

# The Future of Shopping

**A collection of inspiring  
thoughts and predictions  
from some of the UK's  
hottest engineers**

**Delivered by EngineeringUK  
to celebrate The Big Bang Fair 2017**

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# Foreword

The Big Bang UK Young Scientists & Engineers Fair is the largest science, technology, engineering and maths (STEM) exhibition in the UK. For the past nine years, we have encouraged thousands of young people to witness the wonder of STEM first hand, and take that critical step in considering STEM as a future subject or even, career choice.

Next year's Fair is due to be our best yet, and we have hundreds of immersive experiences planned for young people to take part in at the NEC in Birmingham from 15-18 March 2017.

Our aim is to bring The Fair to life, beyond the walls of the NEC. We know that to experience The Fair, is to be excited about it, and want to share how awe-inspiring The Fair can be with young people and adults alike.

This review explores how technology will inspire the way in which we will shop in the future. Today's young people will shop very differently from the way young adults shop now.

It is the young people studying maths and science today who will drive the 'Fourth Industrial Revolution' in the future. They will build on advances in artificial intelligence, drones and virtual reality and develop other innovative technologies that will shape our day-to-day lives.

The Big Bang Fair has brought together inspiring companies to share their vision of the future. Visitors to The Fair can experience many of these technologies first hand and discover for themselves how exciting a STEM career can be.

**Paul Jackson**

Chief Executive  
EngineeringUK

The Future of Shopping

# Virtual Insanity



## The Importance of Being Virtual

When the first virtual reality headset (Oculus DK1) came to market, it was clear that Virtual Reality (VR) technology would change entertainment and enterprise forever. The power of 'presence' - the feeling of being physically present in a virtual world - is unique to VR.

It was clear from this moment that technology, and VR in particular, would have a huge impact on how we shop in the future.

### How will our devices change in future vs today?

The screen as we know it — on your phone, your computer and your TV — will disappear and be replaced by eyewear. The result will be a massive disruption in a number of industries ranging from consumer retail, to real estate, education, travel, entertainment, and the fundamental ways we operate as humans.

VR headsets will be cordless and as much a part of the furniture as a remote control. Physical hardware will be obsolete as all computing will be streamed from the Cloud. In terms of how we will live amongst all this technology, it is totally feasible that we will live in much smaller homes as we rely on VR to catapult us into another world away from the confines of our four walled properties.

### How does this impact the way we shop?

Consumers are already demanding more unique shopping experiences. The number of retail channels alone indicates how flexible retailers need to be. The advances of VR technology take this customisation one step further.

VR will take 'inspirational' stores and flagship 'experiences' to the next level. Consumers will be totally immersed in an experience – through VR you can try on a pair of jeans without getting changed, learn the provenance of your hot chocolate by visiting the cocoa farm the beans were sourced from and even test drive a new car without leaving the showroom. Understanding product stories such as this will change the face of advertising as customers develop deeper relationships with products by having these personal experiences. Advertising strategies will have to evolve to keep up with technological advances to tap into customer demands and expectations.

### View from the shop

What will our high street stores look like in a VR world? It is entirely possible that large, out-of-town retailers may move into city centres and have a small number of strategically placed destination showrooms, which will show only the best-in-class items

physically, whilst VR will facilitate a virtual showroom of larger items and full ranges. It will even be possible to recreate entire shop floors and explore popular retailers from the comfort of our own home. Imagine wandering the maze of the Ikea showroom without stepping through the door. In addition, human shopping assistants will seem antiquated, as AI predicts what we will buy, based on previous shopping habits.

What's certain is that because of VR, retailers will understand their customers in a way that seems inconceivable right now. Future stores will have highly knowledgeable staff as consumers demand a higher level of service. We may even lose all need for human shop assistants at all, as they are replaced by AI counterparts.

Displays in store will change according to our mood through lighting and sound, they will speak to you by name and make recommendations of things you might like to buy based on data you've shared, technology will remind you of things you might have forgotten, or serve you an advert for a swimsuit because you're going on holiday in two weeks time. Advertising will become much more personalised as we are served products unique to us – and interact with products we might buy in a unique way. So for example, we can see how we will look in the latest catwalk trends, in situ on the catwalk itself.

## The Future of Shopping

Virtual reality can change what a person sees, how they think, what they feel and even how someone behaves, in part because we believe it to be real. The applications for VR in the context of shopping are endless – brands have a huge opportunity to talk to their audiences in a way like never before.

*Written by Sol Rogers, CEO, REWIND  
- a creative digital production studio,  
specialising in virtual reality.*

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# It's all about ME ME ME



## Instant Drone Delivery

The drone industry is growing exponentially. Over \$10Bn worth of drone hardware will deliver more than \$127Bn of economic activity per year by 2020. Organisations such as Amazon and DHL are already heavily investing in drones.

In the not too distant future, drones will become synonymous with home and office delivery. Next-day delivery will seem old fashioned when autonomous delivery vans pull up outside our houses or drones land in our gardens just a few minutes after ordering our goods.

More innovative companies won't wait for us to order; they will trawl through the reams of data they can get their hands on about us, recognise our consumption habits, predict our purchasing requirements in advanced, and pre-emptively ship goods to us before we even know we need them.

### Drones and the future of transport

Connected, smart, drones will become part of a multimodal transport system that includes driverless electric cars and buses.

By 2030, driverless cars will become the new normal, and our view of ownership will shift. In years to come owning a car will seem pointless, and people will choose to purchase mobility over an

actual vehicle. The significant investment in a car that sits idle outside your house for 23 hours a day will seem nonsensical.

### Mitigating risk

As our transport systems change, regulations and processes will need to adapt swiftly to be applied to new technologies. As the number of drones increases, and our skies become more congested, who has the responsibility to ensure this transport system runs smoothly? Is there a chance that drones could interfere with other aircraft, or each other? Beyond congestion, drones bring other associated risks: from the obvious privacy concerns, to environmental disturbance, and the risk of injury if a drone were to fall out of the sky into a congested area.

Navigating this multi stakeholder environment presents a new challenge, which can be overcome through Artificial Intelligence - enabling drones to fly through cities and congested environments in a safe, smart, non-invasive way.

Flock uses an AI platform to aggregate Big Data to identify and quantify the risks of drone-flights, by tracking and analysing the real-time position of people, vehicles, structures, weather systems and more (all of which are elements of flight risk). Through partnering with third parties to gather relevant data-sources, Flock is building a best-in-class risk analytics tool, to ensure

every product ordered online is delivered quickly and safely.

*Written by Ed Leon Klinger, CEO, Flock - an Artificial Intelligence software company that enables drones to fly through cities and congested environments in a safe, intelligent, non-invasive way.*

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## Changing the Face of Luxury Fashion

### The Fourth Revolution

We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. The so-called Fourth Revolution, whilst still in its infancy, has the potential to fundamentally change the world we live in. It's very likely that advances in technology will escalate faster than we have ever seen before and will set a higher standard of experience and service.

### The democratisation of technology

As virtual reality and the Internet of Things spreads more widely into the hands of customers, there will be no stopping experiential enrichment – whether real or digitally-supported. When these technologies become cheaper and more readily available, there will be a turning point for consumers as they demand and expect a standard in line with the values being shaped by today's new economy, such as accessibility, sharing, and a collective consciousness for how companies and customers alike can behave responsibly. Everyday innovation will become the new norm. Consumers will expect technology to play a big part in the way they shop, and brands will have to keep pace with

tech developments, or face being left behind. Knowing customers intimately will be crucial for brands to respond to customers' needs and desires.

### The next retail landscape

Companies like Holition are responding to this new consumer demand, focusing on the space where emerging technology can be used to communicate creatively with consumers.

The insight that drives Holition is that the emerging digital consumer is somewhat mismatched with the approach taken by traditional, old luxury. Holition exists to harness technology to bridge that gap and deliver a creative and beautiful experience that encourages thinking about the future of digital in the fashion and retail industries. Through crafting 3D digital experiences or augmented reality applications, technology has the potential to drive purchase or give consumers something that reality can't, such as holographic fashion shows and in-store live events, to interactive virtual cosmetics for make-up and nail polish.

### Digital anthropology

Technology must be fit for purpose - it is not just about creating beautiful and realistic apps - it is about ensuring the end user fully engages with the product. Technology HAS to be beautiful to work – the human to technology experience or 'digital anthropology' allows the creation of beautiful digital retail experiences which seamlessly integrate design with emerging technology.

There are many examples of trends and applications of new technologies that already affect consumer behaviour.

For example, the idea of anticipatory intelligence, where data-capturing systems are put in place to predict and pre-empt a customer's next move before they know it themselves. Huge Café is a coffee shop that familiarises itself with a customer's everyday routine to nudge them into making their usual order.

Personalised in-situ production in the final steps of a customer's journey is also now possible. AlpStories' sophisticated robot mixes chemicals from scratch, right in the store, to create bespoke cosmetics for its customers based on their personal data. Some organisations such as The Unseen go a step further and create materials that react to the environment around us, such as wind reactive ink that changes colour in contact with the air around us,

And finally, there is the idea of technology having the capacity to deliver contrasting experiences. On the one hand, there is the theatricality and ultra-sensoriality that virtual reality can offer, and on the other, there are more functional technologies, such as chatbots. These examples of technology's possibilities affect experiences, services, and how we can connect and communicate as a whole.

### How technology influences the way we shop

Below are five examples of how technology influences the way we shop:

1. Technology is often accused of being a solution looking for a problem but cosmetics is a good example where innovative technology can actually enhance the trying on make-up experience. 'FACE by Holition' is an immersive virtual cosmetic experience where smartphones and tablets act as a mirror to try on and experiment with the latest colours, shades and textures of makeup. The advanced face-tracking software is proprietary and is intuitive enough to discern between the skin of the lips, eyes, and other facial contours, allowing the virtual make-up to stay in place when smiling, talking or nodding.
2. For Rimmel London the consumer had an opportunity to explore, discover and experience a new way of trying on make-up. Rimmel's GetTheLook app is the first-ever real-time 3D make-up simulation application that enables consumers to try out other people's make-up styles. Using Holition's FACE technology, it's now possible to point a phone or tablet at a friend's made-up face then virtually try on the same look using colour-matched cosmetics by Rimmel. Holition has also modified the technology to create 'Hands by Holition' where people can 'try on' in real-time virtual nail colour. The

app uses highly advanced real-time tracking, realistic visualisation and personalised skin tone analysis all combined into one mobile consumer app.

3. There is also merit in utilising new technology as a form of reactive storytelling such as Nike Free: an interactive running installation that tracks your flow and visualises a unique generative visual per runner.
4. Big data can be beautiful. The processing of dense data is typically hidden but it can be turned into something visually exciting and beautiful in a way which makes it easy to understand. The creation of artistic visual presentations for two fashion shopping websites Lyst and Grabble, show the enormity and scale of processing thousands of products every second. The visual was both elegant and informative which in itself became a living, moving and breathing piece of art.
5. Holition's collaboration with alchemist, Lauren Bowker and her exploration house, THEUNSEEN provoked thinking around colour changing apparel sensitive to the human mind - this is still ongoing as the potential to extend to other accessories is enormous.

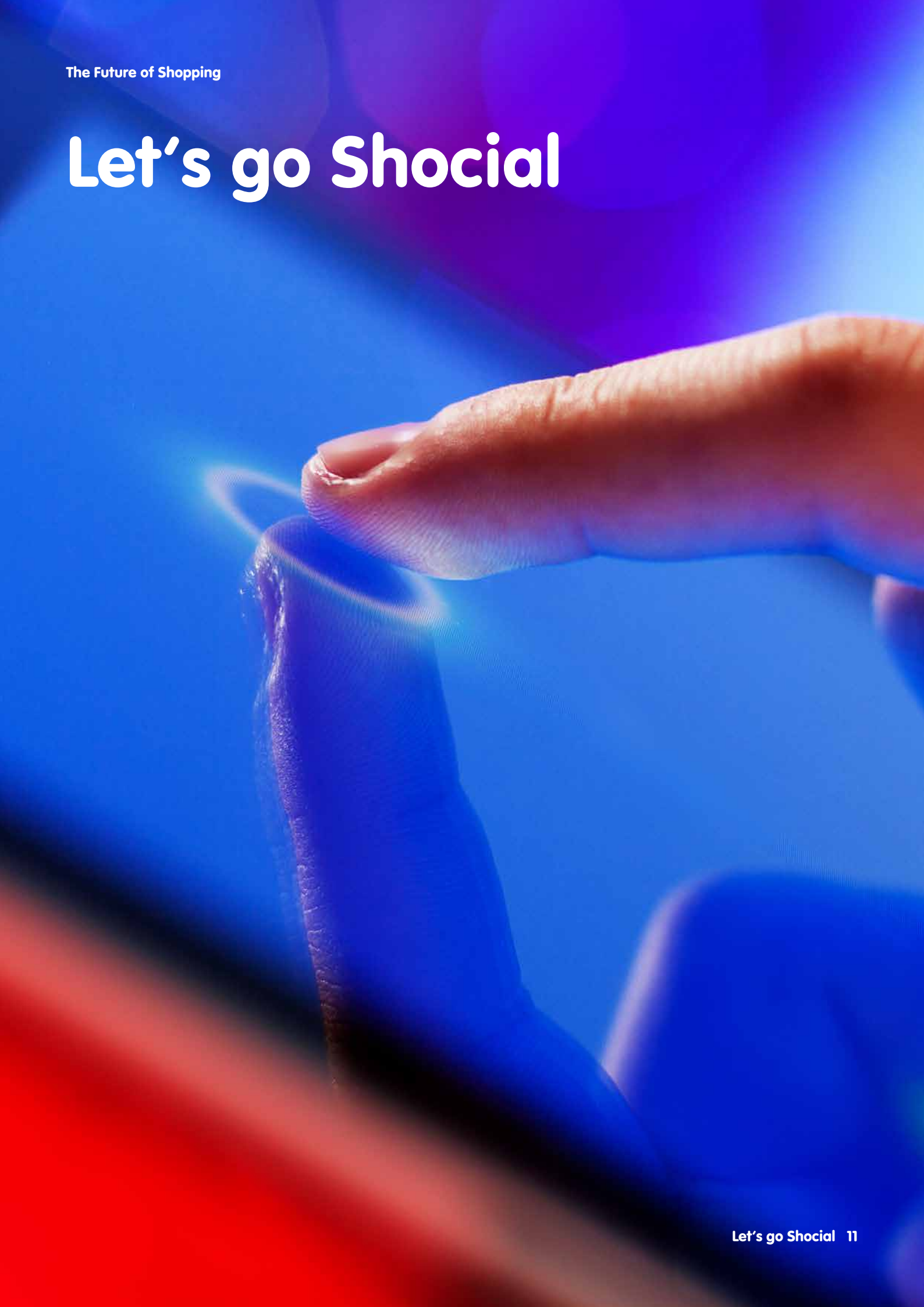
In essence, the future of shopping will focus relentlessly on how technology meets human experience to deliver creative ideas specifically for luxury retail clients.

*Written by Russell Freeman, CTO, Holition - a technology company that bridges the gap between technology and luxury retail by providing powerful and immersive experiences for consumers.*

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The Future of Shopping

# Let's go Shocial



# Instant Gratification

The way in which consumers shop online is changing, and the amount of video content being created by brands is in abundance. Video content helps consumers to visualise items beyond a static image and explore the products they want to buy in more detail.

Whilst this increase in rich content has helped shape our shopping experiences, video often falls flat at the point of purchase. Now, interactive, clickable video content enables consumers to buy products that they have viewed, immediately.

## Shopping with friends

Seventy seven per cent of people in the UK shop online, buying goods and services, according to latest ONS research. This number is even higher in the millennial generation and will continue to balloon. The more significant change predicted is in the way we buy. Existing research demonstrates that younger generations rely heavily on input from their peers to build feelings of acceptance within their group and to create their own identity separate from their parents. Shocial – or social shopping – explores how millennials will shop in the future, with a deeper interest in peer to peer relationships when choosing purchases.

The technology in interactive, clickable videos capitalises on these habitual shopping insights, by allowing users to share content with their friends easily via social networks. This enables friends to comment on suggested purchases in real time.

However, apart from Instagram with their LikeToKnow.it technology, no social network has been able to dominate shopping just yet. Facebook, Twitter and Pinterest all released buy buttons in 2015, and while none of them gained widespread adoption, we can expect social networks to continue investing in social commerce.

Similarly, in a home environment, it will be entirely plausible for friends gathered round watching TV to see something they want to buy, and click through to buy products or similar styles, immediately.

## How will technology change the way we buy?

The way we buy goods will become more streamlined and seamless with multiple purchase and browsing opportunities online and via apps. This simplification of buying could mean that a shared cart online could be a possibility for some retailers, and one-click purchasing, already offered by Amazon, will become mainstream.

Personalisation will also play a huge role, enhancing the online consumer experience even further. Using personalisation as a strategy will drive sales and engagement because the consumer experience will be more

rewarding and interesting. If the digital experience can feel more specific, and more tailor-made to an individual, they could feel more inclined to purchase a product or click through to the webpage. Reaching out to people in this way will only improve the performance of the business.

Lastly, shoppable content will continue to grow making product purchases quicker and easier. With people already having high expectations of obtaining product easily in 2016, consumer demand for immediacy will only grow. We are already buying food and hiring cars at the click of a button. Now its time for fashion houses to respond, as consumers want to wear catwalk trends immediately, rather than wait six months for ranges to appear in store.

*Written by By Karoline Gross, CEO, Smarter - creators of interactive video, making existing video content clickable, providing more information and a fast route to purchase for the consumer.*

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