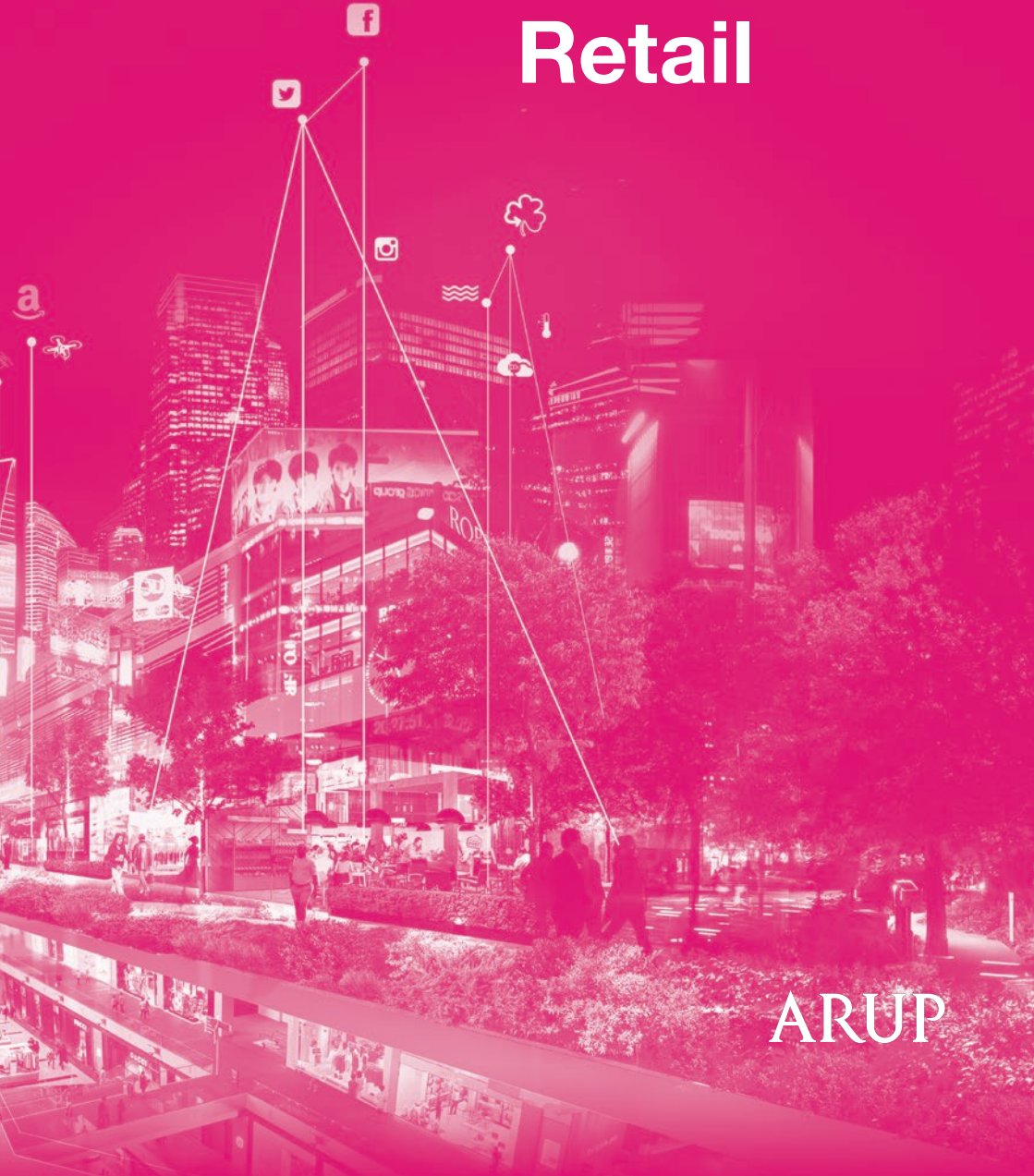


Future of Retail



ARUP

This report is a product of collaboration between Arup Foresight, Research and Innovation, and retail experts across Arup. We would like to thank all authors and experts for their contributions and dedication.

Foresight, Research and Innovation is Arup's internal think-tank and consultancy which focuses on the future of the built environment and society at large. We help organisations understand trends, explore new ideas, and radically rethink the future of their businesses. We developed the concept of 'foresight by design', which uses innovative design tools and techniques in order to bring new ideas to life, and to engage all stakeholders in meaningful conversations about change.

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Executive summary

The retail sector continues to experience significant change as shifting customer preferences, new technologies and sustainability pressures impact the environment in which retail operates.

Retail is an increasingly competitive sector with heightened price sensitivity amongst well-informed, smartphone carrying consumers. It has also become increasingly complex, reflecting a wider range of channels being used by consumers to browse and make purchases. Retailers have to cater to a variety of shoppers including the growing cohort of elderly customers as well as digital natives, the so-called 'Generation Z'. Customer loyalty in this fast moving environment will be a primary focus for many retailers. The key to success will be a richer and more nuanced understanding of the customer as a unique individual with a specific set of interests, needs and desires.

This report considers a range of trends that are impacting the retail sector. The aim is to help designers, developers and retailers better understand and prepare for the forces shaping the retail environment.



1 **New technologies create a seamless experience**

While omnichannel has become a required retail strategy, the next step for retailers is a focus on Total Retail. Retailers are harnessing nascent technologies such as artificial intelligence, virtual reality and connected devices to create a seamless experience. While traditional retail spaces look to technology to entice shoppers to the store, online companies are incorporating bricks and mortar stores to offer more diverse services.

2 **Physical stores still key to Total Retail strategy**

As physical stores are still an important aspect of the retail environment, retailers will need to assess whether digital infrastructure in stores will be sufficient to meet future demand. Flexibility to provide for changing layouts and uses is an increasingly important factor, as retailers are integrating different activities and offerings within the traditional store, with an increased focus on experience.

3 **Mobile will be at the centre of e-commerce**

Customers increasingly use their mobile devices to browse, compare and pay for goods and services. Retailers will continue to invest in m-commerce platforms as well as in apps and third-party solutions. The growth of mobile payments will continue, driven by consumer demand for speed and convenience. Contactless and automatic payment options could do away with traditional tills, enabling new configurations in retail spaces.

4 **Increasing demand for transparency and sustainability**

Many consumers are becoming increasingly aware of the whole product journey, and are demanding details on how products are sourced, manufactured, distributed and managed at the end of their useful lives. This means that forward-thinking retailers should place transparency and sustainability high on the agenda. Sustainability programmes can make business sense too.

The customer

Rise of the middle class

According to the OECD, the global middle class (those who earn between US\$10 and US\$100 per day) will double to nearly five billion by 2030, constituting about 63% of the world's population. Most of this growth will come from emerging markets, particularly in the Asia Pacific region.¹ By 2030, middle class consumers will spend US\$51 trillion a year, up from US\$21 trillion today. It is yet to be seen how automation may affect low skilled workers, many of whom have recently moved into the middle class.² It is also important to note that those at the lower end of the middle class are still poor by developed country standards, so much of the growth in spending will occur at the upper end of the scale.

The greater spending power of the global middle classes is likely to lead to more consumption, which will give rise to challenges including the further depletion of resources, as well as contributing to climate change. Middle class consumption is often associated with an increase in spending on discretionary goods and services including

motorisation and air travel, so how people choose to spend their money will have a big impact on the environment.

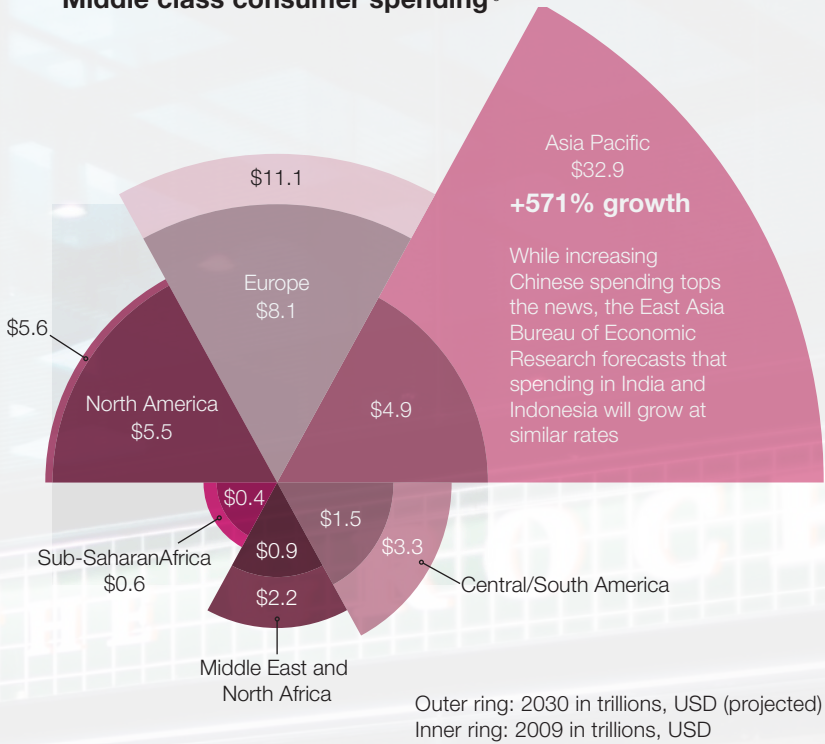
Discretionary spending varies from region to region, affecting the success of different retailers. The average Chinese consumer spends US\$7 a day, with half spent on food and clothing and 9.2% allocated to recreation; the average American however spends US\$97 a day, with 17.3% spent on recreational activities.³ Online shopping is particularly successful in China, where online sales reached US\$752bn in 2016, a growth of 26.2% from 2015.⁴

Multi-generational

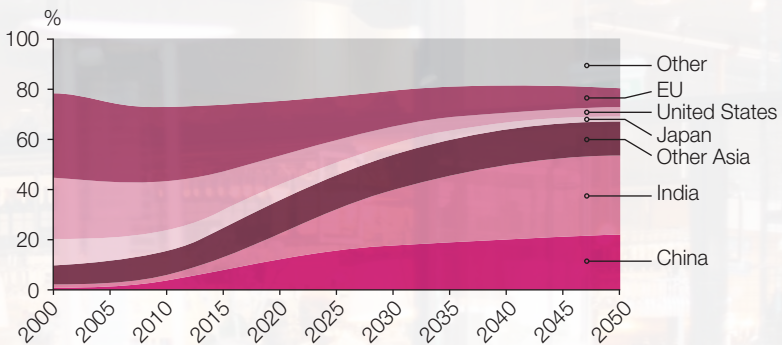
Retailers are turning their attention to two growth areas: seniors (or the Silver demographic, aged 65 or older) and today's youth market, known as Generation Z (roughly born between 1995 and 2010).

Due to rising life expectancy and declining fertility rates in some parts of the world, the global population is ageing. In 2015, 12% of the global population was aged 60 or over,

Middle class consumer spending ⁵



India and China make waves in global middle class consumption ⁶



but by 2050, this age group will account for 20% of the population (2.1bn people, up from 900M currently).⁷

Ageing populations will have an impact on the design of products, services and retail environments. In Japan, for example, where the spending power of the older population continues to increase, shopping experiences are designed with older people in mind, from slower moving escalators to clearer signage for those with visual impairments. In the UK, where the number of people aged 65 or older is projected to reach 15.5m by 2030, it is thought this ageing cohort could benefit health, DIY and home maintenance retailers, which tend to attract the spending of the elderly. Physical fitness, care navigation and vital-sign monitoring are other areas that may benefit.⁸ Older shoppers also tend to be more demanding than younger generations.⁹ Retailers will need to consider facilities for the elderly, such as seating and rest spaces, alongside their approach to high-tech omnichannel connectivity.

US\$15 tn

the global spending power of those aged 60 or over by 2020, up from US\$8 trillion in 2010.¹⁰

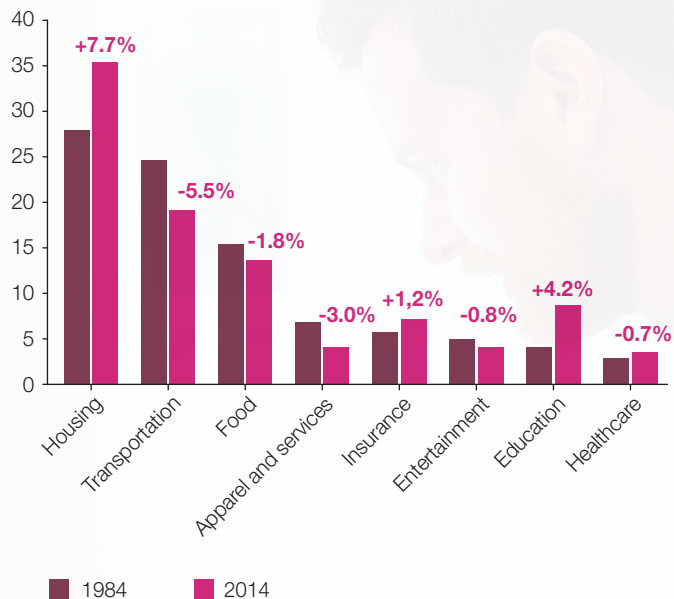
At the same time, retailers need to be aware of the shifting preferences of younger generations who have different attitudes to brands and different ways of interacting with retail environments. Generation Z, those born after Millennials, tend to be unimpressed by technology since they have grown up with it. They are digital natives who expect everything on demand, and who tend to have shorter attention spans. By 2020, Generation Z will account for 40% of all US consumers; while they currently have less disposable income, they have more time to spend online and in-store, and in seeking purchasing advice.¹¹ Many choose to shop via particular marketplaces such as Depop, accessed largely via mobile phone, or through Facebook groups such as The Basement.

This emerging generation of shoppers will want to see retailers embrace the latest technologies both online and in-store, and will be attracted to those retailers and retail environments that perform well in an on-demand, 24/7 economy. Social media also drives the behaviour of this demographic. Many young people seek out experiences that will deliver the most popular posts on Instagram or Facebook, so experiences are becoming more sought after than products.¹²

Millennials, meanwhile, are set to become the first generation to earn less than their predecessors over the course of their working lives.¹³ This means they may experience a lower standard of living than Generation X (roughly defined as anyone born between

Expenditure of people under 25¹⁴

% of total spending



1965 and 1980), and will have less disposable income to spend on discretionary items.

Millennials value access to experience over ownership. Rent the Runway and Chic by Choice are luxury clothing rental services that hire out designer clothing at a fraction of the cost of buying the same items as new. The services introduce high-end brands to a younger demographic and drive sales through post-rental purchases (90% of customers go on to buy, according to Chic by Choice).

Economic and political factors influence generational spend. In the UK, Millennials will have each spent £25,000 more on rent by the age of 30 than Generation X.¹⁵ In the US, people under 25 are now spending more on housing, education, healthcare and insurance than in the past, and less on apparel, services and entertainment.¹⁶

Loyalty is king

While digital technologies are allowing customers instantaneous access to information to make purchase decisions, they are also eroding brand value. As a result, the value of a loyal customer base is becoming more important than the value of the brand.¹⁷ In an age of the well-informed, price-sensitive consumer, existing and new repeat customers are crucial to future success.

Due to the near-ubiquity of online access, customers are as well informed, and often

even better informed, than many shop floor assistants. In the future, staff will need to be as knowledgeable as the smartphone-carrying customer, or technologically savvy enough to point them to the correct information online. As a result, processes and operational protocols will need to be established to ensure that staff are recognised for their help in enabling online purchases.

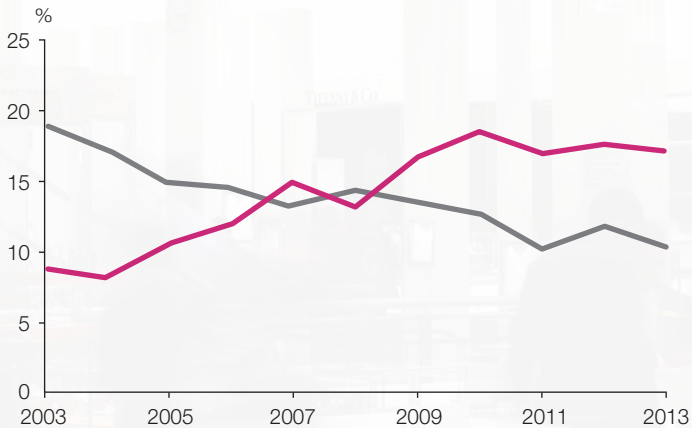
In order to generate more loyalty among customers, retailers are using a variety of technological aids. For example, a growing number of available datasets, loyalty reward data, purchase histories and online browsing data are being used to build a more complex and granular understanding of customers. By interrogating a wealth of personalised data, retailers are able to generate a much more complete picture of consumers, both at an individual and collective level. This will lead to more nuanced customer segmentation, taking into account income and demographic fragmentation as well as individual preferences, decision-making patterns and behaviours. This will improve the quality of a retailer's engagement with customers and encourage long-term loyalty.

The interpretation of consumer data will be further enabled by advances in artificial intelligence (AI) and predictive analytics. Ultimately, we may see personalised messaging based on our moods, preferences, behaviours and location.

The declining value of brands and the rise of customer relationships¹⁸

Percentage of **enterprise value**

(Purchase price of acquired business for 100% of shares plus interest-bearing debt minus cash acquired)



■ **Brand value**

Brands, trademarks, trade names, product names, banners and mastheads, publishing titles, domains, and other similar items owned by the acquired businesses.

■ **Customer value**

Gauge of the worth of existing repeat customers who are known in person.



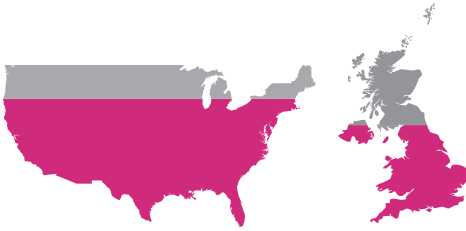
In the UK it is estimated that **one-quarter** of retailers are already using facial recognition tech, including **six out of ten** fashion retailers.¹⁹

Technologies such as facial recognition mean that shop assistants can identify important existing or potential customers before the customer reaches the point of sale (known as *clienteling*). Japanese technology giant NEC and California-based FaceFirst, provide systems that use cameras to identify people as they enter the store. The system scans a database of images for a match, alerts sales staff to the identity of the customer, and offers suggested cues for interaction. However, such a breach of anonymity might not appeal to all shoppers.

These developments enable stores to understand more about their customers, in a similar way to online channels. As retailers learn more about each of their customers, they'll be able to offer tailored promotions and benefits that more accurately reflect what each individual values most at any given time. These can be communicated to the customer via the most appropriate and effective channel.

A barrier to the take up of customised offers sent to mobile devices in-store however, is that some technology solutions like beacons (low power transmitters that can detect when a user's smartphone is nearby), require consumers to turn on Bluetooth and opt-in to receive "push" notifications. Consumers could also be persuaded to download a store's branded app as a route to promotions and benefits.

CloudTags has approached the problem by allowing customers to engage with merchandise both physically and digitally in-store. Shoppers can browse the real product range in-situ, as well as the digital catalogue on specially installed 'CloudBlock' screens. By simply touching the 'CloudBlock' screen, and then touching the screen of their personal device, customers can transfer their browsing history and complete the purchase at a later date. This removes the need to sign-up, create an account or download a specific app.



70% of Millennials in the US and **62%** of Millennials in the UK say they would appreciate a brand or retailer using AI technology to show more interesting products.²⁰

Personalisation

While personalisation has been around for a while in retail, the mechanisms are becoming more sophisticated, enabled by new technologies and increased access to customer data. The North Face is one brand that has been experimenting with AI and deep learning algorithms by working with an online tool called the Fluid Expert Personal Shopper. Powered by IBM's Watson cognitive computing technology, the tool is an intelligent recommendation platform that mimics talking to an in-store expert. It uses natural language processing capability to enable customers to have a more intuitive search experience.²¹

“Visual listening” is another AI-related area being explored by retailers. This uses algorithms to examine photos on online platforms like Instagram and Facebook, to better understand what consumers are saying about different brands.

Many of the larger brands are looking to AI to help improve customer service. According to a survey commissioned by Interactive Intelligence, customers value a swift response to questions above any other area of customer service.²² AI can help boost response times by utilising chatbots to respond to customer inquiries, point them to reviews and even make product suggestions. Clothing brand H&M, for example, is utilising the technology to recommend outfit choices.

Total retail

Beyond omnichannel

While omnichannel has become a required retail strategy, the next step for retailers is a focus on Total Retail.²³ Total Retail places the customer at the heart of a single strategy, rather than pursuing separate strategies for different channels. More than ever before, connected customers are looking for seamlessness and consistency across a growing number of touch points along their shopping journeys. These touch points include in-store, online (via desktop PC, laptop, tablet or smart television), mobile or smartphone (and associated apps), social media and catalogues. Customers will be agnostic about which channel they use, and retailers will need an overarching strategy that blurs the boundaries of online and offline experiences.

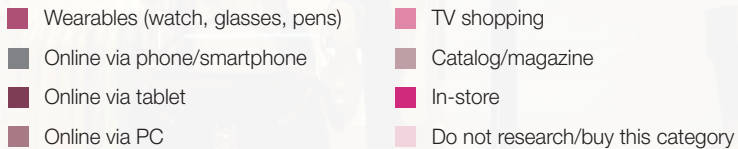
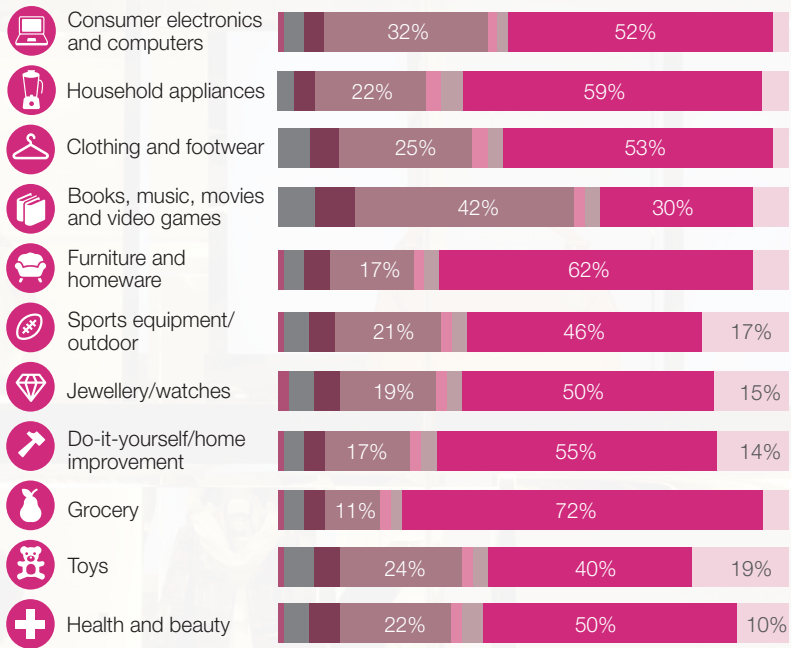
Startups like Shopify have identified a maturing market for omnichannel delivery, offering retailers a range of services that help businesses expand their e-commerce sales channels including cloud-based point of sale (POS) and mobile systems, handling everything from marketing to payments and shipping.

“We know that about 60% of our customers buy both online and in shops, so the approach is to make it absolutely seamless for them to move from one to the other – the art of sales is consistent across channels.”

–Andy Street, CEO, John Lewis²⁴

The physical store is still a critical step in the purchase journey²⁵

Q: which method do you most prefer for buying your purchases?



Case study

Schuh

Footwear brand Schuh is a good example of a company that has fully embraced an omnichannel retail strategy. Its website receives around 2M unique visits and 22M page impressions per month, the largest traffic of any footwear specialist. The site offers real-time stock information, and customers can collect from their local store within an hour of placing an order, subject to stock availability. The company also links to social media, offers live help via messaging or video, and provides easy-to-use in-store navigation.²⁶





US\$4.058 tn

Expected retail e-commerce sales by 2020, accounting for 14.6% of total retail spending that year.²⁷

Meanwhile, as part of an omnichannel strategy, Amazon has recognised the value of bricks and mortar retail spaces. The move to open physical grocery and book stores enables the retailer to attract new customers who don't necessarily want to buy these items online, or service their existing customer base who would appreciate the ability to shop in-store. This gives customers more options, while also enabling more efficient logistics by delivering orders to a central location.

E-commerce sales reached an expected US\$1.9 trillion in 2016, or 8.7% of total retail spending worldwide;²⁸ spending in China and the US accounted for two thirds of this total.²⁹ Global e-commerce spending as a whole is expected to reach 14.6% of all sales by 2020.³⁰ Consequently, in-store remains the most valuable retail channel.

The main reasons for shopping in-store are driven by factors that are often unique to the physical in-store experience, for example the ability to handle merchandise and gauge product fit and suitability, together with the option to take possession of a product immediately. These factors do not generally apply to e-commerce channels. However, a wave of new services and concepts are seeking to challenge the natural advantages that physical stores have enjoyed to date. For example, Russian fashion retailer Lamoda delivers items to customers' homes, allowing them 15 minutes to try on their choices. Its own couriers operate both as trained advisors and mobile stores. Shoppers pay only for what they want to keep, and the rest is returned to the store or warehouse.

“Customers will follow the path of least resistance.”

- Tom Ollerton, Innovation Director, We Are Social.³¹

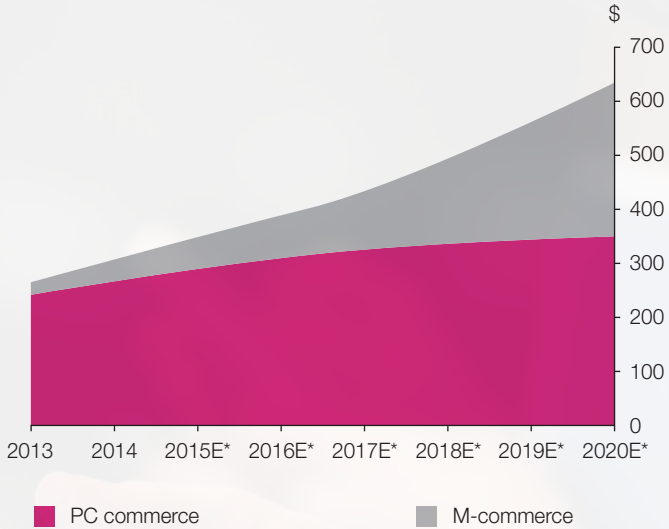
Mobile and on the go

Retailers will continue to invest in mobile commerce (m-commerce) platforms as well as in apps and third-party solutions. It is forecast that m-commerce will keep growing, reaching US\$284bn in 2020, or 45% of the US e-commerce market.

Mobile payments will also grow; in 2017 it is expected that 70% of all mobile users in the US will make a mobile payment, and by 2020 mobile payments will account for US\$503bn in sales.³² The growth of contactless transactions will also continue, driven by consumer demand for speed and convenience. Becoming “payments agnostic” will be important to cater to a growing range of payment options, all of which are vying to create friction-free experiences for the time-poor customer. In the US, research shows that consumers are spending more time on mobile retail apps than on mobile shopping websites.³³

In addition to apps, retailers will rely on third-party solutions, including social media companies. Having been disengaged from e-commerce in the past, social media has now fully embraced it. Many companies, such as Pinterest, Instagram, YouTube and the Chinese messaging platform WeChat, have added “buy” buttons to posts and advertisements, driving retail sales and removing extra steps from the purchasing process.

Forecast: mobile share of e-commerce ³⁴



Close to **60%**

of smartphone users research products from their handset before making an online purchase. ³⁵

By 2018, **30%**

of global e-commerce sales will come from smartphone users. ³⁵

This innovation has given rise to *social selling*, whereby the opinions of popular influencers and key opinion leaders drive retail spend via their posts on social media and blogging sites. Brands like Burberry and Tommy Hilfiger already benefit greatly from the influence of certain celebrity bloggers, some of whom have more than one million followers, via the microblogging site Weibo.

New channels keep appearing. The wearables market is growing quickly, with new entrants and a greater variety of products. Wearables could soon change the way consumers interact with and purchase products, enabling seamless payment and targeted advertising.

Conversational computing is also making a mark on the world of retail, allowing voice orders to be recognised and processed by

Mobile retail app usage surpassed mobile web visits in the first quarter of 2016, growing more than

70% year-on-year.³⁶

smart computing devices. Amazon's Echo, the web-connected speaker, can follow verbal commands that include e-commerce purchases. The product, designed as a smart hub for domestic use, houses a virtual assistant called Alexa. Alexa can understand and process an order for pizza, thanks to a third-party application developed by takeaway pizza chain Domino's.³⁷

Subscription-based purchasing

Time-poor shoppers can be easily overwhelmed by too much choice, both online and in large format stores. This helps explain the rise in subscription services such as the Dollar Shave Club, the quirky US-based company that delivers razors and other personal grooming products to customers in the post. Similar subscribe and save services curate products for customers, making it easier for customers to discover and choose products, thereby saving time and preventing choice fatigue.

Amazon identified an opportunity to cater to a similarly time-poor customer, with the launch of Amazon Dash. The company offers its Amazon Prime customers a range of wi-fi enabled push-buttons, each representing a different branded product from toilet paper to washing-up liquid. These buttons can be affixed to white goods and appliances, or on kitchen or bathroom walls. Users press the button to quickly re-stock commonly used household products. Fairy, Durex, Gillette and

Case study

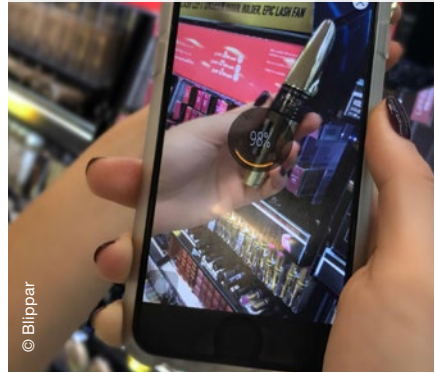
Amazon Go



Amazon is proposing to use mobile payment to underpin a new bricks and mortar grocery store with no checkouts. Amazon Go will be powered by a range of technologies including computer vision, machine learning and AI to track the items a customer picks up. Customers can then fill their shopping bag and leave the store without going through a checkout process as payment will be taken automatically from their Amazon account.

Case study

Blippar



Blippar is an app that uses image recognition, augmented reality and computer vision technology to bring products to life through smart devices. One of the largest retailers in the UK, Argos, made its Christmas catalogue available via Blippar, allowing readers to “blip” (scan) the pages of the catalogue to instantly buy items. Over 21,000 customers shared the campaign on social media, and more than 929,000 interactions were recorded over a 10-week period. Other brands that have used Blippar include Walmart, P&G, Nestle, Disney, L’Oreal and Sony.

“Today, when you discover in the shower that you have run out of hair conditioner, you can order a new bottle through Amazon Prime then and there. And tomorrow, when you’re watching a streamed movie or browsing Pinterest, you will be able to point and click on a character’s suit or tie and buy it right away – without ever going to a retailer’s site.”

*– Walter Reinartz, Harvard Business Review.*³⁸

Pedigree are among the firms included in the service’s UK debut. Amazon is also rolling out an Amazon Dash Replenishment Service (DRS) in some markets. The cloud-based platform enables connected Internet of Things devices to automatically re-order certain supplies when they run low.

Just as time-poor customers have more choice through subscription-based services or technologies such as Amazon Dash, so do cash-poor customers through payment services such as Afterpay. Afterpay is fully integrated with participating store checkout systems, offering interest-free payment plans for purchases made online or in selected stores at no additional charge, allowing customers to spread their payments over four fortnightly instalments.



Photo: station-based retail offers convenience to millions of passengers, as well as local workers and residents.



© © Gerdman Gaunt

The store

“The battle to create the modern retail experience, between traditional retailers with a long, successful history of high street store building and new digital entrants built around the internet and mobile technology, is finely poised.”

– Kees Jacobs, Consumer Goods & Retail Lead, Insights & Data Global Practice, Capgemini Consulting³⁹

Relevant

Despite the global growth of e-commerce, most retail transactions are still carried out in-store. In the future, the physical store will remain an important aspect of retail strategy but it will need to transform in order to be successful. Physical stores will need to integrate more effectively with new technologies, and the distinction between physical and digital will blur. The shopping process will be faster and more engaging, with new ways to pay and a growing number of checkout-free stores. Physical stores will focus more on the customer, and will need to offer surprising and engaging experiences, that offer something that online shopping cannot.⁴⁰ Retailers should focus on a Total Retail strategy as physical stores won't survive in isolation.

Experiential

As in-store shopping tends to be something of a chore for many, or an intensely social activity for the younger demographic, those retailers that can provide stimulating in-store

experiences will attract footfall. This will be especially true as e-commerce continues on its growth trajectory.

Some brands are addressing this by introducing a degree of experimentation or entertainment into the physical retail environment. Muji has opened a flagship location in Manhattan, which contains an interactive embroidery station and an “Aroma Lab” where consumers can mix their own aroma diffusers.⁴¹ Gucci has extended its luxury offering into the food and beverage sector by opening its first restaurant in Shanghai. The move demonstrates how, in the shift of focus from product to fine-dining, sensory experience can reinforce a widely recognised, mature brand.

Retailers are having to work harder to draw people to the physical store, and they’re doing this by providing compelling environments and experiences that can’t be enjoyed online. When done well, these events can bring products to life, generate or reinforce customer loyalty, and drive future sales.

Grace and Thorn is a London-based florist that offers in-store classes where customers can try their hands at creating some of the company’s signature flower arrangements. Participants are offered chilled Prosecco during classes such as the Renegade Flower Sessions and Terrarium Tuesdays, all delivered to a hip hop soundtrack.

Experiences continue to be an important differentiator for stores, especially for consumers who typically spend a lot of time online or engage in showrooming (the act of comparing prices of items in-store and online). Some stores are experimenting with in-store robotics, to add an interactive and fun dimension to physical shopping. SoftBank in Japan has introduced a 1.2m tall (4 ft) humanoid robot that acts as a personal stylist and salesperson. The robot, called Pepper, can speak eight languages fluently and can follow up with customers via email and text message after their visit.

Digitised

Digital technology is fast transforming the physical, in-store environment. The result is a gradual obfuscation between offline and online channels. There has been bold experimentation in the “off-on” spectrum’s centre ground, where physical meets digital. For example, Perch is an interactive platform that unites digital technology with physical products. When a customer picks an item from a shelf, an interactive display is activated behind the product. This acts as a dynamic product spotlight, engaging the customer with relevant animation, sound and rich media. There is a trend towards the greater digitisation of physical spaces in order to create interactive, responsive environments.

Emerging technologies promise to add a highly emotive and experiential



Panasonic Center
03-34

美 食 楽
HAPPY

Photo: the Panasonic Centre in Osaka, Japan integrates new technology with the physical environment.

Case study

Sephora

The French cosmetics company has introduced a wide range of digital technologies into its Flash 3.0 concept boutique in Paris. Customers can browse a virtual catalogue of more than 14,000 products via a suite of interactive terminals, tablets and digital shelving. If a product is not in stock, customers can supplement their physical shopping basket by adding it to a digital basket, and pay for them both in-store. Customers can then choose for the purchases in their digital basket to be delivered to their home, a service some are calling shop-and-ship, or pick up them up in-store (*click and collect*).





dimension to shopping in-store. Virtual, mixed and augmented reality offer brands the opportunity to develop immersive, multisensory services that engage customers and brand enthusiasts at a deeper, more visceral level. In the US, Ralph Lauren is testing interactive mirrors in some of its fitting rooms. These “smart” mirrors allow shoppers to request different sizes, adjust the lighting conditions, browse additional items and interact with a live sales assistant.⁴²

“The real question retailers have to ask themselves isn’t whether they can afford to transform the in-store experience, but can they afford not to?”

– Mike Petevinos, Global Head of Consumer Products & Retail at Capgemini Consulting.⁴³

Case study

WayfairView

WayfairView is an augmented-reality app from online furniture retailer Wayfair that enables users to visualise furniture and home décor in their homes. Users can select images of furniture or decor from the online catalogue and use their smartphones or tablets to virtually position the objects in situ. This helps them to visualise the products in their intended locations before they commit to making a purchase.⁴⁴





Abu Dhabi's Galleria Mall includes a Fashion3D fitting room which combines body-mapping technology with HD garment rendering, enabling shoppers to 'try on' a virtual wardrobe. Comprising a Kinect motion detector camera, an HD camera and a life-size screen that acts as a virtual mirror, the system takes three seconds to scan the customer before stylists then dress the digital image with a selection of garments. The full-body projection allows users to move through 360 degrees, while viewing the overlaid clothing. As well as speeding-up the decision-making process and reducing waiting times for changing rooms, the system also collects user preference data, allowing retailers to develop personalised clothing suggestions and relevant marketing materials.

Other technologies perform multiple functions. For example, Philips have worked with Carrefour to introduce low-energy LED lighting into their hypermarket in Lille, which uses Visible Light Communication (VLC) to transmit location-based notifications directly to shoppers' mobile phones. The LED-based indoor positioning system allows customers to receive promotions or directions to products, and for staff to use location data analytics to assess store operations and the impact of specific marketing. Carrefour hopes that the technology enhances the shopping experience, making it more interactive and personalised.⁴⁵

Mixed use and dynamic

As retailers compete for footfall, the importance of creating appealing places has never been greater. Retail stores can contribute to richer mixed-use places by achieving a better integration between retail and the wider local environment. Smaller, secondary towns are becoming more focused on placemaking and are developing experiences to draw people to the high street and extend dwell time in the retail space. Many are also looking to attract independent stores, or a carefully considered mix of brands, to create further differentiation and implement a better mix of uses.

The need to maintain customer interest is key to the in-store experience. As a result, interesting hybrid spaces are blurring the lines between retail and lifestyle and entertainment. A diverse, curated mix of retail offerings have become increasingly common, combining traditional in-store retail with other services such as bookshops or cafés. More unconventional combinations are also beginning to appear. Lululemon, the Canadian athletic apparel retailer, has opened a 3,500 sq ft (325m²) community space as part of its flagship store in Manhattan's Flatiron district, including a "retreat space" for shoppers called Hub Seventeen. In addition to regular fitness and yoga workshops, the space will include a pop-up art gallery and a programme of evening dinners called The Gathering, which will bring together industry leaders "to





Case study

Samsung flagship store

Samsung's first flagship store in Manhattan, Samsung 837, was built on the company's idea of the future of retail: a focus on experience. It has been designed to accommodate a changing programme of activities including technology-based art installations, screenings, presentations, launch events, live broadcasts and workshops. The only transaction that visitors can make in the entire 55,000 sq ft (465m²) space is in the café. Based in the fashionable Meatpacking district, the space spans three floors and is made up of different sections. At the centre of the space is one of world's largest interactive displays, which screens custom content and livestreams from other sources.⁴⁶



share, connect, converse, and discover” over meals prepared by celebrated NYC chefs.⁴⁷

These hybrid retail and leisure environments can have a positive impact on the surrounding area, supporting vibrant ecosystems that enhance the shopping experience as well as supporting a blend of associated activities across work, rest and play. Mixed-use environments with designed-in flexibility and a diverse food and drink offer are increasingly seen as vital to a location’s success, whether within a neighbourhood or within a building.

Focused on health and wellbeing

As with other parts of the built environment, retail spaces are designed fundamentally for people. As such, they should enhance quality of life and positively impact people’s health and wellbeing. A report published by the World Green Building Council, called *Health, Wellbeing & Productivity in Retail*, suggests that while retailers understand the importance of health, wellbeing and productivity, they need help translating these concepts into designing and managing properties. Retailers know that creating better retail environments leads to better customer experiences, and better experiences lead to increased revenue. However, retailers need to align their properties with this large, currently underutilised, business opportunity.

In many cases, health, wellbeing and productivity are often still detached from the broader retail strategy. While retailers continue to invest in sustainability initiatives, this is often isolated from the main aim of retail – to provide an experience that makes people want to come, stay and spend.

The Framework set out by the World Green Building Council report helps translate these issues into a measurable and manageable set of metrics that can inform better design and management decisions.⁴⁸



Photo: the Dubai Mall entices visitors with unique experiences.



The shopping mall

“By 2020, the entire concept of convenience and value will shift. Convenience won’t be defined in the traditional terms of time and ease.

The highest currency will be relevance.”

– Christian Davies, Executive Creative Director, Americas at FITCH.

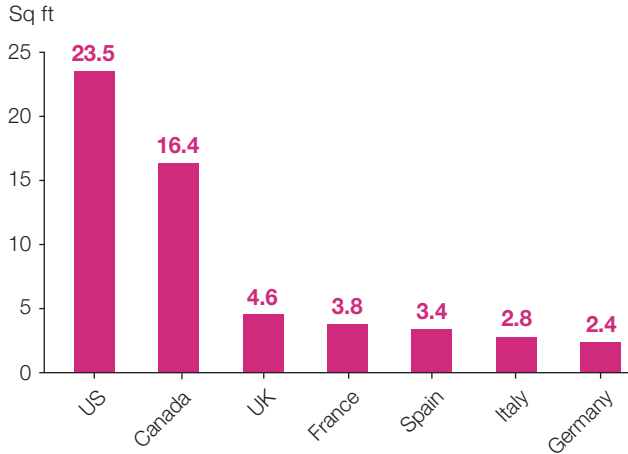
Convenience and lifestyle

E-commerce, new technologies and entertainment alternatives are reshaping consumer expectations, putting traditional large-scale shopping centres under pressure to maintain viability. In the U.S., there were nine retail bankruptcies in the first four months of 2017. A number of large department stores, such as Macy’s and JC Penney, have announced hundreds of store closures. Part of the problem is that the U.S. built far too many malls. Shopping centre square footage per capita is five times greater in the U.S. than the U.K. (and 10 times that of Germany).⁴⁹

Some large retailers and department stores are investing in smaller format stores in order to offer a more curated selection of products to targeted segments. With customers prizing convenience and accessibility, large format stores which require customers to search for products are becoming less appealing. Smaller stores are more convenient, and they cost less to open and operate. They are also easier to fit into



Gross Leasable Area (GLA) per capita⁵⁰



increasingly dense urban environments. This will result in more speciality stores that focus on particular categories of products.⁵¹

Shopping centres and malls are undergoing a gradual metamorphosis as the focus shifts to providing compelling, immersive and shared entertainment and lifestyle experiences that customers cannot enjoy online or at home. The experiential side of retail is growing, with on-site programming and lifestyle events to appeal to a younger, connected customer. In the future, it is likely that more mall space will be given over to entertainment, food and beverage spaces.

Other strategies being employed by malls include creating floors or zones dedicated to specific services or consumer segments, for example areas with seating for elderly shoppers. This helps promote a more convenient experience for customers who are searching for specific products or service offerings.

Appealing to the needs of families and multiple generations is also an important factor for success at the scale of malls. Many shopping centres are increasingly offering leisure activities and entertainment for children, for instance. These allow parents to take a break from parental duties, to browse

Case study

Isetan Mitsukoshi

Japanese department store operator Isetan Mitsukoshi has developed a scaled-down format, opening more than 100 small and medium-sized shops since 2012. Each store attracts specific demographic segments with a bespoke product range. According to the company, the small format stores are more viable as Japanese consumers are buying more on-line or in shopping malls, and the operator needs to attract new customers.





or make purchases. Westfield, for example, which pioneered the destination shopping centre concept, has launched KidZania in London, a child-sized cityscape in which children aged 4-14 can try out a range of jobs such as a surgeon, fireman or fashion stylist. Children are tagged electronically with a bracelet on entry, allowing parents to keep track of them while they relax or go shopping. Children earn credits that they can then spend in the mall. Creating a positive, fun experience can lead to repeat visits.

Technology and data

Much like high street retailers, malls are using technology to interact with their visitors in new ways. The Chinese retail conglomerate Wanda Group, for example, has created an app that provides in-store and parking navigation and restaurant booking services; the Feifan app is currently available in over 350 major shopping malls. Similarly, at some mall locations owned and operated by real-estate investor Macerich in the US, shoppers can text questions to an information desk to get a quick response.

New technologies are shifting the advantage back to physical spaces from the world of online retail. Technologies such as facial recognition, proximity beacons and LED-based indoor positioning systems can offer a more granular view of how people behave, reducing the lead that online companies have had in understanding how their consumers behave.

“The best shopping centres offer a great experience all under one dry roof. Combining easy access, free parking, mix of retail, theatre and offering food and leisure facilities – something for all – premium shopping centres provide the epitome of an experiential destination facility, driving footfall and dwell time.”

– David McCorquodale, UK Head of Retail, KPMG.⁵²

With greater access to rich consumer data, shopping centres will also generate a much more refined understanding of individual customers. This could open up new data services targeted at anchor and other tenants. For instance, shopping centre operators could make available packaged customer profiling data and analysis, together with detailed footfall analytics, pedestrian flows and derived insights. Similarly, tenants might be willing to share a percentage of online sales with shopping mall owners in return for a lower rent. This would enable both the operator and retailer to embrace the reality of growing e-commerce and showrooming culture.

Amazon has envisaged a future format in which a 2-storey physical retail space is manned with robots, picking out items on the upper floor for shoppers below. This concept, if realised, would radically disrupt traditional approaches to the design and operation of retail spaces, and vastly reduce staffing costs.⁵³

Flexible and adaptable spaces

The trade mix in malls is becoming more flexible and dynamic. Some malls are making better use of temporary spaces, to enable a mix of transient offerings including pop-up stores or kiosks to maintain customer interest. New schemes are moving away from closed environments, preferring open air options that enhance the use of space and reduce the service charge for tenants.

£2.3 bn

in sales accounted for by pop-ups in the UK, up 12% compared with the previous year.⁵⁵

However, for many developers, flexibility is viewed as too expensive to design in, preferring to build for shorter timescales. If this is the case, developers should implement resource efficient, environmentally sustainable principles in future schemes.

Pop-ups offer a cost-effective way to test a new product or service. Rather than spend money on market research, a pop-up can be set up quickly and relatively cheaply. Due to the low capital outlay and smaller scale, the risk to the retailer is greatly reduced. And if the idea doesn't generate traction, a pop-up can be closed down just as easily. People enjoy being exposed to chance encounters, new ideas and inspiration. Pop-ups can deliver this at a fraction of the cost, allowing retailers to test a concept and scale it if it catches on.

Flexibility in the design of retail spaces can have a number of benefits over time. For example, the general trend towards greater mobile payments or pay-as-you-shop, may well mean the end of checkout counters and tills, thereby freeing up space for new interior layouts. Similarly shop and ship, where customers can opt to have their purchases delivered, could reduce the need for storage facilities for inventory.

Another more long-term example relates to the provision of parking at big box retail locations or out-of-town retail parks. These vast parking areas could be designed in future so that they can be readily converted into retail or other uses, should autonomous vehicles ultimately reduce the need for parking.

Choosing the right location for a retail space is also important. ZoneSavvy is a web-based platform that empowers small businesses to make data-driven decisions when scouting and selecting retail locations. The platform classifies every neighbourhood in the US based on a range of characteristics and demographics, such as population density, median age, and average income, alongside existing businesses in the area. The system then compares the neighbourhood in question with similar districts, determining the optimum number of businesses the area can support as well as revealing potential commercial opportunities.⁵⁶



The product journey

Transparency and sustainability

Consumers are becoming increasingly aware of the whole product journey and are demanding quality, transparency and sustainability in the products they buy. Details about how the product is sourced, manufactured, distributed and managed at end of life are becoming far more important aspects of purchasing decisions. Brands that have a strong sense of identity as well as good sustainability credentials are likely to have more success.

A growing number of retail companies are putting sustainability high on the agenda, looking to reduce carbon emissions, waste and energy use, and to increase resource efficiency. For example, Patagonia, the outdoor clothing retailer, is committed to working against superfluous consumption, dissuading people from buying things they don't need (including their own products). The company has the four Rs – reduce, repair, reuse and recycle – built into its core operations; this is a significant departure from the standard retail practice of encouraging

people to buy as much as possible. Patagonia donates 1% of sales to an Earth Tax to support environmental organisations. To date it has donated US\$70m to these initiatives. It also aims to make its facilities more eco-friendly through the use of renewable construction materials and efficient building design.⁵⁷ These initiatives differentiate the company by more than just price and quality, and create a strong reputation that appeals to its core consumers.⁵⁸

Sustainability programmes can make business sense too. For M&S, the net financial benefit from its ethical and environmental programme “Plan A” was £185 million in 2015-16.⁵⁹ As M&S is responsible for a large property portfolio, it is also working in partnership with its landlords, the Environment Agency (EA), Public Health England and the UK Water Partnership to assess and proactively manage climate-related risks.⁶⁰ It is taking action on climate change across its value chain to maximise opportunities and minimise the risks and associated costs from evolving environmental impacts.⁶¹

US\$70 million

cost savings from Ikea's investments in energy efficiency since 2010.⁶²

Despite efforts by a number of retailers, we continue to live in a throw-away society, with increasing carbon emissions and levels of waste. Shoppers globally are using approximately 500 billion single-use plastic bags per year – about 1 million bags every minute.⁶³ Many countries have implemented policies to reduce or ban the use of plastic bags which is a positive step. However, it isn't the silver bullet to the problem. For example, cotton bags would need to be used 131 times before they are better than a regular plastic bag in terms of limiting global warming. A uniform tax on plastic could be a wider reaching solution.⁶⁴ Ultimately, working towards a sustainable future requires a collective effort from business, consumers and governments.

Packaging is an area where we can expect to see a greater focus on sustainability and resource efficiency. Numerous recyclable or biodegradable alternatives to plastic packaging are now available, some of which

are corn- or sugar-based. By combining agricultural by-products like cornstalks with mycelium from mushroom roots, the biomaterials company Ecovative can 'grow' custom packaging for consumer products including electronics, furniture, glassware, and industrial equipment including pumps, compressors and automotive components. Production is completed within a couple of days, and once used, the packaging can be composted (its organic make-up adding nutrients to the soil as it biodegrades).

Much plastic packaging can of course be recycled. However, about 30% of plastic packaging will never be reused or recycled without fundamental redesign and innovation.⁶⁵ Initiatives like The New Plastics Economy, led by the Ellen MacArthur Foundation, brings together major producers like Unilever, the Coca Cola Company and Danone to re-think and re-design the future of plastics in packaging. The circular economy is a concept that, in contrast to the predominant 'take, make, use, dispose' linear model of production and consumption, aims to design products in such a way as to optimise durability and resource effectiveness. This goes far beyond just recycling. Consumer goods are designed to be repaired, refurbished, disassembled and reused, keeping materials and components at their highest utility and value at all times. This helps to minimise resource use, eliminates waste and reduces pollution.

Case study

Original Unverpackt



© Elizabeth Rush

The Original Unverpackt supermarket in Berlin enables ethical purchase decisions by selling all of its products unpackaged. Part of a wider 'recycling' initiative to reduce food waste and packaging, the supermarket's produce is stored in large containers that can be emptied into the customers' own bottles, bags or glass jars. As well as helping to reduce Germany's 16m tonnes of annual packaging waste, the initiative also reduces food waste as customers only buy what they need. While the model has been shown to support smaller purchases from local environmentally-aware customers, an online shop has helped to expand the supermarket's reach.

Case study

Adidas



© Adidas

In collaboration with Parley for the Oceans, Adidas has launched a concept trainer made from recovered plastic ocean rubbish. The trainers' uppers are made of filaments generated from reclaimed deep-sea fishing nets. Intended to highlight the unsustainability of current production cycles, the shoes are a precursor to an eventual clothing line being developed by the two organisations. They are an example of the potential commercialisation of waste stream recovery and cradle-to-cradle reuse practices.

The transition to a circular retail economy requires behavioural change on the part of producers and consumers. Companies such as Renault, Philips, Ikea, Kingfisher, H&M, Steelcase and Tetra Pak are leading the way through their membership of the Circular Economy 100 group, a multi-stakeholder platform that enables collaboration across member organisations around the circular economy.

Efficient delivery

Logistics is another area where retailers can differentiate themselves on value and sustainable practices. Once a product has been chosen and ordered, customers expect to receive it at speed. This has resulted in a move towards next day and same day shipping. Time-poor customers want to have items delivered to the most convenient location, and at the most convenient time, leading to ever-shortening time windows for fulfilment and delivery. Data driven logistics and fulfilment using smart tracking, accurate data and analytics can deliver better real-time solutions, more efficient inventory planning and improved customer service.

Other initiatives are focusing on reducing the need for excessive delivery of goods. Near St is a UK startup that aims to optimise convenience and minimise the need to ship goods more than is necessary, by reconnecting shoppers to local retailers. Underscoring this approach is a belief



Case study

Fetchr

Fetchr is a Dubai based logistics app developed by two e-commerce entrepreneurs that enables customers to send or receive anything, anywhere in the Middle East. The easy-to-use app uses the customer's mobile phone number to deliver packages using its GPS location, similar to how Uber locates a customer for pick up. The aim is for same day delivery within the region and to deliver items to people based on where they are, and not where they live or work.



that finding and buying something from a local shop should be faster and easier than ordering it online.

A similar concept has been applied to business to business (B2B) logistics.

Arup developed measures to reduce the volume of delivery vehicles along Regent Street in central London – where delivery vans and lorries accounted for 35% of all peak hour traffic. Through the use of a retail consolidation centre, Regent Street retailers now consolidate deliveries from their suppliers at one easily accessible point outside of London’s congestion charging zone. Deliveries to multiple stores on Regent Street are then grouped into one consignment and delivered at a pre-arranged time via an electric truck. As well as providing a more cost-effective way to manage stock, the scheme has helped to drive footfall by reducing localised congestion and air pollution during peak retail periods. Since the scheme has been implemented there has been an 80% reduction in lorry movements associated with participating retailers on Regent Street, with 21 retailers operating from 36 stores signing up to the scheme including Armani, LK Bennett, Browns, Fenwicks and New Look.

Arup has since developed an approach called ‘virtual consolidation’, which similarly reduces van and lorry traffic in targeted retail districts by having a consortium of local retailers contract out to

one preferred supplier for a range of goods and services, from office supplies to waste collection. Such a coordinated procurement model has not only been proven to reduce costs for participating retailers, but also to reduce congestion and carbon emissions.

Looking further into the future, an intriguing implication of autonomous vehicles could be that they act as moving retail stores. Autonomous, roving retail vehicles could deliver goods to people on demand at all times of day.⁶⁶ Other, unthought-of technologies could transform retail even more dramatically. As a result, retailers and developers will need to stay abreast of rapid changes and be adaptable enough to transform more quickly than in the past.



Photo: the physical store will remain at the centre of a total retail experience.

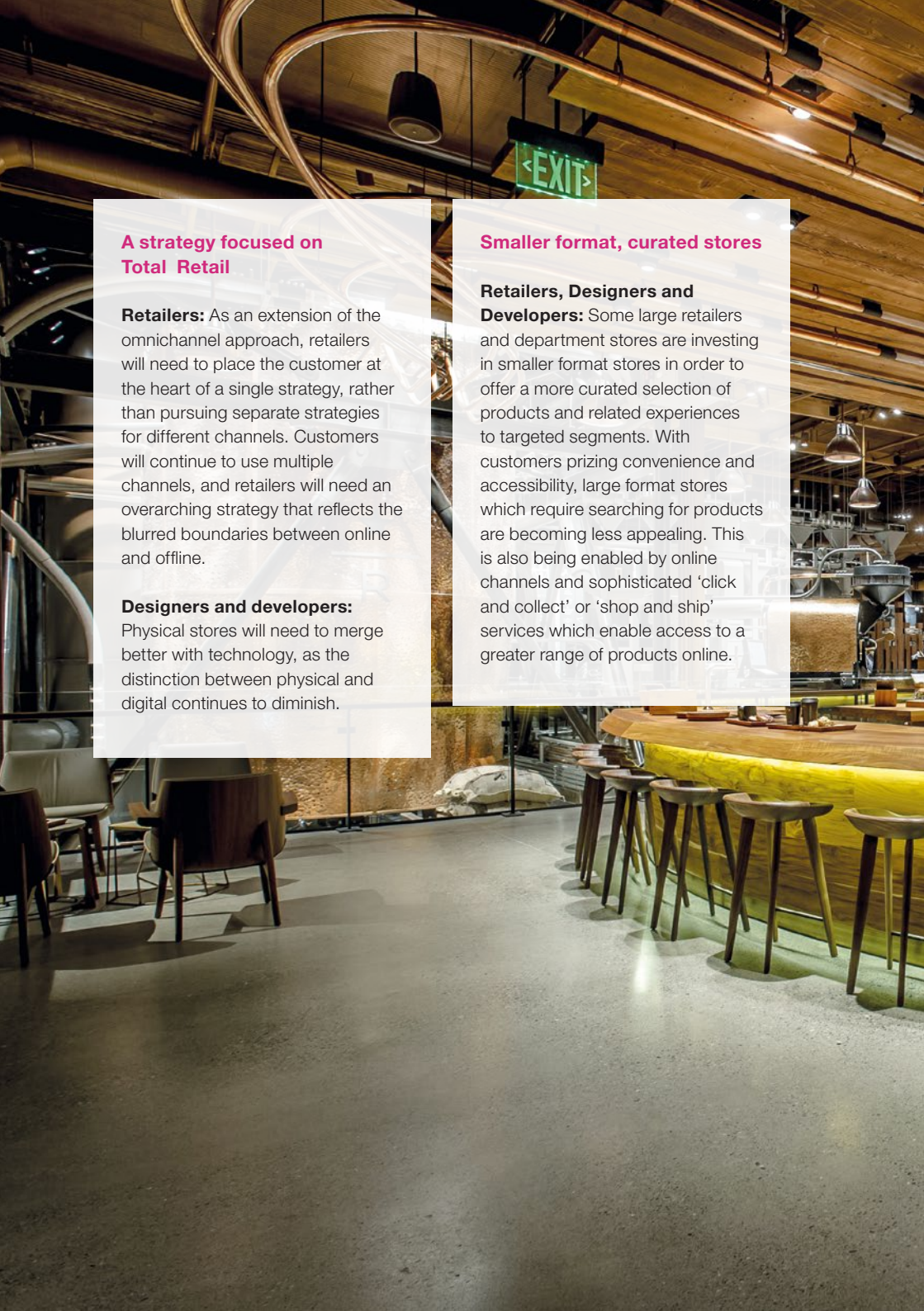


Conclusions

As e-commerce continues along its growth trajectory, retailers will need to fine tune a Total Retail strategy that embraces the growing number of channels used by consumers to browse, shop and return goods. Retailers will need to consider the increasingly blurred boundaries across online and offline experiences, where in-store technology unlocks new services, opportunities and experiences.

The rise of online shopping does not mean that the physical store is obsolete. Instead, the store is evolving to fulfil different needs by providing unique experiences and better quality customer service. Improved data analytics and greater access to more data will enable retailers to generate a much more complete picture of the customer, taking into account income and demographic fragmentation as well as individual preferences, decision-making patterns and behaviours. This will continue to improve the quality of a retailer's engagement with customers and encourage long-term loyalty.

The trends discussed in this report have a number of key implications for designers, developers and retailers. These are summarised in the following two pages.



A strategy focused on Total Retail

Retailers: As an extension of the omnichannel approach, retailers will need to place the customer at the heart of a single strategy, rather than pursuing separate strategies for different channels. Customers will continue to use multiple channels, and retailers will need an overarching strategy that reflects the blurred boundaries between online and offline.

Designers and developers: Physical stores will need to merge better with technology, as the distinction between physical and digital continues to diminish.

Smaller format, curated stores

Retailers, Designers and Developers: Some large retailers and department stores are investing in smaller format stores in order to offer a more curated selection of products and related experiences to targeted segments. With customers prizing convenience and accessibility, large format stores which require searching for products are becoming less appealing. This is also being enabled by online channels and sophisticated 'click and collect' or 'shop and ship' services which enable access to a greater range of products online.

New configurations in physical stores

Retailers: The increased focus on experience means that retailers will dedicate more space to services, showcases and curated events, with reduced merchandise on floors and less need for inventory. In addition, with people living longer, retailers will increasingly need to cater to a wider range of ages.

Designers and developers:

With the trend towards new forms of payment and checkout-free stores, more valuable floorspace can be given over to other uses and functions. Spaces and experiences will also need to be designed for a range of generations including Generation Z, Millennials, Generation X, Generation Y, Baby Boomers and Seniors.

A focus on placemaking

Retailers: as retailers compete for footfall, the importance of creating appealing places has never been greater. Retail stores can contribute to richer mixed-use places by achieving a better integration between retail and the wider local environment.

Designers and developers:

in the future, the 'anchor' for shopping malls is more likely to be the quality of the place itself and the experiences it offers for a wider range of customer segments, including the elderly. Most new schemes will focus on the integration of diverse food and beverage options, daylighting and landscaping, open streets or external areas that provide a more natural environment and reduce the cost of building.



Flexible and adaptable spaces


Retailers: flexibility to provide for changing layouts is important, as retailers integrate different activities and offerings within the traditional store.

Designers and developers: the pace of change, particularly technological change, is increasing. Physical assets should therefore be built with flexibility in mind. Modular construction, with sections constructed offsite, could also reduce the time and cost of developments. Design and construction should allow phasing, expansion, contraction, reconfiguration and re-programming to make retail schemes more resource efficient and more resilient to change.

Technological advances

Retailers: will need to keep abreast of technological change to stay relevant. The rise of mobile payments and contactless transactions will continue, driven by consumer demand for speed and convenience. Becoming “payments agnostic” will be important to cater to a growing range of payment options. Technologies such as AI, machine learning, augmented and virtual reality will also have implications for how people shop and experience brands, and how customers are understood and targeted by retailers.

Designers and developers: greater use of in-store technology will require appropriate electrical power loads. Other technologies such as Visible Light Communication (VLC) and facial recognition will also have design implications in terms of lighting.



Sustainability makes business sense

Retailers: investments in energy efficiency, better logistics systems, minimising resource use, eliminating waste and reducing pollution can result in cost savings and also appeals to customers. As shoppers become increasingly aware of the whole product journey, many will demand greater quality, transparency and sustainability in the products and services they consume. Retailers that have good sustainability credentials are more likely to be successful over the long term.

Designers & Developers: The application of sustainability and circular economy principles to design and construction can reduce waste and improve efficiency.

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References

1. Pezzine, M. (2012). An emerging middle class. OECD. http://oecdobserver.org/news/fullstory.php/aid/3681/An_emerging_middle_class.html
2. Bremmer, I. (2016). These 5 Facts Explain the Unstable Global Middle Class. Time Magazine. <http://time.com/4198164/these-5-facts-explain-the-unstable-global-middle-class/>
3. Chang, R. (2016). Here's What China's Middle Classes Really Earn - and Spend. Bloomberg. <http://www.bloomberg.com/news/articles/2016-03-09/here-s-what-china-s-middle-class-really-earn-and-spend>
4. Tong, F. (2016). Online shopping in China grows 26.2% in 2016. <https://www.digitalcommerce360.com/2017/02/06/online-shopping-china-grows-262-2016/>
5. Seattle PI. (2013). The Best Way to Play the Rise of the "Middle Class" in Emerging Markets. Available at: <http://www.seattlepi.com/business/fool/article/The-Best-Way-to-Play-the-Rise-of-the-Middle-4644779.php>
6. OECD Development Centre (2012). The emerging middle class in developing countries. Working Paper No. 285. <https://www.oecd.org/dev/44457738.pdf>
7. United Nations Population Division (2015). World Population Prospects, 2015 Revision.
8. European Parliament Think Tank (2015). The silver economy: Opportunities from ageing.
9. KPMG/Ipsos Retail Think Tank (2013). How will demographic trends in the UK affect the retail sector? <http://www.retailthinktank.co.uk/whitepaper/how-will-demographic-trends-in-the-uk-affect-the-retail-sector/>
10. European Parliament Think Tank (2015). The silver economy: Opportunities from ageing.
11. Ryan, J. (2016). Analysis: What is the impact of Generation Z on the shopping experience? Retail Week. <https://www.retail-week.com/topics/people/analysis-what-is-the-impact-of-generation-z-on-the-shopping-experience/7006165.article>
12. Thompson, D. (2017). What in the World Is Causing the Retail Meltdown of 2017? The Atlantic. https://www.theatlantic.com/business/archive/2017/04/retail-meltdown-of-2017/522384/?utm_source=atfb
13. BBC News (2016). Millennials 'set to earn less than Generation X'. <http://www.bbc.co.uk/news/business-36821582>
14. Harver analytics. (N/A). Bureau of Labor statistics, Morgan Stanley Wealth Management.
15. BBC News (2016). Millennials 'set to earn less than Generation X'. <http://www.bbc.co.uk/news/business-36821582>
16. Morgan Stanley Wealth Management (2016). Generations change how spending is trending. <http://www.morganstanley.com/ideas/millennial-boomer-spending>
17. Binder, C. and Hanssens, D. (2015). Why Strong Customer Relationships Trump Powerful Brands. Harvard Business Review. <https://hbr.org/2015/04/why-strong-customer-relationships-trump-powerful-brands>
18. Binder, C. and Hanssens, D. (2015). Why Strong Customer Relationships Trump Powerful Brands. Harvard Business Review. <https://hbr.org/2015/04/why-strong-customer-relationships-trump-powerful-brands>
19. Frey, C. (2016). Revealed: how facial recognition has invaded shops – and your privacy. The Guardian. <https://www.theguardian.com/cities/2016/mar/03/revealed-facial-recognition-software-infiltrating-cities-saks-toronto>
20. J. Walter Thompson Intelligence Innovation Group and WWD (2016): Frontier(less) Retail. <https://www.jwtintelligence.com/2016/06/new-trend-report-frontierless-retail/>
21. The North Face (2017). XPS. <https://www.thenorthface.com/xps>
22. Interactive Intelligence (2014). Customer Experience Survey Reveals Speed as Top Priority. <http://www.customerzone360.com/customer-experience/articles/391865-customer-experience-survey-reveals-speed-as-top-priority.htm>
23. The Future Laboratory (2017). The Futures Report: Retail Futures 2017.
24. Steers, N. (2013). John Lewis: How a 150 year-old retailer became an omnichannel champion. Mycustomer. <http://www.mycustomer.com/experience/loyalty/john-lewis-how-a-150-year-old-retailer-became-an-omnichannel-champion>
25. PwC. (2016). Total Retail Survey
26. Ampersand (2016): Retail Trends Report 2016.

27. eMarketer (2016). Worldwide Retail Ecommerce Sales Will Reach \$1.915 Trillion This Year. <https://www.emarketer.com/Article/Worldwide-Retail-Ecommerce-Sales-Will-Reach-1915-Trillion-This-Year/1014369#sthash.0viovpyN.dpuf>.
28. eMarketer (2016). Worldwide Retail Ecommerce Sales Will Reach \$1.915 Trillion This Year. <https://www.emarketer.com/Article/Worldwide-Retail-Ecommerce-Sales-Will-Reach-1915-Trillion-This-Year/1014369#sthash.0viovpyN.dpuf>.
29. The Economist (2017). In fintech, China shows the way. <http://www.economist.com/news/finance-and-economics/21717393-advanced-technology-backward-banks-and-soaring-wealth-make-china-leader>
30. eMarketer (2016). Worldwide Retail Ecommerce Sales Will Reach \$1.915 Trillion This Year. <https://www.emarketer.com/Article/Worldwide-Retail-Ecommerce-Sales-Will-Reach-1915-Trillion-This-Year/1014369#sthash.0viovpyN.dpuf>.
31. Ghosh, S. (2017). The future of retail marketing as it adapts to always-on consumers. Campaign.
32. <http://www.campaignlive.co.uk/article/future-retail-marketing-adapts-always-on-consumers/1421014>
33. Vend (2016). 12 forecasts for the retail industry in 2017: Retail Trends and Predictions report. <https://www.vendhq.com/university/retail-trends-and-predictions-2017>
34. comScore (2016). ComScore research shows: shoppers are downloading more retail apps. High-street Mobile Retail. <https://www.highstreetapp.com/blog/comscore-research-shows-shoppers-are-downloading-more-retail-apps>
35. Meola, A. (2016). The Rise of M-Commerce: Mobile Shopping Stats & Trends. Business Insider. <http://uk.businessinsider.com/mobile-commerce-shopping-trends-stats-2016-10>
36. Lazar, M. (2016). Click. Buy. Done. These 'M Commerce' Statistics Show That Smartphone Shopping is Viral. The Huffington Post. http://www.huffingtonpost.com/michael-lazar/click-buy-done-these-m-co_b_11657372.html
37. comScore (2016). ComScore research shows: shoppers are downloading more retail apps. High-street Mobile Retail. <https://www.highstreetapp.com/blog/comscore-research-shows-shoppers-are-downloading-more-retail-apps>
38. Perez, S. (2016). Amazon Echo Can Now Order Your Pizza. TechCrunch.
39. <https://techcrunch.com/2016/02/03/amazon-echo-can-now-order-your-pizza/>
40. Reinartz, W. (2016). In the Future of Retail, We're Never Not Shopping. Harvard Business Review. <https://hbr.org/2016/03/in-the-future-of-retail-were-never-not-shopping>
41. Capgemini Consulting (2017). Future of bricks and mortar stores in question as a third of consumers would rather 'wash the dishes' than shop in-store. <https://www.capgemini.com/news/future-of-bricks-and-mortar-stores-in-question-as-a-third-of-consumers-would-rather-wash-the>
42. Bearne, S. (2017). What does the store of the future look like? The Guardian. <https://www.theguardian.com/media-network/2017/jan/25/what-store-future-look-like-retail-technology>
43. Covert, A. (2015). 4 Things You Must Check Out at Muji's New Flagship Store. Fastcodesign. <https://www.fastcodesign.com/3053974/wanderlust/4-things-you-must-check-out-at-mujis-new-flagship-store>
44. Strugat, R. (2015). Ralph Lauren, Oak Labs Debut Interactive Fitting Rooms. WWD. <http://wwd.com/business-news/retail/ralph-lauren-oak-labs-connected-fitting-rooms-10280895/>
45. Capgemini Consulting (2017). Future of bricks and mortar stores in question as a third of consumers would rather 'wash the dishes' than shop in-store. <https://www.capgemini.com/news/future-of-bricks-and-mortar-stores-in-question-as-a-third-of-consumers-would-rather-wash-the>
46. BusinessWire (2016). Wayfair Brings Virtual Furnishings and Décor into the Home with WayfairView. <http://www.businesswire.com/news/home/20160609006326/en/Wayfair-Brings-Virtual-Furnishings-D%C3%A9cor-Home-WayfairView>
47. Philips (2017). Indoor positioning for superior customer service at Carrefour. <http://www.lighting.philips.co.uk/cases/cases/food-and-large-retailers/carrefour-lille>
48. Warren, C. (2016). Inside Samsung 837: Samsung's first North American flagship. Mashable. <http://mashable.com>

- com/2016/02/20/samsung-837-flagship/#6k6ey.TqYEQ3
49. Hub Seventeen (2017). <http://www.hubseventeennyc.com>
 50. World Green Building Council (2016). Health, wellbeing & productivity in retail: The impact of green buildings on people and profit.
 51. Thompson, D. (2017). What in the World Is Causing the Retail Meltdown of 2017? The Atlantic. https://www.theatlantic.com/business/archive/2017/04/retail-meltdown-of-2017/522384/?utm_source=atfb
 52. Thompson, D. (2017). What in the World Is Causing the Retail Meltdown of 2017? The Atlantic. https://www.theatlantic.com/business/archive/2017/04/retail-meltdown-of-2017/522384/?utm_source=atfb
 53. Vend (2016). 12 forecasts for the retail industry in 2017: Retail Trends and Predictions report. <https://www.vendhq.com/university/retail-trends-and-predictions-2017>
 54. KPMG (2015). "What is the future of the shopping centre in a digital world?" <https://home.kpmg.com/uk/en/home/media/press-releases/2015/12/What%20is%20the%20future%20of%20the%20shopping%20centre%20in%20a%20digital%20world.html>
 55. Kosman, J. (2017). Inside Amazon's robot-run supermarket that needs just 3 human workers. New York Post. <http://nypost.com/2017/02/05/inside-amazons-robot-run-supermarket-that-needs-just-3-human-workers/>
 56. Fantoni, R., Hoefel, F. and Mazzarolo, M. (2014). The future of the shopping mall. McKinsey & Company. <http://www.mckinseyonmarketingandsales.com/the-future-of-the-shopping-mall>
 57. Ram, S. (2017). Meeting millennials where they shop: Shaping the future of shopping malls. McKinsey & Company. <http://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/meeting-millennials-where-they-shop-shaping-the-future-of-shopping-malls?cid=other-eml-alt-mip-mck-oth-1701>
 58. Arup (2017). Reimagining property in a digital world. http://publications.arup.com/publications/r/reimagining_property_in_a_digital_world
 59. Speier, K. (2016). 6 Eco-Friendly Brands That Will Inspire You to Go Green. Business2Community. <http://www.business2community.com/brandviews/mainstreethost/6-eco-friendly-brands-will-inspire-go-green-01546517#r3mf5ZP5FL1ZgS2c.99>
 60. Shankar, A. and Canniford, R. (2016). If Patagonia's business model is a paragon of virtue, should more companies follow suit? SmartCompany. <http://www.smartcompany.com.au/business-advice/strategy/76262-patagonias-business-model-paragon-virtue-companies-follow-suit/>
 61. Wiggins, K. (2016). Responsible Business Awards 2016 winners announced. Financial Times. <https://www.ft.com/content/ed37d09c-41f3-11e6-9b66-0712b3873ae1>
 62. Turton, P. (2015). How to make retail properties resilient to climate change. Arup Thoughts. <http://thoughts.arup.com/post/details/471/how-to-make-retail-properties-resilient-to-climate-change>
 63. M&S (2015). Climate Change. <https://corporate.marksandspencer.com/plan-a/our-approach/business-wide/climate-change>
 64. PWC (2015). Retail & Consumer Insights. Megatrends in the retail & consumer products industry. <https://www.pwc.com/us/en/retail-consumer/publications/assets/rc-insights-climate-change.pdf>
 65. Ocean Crusaders (2015). Plastic statistics. <http://oceancrusaders.org/plastic-crusades/plastic-statistics/>
 66. Spence, P. (2016). Plastic bag charge: the unintended consequences of the 5p deterrent. The Telegraph. <http://www.telegraph.co.uk/finance/economics/11912052/Plastic-bag-charge-the-unintended-consequences-of-the-5p-deterrent.html>
 67. New Plastics Economy (2017). The New Plastics Economy: Catalysing action. <http://newplasticseconomy.org/report-2017>
 68. Thompson, D. (2017). What in the World Is Causing the Retail Meltdown of 2017? The Atlantic. https://www.theatlantic.com/business/archive/2017/04/retail-meltdown-of-2017/522384/?utm_source=atfb

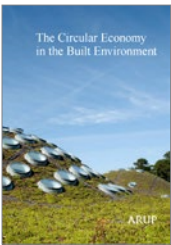
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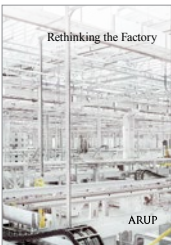
Living workplace considers a broad spectrum of research and trends relevant to this transforming typology, including digital services, emerging business models and workforce wellbeing. By analysing what aspects need immediate attention and action, the report aims to help developers, tenants and designers better understand the forces shaping the workplace of the future.



Reimagining property in a digital world highlights that the property sector has not yet fully committed to operating digital property portfolios. Individual initiatives are often isolated, and as a result the full benefits are not realised. The message for developers and corporate real estate executives is that every business will need its own digital strategy if it wants to achieve improved operational performance, a better end user experience and consequently higher long term valuations.



The circular economy in the built environment identifies how the circular economy can benefit Arup, our clients, and the built environment sector. We reflect on the economic, social and environmental advantages of employing circular principles. We propose strategies to progress our offering, deliver new services, engage a wider network of stakeholders and unlock opportunities for all parties in the value chain.



Rethinking the factory describes the emerging trends, processes and technologies that will transform the manufacturing landscape. The inevitable shift to leaner, smarter and more flexible forms of production will have a range of impacts on how the factory is designed, how supply chains operate, how people experience changing operational environments and how the future spaces of production will be organised.

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About Arup

Arup is the creative force at the heart of many of the world's most prominent projects in the built environment and across industry. We offer a broad range of professional services that combine to make a real difference to our clients and the communities in which we work.

We are truly global. From 100 offices in 38 countries our 11,000 planners, designers, engineers and consultants deliver innovative projects across the world with creativity and passion.

Founded in 1946 with an enduring set of values, our unique trust ownership fosters a distinctive culture and an intellectual independence that encourages collaborative working. This is reflected in everything we do, allowing us to develop meaningful ideas, help shape agendas and deliver results that frequently surpass the expectations of our clients.

The people at Arup are driven to find a better way and to deliver better solutions for our clients.

We shape a better world.

The retail sector is fast-moving and continues to experience significant change. As consumers use a wider range of channels to browse and make purchases, the sector is also becoming increasingly complex. Despite rising levels of ecommerce, the physical store will continue to be an important part of the retail offer, although its form and function will continue to change. Retailers will need an overarching strategy that reflects the fast-blurring boundaries between online and offline shopping.

This report considers these and a range of other trends impacting the sector, including shifting demographics, new customer needs and desires, emerging technologies, the changing role of the store and shopping mall, and a focus on transparency and sustainability.

By exploring these trends and a selection of global case studies, this report aims to help retailers, developers and designers better understand the forces shaping the retail environment of the future.

The ARUP logo is displayed in a bold, white, sans-serif font. The letters are closely spaced and have a clean, modern appearance. The background of the entire page is a vibrant red, overlaid with a semi-transparent, futuristic cityscape illustration. This illustration features a prominent, curved, metallic-looking structure on the left, a tall, illuminated skyscraper in the center, and various icons like a lightbulb, a recycling symbol, and a Wi-Fi symbol connected by thin white lines, suggesting a high-tech, sustainable urban environment. The overall aesthetic is sleek and forward-looking.

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