

GLOBAL INNOVATION

REPORT
2019

The tech
investments
driving today's
consumer
experience



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RETAIL WEEK FOREWORD



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Machines that analyse customers' brainwaves to determine the best product for them in stores; holograms and augmented reality fashion shows – these aren't far-flung technological fantasy, they are applications being used by retailers right now.

While these technologies have yet to become the norm, if retailers want to appeal to the future consumer, then now is the time to invest.

Hyper-connected via social media and with an expectation that digital interactions should play an integral part in their everyday lives, today's technologically enabled shopper is forcing retailers on a global scale to innovate in the ways that they market, sell and ship their products to improve the shopper journey.

From the wide-spanning advancements in artificial intelligence (AI) to the innovative use of images through augmented reality, new tech provides retailers with the ability to meet these demands; whether giving stores the capacity

to provide the ease of online shopping, or online platforms the theatre of the store.

The savviest retailers are already aware of the implications of this fast-evolving consumer mindset for their business, and the ways that innovative technology can help them meet consumer demand.

But for those behind the curve, understanding which technologies suit your business model and culture, and which are affordable on a mass scale, can be difficult to comprehend. This Retail Week report will discuss some of the most cutting-edge technologies that UK retailers should be aware of, who's already adopting them and whether the benefits outweigh the drawbacks.

Retail's digital transformation is already upon us. Innovative technology solutions are ready to be implemented. The onus now sits with the retailers themselves to invest in technology suitable for their business model that not only creates ROI but ensures they remain relevant to the future consumer.



Today's technologically enabled shopper is forcing retailers to innovate in the ways that they market, sell and ship their products



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Retailers have already realised that they must leverage technology to engage with consumers to improve revenue and drive greater conversion.

However, few have realised that the wider problem facing the retail sector is the manner in which consumers are now choosing to engage with brands and spend their money. These demands have and will remain constant – value, choice and convenience – yet it is the consumers' expectations of how these needs must be met that constantly evolve.

Disrupting your own business model before your competitors do is essential to adapt and meet these evolving needs.

Without an innovation strategy and pipeline, the likelihood is that retailers will lose their competitive advantage in an increasingly brutal and volatile trading environment. Within the industry, there is much talk about the millennials shaping the future. Millennials have only shaped the past and present, but retail is still attempting to catch up.

To remain competitive and relevant, retailers should focus on

how to close the current gap while developing strategies to specifically target Generation Z. This segment is rapidly growing and is already becoming a prime mover, shaker and disruptor; shaping experiences not only for the future of retailing, but for the future of living.

The challenge for retailers is overcoming the impacts of consumer-driven and technologically enabled change. The loss of control over customer relationships, the speed and agility of disruptive start-ups, the continuous spate of changing consumer habits, as well as the need to engage digitally with suppliers, partners and employees in addition to customers drives further complexity.

It is apparent that those retailers that can become adaptive, flexible and technologically enabled organisations will be set up for success.

Retailers should now view technology and change as co-creators and co-enablers of retail differentiation, value and, ultimately, relevance. If retailers don't have a strategy to meet these future demands, then the reality is they are in for a tough time.



Generation Z are shaping experiences not only for the future of retailing, but for the future of living



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LOOKING TO THE FUTURE



The future of retail technology



Tech investment priorities

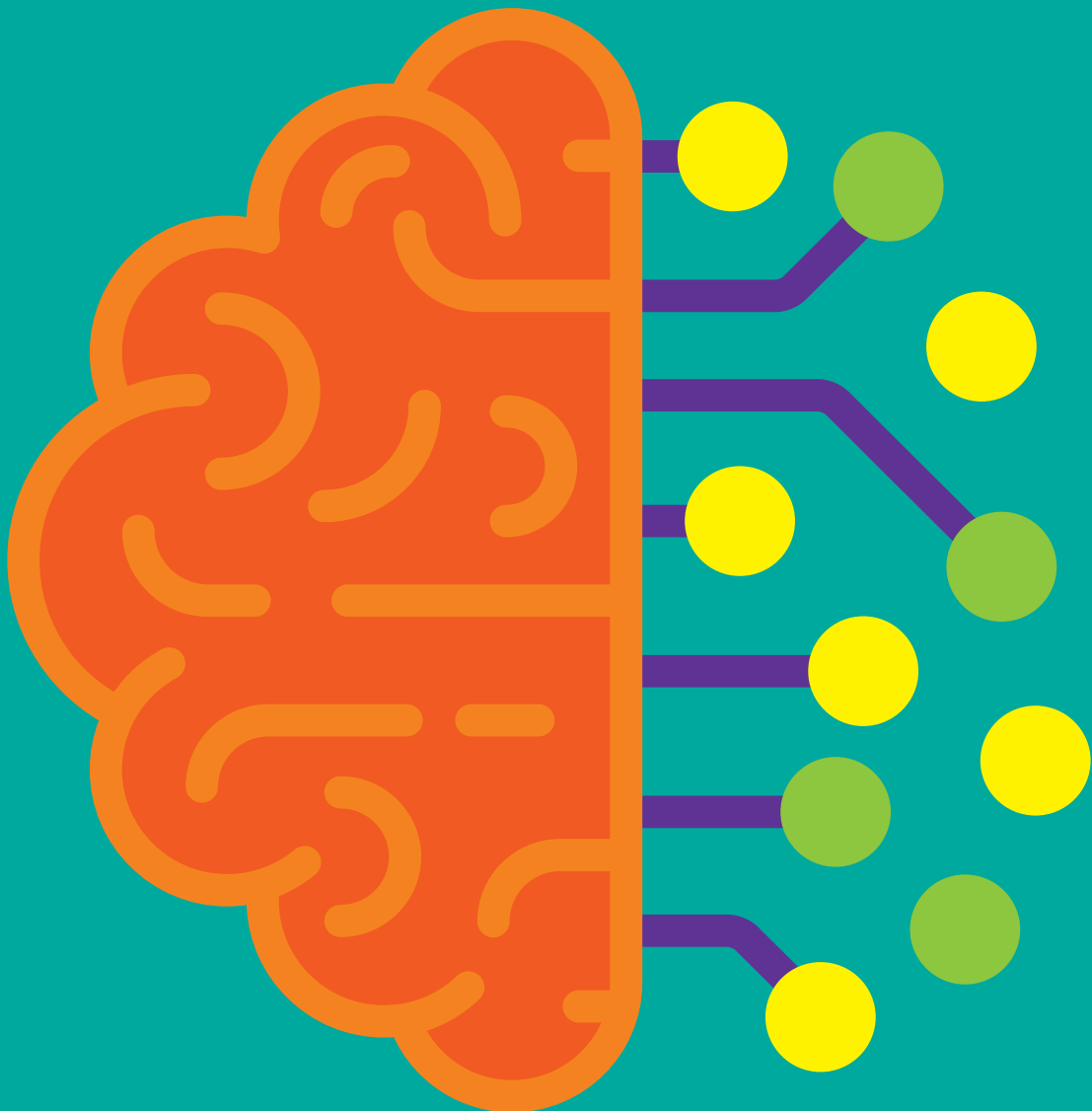


Critical success factors for retailers

CHAPTER ONE

HOW AI CAN ENHANCE THE CUSTOMER EXPERIENCE

- » Ocado's robotic warehouses are increasing productivity and reducing staff costs
- » H&M and Zalando are leveraging AI voice assistants to create seamless shopping experiences
- » Ebay and Asos have created frictionless browsing through image search



Leading tech companies such as Google and Amazon have thrived by not only meeting the rising demands of today's consumer, but also by second-guessing what they will want next. Nowhere is this more evident than in the use of AI to deliver a seamless and personalised customer experience. AI has an almost limitless potential,

from the ability to replicate the natural language used by people when they shop and offering personalised suggestions about what they might like to buy in the future, to speeding up repeated processes that would take a human a lot more time to complete. AI enables retailers to proactively use data insight. By forecasting more

accurately and automating decision-making, they can not only save time and money, but build a competitive advantage over their rivals. The following technologies highlight the practical uses of AI throughout the retail sector, from the consumer's initial browsing experience right through to distribution.

ROBOTIC WAREHOUSES

Known as a technology provider as much as a retailer, Ocado is at the forefront of tech innovation and AI. With £210m of capital expenditure earmarked for tech investment in 2018, the grocery retailer fulfils hundreds of thousands of orders a week with 98.9% accuracy through its focus on robotics and intelligent warehousing.

Ocado is establishing its own technological ecosystem, by streaming data from the robots into cloud storage, where machine-learning software looks after the health of the swarm by recognising areas of improvement.

Ocado's work in robotics mirrors that of Eastern tech giants Alibaba and JD.com. Robots complete 70% of the work in Alibaba's smart warehouse in China, carrying up to 500kg around the warehouse floor. With special sensors to avoid colliding into each other, they can be summoned using Wi-Fi and will go to a charging station when needed.

Chinese ecommerce goliath JD.com has 15 automated warehouses across China, including one fully automated warehouse in Shanghai, which the retailer claims is the first in the world. Speaking at World Retail Congress in April 2018, JD.com chief executive Richard Liu said: "Sooner or later our entire industry will be operated by AI and robots, not humans."

When it comes to automation and AI, the supply chain – and more specifically, warehouses – is proving to be the leading retail function in innovative use of this tech. With little to no human interaction needed, robotic solutions can complete repetitive tasks faster than humans.

Although initial investment costs are substantial, building a robot-powered fulfilment centre is an effective means of cutting operational costs. Hui Cheng, head of robotics at JD.com, was quoted in a recent Retail Week interview as saying that 40% of the costs incurred within its supply chain operation are associated with paying staff.

PROS

- ✓ Increases productivity and warehouse performance
- ✓ Reduces staff costs
- ✓ Removes human error

CONS

- ✗ High investment cost required – Ocado is investing £210m this year to further develop the automation of its fulfilment centres, up from £160m in 2017

VOICE SEARCH & VIRTUAL ASSISTANTS

Gone are the days of waiting for the next available operative. Virtual assistants can simultaneously have conversations with thousands of people, which helps businesses reduce staff costs and achieve the level of convenience expected by today's consumer.

AI-powered chatbots are becoming increasingly common, with Amazon, Apple and Google all leveraging the technology in order to create seamless shopping experiences. In the US, Google's Shopping Actions programme offers customers a universal online cart – whether they're shopping on mobile, desktop or via a voice-powered device,

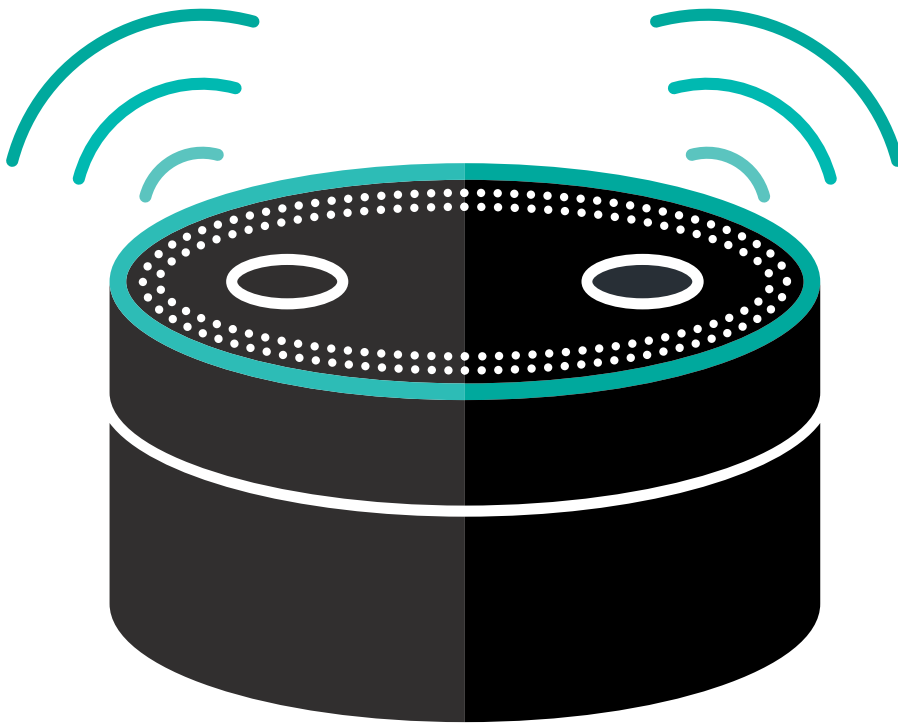
with early adopters Walmart and Target already allowing customers to place a quick voice order via Google Assistant by saying things like, "Buy toothpaste from Walmart".

In Europe, Zalando has partnered with Google to launch a chatbot designed specifically for gift shopping. Users going to Google Assistant for help finding gifts are asked a series of questions, including who the person is they are buying for, before being presented with a list of items available on Zalando's website.

Global beauty manufacturer Coty teamed up with Amazon in January 2018, to launch Let's Get Ready, a

voice-driven beauty service on the Echo Show – Amazon's first Echo device with a screen. With the aim of creating a frictionless digital beauty experience, Let's Get Ready provides on-demand beauty recommendations and tutorials, tailored for each individual. The software gives users the ability to add products from Coty's beauty portfolio directly to their Alexa shopping list.

Coty chief digital and media officer Jason Forbes has said that voice and virtual assistants are a key part of the beauty manufacturer's digital strategy, demonstrating the brand's conviction that voice-based shopping is the future of retail.



PROS

- ✓ Creates convenience for shoppers
- ✓ Allows retailers to be omnipresent through smartphones and home assistants
- ✓ Encourages spontaneous purchases

CONS

- ✗ Difficult to incorporate into existing transactional offer
- ✗ Retailers run the risk of losing the 'human touch' in customer service
- ✗ Relies on single communications – users can ask just one question at a time and receive an answer to that particular question only

WHAT IS ARTIFICIAL INTELLIGENCE?

AI is the concept of machines demonstrating behaviours typically associated with human intelligence, such as problem solving, planning, learning and reasoning. It makes sense of its data environment before making decisions.

Is AI the same as machine learning?

Although a current application of AI, machine learning exists as a separate entity and is based around the idea of providing a computer system with large amounts of data, which it then uses to learn how to carry out a specific task by itself.



VISUAL SEARCH

As voice search is gaining traction, so too is the technology that enables visual search for specific products and inspiration.

Today's consumer is time-poor and does not want to waste hours searching for clothes on retailers' websites. They take inspiration from the people and places around them and want to find things in a matter of seconds, rather than having to type in text. The development of visual search technology is enabling them to do just that.

Visual search allows consumers to take a photo of someone's outfit or screenshot an image of a celebrity or influencer, and use the image to search online for the same product or similar – and potentially cheaper – alternatives. The technology mimics the function of the human brain to spot similarities in a database of images based on shape, colour, size and pattern.

In July, ebay launched Image Search, its AI-powered recognition tool that allows customers to delve into a catalogue of 1.1 billion items using a photograph.

Image Search has been influenced by the growth of so-called 'dual screening', where people research or shop online for products influenced by what they are watching. Given the blurring of lines between social media and retail, brands such as Facebook, Pinterest and Instagram have been at the forefront of moves to integrate visual search capabilities into their platforms.

Rob Hattrell, vice-president of ebay UK, says the business has a technological advantage over other image search tools because of the rich set of user-generated images and data it has accumulated over the years.

"By applying machine-learning technology, ebay can deliver a fast and

reliable shopping experience backed by one of the world's largest commerce data sets," Hattrell says.

Australian retailer The Iconic became the first Alibaba Cloud customer to roll out its visual search service, Snap to Search, in December 2017. The feature allows users to upload a photo of an item of clothing to search the retailer's range for similar looking products.

And forward-looking fashion etailer Asos has been using visual search technology since August 2017 to help shoppers find clothes and accessories using their smartphone cameras.

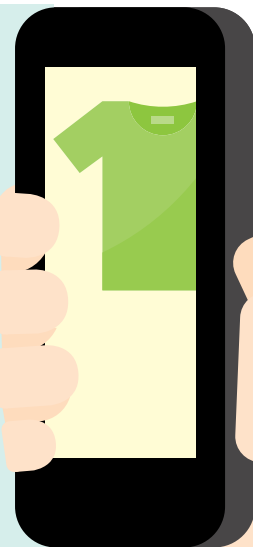
Of the project, Andy Berks, digital product director at Asos, says: "Our customers' expectations are set by those companies doing well on mobile, not just retail, and we're using the latest technologies to push the mobile shopping experience in exciting new ways."

PROS

- ✓ Reduces friction associated with traditional text-based search
- ✓ Offers opportunity to increase social sales on image-led platforms such as Instagram
- ✓ Improves mobile shopping experience

CONS

- ✗ Risk of overloading shopper with irrelevant product results if not properly developed



CHAPTER TWO

HOW TECHNOLOGY CAN IMPROVE THE SHOPPER JOURNEY

- » Shop Direct increases conversion with augmented reality
- » Uniqlo applies neuroscience to personalise product recommendations
- » Monki uses high-definition human holograms to showcase outfits before purchase



The race to offer the best customer experience is driving innovation in retail, and retailers are looking at new technologies to help them reimagine and recast the shopping experience.

Technologies utilising augmented reality (AR) and neuroscience are two key areas where retailers are looking further into how to gain competitive advantage by

delivering a more relevant experience to their customers.

AR means superimposing computer-generated images into a real-world setting. Unlike virtual reality, which enables you to inhabit an entirely virtual environment, AR uses your existing natural environment and overlays information on top of it.

But AR isn't the only technology retailers are implementing to create

immersive experiences. Tapping into shoppers' emotions is becoming more common through the use of psychological tactics.

But whether retailers are gaining access to a customer's living room or mind, companies need to ensure the technology they're implementing is suitable for the brand, product type and target customer.

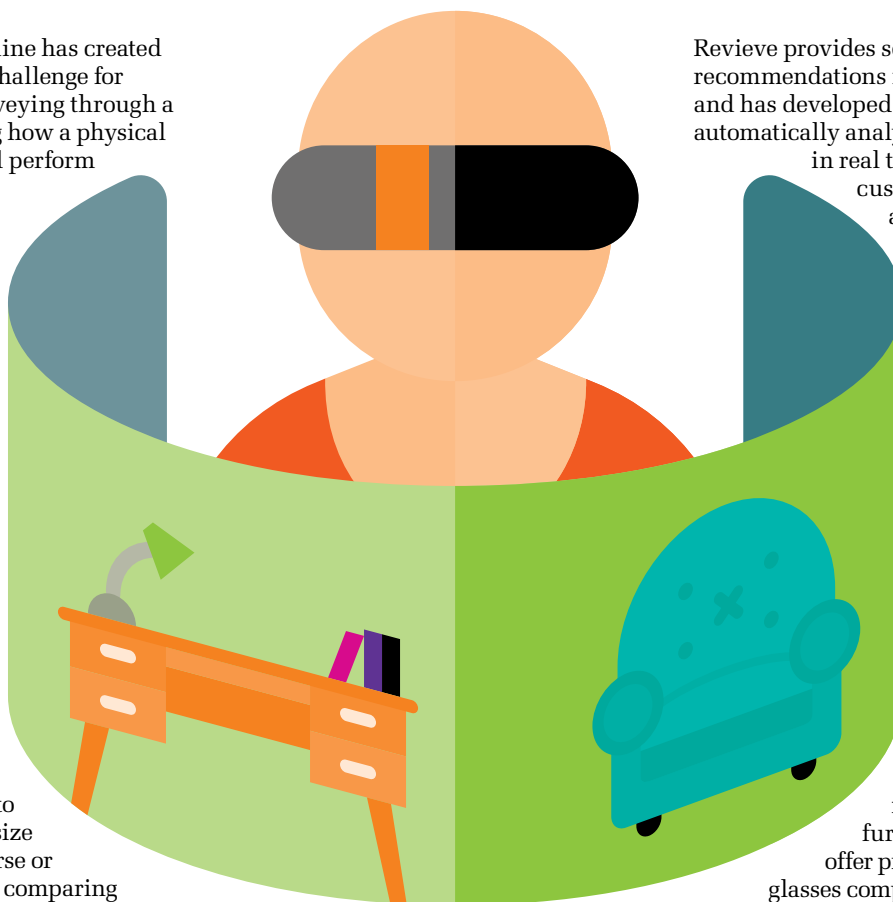
AR: VISUALISATION

The shift to online has created a particular challenge for retailers: conveying through a digital setting how a physical product will look and perform in real life.

Once again, technology is providing a solution. Furniture companies such as Ikea, Wayfair and Houzz have been among the first to leverage AR technology to show how an item of furniture would look in a customer's own home.

But the technology has applications beyond home furnishings. Shop Direct has worked with technology firm Tangible since 2016 to enable consumers to size up products like a purse or handbag, by virtually comparing them with items they already own or putting them on a model of the same size. This gives users real confidence in the actual size of an item before they buy it.

A pilot initiative resulted in a 10.3% increase in net revenue per visitor and a 7.2% rise in customer conversions



Revieve provides selfie-driven product recommendations for beauty brands, and has developed technology that automatically analyses shopper selfies in real time and provides customers with

advice, education and product recommendations to match their beauty needs based on their skin tone, eye colour and facial shape.

Eyewear retailer Warby Parker is using the iPhone X's TrueDepth feature – a front-facing camera that maps out a user's face, enabling it to identify a person in 3D – to recommend styles of glasses that will best fit the consumer's face. Already a step further than the digital offer previously used by the glasses company, this new feature allows customers to place a virtual pair of glasses on a photo.

The next step for retailers could be to follow in the footsteps of Snapchat Lenses, which has created a full AR experience that fits a product around the user's facial topography.

across product pages where Tangible's technology was featured, compared with those pages where it was not.

Beauty brands are also trialling AR to show users what they will look like wearing a certain lipstick or eyeshadow.

PROS

- ✓ Allows customers to see how a product will look in real life
- ✓ Increases customer conversions
- ✓ Enhances customer experience

CONS

- ✗ Risk of customer dissatisfaction if results aren't accurate enough

EMOTIONAL SHOPPING

For those consumers who need help in deciding what they really want, fashion retailer Uniqlo is using neuroscience to access their inner desires.

Uniqlo's Australian business has worked with digital agency Isobar to launch UMood, a machine that analyses customers' brainwaves to determine which T-shirt is right for them.

Titled as 'Tinder for T-shirts' by Australian press, customers visiting a store are invited to put on a headset and are then shown a sequence of short video clips and images – including rippling waves or someone blowing confetti – that each represent up to 10 moods such as 'dandy' and 'stormy'.

Using a single sensor on the customer's forehead, the headset records brainwaves 20 times per second, which are then analysed using an algorithm that employs five metrics – interest, like, concentration, stress and drowsiness – to determine the shopper's mood. This mood is then paired with one of Uniqlo's 600 T-shirts.

Although Uniqlo has stated the experience is designed to be engaging for the customer, rather than collecting data about people's preferences, it provides an example of how science and technology are combining to deliver a personal product, while bringing an element of theatre to the retail experience.

And the strategy certainly worked, creating more than 20 million media impressions for Uniqlo and UMood, and raising brand awareness, while also reinforcing the Japanese clothing brand as a global fashion innovator.

In October 2017, ebay held an immersive shopping experience that combined its online catalogue with personalisation technology. The online marketplace collaborated with Saatchi Art to create what it described as "the world's first subconscious shopping experience".

Visitors were invited by ebay to look at works of art while wearing a brainwave-reading headset, created by brain technology company Myndplay, to monitor what caught their eye.

After exploring the art gallery, visitors would receive a personalised shopping cart filled with product suggestions that had been selected based on their artistic preferences during the reading.

Ebay's Hattrell says: "Shopping has always been intensely personal. It's an expression of what makes you, you. This year, we want to put inspiration back into shopping and encourage people to find what they love."

PROS

- ✓ More in-depth personalisation
- ✓ Brings an element of theatre to the shopping experience

CONS

- ✗ Not scalable across all in-store shoppers
- ✗ Expensive implementation costs with low ROI

AR: HOLOGRAMS

Expected to be one of the next big trends in retail technology, experiments are ongoing with using high-definition human holograms powered by augmented reality.

The H&M-owned fashion brand Monki and British hologram technology company HoloMe joined forces in June to test a hologram concept. Accessible through a smartphone or tablet with minimal data usage, images of nine selected Monki outfits are enhanced with digital effects, allowing the consumer to have a detailed view of the retailer's clothing line and experience the holograms present in the room.

In November 2017, HoloMe partnered with premium womenswear label Rixo London, which went on to trial the first "augmented reality" fashion show. Described as 'Pokémon Go meets fashion', the technology allows

consumers to "teleport" 3D video footage of models into their own rooms.

Once a person is filmed, they are automatically processed and sent to another user's smartphone as a lifelike human hologram, providing a new use of

AR for digital marketing in fashion retail. This immersive type of online marketing is predicted to become more popular over the coming years.

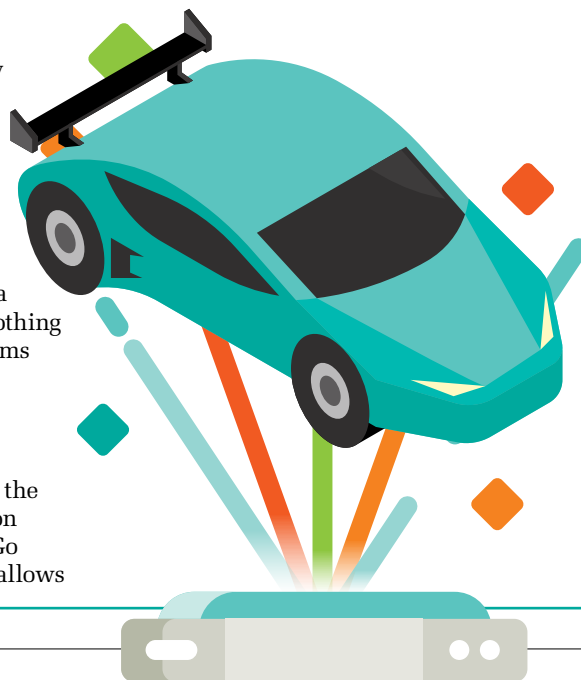
Matthew Drinkwater, head of the UK's Fashion Innovation Agency, said at the time: "Augmented reality is really going to change the way the fashion industry creates, showcases and retails its products. The year ahead will see an explosion in opportunities for this immersive technology to totally redefine what we understand as fashion today."

PROS

- ✓ Creates an immersive experience for online shoppers
- ✓ Increases conversion rate

CONS

- ✗ High investment cost
- ✗ Not suitable for all product types



SOCIAL PROOFING SOFTWARE

Holograms may give consumers added confidence about how a product will look in real life, but for Generation Z there is no substitute for friends' approval.

As the lines between social media and shopping become increasingly blurred, the need for Generation Z to have their purchases validated by influencers and their peers will only increase.

"Generation Z is all about personal identity – and social media is about sharing oneself, or perception of self," says Tangible marketing manager Meredith Gravely. "Brands are smart enough to know that they have a captive, hyper-targeted audience on social media platforms."

As is the case with many fast fashion sites, customer indecision due to a vast offer was a big problem for Missguided. Overwhelmed by the catalogue of products, there was the risk shoppers would become tired and give up.

Earlier this year Missguided collaborated with social proofing software company Taggstar on a project that uses the international browsing and buying trends of millions of customers to increase



sales by using the data to encourage shoppers to purchase similar products.

By collecting, aggregating and displaying the data sourced from global purchases, Missguided provides its customers with an opportunity to benchmark their potential purchases against real-time demand, using the latest shopper feedback. The technology generates online calls to action for shoppers such as '15 others have bought this in the last 24 hours' or 'Super hot!

86 purchases in the last 48 hours', which helps develop a fear of missing out among customers. It also stimulates additional interest in top-selling products.

Missguided has reported a conversion rate uplift of up to 4.4% thanks to the technology, equating to millions of pounds in additional revenue.

PROS

- ✓ Creates a sense of urgency for online shoppers
- ✓ Builds a sense of community among customers
- ✓ Can increase conversion rate and reduce decision-making time

CONS

- ✗ If not handled sensitively, the tech could irritate customers and get in the way of the shopping experience
- ✗ Sectors outside of retail, such as hospitality, have seen pushback on this type of approach

INTELLIGENT RECOMMENDATIONS

Food and beverage brand Knorr has created a novel approach to integrating social media into the buying process, by transforming a shopper's own memories into meals.

Launched in March 2018, the Unilever brand's Eat Your Feed programme allows shoppers to connect their Instagram account to its online platform. Visual-recognition software then turns images posted on the photo and video-sharing social network into meal options.

By analysis of the image itself, along with geolocation data and text captions, the AI-powered tool will recommend personalised recipes – all of which contain Knorr stock in some way – to match the user's life experiences.

According to the brand, a photo involving snowboarding in the Italian Alps could inspire a One Pot Mushroom

Ragout with Fusilli and Spinach, due to the dish's Italian roots and cardio-boosting properties.

Philippa Atkinson, senior brand manager at Knorr UK & Ireland, explained during the launch that the campaign provides consumers with "real value and relevance we know they'll love, as well as a reminder of the great adventures they've had in the past."

Tesco's partnership with food tech start-up Spoon Guru has a similar aim of providing personalised food recommendations based on specific dietary needs or lifestyle goals.

Using machine learning and AI, Spoon Guru says it has classified 95% of all food products commercially available in the UK. This enables the easy identification of items such as lactose or

nuts that may be unsuitable for people with certain food intolerances or with dietary requirements including vegan, kosher and low salt.

PROS

- ✓ Creates hyper-personalised recommendations for the shopper
- ✓ Adds a level of emotion, by bringing in personal experiences
- ✓ Creates convenience for the consumer

CONS

- ✗ Could risk alienating consumers if the product recommendations are unsuitable

CHAPTER THREE

LOOKING TO THE FUTURE

- » **Prioritise investment in CX rather than technology itself**
- » **Shoppers will require hyper-personalised recommendations, driven by AI**
- » **Finding a balance between CX and business goals is vital**





With a demand for retailers to provide more choice, more innovation and faster services, technological boundaries need to be pushed to keep consumers entertained, enthused and engaged.

The extent to which consumers will embrace the kinds of technologies discussed in this report remains to be seen. Technology for the sake of it may win headlines, but it won't have any longevity if it doesn't serve a genuine customer need.

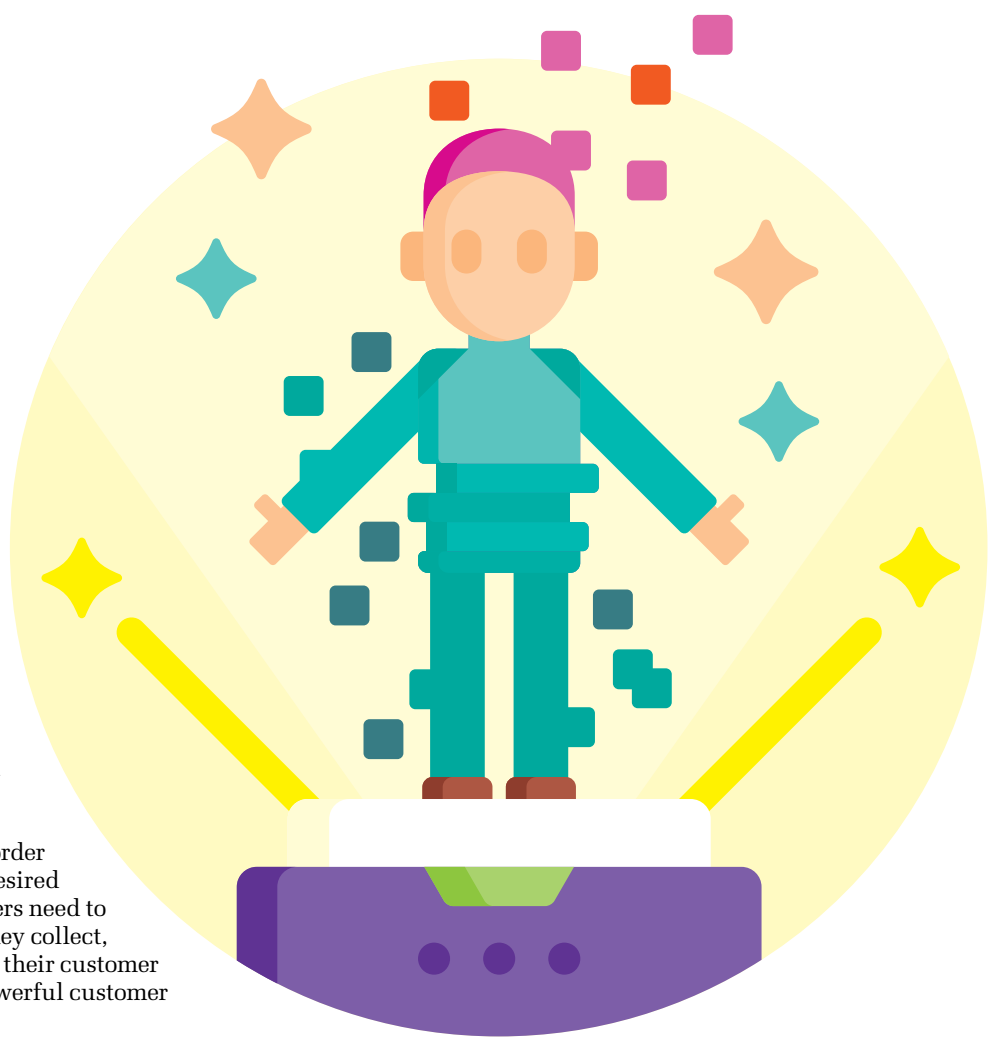
Rasmus Koefoed-Jespersen, head of digital transformation consultancy SPARCK, echoes this sentiment. "Retailers shouldn't be focused on making investments in 'technology'. Investments should be made in customer experiences, which are then powered by technology," he says.

"Shopping is an extremely personal experience; most purchases are made to fulfil a personal need or express your own identity. For retailers, tapping into that emotion is essential. Shoppers expect retailers to understand – and cater for – their individual behaviours, creating personalised experiences and product recommendations."

Tech as the enabler

Further developments in AI are likely to create the ability for retailers to build on a customer's individuality and provide hyper-personalised recommendations. By adding metadata to images, more sophisticated search tools will have the capacity to automatically allow a retailer's full product range to be viewed through visual search, and even suggest complementary products based on a shopper's previous image searches.

But Koefoed-Jespersen argues that many retailers aren't yet structurally prepared to use AI successfully. "They need to



begin with the right data set. AI isn't magic; it requires correct and in-depth information in order to provide the desired outcome. Retailers need to work out how they collect, store and utilise their customer data to drive powerful customer experiences."

Test and explore

When focusing on their next tech investment, Koefoed-Jespersen's recommendation is that retailers take an incremental approach, creating a roadmap to follow in order to achieve their technological goals.

"There is an important balance to keep between customer experience and specific business goals; tech investments should be prioritised by whatever sits within that overlap. Truly understanding your customer will be the critical factor

when getting these investments right."

But Koefoed-Jespersen also believes retailers should focus on the big leaps they can make, alongside the smaller steps.

"Think about what will take your business to the next level – the moonshots that will help revolutionise your brand – and place an appropriate level of investment into those tiers. It's a risky move and might not work, but it might also be the business decision that catapults you light years ahead of your competitors."

BJSS' CRITICAL SUCCESS FACTORS FOR RETAILERS

1. ALIGN INTERNAL FUNCTIONS

Integrating online and offline teams will help to build a truly omnichannel experience. Their shared knowledge will create faster resolutions to customer challenges and investments in the business will become more cost-effective. Be sure to provide the right support during this process, such as training, updated processes or software and new KPIs.

2. SHARE DATA ACROSS THE ORGANISATION

Data collaboration between teams will allow retailers to better understand

their customers' behaviour by building a complete consumer profile, ultimately driving better decision-making.

3. TEST NEW PRODUCTS

Ecommerce platforms should be used to test products and start scoping out the opportunities for personalisation. With limitless shelf space and extensive data, online is the ideal test bed for new product development.

4. CREATE A FRICTIONLESS CUSTOMER JOURNEY

Consistently produce relevant, shoppable offline and online content that gives shoppers a frictionless experience

from discovery to purchase, spanning environments and digital platforms.

5. BE READY FOR DISRUPTION

Review your internal structures and processes to ensure that the business can quickly understand and respond to new routes to market, competitors and advances in technology.

6. LEAD WITH FOCUS

To drive and maintain these changes, your leadership teams should regularly walk the offline and online journey, experiencing the different paths to purchase. Keep focusing on creating frictionless shopping across both environments.

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