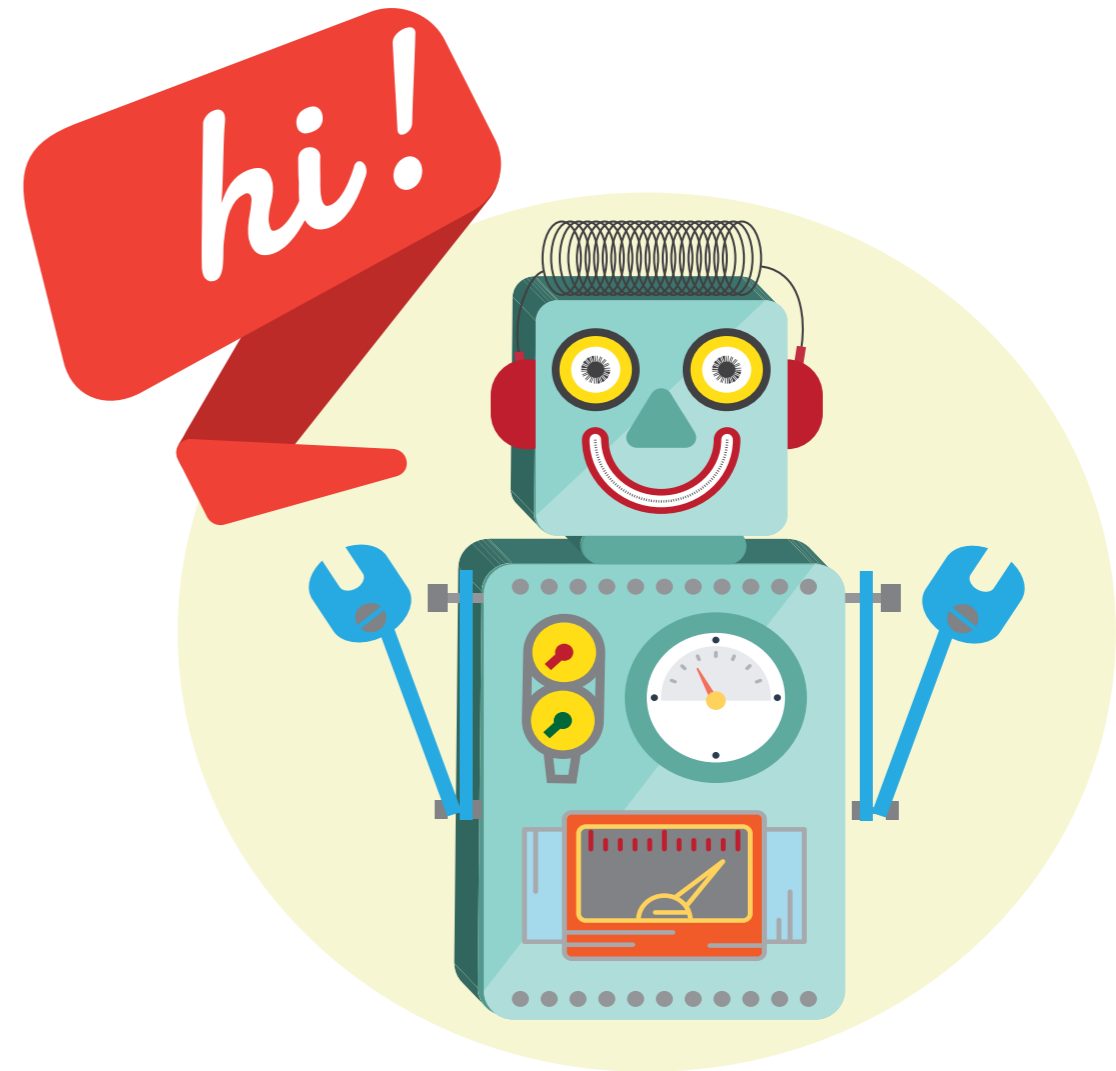
In one chat with a customer, a bot can help them make a purchase decision, handle payment and notify shipping delivery. Instead of doing this through multiple, separate message threads, all of this happens in the same interface. By mining available data, chatbots can provide a personalised service through the ongoing conversations.

For example, Dutch airline KLM is now using Facebook's chatbot platform Messenger for Business to communicate with passengers before departure.

Customers can ask KLM questions 24 hours a day and in 13 different languages.

Absolut launched a bot that provides consumers with personalised coupons to get free drinks in a new bar in their hometown. Absolut can now reach out to these consumers to let them know about new product launches, events happening in their city, or special promotions to buy Absolut online (through chat) in the future.

Although a good chatbot will give consumers the illusion that they are interacting with another human, we predict it will be years before a bot will fully understand the subtle nuances of human emotion. As humans, we're empathetic, we know when to listen and when to interject, and we understand the root cause of frustration and panic. A bot cannot pick up on these cues, but can recognise situations in which customers need to talk to humans, and pass them on seamlessly.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TRENDS?

Chatbots enable brands to reduce customer support costs and to open up a direct dialogue with customers, paving the way for marketing and sales to open new revenue channels. There is great opportunity for brands to create personalised recommendations for the consumer based on insights obtained from a trail of chats.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

Before brands launch their own bot experiences, they first need to determine who they are trying to reach and define the precise vertical (commerce, content or service) that the bot will operate in. It's important to limit the scope of what your chatbots can do by focusing on a particular product or service to start with. Then, slowly expand the chatbot's knowledge base by feeding it more relevant information over time.

Remember, put the customer first, understand their intent and build new skills to address their needs. To provide a good user experience, a bot needs to have a good user interface, as well as have the intelligence to conduct two-way conversations with a wide audience in real time. Use the data obtained from these interactions to further refine the chatbot and improve the products and services it supports.

# PLAYING TO OUR EMOTIONS

## EMOTION RECOGNITION TECHNOLOGY HELPS BRANDS TAP INTO HUMAN TRUTHS

When we think about how computers can help us, we naturally think about the rational execution of tasks. But there is another exciting prospect: they will learn to respond to our emotions. In our 2014 trends report, we highlighted the use of biometric technology to measure human emotions. Since then, there have been significant improvements in technology that mean we can discern emotions in gestures and speech.

The spread of smartphones means that many people now carry mood-sensing devices in their pockets. As emotion recognition technology becomes more sophisticated and more deeply embedded in our array of devices, it will provide us with a continual progression of customised triggers and messaging, and give brands the opportunity to match consumers' moods and behaviours with relevant content, just right for that moment.

Emotional awareness technology was initially used to understand how consumers engage with brand content and advertising, and how their emotions influence brand awareness and purchase intent. Now it is also used to infuse consumer experiences, apps and interactive advertising with emotional AI.

Bentley has used emotional awareness technology to produce customised vehicles. The 'Bentley Inspirator' monitored a consumer's reaction to a film of several different scenes, then presented them with a Bentley

SUV with colour, veneer and wheels customised according to their reactions.

The New Zealand bank BNZ created its EmotionScan website to measure its customers' responses to various difficult financial situations. It presented them with an infographic of their emotional reactions, and offered to set up a meeting with a specialist to discuss how BNZ could help them with the subjects they felt least comfortable about.

In five years' time when the Internet of Things becomes an integral part of our homes, some of our household devices will be able to recognise our emotions. We will have cars that can sense our moods and offer up concierge-like recommendations. Services will have emotions designed into the experience. For example, your mobile wallet might send you a message to tell you that your impulse clothing purchase won't make you happy, or your refrigerator might caution you to wait 20 minutes before deciding to binge on ice cream after a stressful day.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TRENDS?

Emotion recognition technology enables brands to make more emotionally relevant recommendations and create customised narratives that evolve depending on viewers' reactions. This technology will also help programmatic advertising become better at maintaining user engagement. As advertising becomes more automated, emotional recognition technology allows brands to personalise the way that content is served to consumers.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

There many different applications for emotional recognition technology. For example, brands that have an association with a particular sport or team could tap into this technology to offer more relevant experiences based on consumer reactions during a sporting event. Equally, this could work for brands that are cherished by a nation as they could aggregate and visualise the national emotion at key points in a country's calendar and serve content accordingly.



# DYNAMIC PRICING

## ALGORITHMS ENABLE AUTOMATED DEMAND-LED PRICING

Dynamic pricing is the practice of pricing items at a point determined by a particular customer's perceived ability and willingness to pay. This means there is no one set price for a particular item, but rather an ever-changing one that can respond to a real-time customer profile. Thanks to advances in high-performance computing and analytics, pricing on some websites now changes from minute to minute. For example, Amazon will tweak its prices many times per hour (equaling millions of individual price changes per day), taking advantage of the psychology of price perception. Uber has introduced its 'Surge Pricing' algorithm to ensure a high supply of drivers during times of exceptional demand.

Electronic Shelf Label (ELS) technology is becoming cheaper and more powerful, allowing bricks and mortar retailers to update in-store prices in real time. Beacons – low-power Bluetooth transmitters that interact with shoppers' smartphones – also allow retailers to create real-time special offers on the shop floor.

Dynamic pricing is a way for businesses to extract the greatest possible value from each customer interaction, but it can also be used to offer individualised discounts. For example Safeway, the Australian grocery chain, will send specific offers to selected customers based on their previous purchases, such as offering eggs at lower prices to someone who often buys high-protein items.

While dynamic pricing is here to stay, it isn't necessarily right for everyone, everywhere. Whether it is depends on the retailer's brand values, the target market, shopper engagement, product category, and shoppers' reactions to price changes. It should also be remembered that consumers do not make purchases based on price alone. They place significant value on the overall buying experience the retailer provides, such as customer service, shipping speed, return policies, and many other factors. Comparison sites allow consumers to better assess their options, and it leaves control in their hands.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TRENDS?

Dynamic pricing enables brands to customise prices for consumers, ensuring brands get the most out of each customer interaction. It has the potential to widen profit margins considerably for those retailers that can implement it effectively.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

Brands must ensure that their pricing reinforces their desired brand-value proposition with their target shoppers. If a brand is not a price leader, constantly changing prices can detract from their brand and erode their relationship with shoppers. Use price comparison and monitoring tools to understand competitors' pricing strategies. Brands should identify which product categories and audience segments are price sensitive, how often prices change for top sellers and sought-after items, and which discounts have been successful in the past.

Brands should also consider integrating price-elasticity models within their attribution approach in order to understand the relationship between price and an individual digital journey. Optimise pricing tactics across the shopping basket. Not all items need to be as dynamic as others. Undertake price testing where products and services have a price point above and below the average. Testing conversion by customer profile and price point will generate data that can be used in a dynamic pricing engine.



# AUTOMATED ASSISTANCE

## SERVICE ROBOTS HIT THE HIGH STREET STORES

Industrial robots have long been used for tasks where their strength and precision make them more efficient than people. Now technology is blending physical and digital automation to make people and robots work better together. Service robots are appearing in stores.

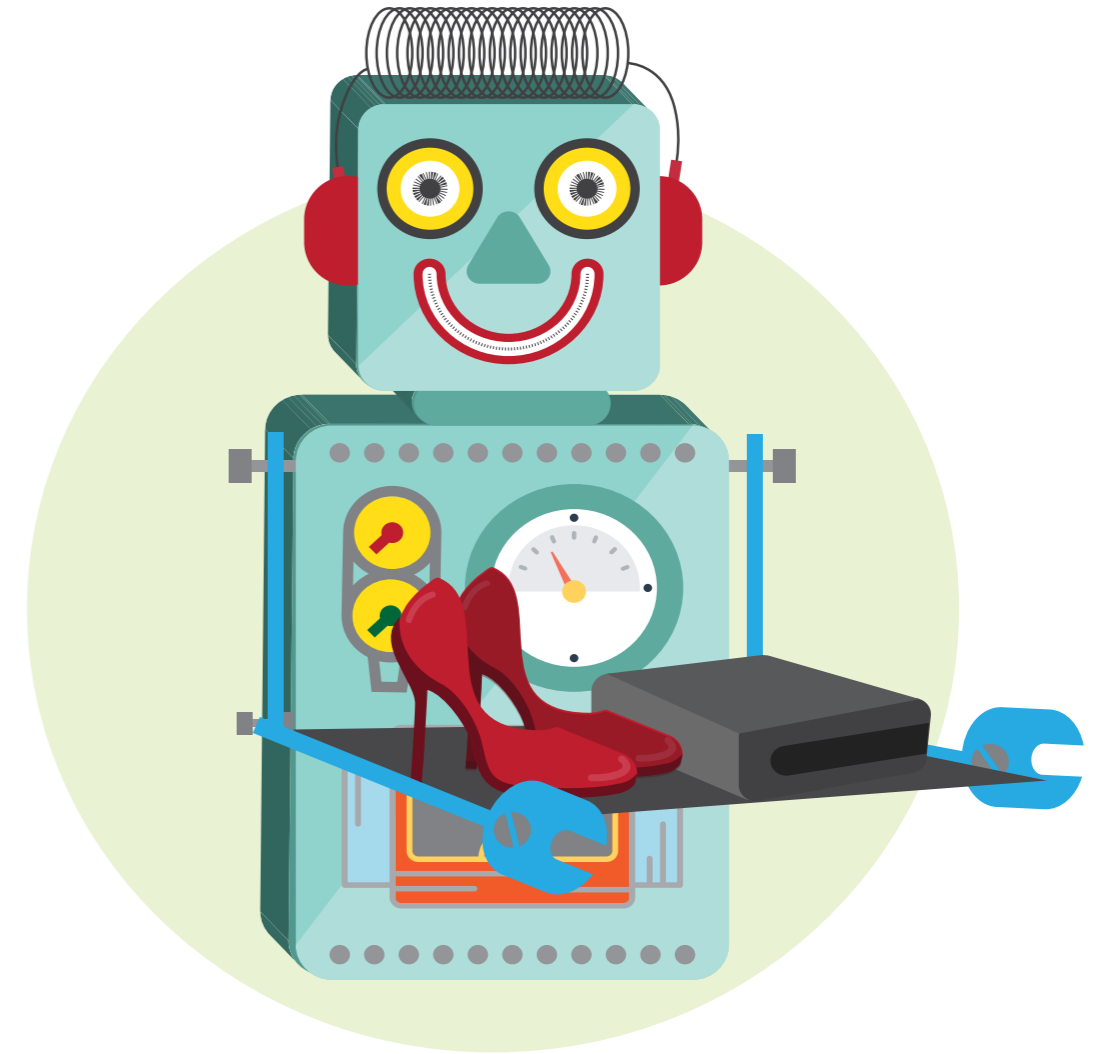
Retail robots promise to increase productivity and reduce costs – and improve the customer experience at the same time. A robot will always know if an item is in stock, where it is located and how much it costs. Their algorithms will enable them to offer customers specific discounts, reviews, and other suggestions. Robots will make staff more productive by allowing them to interact more with customers. The LCD screen on service robots will become another screen for branded content and advertising.

Artificial intelligence treads a fine line between engaging consumers and repulsing them. The Uncanny Valley hypothesis suggests that people are disturbed by robots that look and move almost – but not quite – like humans. Adding human characteristics through Artificial intelligent design is only appealing as long as the technology maintains its honest, robotic qualities.

Interactions with robots will be most successful when they support the social conventions of the cultures for which they are designed. Service robots are taking off in Japan, where robots are designed to be cute and cuddly and are treated almost like pets. The robot hotel – Henn-na Hotel – opened in Sasebo in 2015. Its guests are checked in by a dinosaur robot and served by

artificial staff. Pepper Robot – the world’s first humanoid robot with human emotions – is already being used in retail and other customer services industries. Pepper interacts with human beings as naturally and intuitively as possible, and can adapt its attitude in response to the customer’s mood. China is another leading robot market, where robots have been deployed in hotels in Beijing, Shanghai and Suzhou. These robots can not only take voice commands from humans, but also give orders to other machines, thanks to better speech recognition technology.

The barriers to adoption are currently quite high. Robots are expensive, and most have no ability to react to body language and emotions. The International Federation of Robotics estimates that over 400 robots will serve as guides in supermarkets, stores, or museums in 2017. Over the next five years we expect prices to come down substantially, and more robots to come equipped with emotional awareness technology.



### HOW CAN BRANDS TAKE ADVANTAGE OF THE TRENDS?

Service robots open up room for top quality customer service in retail, hospitality, healthcare and domestic help. These robots are able to improve productivity and efficiency with quick and easy access to information to address customer queries. Allowing the service robots access to the right amount of data can offer customers real-time personalisation that may not be possible via a human.

### WHAT ARE THE IMPLICATIONS FOR BRANDS?

Some industries are more relevant than others for service robots. Brands should consider the role of service robots in the service chain, how they work alongside humans and level of interaction with the customers. As a start, partner with robotics experts, AI experts and tech partners to find out how service robots can work to address current customer service problems and rethink how the service robot can shape a better customer service. Brands will also need to consider how the robots can navigate the environment. Most importantly, brands need to manage customer expectations on how the service robots can assist them.



# INTERVIEW



## IAN LIDDICOAT ZENITH



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**Q** How are breakthroughs in AI and machine learning facilitating the brand interactions, customer experiences and content needed to retain the consumer in the journey loop?

**A** The amount of data being generated through digital touchpoints, and the exponential growth in demand for highly personalised and relevant communications across devices (increasingly in real time), have created the perfect environment for machine learning techniques. The sheer volume of this data means it is no longer efficient to attempt to manage, optimise, visualise and activate campaigns using traditional, manual techniques. If we accept that all media will be addressable and programmatic, we should also accept that all media will be machine-learned at some point. It is a matter of when and how quickly this will happen rather than if.

Artificial intelligence – or AI – is a large field with many techniques from robotics, machine learning, voice recognition, semantic learning and many other fields. Many of these are already used in marketing today, such as machine learning for digital attribution and voice recognition, and chatbots for customer service and upper-funnel product research. In my view the breakthroughs in AI for marketing will come from automation and the complete integration of these techniques at customer level. This will result in a vastly superior customer experience for the consumer, as every touchpoint and customer preference is connected and mined by machine-learning techniques that optimise each interaction based on any given KPI – a web visit, brochure request, sale etc. These experiences – and the techniques used to optimise them – will be invisible

to the consumer. AI will dramatically reduce costs and significantly improve engagement at all stages of the customer journey. The ability to optimise content in real time – well beyond aggregated segments, to individual consumers – and to combine all other signals about a given consumer within a single model will herald the era of the machine-learned customer journey that will significantly outperform traditional research or segment-based techniques. This will also enable consumers to pass positive and negative feedback directly to a single data source (the single customer view) that will drive all interactions with a brand.

**Q** What capabilities and infrastructure does Zenith have in place to support advertisers in making the best use of AI and machine learning to drive higher ROI?

**A** As part of our ROI positioning, Zenith has built a machine-learning capability in the London offices. This includes data engineering, data scientists, app developers, solution architects and project managers. This team will focus on bringing a number of machine learning applications to our business. The first commercial application of this has been our work in digital attribution. Traditional techniques assign the credit for a sale or conversion to the last touchpoint or click in the user journey. In comparison our technique models and optimises all touchpoints in a given user journey and optimises these journeys across channels and individual campaigns. We do this by analysing cookie-level data directly from the DoubleClick platform.

We have recently applied this technique for Aviva in the UK for motor insurance, identifying 80,000 additional quotes for a 12 month period during the initial proof of concept. Part of this solution included passing our

proprietary conversion score back into DoubleClick – a world first. Now live and fully automated, our solution typically improves cost per quote by 10% for search and display. Over time we will add additional first and third-party data to this score, to include content, offline touchpoints, and a range of drivers of demand. We will also build out our optimisation capability across these drivers and connect it directly back into the planning process. We believe this machine-learned, automated and highly optimised approach is the future for all media, and we are pleased to be at the forefront of it.

**Q** What are some of the AI and machine-learning innovations we can expect in our industry in the near future? How will these developments shape the way we work with advertisers?

**A** In the first question we talked about breakthrough techniques that AI will bring to marketing, which initially will come from the integration of existing techniques at customer level to drive personalisation and increasingly positive experiences. This is particularly beneficial to sales, service and repurchase, but AI will be increasingly used in customer acquisition. For many brands the wealth of data available from social media and blogging, in addition to first-party data, creates both a challenge and an opportunity.

Conventional social listening, for example, is often constrained by time periods, geographies, key words and demographics. It often returns a large dataset but not the crucial insights that are needed to modify campaigns, or packaging or distribution through the retail channel. The application of machine learning, particularly with natural-language interfaces – enabling queries that non-technicians can understand – will

yield significant benefits to the consideration and upper funnel of the customer journey.

The real benefit from AI is the ability to tie large amounts of data to a specific outcome and then optimise that outcome as more data arrives, for example by modelling the trends that drive consideration and then purchase in the beauty sector. A crucial part of these innovations will be the ability to use natural-language techniques so these techniques are not available exclusively to data scientists. Perhaps the greatest innovation that will occur in this field is in bringing these technologies to the many and not just the few!

**IAN LIDDICOAT** is Global Head of Data & Technology at Zenith. He is responsible for all applications of data and technology and is leading the network's ground-breaking programme in machine learning that is enabling Zenith to automate digital planning. Ian was previously Managing Director, Marketing Consultancy at Towers Watson and before that Head of Market Data Solutions at Grey. He was the founder of consultancy Monday International, which was acquired by WPP. During his time at Zenith, Ian has worked with many different clients, assessing their data strategies, developing machine learning programmes, building organisational structures and systems architecture, and developing cutting edge CRM programmes.



## HUGO PINTO IBM



**Q** What is IBM's vision for AI and machine learning and how it is going to change the way we engage with consumers?

**A** At IBM, we are guided by the term 'augmented intelligence' rather than artificial intelligence. It is the critical difference between systems that enhance and scale human expertise rather than those that attempt to replicate all of human intelligence. Human decisions are heavily influenced by emotion. With AI, we can develop a deeper understanding of unstructured and dark data to derive insight into the emotional drivers or triggers behind these decisions to bolster customer engagement at every touchpoint in the journey.

**Q** Gartner estimates that 6 billion connected 'things' will be actively requesting support from AI platforms by 2018. How will IBM's AI platform and Internet of Things shape new service-based income streams for companies?

**A** One of the most recent examples, announced at World of Watson, is the connected inhaler to improve the quality of life for asthmatics. There are three layers of new services created to collect data through IoT sensors from a medical device.

The first level is around quantification: how many

times have I taken that medication, what dosage, what location, what frequency? And this translates into use cases like automatic replenishment or self-ordering in retail and industrial supply chain, dashboards, pattern recognition and predictive modelling around consumption.

The second dimension is about context: what else can you learn about behaviour when you bring in secondary data? In the health example, consider the use of weather data to understand personalised triggers for a crisis, and how to generate predictive models that enable you to either avoid those scenarios or alert you to take preventive actions instead of reacting after it's happened.

The third and final dimension is about how this information about you can be used to hyper-personalise 3rd party services. If this personal choice or data point is available to be used by digital services around your habits – travelling and mobility, retail and fashion, food and health – brands can begin to really know consumers on an entirely new level and break the barrier of acquisition, which represents a big question mark in today's (necessarily) ubiquitous marketing strategies. How can I decrease waste in marketing spend and maintain an engaged, valuable customer base?

**Q** We believe the rise of the service robots will be

game-changing in providing personalised customer service. For example, Pepper the robot powered by IBM Watson is able to engage consumers at an emotional and personal level. Do you foresee humans and robots working alongside each other to provide customer service or do you foresee that robots will be totally capable of replacing human customer service in the future and why?

**A** This goes back to our notion of augmented intelligence. The provision of robots augments the level of customer service that a hotel concierge can provide; although some would prefer to engage with a human, the natural language understanding of the bot allows patrons who have simple or time-pressured queries to pass through the process more seamlessly than having to queue, wait or similar. The human contact from the concierge can therefore be diverted to clients on a more personalised and engaged level. This is a very pertinent concern, though, and I would refer to the cancer research Watson has been helping with to highlight a few key points.

The capabilities of the systems enhance the decision-making power of the physicians – this means it's not really replacing them – only making every expert as efficient as the best one in their area of expertise, as Watson was taught by all of the experts in the world that created studies, experiments and white papers around a subject. Imagine how long it would take to

read and process every medical report ever written, not only on a particular topic, but across the whole profession. It would take an unfathomable amount of time. Watson can digest this information in hours, and provide learned and experienced recommendations when it is needed. The decision making capability of a human physician can therefore be considerably augmented – but, importantly, not replaced.

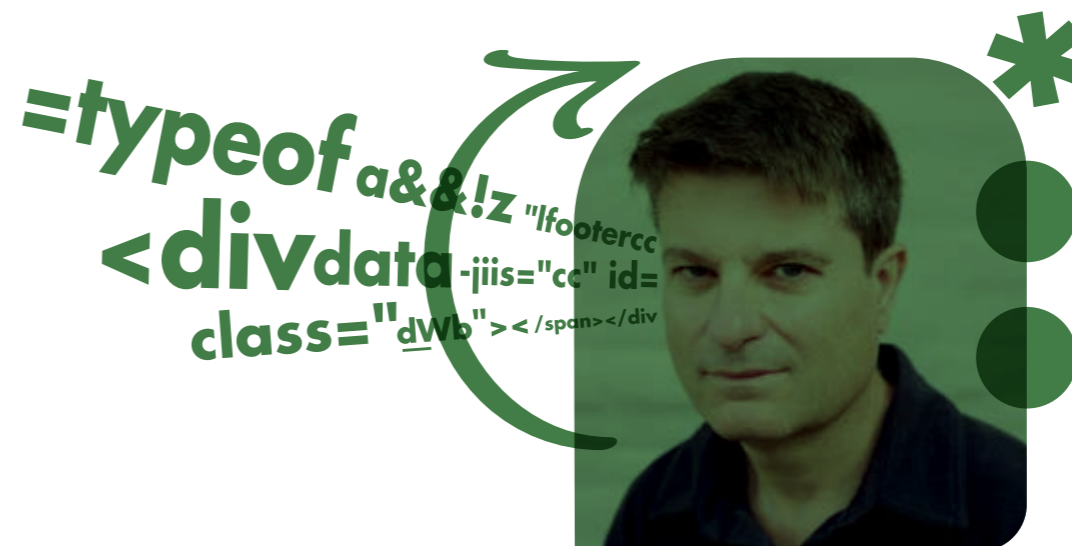
**HUGO PINTO** is Innovation Officer at IBM Interactive Experience. In this role, Hugo mixes business strategy, technology and design thinking to drive true transformation both internally and externally from challenger to multinational organisations, enabling them to leapfrog their competitors. During his career, Hugo has been brought into both startup and global businesses to create new products and revenue streams. Described as an energetic self-starter that makes things happen, he has 15+ years' experience working across agencies, brands and consultancies, and is deeply involved with the startup and VC world.





# MARTIN FORD

## AUTHOR & SOFTWARE ENGINEER



**Q** In your book 'Rise of the Robots', you say that AI is becoming a general purpose technology - it's everywhere, it's ubiquitous. Can you give us some examples where automation will play out in different industries and how it is going to disrupt employment?

**A** One of the most important things to understand is that these technologies are clearly climbing the skills ladder. It's not just about low wage, blue-collar type work that's done by people that don't have much education. Automation is going to have a heavy impact on white-collar jobs - on the kinds of jobs done by people that actually have education. A lot of this is not actually down to robots, but machine learning, algorithms and smart software that can automate intellectual tasks. We're moving toward a future where almost any kind of a job where you're sitting in front of a computer, doing something relatively routine and formulaic, will be highly susceptible to automation. There are good examples we can point to already. In the field of journalism, for example, there are smart systems that can tap into a data stream and based on that they can automatically generate news stories.

In terms of specific industries, one good example is in automotive with what's happening right now with

self-driving cars. It's a technology that is really moving along at a surprising rate. Just about every automotive manufacturer and the likes of Uber and Apple are really moving into automated cars. And if self-driving cars really come to fruition in the way that companies like Google have envisioned, the impact will be huge, because people won't actually own their own cars any more - they will become a shared resource. This will completely transform a massive sector of our economy: repair shops, fuelling stations, car washes etc will all be under threat.

**Q** With automation now coming after the white collar and high skilled jobs, How do you see automation affecting different types of roles within the communication industry?

**A** There's a conventional view that if you're doing something that's genuinely creative, then your job ought to be relatively safe because that's not an area that machines are yet capable of moving into. However, in advertising we can see examples of how machines are beginning to encroach on that territory. There is a lot of activity in advertising that you might consider to be 'bounded creativity' - in other words, coming up with new ideas but within set limits. A good example of that

would be the way that advertising is now generated dynamically, where you have ads that basically are bounded by a template but within that template there are many different possibilities. Now algorithms can essentially manage the variations an automated fashion.

The areas that are relatively safe right now are the things that are outside of bound creativity: coming up with genuinely new ideas, coming up with the concept for a TV ad etc. The other areas in advertising that right now are least threatened are those that require deep human interaction - the kind of areas where, for example, you're undertaking complex negotiations with other parties, or where you're managing client relationships. These are obviously again things that for the foreseeable future tend to be uniquely human.

One of the key issues with the routine, predictable work being susceptible to automation is that a lot of this kind of work tends to be done by entry-level people, those straight out of university. As these opportunities for graduates begin to evaporate, we might end up with a shortage of talent at some point in the future.

**MARTIN FORD** is the founder of a Silicon Valley-based software development firm and the author of two books: New York Times bestselling *Rise of the Robots: Technology and the Threat of a Jobless Future* and *The Lights in the Tunnel: Automation, Accelerating Technology and the Economy of the Future*. *Rise of the Robots* received the *Financial Times/McKinley Business Book of the Year Award* and was named one of *Business Insider's Best Business Books of the Year*. He has over 25 years of experience in computer design and software development. He has written for publications including *Fortune*, *Forbes*, *The Atlantic*, *The Washington Post*, *Project Syndicate*, *The Huffington Post* and *The Fiscal Times*.



## JOAQUIN QUINONERO CANDELA FACEBOOK



**Q** What is Facebook's vision for AI and machine learning, and how it is going to change the way we engage with consumers?

**A** Facebook's long-term roadmap is focused on building foundational technologies in three areas: connectivity, artificial intelligence, and virtual reality. We believe that major research and engineering breakthroughs in each of these areas will help us make more progress toward opening the world to everyone over the next decade. Our work in AI is helping us move all these projects forward. We're conducting research to help drive advancements in AI disciplines like computer vision, language understanding, and machine learning. We then use this research to build infrastructure that anyone at Facebook can use to build new products and services. We're also applying AI to help solve longer-term challenges as we push forward in the fields of connectivity and VR. And to accelerate the impact of AI, we're tackling the furthest frontiers of research, such as teaching computers to learn like humans do — by observing the world.

As Facebook engineers apply AI at scale, it's already making an impact on the lives of people who use our products and services every day. AI assists in automatically translating posts for friends who speak different languages, and in ranking News Feed to show people more-relevant stories. Over the next three to five years, we'll see even more new features as AI expands across Facebook.

**Q** The next era of virtual reality has arrived where people can hang out with their friends in new and exciting places while physically remaining in isolation. How does AI help consumers enjoy their virtual reality experience with Oculus Rift?

**A** In VR, image and video processing software powered by computer vision is improving immersive experiences and helping to support hardware advances. Earlier this year we announced a new stabilisation technology for 360 videos, powered by computer vision. And computer vision software is enabling inside-out tracking to help usher in a whole new category of VR beyond PC and

mobile, as we announced at Oculus Connect 3 last month. This will help make it possible to build high-quality, standalone VR headsets that aren't tethered to a PC.

Our work on speech recognition is also helping us create more realistic avatars and new UI tools for VR. You can see a great example from our social VR demo at Oculus Connect 3, when the avatars moved their lips in sync with the speaking voices. This helps to create a feeling of presence with other people in VR. To do this, we built a custom library that maps speech signals into 'visemes' (visual lip movement). Speech recognition can also make it easier to interact with your environment in VR through hands-free voice commands. Our Applied Machine Learning team is working with teams across Facebook to explore more applications for social VR and the Oculus platform.

### JOAQUIN QUINONERO CANDELA

is Director of Applied Machine Learning at Facebook. He leads the Facebook team that does applied research in machine learning, language technologies, computer vision and computational photography. In 2012, Joaquin co-developed a new machine learning course for the Engineering Department at the University of Cambridge and then taught on the course until joining Facebook. Before that he worked at Microsoft Research in Cambridge, UK, and built the click prediction and auction optimisation teams at Microsoft AdCenter. At Microsoft Joaquin also helped build a Go game for the Xbox 360 called 'The Path of Go'.



# NEXT STEPS FOR BRANDS

Our 2017 trend report highlights how artificial intelligence powers the consumer journey, leading the consumer from discovery to purchase with personalised recommendations, seamlessly and effortlessly. There are great opportunities awaiting companies that combine AI techniques with strategic thinking and creative ideas to drive better commercial value and improve brand-consumer relationships. To survive in this new data-driven world, companies will need to transform themselves to embed the right technology, platforms, talent and strategies.

Below are eight ways organisations can redefine their business strategies to make artificial intelligence work for them:

## 1. NEW ORGANISATIONAL STRUCTURES

The insights generated by artificial intelligence will inform every function, and at a speed not encountered before. In an age of automation, it is important that organisations are structured to support machines and people working together side by side, each making the other more productive and effective.

Company structures should be leaner, flatter, more automated, and connected to smaller and smaller customer segments.

## 2. NEW SKILLS AND BETTER WAYS TO ATTRACT NEW TALENT

It is not enough to have someone who knows what problem to solve, and the data sets that might be useful in solving it. The world of artificial intelligence requires

individuals who are comfortable with big data, curious thinkers who can focus on detail, and are energised by ambiguity, open to diverse opinions, willing to iterate to produce insights that make sense, and committed to real-world outcomes.

## 3. REDEFINED TECHNOLOGY PLATFORMS

Integrate first, second and third-party data, and organise it centrally to power insights. Use natural language processing (NLP) to put the results of technology in non-technical hands. In many cases brands have still not integrated the data they already have on consumer behaviour within a single customer view. This is essential if they are to generate real benefits from more advanced AI techniques.

Collaborate with tech partners who can provide both front and back-end support to create and sustain consumer engagement. Identify the partners that best complement your current technology stack. Define clear roles for each of your partners and integrate all supporting technologies to strive for complete seamlessness.

## 4. AUTOMATE SUPPLY CHAINS

Supply chain and product development processes have to be rebuilt and automated. AI is helping organisations analyse supply chain data, gain a better understanding of the variables in the supply chain and anticipate future scenarios. The use of AI in supply chains is helping businesses innovate rapidly by reducing the time to market, and foresee and deal with uncertainties.

## 5. NEW PRICING, REMUNERATION AND REWARD STRUCTURES DRIVEN BY GENUINE CONSUMER NEEDS

Algorithmic pricing enables pricing specialists to create robust statistical models of customer behaviour, and adapt prices quickly and efficiently. This means charging models will be more varied and customised. Staff will be rewarded for their performance.

## 6. LINK DATA ABOUT BRANDS TO FINANCE, DISTRIBUTION AND PRODUCT DEVELOPMENT

This is about efficiency in every respect, pursued in an integrated and single-minded manner. Senior executives need to understand and commit to the organisation of data, technology and advanced analytics, and make the necessary budget available.

## 7. OPEN NEW MARKETS AND DISTRIBUTION CHANNELS

AI is also changing customer relationship management (CRM) systems. AI transforms a normal CRM system into a self-updating, auto-correcting system that stays on top of relationship management for you. Its interaction with consumers will uncover new opportunities for product development and product extensions that would have been missed before. It will also identify new and more personalised methods for cross-sales and service strategies

## 8. CONVERGENCE

There are many trends that are developing under the general theme of AI. From a commercial perspective, these trends and techniques will steadily converge as brands begin to apply them to various aspects of their business. One reason for this is the need to organise the underlying data and insights at customer level, in order that the customer experience is managed in real time and in a seamless manner. This will challenge every aspect of an organisation from its structure, reward and product development, to every aspect of data and IT strategies.

We hope our 2017 Trends report gives you a wealth of insights into new business models, seamless experiences, and new ways to engage with consumers. Companies that embrace the opportunities created by artificial intelligence have an exciting journey ahead.

