DATA, AI, IOT: THE FUTURE OF RETAIL
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Digital transformation is affecting all aspects of our lives, but the retail sector is experiencing particularly severe turbulence at the moment.

On both sides of the Atlantic, there are regular news stories about store closures and job losses on the high street, and the underlying dynamic isn’t hard to identify: an accelerating shift away from in-store shopping towards e-commerce, particularly via mobile devices (a.k.a. m-commerce), with Amazon the keystone species in the new ecosystem.

This trend doesn’t necessarily mean that the high street is heading the way of the dinosaurs. However, the selection pressure on retail businesses is changing, and those that fail to adapt certainly face decline and even extinction.
Today you can research a product, compare prices, order and pay for it, and often have it delivered to your door the same day—all from an internet-connected computer or smartphone (and increasingly, simply by instructing your smart speaker to make the purchase). That’s why traditional retail businesses based on brick-and-mortar stores urgently need to update their business models for the Amazon age.

There’s a wealth of analysis and survey material available to elucidate these trends, with suggestions as to how retailers should adapt to them. This introduction explores some of these studies and extracts the key messages. Check out the rest of ZDNet’s ‘Future of Retail’ special report, including specially commissioned research, for more detail on the companies, vendors and technologies that are leading the digital transformation of the high street.

PREDICTIONS FOR RETAIL IN 2018

In any sector with an attendant ecosystem of analysts and pundits, the start of each year usually sees a plethora of articles setting out predictions for the coming 12 months. Gathering a large sample of these offerings and assigning the predictions to a subset of emergent themes is a good way of taking an industry sector’s temperature and identifying its likely direction of travel in the short to medium term.

We’ve done this for the retail sector, examining 17 turn-of-the-year articles containing 135 predictions, which generated 13 emergent themes. Here are the results:
The top themes emphasise the challenges facing the retail sector: getting to grips with emerging technologies such as augmented reality, voice, the Internet of Things (IoT) and 3D printing; the need to offer improved in-store experiences; the importance of personalisation in customer relationship management (CRM); the evolution of brick-and-mortar stores (into click-and-collect locations, for example); the advance of e-commerce and novel payment options; and the pressure for faster product development and speedier fulfillment.

Let’s unpack some of these.

**Emerging technologies**

*Vend* expects augmented reality (AR) technology to become more sophisticated in 2018, citing IKEA’s *Place* app, which is built on Apple’s ARKit. *Place* lets you see how different IKEA products would look in your home: you just scan the room using your iPhone and select the required product. Elsewhere, payment platform provider *Ayden* predicts that AR will become “an everyday shopping reality” in 2018.

Ayden also predicts that voice-driven shopping will go mainstream in 2018, noting *Target* and *Walmart* partnerships with Google Home in 2017. *CPC Strategy* agrees, naming 2018 as “the year of voice-first shopping” thanks mainly to the popularity of Amazon’s *Echo Dot* and Google’s *Home* devices.

*Samsung’s Insights* blog predicts growing use of IoT beacons, which can help customers quickly find items in a store and notify them of discounts, for example, via their smartphones. Data gathered in this way can also help retailers understand customer browsing and buying patterns, says writer *Craig Guillot*. According to *Stores.org*, “Retailers will continue to explore ways to use IoT in the coming year for everything from keeping better tabs on their inventory to managing losses from theft and connecting with shoppers.”

Another emerging technology to watch is 3D printing, or *additive manufacturing*, which *Stores.org* notes is “quietly growing and has the potential to shake retail’s foundation.”
Improved in-store experiences

Rather than customers just shopping for goods and leaving with them, Ayden highlights the trend for retail stores to become ‘town squares’, where customers can have more social experiences (a.k.a. ‘retailtainment’). For Deloitte, “Retailers need to ensure that their stores remain relevant and are places that consumers want to keep coming back to. Experience is more important than ever, and retailers’ stores need to be more than just places to transact.” Chain Store Age predicts that “More stores won’t hold inventory at all and will simply become ‘guide shops,’ where consumers can touch the products and sales associates can educate customers.”

Personalisation & CRM

Technologies like IoT, mobile apps, beacons and new POS systems will allow retailers to discover more about their customers, which in turn will facilitate more personal customer experiences, says Samsung’s Insights blog. Bluecore reckons that “the most advanced retailers will expand their focus from narrow personalisation efforts like product recommendations and site changes in order to pay more attention to the entire marketing stream.” This will not only require more customer data, says the email marketing specialist, but also better tools to connect and activate that data. Be that as it may, if Facebook’s recent data governance scandal results in significantly less user engagement, CPC Strategy’s prediction that “Facebook will be the biggest social investment for retailers” may need re-assessing.

Brick & mortar evolution

“We’ll finally witness the death of the death of retail,” is the headline 2018 prediction from Bluecore, which notes that, despite widespread store closures, many retailers—especially those that leverage data and listen to their customers—are expanding. Vend echoes this sentiment, on the basis that: “Mobile applications and cloud-based solutions are enabling merchants to quickly set up shop with a minimal investment. Because of this, we’ll be seeing more independent stores enter the market.”

CPC Strategy also disputes the brick-and-mortar-is-history theory, arguing that stores will downsize or shift roles, either becoming more of a showroom or integrating online and offline so that customers can buy online and pick up in store (BOPIS). This new ‘click-and-collect’ role is mentioned by several observers.
Several pundits cite Amazon Go as a next-generation brick-and-mortar store. This replaces cashiers and checkout lines with a smartphone app and AI-driven Just Walk Out technology: you activate the app on entering the store, choose what you want, and your virtual cart is charged to your Amazon account when you leave. Microsoft is also reportedly eyeing up this space.

E-commerce, mobile POS & payment options

A key theme is the need for retailers to keep up with the digital transformation of payment systems—e-commerce and m-commerce. As NPD points out: “The manufacturers, retailers and restaurant operators that best leverage digital will win in today’s challenging environment.” Mobile commerce, in particular, is on the rise, says Shopify, which notes that “consumers aren’t just browsing content on mobile: they’re making purchases.”

Samsung’s Insights blog also highlights the importance of in-store mobile POS systems for enhanced customer service and the need for flexibility in payment methods, including support for mobile wallets.

Other themes

Further down the list of predictions are more important topics for retailers in 2018 and beyond: the need for ever-faster product development cycles and delivery fulfillment (perhaps using drones, for example); leveraging artificial intelligence, machine learning and big data analytics to drive retail decision-making; providing and managing multiple channels through which customers can do their research and ultimately make purchases; creating greater visibility into supply chains (to satisfy customers’ ethical and environmental concerns, for example); the emergence of new groups of consumers (in China and the far east, for example) and ways of shopping (‘chore’ versus ‘cherish’, for example); the continuing evolution of Amazon and its influence on the retail sector; the increasing importance of data security and governance; and the possibility for job losses, or changes in job descriptions, in retail.

WHAT THE SURVEYS SAY

Numerous surveys have canvassed various audiences for pointers to the future of retail in 2018 and beyond. Here are summaries and key charts from a selection.
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| The Future of Retail 2018 (Walker Sands) | 1,600 consumers across the US; February 2018, online | • Politics plays a leading role in commerce  
• The popularity of connected devices has skyrocketed  
• Amazon’s dominance forces competing retailers to evolve  
• Consumers are more comfortable using voice-controlled devices to shop  
• Fast delivery is no longer optional. It’s a must. |

![Chart showing how consumers prefer to shop for different products](DATA: WALKER SANDS/CHART: ZDNET)
## Report

### Annual Retail Survey 2018 (KPMG)

**Survey statistics:** 1,600 KPMG employees in their capacity as consumers; findings incorporate consumer interactions with 297 UK retailers, across 30 product categories; 20 November - 22 December 2017

**Key findings/themes:**
- Black Friday, a bedrock in the UK shopping calendar
- Brand equity and the rise of selling direct to the consumer
- Brexit’s impact on the supply chain and international logistics
- The role of retail in driving a better customer experience
- Consumer dynamics: staying ahead while reaping returns
- Last mile operations, the defining point in the sales process

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### CEO Viewpoint 2017: The Transformation of Retail (JDA/PwC)

**Survey statistics:** 351 responses from executives in the US, Mexico, the UK, Germany, China, and Japan; late 2016

**Key findings/themes:**
- Investment Priorities
- Profitability
- Omni-channel Fulfillment
- The Digital Transformation Strategy
- Leveraging Customer Data
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| The Future of Retail 2018: A Unified Channel Strategy To Drive Brick & Data Retail (PSFK) | Over 400 retail, brand and agency professionals within the retail industry offered their perspectives on the future state of the industry and the convergence of offline and online retail; November 2017 | • The End Of The Digital-Offline Divide  
• Consumer Insights: New Offline Expectations And Behaviors  
• Reuniting Retail Channels  
• 5 Key Pillars Of Blended Retail  
• A New Framework For Blended Retail Nordstrom: Underpinning The Shopper Experience With Data  
• Amazon: Building Experiences Atop A Digital Infrastructure  
• Adapting To The New Definitions Of Convenience  
• Key Technology Investments For Blended Retail  
• 5 Retail Lessons For Creative Agencies |
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| The Store of the Past Meets The Shopper of the Future: Can Retailers Adapt to Modern Consumer Expectations? (Euclid) | 1500 US consumers; Q1 2018 | • New buying models (e.g. subscription boxes) are shifting how people think about stores  
• The powerful Millennial generation is turned off by traditional marketing methods  
• Growing channel agnosticism - an openness to regularly using multiple channels - means there’s ‘room for everyone’ |
### Report
Consumer Experience in the Retail Renaissance (Salesforce/Deloitte Digital)

### Survey statistics
Retail practitioners in Australia/New Zealand (50), Benelux/Nordics (61), Canada (50), France (50), Germany (50), Japan (50), the UK/Ireland (50), and the US (200); research was conducted online between December 20 2017 - January 5 2018

### Key findings/themes
- It's a Time of Retail Renaissance
- The Consumer Experience Is Disconnected
- Data Is the Bedrock of Consumer Experience
- Platform Initiatives Expand from Unified Commerce to Unified Engagement
- The Elite Performer’s Roadmap

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**HOW BRANDS CURRENTLY USE AI TO PERSONALIZE THE CONSUMER EXPERIENCE**

Among retailers that have adopted AI for at least one application

1. Tailor pricing and promotions in real-time: 40%
2. Provide relevant search results: 40%
3. Personalize content across all channels: 39%
4. Create products that consumers are most likely looking for: 34%
5. Enable visual search based on images: 32%
6. Anticipate questions that consumers will ask: 31%
7. Utilize voice recognition for search, discovery, and ordering: 26%

*Image: Salesforce/Deloitte Digital*
OUTLOOK
The predictions and surveys summarised here all reflect the fact that ‘business as usual’ is not an option in the retail sector, thanks to new technologies, changing patterns of consumer behaviour, and the influence of pioneering digital-first companies like Amazon.

The correct response to these seismic changes will vary from business to business, but some themes will recur: better data about customer requirements and behaviour, and better analysis of that data; new ways of deploying physical stores, leveraging engaging new technologies like AR and IoT; new payment systems—especially mobile ones; and faster, more convenient purchase fulfilment.

To get the best customer service, customers will have to entrust retailers with more data about their preferences and habits, which puts the onus on businesses to secure and govern that data responsibly. The EU’s General Data Protection Regulation (GDPR) is a timely piece of legislation in this respect.

Looking further forward, ethical and environmental issues are likely to assume greater importance in retail, as customers demand transparency about the sourcing, manufacture, packaging and disposal of the products they buy. Technology may well have a role to play here, too, in the form of blockchain (if not anytime soon).
SURVEY: MOST CONSUMERS USE AT LEAST ONE FORM OF TECH TO MAKE SHOPPING EASIER AND MORE ENJOYABLE

BY AMY TALBOTT

If the race between corporate giants Amazon, Microsoft, and Walmart to create fully automated shopping experiences is any indication, retail could look a lot different in the near future. But according to the results of a recent survey by Tech Pro Research, technology hasn’t taken over the brick-and-mortar world yet.

In the survey of 259 tech professionals, 88 percent said they had used at least one form of technology to assist in their shopping experience in the past year. The most common, which 58 percent said they’d used, was researching product information from a mobile device while in a retail location, closely followed by ordering a product online for pickup in a store.

Among shoppers who using these conveniences, 87 percent said that at least one they’d used made shopping easier, and 66 percent said at least one they’d used made shopping more enjoyable.

IMAGE: ERIK UNDERWOOD
Although use of technology while shopping isn’t universal, this survey shows that shoppers do find value in it.

Since data plays a significant role in digital transformation, the Tech Pro Research survey also asked what information shoppers were comfortable giving up in exchange for rewards or discounts. Almost all respondents said they were willing to hand over at least some of their personally identifiable data, which isn’t surprising since some of these items, like an email address, are essential for conducting transactions.

The infographic highlights selected results from the survey. For all results, plus analysis, download the full report, Digital transformation in retail: How consumers are using tech to make shopping easier and more enjoyable, available to Tech Pro Research subscribers.
BY ALISON DENISCO RAYOME

The rise of online shopping has forced the retail industry into a state of crisis, with more than 11,000 stores expected to close in 2018—up from 9,000 in 2017, according to a Cushman & Wakefield report.

“These days, retailers are forced to become innovative,” said Brendan Witcher, vice president and principal analyst at Forrester. “The challenge is, where does the line between being a good retailer and being a good innovator get drawn? Too many companies take their eye off the ball and the basics of what they need to focus on in innovation.”

Virtually all retail companies now have a digital strategy, Witcher said. The remaining challenges to transformation are in softer elements: Culture, organization, and lack of skills, he added. “Implementing technology is easy when compared to the challenges of change management that need to happen to go from being a traditional retailer, to becoming a digitally led retailer,” Witcher said.

There is no shortage of companies investing in technology to attract and retain customers, said Brian Solis, a principal analyst at Altimeter and author of the report Leading Trends in Retail Innovation. However, for many, “innovation” actually means “iteration,” Solis said, meaning that instead of doing new things that create new value, they do the same things but more efficiently.

“Investing in mobile, cloud, or things like augmented reality or new payment systems all improve the customer experience, but I think retail is really struggling in understanding the customer of tomorrow right now.”

—Brian Solis

Retail also tends to lag behind other industries when it comes to digital initiatives because projects must be operational before most companies will get on board, said Ananda Chakravarty, a senior analyst at Forrester.

“Investing in mobile, cloud, or things like augmented reality or new payment systems all improve the customer experience, but I think retail is really struggling in understanding the customer of tomorrow right now.”

—Brian Solis
“With retail being so dependent on the margins, there are only so many dollars available for things like R&D and innovation in general,” Chakravarty said. “They know they’re competing against companies like Amazon with multi-billion dollar budgets dedicated solely to innovation and research and development. It’s not something that’s ignored—it’s more of, ‘How much can we put out there without reducing our day-to-day?’”

Despite the challenges, a number of retailers have embraced the changing landscape and are making strides in digital projects that tap technologies like artificial intelligence (AI), augmented reality (AR), and the Internet of Things (IoT) to radically transform their business and gain new customers. Here are 10 companies that are leading digital transformation in retail.

1. SEPHORA

Beauty retail chain Sephora has leveraged digital projects to not only survive but thrive in today’s retail economy, taking pole position as the no. 1 speciality beauty retailer in the world. The company has used technology to offer a number of unique offerings to customers on their mobile app as well as in the store, as I reported for ZDNet’s sister site TechRepublic.

While other cosmetic companies rely heavily on department store sales, Sephora offers customers a number of tech options that allow them to personalize their shopping experience by trying on makeup virtually using AR, matching their skin tone to a foundation with AI, and sampling a fragrance via a touchscreen and scented air.

“Sephora is diversifying its approach to digital transformation by focusing on the areas where other companies are struggling,” Solis said at the time. “Specifically, the company has studied digital customers to understand her needs and beauty and social aspirations, how she feels and shops, and more, so they adapted models, processes, and resources internally to compete with purpose.”

2. LOWE’S

Home improvement chain Lowe’s began using AR and virtual reality (VR) testing in its stores with the debut of its 3D virtual Holoroom in 2014, which allows customers to design a room on a computer and then tour it in VR. The company later launched the Lowe’s Vision app and View in Your Space feature, which use AR to help customers visualize what the store’s products would look like placed in their own home. The In-Store Navigation app helps customers navigate to the products they need in the store.

All of these apps aim to solve a common customer problem: How will you know if something looks good in your space?

“It makes a lot of sense for a company in the do-it-yourself space and other types of spaces as well,” Chakravarty said. “There are some niche markets there for that.”
3. HOME DEPOT
“Home Depot is doing a fantastic job with their omnichannel capabilities,” Witcher said, as the company has successfully facilitated its online sales growth through its brick-and-mortar stores.

With Home Depot’s approach, customers can purchase products online and choose to have them shipped either to their home or to their local store for pickup. A buy online and deliver from the store option can get customers their products the next day in a two-hour delivery window. They can also buy products online and return them to the store.

Like Lowe’s, Home Depot also introduced wayfinding within its app to help customers more easily navigate store aisles and find what they are looking for. The company reported sales of $23.9 billion for Q4 2017, a 7.5 percent increase from the year before.

4. WALMART
In some Walmart stores, Bossa Nova robots move throughout the store, scanning shelves and alerting managers to the state of inventory in real time. Offering fast information about how products are performing within stores and across locations can help the retailer build a predictive inventory model and keep prices competitive, ZDNet reported.

“These are powerful tools they’re using for things like inventory management, and being able to do that in an automated fashion without engaging the sales reps or associates inside the store, giving them more time to actually engage with customers,” Chakravarty said.

5. LOLLI AND POPS
Candy and gift retailer Lolli and Pops may be small compared to others on this list, but it has a powerful digital project underway, Chakravarty said. The company recently introduced Mobica, a facial recognition loyalty program powered by Intel. Customers that opt in to the program can walk into a store, and a camera will recognize their face and send that information to an app on the sales associate’s tablet. With that data, the associate can access the individual’s taste profile, allergies, and other information, and be able to offer personalized product recommendations via AI-enhanced analytics.

6. KROGER
Grocery store chain Kroger is using in-store analytics to personalize shopping for customers, Chakravarty said. The company is now using predictive behavior modeling to personalize promotions and tailor pricing for its Plus Card members, which has led to a growing digital customer base. As of Q1 2017, growth in mobile visits
outpaced overall digital growth, according to the company. Kroger also recently debuted its ClickList service, which allows customers to order groceries online and pick them up at the store.

7. FABLETICS
Fabletics is using a digital dressing room tool called omnicart to help identify new customers and create a more personalized experience for them, Witcher said. The tool allows store associates to scan products that a shopper is trying on in an in-store fitting room into an iPad. If the shopper is a Fabletics member and the retailer has their email address on file, the clothes will automatically be placed into their online shopping cart.

After the shopper tries on the clothes, she gives the fitting room attendant feedback on the iPad. If they select “did not like” or complete a purchase in store, the item is removed from their online shopping cart. Otherwise, it will stay there, if they want to purchase it later.

Customers who shop with Fabletics through multiple channels like this are 3.2x more profitable for the company than those who only shop on one channel, according to the company president.

8. MACY’S
In 2016, Macy’s began rolling out an RFID initiative to track every item across its fleet of stores and fulfillment centers. When the company first expanded RFID to its fashion departments, its sales volume grew more than 200 percent, according to some estimates—which was not a surprise, as inventory accuracy can increase item availability, leading to sales increases.

“It reduces shrinkage and waste inside the store, in addition to improving the ability for associates to track particular products and inventory,” Chakravarty said. “It’s a powerful tool.”

9. BEST BUY
Best Buy has been working with partner 3C Interactive to tap a growing communication protocol called Rich Communication Services that can enhance basic text messages with product images, maps for in-store pickup, and more details on purchases. This creates a more seamless interaction between in-store and online communication. “They’re finding different ways of connecting with the customer through the mobile device,” Chakravarty said.

10. NEIMAN MARCUS
Department store Neiman Marcus founded an innovation lab in Dallas, TX, in 2012 to test new technologies. The store has since rolled out Memory Mirrors—giant video screens and cameras that allow shoppers to see outfits in 360 degrees and compare clothing options side-by-side—in some locations.
The retailer also launched the Snap Find Shop visual search feature in its app, which allows customers to take a photo of a shoe, handbag, or clothing item and find a similar style in the store’s product line using AI.

These projects and others seek to alleviate pain points for customers and make the shopping experience easier and more fun. “It’s almost like Innovation as a Service, where they tackle challenges and also look at new opportunities where they can have an effect,” Solis said.
10 VENDORS ENABLING DIGITAL TRANSFORMATION IN RETAIL

BY NATALIE GAGLIORDI

For the uninitiated, digital transformation involves using digital technologies to retool business models and processes to make them more efficient or effective. In large, legacy enterprises, digital transformation projects often provide a means to compete with nimbler, digital-first rivals.

There are a lot of ways to digitally transform a business, especially in retail. With its staggering size and reach, the retail industry is one of the few business sectors that has a tangible impact on the daily lives of average consumers.

But the industry is famously slow to adopt new technologies, and many retailers wind up sticking to legacy operations for fear of upending painfully tight profit margins. According to a recent study by Oxford Economics, only 3 percent of retailers have completed company-wide digital transformation projects. That’s an easy statistic to avoid in today’s burgeoning technology landscape. Here’s a look at ten tech vendors helping retailers come full circle on their digital transformation journey.

1. SALESFORCE

Salesforce is known for its suite of enterprise customer relationship management (CRM) software, but the company also has a robust set of services for the retail set. The common thread through all of Salesforce’s retail products is an effort to build personalized and connected consumer experiences across all points of commerce, including mobile, web, social and store. Its latest retail updates focus on marketing during shopping via integration with Instagram, AI and connections to its Commerce and Marketing Clouds.

According to Shelley Bransten, SVP of Salesforce’s retail and consumer goods industry solutions, the aim is to use technology to help brands keep up with consumer demands and really understand the needs of consumers on an individual level.

“The world of retail that so many of us grew up in has changed in more ways than we ever could have imagined,” said Bransten. “Salesforce enables the future of retail with a unified platform for intelligent shopping experiences on any channel, ensuring the fastest path to shopper success.”
2. SHOPIFY

Shopify is an e-commerce platform provider that enables merchants, entrepreneurs and retail brands to sell their wares online and in real life. Its commerce technology encompasses customer experience personalization, brand discovery, gamification, social commerce and more. The company established itself around the small business sector, but also offers services that cater to mid-market and large enterprise retailers.

“Investing in the right digital and physical real estate can lead to high-speed, triple-digit growth as consumers crave immersive online and in-real-life experiences,” said Loren Padelford, VP and GM at Shopify. “Social channels and marketplaces continue to drive consumer discovery, while consumers push brands to create unique experiences where and when they want them.”

3. ADOBE

To most people, Adobe is the company behind Photoshop, Acrobat and other creative software tools. However, the company has been building a retail portfolio for some time, and just recently made a massive $1.68 billion acquisition of Magento Commerce. The commerce platform is set to become part of Adobe’s Digital Experience business to round out its customer experience tools, which already include content creation, marketing, advertising and analytics.

Adobe’s latest efforts have zeroed in on artificial intelligence via its Sensei software, seeking ways to use the technology to augment business processes and customer experiences. This year Adobe is also previewing systems that will analyze live foot traffic in a store and will add features that will optimize images for different screens and add virtual reality tools without the need for custom development.

“By uniquely integrating content and data, coupled with AI and machine learning powered by Adobe Sensei, Adobe Cloud Platform empowers retailers to create, deliver and manage standout, personalized experiences at scale,” said Adobe’s Michael Klein, director of industry strategy, retail and travel and hospitality.

4. BIGCOMMERCE

BigCommerce is a hosted e-commerce platform provider with services that help retailers create, manage and grow an online store. Its platform serves about 60,000 merchants in 120 countries, including businesses such as Kodak, Sharp, and Skullcandy.

According to BigCommerce CEO Brent Bellm, e-commerce Software as a Service (SaaS) platforms give retailers the technical simplicity, faster time-to-market and cost benefits that they need to grow their business.

“One of the most difficult aspects of digital transformation for retailers to reconcile is the underlying technology investment, operation and maintenance,” said Bellm. “The solution lies in SaaS. With SaaS
ecommerce platforms, businesses don’t need to own and operate software or IT infrastructure, plus they get continuous performance enhancements and functionality updates as part of the package.”

5. DUNNHUMBY

dunnhumby is a customer data science company that aims to help retailers, brands, and businesses across other verticals to compete in the increasingly competitive data-driven economy. For retailers and suppliers, dunnhumby offers an integrated set of consulting, software and technology services designed to support a transition into the world of data analytics and intelligence. Its client lists includes brands such as Tesco, Coca-Cola, Meijer, Procter & Gamble, Raley’s, and L’Oreal.

“The market need for innovative data solutions spans beyond just the Fortune 1000,” said dunnhumby CEO Guillaume Bacuvier. “This is particularly true of retail—the world’s toughest industry—but the reality is that customer data savvy and competence is a requirement for any consumer-facing business today.”

6. GK SOFTWARE

GK Software offers a range of unified commerce services, including its OmniPOS solution for point of sale, mobile POS, mobile customer engagement, and a portfolio of store and back-office software. Its aim is to let retailers centralize their store-level IT using cloud-based software to implement lean store concepts, and structurally reduce the total cost of ownership of store-level systems.

The company’s CEO, Michael Jaszczyk, explains that GK is deploying capabilities like AI-enabled personalization in stores to help retailers bring online services into the physical realm.

“As retail becomes increasingly complex and competitive, retailers that find ways to increase efficiency and improve customer experience in their stores will be the ones best positioned to succeed and grow,” Jaszczyk said.

7. JDA SOFTWARE

JDA is a supply chain management application provider with more than 4,000 customers, including ACE Hardware, Best Buy, David’s Bridal and Asda. It specializes in retail supply chain management and forecasting. JDA’s latest software updates aim to use artificial intelligence to recommend floor plans, labor and products based on available space. It’s also using analytics, alerts and other information delivered on mobile devices to help associates sell based on inventory.
8. IBM
IBM’s key retail service is called MetroPulse, and it aims to help retailers and consumer goods companies have the right products in the right place based on predictive demand insights. The platform combines third-party hyper-local data, such as weather and neighborhood demographics, with product, transaction and location data onto an interactive dashboard. Insights can then be integrated into workflows across supply chain, sales, merchandising, operations and marketing teams.

“Combining hyper-local data such as weather, news, traffic or events with your data and then applying advanced analytics and AI allow you to sense, interpret and act upon the local demand signals just like the traditional proprietor, but at scale creating unique customer experience and increased business outcome,” said Laurence Haziot, global managing director and GM of IBM Consumer Industries.

9. INMOMENT
InMoment is a SaaS provider of customer feedback management tools. Its technology collects and analyzes 15 million data points per day from data sources such as voice, video, images, text and structured data. Its proprietary data science layer aims to convert data from simple metrics to meaning, informing better decisions across the enterprise.

According to Andrew Park, VP of CX strategy at InMoment, the key for today’s retailers is to understand how to shift from brick-and-mortar, product-centric strategies to omnichannel, customer experience-centric strategies powered by data.

“From identifying problems and fixes in the supply chain or informing the right staffing mix, to surfacing new product ideas or changing hiring and coaching practices, to rescuing individual customers—InMoment puts customer-centered intelligence behind every important decision,” Park said.

10. DYNAMICACTION
DynamicAction is an analytics platform built for e-commerce, store and omnichannel retail teams to pinpoint margin-eating disconnects across the business, prescribe actions and rank those actions by financial impact. With more than 1,500 proprietary algorithms to its name, the company’s range of services also include automated diagnostics and both out-of-the-box and ad hoc analytics and visualizations.

DynamicAction counts brands such as Cole Haan, Farfetch, El Corte Ingles, Eddie Bauer, Columbia Sportswear, and Jack Wills as customers.
“The retail industry is challenged with the shifting economics of omnichannel, the complexities of consumer behavior, increased operating costs, declining store performance and ‘the Amazon Effect’,” said John Squire, DynamicAction CEO and co-founder. “DynamicAction is the guidance system that catalyzes the journey towards transformation in this new retail reality.”
10 TECHNOLOGIES LEADING DIGITAL TRANSFORMATION IN RETAIL

BY MACY BAYERN

The rise of online shopping induced a plague upon brick-and-mortar stores. E-commerce capitalized on consumer’s desire for convenience: Why get in your car and drive to a store—where you may or may not find what you’re looking for—when you can just order it online? This culture shift led some 9,000 stores to close down in 2017—a number expected to increase to 12,000 in 2018, according to real estate firm Cushman and Wakefield.

If brick-and-mortar stores want to stay open and stay competitive with digital natives, they must revolutionize the way they reach customers. However, implementing technology for the sake of doing so isn’t productive. Instead, retailers must turn their attention to the customer, and how they have changed in recent years.

“So many retailers are failing because there’s still a disconnect with who the consumer is, and what they shop, and why they shop, and how they shop,” said Brian Solis, a principal analyst at Altimeter Group.
A good customer experience is vital to the success of any retailer. Yet, only 35 percent of companies undergoing digital transformations have studied customer evolution as a result of technology’s impact on their shopping behaviors—down from 56 percent the year before, according to Solis’s research. Companies seem to be implementing technology without really considering why, he said.

However, if companies remember their customers, then technology will help keep the doors open. “It’s really about, in many cases, overlaying the digital over the physical—trying to digitize more of the physical experience to connect with the customer more effectively,” said Robert Hetu, research director of Gartner’s Retail Industry Services team.

The changing nature of retail means tech leaders have a unique opportunity to architect a new tech-fueled, customer-centered shopping experience, Solis said. “The role of the CIO or the technology architect today is actually one of innovation,” he added. “And it’s both innovation in terms of technology deployment but also innovation in what that role is in defining the future of retail, or anything for that matter.”

Here are 10 technologies that can keep brick and mortars alive and well, if they remember to keep customer a top priority:

1. DIGITAL MARKETING
With customers glued to internet-enabled devices, digital marketing becomes more important than ever for retailers connecting with shoppers. Whether it’s digital coupons, virtual storytelling, emails, or increased ads, companies are upping their digital marketing game. In fact, the top area for new spending in business is digital marketing, according to Gartner’s 2018 CIO Agenda: Retail Industry Insights.

2. ANALYTICS
Studying analytics is vital to understanding your customer. Information, like demographics and customer traffic, allows businesses to make smarter decisions based on customer details, as well as to personalize the customer experience. One example of this comes from Samsung, which created a pop-up shop that can share data with SMBs in real time, TechRepublic’s Olivia Krauth reported.

3. OMNICHANNEL RETAIL
Omnichannel commerce is a multichannel approach to shopping that aims to make the customer experience more seamless across in-person and online channels. Walmart is jumping on the omnichannel train with its order-by-text service, TechRepublic contributing writer Jonathan Greig reported. This delivery service allows customers to order goods via text message to increase convenience. Another example is Neiman Marcus’ Snap
Find Shop app, in which customers can take a picture of an item in the store and look for it or similar items online, TechRepublic’s Dan Patterson explained.

4. ARTIFICIAL INTELLIGENCE (AI)
AI is automating and customizing the retail experience, aiming to make shopping easier for the consumer. According to Deloitte, over a third of major brand leaders are using AI to improve business. One major AI movement is the development of cashier-less stores. Amazon Go, a fully-automated grocery store in Seattle, eliminates checkout lines and cashiers. Amazon is set to open two more stores in San Francisco and Chicago, Techrepublic’s Alison DeNisco Rayome reported.

5. VOICE
Voice activation AI is so popular it deserves a separate bullet. Whether it’s instructing your Google Home to buy you things or asking Siri to search for an item online, voice control has gained popularity in the retail space. Voice activation is now even helpful for retail employees: For example, with “Theatro,” employees can communicate throughout a store via voice-controlled wearables.

6. AUGMENTED REALITY (AR)
Augmented reality is completely changing shopping experiences. Consumers can now virtually try on clothes or test products via AR. For example, within Sephora’s mobile application, users can virtually sample makeup in real time. By placing filters over their live selfies, users can see what makeup products would look like on their faces, explained Solis in his Leading Trends in Retail Innovation report.

7. VIRTUAL REALITY (VR)
While AR is transforming the consumer retail experience, VR is changing the business side, according to Forbes. VR is helpful for visualizing and redesigning stores, and testing different layouts without having to physically rebuild the store. Retailer Rebecca Minkoff is using VR to plan store organization that is most convenient and logical for the consumer’s preferences, Solis said.

8. SENSOR DATA
Sensor data is revolutionizing brick and mortar retailers. The most popular vessel of sensor data is beacons. Major brands strategically place small beacon sensors around their stores, which connect to customer’s phones if bluetooth is enabled and the retail app is installed. With this connectivity, retailers can see how long users are in their stores and what they pick up, as well as offer personalized discounts based on that information. Sephora uses beacons to offer users a map of the store and offer promotions, said Solis in his report.
9. FACIAL RECOGNITION
Facial recognition technology can help retailers better understand customer preferences. According to Forbes, facial recognition can track where customers gravitate within stores, determine customer demographics, and even prevent theft. By tracking where most customers first go in shops, business leaders can develop a store layout that is most productive for its clientele.

10. CLOUD SERVICES
Inventory tracking, stock availability, shipping details, and orders are all moving to the cloud. With cloud computing, retailers can cut the cost of software development and process data at a much faster rate. For example, Hallmark Cards uses the cloud-based Retail as a Service solution that allows employees check real-time stock availability, inventory, shipping details, and store orders.
IS AMAZON GO’S CASHIER-LESS SHOPPING THE FUTURE OF RETAIL?

BY CONNER FORREST

In late 2016, e-commerce giant Amazon unveiled the ultimate grocery store for introverts—a cashier-less store in Seattle where customers simply walk in, take what they need, and walk out, with their account charged automatically. Using artificial intelligence (AI), the Amazon Go store fundamentally changed what it meant to run to the store for some milk and bread.

Amazon Go opened to the public in January 2018, promising no cashiers or checkout lines and a streamlined shopping experience. Amazon’s system in the store is called Just Walk Out, and it relies on technologies such as computer vision, sensor fusion, and deep learning to determine what has been picked up by a customer before making the appropriate charges to their Amazon account when they leave the store.

There’s no denying that Amazon Go is controversial for its substitution of human workers with technology—much like McDonald’s use of automated self-service kiosks to take orders. But the bigger question is whether or not this will last, and spread to other retailers.

So is Amazon Go’s cashier-less shopping the future of retail? The answer is complicated.

HOW DID WE GET HERE?

Digital has already altered nearly every aspect of the retail business, said Forrester Research principal analyst George Lawrie, empowering customers and changing their expectations. Amazon has worked hard to create its own differentiated customer experience online, Lawrie said, and now it’s extending that to brick-and-mortar retail.

Much like contactless payments (e.g. Apple Pay), the benefits to Amazon Go are simple: Speed and convenience. “The ideal shopping experience should be frictionless,” Lawrie said.

And that speed and convenience is important to the customer. In the past year, 86 percent of US consumers said they left a store due to long lines, resulting in a purchase at a different retailer or no purchase at all, according to 451 Research data. “This results in approximately $37.7 billion lost in potential sales,” said Jordan McKee, research director at 451 Research.

Additionally, 75 percent of shoppers who are early adopters of digital technologies (451 Research calls them “spendsetters”) said they would shop more in a store with a payment experience like Amazon’s Just Walk Out.
Simply put, yes, Amazon Go’s model is the future of much of retail, but not all of it. It will work for certain retail segments, but not all. It all depends on the context of the experience.

“In Amazon’s case, the brand is super efficient. That reflects what they do, so it makes a lot of sense in the Amazon Go case,” said Ray Wang, principal analyst and founder of Constellation Research. “But if you’ve got a luxury high-touch brand, you want to be able to provide both, because your customers might not be happy paying a premium to be completely automated.”

For example, Wang said, sometimes customers want to do a mobile check in at a hotel and not talk to a concierge. But, for a five-star hotel, they may want a personalized greeter and more high-touch benefits.

There’s also the issue of cultural differences in certain geographies, Lawrie said. In some areas in Northern Europe, for example, consumers tend to avoid credit cards and prefer to pay cash. “Cash on deliver is the most popular settlement for e-commerce purchases in Sweden and the Netherlands, for example,” Lawrie said.

Still, the customers are only one half of the equation.

THE BUSINESS VALUE

On the business side of things, Amazon Go-like automation could help reduce staffing and increase throughput, McKee said. “Additionally, some may realize higher average order values in increased customer loyalty,” McKee said.

The employees who do work for the stores could also see increased productivity as a result of being freed up by the automated checkout lines, Lawrie said. But there’s much more to it than simple automation.

“If you think this is just about automating and getting a kiosk up and running, you’ve missed the point,” Wang said.

What is the point? Data, and lots of it.

Using AI to simplify the retail process allows for more sophisticated data capture, and for a company to better understand its customers. For example, Wang said, a company can potentially determine where a customer was standing when they decided to make a purchase, how they may have been feeling, what type of weather was happening outside, and even the customer’s heart rate. This kind of data can be invaluable in understanding the context around a purchase.

As sensors mature and omnichannel retail expands, this data capture will extend into the home as well, Wang said, with self-replenishments and subscription models learning customer behaviors and mailing them products.
As all of this is driven by AI, though, it will depend on how much privacy customers are willing to trade for convenience, value, security, and status, Wang said.

For companies that wish to get started with cashier-less shopping, McKee said it's important to remember that the experience hasn’t reached maturity yet.

“Those eager to get started should conduct thorough proof-of-concepts and pilots before commercially deploying,” McKee said. “Retailers would also be wise to talk to their customers to understand if and when they will be ready for this type of shopping experience.”

Also, CIOs and CISOs should be ready for any new security threats that come with such innovations, Lawrie said.

“The most important element will be to guarantee that customer data is held securely and used only within the strict GDPR permissions that customers grant to brands and retailers,” Lawrie said. “New technologies like facial recognition also need powerful networking and computational capability at the edge of the enterprise network.”

Once the infrastructure and security tools are in place, and the technology has matured enough to provide a better user experience, it is only a matter of time before the Amazon Go model invades most retail markets. There will be plenty of holdouts, and luxury brands that still offer a personal touch, but for most retail experiences around the world, the future will be cashier-less.
HOW TECHNOLOGY IS SAVING PETSMART MILLIONS BY ELIMINATING SALES FRAUD

BY TEENA MADDOX

PetSmart is catching criminals through high-tech methods, and last year alone saved $12 million by pinpointing fraudulent orders before they were shipped. This year, the retailer is on track to match that figure and then some.

As retail gets more high-tech, it’s only natural that fraud prevention has more technology added to catch the criminals who try to place fraudulent orders. PetSmart, and many other retailers, are using technology from Kount to take fraud prevention to the next level and not just stop losses at the stores, but also help authorities prosecute criminals.

By tracking online fraudsters in 2017, PetSmart was able to cancel nearly $4 million in fraudulent orders. After labor loss, shipping costs, merchandise costs, chargebacks, fees and fines are added, that could translate to $3 to $3.50 for every dollar in fraudulent charges, for an annual total of about $12 million. For 2018, the figure is
already at $1.5 million for the fiscal year, which began on February 1, so there might be more fraudulent orders caught this year than last year, said Chad Evans, manager of e-commerce investigations of PetSmart.

The brand damage would have also been significant, because no matter how the criminal acquired the credit card information to make a fraudulent charge, the customer will associate it with PetSmart and that PetSmart didn’t protect their identity, Evans said.

HOW PETSMART MOVED FRAUD PREVENTION IN HOUSE
“PetSmart’s situation is probably a little bit unique from some of Kount’s other merchants, in the sense that previous to signing with Kount, everything e-commerce, operationally, was outsourced—so fulfillment, customer service, fraud prevention, all of it was third-party companies,” Evans explained. “So they decided basically the future of retail on the e-com side was to invest resources in it. Loss prevention came along with it. It wasn’t like we had a different prevention tool or we had an in-house tool and we were looking to make a change or upgrade. It was simply, ‘we are doing this ourselves and we need a tool that will do it.’ Our third-party vendor didn’t share historical data or anything, so we had no baseline to go off of. We didn’t know if this was targeted fraud. We didn’t know what our charge-backs looked like. It was essentially just, ‘Let’s hope for the best.’ We flipped a switch and started accepting orders.”

Evans has been with PetSmart since 2016, and he’s part of a team of four investigators that do fraud review and investigate crime against the retailer.

More crime was solved as an unexpected side effect from the fraud prevention at PetSmart. The fraudulent orders led to the identification of a multi-state fraud ring, an FBI investigation into human trafficking, and even impacted the case of a murdered NYPD officer.

Identifying the individuals involved in trafficking stolen goods, linked to a person who was also part of an international human trafficking ring: the criminals were buying dog shock collars in bulk from PetSmart, and they were being used on people, Evans said.

The case is still ongoing and is currently under investigation by the FBI, and Interpol has also become involved, Evans said.

As for the NYPD officer who was murdered, a person was using stolen credit cards to make purchases, and he was part of a gang with a member who was suspected of killing the officer. The police used the PetSmart charges to leverage the fraudster’s testimony against his friend who had committed the murder, and that led to a conviction.
HOW THE TECHNOLOGY WORKS

PetSmart uses Kount’s AI/ML-powered BOOST Technology, which aggregates millions of transactions and their outcomes, including approvals, charge-backs, refunds, and reviews. It weighs the risk of fraud against the value of each unique customer and identifies legitimate transactions versus fraudulent ones. BOOST evolves and improves its algorithm as it builds a unique picture of each merchant’s business.

BOOST’s supervised AI/ML also includes an ensemble classifier with 250 models that evaluate how legitimate a single transaction is compared to all transactions received. The review process is done in about 250 milliseconds, so it doesn’t add any noticeable time to the transaction.

“Fraud is an ever-evolving problem, so businesses must ensure their prevention technology evolves right alongside to maximize protection,” said Rich Stuppy, COO at Kount. “In order to keep ahead of sophisticated fraud techniques, such as account takeover and transaction fraud, while simultaneously helping online merchants maximize order acceptance, our solution is designed to be dynamic, providing both protection and opportunities to increase sales and revenue. These efforts continue our long history of using AI and machine learning. We will launch several other initiatives that will be built on the foundation of BOOST Technology.”

In addition to PetSmart, Kount works with merchants including Staples, Dunkin’ Donuts, Domino’s Pizza and Crate & Barrel. Kount is the fraud control solution for Braintree, which is a division of PayPal, and it handles fraud control for Chase, said Kount’s CEO Brad Wiskirchen.

As transactions move from brick-and-mortar stores to a digitized environment, such as online or through an app, there’s a greater need for a high-tech fraud solution, Wiskirchen said.

“I actually wish more of our clients were as aggressive as Chad is because most merchants are content with just stopping the fraud or stopping the fraudulent transactions that they say, but when you go the next step like Chad does and like PetSmart does, you end up with people behind bars and therefore protecting not just your transactions but everybody’s transactions that that particular bad guy would have impacted,” Wiskirchen said.
BUILDING THE FUTURE OF RETAIL WITH THE INTERNET OF TRANSPORT

BY MARK SAMUELS

Richard Gifford, CIO at logistics giant Wincanton, is taking his firm on a journey: his aim is to create a digital supply chain and develop what he calls the ‘Internet of Transport’.

Gifford, who became CIO at the firm in April 2017, is already making progress towards that destination, creating a new business strategy through digital transformation.

“Just take some pragmatic steps forward and don’t be afraid of failure. Fail fast, learn from the things that don’t go as expected, adjust and move on,” says Gifford.

CREATING A DIGITAL SUPPLY CHAIN

Gifford says his Internet of Transport initiative is focused on improving delivery practices for Wincanton’s major customers, which include many of the UK’s high-street retailers. The objective is to guarantee goods arrive at customers’ premises in the best possible condition.

Wincanton wants to use sensors to automatically alert its employees to any potential deterioration in products during transportation. As part of this project, Gifford says the firm’s technological efforts have produced developments in three key areas so far.

He points first to Winsight, an app that enables a paperless cab, so all the paper lorry drivers normally carry, such as routes and proof of delivery, is wrapped up into a single piece of software on a smart device. The app is available to the firm’s own drivers and sub-contractors.

The second key element is telematics. “That’s about us plugging into the vehicle’s systems and sending information back to the business in a consistent way,” says Gifford. Wincanton recently announced it will install MiX telematics in 1,800 of its vehicles as part of an ongoing safety programme, with information used to optimise driver performance.

“Just take some pragmatic steps forward and don’t be afraid of failure. Fail fast, learn from the things that don’t go as expected, adjust and move on.”

—Richard Gifford
The final element is the implementation of a new, cloud-based transport management system (TMS). This TMS will form the basis for the firm’s digital supply-chain strategy, with telematics helping to hone operational performance and Winsight helping to ensure business efficiency and effectiveness.

Gifford says these technical elements in combination create a new approach to transportation. “We want to bring all that information together in a Wincanton way so we can access all of that data consistently right across the fleet,” he says.

The firm is searching for other potential inputs to its Internet of Transport, including blockchain, big data and analytics. “These technologies are in our plan for later this year,” says Gifford. “Our approach provides a pragmatic way of moving bit by bit, but making sure we get the benefit all the time—not only for our organisation but for our customers as well.”

**WORKING WITH EXTERNAL PARTNERS**

While Wincanton’s IT team will continue to develop technical solutions to business challenges, Gifford recognises that innovation is a team sport that involves a broad ecosystem. “My team won’t be doing all of this on their own,” he says. “We need to go out and find credible partners who are going to help us create value for our customers.”

The firm launched an innovation programme called W² Labs last March. The programme is aimed at challenging start-ups from around the world to develop innovative solutions to industry challenges defined by Wincanton. The programme is run in partnership with corporate innovation specialist and early-stage investor L Marks.

“The aim is we create frequent events,” says Gifford. “We put out use cases and we have problems that we want to solve. We use L Marks to go to the market and find organisations that are disruptive and who can help us solve our business challenges.”

The first event ran last summer, when selected start-ups developed their proposition with Wincanton and received mentoring from the company’s senior executives. The startups also engaged in trials with some of Wincanton’s key customers, using real business data to refine and streamline their propositions. Gifford says the programme is key to his innovation efforts.

“I can use these startups to put out different business models that we can start to approach from a digital perspective,” says Gifford. “So, one area we might explore is using artificial intelligence in the digital supply chain.”
Such has been the success of the W² Labs programme that it has been developed further through the creation of the W² Partner Network. Selected partners are chosen to work with Wincanton. One of these partners is ZigZag, whose potential was identified through the W² Labs programme and whose technology helps online retailers manage international returns.

DEVELOPING THE IT TEAM OF THE FUTURE

While startups help Wincanton develop new ways to serve its customers, Gifford is eager to highlight how internal IT staff still play a key role. “What I need is an IT team that can support opportunities by working with the business,” he says, suggesting the long-term focus will be on creating a leaner, more commercial IT team.

“If that’s our super-tanker, then we also need the speedboats—in the form of L Marks and so on—to help us with the innovation at that level. I’m getting that structure in place and we’ll continue to review that approach. We’ll think about failing fast, so if that doesn’t work, we’ll learn from the strategy we adopt.”

Gifford recognises that capable IT staff and external partners are not the only keys to operational success—line-of-business managers in Wincanton are crucial, too. “My work is about educating the executive team and trying to bring them with us,” he says.

The IT team has run several workshops with senior people in the business. Gifford and his colleagues have also used IBM to do “a bit of design thinking”. In addition, the company is about to use PA Consulting to develop further ideas in this area.

“We want to try and take a difficult problem, work out what the issues are and then focus on how we’re going to approach that business challenge. We want to use that strategy to educate the rest of the business as we go,” he says.

“There is a different way of doing things in digital, so trying to create a business case in the traditional way doesn’t always work. Therefore, I think you must put some investment at risk. Try something but ensure you learn from it.”
HOW EB GAMES FUTURE-PROOFED ITS BUSINESS MODEL BY GOING OMNICHANNEL EARLY

BY ASHA MCLEAN

The Australian arm of video game and entertainment software retailer EB Games opened its first shop in New South Wales in 1997; 21 years later and the company still boasts 550 bricks and mortar stores across Australia and New Zealand, and another 100-plus shopfronts of its Zing Pop Culture entity.

A wholly owned subsidiary of Gamestop since 2006, the parent company handles ERP and point of sale elements of the business, while ecommerce, omnichannel, and loyalty are all handled locally.

Speaking with ZDNet, EB Games head of technology for Australia and New Zealand Kevin Clarke explained that his teams are responsible for using technology in a way that benefits the local customers, allowing for a more specific focus on what they actually want.

After joining EB Games in 2010, Clarke was immediately charged with laying out the company’s digital approach and although the EB brand was well-known, the online element was unchartered territory.

“When we went onto online it was really starting from zero in terms of sales,” Clarke explained.

EB Games had some online traffic, so it started with a fairly small footprint, operating out of a co-located datacentre with a few servers. Clarke said that grew quite quickly and in attempt to future-proof, EB purchased some hardware working on a three-year depreciation cycle.

“That was the infrastructure and we had the development team, and that paradigm worked quite well as we managed to keep pace with customer experience—it was okay, the business was happy with what was going on, ecommerce grew, we rolled out our customer loyalty as well ... at that point, everything was going along well, we were rolling out bits and pieces,” he said.

But after moving its pre-order function online in 2011, as the company’s first true foray into omnichannel, its online presence grew quite fast in the years following and its physical hardware became unable to scale. Clarke and his team needed the infrastructure to keep pace.

In 2016, EB Games turned to Amazon Web Services (AWS) and shifted its digital channel to the cloud.

“At that point we’d clearly exceeded the capacity of what we had in our co-lo and we were having
to work around limitations in infrastructure with our software, so we compromised, in hindsight, on the design of some of our systems to work with what we already had, rather than buy more hardware,” Clarke explained.

“Once we moved into AWS we found we were able to move faster with our projects, we reduced our costs, and we improved our user experience for definitely peak performance but also day-to-day operations.

“When we moved to the cloud, we started thinking about the infrastructure security and development at the inception of projects, and that led to a better quality solution and being able to move faster and not hit roadblocks as we would try go through a release cycle.”

Clarke touted the cultural change such a transformation brought with it, pointing to how the technology team is now focusing on trying to deliver as quickly as possible, and to the highest quality.

“We’re trying to get to a continuous delivery model where we’re doing continuous deployment—last week we deployed into production 10 times across all of our systems—we’ve gone from deploying maybe every month, a few months, to multiple times a week,” he said.

“Moving into the cloud was the catalyst to start that transformation—it made us aware of what was possible, that we probably were blind to previously; as we’ve been able to move faster as a technology group, we’ve been able to bring the business along as well and people when you are releasing so quickly, it changes the dynamic of what you can do with technology ... it forces an increased engagement from everyone, that’s been a real positive.”
As a result of heading to the cloud, EB Games has been able to scale its systems a lot more, with Clarke noting it gives the business confidence to use digital as a channel.

During the recent E3—Electronic Entertainment Expo—EB’s website received a heavy increase in traffic, with people jumping online to order once titles were announced during gaming’s biggest show.

“We were able to fuse technology and bricks and mortar to provide this omnichannel experience,” he said.

To Clarke, the challenge is still solving omnichannel; customers are still interested in the bricks and mortar element and the nostalgia attached to walking into a store, but many are making purchases online and comparing competitors’ prices, as one example.

“I think it really has to be complementary—solving omnichannel is really the next key problem,” he added.

“The business has to have confidence that the technology is going to give customers the experience that we offer them in stores.

“People are going to want to shop how they want to shop and to predict that, it’s outside my qualification, but as a technologist in a retail environment I want to know that I’m not the limitation in terms of putting up a big selling item online and ordering it in any way they want ... having technology to enable that is really important.”

According to Clarke, everything evolves and the business needs to focus on meeting customer needs at every stage of the transformation.

“I don’t want technology to be a limitation in how we move forward as a business,” he said. “It’s easy to say we want to be agile, we want to be lean, but when the rubber meets the road, how is the business going to accept moving that quickly?

“Everyone wants to move faster ... but once you’re confronted with moving that fast, how are you going to react? It’s easy to want something you don’t have, but once you get it it’s a challenge.”
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