Augmented Humanity

ISOBAR TRENDS REPORT 2018

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"Artificial intelligence is great, but humans score on emotional intelligence. The power of being human is in empathy. This cannot be automated or outsourced. Augmented Humanity will use technology to scale everything that is best and most powerful about human interaction."

— Jean Lin, Global CEO, Isobar

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We believe that 2018 will be the year of augmented humanity. AI alone will not be enough, we need emotional intelligence.

Augmented reality will not suffice, we need augmented humanity.

2017 has been the year of the machine – machine learning, driverless cars, the rise of the robot. As exciting as that is, we believe 2018 will be the year when we learn to infuse humanity with empathy and emotion. Arthur C Clarke once observed "Any sufficiently advanced technology is indistinguishable from magic". As technology advances, it will become both more magic, and more human.

Interfaces will become intimate and intuitive, shifting from screens and touchpads to eyes and ears. Business models will be powered by community as the blockchain turbo charges the sharing economy. Personalised products and pricing will replace one size fits all. Art and science will fuse to create extraordinary new outpourings of creativity while philosophers and technologists will work together to design a more ethical algorithm.

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Our five key trends for 2018 explore this intersection of technology and humanity, magic and the machine, code and conscience:

1. Body Talk

Voice, gesture and gaze will replace tapping and typing as bodies become interfaces

2. Powered by People

Membership is the new ownership as technology turbo charges the sharing economy

3. The Economy of Me

Data delivers personal interactions at every point of purchase

4. The Ethical Algorithm

Technical possibilities meet ethical intervention

5. The Makers & the Machines

Art and technology will come together to deliver extraordinary new outputs

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1. Body Talk

Voice, gesture and gaze will replace tapping and typing
as bodies become interfaces

"People are being augmented with new cognitive superpowers" –Tim O'Reilly

Technologies such as voice recognition, haptic feedback, gesture and image recognition are moving us beyond a screen based interface and towards a world where our bodies, lightweight wearables and smart environments will be our primary means of interacting with content and commerce experiences of all kinds. Everything from a selfie to a heartbeat could become a password.

Teams at Saarland University in Germany and MIT are experimenting with temporary electronic tattoos that can turn the contours of the skin into smartphone controls while Levi's have partnered with Google to release a smart jacket with gesture detecting sensors built into the cuff enabling users to take calls, get directions or play music.

Sub Trends

Eyes and Ears

Voice and image recognition are transforming the ways we search and shop

Reality Check

Virtual, Mixed & Augmented Reality experiences are opening up new frontiers in both emotion and utility

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1.1 Eyes and Ears

Voice and image recognition are transforming the ways
we search and shop

"The race for voice assistants is the race to be the next ubiquitous interface" –Wired Magazine

Voice recognition has been the dominant technology of 2017 and the one with perhaps the biggest implications for retailers and FMCG brands alike. Amazon currently dominate this space, with 75% share of the smart speaker market, trailed by Google.

Business Intelligence claim that 8% of US owners of smart speakers have used voice to shop, transfer money or pay a bill and predict that number will rise to 31% of US adults by 2020. Domino's have gained early ground with 1 in 5 UK customers placing orders via Alexa instead of using the one click easy order system.

The real battleground, however, is in the world of grocery retail. Amazon's purchase of Whole Foods, combined with the early

dominance of Alexa has the potential to rewrite the rules of the category with a simple command replacing the act of browsing. So significant is the threat that Walmart have struck a deal with Google Home in a bid to compete.

While image recognition is less widely hyped, it has equally significant implications for retail. Neiman Marcus' Snap. Find. Shop feature allows shoppers to upload pictures directly to its ecommerce site, which will then search for similar items.

Similarly, Target have partnered with Pinterest to introduce its Lens visual search technology into its app.

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Sources: eMarketer, Business Intelligence

Coca-Cola Sweden

Isobar Sweden partnered with Coca-Cola to develop the world's first dialect – activated vending machine.

Sweden is known for having many different local dialects.

As part of a campaign highlighting over 90 different holiday destinations, Isobar and Coca-Cola challenged users to recreate individual local dialects.

If they were successful, they would receive a free Coke.

3.2m people saw the installation over two days, during which **10m** social media views were also accumulated.

Where technology meets humanity

In partnership with Diageo, Isobar created a test and learn initiative to explore the convergence of voice technology with human experience in a bar.

Guests were invited to select drinks from a specially crafted cocktail menu designed by award-winning mixologist, Rob Poulter, using Amazon's Alexa.

Alexa asked a series of questions which were designed to promote discovery and aid recommendation, exploring the optimal combination of audio and visual cues.

Guests then received drinks at the table without interruption to their experience.

Find out more **here**.

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Forming a habit

Amazon and Walmart hope to use voice recognition to create an auto-replenishment model for grocery, the same products ordered time and again with a single voice command.

This will disproportionately favour brands which already have a place in consumers' online grocery shopping baskets - the time to secure that place is now.

Reinventing search

Voice & image recognition will have major implications for the field of SEO, shifting from keywords towards natural language and aesthetic recognition. Search is a key behaviour on voice activated platforms, with 60% of owners using smart speakers to answer questions.

The rise of voice and visual search will require brands to think again about how content is optimised for new interfaces.

Minimising friction

Where possible, smart brands will use voice and image recognition to both minimise friction and to create moments of delight.

Budweiser for example offer voice based age verification, while numerous brands are experimenting with smart mirrors and "smile to pay" technology.

1.2 Reality Check

Virtual, Mixed & Augmented Reality experiences are opening up new frontiers in both emotion and utility

"I don't think there is any sector or industry that will be unchanged by AR" —Tim Cook

Early in 2017, Benedict Evans observed that Virtual Reality was in that stage of the Gartner Hype Cycle known as the "slough of disillusionment". Fewer than 2m headsets were shipped in 2016, with Best Buy closing a number of its displays due to lack of interest. Yet by the year end, the picture looks somewhat rosier.

Mobile VR is dramatically reducing cost of entry. Some 10m Google Cardboard units have been shipped, alongside 5.5m Samsung Gear devices and this market is predicted to reach 60m units by 2020.

Meanwhile, mobile AR looks set to scale rapidly. Apple's ARKit and Google ARCore offer developers toolkits for creating AR experiences in iOS & Android respectively, aiming to bring mobile AR to hundreds of millions of compatible devices, with no bespoke hardware required.

Pokemon Go gave a flavour of the potential of mobile AR, generating $600m in revenue in just the first 3 months but applications going forward may be as practical as they are playful, offering useful augmentations such as directions, nutritional information or translations. IKEA's AR app lets you preview furniture in your home, while Neon lets you find your friends quickly at crowded venues like festivals. Amazon have also added an AR shopping feature to its iOS app.

Finally, Microsoft are betting on Mixed Reality, a blend of immersive virtual experiences and real world environments, offering bespoke headsets for around half the price of a VR device.

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V-Showroom

Isobar created a first of its kind mixed-reality car dealership for General Motors.

Dubbed the V-Showroom, the mixed-reality (MR) application provides an augmented dealership experience of GM's all-new Chevrolet Cruze for consumers, enabling them to virtually experience the car and its key features – anywhere and anytime.

Using an iPad attached to a structural depth sensor, any physical space can be scanned in real-time enabling users to place a 3D replica of the car on any surface, from their coffee table to their driveway.

The experience is being rolled out across 110 South Korea dealerships, and 4 new models across Australia, Korea, the US and the Middle East.

Find out more **here**.

Emotion unlocked

Isobar have developed a way to understand the emotional states created by virtual, augmented and mixed reality experiences.

Traditional methods of user experience testing have been less than effective – having someone narrate or describe their VR experience defeats the immersive purpose of the VR experience.

Isobar's new emotional tracking system uses eye tracking, electroencephalography, galvanic skin response, EKG and facial electromyography to understand how the users are affected by these new interfaces.

Dave Meeker, Vice President, Isobar US commented: "Emotions provide the energy behind virtually every behaviour people engage in, every day of our lives. And emotions are tricky to measure. For VR to power anything, including commerce, we must measure in-the-moment emotion. Brands that invest in VR now can have precise and sensitive methods that measure stumbling blocks and successes without depending on self-reporting, language, cognitive effort, memory, or even users' willingness to give an honest answer.

Isobar is at the forefront of VR, working across industries to help define strategic roadmaps for the next wave of training, education, productivity, and consumer-facing digital experiences."

Find out more **here**.

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From screens to specs

While most commentators agree that for now, mobile will be the primary way we interact with VR & AR experiences, few are betting long term against the development of truly smart, lightweight wearables that will provide an augmented "layer" on the world without the need to pull out our phones.

The second iteration of Snapchat's Spectacles are projected to include AR functionality, while Mastercard are experimenting with AR shopping via smart glasses and iris scanning technology. Speculation is also rife that Apple are working on a glasses product, as Tim Cook sings the praises of Augmented Reality:

"My view is that augmented reality is the larger of the two, probably by far, because this gives the capability for both of us to sit and be very present talking to each other, but also have other things visually for both of us to see."

The "Empathy Machine"

Often dubbed "The Empathy Machine", Virtual Reality has a unique ability to put users in others' shoes.

In laboratory settings at least, virtual reality experiences have been shown to have a significant impact on users' ability to empathise. Jeremy Bailenson, director of Stanford University's Virtual Human Interaction Lab is exploring the effects of VR on behaviour. Seeing a 65 year old avatar of oneself, for example, makes users more likely to plan for retirement.

Meanwhile, the UN's "Clouds over Sidra" VR experience about a young Syrian refugee inspired twice the average response rate for UN or UNICEF campaigns.

The utility imperative

On the opposite end of the spectrum, AR offers a significant opportunity to add utility to everyday experiences.

The potential is to augment everyday interactions with useful information, such as ratings and reviews, calorie counts and price comparisons.

This means that the level of transparency currently available to consumers online will now be available offline, making it increasingly important to capture positive customer feedback.

Sources: Stanford University, Unicef

2. Powered by People

Membership is the new ownership as technology turbo charges the sharing economy

"A new trust framework is emerging, fueled by social, economic & technological forces that will profoundly change not just how we are trusted in the world, but how we view trust in the world"
—Rachel Botsman

A recent survey by Dentsu Aegis Network examined the nature of trust in China, the UK, the US and Germany. Across all of the markets studied, consumers are most likely to trust a brand that is recommended by people they know. While there are significant differences in the trust users place in other sources around the world - 66 percent of Chinese consumers trust major institutions versus just 25 percent in Germany - trust in peers remains key in an era of fake news and corporate scandal.

These shifting dynamics, alongside evolutions in ecommerce, and innovations such as Blockchain, are opening up new business models harnessing the power of community over corporations.

Sub Trends

Direct to Community

The rise of digital disintermediation

Power to Peer

The evolution of the sharing economy

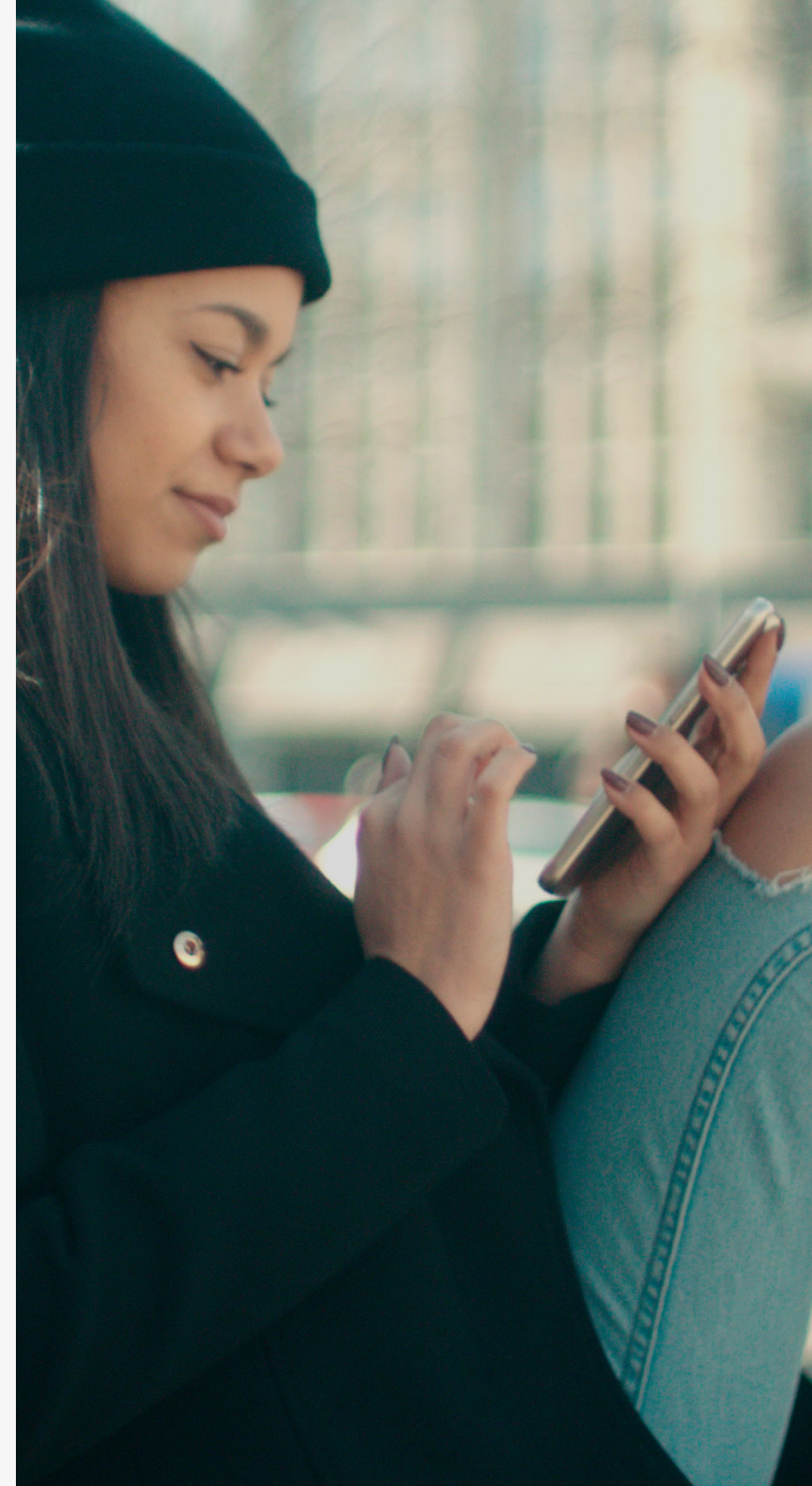# 2.1 Direct to Community

The rise of digital disintermediation

"We are taking the power back" –Marcia Kilgore

Digital disruption has been slower to impact packaged goods companies than other sectors; a majority of FMCG brands are still sold offline, in familiar distribution, at familiar price points. However, a cluster of direct to consumer propositions have sprung up in recent months to challenge that orthodoxy, something that may prove to be increasingly important as Amazon disrupts grocery retail.

Launched in July this year, Brandless is a range of grocery and healthcare products, exclusively available online. All foods are non GMO, and a majority of products are organic. Every item, from honey to handsoap, costs just $3. The company can offer these savings, it argues, by eliminating "Brand Tax": "the hidden costs you pay for a national brand".

Meanwhile Beauty Pie, founded by Marcia Kilgore of Bliss and FitFlop fame, offers luxury cosmetics at factory prices for members who subscribe to the service for $10 a month. This brings the cost of a luxury lipstick down from $25 to $2.39.

Both brands are absolutely transparent about the usual mark ups applied at retail and vocal about removing those costs and democratising the market. Brandless' mantra is a simple call to action: "Everyone deserves Better".

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Lemonade insurance

Lemonade is an insurance company with a difference. The company uses AI to sign up users and process claims, dramatically reducing the time taken to process. It charges a flat fee which it uses to fund payments, removing any incentive to hang on to funds or delay processing claims.

Most importantly, when users sign up, the company asks them to pick a charity. At the end of the year, the company donates any excess paid to charities as part of their "Giveback" programme.

As founder Daniel Schrieber puts it: "By urging our policy holders to choose a cause to "give back" to, we are creating a community of like-minded individuals, building trust and reducing probability of fraudulent claims. If someone embellishes their claim, they are only depriving their cause."
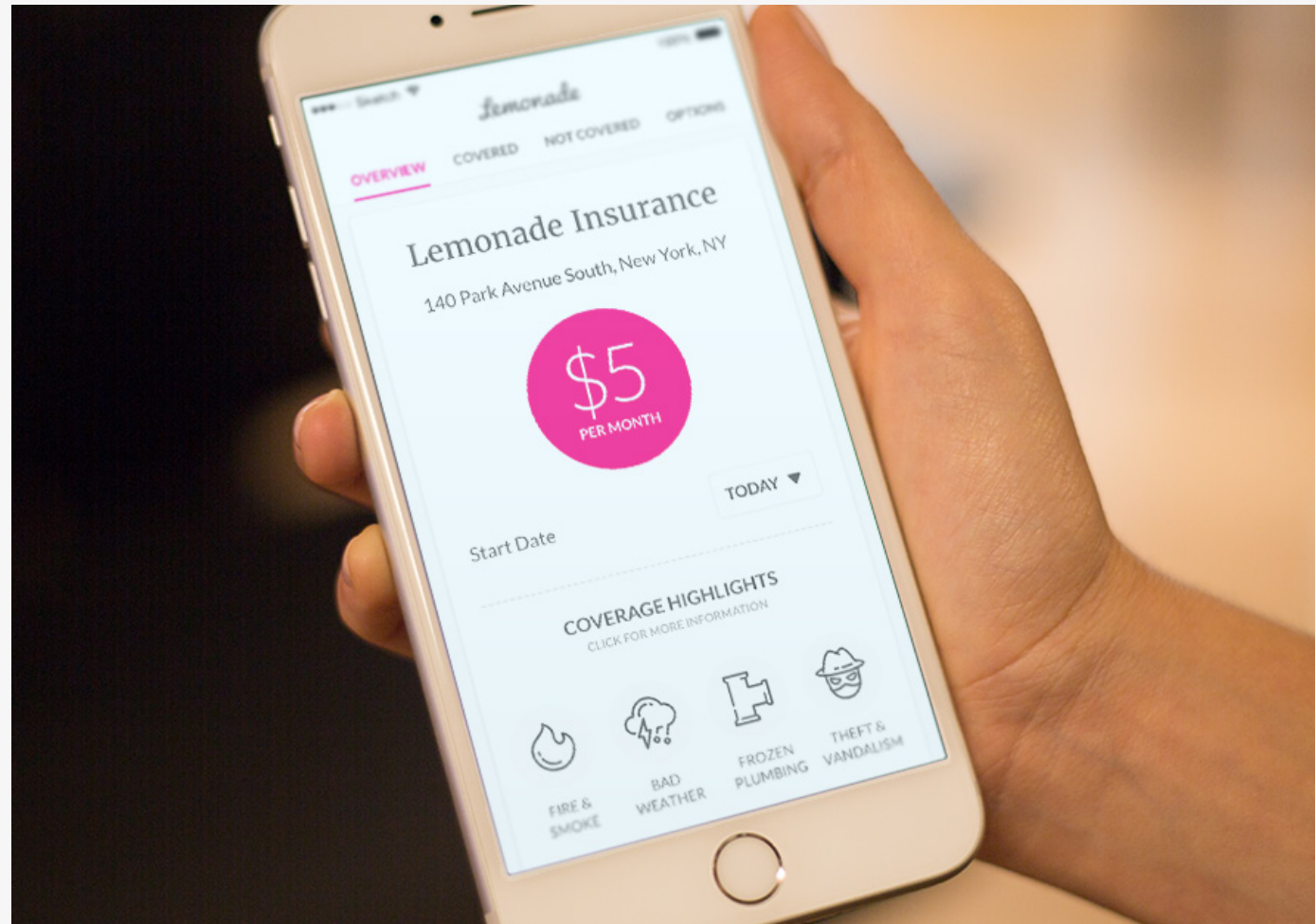
From customers to communities

Subscription models have been gaining in popularity for some time, across sectors from flowers to beauty to clothing and tampons. Baby Gap have most recently entered the market with their OutfitBox, a quarterly subscription box that automatically sizes up as your baby grows, while Amazon have introduced Subscribe and Save to their Prime customers.

Evolving business models however go beyond simple subscription packages towards online communities, where the collective access better deals and come together around shared values. Pure Planet, a renewable energy start up, offers energy at cost price to its members, alongside community powered customer service. Brandless donate a meal to Feeding America for every order placed, or two

for every order placed by their B.More members, all with the aim of building a community of shared values not just a community of convenience.

As the roles of on and offline retail channels evolve, fostering that sense of community in store as well as online will represent a significant opportunity in a world where real world connections are becoming increasingly valuable.

Best Buy for example plan to expand their Teen Tech Centers, teaching underprivileged teens technical skills and encouraging them to pursue careers in STEM.

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Disrupt or be disrupted

The world of packaged goods is finally experiencing significant disruption. Looking at platforms such as Brandless or Beauty Pie one can only wonder why the major FMCG corporations have not experimented earlier with new business models or routes to market.

With Amazon disrupting not only the retail landscape but also introducing own brand ranges from baby food to apparel, it is imperative that manufacturers find new routes to market.

Find a market in the niche

A significant opportunity for brands is to use direct to consumer models to experiment with new categories, new price points or emerging trends that might struggle to gain distribution in conventional retail.

These may be high growth areas for mature businesses, enabling the company to learn, prove and scale.

The data dividend

While direct to consumer platforms may not drive scale in the short term, they offer additional benefits for FMCG brands – in terms of the data they generate about consumer purchasing habits, and the opportunity for rigorous testing and optimisation which can then be applied across other retail partners.

The opportunity is to think of a range of retail platforms as complimentary and mutually reinforcing rather than an either / or mentality.

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2.2 Power to Peer

The evolution of the sharing economy

"Collaboration technology is what block chain really is" —Joanna Hubbard

The peer to peer economy has seen some significant successes, particularly in the finance and automotive sectors. Car hire businesses inspired by Airbnb from HiyaCar to Easy Car have sprung up encouraging users to rent their cars out to peers.

In the finance sector, peer to peer lending is increasingly mainstream, with Santander partnering with Funding Circle to refer riskier small business needing start up loans.

Major automotive brands have also embraced the trend, preparing themselves for a world where access trumps ownership. Ford has spun its smart mobility initiatives into a subsidiary company focused, among other things, on ride sharing and car sharing. GM have introduced a car sharing service called Maven in Michigan, predicting that 30m people will be using such services within the next decade.

Block chain technology is also opening up the sharing economy to new sectors; energy start up WePower proposes to use the block chain to make energy tradeable and accessible to anyone. Similarly, Open Utility aims to enable users to buy and sell energy in a much more open and dynamic manner than is possible today.

CEO James Johnson said: "We thought about the way that the internet changed the way people engage with information, instead of just being consumers of information they can participate. We think the same is true of energy use'.
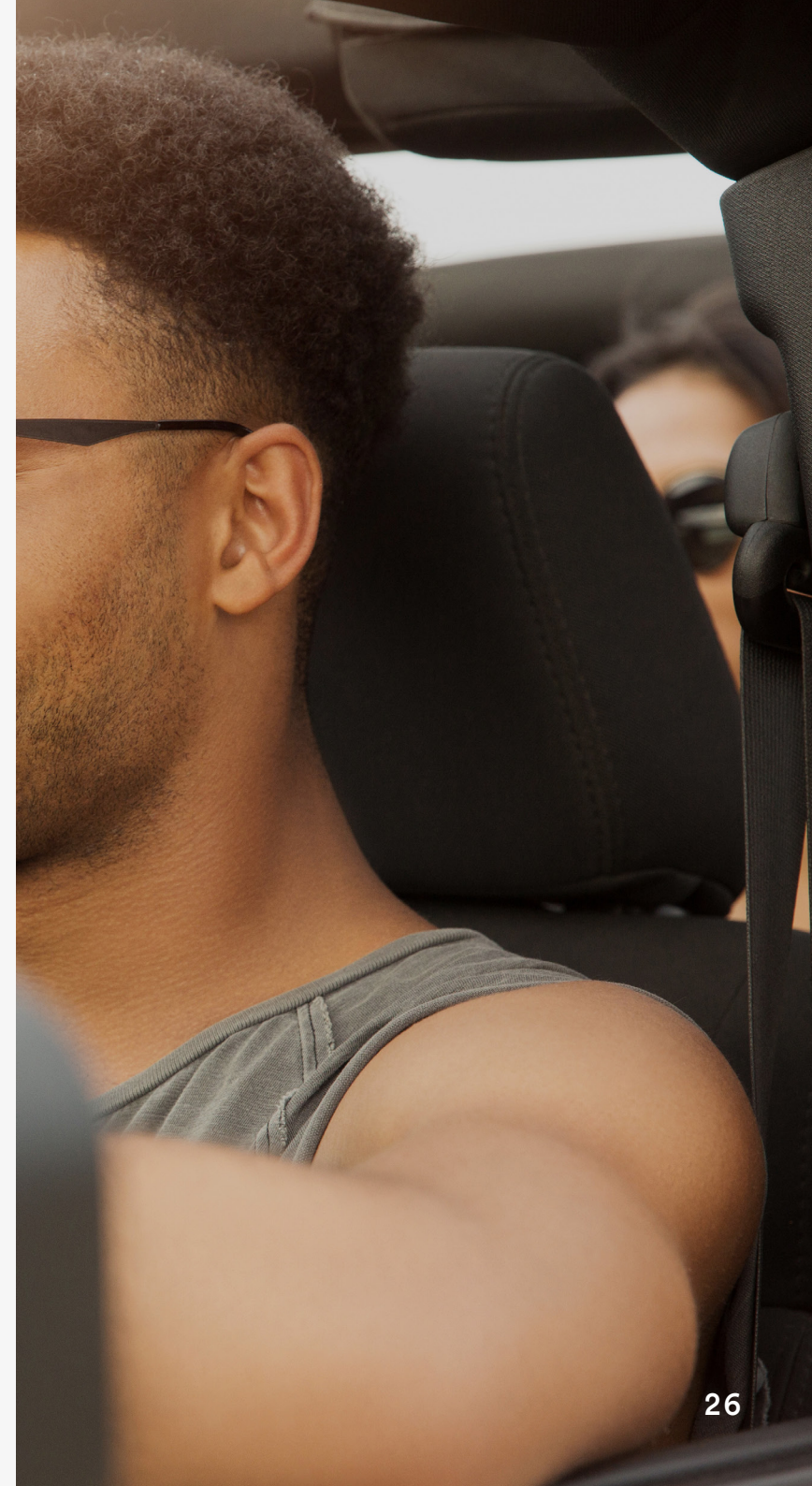
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The Side Project

Isobar Greece realised their 80 employees were spending some 50,000 euros a year on coffee. With that in mind, and with the aim of more fully understanding the way the FnB market operates and the challenges their clients are facing in their everyday business, the agency decided to develop and launch The Side Project – a coffee shop built, managed and maintained by agency members.

The interesting twist is that the more people use the coffee shop, the lower the price. Within the first three months, enough agency staff were buying coffee to drop the price by 15%. The ultimate aim is to make coffee free to agency staff – a powerful example of the power of the collective.

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The future of cities

Alongside autonomous vehicles, as car sharing evolves, fewer cars and drivers on the road will have significant implications for city design, with benefits in terms of environmental impact, congestion and ease of navigation. It will also impact how city space is used, as the high demand for parking spaces diminishes.

As McKinsey put it: "Changes in the number and mix of city vehicles will have important implications for how land is managed. Consider one relatively mundane land-use issue: parking. Parking space occupies up to 15 percent of public land in sprawling metropolitan areas. Shrinking vehicle fleets should make it possible to repurpose some of that space."

There are significant advantages for brands who can take a lead on both partnering with government to drive adoption of smart city technologies, from contactless payment to smart metering to vehicle sharing, and think in innovative ways about how to repurpose urban spaces.

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Brand as service

As Millennials, and Generation Z going forward, prioritise access over ownership, manufacturers will need to build new kinds of relationships based on providing a service layer versus a purely transactional relationship.

Smart brands will, like GM, begin to explore how they can use their financial and logistical advantages to facilitate peer to peer relationships while the environmental agenda allied to the blockchain will see increased sharing of everything from energy to bandwidth.

The power of reciprocity

Whether brands fully embrace the sharing economy or not, a spirit of generosity and reciprocity will be important going forward. Consumers are increasingly seeking a sense of personal reward and participation from businesses, understanding that transactions are no longer a one way street.

On a more playful level, Shell are encouraging users to "Jump for your Lunch". Users jump on kinetic tiles to generate energy which is then used to pay for lunch from Shell's Synergy Food truck - a clean technology kitchen serving eco friendly food.

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3. The Economy of Me

Data delivers personal interactions at every point of purchase

"A 'segment of one' marketing and sales approach is rapidly becoming reality" —Bain Insights

New frontiers in data are opening up the potential for increasingly personalised interactions across a host of different sectors. Retailers are using a combination of machine learning and human interaction to curate truly personalised product recommendations and deliver personal service at scale.

Start ups are experimenting with introducing dynamic pricing to physical stores. Already the norm in some markets, the widespread introduction of digital price tags could enable stores to change pricing multiple times across the course of the day.

In healthcare, as the cost of genome sequencing continues to drop, we may also see health insurers evolve personalised pricing models based on a combination of genetic predisposition and the personal wellbeing data already captured via wearables today.

Sub Trends

Machine Earning

AI delivers increasingly personalised retail experiences

Smart spaces

Digital data infuses the offline world

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3.1 Machine Earning

AI delivers increasingly personalised retail experiences

"A lot of people view AI as this cold and almost robotic future. For me, I see it as the exact opposite, I see it as the consumer experience becoming almost magical" – Courtney Connell, Cosabella

AI and Machine Learning are playing an increasingly significant role in retail, in terms both of customer experience, back end logistics and even product design and customisation, all delivering an increasingly personalised and responsive experience.

Brands from Burberry to Pizza Express have introduced Facebook Messenger bots, aimed at automating customer service queries and driving "everywhere commerce". The Burberry bot for example offers a live chat with a Burberry consultant and a store locator function linked to Uber.

Lowe's Hardware Stores have introduced the "Lowebot", an in store robot that answers customer queries in multiple languages, helps direct costumers around the store and performs real time inventory tracking and management. Walmart are also rolling out robots in store designed to scan shelves for missing, out of stock or mispriced items. Meanwhile, apparel brands are experimenting with using technology to develop personalised products. Original Stitch's Bodygram uses computer vision to capture the dimensions of a user's favourite shirt and recreate it. Overall, the market research firm Tractica predict that revenue from AI will reach some $36 billion by 2025.

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PayPal Bae

PayPal Australia partnered with Isobar to launch Bae, a Facebook Messenger bot that helps Australian millennials discover quirky and bespoke online fashion retailers from all corners of the world.

Bae uses interactive, humourous and emoji-laden questions to reveal a shopper's personal sense of style, before connecting them with unique online retailers that suit their fashion sense.

Whether asking about fashion inspiration: *"You're after a new look and need some reality TV inspo… The Bachelor or Survivor?"* – or digging into what shoppers are most comfortable wearing: *"Would you wear trackies everyday OR only when nobody's watching?"* Bae matches fashion-forward Aussies with a selection of hundreds of online retailers from Australia and all over the world, including Poland, Korea, Italy and beyond. Find out more **here**.
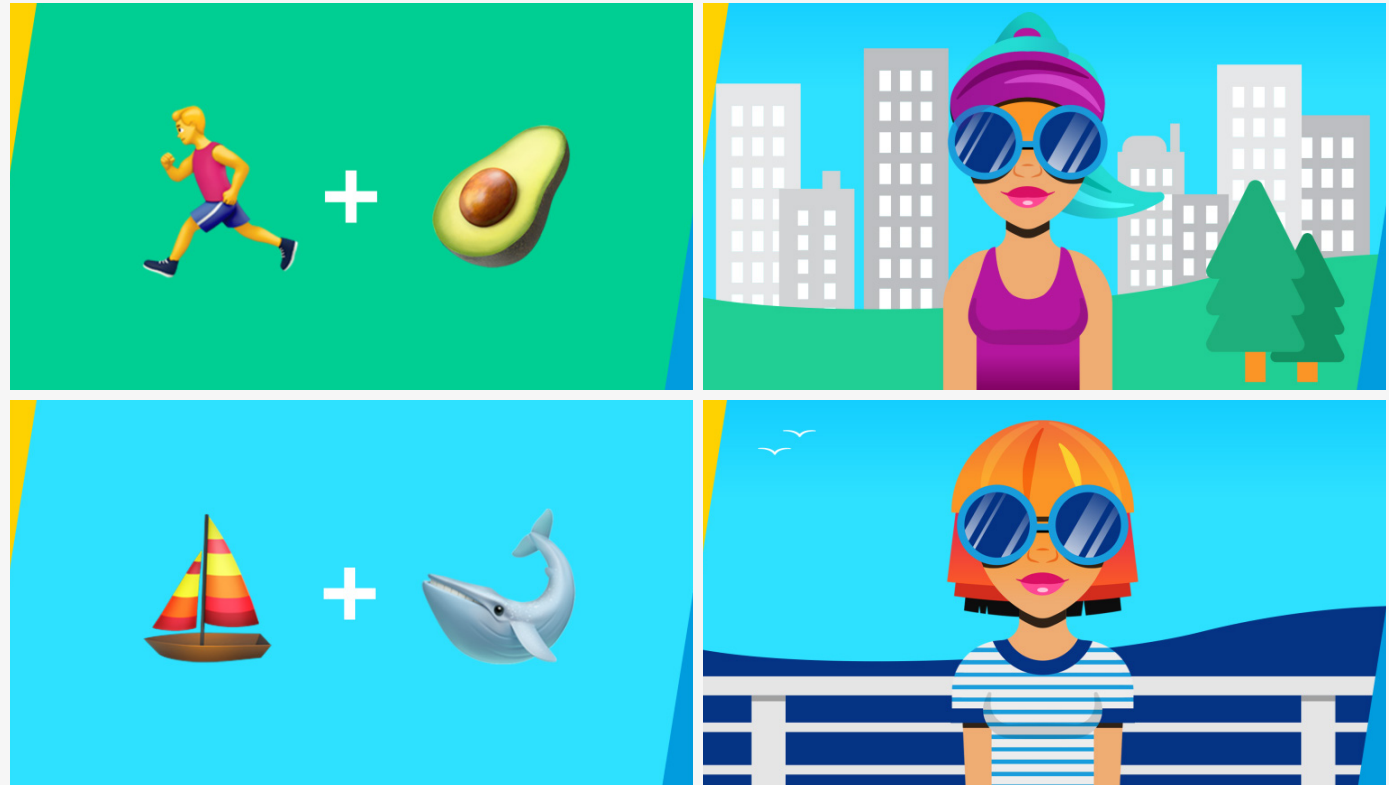
Human and machine

Walmart are keen to emphasise that the introduction of robots in store will not mean job losses. Rather, they maintain, the robots will enable their staff to perform better by removing arduous tasks that are easily automated.

As more tasks can be automated, and bots can respond to a wider of range of queries, building a body of user knowledge few humans could replicate, the challenge for companies will be to understand the optimal balance of man and machine in delivering exceptional customer experience.

This will require rigorous understanding of the user journey, understanding which points in the journey are fuelled by emotion and serendipity and which are driven by frictionless interaction.

Moreover, we will need to think harder about how we design emotional interfaces,

ensuring even the simplest interactions are playful or aesthetically rewarding. Marriot, for example, have created a Slack extension that enables users to vote on, and book, a hotel room simply using a thumbs up emoji.

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Next gen customer service

The ultimate aim of chatbot technology is to deliver high end, highly personalised customer service at scale.

Both by scaling a brand's ability to respond to questions, and by building understanding of customers' likes and dislikes over time, AI and Machine Learning have the potential to transform and unite the customer service and CRM functions.

Personalised pricing

As digital pricing displays become the norm, and mobile remains ubiquitous it is not impossible to imagine retailers surfacing different price points for different individuals based on a host of contextual information.

This may seem far fetched but as anyone who has ever tried to book an airline ticket knows, dynamic pricing is only too real.

Finding a voice

As with the Eyes and Ears trend, these technologies require brands to build an ever deeper understanding of their brand voice, and how humans and machines come together to deliver that voice.

As conversational interactions become more commonplace, machines will learn from best in class customer service while companies will learn where automation excels and where humans will need to intervene.

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3.2 Smart spaces

Digital data infuses the offline world

"eCommerce will become increasingly physical, tactile and immersive, and the in-store experience significantly more web-like, connected and data-rich" – Doug Stephens, Retail Prophet

By 2020, Gartner predict there will be some 20 billion connected "things" in the world.

The ubiquity of mobile and the rise of connected devices, products and stores means digital data is increasingly playing a role in stores, stadiums and cities.

Mobile apps are enabling department stores to target shoppers with personalised offers, and help them navigate the store.

Macy's On Call app directs customers to the right place in the store-learning, over time, about their habits and preferences. The app also incorporates a chatbot and visual search engine.

Companies such as Lightwave and Emotient are working on facial recognition and biometric technologies that will asses the mood and emotion of a crowd, whether at a concert, a major sporting event or a movie.

Meanwhile, in China, Alibaba analyses traffic flow in its home town of Hangzhou to enable real time traffic management, minimising emissions and building a dynamic, on demand bus service. China leads the world in uptake of "on demand" transportation, with no fewer than a half-dozen bike-sharing companies vying for market share in Shenzen alone.

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KFC smart stores

Isobar partnered with KFC and Baidu to introduce new in-store technology enabling people to order food from a robot.

Diners place their order via 'Dumi,' a voice controlled robot that understands regional Chinese accents. To celebrate the launch of KFC's 5000th store, the company experimented in trialling image recognition software to help Dumi recommend meals for customers based on their age, gender and mood.

The store also features self-ordering kiosks, smart music tables that wirelessly charge smartphones and 3D holographic projections.

Find out more **here**.

Shop and (Amazon) Go

Amazon Go is conceived as the ultimate data rich, frictionless retail experience. Currently in Beta with Amazon employees in Seattle, the Go store aims to enable shoppers to simply grab and go. Individuals are identified through their smartphones and their movements and purchases are using image recognition.

As Amazon themselves put it:

"Our checkout-free shopping experience is made possible by the same types of technologies used in self-driving cars: computer vision, sensor fusion, and deep learning. Our Just Walk Out Technology automatically detects when products are taken from or returned to the shelves and keeps track of them in a virtual cart. When you're done shopping, you can just leave the store"

While Go is very much a work in progress, the presence of mobile apps and connected stores mean the idea of a single checkout instore could quickly become as outmoded as a single eCommerce destination online. Everywhere commerce will shift from online to offline as shoppers become their own cashiers.

Here comes the neighbourhood

While smart cities play an important environmental role, as important is the impact on a city's sense of community. As Erik Hallander, the MD of Isobar Australia, put it "Environmental efficiency is not the underlying driver for Australia's smart cities — it is community-building, and connecting people to services."

With governments eager to access private sector funding, the opportunity is for brands to power that sense of neighbourliness.

AI for the enterprise

Beyond immediate customer experience, AI and Machine Learning have the potential to transform logistics and infrastructure.

For retailers, for example, machine learning can more accurately forecast trends, sell through and replenishment cycles reducing both surplus goods and out of stock.

SHELFIE is an interactive POS system developed by Isobar China that engages customers through WeChat and collects behavioural data using AI technologies.

It also has a modular IoT system that fits the needs of different physical locations and a dashboard to visualize the customer data.

4. The Ethical Algorithm

Technical possibilities will meet ethical intervention to ensure technology remains a force for good

"I'm optimistic because we are having a conversation about biased algorithms" –Tim O'Reilly

In recent months the industry has wrestled with challenges from fake news to algorithm bias to the concern that robots will eliminate human jobs, all highlighting the need to balance technical possibilities with human intervention.

There are significant issues to wrestle with, from the ethics of the algorithms that control ever increasing aspects of our lives to the ethics of the gig economy.

Automation also brings with it a host of previously unimagined dilemmas - how, for example, should we teach the self driving car to behave when it comes to prioritising passenger safety over pedestrians?

As technology expands, the need for checks and balances increases accordingly as regulation struggles to keep abreast of public opinion.

Sub Trends

Moral code

Can an algorithm have a conscience?

The gig grows up

Rethinking the gig economy

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4.1 Moral code

Can an algorithm have a conscience?

"AI is the rare case where I think we need to be proactive in regulation instead of reactive" – Elon Musk

Algorithms have begun to regulate more and more of the decisions affecting our lives, yet are "learning" from implicit biases embedded in the ways we use language.

The ethical challenges we face in a world of AI and algorithms first came into stark focus with the launch of Microsoft's Tay bot. Tasked with learning by copying human speech, within 24 hours of being let loose on the internet it had developed racist, misogynist tendencies.

Tay bot is the most extreme example of what is a very real problem. While we have a tendency to view algorithms as reassuringly neutral, they are awash with the same unconscious prejudices as their human equivalents, without the self awareness that enables humans to self-correct.

This has significant implications when algorithms are used in hiring, managing workforces or deploying resources.

As Joanna Bryson, a researcher at the University of Bath put it: "People expected AI to be unbiased; that's just wrong. If the underlying data reflects stereotypes, or if you train AI from human culture, you will find these things."
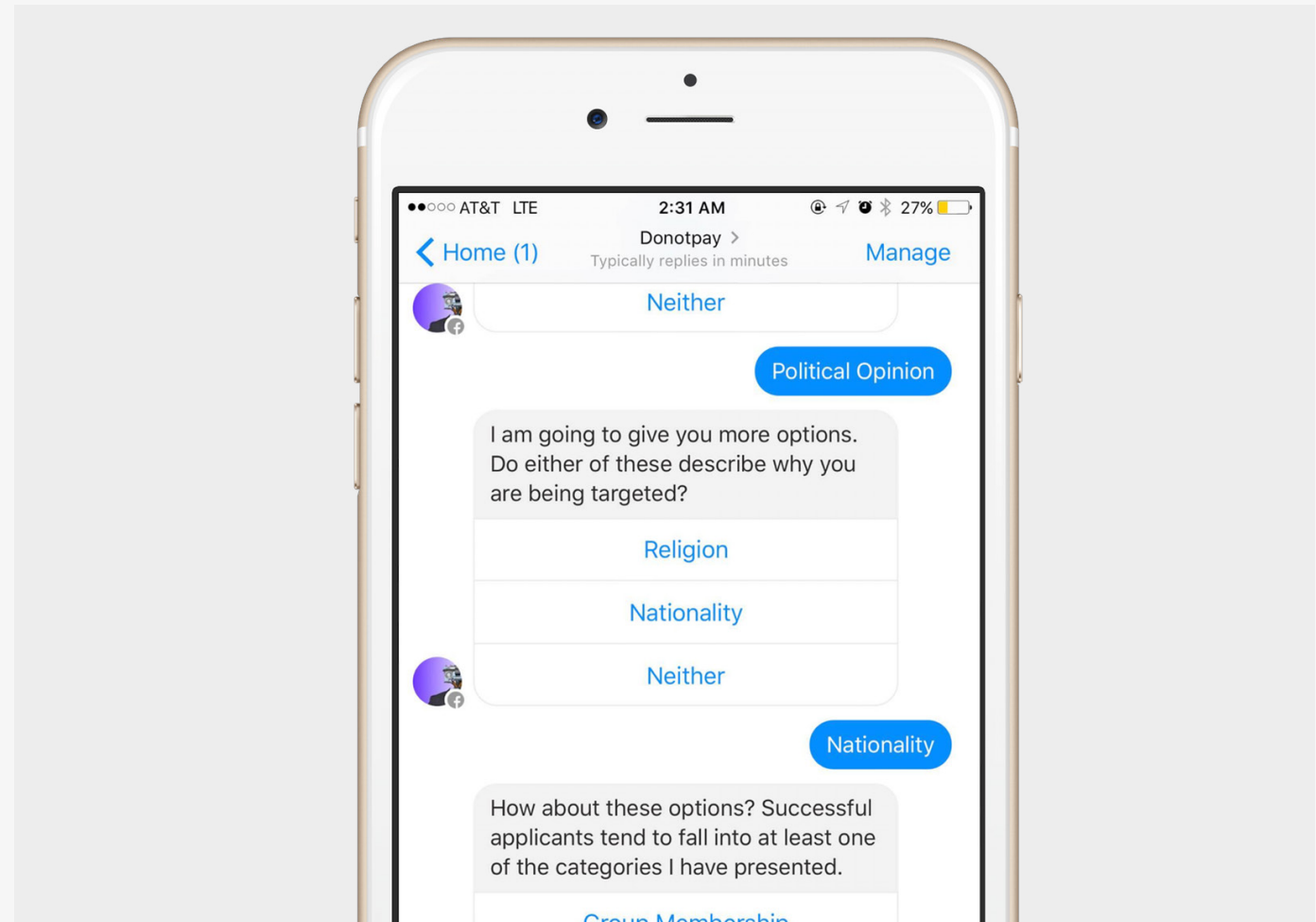
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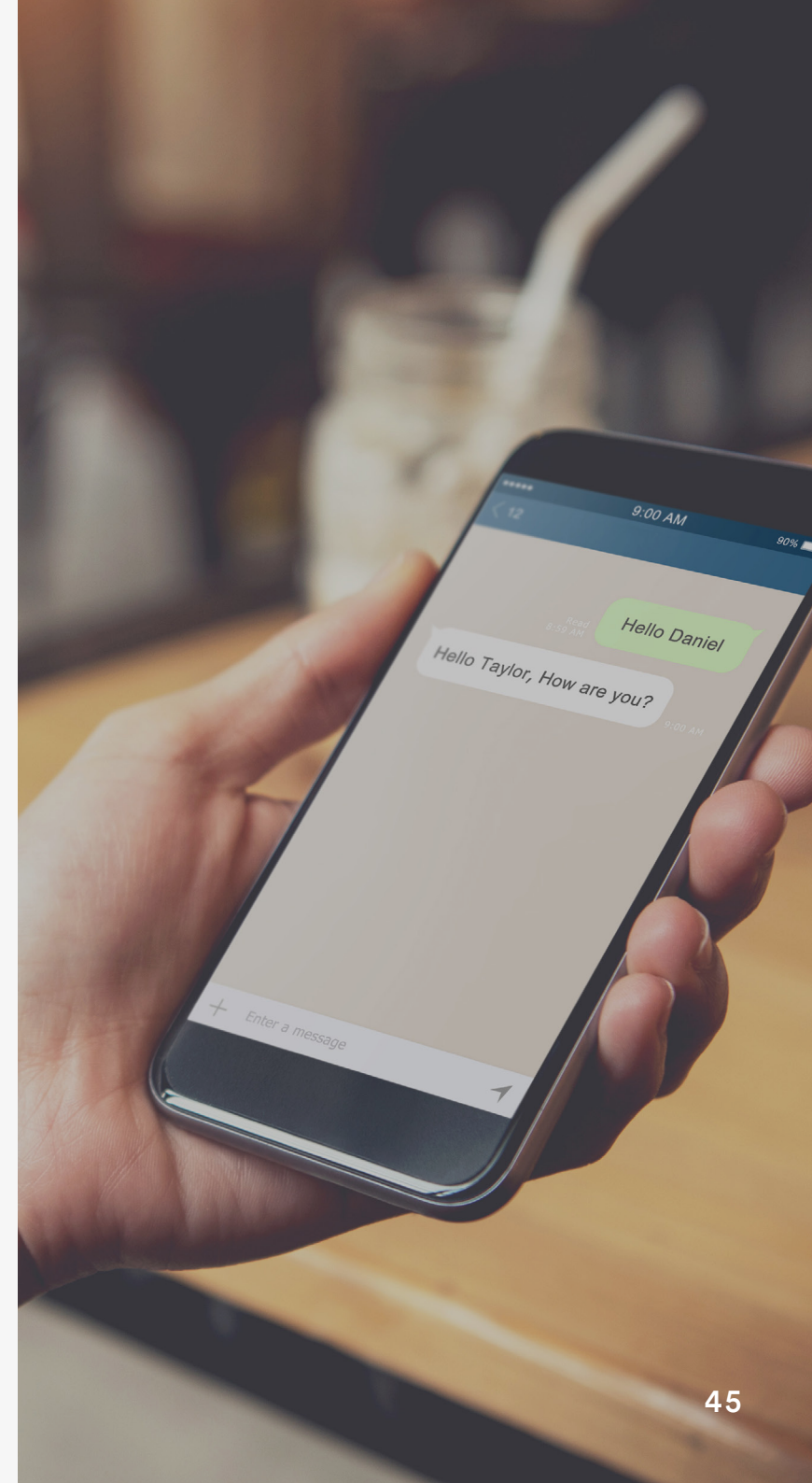
The Robot Lawyer

Stanford student Joshua Browder has created a chatbot which helps refugees access legal advice, helping them complete immigration applications in the US and Canada or requests for asylum in the UK.

The chatbot started its life as DoNotPay, a bot which helped users overturn over 160,000 parking tickets, but has also evolved to help vulnerable users find emergency accommodation.

Delivered via Facebook Messenger, the bot has the potential to walk vulnerable individuals through complex legal processes at scale in a simple, accessible way.

How to train your algorithm

Replika offers users the opportunity to create their own "AI friend": "The first consumer AI that enables people to build a totally unique digital friend".

Users are encouraged to create and train their own AI, teaching it over the course of conversation to understand what is relevant and coherent conversation. They can connect their social profiles to help with the learning process and are encouraged to upvote or downvote conversations so the AI learns what works.

According to the site, "Your Replika uses what it learns from you to become a better friend to you, be there for you, and grow emotionally and intellectually".

Source: Replika.ai
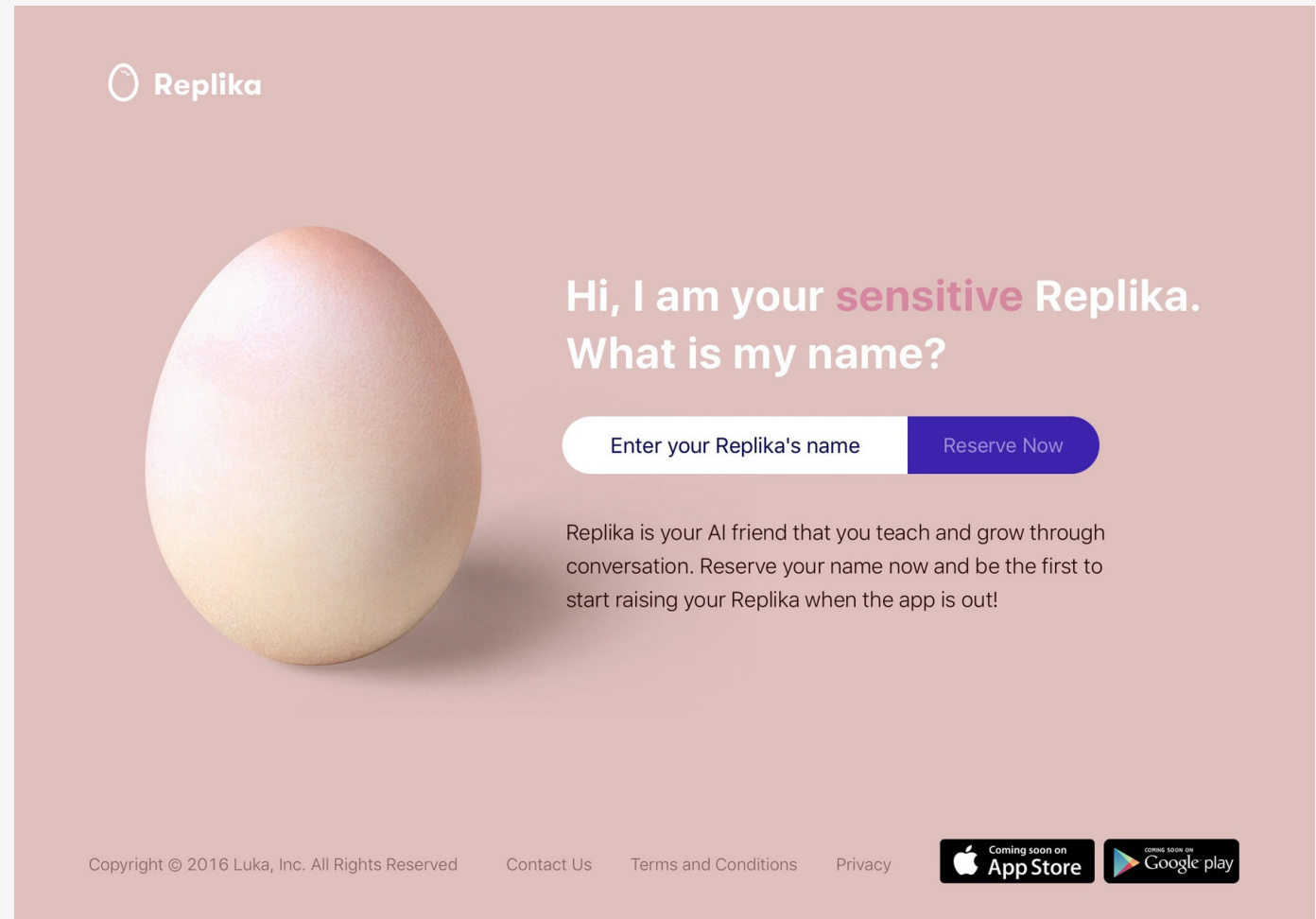
Radical transparency

Companies relying on automation when it comes to choosing job candidates, prioritising customers or vetting applications for, say, mortgages or credit cards will need a robust understanding of how their algorithms are designed and any implicit biases encoded therein.

Checks and balances will need to be built into processes to uncover and adjust for these issues. "A robot did it" will not be a satisfactory excuse for good corporate citizens.

Diversity in design

As interfaces become more human, with greater reliance on image and voice recognition, brands will need to ensure that the software is not being trained to respond only to one kind of face, or one kind of voice. The key to that will be developing diverse teams to ensure our algorithms are receiving diverse input.

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4.2 The gig grows up

Rethinking the gig economy

"There are some anxieties about this new way of working – in particular, whether certain benefits and protections, like sick pay or insurance, should be on offer"
– Will Shu, CEO, Deliveroo

Once hailed as a revolution in working and hiring practices that would empower workers and employers alike, the gig economy has come under fire in recent months for problematic issues around workers' rights and their status as employees.

While there are undoubtedly a younger generation of workers who relish the freedom of freelance working and the opportunity to pursue their "side hustle", working practices and transparency will come under greater scrutiny going forward.

The challenge will be for companies to continue to fuel the "On Demand economy",

fulfilling our desire for instant gratification in a profitable and ethical way.

Shu concluded, "This would not only put at risk the flexibility our riders cherish but would limit our ability to respond to customer demand". The debate will almost certainly run and run.

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From product to service

Ikea recently announced the acquisition of Task Rabbit, an app connecting users with local tradespeople who can perform a range of tasks from cleaning to delivery, removals and - most importantly for Ikea - furniture assembly. Taskers can choose the jobs they want to perform, and set the rate they are prepared to accept.

By partnering with Task Rabbit, Ikea removes one of the major points of friction in the user journey and creates a new customer relationship rooted in service.

Similarly, UK department store John Lewis have introduced a Home Solutions service, matching customers with 150 trusted local tradespeople to date. The brand has further plans to reframe the instore relationship around services and experiences, from hairdressing to personal shopping and home design.

As Theodore Levitt famously said "People don't want to buy a quarter-inch drill, they want a quarter-inch hole."

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The rise of the collective

While the principle of flexible, on demand working continues to appeal in the future we may see a shift away from highly centralised models towards more of a collective approach. Again, the block chain has the power to have a transformative effect.

As Rachel Botsman, author of *What's Mine is Yours*, put it:

"I think the second thing that is further along is that we're going to see a move to more and more decentralized structures…[where] they don't need any kind of centralized platform, they can just operate on a block chain exchanging value, and that's where I think we're heading to."

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Powering the experience economy

As brands - and consumers - place increasing emphasis on service and experiences to compliment the convenience of online shopping those brands will need access to a host of skill sets they do not possess today.

Rather than embark on wholesale hiring or retraining programmes - although that may come as automation accelerates - it makes sense for companies to have access to a network of independent talent. The challenge, and imperative, will be to create terms of engagement that are mutually beneficial.

Collective action

Within the overall shift from product to service brands we may also see brands begin to enable their consumers to come together for the common good. In the financial services sector, for example, eToro enables investors to tap into the wisdom of the crowd by "following" top performing investors.

The Food Assembly connects users with local food producers. Each "Assembly" brings together a range of providers, enables them to set their own prices and connects them with an audience. Consumers collect their order from a local venue at a set time, connecting with both producers and their neighbours.

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5. The Makers & the Machines

Art and technology will combine like never before to
deliver extraordinary new outputs

"Art is one of the last domains in AI where there is an optimistic view on how humans and machines can work together"
—Dave King, Founder, Move 37

Digital artists have been pioneering new worlds in creativity for some time but recent evolutions in AI and VR are opening up still greater opportunities for experimentation.

Facebook used Virtual Reality to unite Van Gogh's five sunflower paintings for the first time. Artist Graham Fink paints extraordinary portraits using only his eyes, eye tracking software and an algorithm that smooths the rough lines out.

Artificial Intelligence is creating art that cannot be distinguished from that created by humans.

Sub Trends

Art and the Algorithm

The rise of AI generated art

Modular storytelling

The evolution of non linear narratives

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5.1 Art and the Algorithm

The rise of AI generated art

"Much like Jackson Pollock figured out a new way to paint… these new computational techniques create a broader palette for artists" – Professor Allison Parrish, NYU

The last years have seen extraordinary developments in art produced by AI, from music to painting to literature.

Researchers from Rutgers University, the College of Charleston and Facebook's AI Lab collaborated on a project training Artificial Intelligence first to reproduce historical styles of art and then to create images that were entirely original. Viewers had difficulty telling the difference between computer generated art and art presented at the Art Basel exhibition by human artists.

In the field of journalism, a number of news outlets are using AI to generate simple articles that would previously have required a journalist's input.

The Wordsmith software for example is able to automatically generate match reports and polling updates. Its parent company Automated Insights generated 1.5 billion articles in 2015 and claims to be the world's largest content producer.

Meanwhile, Virtual Reality and 3D printing are transforming our understanding of live events, and our sense of what is real and what is virtual. At the Royal Academy's Virtually Real exhibition users were able to move through and interact with virtual installations created using Google's Tilt Brush programme. The installations were also 3D printed to enable users to interact both on and offline.

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Virtual video

Isobar US partnered with William Patrick Corgan of The Smashing Pumpkins and Viacom NEXT to create a Virtual Reality music video. The creative team captured the musician's hologram performance at Microsoft's Mixed Reality Capture Studios, using Tilt Brush – a 3D painting application designed by Google – to design the digital landscapes.

The VR experience will be available to the public in early 2018, while a 2D teaser video has just been debuted. The VR experience is designed for room scale systems – initially Microsoft Mixed Reality headsets – with versions for other operating systems to follow.

On a more practical note, Isobar China worked with Nippon Paint helping potential customers to experience how different colours can affect their environment. Isobar developed a mobile app that changes the colour of the walls using a 360 camera.

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Is it an original?

While AI has been highly successful at replicating existing styles of art, the challenge has been to create something wholly original.

Professor Ahmed Elgammal of Rutgers University is going beyond training an AI to replicate old masters, using something called a Generative Adversarial Network (GAN).

A GAN trains two AIs to work together, one as creator, the other as critic. Professor Elgammal trained one AI with extensive knowledge of historical art styles, critiquing the other AI until it was able to produce something entirely original and indeed something 75% of respondents believed to be created by a human painter.

The output poses fascinating questions around the nature of art and originality, and indeed the ability of machines to move us.

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Creative automation

If AI can generate newspaper articles, it can generate advertising copy. While the role of brilliant creative thinkers will never disappear, going forward we will be able to free up their time by taking more executional tasks off their hands.

Product descriptions for a website, or multiple iterative banner headlines designed to test and learn, could be outsourced to AI leaving our creative partners to focus on the bigger picture.

Next generation customisation

Technologies such as 3D printing are making whole new levels of customisation available at scale.

Crayon Creatures creates toy figurines from children's drawings while Picture This clothing turns your child's drawings into clothing.

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5.2 Modular storytelling

The evolution of non linear narratives

"The marriage of tech and storytelling is a recipe for success" –Jon Favreau

Choose your own adventure stories is something we all remember fondly from childhood, brilliantly updated for the digital age by Wonderbly, creators of the "Lost my Name" series.

Yet modular storytelling is evolving in an ever more sophisticated direction.

Steven Soderbergh has partnered with HBO to develop a TV series, Mosaic, which enables users to follow the story from different characters' points of view using a companion app.

The choices users make within the app (launched in November) will shape their experience of the narrative, which they can then compare with the linear on screen narrative which airs in January.

Meanwhile, immersive storytelling app Unrd are experimenting with storytelling through the medium of messaging. Their first story, "Last Seen Online" has been nominated for The Bookseller's Future Book of the Year.

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Story systems

The BBC are also experimenting with an alternative approach to narrative, using their hero content in innovative new ways. The aim is that if, for example, viewers are interested in a particular character or plot they can watch bite sized content with that focus rather than a full hour's worth of programming.

Using what they term "object based broadcasting", the BBC aim to create a system where every piece of content created can be assembled and reassembled in a host of different ways.

As Jon Page, who leads the BBC's R&D department, said: "Broadly speaking, programmes have been a half-hour or hour-long thing, and the same for everybody who watches them. The principle of object-based broadcasting is that you chop up the components of that thing - so pictures, sound, data - and the moments in them. It's about experiencing that particular combination that's right for you, making content that's flexible and responsive and more personal."

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Personalised narratives

We know Netflix uses highly sophisticated data analytics both in powering its recommendation engine and in shaping future programming.

The company can analyse the average colour of the titles customer select. This enables them to decide, for example, whether there is an optimal colour, or whether they should serve different colours to different audiences.

Given this wealth of customer data, and their ongoing investment in original content, it is not a huge stretch to imagine Netflix, HBO and the like automatically personalising content to individual users' preference.

So rather than one fixed episode of Game of Thrones you might see the romantic version, the battle version or the Tyrion-heavy version depending on your personal preferences.
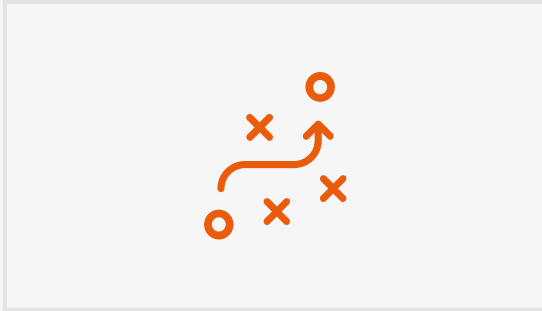
Mix and match

2017 has been a challenging year for AdTech but as programmatic continues to develop the ability to combine storytelling components in different ways for different users or moments will evolve.

We might see happy or sad endings of a story, for example, based on our mood or the mood of the nation.

More pragmatically, we might see different combinations based on age, demographic or location, editors working hand in hand with the algorithm.

Harder working assets

As brands need increasingly diverse kinds of content, from TVCs to 6 second Facebook ads or YouTube pre-roll, it will become increasingly important to think about modular creative assets that can be combined in different ways for different platforms.

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In Summary

At the close of 2017 it is easy to imagine a dystopian future where technology overwrites humanity.

More inspiring is to imagine a future where technology augments humanity, eradicating mundane tasks and making space for compassion and creativity.

As technology advances it becomes more human, not less, returning us to a world where voice is the primary way we interact with the world, where we are recognised and rewarded in stores and where we buy directly from trusted suppliers or from each other.

In this new landscape we will rediscover the power of emotion at every touch point. It will no longer be enough for technologists to ask "how does it work?" we must ask "how does it feel?"

As technology evolves that will interpret tone of voice and enable any voice-activated device to understand and respond to users' emotions a whole new chapter in experience design opens up where we aim not solely to minimise friction but to create emotionally rewarding interactions.

As Steve Jobs put it, in his final keynote: "Technology alone is not enough…it's technology married with liberal arts, married with the humanities, that yields us the result that makes our heart sing."

To find out more about Isobar visit Isobar.com.