

→→→→ SUMMER 2018 EDITION

CHIEF DISRUPTOR

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→ **MACHINES OF LOVING GRACE:** why millennials hate Pepsi and grandad loves extremist content on YouTube

→ **ADVERTISING IS DEAD:** Lego's Lars Silberbauer calls time on a dying industry

→ **DON'T PANIC:** Ocado's Paul Clarke explains why we're not ready for what automation will bring

→ **ARE WE NEARLY THERE YET?:** experts explain when fully driverless cars will be ready to go

A NOTE FROM OUR FOUNDER

It's July, and hopefully Nimbus Ninety members are getting ready to take a well-earned break. But just before coming to relax on a Costa Rican sunlounger, or a boat on the Seine, it's a good time to pause and reflect on the first half of 2018.

In the 13 years Nimbus Ninety has been running, technology has moved from something incidental for most organisations to a core driver of strategy. In 2018, every technological decision is a strategic decision.

But what's true in business is also true in life: today, each technological advance means cultural change. The internet has been with us for a generation, now; so the first generation to have grown up with instant information as a fact of life are leaving University and entering the workforce. It is therefore essential to sharpen our minds to forces which will affect the whole way businesses are oriented.

That's what we observe Nimbus Ninety members doing right now. And we want to help: our forthcoming "Work Reimagined" summit is designed to examine these questions in finer detail. Further afield, our "Generation Tech" summit will ask specific questions about how businesses must adapt to a revolution in work and consumption habits.

I am extremely proud of this edition of Chief Disruptor. From Ocado's automation front line to LEGO's "experiential" brand strategy, it takes a sweeping view of the techno-cultural landscape of today, and what the world could look like tomorrow.

I would like to thank everybody involved. Within that, I'd like to extend a particular thanks to our interviewees, and to our team, whose tremendous work continues to equip Nimbus Ninety for our own evolution as a community.

Emma Taylor
Founder and Managing Director
Nimbus Ninety

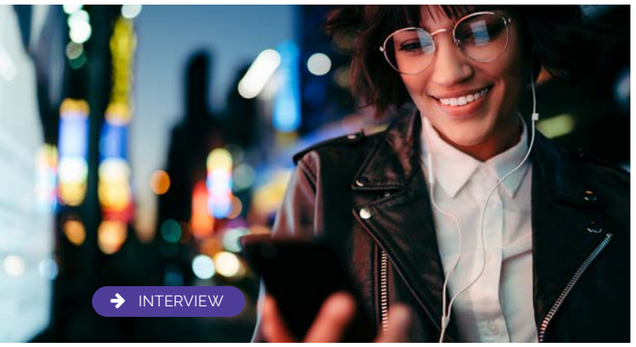


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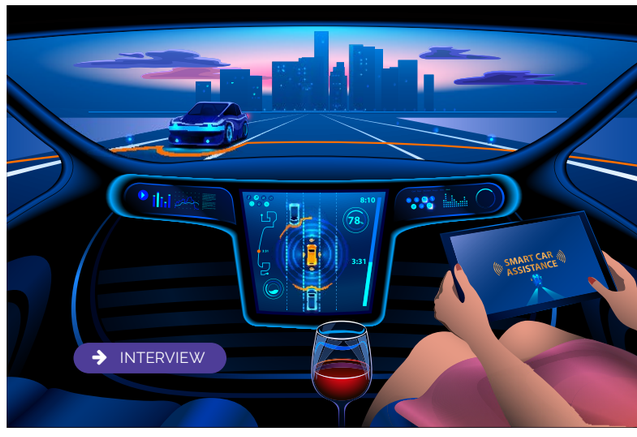
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A QUARTER IN TECHNOLOGY

MARCH

17 MARCH
The Guardian newspaper releases an interview with Cambridge Analytica whistleblower Christopher Wylie alleging that it had harvested the data of millions of Facebook users in 2014 via an academic. Such data sharing was illegal but was not prevented by Facebook's APIs at the time.

19 MARCH
Channel 4 airs a *Dispatches* episode about Cambridge Analytica, which included footage of Alexander Nix, its CEO, suggesting he used prostitutes to "honeytrap" politicians.

20 MARCH
WhatsApp Founder Brian Acton called on users to delete Facebook via Twitter. Alexander Nix is suspended from Cambridge Analytica.

21 MARCH
Mark Zuckerberg breaks silence in a series of interviews. He says he's 'actually not sure we shouldn't be regulated.'

APRIL

4 APRIL
Google employees circulate a letter internally demanding that the company pulls out of the Pentagon AI project.

4 APRIL
Facebook releases new data privacy policy.

11 APRIL
Mark Zuckerberg appears before the US House Committee on Energy and Commerce. During the hearing, he suggests that Facebook will comply with GDPR across all geographies.

16 APRIL
The US applies a seven-year exports ban to the Chinese telecoms firm, ZTE.

19 APRIL
Reuters reports that Facebook has started moving 1.5 billion profiles from its Ireland Headquarters to elsewhere, to avoid applying GDPR to non-european users.

25 APRIL
The Wall Street Journal announces that Huawei is under investigation by the US Departmetn of Justice to determine whether they violated Iran sanctions.

30 APRIL
WhatsApp Founder Jan Koum leaves Facebook over disagreements about privacy and encryption.

25 APRIL
Facebook releases positive quarterly results, including a return to growth in North American Daily Active Users, and their stock jumps by 7% in after-hours trading.

MAY

9 MAY
Google demo "Duplex", an AI phone assistant capable of posing as you in simple transactional phonecalls such as booking a hair appointment.

18 MAY
Cambridge Analytica files for bankruptcy.

1 MAY
The UK Parliament issues an ultimatum to Zuckerberg, instructing him to make arrangements to appear before them or face a summons.

14 MAY
Facebook's UK Head of Public Policy sends a letter to the UK's Digital Culture Media and Sports Committee, answering questions and rejecting the need for Zuckerberg to testify.

25 MAY
GDPR comes into effect across the European Union.

8 MAY
Facebook makes its biggest executive shuffle in its history, including building a dedicated blockchain department.

12 MAY
Donald Trump tweets: "President Xi of China, and I, are working together to give massive Chinese phone company, ZTE, a way to get back into business, fast."

22 MAY
Mark Zuckerberg appears before members of the European Parliament and assures them that users are consenting in line with GDPR. Facebook asks european users to consent to facial recognition software, not previously a feature of the European platform.

JUNE

1 JUNE
Google announces it will not renew its partnership with the US military over Project Maven.

22 JUNE
Facebook builds an "investigative operations" team which are designed to spot issues as they arise.

21 JUNE
Amazon employees circulate an internal letter demanding that its AI facial recognition software is not used by US Immmigration and Customs Enforcement officials following controversial US immigration practices.

6 JUNE
Alexander Nix appears before UK Parliament to answer further questions. The Financial Times alleges that the CEO took $8 million from the company before its closure.

6 JUNE
ZTE signs deal to lift US sanctions, which includes a $1.7 billion fine.

20 JUNE
Two Republican Senators suggest that Huawei's Education Partnerships with US Universities is part of a Chinese strategy to steal US research.

27 JUNE
A Huawei top executive describes Senators as 'ignorant'.

KEY:
DATA AND PRIVACY
EMPLOYEE ACTIVISM
TECHNOLOGY GEOPOLITICS

FOREWORD

Generational divide is a peculiar thing, because unlike some other splits, it is beset by real tenderness. Between alarmist newspaper columns, and clumsy prandial opinions, is a deeper anxiety: how can I relate to my parents? How should I relate to my kids?

But the biggest shifts are rarely in plain sight. It's not the subjects of generational quarrels: it's the multitude of unconscious assumptions beneath their surface. It's not enough to grasp "what millennials think". You have to grasp why they think it.

We now live in a society where a greater and greater proportion of what we consume is rented. We live in a society where nearly everything is knowable, and information is abundant. We live in a society where what would formerly have been regarded as "mass spying" is now perceived as middle-of-the-road corporate practice, to which people generally consent. (Two of our five marketing interviewees called ignorance 'a beautiful thing.')

We live in a world where distance has collapsed, and people with widely different cultural assumptions live essentially side-by-side. We live in a world which is instant, and getting faster.

Thanks to the unrelenting march of medical science, we live in a world in which we will live for longer than our ancestors. It's a world in which some billionaires scheme to achieve eternal life. We will soon edit DNA, our own source code, and potentially program what it is that we are.

What will such things do to us?

I leave this edition impressed with the creativity that industry continues to take to challenges inherent in cultural change, and curious to see how such changes will play out from a commercial perspective.

Adam Stead
Senior Editor
Nimbus Ninety





A BRAND'S-EYE-VIEW

Culture has changed: and marketing must catch up. I talked to two experts to discover how.

There's a scene in *Harry Potter and the Philosopher's Stone* which took on peculiar relevance this quarter. In it, the Dursley's boarded-up letterbox explodes open, to let in hundreds and hundreds of letters.

No, not invitations to Hogwarts. "We've updated our privacy policy," read the letters, "and we wanted to let you know."

GDPR compliance is not the only hurdle marketers face today. Powerful generational forces have changed tastes. We're told that consumers are fatigued with traditional marketing. They hold distaste for the inauthentic. They desire for products to become faster and more immediate. They abhor friction in digital experiences.

It's a lot to keep up with. So to get a sense of how organisations are coping, I set up a meeting with two experts in the field.

Jeni Herberger is the Head of Transformation and VP of Global WPP Alliance at Sitecore. Cleve Gibbon is the Chief Marketing Technology Officer at Cognifide, a WPP Customer Experience Consultancy. Both companies operate in the customer experience space, and they surely represent the expertise required to get brands back on track.

Written by Adam Stead | Sitecore and Cognifide are Nimbus Ninety Partners



> "So many big brands think that they're being user-centric,' said Jeni. 'The reality is that when you really get down to it and ask the right questions, they are not. They want to be, but they're speaking to the bureaucracy inside of the organisation."

WHY TRANSFORMATION FAILS

I asked Jeni and Cleve what they felt the state of transformation was in 2018.

'The majority of transformation is failing,' began Cleve. 'Even those that are progressing...they're actually delivering a third of the original planned value of that transformation.'

Did he know why?

'The role models of the leaders are legacy roles, so we're not seeing the desired behaviours flowing down through the company. 80% of senior management don't communicate openly.'

'Then, companies still make big bets, when we know that what succeeds is lots of small bets. Brands are not actually thinking big, starting small, learning fast.'

'Transformations are failing because they're being set up to fail.'

Jeni agreed. 'Leadership isn't giving the kind of support they need to be giving,' she said. 'A lot of that had to do with the inability to let go of the way things were. So much of it has to do with growth initiatives or mandates coming [from] that competitive landscape.'

'As a leader, I think it's difficult to actually take a step back when you've got shareholders barking at you. That's the challenge.'

Even where the leaders get it right, getting people to change how they work is difficult. 'That's where we see the friction,' Cleve said. 'There's jealousy: there are people that want to be part of the modern office. There are people that don't have the passion to learn...cultural change makes it very hard to move forward.'

One way to avoid painfully changing is to pretend you don't have to. 'So many big brands think that they're being user-centric,' said Jeni. 'The reality is that when you really get down to it and ask the right questions, they are not. They want to be, but they're speaking to the bureaucracy inside of the organisation.'

CHANGING TASTES

What about the drivers for change, then? I asked whether they agreed that there was a focus on authenticity there hadn't been before.

'It's undoubtable that the consumer is looking for authenticity,' Jeni said. 'They're also looking for technology. And I think that that's where the problem comes into play. They expect things at lightning speed, that your car can now hook up to your phone and you can have WiFi. Along with that expectation, there is this need for transparency, authenticity. Those two, kind of, butt heads.'

'The bottom line for every one of us is capitalism, and the fact that a profit is incredibly important. It's what puts food on our children's tables.'

'I think that the authenticity thing is wonderful, I love it. I often feel that we have to take a step back. Part of that authenticity is to say, "Yes, we are interested in a profit".'

'At the same time, I want to deliver you something that you're going to want, and something that you're going to need.'

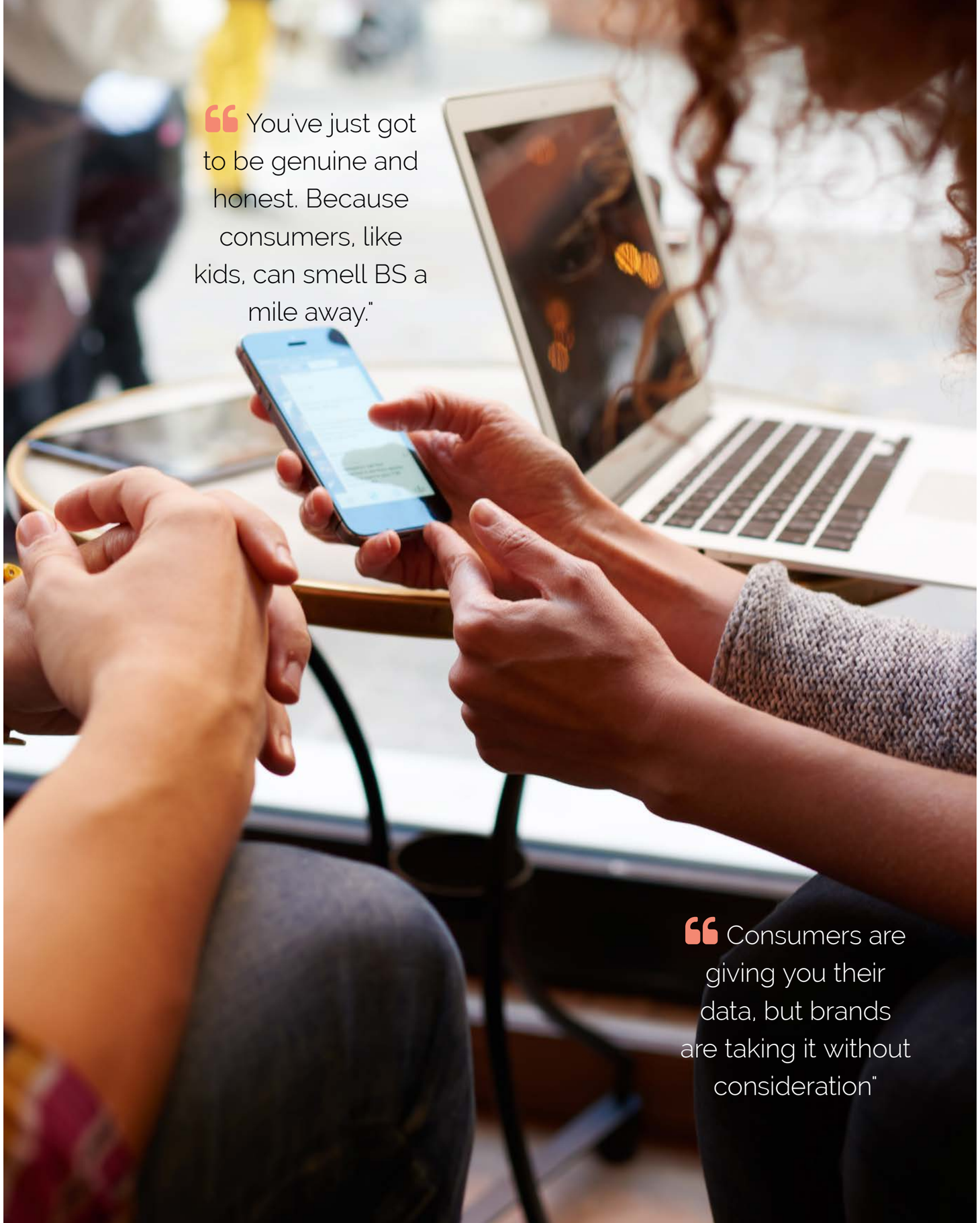
Cleve agreed: it's pointless trying to fake authenticity.

'You've just got to be genuine and honest,' he said. 'Because consumers, like kids, can smell BS a mile away. For instance, look at Nike. They have a passion for sport, it comes through, and I buy into that brand. And I buy into that brand because of what they stand for. They have an authenticity and identity that is so strong.'

'With other brands, they don't have that, so they're espousing, "this is what we think you might be interested in", and they collect data that they use in a way which is disingenuous. And that to me just strikes at the heart of authenticity.'

'Just because you can collect data in a digital world doesn't mean you need to collect it. And doesn't also mean that you need to use it in a way that is not transparent to the consumer. And brands are doing this, and they're leveraging that advantage to the detriment of the consumer.'

That accusation, of two-facedness, is where brands must walk a delicate line. Inauthenticity hollows out a brand's identity and renders it false. Once the accusation is made, it's extremely difficult to shake off.



MARKETING DATA: THE FINAL SCORE

This is one reason it's essential to get data collection and communication right. In recent research by Nimbus Ninety, data collection was 'the biggest challenge to customer loyalty.'[1]

'I'm a big fan of "get rid of the HIPPO",' said Cleve. (A "HIPPO" is the highest paid person's opinion.) 'Move to a "Math Men" style of marketing rather than the "*Mad Men*". But there is an art to this that cannot be lost.'

'Data is great,' Jeni agreed. 'Data helps us, but if it's dragging the decisions [along] without having that genuine understanding of the consumer...half of that data you could probably throw away. It's completely unnecessary. I think that we're so focused now in the world of marketing on our own "digital transformation" that we're forgetting that the data is only as good as what you decide to do with it.'

Cleve added: 'If you look at the root of the word "data", it's the plural of datum from the Latin "dare", which means "to give". Consumers are giving you their data, but brands are taking it without consideration...if they keep doing that, then consumers will stop giving. And at that point, they have been lost. We have to be very careful of what we take, and then make sure that we give back.'

Had the dust settled on the data privacy wars?

'I think when it comes to data, right now,' said Jeni, 'I still think we haven't peaked yet.'

'We're on the upward swing of it still...but I don't think we're far away, meaning I think we're going to start to see these types of conversations become more and more mainstream. Until people realise that we've got to "stop throwing plastic bottles in the ocean".'

'The funny thing about GDPR,' Cleve said, 'even though it's an EU initiative, every brand that I'm talking to has seen it as global. The second thing that I find interesting is the conversation around data has now been raised at a consumer level.'

'People start to realise, "the data I have has been available to Facebook, and Facebook sells that to third parties?" There is now a consumer realisation that that is happening. If you're in the business, everyone knew that was happening.'

DON'T TRUST BRANDS

Had the (now widespread) perception that Facebook sold data forever ruined trust?

Cleve laughed. 'I'm a mistrustful guy...I think consumers' trust has been damaged, but if you're coming from the perspective that you believe that brands will take care of your data, well I think that's kind of a naïve perspective. You need to follow up. You need to not trust.'

'That's a bad thing to say, but brands have to earn trust. The majority of the brands that I advocate have earned my trust, but there's very few of those.'

'I'm with you, Cleve, I distrust all things,' said Jeni. 'What's happening in the world of consumerism happens because of knowledge. The more knowledge that we have, the more reason we have not to trust.'

'Ignorance is often a beautiful thing, right?'

'If you explain to me how that airplane works, now I am freaked out, because I realise that there are so many things that could actually break. It was better when I just got on the plane and figured there was something magical that happened up there.'

> "The more we know, the more likely we are to distrust. Brands need to understand that."

'The consumer is demanding more knowledge, so it's kind of a sticky situation. The more we know, the more likely we are to distrust. Brands need to understand that. They need to understand that by being transparent they're setting themselves up for distrust.'

'If you think about that pilot example,' said Cleve, 'as soon as you open Pandora's Box, and as soon as you open that, you always need to know a little bit more, it's like scratching at a scab. You'll pick around the edge, and keep on scratching it.'

'There is a race now to actually get to that understanding, and in a way that consumers can digest. And they're not there yet. Consumers are asking, but brands aren't able to answer.'

CLOSING THOUGHTS

I was more ambivalent than I had been when I'd first met Jeni and Cleve about the prospects of organisations to navigate these questions. I asked for a key piece of advice to help guide organisations through.

'Understand your customer journeys,' said Cleve. 'Map out those journeys. It's very rare that you see a complete map. Then you build an ecosystem of agencies, partners, and vendors to deliver them. Then, your technologists have a real problem to solve. Three parts: your customer journeys, your ecosystem of participants, and the technology and data and content to enable all that.'

'I would focus all my effort as a brand to actually getting that picture as a north star, roadmap it against a digital strategy and colour it in as I go. That's the advice I give all brands I partner with to succeed.'

> We think we know the customer, but we don't. No shareholder, no CEO says "slow down, take your time."

'I couldn't agree more,' said Jeni. 'We think we know the customer, but we don't. No shareholder, no CEO says "slow down, take your time". None of them say that. So we're working under the gun, and I think we skip steps.'

'There's one element to add: internal communication. There has to be complete buy in...if you have one department that is not bringing this mentality to the table, you're going to have a disconnect internally.'

Success rests on the department oriented around communication being able to communicate with the business, I thought. Good. What could go wrong?

The CX Manifesto

We root out the top tips for CX gold from our bespoke events of Spring 2018.

PERSONALISATION

- Don't go overboard! Isolate the best bits of the ideal relationship - then emulate one-by-one.
- "Immediate" always trumps "intimate". Correspond to immediate desires.
- Never be unctuous or ingratiating.
- Show messages which are relevant, intuitive, and brief.
- Build trust by revealing helpful and *impartial* information.

TRUST

- The bedrock of trust is accountability.
- There is no singular concept of "trust" when it comes to your customers.
- Customers having to repeat information to different departments erodes trust fast.
- Trust can build without expectation of commercial reward.
- Companies should present an accountable and empowered individual to customers, especially in high value transactions.
- Trust goes beyond a single great customer journey. Don't give a superb customer service and then press for advantage in the T&Cs.
- For complex resolutions separate the specialist problem solver from the relationship manager.
- Think long term.

EXPERIMENTATION

- Start small.
- Prioritise business changes.
- More variables and more lines of code "win". Simple experiments aren't as clear or dramatic as a multi-variable test.
- Data is ripe with ideas for further experimentation, so build out usable analytics.
- Create a sophisticated customer journey model. Find where the journey is failing, and test there.
- Human behaviour is too chaotic to predict. Always be scientific; observe and test.

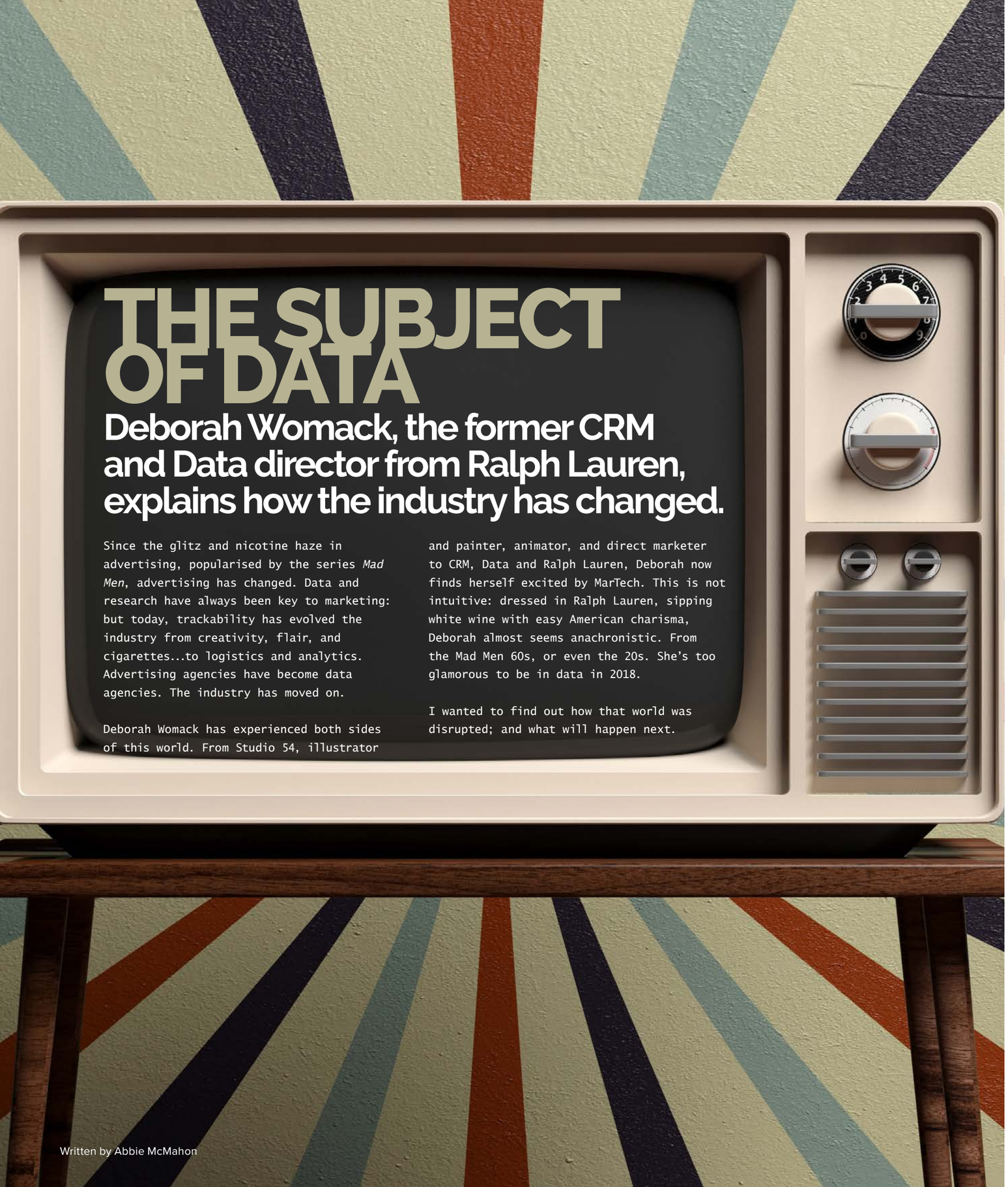
DATA

- Always talk to customers about their data in the brand tone of voice.
- Use real behavioural data to spot patterns and then reduce risk.
- Build a data infrastructure for *everyone* which is flexible, adaptable and intuitive.
- Don't allow teams to hoard "their" customer data or other related assets.
- Make analytics data available to every member of every team.
- Measure negative customer responses as well as positive.
- Share your data failure and success stories.
- Automate where you can.

LOYALTY

- Understand *why* customers do, not just *what* they do.
- Poor accessibility and unintuitive interfaces cause the biggest digital dissonance.
- De-silo data. Allow the creative and analytical sides of marketing to flow together.
- Segment by behaviour, not demographics. Track people by what they do, not by who they are.
- Blow customers' minds with intuitive visualisation of their data.
- Go beyond hits and clicks. Get the right digital metrics in place to measure loyalty.
- Build your the team around one entire customer journey.
- Loyalty doesn't have to cost the earth. It's the small things that show most goodwill.

All points were taken from Nimbus Ninety events running from January - June 2018.



THE SUBJECT OF DATA

Deborah Womack, the former CRM and Data director from Ralph Lauren, explains how the industry has changed.

Since the glitz and nicotine haze in advertising, popularised by the series *Mad Men*, advertising has changed. Data and research have always been key to marketing: but today, trackability has evolved the industry from creativity, flair, and cigarettes...to logistics and analytics. Advertising agencies have become data agencies. The industry has moved on.

Deborah Womack has experienced both sides of this world. From Studio 54, illustrator and painter, animator, and direct marketer to CRM, Data and Ralph Lauren, Deborah now finds herself excited by MarTech. This is not intuitive: dressed in Ralph Lauren, sipping white wine with easy American charisma, Deborah almost seems anachronistic. From the Mad Men 60s, or even the 20s. She's too glamorous to be in data in 2018.

I wanted to find out how that world was disrupted; and what will happen next.

Written by Abbie McMahon

THE DEATH OF THE COMMERCIAL

'Well, talking about Studio 54, that really was just a playful way of saying that I've done some other things in my life that some people say are quite interesting. That was in the 1980s...when I moved to London. I was an animator and a filmmaker but I would do commercials.'

Since she has entered data-based marketing, Deborah said, 'I think the big thing that has changed is the shift towards something that is more data-driven.' And the big budget creative ads are under threat. 'People are still advertising on TV, but the difference is that brands are thinking harder about TV advertising, and how it fits in the overall journey that the customer's taking. No longer do brands think, "If I advertise, it will boost my sales."'

> “No longer do brands think, "If I advertise, it will boost my sales.”

Without a measurable ROI, the role of the television advert has paled. Deborah notes that you don't get “big iconic ads” anymore. With the exception of the Superbowl, adverts have lost the cultural importance and reach they once held. According to the research arm of IPG Mediabrands, digital ad spending reached $209 billion worldwide, while TV brought in $178 billion, constituting 41% and 35% of the market respectively.[1]

'I think the last big, iconic ad I knew about, and was privileged to be part of, was at Sony, when they did the bouncing ball ad. It is one of the few ads in history that has actually turned around a business and the sales of a product.'

Yet, billions of pounds are still spent on TV advertising, and prime-time spots are still dominated by the big brands. There's a lingering prestige to old-fashioned media.

'There was a time when clients, big brands, started moving their money and shifting it away from big media, TV, print. However, not in such a significant way that it was having as massive an impact as people had predicted it would. Digital budgets are still a fraction of what people spend in media. Partly because of the cost of media, but the other thing is, can you really afford as a brand not to be seen by the masses?'

Perhaps not. Instead, Deborah argues that the biggest change in advertising is not cultural: it's on the agency side. But even there, 'in a bid for media agencies to stop losing traction, they've started taking on digital media. So now there's very few pure player digital media companies. Large advertising companies no longer identify as “media” agencies or “digital” agencies. They are now “data” agencies.'

At which point, Deborah moved on to data. 'It's an interesting thing. I have a very well-balanced right and left brain, so I was never really going to be a fine artist. I found that during the day I was doing creative work, but in the evening I was curious about computers, about why people do things, and the numbers behind the face.'

Creativity has not gone away, it's still important. But the new economy promotes generalism of skills. Customer strategy demands you 'use data to inform the creative', Deborah adds, which requires a grasp of both. People with ambidextrous brains fared the best when the industry suddenly changed.

THE RISE AND FALL OF PROGRAMMATIC

Today, there's a different kind of kickback against some very modern strands of advertising. Deborah mentioned programmatic; the ad tech industry may need to make some of the greatest revisions to comply with GDPR. I wanted to know where she believes the line will be drawn: what's private, and what isn't?

'I think data has *always* been very heavily guarded by consumers. It changed. The tipping point was Facebook. When eBay first started, it was a community of interests, not a platform. It was a private community of people sharing things back and forth, and the community policed itself.'

> "...data has *always* been very heavily guarded by consumers. It changed. The tipping point was Facebook."

Deborah pinpoints the "tipping point" as when Facebook went global. It became an international destination website and realised there was "big data to be had". The public's demand for Facebook was met with Facebook's own demand for more data, which the public willingly gave.

'The demographic was so young, they didn't have mortgages or even big bank accounts. They didn't have credit cards. So they just went, "sure". Data privacy just wasn't a concern, because it wasn't a reality yet. So they willingly gave their data in favour of a great new communication platform. That set a precedent then for how data privacy was perceived.'

'With all this data coming in, Facebook started saying, "we'll sell advertising space". If you look at early Facebook, there was no advertising space, now it's all over it.' Deborah described a "follow the leader" effect, with other companies, eBay included, changing privacy policies and demanding the same level of data. The penny dropped over how valuable top-tier targeting could be.

'So privacy, then, was unleashed.'



THE NEW LEASH

This interview took place shortly before GDPR came into effect. But I still wanted to know what Deborah thought.

'Most marketers knew about GDPR years ago,' said Deborah. 'Companies did not take it seriously, no guy or girl on the street, no customer in a shop really knew what GDPR was, nor understood. Very few cared that Facebook had all their data.'

It is only since Cambridge Analytica hit the headlines that the "guy or girl on the street" has taken notice. Which Deborah didn't feel was exactly apolitical:

'Trump won the election. A few people have been trying to figure out a way of saying the election result was not legal. Then there comes a whistleblower, who might have been trying to get some self-promotion by whistleblowing Cambridge Analytica.'

'The thing is, even under GDPR, [much of] what Cambridge Analytica was doing is not necessarily illegal. It just left this bad taste in everybody's mouth.' But the irony is, 'if that had not happened, nobody would necessarily care about GDPR nor understand how it impacts their lives.' Deborah notes that 'customers have always had a right to request the data a company has on them. It's just that now, they know it. And this request now has to be dealt with "without undue delay".'

'Certain customer behaviours will come out as a result of this new privacy era. And I think the "average Joe" on the street might think twice about [how much] data to give, but they'll still give their data.'

> "...the "average Joe" on the street might think twice about [how much] data to give, but they'll still give their data."

Will customers become empowered? I previously read elsewhere that the most successful data policies conceptualise it as a value exchange. Some people had even suggested finding ways to reimburse customers for their data. But Deborah shook her head. 'There's a lot of talk about customers demanding payment for data. I personally don't believe that that's going to happen in droves.'

'They,' she said, meaning data-subjects, 'don't always understand that the companies [they give their contact details to] are also collecting their online behaviours via cookies and mobile device information, and inputs for physical environments via beacons and sensors. They don't know who's collecting all of that. And they also don't expect them to get external information from third parties, or second parties. They don't understand that.'

Empowerment by data laws requires some grasp of their contents. 'Gamers might get it. People that work in the industry might understand it. But for the average person to say, "well, I think I should get paid for my data." Who are they going request that from?'

And of course, it feels that the press over "data" is starting to wane. The high point of the story was March 2018, with GDPR still in the future, when the Cambridge Analytica story broke; and even then, the data practices were tied to Facebook's political standing and Nix's grubby on-camera suggestion that he could use prostitutes to entrap politicians. It's too early to say whether GDPR will improve data practices around the world. And too early to know whether marketing will ever return to its former glamour.

THE VALUE OF ICE CREAM WITH BEN & JERRY'S

I talk to Anna Sandgren, Head of Business Development and European E-Commerce, to find out what makes a brand successful in 2018.

Data breaches. Cambridge Analytica. Protests. If the news is to be believed (and perhaps it's not) there's a growing climate of distrust. Especially around brands: the personalised advert that pops up on my newsfeed today feels eerily invasive, and not delightfully convenient.

Just as customers demand transparency, they now demand authenticity. And authenticity is hard: a multi-brand company like Unilever (which owns Ben & Jerry's) enunciates multiple different values for multiple different brands. Surely, they cannot live out each and every set? It's enough to make a marketer want to climb under their duvet with a pint of ice cream and a spoon.

Anna Sandgren knows her brands. She's spent 10 years at Unilever, and is presently Ben & Jerry's Head of E-commerce and responsible for business expansion across Europe. I went to meet her at the Ben & Jerry's "scoop shop" in Soho, London, to discuss how the brand navigates new demographic tastes.

Written by Abbie McMahon

KNOW YOUR FANS

Ben & Jerry's has a bizarre system for product development; or must have, to produce "Phish Food" ice cream. So I started by asking Anna how they cultivate such unusual product ideas.

The answer was simple: Ben & Jerry's distinguish between occasional customers, and their fans.

'We love the fans more than they love us,' said Anna. 'That's our story, and that's the truth. We really listen to our fans. "Cookie Dough" was invented by a fan back in the '80s; the name and the ingredients.'

Ben & Jerry's distinguishes itself on a product level by this wackiness, which goes back to day one. Established in a renovated petrol station in Vermont in 1978, it was Ben (who had no sense of taste) who insisted on large, distinct chunks.

'We're very innovative in the social space; we bring our fans and trends into the process. What they say on Facebook and on Instagram and all the requests we get, we combine them, and say, "What do they want?"'

The most recent result from these trends is a pretzel-filled, pretzel-topped pint, aptly named "Pretzel Palooza". 'Then, we do limited editions: a beer flavour in the US; and a Cornflakes range,' Anna said.

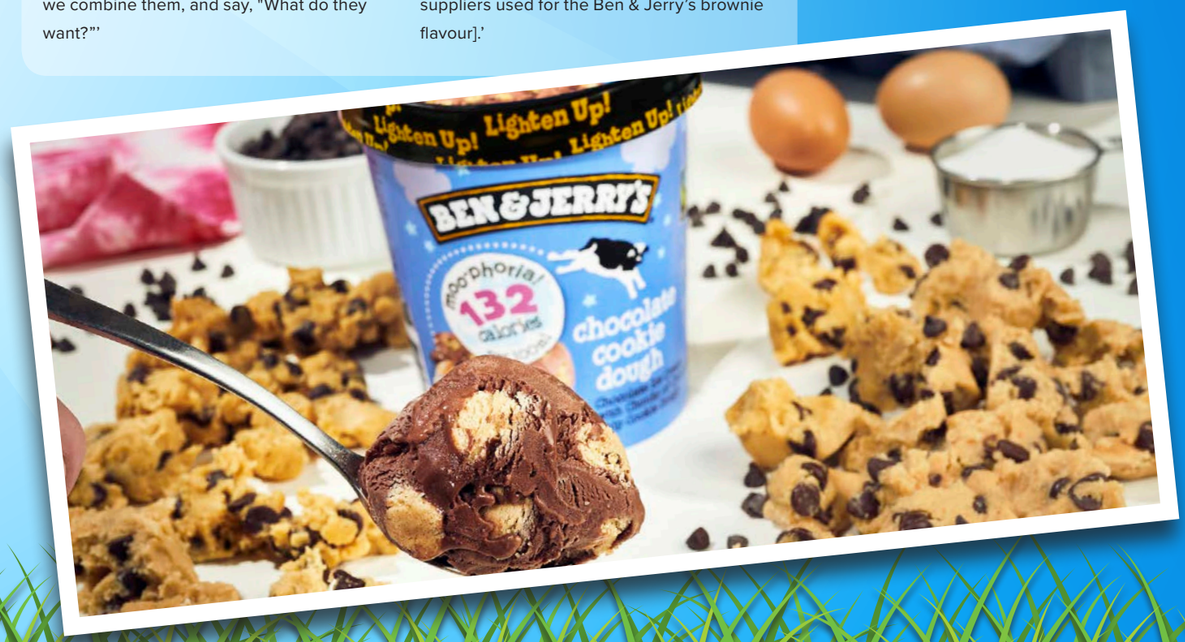
Food brands regularly return to the stunt of promoting dubious flavours (think marmite flavoured Walkers and green tea Coca-Cola) and I was interested to hear whether Anna thought this was necessary for all brands like them.

'Yes I believe that it is necessary.' A previous fan-inspired concoction of ice cream and cinnamon buns is Ben & Jerry's best performing flavour in Sweden.

'But, many other companies try to do it in a PR way.' Anna continued, 'We also want to make it sustainable and see what kind of ingredients we can bring from our value-led sourcing partners. It has to be fair trade. It has to be in our caring dairies. It has to come from our Greystone Bakery in Yonkers in New York [a social enterprise which runs an 'open-door' hiring policy, and the only suppliers used for the Ben & Jerry's brownie flavour].'



"We love the fans more than they love us"



> “We don’t do Corporate Social Responsibility... We are a brand with a purpose.”

OUR STORY, AND THE TRUTH

Which brought us to my core question for Anna. Deciding to ‘make it sustainable’ is very vibe-y. A crux question for brands: is marketing your social responsibility a double-edged sword? Millennials may want to consume ethically; but advertising that you’re ethical can seem inauthentic. If you’re going to help someone, why bring a camera along? How can a consumer discern between a convincing pitch that a brand is “ethical”, and a genuinely ethical company?

‘We don't do Corporate Social Responsibility [CSR],’ answered Anna firmly. ‘We are a brand with a purpose. We really go beyond that. It's much more than just CSR for ticking a box.’

‘We're built up by a three-part mission: a product, economic, and social mission. These three parts are equally important and totally separate. [The social mission] is run by people who don’t have any incentive to sell ice cream. The ice cream is a communication piece to use and leverage our message.’

‘Within this space, we talk about equal rights for everyone. Everything from marriage equality to refugee rights to Black Lives Matter.’

Anna tried to persuade me that Ben & Jerry’s even played a prominent role in overturning gay marriage laws in Germany. ‘I have not seen any other company who has a specific social mission team working singularly to improve rights for people in the world, through systematic change in the political system.’

‘We believe that this is the way you have to run a company. It's not just because the millennials want it, but it resonates very well with younger audiences. They have grown up with a world that is horrible, with [the wars following] 9/11, with climate change. I think you become quite cynical if you don't have any purpose.’

If Ben & Jerry’s is that value-driven, it’s lucky that one of their values is ice cream, I thought, or they’d go out of business. I was aware that, just as there’s commitment to German marriage laws, there are product verticals applied to some highly specific market segments based around millennial tastes.

For the indulgent-yet-health-conscious there is low-calorie “Moophoria”. Ice-cream-loving-dairy-haters can enjoy non-dairy milk versions of their favourite scoops. The environmentally-mindful can rest assured that all packaging is FSC certified and biodegradable as it is delivered to their door via Just Eat, Domino's, Uber Eats, Deliveroo, and Amazon.

‘People are very polarised,’ Anna notes. ’People believe in changing the world, but also believe in convenience. What we say is you have to pay more. We try to emphasise how important it is to support the drivers with fair wages and fair treatment of the delivery force. We can see that people are ready to spend more on convenience, but we can also see that people care.’

> “I have not seen any other company who has a specific social mission team working singularly to improve rights for people in the world”

FEED IMPULSE THROUGH DIGITAL

Ben & Jerry’s can identify their customer segments with data.

‘We are really working on optimising our digital space, to drive data and make stronger campaigns together.’ There is a larger preference for and spend on digital, over TV and outdoor advertising.

However, bringing advertising into the digital realm is challenging for a company like Ben & Jerry’s. As Anna explains, ‘Ice cream is an 80% impulse-driven product. You have to be close by, which means “out of home” is a brilliant channel, but you have to make it interactive.’

The use of digital displays for “out of home” advertising means that Ben & Jerry’s can reach the impulse buyer and still collect vital data. ‘You can do some kind of tracking, though it's not as sensitive or focused as the digital advertising we have on Facebook, Google or Instagram.’

Data may have become a dirty word over the last six months, and Anna was eager to demonstrate how data collection at Ben & Jerry’s is used for more than self-service.

‘Digital is our absolute number one tool to really build an ecosystem of awareness and conversion. Awareness for selling ice cream, but primarily awareness about the different issues we want to change in society. Getting people to take action is much easier in the digital space.’ They use customer data to drive the relevant social mission to those who will advocate it.

To thrive in the “post-truth era”, brands must strive to create substantial relationships with their customers; for which they must develop an “authentic” voice. Deciding what this voice sounds like is the biggest challenge brands will face. Like other brands, Ben & Jerry’s collects data, debates internally how far is too far, and tries to communicate effectively with its customers.

But shouldn’t they get credit for their ethics?

Perhaps the difference between an inauthentic CSR campaign and what Ben & Jerry’s do is a matter of effort. Even, for the sake of argument, if it was merely to drive sales, the most insulting thing a brand could do would be not to try. Too many brands go through the motions, add a sticker somewhere, and fail to live out their story as though they believe it. Whereas it was clear to me that Anna believed in Ben & Jerry’s as a social tool for making a positive impact on the world. ‘That’s our story,’ she had said. And that’s the truth.

> “Getting people to take action is much easier in the digital space.”



MASTER BRAND BUILDING

WITH LEGO'S SENIOR GLOBAL DIRECTOR

I talk about Lego's transformation with Lars Silberbauer.

The first viewers of the 2014 Lego Movie, expecting to see a 2-hour commercial, will have been pleasantly surprised.

The Lego Movie is great. It's closer in quality to Disney Pixar's *Inside Out* than it is to *Assassin's Creed*, despite it being closer in origin to the latter: both have migrated to TV from elsewhere.

Somewhere along the way, Lego transformed from a bricks-and-mortar plastics company (well, a plastic bricks company) into a formidable media presence. I talked to Lars Silberbauer, Lego's Global Senior Director, to establish how.



Written by Adam Stead



FROM PLASTICS TO DIGITAL

How did Lego transition from plastics to media?

'I don't think that *that* change actually happened at Lego. I think the change that happened was that the company became more focused on the play experience. That was the moment when I was brought into the company – when they went digital.'

'The change that consumers have experienced in the last 10-15 years is about going from traditional [toys]...to being mobile, tablet, social media [experiences]. When I came into the company seven years ago, there was no Facebook, there was no YouTube, there was nothing.'

'They just hired me, not a big team. It was very much to look at the whole value chain and see how we could actually leverage these technologies and how we could create a roadmap for all of them. From recruitment to internal strategy to product development, to marketing to consumer service advocacy.'

'I created eight lighthouses and said, "This is where we're going to be five years from now." But also made sure that we, on a six-month basis, had very, very tangible projects and end results. Every month. To show every month that we were making progress and then making sure that we were communicating to the rest of the organisation. Then I made sure the rest of the company knew in what context [my team's output] should be understood.'

'It's a mixture of both doing things [long-term] and doing things very, very rapidly. Also communicating to stakeholders and really making them understand and translating why this little thing means a lot on this journey that we're going on.'

FROM ADS TO EXPERIENCES

Is the media or the plastics the bigger part of Lego now?

'I think the core is still the play experience with Lego bricks. Everything else is meant to support that play experience. Of course, we'd like to have people watching Lego content instead of another brand's content. Then they would hopefully get enticed and inspired to start building with Lego bricks.'

So internally then, in strategic value terms, does Lego conceptualise its considerable content assets primarily as advertising to drive brick sales?

Lars grimaced. I realised that I had said a dirty word.

'I would rather use the word "experience", rather than that word,' he said.

'Advertising,' said Lars, 'is such a blunt way to make consumers interested in products. Customers don't want adverts. I don't want an advert for a product...I might welcome an experience with a specific product. If someone is just sending me a stupid advert, I think that's old, traditional marketing.'

'I think that's the change that we need to see: more happening in the marketing industry, because we are so focused on a very traditional model, based on TV, based on broadcasting, about interrupting experiences. When consumers have the chance on digital platforms to block those ads, to block those commercials, then what?'

'The only chance we have to actually deliver experiences is when consumers are welcoming. I think we're pretty far down that road. It's good for us that other companies are not, but I think that it's a big, important decision to make, the difference between adverts and experiences.'

Had Lars seen the *Emoji Movie*?

'I missed that one.'

Lego's is better, I said. I told Lars I admired that brand content could be daring and fun. The cardinal sin of all marketing everywhere is that it's boring. Lots of companies have an immune system to cough interesting communications out.

> "People are not sitting mindlessly in front of the TV. Now they're walking around like zombies with their mobile phone."

'I don't think [that's the problem] to be honest,' said Lars. 'The reason is...a lot of companies are still going into that space with an advertising mentality, and the advertising processes, built in. [If you] have the same mindset, and you still have the same processes in place, they deliver the same thing. If you take that mindset to an "experience" place, then you will deliver a crap experience.'

'We can see that consumer behaviours have changed, radically. People are not sitting mindlessly in front of the TV. Now they're walking around like zombies with their mobile phone.'

'It's a very different way of interacting with media and interacting with platforms and interacting with other people.'

'[Creative Agencies] go away for months, spend millions of dollars, and they come back with a pitch and they say, "this is the key visual, or the hero film." That doesn't work in this space anymore.'

FROM DEMOGRAPHICS TO PEOPLE

Had Lars seen Wendy's on Twitter?

This time, yes.

Someone asked Wendy's, "where to find the nearest McDonald's?" and Wendy's answered with a picture of a dustbin.

There are hundreds of those kinds of interactions: Wendy's social media manager is funny and interacts humanly with its audience. It generates attention: as the pop culture content website "boredpanda" points out, "Wendy's is roasting people on Twitter, and it's just too funny."[1]

But the half-life on that kind of thing is short. Were every film a brand experience, were every other Twitter account a brand trying to unctuously ingratiate itself with me by being "funny" or "out there", it would get irritating – fast.

Lars shrugged. 'Everything is competitive space. The vision in TV Land is competitive space...'

'Everybody is [asking]..."What is the next formula? What is the next model?" The next model is going to be constant disruption. That's what we do and what I always preach to both my teams.'

'The core competence that we're trying to develop is not about being the best at doing Facebook posts. That's going to die away and then we're going to have the next thing. The core competence that we try to develop is to be the best at adapting to leveraging and creating change.'

> "The next model is going to be constant disruption. That's what we do and what I always preach to both my teams."

'We make sure that everything we do can quickly be changed and that nobody has an issue with letting go of things.'

'I think...if you really want to start focusing on experiences, we should stop using these military terms like targeting, and pinpointing, overcoming an audience and pushing them. It might be that's how it works, but if that's the mentality that you have when you address your consumers, then I think you're missing the point.'

'I don't want to be a demographic for whatever product I'm buying. It's people, for God's sake. They might have me in a database somewhere, but the more human the communication can be, the better. I think those human terms should be used more because that's how people want to be perceived. That's how I want to be perceived.'

REMAINING "LEGO"

Through all the change, would Lego retain a sense of itself? Lars had said it was still about the blocks – I wondered whether Lego's balance sheets would have said the same thing.

Did they have exciting plans for augmented reality?

'Can't say.'

Ah.

'You could look at the last Apple keynote,' Lars suggested.

Previously, mentioning Lars' interview to a member, they had suggested the company should transition to become IKEA, I said. Lego furniture, Lego houses. Perhaps that was the next step.

'Well, we just launched a partnership with IKEA last week,' said Lars.

Is Lego furniture on the way?

'I don't know. I don't think so. I think IKEA does furniture, we do play experiences.'

Lars had become opaque.

> "We practise changing, we practise jumping, because we know it's going to put everyone else under pressure."

I left sceptical about Lars' contention that marketing could be fully welcomed by customers; at least not for every company. There's a mathematics to marketing – a pursued, and a pursuer.

I did leave impressed with his appetite for disruption: 'We might have been really good at Vine videos,' Lars had said. 'Vine went down the drain. Just let it go, it's over. Move on to the next thing. I think that's difficult for humans, and difficult for professionals.'

'If you're the best at practising jumping, you want to see more hurdles in front of you. You want to see more obstacles, because you know that your competitors are going to struggle with it. We practise changing, we practise jumping, because we know it's going to put everyone else under pressure.'



2. DISRUPT-ING WORK

THE NEW WORLD OF WORK

What will the workplaces of the future look like?



I'm a latecomer to the TV series *Mad Men*. The antics of antihero Don Draper are routinely less interesting to me than the eye-opening lesson in 1960s office culture. The approach to diversity and inclusion on Madison Avenue is as jaw-dropping as the boozing, constant nicotine, and pre-meeting snoozing. But then, it really was acceptable at the time.

Mad Men depicts a bold new world fuelled by daring ideas where creativity is king. All without a 360 degree performance review or Peggy Olson enquiring as to Stirling Cooper's company values. The premise is as true today - purposeful work forges identity.

Today, the notion of "work" prompts major introspection. Much of the "future of work" discourse has AI at its core; what roles will exist in a world where swathes of my job are automated? How do we deal with a mass shift in where manpower is focused? What steps should I or my organisation take to thrive in this "new" landscape? AI might seem like the only show in town, but how we work and what we do has always been changing.

Written by Jessica Thorpe

WORK DISRUPTED

Structural change has been occurring for some time. Command-and-control organisations, built around processes designed to scale and regulate production of (largely physical) goods are firmly seen as anachronistic, and at their worst, dehumanised. This "old world", hierarchical method of marshalling industry is generally unfit to cope with the "digital age" where the speed of development has increased to such a degree that taking an imperfect digital product to market is a hallmark of competitive advantage. The execution of enterprise as a military machine perhaps made sense in a world where workers were 10 times more likely to be veterans than today's millennials.[1] Here, failure is synonymous with defeat, not a tenet of progressive culture.

In a world where good ideas are made flesh faster and more cheaply than ever before, entrepreneurialism is seen as the gold standard. Embedding this in a global or 100-year-old company is especially challenging - but it is being done. Unilever's strategy is famously built on the belief that a long-term, sustainable approach is the optimal way to deliver results to shareholders - and ownership is central to this. Connected 4 Growth, a massive change programme launched in 2017, "encourages and equips people to adopt an owner's mindset" which includes testing, learning and embracing failure.[2]

A decentralised approach to leadership is in alignment with the values of the "new world"; meaningful work, autonomy, and agility.





EMPLOYEE EXPERIENCE

The democratisation of information has put unprecedented power in the hands of consumers. The employee-employer relationship is undergoing a similar transformation now. If you want to hang on to your best people in a globalised labour market, delivering an "employee experience" is essential. This extends far beyond modern-day benefits for high-fliers such as egg freezing for female employees at Apple, tuition fee reimbursement at Google, or more bizarrely, "Pawternity" leave for new pet-owners at rebel beer company, Brewdog. It involves a highly personalised people strategy, a continuous commitment to learning, a relentless focus on "mindset", and of course, technology that works as intuitively as your smartphone.

Technology may be enabling better communication and more collaboration. Digitally-driven burnout, to which millennials are thought to be particularly prone, is without obvious solution. But disquiet over too much connectedness is stirring. The French Labour Code was amended in January 2017 to include *Le droit de la déconnexion*, ensuring employers respect the boundary between work and personal life, that digital tools too easily permeate.[3] Head of Twitter, Bruce Daisley promotes Professor Cal Newport's idea of a weekly session of 'monk mode', a 90-minute block spent in a silent place free of distraction, where checking your Twitter feed is a no-no.[4]

"If this labour trend continues, policy will need to adapt quickly to cope with the realities of a flexible workforce."

THE RISE OF THE 'SIDE HUSTLE'

Despite the efforts of the French Government, the culture of 'always on' is dissolving the 9-5. This is a relief to many desiring the flexibility and freedom to work when and where they choose. Flexibility is the currency of the 'gig economy', defined as, '[...] the exchange of labour for money between individuals or companies via digital platforms that actively facilitate matching between providers and customers, on a short-term and payment by task basis.'[5] Approximately 2.8 million people in the UK found work in the gig economy in the 12 months up to August 2017.[6]

There is plenty of innovation here. Australian company AirTasker, which launched in the UK in March 2018, enables you to source or pitch for a broad range of jobs (or chores) via a smart AI-driven platform. Choose from cleaning a bedroom (£6) or planning a "*Love Island* Final party" (£100). There are upsides. In time, you may even find badgering your children to tidy their room outdated and unnecessary. AirTasker, and similar platforms facilitating the growing gig economy attract criticism, particularly over the potential erosion of workers' rights. If this labour trend continues, policy will need to adapt quickly to cope with the realities of a flexible workforce.





A GENERATIONAL DISTURBANCE IN THE WORKFORCE

If the technology doesn't burn you out, a longer working life might. Multiple generations rubbing shoulders in the workforce is an anecdotal source of wonder and frustration. It results in useless but enjoyable pigeon-holing. Trepidation over Gen Z's imminent entry to the workforce reigns: what will this ultra-on-demand generation expect from their career? Worries about AI stealing jobs could turn out to be as bemusing to Gen Z as fax machines are to Millennials.

There is much to be optimistic about. Millennials, for example, are more likely to be highly educated, and to be racial or ethnic minorities. A higher proportion of millennial women enter the workforce.[7] They are changing work and challenging norms - as any new recruits or young upstarts should. This confluence of generations with differing experiences of technology is exciting and the springboard to creating a progressive workplace.

To attract the 'right' people, whatever cohort they belong to, organisations are being forced to think deeply about their core reasons for existence, and how this message is translated. More attention is being directed towards that elusive and ill-defined concept, 'culture'. And rightly so. It is as fundamental to bringing about successful digital change as technology itself.

The old-fashioned workplace norms in Mad Men make me wonder, in 40 years' time what aspects of today's working world will we look back on with similar amazement? That we ate at our desks? That email really existed? That humans worked at all?

"Multiple generations rubbing shoulders in the workforce is an anecdotal source of wonder and frustration."

CONDUCTING THE SMART ORCHESTRA

with Paul Clarke, CTO of Ocado

Robots, Machine Learning, and the art of midlife crisis.

Written by Adam Stead

‘Fewer people know what we are than you might think,’ says Paul Clarke, the CTO of Ocado. He mentions that they are ‘the world’s largest online-only grocery retailer’ but quickly gets to the prevailing point, ‘also, we are a technology business.’

I like Paul. He talks, I think, like an exercised academic: articulate, brisk, and, at notes, just shy of exasperated. ‘We’re much more of a technology business than people really appreciate. We build everything ourselves. We’re much more like a Google or an Amazon, than a Sainsbury’s or a Tesco.’

They’re also a “platform” business, in the sense that they’re now selling the technology they originally developed for internal use, he explains. ‘Then you start getting into the deep technology side. We’re doing robotics, public and private cloud, machine learning, and artificial intelligence. There’s a wider kind of disruption agenda, if you like, based on the technology.’

> “We're much more like a Google or an Amazon, than a Sainsbury's or a Tesco."

The Orchestra

Perhaps he could talk me through Ocado’s most exciting project, to help explain? ‘I suppose the swarm robotics technology that went live in our Andover warehouse at the end of 2016 and which will soon be going live in its big sister warehouse in Erith, is the most exciting project.’

‘It brings together robotics, motion control, swarm-based orchestration, all sorts of different applications of AI and machine learning, sensing and simulation. It’s the culmination of a load of competencies we have acquired over the years.’

‘You want all of these instruments playing in harmony, where now the instruments represent different applications and services.’ AI acts as the conductor. (Switching metaphors, Paul tells me that AI is ‘the one to rule them all’; a reference to *The Lord of the Rings*.)

‘For our swarms of robots whizzing around, assembling customer orders, there are three levels of machine learning,’ Paul explains. First, ‘there’s what’s embedded into the robots themselves. Then there’s the real-time control and orchestration of the robots and the optimisation of the storage underneath them.’

‘Finally, there’s what I call the “robot healthcare” which is where you need to keep each of the robots healthy. For example if a robot’s battery pack is degrading, then it is brought in for a service. That’s done by streaming all the robot data to the cloud where machine learning based analytics keeps the swarm in tip-top shape.’

‘I think [AI] is this extraordinary glue that lets you do the exciting things with other technologies…unleashing the full potential of those technologies. As well as the fact that you can use one generation of

> “[AI] is this extraordinary glue that lets you do the exciting things with other technologies..."

AI to train the next. It’s going to be an extraordinary enabler or “turbo charger” of all manner of things. And “we ain’t seen nothing yet”.’

Why not?

‘Consumers are still at a very early stage of addiction. Some are kind of intrigued and some have negative sentiments. I think most are intrigued – when an application does something that is smart and

unexpected, like work out where you live even when you've never told it that, just by looking at your GPS data.'

'As this wave of smartness washes over us, I think consumers are going to get properly addicted to smartness. I think they're going to start demanding it all over the place. And I think it's going to be a source of differentiation across different products. People are going to expect those applications and services to play nicely and smartly with one another.'

The Time for Talking

It's an interesting premise, and one Ocado has bet on. Their strategy is to be a technology company that does groceries; not a grocery store. It seems like an effortful strategy. But if it's right, they're a long way ahead. The gap between companies' digital competence levels is probably larger than ever.

'I have a filter on my email for "digital transformation" because I will not read emails about it,' says Paul (which, I realise, is why we had previously struggled to get through to him.) 'Seriously, if you're not already doing it at scale and you're still standing around the swimming pool working out how to learn to swim, it's too late now. It's going to come so fast and like a tsunami, it will just keep on coming.'

I decide to push back. What takes years for a pioneer takes hours for a settler, I argue. Tech makes tech easier: building a website is

> "The gap between companies' digital competence levels is probably larger than ever."

easy where once it was hard. You don't even have to be very clever to build a cryptocurrency any more. It simply wouldn't be intelligent or economical for most companies to take a route like Ocado's where they can buy things "off the shelf". If we're using swimming metaphors, it's possible to buy a boat.

'Well, maybe,' answers Paul, who sounds deeply unconvinced. 'You can make the case that a Hayes modem is still a means of communication. But it isn't going to compete very well against broadband.'

'The great thing about cloud-based services...[they] will democratise access to AI. And they are, now. And it's great, because you can pick and mix. You can take a sentiment analysis service from this cloud vendor, and a speech to text recognition service from this vendor,



and an image processing from this one...and you can stitch them together and build a smart application.'

'It's going to move the bar for smartness by making it more accessible and ubiquitous. I think lots of services are suddenly going to become much smarter, much more quickly. That's a really important part of the picture.'

But as the barriers to entry for AI go down, the level of standard AI integration will skyrocket. 'Where we have to "roll our own", we do... and it takes time to acquire these competencies. It's not easy. For some applications, you can [buy them off the shelf], but if everyone else is using the same services, and it's an important part of your service, you've lost your competitive advantage.'

'Or maybe you find very innovative ways to combine them that other people hadn't thought of. As always, it's going to come back to your creativity and your capability for innovation.'

'These are just new tools in the toolbox. And everyone is going to have access to those tools. I don't think it's at all certain that they're going to inoculate you against this future. People need to be getting their feet wet, now. They needed to be getting their feet wet a while back. Which is why I say, slightly provocatively, the time for talking is over. Because I believe it is.'

Talking Education

In Ocado's Andover factory, a robot with a soft rubber grip for handling fruit learns next to the workers it could one day replace. AI watches humans, it learns, it simulates. Alarmists, based on Osborne and Frey[1], look at Ocado and see an impressive blueprint for the future. AI both heightens the basic level of engineering compute available for Ocado ('You couldn't [maintain healthy bots] with human beings looking at a swarm of 3,500 robots in one warehouse let alone warehouses all around the world' says Paul); and saves them labour costs.

Our own research suggests there is a greater emphasis on automating processes in 2018 than there has been in previous years.[2] Whether we will reach the longed-for productivity boom; the renaissance of "more fulfilling" creative and technical jobs; or an unskilled unemployment crisis, remains to be seen. But it is happening soon.

'You know what? I don't know who is right,' said Paul. 'I'm firmly in the optimistic camp. I believe AI can encapsulate the best of us but clearly, it's a technology that can and will be weaponised in different ways.'

'But for me, it's all about education. And when I say education, I do not just mean skills; refreshing; retraining. I mean education in its most holistic and fundamental sense. I believe we have to fundamentally reboot and recreate our education system from the ground up, to cope with what's coming towards us.'

'I say this not just as an employer but as a father: for what lies ahead, we have to do something significant, in terms of big thinking, disruptive thinking, when it comes to education. I think we also have to think long term. We have to go all the way back to the primary school where this digital skill pipe starts. And that pipe carries on through to tertiary education and into business, too, in terms of lifelong learning.'

> "[...]we also have to teach them the art of self-reinvention; we have to make the midlife crisis into an art form."

'We have to teach children the sorts of metaskills that people talk about, such as creativity, collaboration and entrepreneurship, which will not be devalued by these new technologies in the same way that many of the other things we teach them now will. But we also have to teach them the art of self-reinvention; we have to make the midlife crisis into an art form.'

'People are going to have to "fuzz" this boundary between education and work. People are going to need to go back and have multiple bites on the educational cherry. We're going to have to get universities and colleges playing more collaboratively with organisations like ours. And we're already having those conversations with educational institutions. It's not going to be a, "go to school, go to university, go to work, do not repeat". It's going to be something much more circular.'

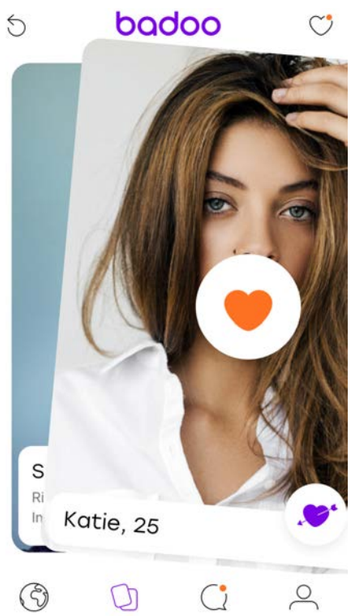
'Long-term thinking is required here, which is a real challenge in [a country with] a five-year democratic term. Which is why personally, I would argue we need to do something a bit like what Finland has done and take the educational football off the political playing field.'

Which seems unlikely. It does seem likely that, if you believe in the imagination of the middle-aged population, the "midlife crisis" could indeed become an art form. Life begins at - what's the number again? But it will require vocal campaigning and sustained effort to see the kinds of changes our education system might need.



SWIPE RIGHT ON YOUR JOB

I talk workplace culture with the HR Director at the world's largest dating app.



Once upon a time, it was embarrassing to have met online: today, it's commonplace. According to eHarmony, by 2031, over 50% of couples will have met online.[1]

Badoo was founded six years later than eHarmony, and had the good fortune (or perhaps the foresight) to enter a market which was becoming rapidly more fashionable. Today, Badoo has 380 million users and is the largest dating app in the world. In the UK, it's better known for its product, 'Bumble', also a dating app.

I met Ann at the Badoo's London HQ. We were set to talk about company culture. On our way to a meeting room, I passed a fully stocked kitchen, a lavish outdoor seating deck, and on-call masseuses for the staff.

But it's easy to provide great perks when times are good. I wanted to dig beyond the trappings and into the HR strategy for a company like Badoo.

> "There's only so far the perks will go because you quickly become accustomed to them. You adapt and then you're like, "Okay, what else is there? What's next for me?"

BADOO OR BADON'T

And if you've never heard of Badoo? 'We create applications that connect people,' explained Ann. 'The dating market, for meeting and connecting with people, is huge and is a growing market globally.'

'We have apps that utilise geolocation,' said Ann. But, 'all of them have a USP.' Chappy, a gay dating app, is an example: a user can search for "Mr Right", or "Mr Right Now". 'It has a much higher quality user base than other gay dating apps on the market,' said Ann.

'And we have ones for female empowerment, like Bumble, which is all about feminism and women making the first move.' Finally, 'we have Badoo, which is all about bringing people offline and face to face.'

I asked Ann about her role, glancing enviously back at the massage room.

'In terms of what attracts people to work here, what you see around the office is surface-level stuff. The free food, the massages, the parties...that's all nice to have, but it is becoming "table stakes" in the tech industry.'

'There's only so far the perks will go because you quickly become accustomed to them. You adapt and then you're like, "Okay, what else is there? What's next for me?"'

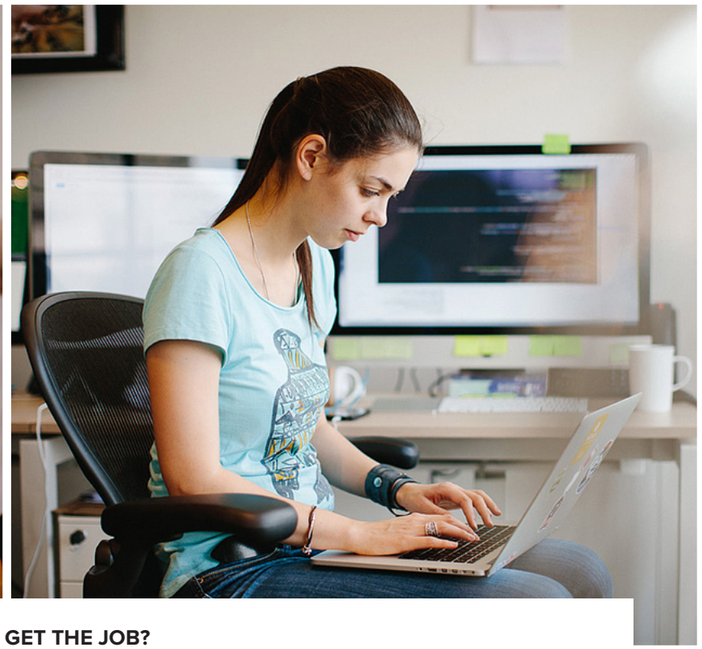
'Nowadays, we don't expect people to come and have 30-year careers the way they used to in the IBM or Hewlett Packard days. You almost have to accept that they might not stay forever and we won't offer them a 30-year career, but they're going to get an amazing experience that will set them up for their next move. And while they're part of Badoo we're going to get very valuable time from them.'

The deal has changed. The market is shorter term, and one way to attract people is to offer immediate marketable learning and variety. 'We have 250 developers under one roof. We can move them around and give them exposure to the things they're more into.'

'It's a nice thing to do, but it's also in my interest to do that because if people are highly bought into the product, as the users of the product, it makes them much stronger to work on the product. We can get immediate customer feedback.'

Written by Anar Bata



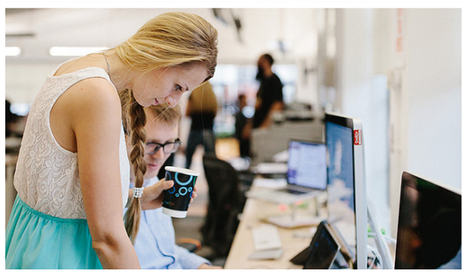














BUT DID HE GET THE JOB?

"You can do as much formal diversity and inclusion training and push everybody through a formal rulebook, but it's not about the laws, it's about creating a genuinely inclusive culture."

It's a male-dominated field, too. Following a widely publicised "anti-diversity" memo at Google,[2] in which a developer argues that biological differences can make women unsuitable for the field, technology can seem a hostile place for women. I wondered if Ann had seen regressive behaviour working in the industry.

Yes, it turned out. During one job interview conducted by a female developer, a male interviewee was surprised to learn that his interviewer was not in HR, because "women do HR, and men do development."

'We just had to draw a line of principle and say, "This is completely unacceptable. It doesn't matter to us how strong your coding skills are, those kinds of perceptions are not going to fly well here."'

'As a company, if you want to follow principles, you're going to sacrifice something else. But little by little, if you let people get away with those perceptions, it's going to create the kind of culture where it's okay to say things like that.'

Following #MeToo, I said, there was a renewed focus on stamping out workplace harassment, which could be challenging for companies to bear out.

'The most important thing,' said Ann, 'is to lead by example and to bring in a culture where everybody feels like they have a right to stand up and say, "that is not cool", and that's a difficult thing for companies.'

'You can do as much formal diversity and inclusion training and push everybody through a formal rulebook, but it's not about the laws, it's about creating a genuinely inclusive culture.'

'It's the same approach we have with our products.' Ann shared another example on Bumble's decision not to allow guns in users' profile pictures on the app, as it did not fall in line with their company's ethos. Although the decision may have put off potential customers, 'it makes business sense in the long term because you're creating a community that lives by your values.'

BETTER WORKERS, BETTER PRODUCTS

"You don't see the other nine things out of ten where we tried and we failed. There's a lot of trial and error[...] We tend to over-glorify the winners and not see all of the hard work that goes into needing to create failures"

I was curious about the results of cultivating this kind of culture, on the end product.

'We don't really stick to a specific format because we try loads of things,' said Ann. 'Of the ten businesses that get set up, only one is going to break through and become successful. This is how we like to think of innovation internally as well. You don't see the other nine things out of ten where we tried and we failed. There's a lot of trial and error.'

'It's common to present to the wider market the success stories, but nobody talks about the failures. We tend to over-glorify the winners and not see all of the hard work that goes into needing to create failures, learning from failures, failing fast and failing forward. That's how you iterate.'

'It's something you need to build into the culture, so you don't become unhappy or disillusioned when you've worked really hard on something, launched it, and then we decide, "No, it's not working out, let's move on."'

'You need quite a thick skin as a company to be willing to can something. It's one of your babies almost.'

'We spin out new products from our existing knowledge of the customer base. We observe user behaviour, let's say on Badoo, and say "Okay, we have a retention problem here because people aren't getting enough matches." And then we say, "What is the experience they are not satisfied with and how can we cater to that need more specifically?"'

'That's how we created Chappy,' said Ann. She didn't specifically mention Grindr, but the world's largest gay dating app is renowned for one-night stands. In contrast, Ann said, 'Chappy is on a "mission" to take on the negative stereotype that gay men are looking for quick hookups. They're not.'

For all the sparky dating app ideas, Badoo's real product seemed to me to be relationships. Dating apps are proof that relationships can be changed by architecture; perhaps there's a way of applying that to companies, too.



Talking Clouds

with the CTO of Amido

How has customer identity management changed in the “privacy era”?

Simon Evans is the CTO of Amido, a technical consultancy focused on cloud transformation. The migration to cloud has been massive: today, nearly all companies use some kind of cloud data storage.

‘Our focus is dealing with all the touchpoints a customer has with digital real estate.’ One way of managing those touchpoints is “customer identity management.”[CIM]

Simon has come to view CIM as paramount. 'It reduces friction and abandonment, point one.’ Then, security improves de facto, ‘by driving customer identity into a single place.’

‘Then obviously, there’s a piece about improving the quality of information you have about your customer.’

‘If you persuade your customer to sign in with Facebook and do a customised registration, the quality of information about you as an individual from Facebook is substantially better than the sort of information you get through your own email registration.’

Written by Adam Stead | Amido is a Nimbus Ninety Partner

IDENTITY AND RELATIONSHIPS

I asked Simon whether he had observed a change in the data privacy attitudes among clients since the Cambridge Analytica data scandal?

‘There are probably two different kinds of client in the B2C space,’ Simon answered. 'There are those that put the customer at the centre of their universe, and those that don’t.’

‘If you do put the customer at the centre of your business, chances are, you’ve always treated privacy and consent with the kind of respect that users would expect from the service they’re interacting with. Those that put the customer at the centre of their universe have probably adopted and embraced a lot of what GDPR is about.’

I asked Simon to break down the phrase “customer at the centre of our business”, which sounded like a corporate slogan.

Brands have different tones: they’re matey, professional, collegiate, helpful, indulgent. Brands which are your buddies, which are your doctor – etcetera. They have the same scope in variance as person-to-person relationships. Different relationships have different rules.

Businesses, in my experience, seem to talk about a single vague variable (“trust”) in their relationships where “more trust” simply means “more licence to collect data” without paying any attention to the relationship specifics.

Simon answered with an example of the kind of difference he meant: ‘the purpose of collecting more customer data needs to be explained on the search before you collect the data. Businesses that are collecting large amounts of customer data in a purposeful way are doing it as part of the value proposition. The main point for a customer is they need to understand the value proposition and make their own decision.’

‘In order to feel empowered, you need to know what your rights are. Terms and conditions are completely inaccessible opaque documents you can’t read.’

GDPR, he felt, had broadly achieved this.

‘People have not left Facebook in their droves, and the reason they haven’t is because [for] most customers, even if you play back to them all of the data collected, in exchange for the value that Facebook provides, most people stick with the value it provides.’

It’s true: few people have "broken up" with Facebook, although there has been a lack of fresh adoption. According to Pew Research Center, just 51% of teenagers use Facebook.[1] Perhaps people are "still in a relationship" with Facebook, but "out of love".

‘I don’t think that’s truly why GDPR exists, though,’ added Simon. Lots of companies’ practices which were ditched quickly in the run-up to GDPR, were already illegal, even if they broke laws with softer penalties.

GDPR can be boiled down to a single rule: ‘to protect me, the customer, against my personal information being handed to a third party without my consent.’

> "[...]they're providing cloud-based tools now which provide shrink-wrapped, commoditised AI experiments out of the box."



HYBRID CLOUDS

According to one industry forum, 67% of businesses will be increasing the scope of their cloud use over 2018.[2] I wanted to hear Simon's thoughts on what was driving it.

One of the main trends, it turned out, was globalisation. As the level of friction implicit in contacting someone in Dubai or New York has dropped, the propensity for workplaces to span multiple geographies has risen. There were also more technical trends: available AI tools, and containerisation.

'There's the question "what is hybrid cloud?" which is quite an overloaded term. Some people talk about hybrid cloud when running traditional on-premise software with workloads on the cloud.' Amido defines it as running applications on 'multiple public clouds all at the same time.'

Some use cases: 'sending workload across multiple clouds to improve the availability of that service. If you were to put your workload into Azure and Google...the probability of both Google and Microsoft both being down at the same time is lower.'

Nowadays, there are sharp AI offerings. 'Our clients tend to find a primary cloud partner, which is one of the "big three" (Microsoft, AWS, Google). Then they tend to augment that with more specialist services from various different niche cloud environments.'

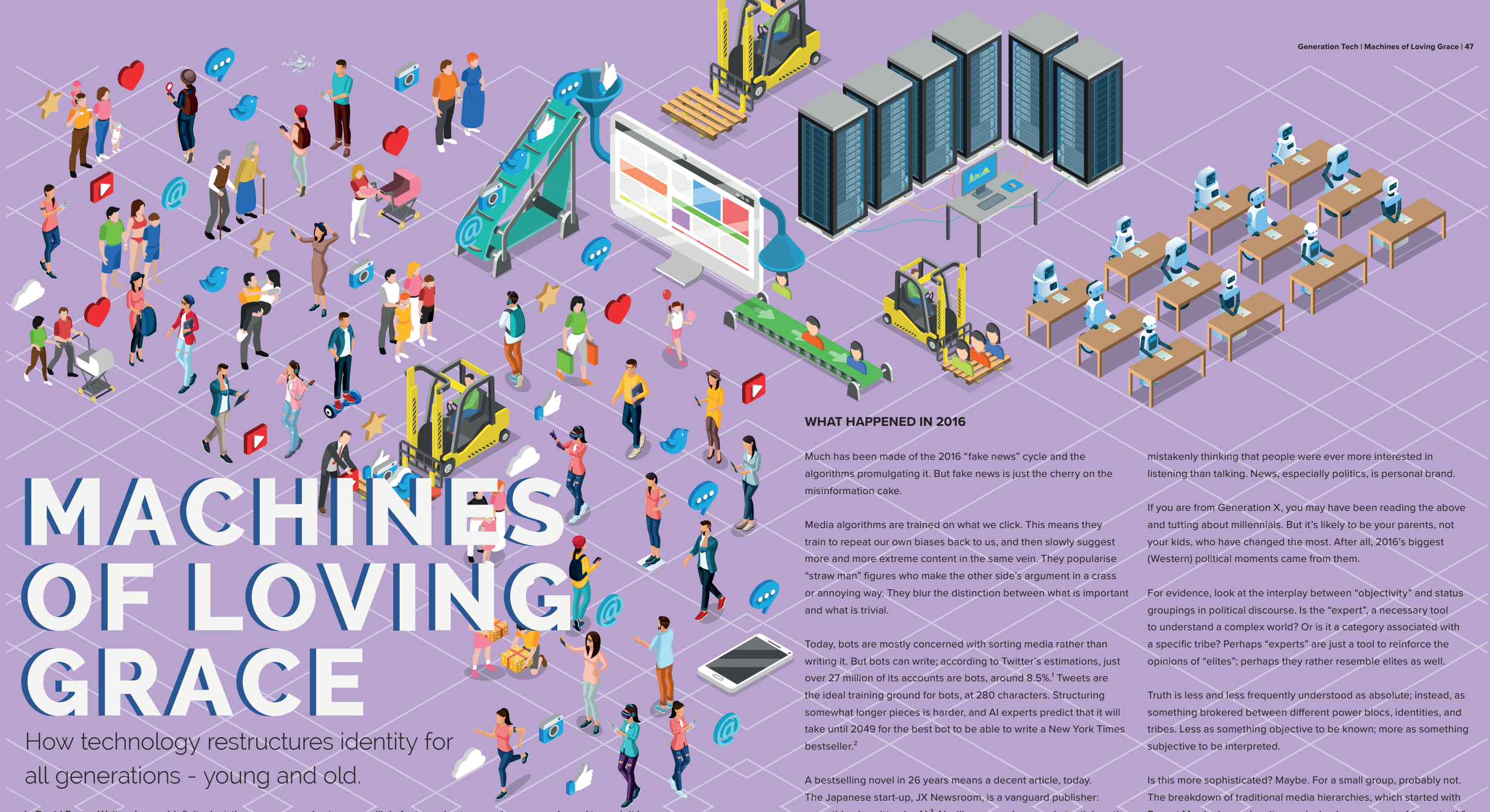
And the AI space is becoming more commercial, more developed. 'I think they're providing cloud-based tools now which provide shrink-wrapped, commoditised AI experiments out of the box. That takes a lot of the pain out of adopting AI in the first place. That is a huge adoption factor for a lot of businesses.'

'Machine learning is a cloud-native area of capability that's very, very hard to do outside of the cloud. There's nothing to stop you running machine learning inside the cloud other than the size of your wallet.'

Cloud has 'democratised access to AI' said Simon. It's given small companies a weapon in their back pocket to match the power of a Facebook or a Google. Understanding how to use those weapons, and where to point them, is key to a business' success.



3. GENERA-TION TECH



MACHINES OF LOVING GRACE

How technology restructures identity for all generations - young and old.

In David Foster Wallace's novel *Infinite Jest*, the eponymous short film is so devastatingly entertaining that the viewer watches again and again until they die in catatonic bliss. Foster Wallace wrote the novel in 1996; a decade before Google bought YouTube.

Today on YouTube, neural networks are competing to suggest videos which will keep you on the platform for as long as possible. With a simple scoring metric, and a huge dataset, we are training the most powerful AI in the world to make people addicted.

This is not YouTube's fault. Media software must compete for human consumption to continue to exist. Optimised by amoral bots, it will de facto evolve to serve human needs, and to exploit human psychological frailties, alike. The two are indistinct. Just as we crave fat and sugar, we have evolved to pursue stimulus whose abundance is bad for us. But compared to junk food, people don't understand this of tech.

New media has changed us. It clearly has profound impacts for what we are and how we think. It is therefore worth looking at new media and the generational split: Gen Zers, millennials, Gen Xers, and baby boomers, were all impacted at different times in their lives by the internet. It has affected every level of their identity, differently.

Written by Adam Stead

WHAT HAPPENED IN 2016

Much has been made of the 2016 "fake news" cycle and the algorithms promulgating it. But fake news is just the cherry on the misinformation cake.

Media algorithms are trained on what we click. This means they train to repeat our own biases back to us, and then slowly suggest more and more extreme content in the same vein. They popularise "straw man" figures who make the other side's argument in a crass or annoying way. They blur the distinction between what is important and what is trivial.

Today, bots are mostly concerned with sorting media rather than writing it. But bots can write; according to Twitter's estimations, just over 27 million of its accounts are bots, around 8.5%.[1] Tweets are the ideal training ground for bots, at 280 characters. Structuring somewhat longer pieces is harder, and AI experts predict that it will take until 2049 for the best bot to be able to write a New York Times bestseller.[2]

A bestselling novel in 26 years means a decent article, today. The Japanese start-up, JX Newsroom, is a vanguard publisher: everything is written by AI.[3] AI will soon produce a substantial portion of what we read. They sort nearly all of it already.

But the easiest way to produce good content is to let neural nets be trained on what gets clicked. Bots exacerbate the central issue with abundant media supply. Everything shaping the discourse now comes from the demand side. Media is a marketplace. What there's demand to hear determines what's heard.

An article is written, and it is "shared" (and thus, worn) by the media consumer. This means consuming news became a constituent component of identity. Social media corrects years of publishers mistakenly thinking that people were ever more interested in listening than talking. News, especially politics, is personal brand.

If you are from Generation X, you may have been reading the above and tutting about millennials. But it's likely to be your parents, not your kids, who have changed the most. After all, 2016's biggest (Western) political moments came from them.

For evidence, look at the interplay between "objectivity" and status groupings in political discourse. Is the "expert", a necessary tool to understand a complex world? Or is it a category associated with a specific tribe? Perhaps "experts" are just a tool to reinforce the opinions of "elites"; perhaps they rather resemble elites as well.

Truth is less and less frequently understood as absolute; instead, as something brokered between different power blocs, identities, and tribes. Less as something objective to be known; more as something subjective to be interpreted.

Is this more sophisticated? Maybe. For a small group, probably not. The breakdown of traditional media hierarchies, which started with Rupert Murdoch, reaches its conclusion in a segment of "post-truth" boomers. This group identifies their own propensity to bias as their principal tool of critical analysis, and wields it more tightly.

The YouTube suggestion mechanism has recently come under criticism for failing to remove algorithm-produced children's content.[4] It's also in the process of becoming the principal way that media preys on the vulnerable and out-of-touch; the gentle substitution of one pundit for more extreme pundits, and the deceptively short road to conspiracy and extremism.



THERE'S SO LITTLE FRICTION THAT I SLIPPED OVER

For younger generations, for content to justify itself in a competitive market, investing attention must lead to a quick return. Memes are better than Ulysses. Marketing, where targets are disinclined to invest their attention, now gets "ten words", to establish itself, according to IBM's lead evangelist.[5]

The platform which truly grasps this is Twitter. But its architecture has issues: it is simpler to critically "quote-tweet" than engage in debate. It is more rewarding to present zingers than arguments. So founder, Ev Williams, has criticised his creation, and moved on to set up "Medium", for long-form content, because, from its manifesto, 'it's clear the way media is changing isn't entirely positive.'[6] It still announces the length of each article in minutes at the top.

"Friction" is one of about four key concepts in product design; 1998 levels of friction are intolerable today. 70s films like *Solaris* unfold exhaustingly slowly. People walk faster in large cities.[7] We have sped up.

Work *is* friction, of course; and KPMG accuses Gen Zers of being 'less focused' than previous generations.[8] A Deloitte study in 2016 found that people look at their phones 47 times a day on average; for young people, more like 82.[9] For the generation which has likely read more words per day than any other, content is extremely fragmented and short-form.

Perhaps drastic tactics are warranted in the office, like turning phones off or having time where distractions are not allowed.

"Mindfulness" is a wonderful synthesis of reaction against the above and a conclusion of its internal logic. A reaction against overactivity, and too much content: package the practice of doing nothing for half an hour into an extra thing you have done today. And if you want, you can sell it as a self brand. According to Google Trends, searches for the term "mindfulness" have nearly doubled since 2013, with a reliable peak in January every year.[10]

THE IDENTITY BUFFET

Content is not just more voluminous, demand-led, pushier, but broader, too. There was a time when there were mods and rockers, but now we just have Spotify. It used to take time to invest in music, so it was economical to pick a genre and invest in it. Now, people can listen to anything.

Wealth and communication technology mean we can consume culture omnivorously. Sushi and Pasties; Debussy and NWA. Our access to discrete cultural content is more abundant than ever, which is a good thing.

But these are components from which people derive their identity. Music, media, politics, class, likes, and memories, are all obvious elements which cohere into a "you".

Even if identity is something we do for ourselves, it exists in the context of others. "Things we like" have always been to some extent developed by brands (some academics trace ideas of a highly atomised and individualistic self to the dawn of mass commercial advertising)[11]. But today, social media gamifies the kind of status competition which occurs in the context of point-based content sharing, where everyone has access to all media.

The game has peculiar rules. 100 years after Duchamp's *Fountain*, what status you acquire from sharing which art, is not intuitive. But with abundance, there are two basic principles: the first is that people highly familiar with form are more jaded by media content. (They don't just consume more digital media: according to Pew Research Center, millennials read more books, too.)[12] Secondly, if your algorithm rewards a performance of X, you end up rewarding people who are good at performance, not at X.

The "hipster" is the exception that proves the rule with music-based identity groups; hipsters are omnivorous, but you participate in the in-group by being more discerning than other groups. Superbly erudite in pop culture versus their parents, they are exercising status competition as well as identity via the frequent art of criticism.

Millennial hipsters decry bad art; "woke" Generation Z decry "problematic" art. The Generation X response to this is to complain that there's no irony in the criticism: "sure, Apu is an Indian caricature, but he's just a dumb character. It's a joke!"[13] The boomer response is to treat it as a tribe war: "having murdered Woody Allen, the bogeykids have come to take the Simpsons away. What'll be next?! *The Graduate*?"[14]

Generation X hostility to millennial identity policing is harshest over "cultural appropriation" which Generation X see as actively good.[15] For them, the adoption and assimilation of foreign cultures into their own is the ultimate anti-racism; something their parents would never quite do.

But for millennials, an atheist white woman tattooing a Hindu "Om" sign on her neck is typical of the kind of degradation of meaning encouraged by the internet. The cultures are integrated just fine. Arbitrarily wearing things which *mean* something to someone just makes it all feel cheap.

Authenticity is in crisis for young people. Just as there is a desire for artisanry and craft among consumers of mass-produced consumer goods, there is a desire for meaningful symbols from digital natives. (Riding the same wave, the *New York Times* reports a "Trump Bump" in revenue as people become inclined to pay for better content).[16] There is a desire to organise the great melt of cultural content in such a way as to de-numb its value.

Escaping meaningless symbols is not a simple business. Advertising brands have figured out the renewed importance of authenticity and wish to harness it to flog more product. Pepsi, a kind of capitalist sugar water, tried to repackage the very idea of rebellion and sell it back to consumers as *Pepsi* in an ad last year, which was organised around a protest based loosely on the *Black Lives Matter* movement. The ad caused a huge backlash.

From the reaction you would think it had done something far more severe than create a duff ad. Pepsi formally apologised, including to Kendall Jenner (from *Keeping Up with the Kardashians*), whose presence in the advert apparently harmed her own personal brand.[17] Rival drinks brand, Oasis, runs an interesting "post-modern" ad campaign with slogans like 'You're thirsty. We've got sales targets.'[18]

Perhaps Oasis has the right tack. Who needs to lie to sell drinks?



MILLENNIALS AND THE AWOKENING

An advert like Pepsi's could only ever have been produced by Generation Xers who don't quite get what the issue is. They feel it's overblown: "Who cares? *It's an advert.*"

Parents report finding their children to be dogmatic, unironic. It's the parents who don't mind mass-produced empty symbols, and the kids who want things to mean something. Sincerity is coming back into fashion. Apparently among all aspects of life. For the first time since the invention of the contraceptive pill, people reaching sexual maturity are less promiscuous than their parents were.[19] Who wants loads of meaningless sex?

Every day, millennials and Gen Zers are invited to reinvent and represent themselves via social media. With Instagram and Facebook in particular, users are invited to sit and curate ornate representations of themselves in the endless sea of media fragments.

Social media simulates users; and it simulates their relationships. Like cake or sugar, successful social media platforms satisfy powerful social cravings without necessarily providing the same nourishment. Popularity metrics, status display, aesthetic perfection. (Gatsby's green light at the end of the bay was not based on Facebook's green "active" light, but it might have been.)

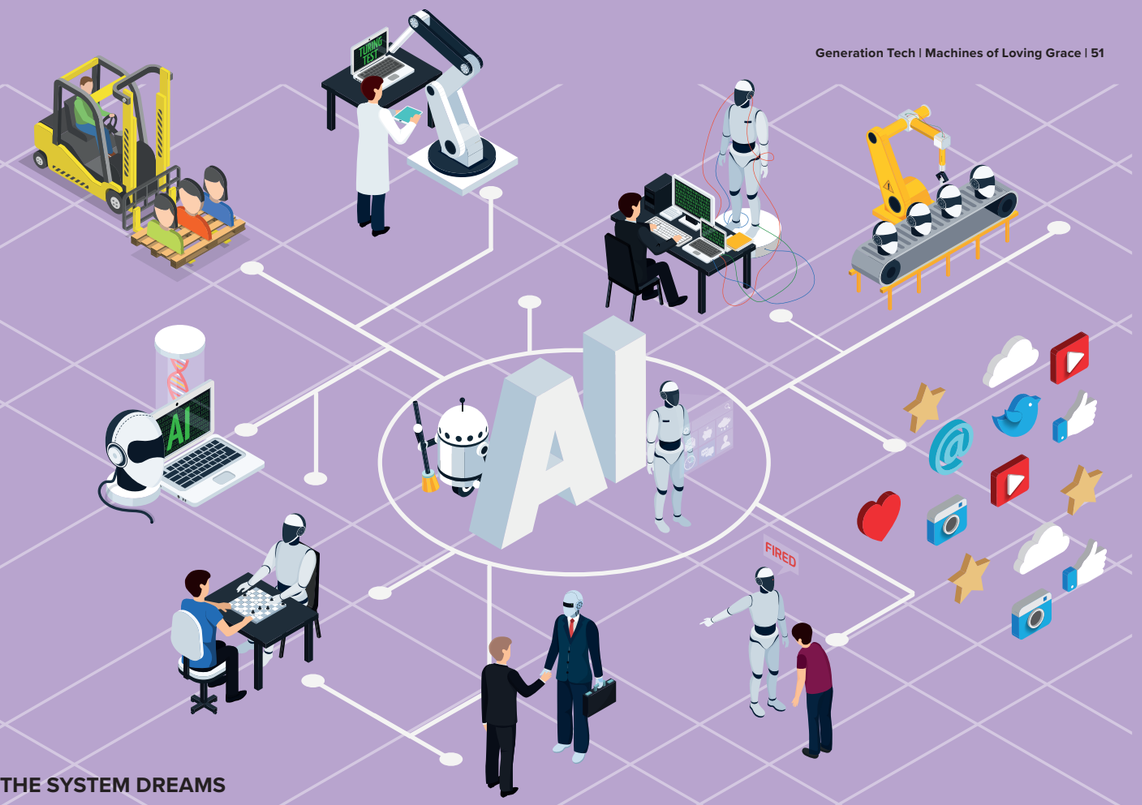
Our relationships are in that vast meaningless IP pile, along with our identities. "Likes", like tweets, or signatures on digital petitions, are abundant, and therefore cheap. The implication of social platforms, which are commercial organisations, is that they're attempting to commodify our identities and relationships and present them back to us in exchange for our attention on ads.

Realistically, our beliefs have always existed in the context of our identity. We now have the ambitious political aim of managing different identities on an equal plane. Beginning to become aware of one's own "identity bias" has further implications than campaigners focusing on overt discrimination could have anticipated.

Identity is to be taken seriously. Not just racial or gender identity. But the fragments from which identity is built. The portrait *Desert Island Discs* tries to paint of its guests, and the care and even reverence that goes into it. Facebook profiles are what we have today.

It is not yet fashionable to sit and think about the internet in terms of mental health. Older generations still conflate mental health with mental illness; as though physical health is only worth discussing for people with debilitating physical conditions. But among young people, there is an acute focus specifically on how to manage media use in a way so as to mitigate the consequences for mental health.

This is probably the correct approach. Education professionals worry about a mental health "crisis" among University students.[20] It's not clear why social media causes anxiety, but it is becoming clear that it does.[21] People who are more socially isolated, and spend excessive time on social media, are particularly vulnerable to anxiety and depression.[22]



THE SYSTEM DREAMS

On YouTube, there is an extremely prescient interview between David Bowie and Jeremy Paxman from 1999.[23] Bowie explained how the internet would change music.

'It's becoming more and more about the audience,' Bowie observed. 'Because the point of having somebody who led the forces has disappeared...'

'Up until at least the mid-70s...there were known truths and known lies and there was no duplicity or pluralism in the things we believed in. [The change] has produced such a medium as the internet.'

Paxman asked: 'It's just a tool though, isn't it?'

'No, man,' said Bowie. 'It's an alien life form.'

The fashionable thing in high AI theory is to talk about something called "value misalignment." The idea goes that an AI might be programmed to achieve outcome X, and in doing so might take horrendous actions which should be disqualifying. But such a worry leaps straight to sophisticated (anthropomorphised) AI without considering crude AI first. It also does not consider the malleability of humans.

AI harms humans today, by doing exactly what we reward. Academics like Nick Bostrom sit and discuss killer robots ending humanity with a straight face.[24] This can sometimes feel like a child earnestly concluding that the real dietary threat comes from broccoli.

Death by sugar is the hallmark of the late modern period. As Yuval Harari points out in the blurb of his bestseller, *Homo Deus*, we are more likely to die of obesity than starvation; more likely to die from suicide than be killed in war.[25] If there is a crisis, it is one of abundance. It is also one of meaning.

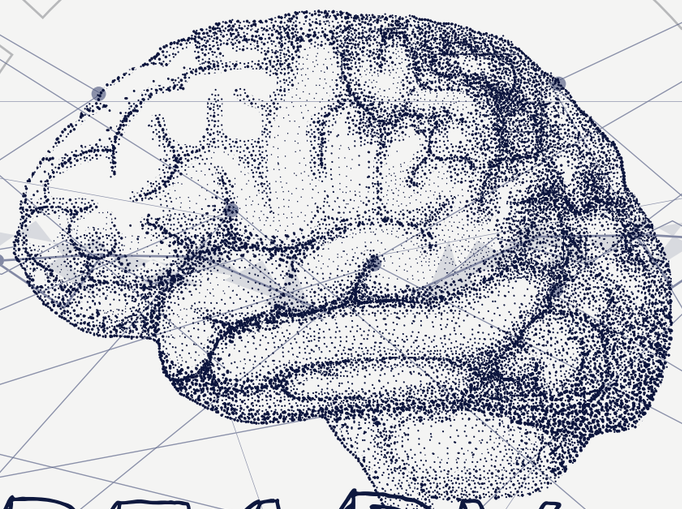
The internet and now AI have co-opted us into a larger and more bizarre social system than any of which we have previously seen. In social media, we have found ways to represent key aspects of identity, news, culture, democracy, and relationships, via "internet points", and we have then asked software to optimise for those points, as we would in any economic system. But they are still representations. Which means bots optimise for representations of the thing, not the thing itself.

Real "value misalignment" is the misalignment between what is rewarded by social and economic systems and what is good. The bots won't fudge it. If the link between the points system and the best outcome is misaligned, the points system will win.

This is what happened in the US in 2016. The ultimate rewardee of the political process was the guy on whom you couldn't help but click.

As documentary filmmaker Adam Curtis said of Donald Trump:

'He's a hate-bot. You go, "I'm angry", and he goes, "I'm angry, too!" And nothing changes. But the system likes it: angry people click more.'[26]



ALREADY CYBORG

I talk with Karina Vold from the University of Cambridge about the theory of cognitive extension, and how it applies to us.

Written by Anar Bata

Cognitive extension is the theory that our minds extend beyond the literal confines of the physical brain and out into the world. This includes the items we adopt as tools, which have moved from chalk, to engines, to mobile phones.

Dr Karina Vold is a postdoctoral researcher with the Leverhulme Centre for the Future of Intelligence at the University of Cambridge. She specialises in philosophy of mind and cognition. I wanted to get to the bottom of what steps we as a species should take given the rapid onset of new AI technologies.

'There's a long tradition,' said Karina, 'which goes back at least as far as [17th Century Philosopher René] Descartes, which sees the mind as nothing more than the brain. I tend to think this conception of the mind is flawed.'

'My work focuses on how our mind is not only embedded in cultural practices and our immediate physical environment, but also how it is extended to the devices we use. An example of that could be how the development of technologies like writing have enabled new ways of thinking.'

'The fact that you can write down a thought to support more complex, or "higher-order", thoughts about that idea; this is a way in which we extend our cognition.'

> "We offload our cognitive dirty work, as it were, into the environment and into the tools we use."

I TEXT, THEREFORE I AM

An influential thinker in the field, Andy Clark, describes humans as "offloading apes", Karina told me.[1] 'We offload our cognitive dirty work, as it were, into the environment and into the tools we use.'

'Think about the time it would take to look at a map before you go on a road trip. You need to figure out where you are, how you're going to get there, and remember that information, then employ it as you go. All of that's just been completely taken over by the technology we use.'

We seek the convenient; and quickly become dependent, as a consequence. Karina mentioned US Supreme Court Chief Justice John Roberts. In a 2014 court case, he called mobile devices 'such a pervasive and insistent part of daily life that the proverbial visitor from Mars might conclude they were an important feature of human anatomy.'[2]

Today, the iPhone X's unlock feature works via facial recognition.

Karina said, 'Our actual bodies are being recognised now by the phones. We can use our fingerprints and facial recognition to enter the phone…maybe even voice recognition soon. The phones are really getting to know us as individuals, and at the same time, we're sharing even more of our personal data on those phones.'

> "[…]if someone steals your phone, […]it's really stealing an important part of your life and your cognitive functioning is going to drop off as a result."

WHY IT ALWAYS COMES BACK TO DATA PROTECTION

It was strange to hear a piece of everyday technology jargon like "personal data" appear in a conversation about consciousness and the human story. But then, DNA is data.

'Some philosophers have speculated that because of the quality and quantity of data on your phone, it should be given special legal protections,' Karina pointed out. 'Most democratic constitutions guarantee our rights to mental privacy. And the basis for that is not because there's anything special about the brain; the only special thing is that it has information that plays a role in our cognitive lives, and now it looks like your phone does too.'

'Your phone knows who you talk to, when you talk to them, what you said. It has all your photos, your biometric data, your purchase history, your weird Google searches. It knows all of that going back years.'

'And it doesn't misremember like your brain does. It doesn't deceive you and it can tell a better story about you, which is exactly why it's scary that police can treat it like any other piece of property.'

'I think the law needs to start thinking about the data on these devices and protecting them in that way, so if someone steals your phone, it's not just property theft. It's not like stealing your shoes, it's really stealing an important part of your life and your cognitive functioning is going to drop off as a result. Therefore, it should be given special legal treatment.'

> In one of Plato's famous plays, *Phaedrus*, Socrates warns against the potentially dangerous consequences of writing words down because he thinks that it's going to have a negative effect on children."

PROTECT YOURSELF

But data protection seemed besides the point. If mobile use fundamentally changes cognition, if it fundamentally changes us, shouldn't we sit and talk about it? Doesn't it all feel a little uncontrolled? As a species, we continually consume technology which is designed to match us more and more closely to what we want, is that really in our best interest?

'This fear of technology has been a narrative for a really long time. I teach *Introduction to Philosophy* and sometimes students say, "Hey, why aren't we reading any Socrates?". And then you have to tell them, "Actually, Socrates was illiterate, he didn't write anything down so there's nothing to read."'

'The newest technology at that time was writing and he resisted that. So it was his student, Plato, who disagreed with his mentor and wrote things down, including developing this character of Socrates in his plays.'

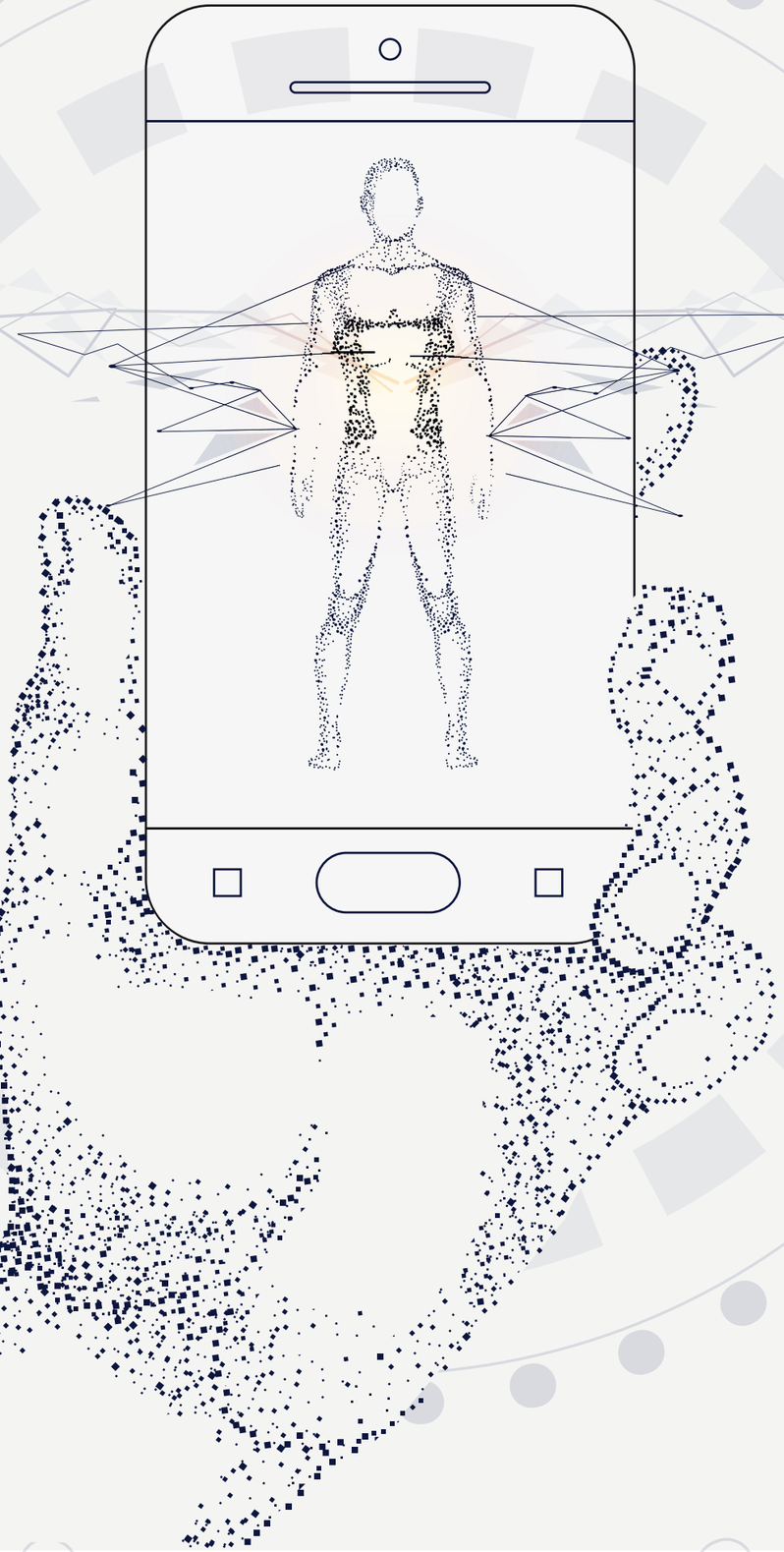
'In one of Plato's famous plays, *Phaedrus*, Socrates warns against the potentially dangerous consequences of writing words down because he thinks that it's going to have a negative effect on children. He thinks they're not going to be educated to remember things. They're going to become forgetful people and they're going to become asocial people.'

'You hear that exact narrative about smartphones. So the exact same fears are being talked about today with these new technologies.'

But there's an irony in taking comfort from that. Socrates was right. Many "memory techniques" mastered by only a few modern Westerners were common among classical Greeks and Romans. Karina mentioned a study by Betsy Sparrow et al. that appeared in Science magazine, which looked at Google's effect on memory. Sparrow et al. were able to successfully show that if people knew that the information they needed to complete some task was going to be easily available, they were less likely to remember it.[3]

Karina gave the example of remembering phone numbers. 'If you think about the fact that I used to have to remember all my friends and family's phone numbers, but now I just store them in my phone, it's literally taken over some of the functions of my brain.'

'That's a way in which technology is changing us. Now, we no longer have to remember phone numbers, but what we do need to remember is passwords because they unlock new information. So it's changing what we need to remember and how much we need to remember.'



> There's now technology that offers a lot of positivity, so people who are prone to misremember or who have disorganised lives, now have a tool to help them remember things."

ALREADY CYBORG

'Part of the benefit here is that it's freeing up cognitive resources to do other things. So there's more of an opportunity to be creative or empathetic to other people and do things machines aren't able to do, at least not for now.'

Were there other positives?

'Yes, absolutely. Just think about writing, we tend to think of this as this great technology that allowed us to achieve so much and to create a sort of history for our society. It's the same thing with smartphones.'

'There's now technology that offers a lot of positivity, so people who are prone to misremember or who have disorganised lives, now have a tool to help them remember things.'

'If we also consider cases of rehabilitation, people who have neurodegenerative conditions, like Alzheimer's, are now able to rely on technology to remind them to do things they just simply couldn't remember to do otherwise. I think there's a real opportunity for good here.'

This potential for good was definitely reassuring, but I couldn't help going back to some of the negative effects that larger social networks, enabled by new technologies, may have on our mental health.

'One thing I would do as an individual is to be mindful. Every person is a little different, some people may be extremely extroverted and need a social life, while other people really don't. I don't think there's anything wrong with that as long as you know what you want and what makes you flourish.'

'Part of this is about not letting what's available through technology define how you use it; but instead deciding what you want to get out of that technology.'

Perhaps Karina was right. We are no longer separable from the instruments we have built to support us; perhaps that is no bad thing. But I left unsure that it was ever possible to make an empowered choice regarding one's relationships with one's phone. That which supports us wields power over us, after all. As species, we're much further down the road to cyborgs than we realise.

4. DISRUPTING LIFESTYLE



HYPERREALITY

Thomas Gere founded The Realities Centre. I ask him how our tools for perceiving the world could change.

THE DIFFERENCE BETWEEN AR, VR, AND MR

The Realities Centre is based near Finsbury Square; in the dead centre of that triangle between Hoxton, Aldgate, and Angel, which seems to be Britain's centre for experimental tech.

The building is drab, but inside there's bustle. In the lobby, a long queue of people conversing in foreign tongues are carrying documents. ("Uber for vans", our host will explain, later.) There's one of those "living" walls. Trendy bespectacled men chat earnestly over laptops.

My host is Thomas Gere, a Frenchman in his forties who runs the Centre. You can now buy your reality in varieties: "virtual", "augmented", and "mixed". The Realities Centre is an incubator, and aims to bridge the gap between the start-ups and corporates which could benefit from them.

What used to require seeking out is beginning to appear at the peripherals of everyday life. I was surprised to be recommended "Somnai" by a non-tech friend, a £50 one-hour Virtual Reality experience in the Old Street area; half theatre, and half "sleep therapy".

'The last few years have been a revolution,' Thomas says. 'Thanks to smartphone technologies, and economies of scale, VR headsets have become a lot more immersive. And there have been a lot of new product releases that have created a lot of hype in the industry.'

'Maybe too much hype,' he adds.

'VR headsets have now come to a point where they are delivering a superior experience for gamers and the entertainment industry. Their body tracking and controller tracking are perfect.'

> *"The last few years have been a revolution"*

I ask Thomas to disentangle the nomenclature. Most people know VR: an all-immersive headset. What's the difference between the others?

'AR,' he explains, 'is more a layer on the top of the real world, so you are just augmenting objects, whereas MR is generating more of a 3D understanding of those objects involving computer vision.'

'With MR, you have a holographic presence, and you can have objects reacting. Your holograms can be put on the top of a cup, and let's say you place an object that is not properly balanced, it would fall off the real object. It's actually reacting, the digital and the physical world are interacting.'

As well as being unbelievably cool, MR sounds technically difficult. 'The challenge for mixed reality is that you're not confined to a closed space. You have to relate it to the real world, through a transparent processing unit.'

'The challenges are much bigger [with MR]. Field of view is one of them; the best one at the moment is 40-50 degrees. I think on the VR headset it's more like 110-120 degrees. The industry ones are more expensive and are much wider – but you can see, that's almost double.'

'You have a lot of optics challenges as well, for the eye to see the image clearly and for the light field to be able to understand [when] you put a virtual object behind a real one.'

'Admittedly, it is a first iteration; you're not going to suddenly see holograms everywhere. But it's certainly getting there.'

> *"[...]you're not going to suddenly see holograms everywhere. But it's certainly getting there."*

Written by Adam Stead



WHO'S DOING WHAT IN CONSUMER REALITY

Companies are presently experimenting with various AR and VR consumer devices. I asked Thomas the state of play in big tech; and who is developing the most convincing blueprints for the first large-scale disruption.

'To be at scale you need a device which is a light, standalone, turnkey solution. And probably 5G.'

'I think those are coming slowly, but soon, [in the case of] VR. The Mirage Solo from Google is very good. It has "six degrees of freedom", which means that when you actually move your head you're moving in the virtual space, which I think is very important.'

> *"To be at scale you need a device which is a light, standalone, turnkey solution. And probably 5G."*

'You have AR at the moment through mobile devices, on a small screen. Then you have mixed reality, which is more what Magic Leap has been working on.'

'The approach from Snapchat, and Bose, is to have AR glasses which have a specific use case. Snapchat's is for snaps – you're taking pictures with your glasses.' Snapchat's glasses are not AR, but could be a precursor.

'Google Glass is more of a notification device. It's not understanding or contextualising the scene around you. It's an extra screen which is connected to your smartphone. HoloLens is a very courageous device made by Microsoft...used in a lot of industry applications. These are more B2B.'

'As for consumer devices, there are still a lot of challenges in terms of the optics, the processing units, and the field of view.'

'In HoloLens...[Microsoft] is involved in the whole product lifecycle from conceptualisation to the end of life...it's a very interesting one.'

REALITY-REALITY WILL CHANGE, TOO

Are we ready for the changes consumer reality devices could bring? There are ongoing privacy debacles for cookie tracking, and other data collection measures, in phones, computers, and tablets. The masses using AR wearables would change data collection irreversibly and forever.

To my surprise, Thomas felt it was possible to control. But people would need to be 'grayed out, or not identified'. There may be big arguments.

'[Legislation] would definitely come from reaction, rather than proaction, that's for sure. Otherwise it might stifle innovation as well. So you get this element of engagement from government and regulators on innovation.'

'But you have privacy and basic civil rights, where I think you need to be very proactive.'

'You have industries, like commerce, entertainment, and media, where you might want to leave a bit of leeway for innovation so that it essentially stays dynamic. It's a balance.'

'I think for those industries the [legislation] is to the advantage of the advertisers and the brands. The content, like on Facebook, is highly personal and well targeted.'

Thomas sees huge benefits for both the customer and advertiser within MR. 'The great thing with mixed reality is that it's using eye tracking, it's using data in a way that can actually predict sentiment and can even improve the experience of the customer journey to a position where it should not actually disturb the experience. It would be just the right amount, and it would be well targeted. Anyone that isn't doing this is just risking losing that potential customer.'

Did Thomas think that MR would have a big political impact? 'I think it will definitely change the way people interact, and therefore will have cultural implications.'

'One thing I think is very interesting is... instant real-time communication with people who speak a different language. We've seen Google Translate, but now we'll have headsets which give us real-time audio translations.'

'That is very powerful.'

The next big collapse of distance would surely be exactly that. The ability to stand next to someone in a virtual space when they're not there next to you; and to hear what they're saying as they speak a different language. What that could mean culturally is too far into the future to tell. But slowly, technology players are honing in on what a device could look like.





Cultivating community online, with Nextdoor's UK Country Manager

The only reason to go next door in London is to complain about the noise – or is it? I catch up with Nextdoor's Nick Lisher to find out.

Nextdoor is a social network, but not as you know it: it's for meeting the people next door. You must verify your address, and individual bulletin boards are closed to non-residents. There are 1,600 "neighbourhoods" in London, and 15,000 in the UK so far.

Once verified, you can access a feed of plumber and babysitter reviews. Discussions about schools. Pub quiz recommendations. Adverts for small businesses. Contact directories. Each item has utility, but together, they advance a loftier goal: the cultivation of "community".

Which they're serious about. 'If you look at the Nextdoor pitch deck,' Nick Lisher, their UK Country Manager tells me, 'the very first slide is a line by [Harvard Sociologist] Robert Putnam, talking about how social networks in a neighbourhood raise test scores, lower crime and can even elongate average life expectancy.'

Nextdoor began in the US in 2011 and became venture-backed in 2012; when it started to achieve tremendous growth. It moved to the UK in 2016, and Nick is charged with growing the network here. But can it work in a more urban, more atomised country?

> "[...]social networks in a neighbourhood raise test scores, lower crime and can even elongate average life expectancy."

Written by Adam Stead

VIRTUALLY FRIENDS

I put it to Nick that the proverbial, "neighbours talk in the street" is true of the US, but not London. Margaret Thatcher even once said, "There is no such thing as society." Was the UK well-suited to the platform?

Nick seemed ambivalent. 'Maybe we won't take to this as easily,' he said, 'but maybe we need it more.' He cited North London as somewhere people do sometimes stop and talk.

If we do need the platform more, I wondered whether an active desire for "community" drove adoption.

'It's something we discuss a great deal, internally. Nobody searches the app store for how they can improve the park in their neighbourhood. In our marketing we talk about those very relatable points that you can get help for quite instantly.'

Nick himself seemed more interested in the "community" piece. 'There's a lady, Angela in Lanarkshire, in Scotland. She's set up a support group for mental health in her area. Simply connecting with other people, who might feel depressed...is incredibly powerful.'

Presently, social media is a great alternative to "doing community" with the people next to you. Niche interest groups; friends from previous lives – etcetera. One could spend one's entire social life online. But such connections are intangible – perhaps ephemeral. Did Nick think such interactions alienated people?

'I think that's such an important question... not just for Nextdoor, but for what social media means right now.'

'There's a question mark around, "is being connected to everything and everyone all the time a good thing?" Certainly, journalists are asking that question, and there's research to say the way teenagers use some of these apps has led to anxiety, or depression.'

'When I started in my career, I was working for MTV2 and I was finding people who listened to awful *nü metal*...teenagers in Reading who might be the only two Limp Bizkit fans in their school and connecting them with two other Limp Bizkit fans. That was so powerful at the time because it didn't exist yet.'

'I remember meeting people at music festivals and building a community around that and then meeting up with those people later. The ability to do that online, I found that just so powerful.'

'At the time I was aged 24, 25, looking at that saying, "This is it. This is the future. This is the way we're going."'

'I might have more in common, in terms of my interests with that person who lives in Utah, or that person who lives in Lyon, or that person who lives in Sydney than I do with the person living next to me. Being able to do that is incredibly powerful.'

'That said, we've got to a stage now where perhaps that's quite addictive as well. I can, if I want, only converse with other Spurs fans and never, ever, ever converse with an Arsenal fan. That's probably a bad thing.'

'That can change. The people I follow on Twitter, they tend to be liberal-minded, left of centre, pro-EU people. Whereas the people that live around the corner from me, might not. It's really important that we don't polarise ourselves by thinking that those people are completely other.'

People who tweet angrily that Brexiteers are monsters politely tolerate the views of grandma over Christmas dinner, I said. Nick nodded. 'And so many important experiences and data points have gone into gran's opinion.'

'If we lose our empathy towards that then we don't move forward.'

> "It's really important that we don't polarise ourselves by thinking that those people are completely other."





GRANDMA'S OPINIONS

But could Nextdoor really answer that? I told Nick I was sure the site would develop its own political flavour. There's a demographic: people who look for plumbers own homes. People who care about schools have children. "Community" is a political alignment, even if it's scattered across today's UK parties.

And political action from sites like these isn't unprecedented. Mumsnet, a similar platform, has run campaigns against the premature sexualisation of young girls, and various other mums-related causes. They also attract some criticism for alleged transphobia.

On demographics, Nick said: 'When people are 23 and 24 and a bit itinerant, they're less interested.' But, 'from 25 upwards, it's pretty even. We don't ask their age when they join the platform.'

'I think people expect social media to skew younger...when you open Nextdoor and you see a comment from someone in their sixties, it feels unusual. People tend to notice that about Nextdoor. It's a window into the community and we have neighbourhood leads who are 19 years old.'

On politics, it helps that nobody is anonymous – so no trolls. 'We have community guidelines that we've honed; guidelines, not rules. We want to give the leads of the community some guidelines on how best to mitigate disagreement in the newsfeed.'

Nextdoor had had some bad press. Specifically, some people were identifying "suspicious characters" on street corners in the US by their race alone.[1]

'I think our response to that was to firstly, go and learn about unconscious bias as a company,' said Nick. 'Everyone in the company has to go to unconscious bias training.'

'Now, if you're going to report a crime of suspicious activity in your neighbourhood, if you use ethnicity as a descriptor, you have to use two other physical characteristics. For example, you can say "a white man wearing sneakers and blue jeans."' He told me that they had reduced racial profiling by '75%' using this method.

> "when you open Nextdoor and you see a comment from someone in their sixties, it feels unusual."

PLATFORM MECHANICS

I wanted to ask Nick about marketing. If I wanted to build a plumber-seeker app, I'd build one specific to that issue that people would search for in-store. (AirPlumber? PlUber? PlumbCoin? Plumbify?) If I wanted to build a mass social app I'd build Facebook. Something with a "network effect" where a mass of users guarantees there's enough interesting content to drive new users to the site.

If you lock users in neighbourhood siloes, you're essentially setting up 15,000 fresh social media sites. Nick nodded. 'We're choking off the network effect,' he said.

'Number one, building something that's defendable and worthwhile is never that easy. I think of certain social networks that have been a little bit, "easy come, easy go", in terms of rapid user growth, and their decline. Sometimes: rapid user growth, IPO, then decline.'

'In the first year, there were only 100 communities using Nextdoor. The important thing there was to get people using it and to get feedback from people who were community-minded.'

Nick argued that the drive of local business to communicate was such that they would be able to deliver a populated platform across geographies.

'We took that one step further and said, "OK, you don't know the people in your neighbourhood and we're trying to create connections that people don't know exist yet." But it's tough. Our growth is tremendously impressive but it's been hard-earned growth.'

And the reward for this work? The site is ready to monetise in the UK.

'I think there are a few ways of getting good visibility as a local business, but to have the ability to communicate with your most important customers, who will be the people in the streets around you, we think it's incredibly powerful.'

'In the way that Yellow Pages was useful to both the community and businesses...but it's a little bit of a modern version of that.'

'So far it's been about businesses that are interested in where you live and how you live. That will be available in the UK, starting very soon.'

Most newer companies, like the app "Plumbify" (which a quick Google proves to be a real business), compare themselves to a wildly successful company, like Spotify. But Nick had just reached for the ailing Yellow Pages. Nextdoor is aiming to build itself around "community", which is not measurable. I left wondering whether a culture where everything must be recorded and optimised could ever successfully deliver a community platform. But I hoped so.

> "Our growth is tremendously impressive but it's been hard-earned growth."



Driving Driverless with Matthew Avery

I talk to the Director of Research at Thatcham Research and ask about the roadmap for driverless cars.

‘Drivers do stupid stuff. They always have done and they always will do. And so they need protecting.’

That’s the contention of Matthew Avery, the Director of Research at Thatcham Research. Thatcham is a not-for-profit research house funded by motor insurers. ‘Our aim is to reduce crashes and reduce [the number of people who are] killed and seriously injured on the roads,’ Matthew explained.

I had come to dig into two prospective disruptions in car manufacturing. The first: autonomous vehicles, the much-hyped AI/car love child which has been just around the corner for what now feels like several corners. The second — electric vehicles — a less hyped but perhaps more imminent change.

Matthew began explaining the tangle of various European organisations and committees and how Thatcham fits into them. There’s a whole legal matrix. If cars are really about to change, it won’t be like software. You can’t just build any old thing and stick it on the road.

So how will the disruption in cars pan out?

Written by Adam Stead

AUTONOMOUS VEHICLES

The way I’ve heard autonomous cars talked about in some literature is “tiers” or “levels”. Today, we trial one-lane motorway driving with a driver always present; tomorrow, full autonomy including tricky first and last mile journeys, where you could, for example, invite your car to pick you up via your phone. I asked Matthew to take me through a roadmap of the journey from the first to the second.

‘From our viewpoint there are two states,’ said Matthew. ‘There's assisted driving where you are driving and the car supports you. Cars currently support you with braking either in emergency situations or in a comfort mode.’

‘More and more, cars are offering steering support. Put those elements together, and the car is starting to support the driver quite a lot. But the driver is still required. If things go wrong, you have to be “in the loop” and ready to take back control.’

‘Automation is likely to come in the early 2020s, maybe as soon as 2021. And we’re talking about full automation here – essentially pressing a button and confidently doing something else whilst you’re driving. We are seeing some of that functionality in new cars today. But they are assisted driving systems. They shouldn’t be labelled as semi-autonomous or any words in that ballpark.’

‘The problem is, the more assistance that is provided to a driver, the more opportunity they have to abuse it; to come out of the loop and do secondary tasks. So that danger must be carefully considered by manufacturers. There are strategies they’re considering at the moment. For example, some only permit a driver to take their hands off the wheel for 10 or 15 seconds.’ In other cars, ‘there’s a camera fitted to monitor the driver’.

Matthew had a very specific axe to grind: manufacturers exaggerating the scope of their autonomous capabilities.

‘If you are allowing the driver to come out of the loop or you are mis-describing the functionality of the system in the marketing material, you’ve got a recipe for disaster. We’re calling on the vehicle manufacturers to make it clear to drivers that these are “assisted” driving systems.’

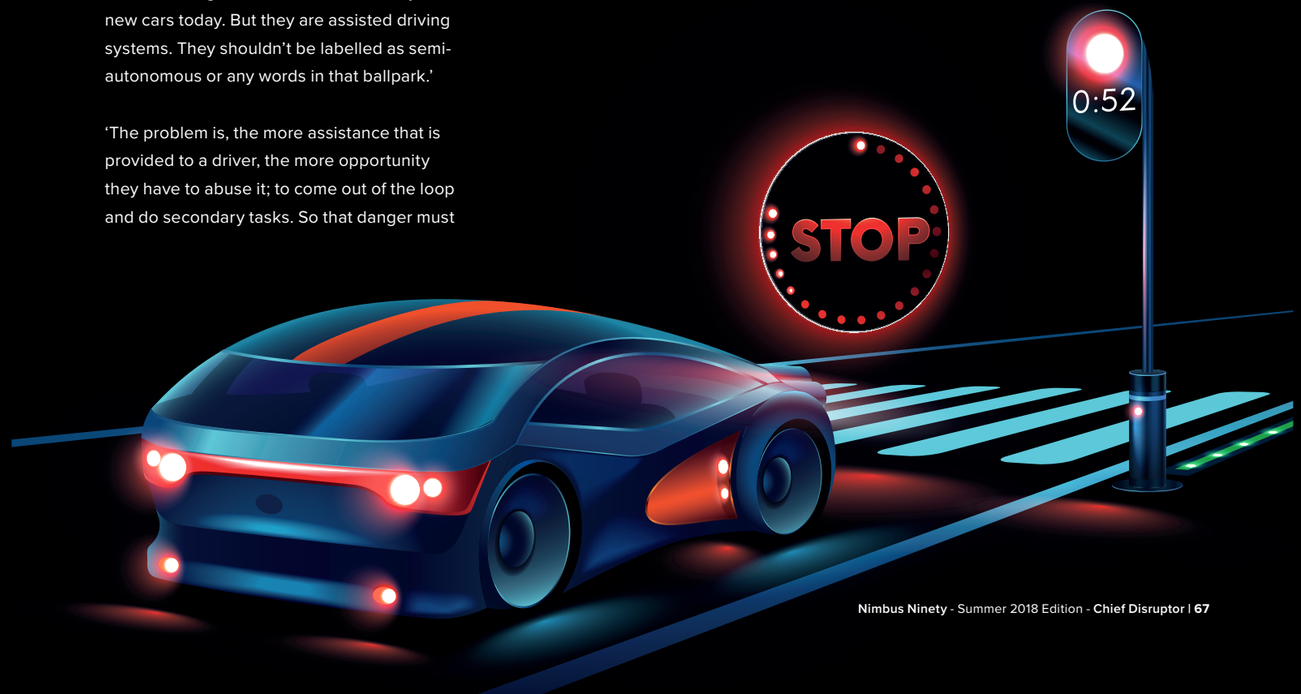
I asked Matthew what the technological bottleneck preventing full autonomy was.

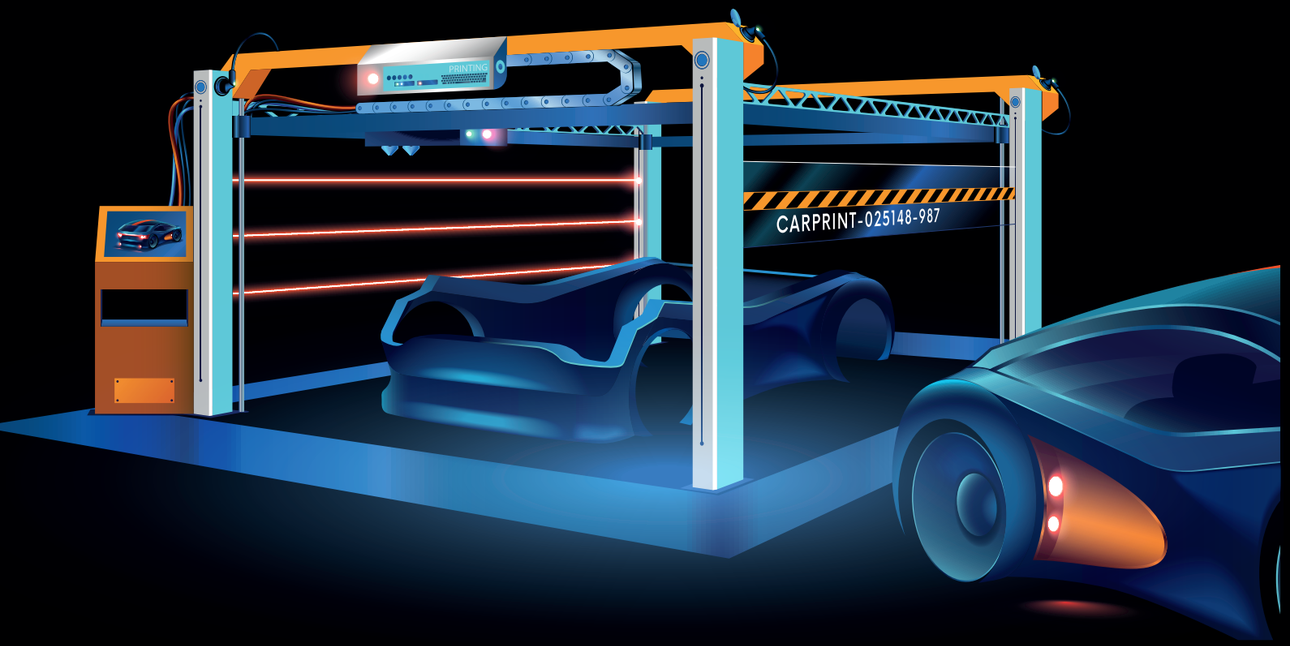
‘There’s regulation, and there’s the capabilities for cost-effective sensors.’

‘At motorway speeds, current sensors are scanning the road ahead for two or three seconds. Which, if you’re out of the loop, is definitely not enough time. So there’s a need for sensors that have probably got to see 300 metres ahead.’

‘The regulators are currently allowing systems that ensure that you keep your hands on the wheel and your eyes on the road. They’re only going to allow full automation when those sensors are mature enough.’

> “If you are allowing the driver to come out of the loop or you are mis-describing the functionality of the system in the marketing material, you’ve got a recipe for disaster.”





> "You're more likely to get vehicle manufacturers working with tech companies and buying capabilities [...] than you are to start seeing companies like Apple actually producing a whole car."

THE POST-AUTONOMY CAR MARKET

One focus of commentary has been guessing who could "win" in car production. The race is on. Is it easier for a tech company to build a car competency, or for a car company to build a tech competency?

Did Matthew see traditional car manufacturers trying to build their own capabilities? Or partnering with tech firms?

'There's a lot of cooperation going on, and you've got some new players in the field.' Mobileye, owned by Intel, dominates the Autonomous Emergency Braking space. 'About 70% of cars that have camera-based systems are owned by Mobileye.'

'The most prolific is NVIDIA. It was manufacturing graphics cards for computers. NVIDIA is quite a significant "tier two" supplier, because vehicle manufacturers realise that to have autonomy, there must be a centralised computer system to evaluate vast changes in local environments.'

'NVIDIA is selling graphics boards that vehicle manufacturers are now integrating. Instead of every sensor having its own algorithms and computing power to make a decision itself, you've got links all going to a central computer. That is what Audi is using. Certainly, manufacturers are moving towards that sort of structure.'

'You're more likely to get vehicle manufacturers working with tech companies and buying capabilities to develop accordingly, than you are to start seeing companies like Apple actually producing a whole car. Because, as Tesla is finding, producing cars is difficult.'

TESLA AND ELECTRIFICATION

Very difficult indeed. But not impossible. One technology company successfully made hardware and software end-to-end for smartphones, the holy grail of technology markets. That company was Apple. Today, Apple is the most valuable company in the world, and Steve Jobs is hailed as visionary.

Tesla would like to be perceived as *the* company for tomorrow's cars. But it is still in the "fight" stage: it recently announced it would lay off 9% of its workforce. Because it needs continuous investment, because Tesla famously has a $0 marketing budget, and because he probably is how he acts, Elon Musk must be "Elon Musk".

'I'm a great admirer of Tesla, personally. I think a lot of what they do is really brilliant. And I think they're quite a game changer,' said Matthew.

'If you look at the new product from Jaguar, the I-PACE; and Mercedes and Audi with their e-tron; these are "me too" Teslas. Tesla was out there six years ago with that concept. People scoffed at it then, and they're not scoffing now. They're emulating it.'

'There was a recent over-the-air update that changed Tesla's "hands on" warning strategy to 20 seconds. The fact that they could change it overnight I think is really really good.'

'What I don't like is some of the overpromises seen in marketing,' said Matthew, again citing his concern about drivers taking their eyes off the road. 'They're selling you the dream, "This is an autonomous car. Well it will be soon."'

But the autonomous ambitions are further afield. Tesla's first ambition is a mass-produced electric car.

'One of the reasons it's taken a bit of time for people to clock on to where Tesla is going, is because initially other motor manufacturers were saying, "Right, electrification. We'll swap the internal combustion engine from an electric motor, and there you go." You can't do that. You've got to design an electric car from the ground up.'

Then, 'I think that most manufacturers looked at Tesla and said, "This is going to be a niche product. We can't follow that." I think manufacturers now realise that they've got to do it. It's not going to be niche. This is going to be mainstream.'

'From our experience about 70 or 80% of the R&D investment across every vehicle manufacturer is in electric. There are going to be some markets - cities, maybe some countries like China - where if you're not electric, you just won't be able to sell in that market. If you don't have electrification, you're just not going to be in business.'

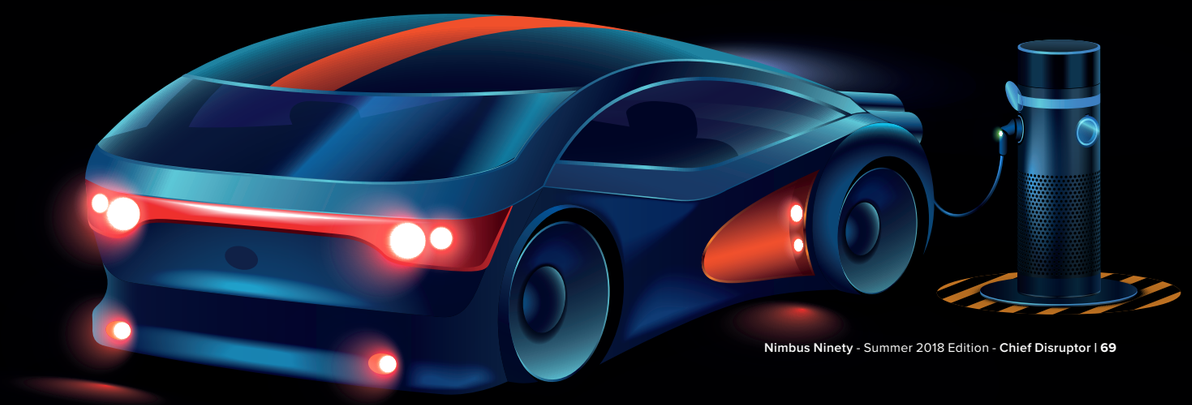
One such jurisdiction is London's Shoreditch. Hackney and Islington councils are banning diesel and petrol cars from a small semicircle between Old Street, Leonard Street, and Great Eastern Street.[1] Perhaps the ban is a sign of things to come.

'You know, there are waiting lists for the Nissan Leaf,' said Matthew. 'We're trying to get hold of research cars here, and there are big, long, waiting lists.'

'There's a fiscal reason why everyone is buying electric, but people are buying into it.'

'The rulebooks are being rewritten to allow and enable the design of these vehicles. It's difficult to make an electric vehicle safe, because you've got all of that weight low down for the batteries, and that area has to be very strong. But the vehicle needs to be as light as possible, so it's made of aluminium. Quite a lot of effort has to go in to making sure that the vehicle is strong – there's lots of complexity in that. Teslas are well-designed vehicles.'

> "From our experience about 70 or 80% of the R&D investment across every vehicle manufacturer is in electric."



RISK

Thatcham is funded by insurance; an industry sat patiently waiting to see how these things pan out.

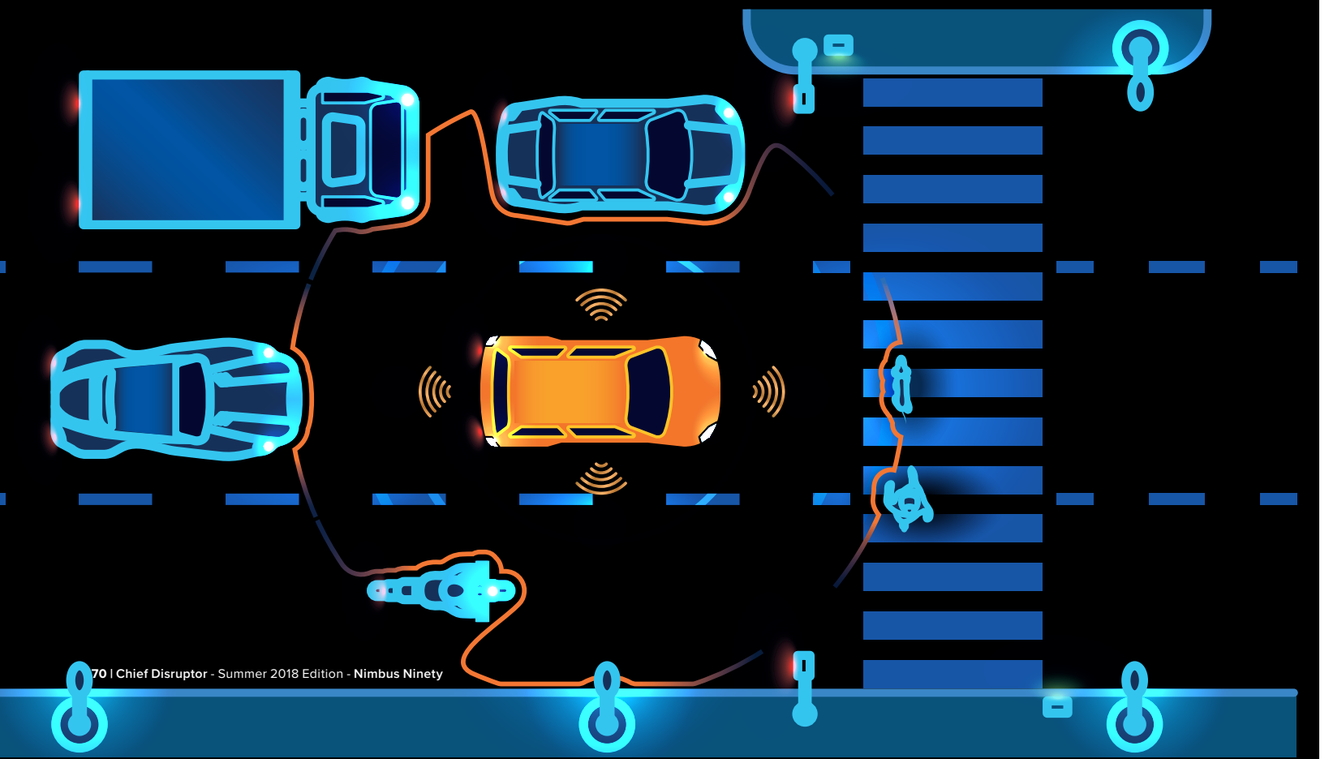
‘With electrification in the field, and widespread use of carbon fibre and aluminium, repair is a huge challenge,’ said Matthew. ‘Much of the repair community is just not there yet.’

Then there’s autonomous. Everybody is asking the same question.

‘If you’re not driving, who pays when the vehicle crashes?’

I was only somewhat surprised to hear that the answer Matthew had encountered in insurance was, “not us”.

‘The insurance company will say, “Well you weren’t driving, sir. So we’re not protecting you. Go talk to the manufacturer.” Somehow there’s got to be a new model for insurance whereby the vehicle manufacturer and insurer are working together. And there has to be a way of identifying liability via data.’



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