CB INSIGHTS

EMERGING TRENDS

Retail Trends

2019

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Retail Trends in 2019

NExTT Trends

INDUSTRY ADOPTION

TRANSITORY

Trends seeing adoption but where there is uncertainty about market opportunity.

As Transitory trends become more broadly understood, they may reveal additional opportunities and markets.

NECESSARY

Trends which are seeing wide-spread industry and customer implementation / adoption and where market and applications are understood.

For these trends, incumbents should have a clear, articulated strategy and initiatives.

EXPERIMENTAL

Conceptual or early-stage trends with few functional products and which have not seen widespread adoption.

Experimental trends are already spurring early media interest and proof-of-concepts.

THREATENING

Large addressable market forecasts and notable investment activity.

The trend has been embraced by early adopters and may be on the precipice of gaining widespread industry or customer adoption.

Low

Low   **MARKET STRENGTH**   High

The NExTT framework's 2 dimensions:

INDUSTRY ADOPTION (y-axis)
Signals include:

- momentum of startups in the space
- media attention
- customer adoption (partnerships, customer licensing deals)

MARKET STRENGTH (x-axis)
Signals include:

- market sizing forecasts
- quality and number of investors & capital
- investments in R&D
- earnings transcript commentary
- competitive intensity
- incumbent deal making

Necessary

PRIVATE LABELS

American grocery retailers are expanding their private label assortments in the face of razor thin margins.

Walk down an aisle at Aldi and you will quickly notice how few well-known brand-name products are on store shelves. Why? 90% of Aldi's products are private label — a strategy that has put Aldi on track to become the third largest grocery retailer in the US by 2022, after Walmart and Kroger.
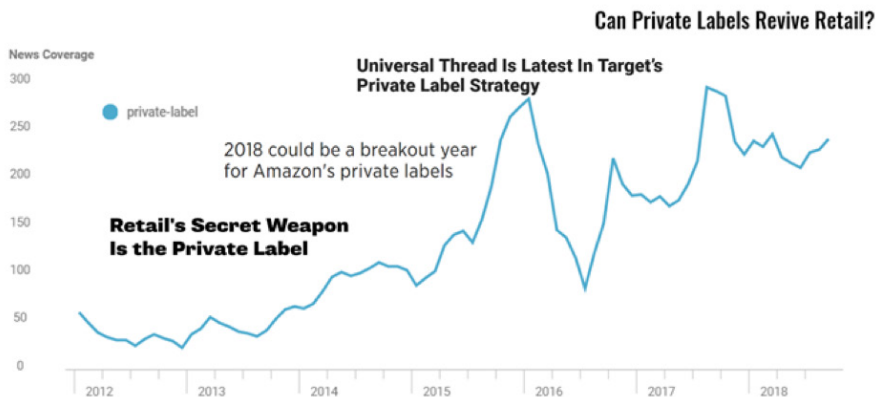
Private labels, also known as store brands, help retailers on a number of fronts. By cutting out third-party brands, they allow retailers better control over production costs — a key advantage in a business with razor thin margins. Lower product costs often mean lower prices for consumers as well.

Given their advantages, media discussion of private labels has continued to rise over the last 5 years.

Media discussion of private labels continues to rise
2012 – 2018TD (Oct'18)

Can Private Labels Revive Retail?

Universal Thread Is Latest In Target's Private Label Strategy

2018 could be a breakout year for Amazon's private labels

Retail's Secret Weapon Is the Private Label

Sources: Bloomberg, CNBC, PYMNTS.com, TheStreet

Beyond margins and pricing, private labels give retailers the power to cater to specific consumers trends across food, apparel, home goods, and more. This in turn can build greater consumer loyalty for in-house brands.

Given the advantages that private labels offer, retailers are going after them in droves. Brick-and-mortar retailers like Albertsons, Walmart, and Target have all expanded their private label offerings in the last year; Albertsons is on track to release 1,400 private label products by the end of 2018.

Facing increased competition, retailers turn to private labels

Albertsons

Albertsons is on track to launch 1,400 new private label products in 2018, more than double its 2017 rate. Its O Organics brand hit $1B in Jan'18.

Kroger

Kroger's Simple Truth brand hit $2B in annual sales this year, and Kroger just partnered with Alibaba to sell its private labels in China.

TARGET

Target plans to expand its private label offerings and in Jun'2018 rolled out new home goods label Made By Design.

Walmart

Walmart aims to boost loyalty through private label growth; in Jun'2018 it launched wine private label Winemakers Selection.

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Sources: Albertsons, Kroger, Target, Walmart

Digitally native retailers are also expanding their private label offerings. Amazon has approximately 7K private label brands across apparel, electronics, and grocery. The online giant's private label lines are expected to bring in $7.5B in sales in 2018.

Giving the rising production of private labels, we are seeing traditional third-party consumer goods brands getting squeezed off shelves as retailers promote their own brands.

Going forward, these third-party brands will have to find new distribution channels to reach consumers outside of traditional retail stores. These may include leveraging new on-demand or subscription delivery strategies, smart home technologies, next-generation vending machines, or even in-office marketplaces, among other solutions.

EXPERIENTIAL & DESTINATION RETAIL

With in-store experiences like learning courses, napping pods, and even coworking, stores are quickly becoming destinations for far more than shopping.

Physical stores are becoming destinations themselves, offering new types of experiences and activities.

Some retailers, like Apple and Nordstrom, have bet on stores as community destinations. In May 2017, Apple, whose stores have become widely known as gathering spots, unveiled Today At Apple, a program where people can take interactive courses in-store, including music labs, kids hours, and coding classes.

Nordstrom is also trying to create community. In late 2017, the retailer began opening small format Nordstrom Local locations in the Los Angeles area. Nordstrom Locals have no inventory, but instead offer tailoring and alteration services, online order pickup, and personal stylist consultations. Beyond these services, the stores even offer manicures to clients, aiming to be a destination where customers want to spend time and hang out.

Beyond community, other retailers are positioning their stores as destinations for novel experiences. Mattress startup Casper opened its Dreamery store in New York City in July 2018. At the store, customers can pay $25 to take a 45 minute nap in a private area on a Casper mattress. Casper is betting that a store focused on experiences (instead of transactions) will ultimately drive sales by increasing brand awareness.

Source: Casper

Retailers are also turning to coworking in hopes of attracting more foot traffic.

Mall owner Macerich, for instance, partnered with coworking provider Industrious in August 2018 to add flexible office space in its malls. The first space will occupy nearly 33K square feet of Scottsdale Fashion Square in Arizona. It's scheduled to open in January 2019.

Mall owners partner to bring coworking to shopping centers

MACERICH® + **INDUSTRIOUS** — Macerich partnered with startup to **add flexible coworking space to its malls** across the country.

SIMON® MALLS + **LIFE TIME WORK** — Simon partnered with fitness / coworking startup to create a destination where **customers can work, exercise, and shop**.

Brookfield + **COWORK AT THE MALL** — Brookfield partnered to outfit **a 15K sq. ft. coworking space** at Water Tower Place mall in Chicago.

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Going forward, Mall owners that may have lost major department store tenants, amidst the retail apocalypse, can leverage vacant real estate to offer services beyond shopping and drive foot traffic.

SMALL-FORMAT STORES

Major retailers are continuing to shy away from traditional large stores, opting instead for downsized city-center stores that cater to increasingly urbanized consumers.

IKEA recently announced its plans to open a "studio" store in Manhattan in Spring 2019. Unlike its traditional large stores, the Manhattan location will act as a "planning studio" where customers can select items they would like delivered to their homes.

The announcement comes as part of IKEA's plan to open 30 small-format stores over the next three years. And IKEA is not alone: other major retailers including Target, Kohl's, Nordstrom, and Sephora have all embraced smaller store formats to reach urban consumers.

Source: 6sqft

Opening urban stores makes sense. Just over two-thirds of the entire global population will be living in cities or urban areas by 2050, according to the United Nations. While a smaller store footprint is no doubt easier to come by in a dense urban space, it also lends to other advantages including decreased real estate-related costs, tightened inventory management, and reduced staffing requirements.

Even Macy's, which has struggled to maintain its vast real estate, has decided to shrink. The retailer is reducing the footprint of its underperforming stores by as much as a fifth in size by walling off sections of the store. The company's goal is to turn its stores into "vibrant" destinations that are focused on "fulfillment and convenience," according to Macy's CEO Jeff Gennette in an interview.
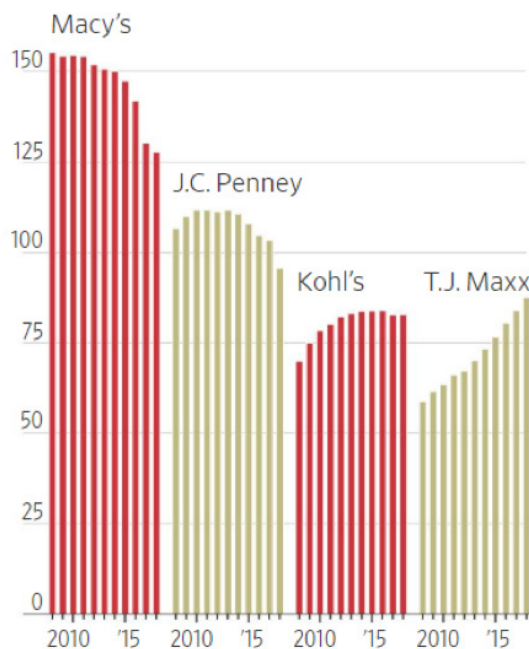
In addition, we can see below how Macy's total square footage has begun to shrink since 2010.

Getting Smaller

Macy's has been shrinking square footage
faster than rivals.

Total retail space

175 million sq. ft.

Sources: Factset and company reports

Source: WSJ

Going forward, we may see smaller format stores leverage their urban locations to aid in online order fulfillment and delivery. Small format stores may even be able to partner with micro-fulfillment startups and autonomous mobility companies to reduce the cost and increase the speed of last-mile delivery to consumers.
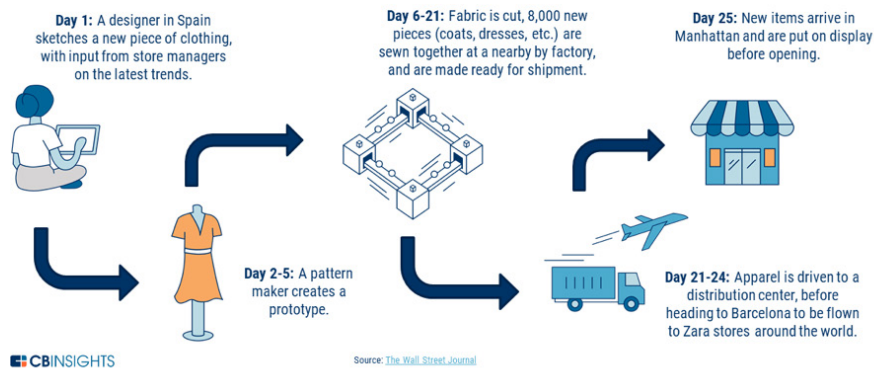
INVENTORY MANAGEMENT

Retailers are recognizing the importance of strategic, technology-driven inventory management — leading to greater visibility and control over their supply chains.

Retailer Zara has helped put the "fast" in "fast fashion." The retailer can design, manufacture, ship, and sell new apparel in under 25 days. This allows Zara to cater to fast-changing consumer tastes, and eliminates its dependence on shipping apparel from Asia (a process which can take many months).

This is in contrast to competitor H&M, which made headlines in early 2018 for accumulating $4.3B worth of unsold inventory.

Fast fashion's speedy supply chain quickly caters to new trends

Fast fashion retailer Zara, owned by Spain-based Inditex, can get a piece of apparel from a design workshop in Spain to a display rack in a Manhattan store in **25 days**.

Day 1: A designer in Spain sketches a new piece of clothing, with input from store managers on the latest trends.

Day 6-21: Fabric is cut, 8,000 new pieces (coats, dresses, etc.) are sewn together at a nearby by factory, and are made ready for shipment.

Day 25: New items arrive in Manhattan and are put on display before opening.

Day 2-5: A pattern maker creates a prototype.

Day 21-24: Apparel is driven to a distribution center, before heading to Barcelona to be flown to Zara stores around the world.

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Source: The Wall Street Journal

Other retailers are employing new inventory management strategies, some involving small-format stores. For example, Target's new "Flow Center" initiative is testing faster inventory replenishment cycles to its small-format stores across New York City. The new system reduces overall inventory held in stores by only replenishing supplies as needed. This allows the small-format stores to dedicate newfound floor space toward online order fulfillment and packaging.

"With less inventory in the back of the store, we can dedicate more room to digital fulfillment" — John Mulligan, COO, Target

An ecosystem of startups are leveraging software, data, AI, IoT, and more to manage inventory for retailers. These include Relex and Vekia, which provide inventory and supply chain management software platforms, as well Happy Returns and Optoro, which help optimize returns logistics.

Inventory management innovation also highlights the importance of general supply chain visibility for retailers heading into 2019.

Unpredictable tariffs between global powers like the US and China have made headlines this year. Retailers are worried about how these tariffs will affect inventory and production costs — and ultimately prices — given their dependence on Chinese raw materials and supplies. Increased supply chain visibility via new technologies could help curb against this threat.

POP-UP STORES

Pop-up stores have become a canvas for retailers to experiment with new types of products, technologies, and services, while also acting as a tool for branding.

Pop-up stores are proliferating across the retail sector, and fast.

These short-term retail spaces serve as a natural setting for retail experimentation. They provide a place for retailers to test out new products, branding campaigns, in-store technologies, and store layouts — all without the financial risk of a longer-term real estate holding.

Traditionally, the pop-up store phenomenon has been the domain of digitally native brands looking to experiment in physical retail. Many of these startups have embraced showroom and experiential retail models to draw in customers. Bonobos, for example, operates a mobile trailer pop-up store where customers can try on different outfits with the help of a stylist, to be ordered online and delivered to their homes.

Beyond digitally native direct-to-consumer startups, we are now seeing pop-ups become a staple for all types of retailers, from Alibaba and Amazon to Calvin Klein and Macy's, among others.

For example, Chinese internet and commerce giant Alibaba opened 60 pop-up stores for Singles Day 2017 through its online marketplace Tmall. The pop-up stores integrated augmented reality technology to power "magic mirrors," which allowed customers to virtually try on clothes.

In the US, major retailers and internet giants have been partnering to launch physical pop-up spaces. Amazon and Calvin Klein teamed up in October 2018 to launch a digitally-driven pop-up experience in New York City. Facebook began selling items featured on Instagram at Macy's department stores in the retailer's pop-up corner dubbed "The Market" in November 2018.
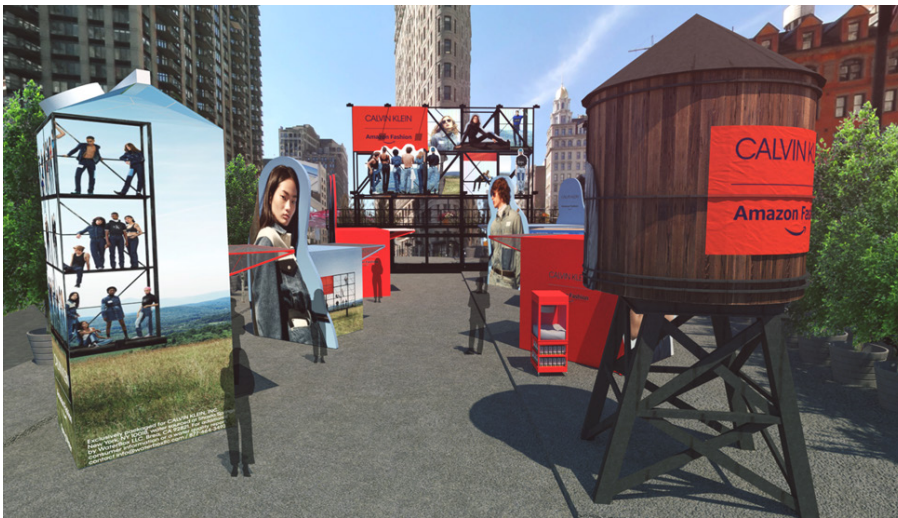
Source: WWD

An entire ecosystem of startups supporting pop-up-related real estate is emerging. Startups like Appear Here offer retailers an easy route to find temporary leasing and retail space for pop-ups.
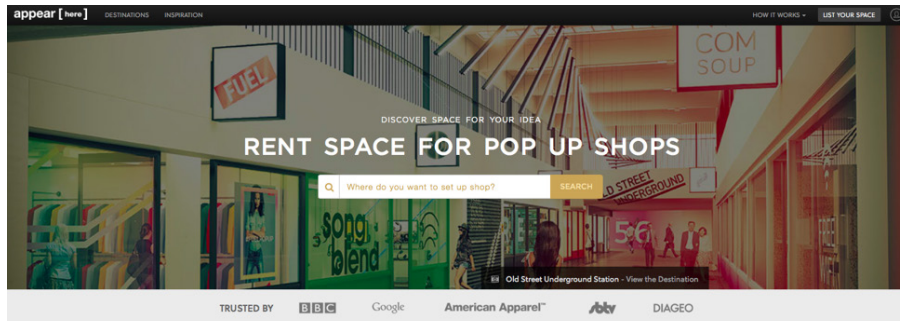
Source: Appear Here

There is no doubt that pop-up stores have become a necessary tool for all sorts of retailers to experiment in physical retail. Going forward, the wide proliferation of pop-up stores will shape the ways in which commercial real estate owners lease real estate all together.

PERSONALIZED MARKETING

*Retailers are leveraging consumer data to personalize their marketing.*

Given the vast amounts of data that retailers can capture on their customers via mobile apps, e-commerce, and in-store technology, many have an opportunity to target their marketing efforts to customers in a highly personalized manner.

Best Buy, for example, has implemented location-based marketing in stores.

The retailer's app goes into "local store mode" when a customer enters a store. Users are then sent push notifications with advertisements specific to the inventory of that particular store.

Additionally, the app alerts store associates when customers are on their way to pick up online orders.

Online sneaker marketplace Goat offers a different kind of personalized marketing. The company allows users to create a wishlist of sneakers, and to customize a price point at which they are willing to buy. If a pair of sneakers on a customer's wishlist goes on sale, or if its price drops within 5% of the personalized price range, Goat will send a push notification.
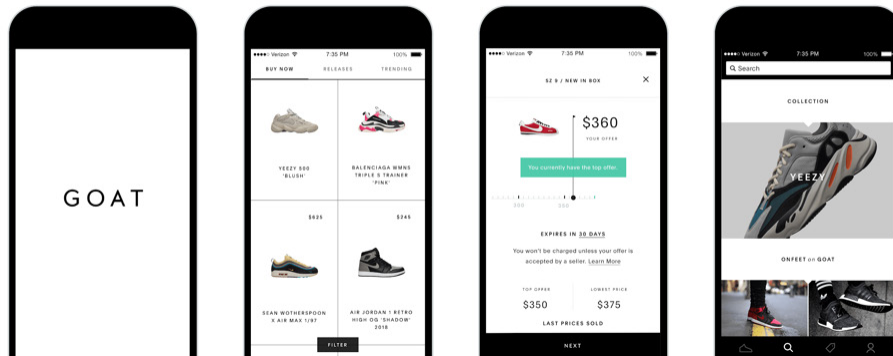
Source: Lean Plum

"We wanted to provide a very personalized experience but give power to the user." — Sen Sugano, VP of Marketing, Goat

In yet another example, Sephora has leveraged customer data obtained from in-store technology like ColorIQ, which scans the skin of customers via a handheld device to precisely match skin tones to available products online and in-store.

When customers scan their skin in-store, Sephora saves this data to personalize digital marketing going forward.

In the future, we will continue to see retailers leverage data they obtain on customers to personalize marketing efforts.

Experimental

MICRO-FULFILLMENT

New micro-fulfillment startups are leveraging robotics to operate warehouses in confined urban spaces, speed e-commerce fulfillment, and reduce last-mile delivery costs.

This fall, grocery retailer Albertsons partnered with warehousing robotics startup Takeoff Technologies to pilot a small urban fulfillment center. This is the first partnership of its kind with a nationwide grocer.

Micro-fulfillment focuses on leveraging software, AI, and robotics to operate small urban warehouses and fulfill online orders.

By placing warehouses in urban areas near consumers, retailers can cut the costs of last-mile delivery — a battleground in the grocery space as retailers increasingly move toward online delivery.

Takeoff Technologies is not alone.

In fall 2018, Israel-based CommonSense Robotics partnered with Israel's largest drugstore chain Super-Pharm to pilot its micro-fulfillment technology. The startup will also reportedly work with 5 US grocery retailers to open micro-fulfillment installations in the US in 2019 and 2020. Like Takeoff, CommonSense develops robotic technology that can operate in small urban warehouses.

Tiny urban warehouses on the rise

Micro-fulfillment startups have begun to partner with retailers to improve last-mile delivery efficiency.
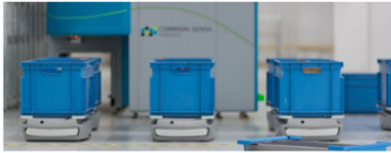
Commonsense Robotics uses compact robots as a way to fulfill online grocery orders in micro-fulfillment centers, closer to urban areas.

Total Funding: $26M
Select Investor: Innovation Endeavors

Takeoff Technologies creates tech-infused micro-fulfillment centers that can partner with retailers for online grocery pick-up in under one hour. Takeoff partnered with Sedano's and Albertsons in Fall 2018.

Total Funding: $51M
Select Investor: L Catterton

Along with a rise in micro-fulfillment, we are seeing an increase in warehouse automation among retailers globally. For example, China-based JD.com recently unveiled its 100,000 square foot smart warehouse in June 2018 that employs only 4 people. The warehouse uses a combination of AI, robotics, and image scanners to sort up to 16K packages per hour.

Going forward, we may see even more retailers leverage micro-fulfillment and warehouse automation as ways to streamline their e-commerce fulfillment supply chains.

Given the continued rise of small-format stores among retailers like Kohl's and Target, these urban micro-fulfillment centers could be co-housed within small urban stores in the future.

BLOCKCHAIN FOR RETAIL SUPPLY CHAIN

Blockchain can provide greater supply chain transparency for retailers. Its success going forward will depend on whether global supply chain players can standardize blockchain use on a unified platform.

Walmart recently announced it's forcing all of its suppliers of leafy greens to the blockchain by September 2019.

Since 2017, Walmart has worked with IBM's Food Trust blockchain platform to improve food tracking and safety. The Food Trust, a partnership between IBM and major food companies, helps reduce the time it takes to track the source of food from days, weeks, or months to only 2.2 seconds via blockchain & distributed ledger technology.

Walmart is one of a growing number of retailers exploring blockchain technology through their own pilots.

Blockchain retail and consumer initiatives grow in number

Select blockchain initiatives (2017 – 2018)

Date	Summary	Select Retail/Consumer Players	Select Other Players
Apr'18	Verified jewelry sourcing	HELZBERG DIAMONDS	IBM
Apr'18	Food and safety tracking	Alibaba.com Fonterra BLACKMORES	New Zealand Post POST
Mar'18	Tracking beer shipments	ABInBev	accenture KUEHNE+NAGEL
Aug'17	Food safety and tracking	Walmart Nestlé Unilever	IBM

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Retailers are looking to leverage blockchain to coordinate shipments of their goods across the globe. By connecting all supply chain players on a transparent, secure digital ledger on which all players can communicate, blockchain can help increase shipment visibility, decrease delays, and reduce fraud.

But these benefits depend on the assumption that all retail supply chain players operate on the same distributed ledger platform (or at least on interoperable platforms). As a result, fragmentation has been an obstacle to widespread adoption of blockchain technology in global trade.

But new developments like TradeLens, a joint venture between IBM and Maersk to integrate global supply chain players on a unified platform, have gained traction. TradeLens has been able to sign dozens of major supply chain operators onto its platform — a telling sign that standardization, while still difficult to achieve globally, may not be as far-fetched as previously thought.

AUTONOMOUS LAST-MILE DELIVERY

Autonomous vehicles could help enable affordable last-mile food and grocery delivery.

Last-mile delivery costs businesses more than $86B globally in 2017, according to McKinsey, and can make up 28% of a good's total transportation cost. The high costs associated with last-mile logistics have an outsized impact on thin-margin businesses like grocery retail. As a result, the opportunity for disruption is substantial.

One strategy that retailers such as Kroger and Domino's are exploring is to cut out the cost of drivers by using autonomous vehicles. The approach has gained increased attention in recent months.

The brick-and-mortar food space partners with AV startups and automakers for autonomous ground delivery

Select partnerships (2017 – 2018)

Date	Summary	Mobility Player	Food / Grocery Retail Player(s)
Jun'18	Grocery retailer Kroger partnered with autonomous delivery startup Nuro to expand its same-day grocery delivery capabilities.	nuro	Kroger
Feb'18	Ford has partnered with both delivery startup Postmates and restaurant Domino's in Miami to test customer interaction with autonomous vehicle delivery.	Ford	Domino's Pizza
Jan'18	Autonomous last mile delivery startup Udelv completed its first 2.5 mile public-road grocery delivery test from grocery retailer Draeger's Market to two customers in San Mateo, California.	udelv	Draeger's MARKET
Jan'18	Toyota partnered with Amazon and Pizza Hut as part of its larger 'mobility' alliance to help develop autonomous methods of delivering packages, food, and people to their final destinations.	TOYOTA	Pizza Hut
Jun'17	Robotics and mobility startup Starship Technologies partnered with UK-based grocery retailer Tesco to test grocery delivery via the startup's small autonomous delivery robots.	STARSHIP	TESCO
Mar'17	Domino's partnered with Starship Technologies to deploy Starship robots for pizza delivery in cities in both Germany and the Netherlands.	STARSHIP	Domino's Pizza

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In June 2018, for example, robotics startup Nuro partnered with Kroger, one of the largest brick-and-mortar grocers in the US. Nuro has developed its own fully electric autonomous delivery vehicle, called the R1, designed for transporting goods rather than people.

In its partnership with Kroger, which launched in Scottsdale, Arizona in August, Nuro is using its fleet of self-driving equipped Toyota Prius and Nissan Leaf vehicles to deliver groceries to customers.

Source: Mashable

In late 2017, OEM Ford and Domino's conducted similar tests in Ann Arbor, Michigan. The OEM has partnered with over 70 businesses, and is primarily piloting autonomous delivery of pizza, groceries, and other goods in Miami.

Currently, grocery retailers are constrained by the cost of paying delivery drivers, which often causes the price tag of grocery delivery to become prohibitively expensive for mass adoption among consumers. Autonomous ground delivery vehicles can fundamentally move the needle forward by shedding the cost of human delivery drivers.

While still in early stages, if grocery retailers' autonomous ground delivery trials succeed, we may see direct investments or acquisitions of AV startups by grocery retailers going forward.

ADVANCED MANUFACTURING

A future where retailers can customize apparel on-demand may be closer than you think.

Major brands and retailers are investing significant capital in new forms of manufacturing.

For example, Adidas' new Speedfactories help bring the entire shoe manufacturing process under one roof. Adidas typically manufactures its shoes in Asia in a process that takes several months across multiple factories — but its Speedfactories can produce shoes in days, primarily under one roof.


Source: Engadget

The facilities leverage digitally automated machinery like 3D printing, robotic arms, and computerized knitting to cut down on production time and the need for manual labor.

"[Adidas] can actually tune the shoe to the customization that the consumer wants to have. That's the goal: full customization, but without compromise on speed." — Gil Steyaert, an Adidas executive board member.

Adidas is also using its Speedfactories as a testing ground for individualized customization. The company is working with 3D manufacturing startup Carbon (which already partners with Adidas to create carbon-printed insoles) to tailor apparel to individual consumers on-demand and at scale.
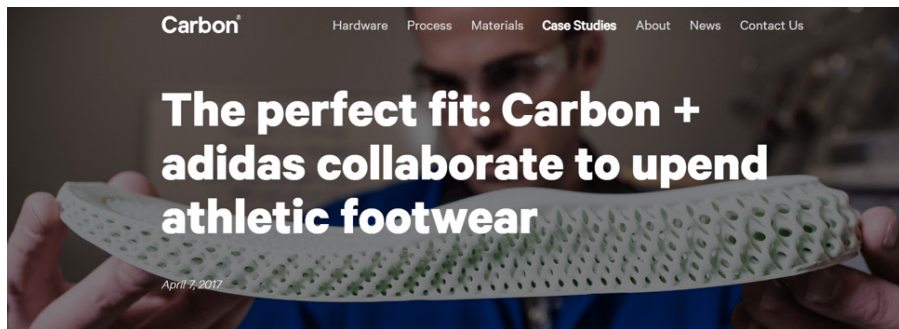
Source: Carbon

Adidas isn't alone. Nike and Brooks Running have also explored 3D printing as a method for customized shoe manufacturing.

Even Amazon has been exploring new forms of advanced manufacturing via new patents. One of the e-commerce giant's patents titled, "On demand apparel panel cutting," illustrates a system for robo-cutting fabrics into any shape, form, or pattern specified in customer orders. This could bolster consumers' interest in buying higher-margin items (like custom suits or dresses) from Amazon's private-label brands.

Going forward, advanced manufacturing technologies like 3D-knitting, 3D-printing, robotics, and more may play a crucial hand in transforming the apparel supply chain into a locally manufactured and personalized ecosystem.

Threatening

IN-STORE TECHNOLOGY & DATA COLLECTION

From beauty scanners to facial recognition platforms, retailers are increasingly able to capture valuable consumer data in-store.

In-store retail technology, from beauty skin tone scanners to interactive digital displays, can be fun and flashy — but it can also be a valuable tool for gathering consumer data.

Beauty retailer Sephora's ColorIQ technology scans customers' skin via a handheld device to precisely match skin tones to available products online and in-store. Each time customers scans their skin in-store, Sephora saves this data to personalize in-app and online product assortments.

Source: Sephora

New interactive in-store displays are used to both entice customers and collect data. For example, startup Perch specifically offers displays that track in-store customer interaction with products via IoT and computer vision technology. Perch works with Johnson & Johnson and Coty, among others.

While still heavily regulated in the US due to privacy concerns, new facial recognition technology in China may be taking personal data collection to the next level. For example, Face++ and Sensetime, which have collectively raised over $2B, leverage artificial intelligence to equip companies with facial recognition technology.

Alibaba partnered with Face++ to unveil facial recognition-based payments, and is currently piloting the pay-by-face technology in select KFC locations and at Marriott hotels.

'Smile to pay' tracks shoppers' faces

Alibaba partnered with Chinese startup Face++ to unveil facial recognition-based payments.

Alibaba is currently piloting the pay-by-face technology in select KFC locations, and could expand it to retail.
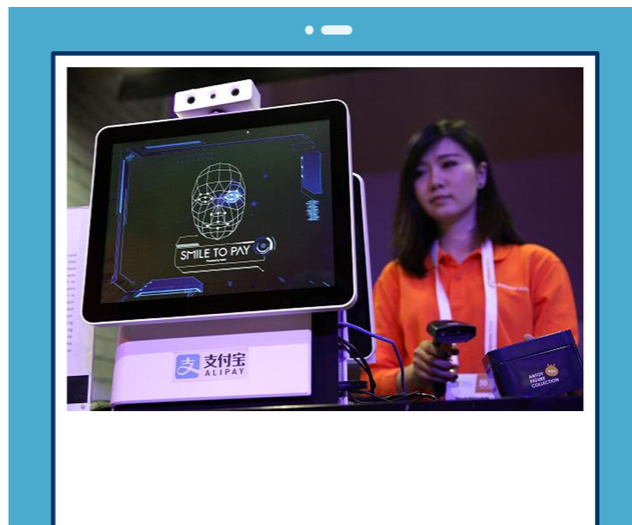
If this type of technology does ever gain traction in the US, it could set a precedent for the types of data (down to consumers' facial expressions) that retailers and other companies may be able to capture. This could help retailers bring personalization to an entirely new level — tailoring each consumer interaction based on data (for instance, an individual's mood interpreted from a facial expression) to drive consumer interest and loyalty.

STORES AS FULFILLMENT CENTERS

Retailers are leveraging existing real estate to use physical stores as fulfillment centers that can support growing e-commerce operations.

From Walmart and Best Buy to Zara and Brooks Brothers, many prominent retailers are doubling their existing stores as online fulfillment centers.

This allows retailers to leverage existing physical real estate to support growing e-commerce businesses, unifying physical and digital operations. Moreover, physical stores are often located closer to customers than traditional fulfillment centers, making last-mile delivery less expensive.

Retailers speed up in-store online order fulfillment via tech

ZARA

Benefits of RFID
Improved in-store workflow

Higher customer service standards

Speedy and accurate store stock replenishment

More efficient inventory counts

Precise and agile garment intake

Enhanced security control

Zara has integrated a stock management **system that uses RFID garment tracking** technology at stores across 25 markets to support same-day delivery for online purchases.

Brooks Brothers

Brooks Brothers is tapping its 260 North American retail locations to speed up online order fulfillment. The retailer is leveraging **software via partner Manhattan Associates** to optimize in-store fulfillment.

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Brooks Brothers, for example, is tapping its 260 North American retail locations to speed up online order fulfillment. The retailer is leveraging software via partner Manhattan Associates to optimize in-store fulfillment. The software will help integrate inventory across different store locations on one digital interface to better coordinate the fulfillment of online orders based on existing in-store availability.

Chinese internet giant Alibaba has taken the concept of stores as fulfillment centers to an entirely new level. Ahead of Singles' Day 2017, Alibaba recruited 600,000 Chinese mom-and-pop stores (10% of all such stores in China) to install its store management app, Ling Shou Tong, which helps store owners stock items that are popular online.

In return for providing Ling Shou Tong for free, Alibaba can track in-store consumer spending habits in the stores, as well as use stores as delivery and fulfillment centers for goods ordered online.

Going forward, we will continue to see retailers leverage existing physical stores as online fulfillment centers as the lines between physical and digital retail continue to blur.

AUTOMATED CHECKOUT

Automated checkout technology is gaining steam across China and the US. While large internet companies like Amazon and Alibaba have the upper hand on deploying this technology to their physical retail locations, emerging startups could help democratize access for all retailers.

Amazon has opened several Amazon Go locations this year — in cities like Seattle, San Francisco, and Chicago — after coming out of its testing phase. The e-commerce giant recently announced its plan to open as many as 3,000 more locations across the US by 2021.
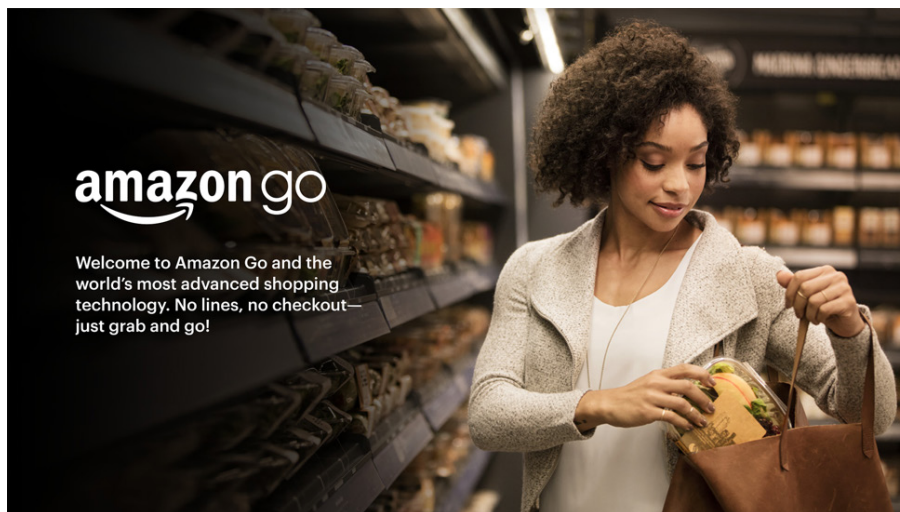
Source: Amazon

The cashier-less stores use cameras, computer vision technology, and smart shelf sensors to track shoppers as they pick up items and walk out without having to go through a checkout line.

While Amazon Go has grabbed headlines, dozens of other companies are also working on ways to take cashiers out of retail. These companies use a range of technologies, but share two common goals: to make brick-and-mortar retail more convenient and to gather shopper data.

Chinese retail giant Alibaba, for example, has been growing its chain of cashless Hema grocery stores. It currently operates 65 locations in Shanghai, Beijing, and other cities in China.

Using the Hema app (which is integrated with Alipay), shoppers can scan any item in the store to see its origins, order products for 30-minute delivery, or check out and pay for products.

China's second largest e-commerce platform JD.com opened its first human-free convenience store in Shandong, China in January 2018. Today, JD.com operates 20+ unmanned stores in China, and in August 2018, it opened one store in Jakarta, Indonesia — its largest at ~2,900 square feet. Its Jakarta location sells apparel and accessories along with packaged goods.

Source: JD

While internet giants may have the upper hand in implementing this technology, back in the US, a new crop of startups aims to democratize cashier-less technology.

Companies like AiFi, Zippin, and Standard Cognition offer automated checkout technology (hardware and software) to existing stores. Standard Cognition, for example, announced a partnership with Paltac Corporation, Japan's largest supplier of fast-moving consumer goods, to outfit 3,000 Japanese stores ahead of the Tokyo Olympics in 2020.

While the cashier-less movement continues to attract a lot of attention, models have to prove these stores can operate consistently at scale in order for adoption to become widespread.

LOCALIZATION

From snack aisles for co-eds to city-specific running shoes, retailers are fine-tuning their product offerings to meet the needs of their local communities.

This fall, Amazon opened its new Amazon 4-star store in Manhattan. The store sells Amazon items that are highly rated (4 stars or more) on its website, and features "trending around NYC" items frequently purchased by customers in New York.

While the store is a first for Amazon, it's part of a bigger trend in retail — product and inventory localization.

Retailers are personalizing the consumer experience by tailoring their inventory to fit store location demographics. Examples range from the neighborhood-specific inventory at Target's small-format stores to Adidas' city-specific running shoes.

There's a lot to gain from this trend: 63% of consumers are interested in personalized recommendations from retailers, according to a recent study.

Target has been an early adopter of localization via its small-format stores, which opened in 2012 and have since expanded to dozens of locations across the US.

These stores often tailor their inventory to their locations. A small-format store located in a neighborhood with many young families will stock more family-related and children's items, while stores in culturally diverse communities may stock a wider variety of food options.

To customize stores, Target conducts community-based research — including listening sessions with local guests, groups, and community leaders — to better understand what to offer at a particular location.

Adidas is also taking on localization, albeit in a slightly different manner. The company has leveraged is new Speedfactories, advanced manufacturing facilities that use robotics and 3D-knitting among other technologies, to produce localized, city-specific shoes.

The company's new AM4 ("Adidas made for") line of sneakers offers shoes that are custom-designed for the needs of runners in cities around the world.

Source: Adidas

For example, the AM4NYC running shoes are specifically designed for the sharp turns of New York City's street grid, and were created using sport-science data and feedback from local athletes.

Adidas has also designed shoes catered toward runners in London, Paris, Los Angeles, and Shanghai, and Tokyo.

Other retailers are using data-driven methods — such as local e-commerce purchasing history — to decide how to stock their stores, as is the case at Nike's new stores: Nike by Melrose and Nike NYC, House of Innovation 000.

Going forward, localization may be used as a stepping stone toward complete product customization. Case in point, Adidas is using its Speedfactories as a research hub for experimenting new ways to manufacture personalized apparel on-demand.

IN-STORE MOBILE COMMERCE

Mobile commerce is obviously instrumental in e-commerce, but is also becoming a strategic tool in brick-and-mortar stores.

More than 75% of Americans own smartphones, according to the Pew Research Center. And while smartphones have no doubt been instrumental in bringing e-commerce into the mobile sphere, they may also be helpful in transforming the brick-and-mortar experience.

For example, Nike's newly opened stores, Nike by Melrose (in Los Angeles) and Nike NYC, House of Innovation 000 (in New York), offer a slew of services for customers that can only be accessed via Nike's in-house smartphone app.
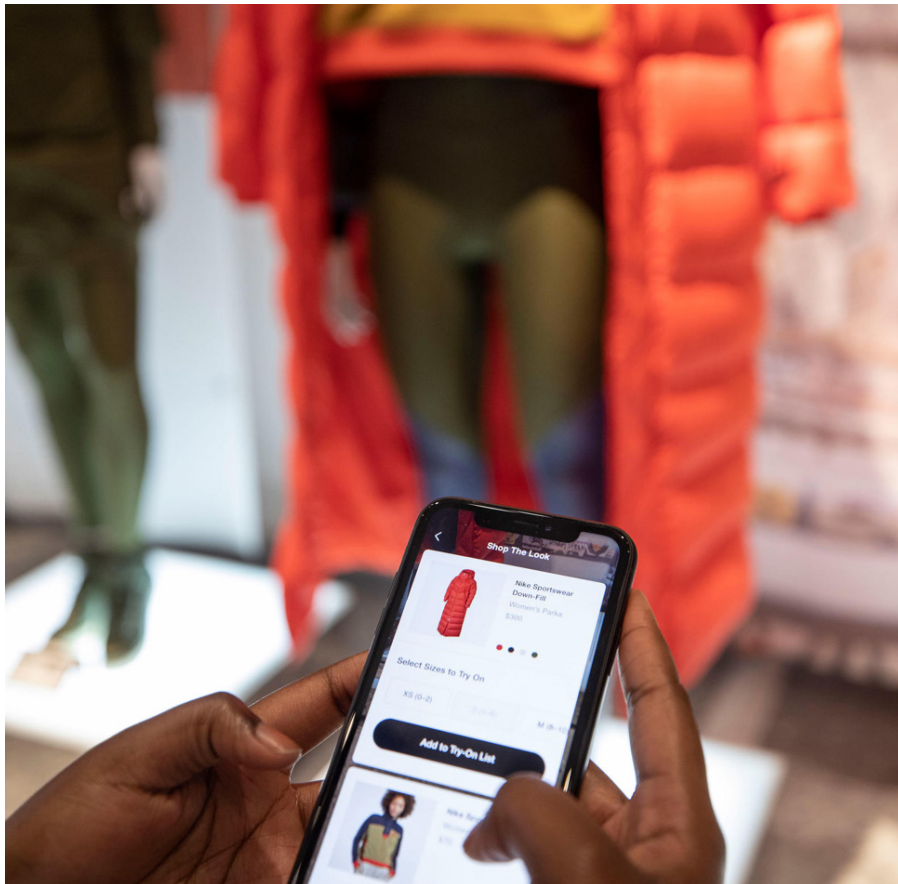

Source: Nike

At Nike NYC, customers that have joined Nike's free membership program and downloaded the Nike app can take advantage of a variety of in-store services including:

- Instant mobile check out via the Nike App: The store is equipped with several checkout stations so customers can bag their products.

- "Shop the Look," where customers can scan in-store mannequins with their phones to bring up information on an entire outfit.

- In-Store pick up lockers, where customers can reserve items via their mobile phones to pick up in-store at their convenience.

Source: Nike

At Nike by Melrose, Nike aims to learn NikePlus members' habits in order to recognize them when they enter a certain geofenced area around the store, and then potentially suggest or reserve special items for them.

While Nike is one of the most recent and colorful examples of mobile and brick-and-mortar integration, it isn't alone. Other retailers from internet giant Alibaba to grocery retailer Kroger have implemented in-store mobile scanning and payment systems into their physical stores.

While using mobile phones to streamline the brick-and-mortar experience is promising, not all attempts have been successful. Walmart, for example, let go of its mobile Scan & Go program in May 2018 after low customer adoption.

In practice, mobile integration in stores may suit certain types of retailers more than others. Regardless, we will continue to see retailers explore ways to implement mobile and smartphone technology into the fabric of their stores to increase convenience for customers.
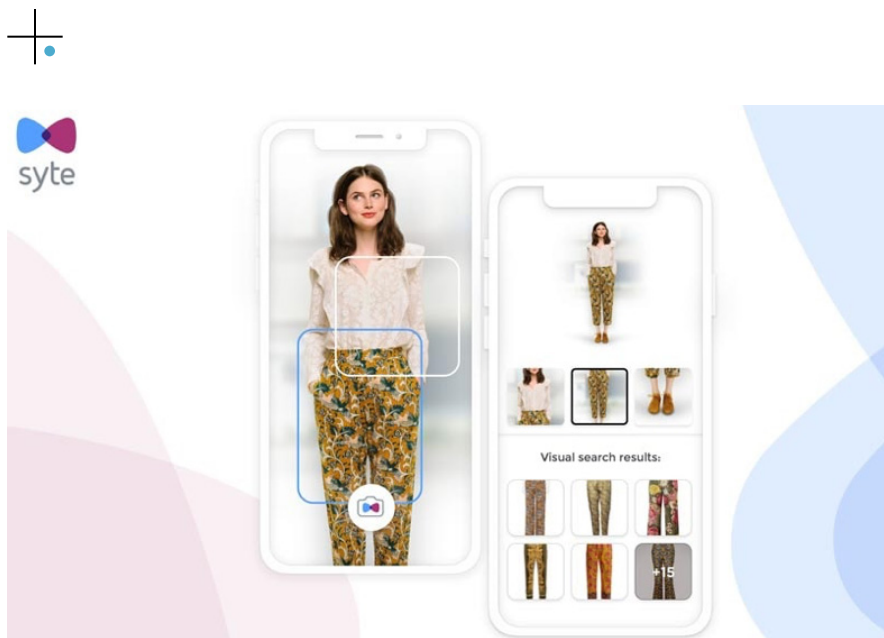
VISUAL SEARCH

A growing number of retailers are harnessing computer vision technology to explore visual search, which has the potential to help consumers shop for hard-to-find items and help retailers better understand their customers.

Luxury online fashion marketplace Farfetch recently unveiled visual search services on its iOS mobile app.

Dubbed "See it, Snap it, Shop it," the feature aims to help customers search for products they come across in life (on the street, online, or through a friend). By uploading a photo to the app, customers can find the same or similar products available on Farfetch.

To do so, Farfetch partnered with Israel-based startup Syte. The platform uses computer vision to provide visual search and image recognition capabilities. Syte focuses on the apparel space, an area notoriously difficult to apply visual search to due to subtle differences in clothing material and fabric.

Source: Syte

"Visual search is the ultimate connection between on and offline inspiration. By allowing our customers to show us what they are interested in we gain a deeper understanding of their needs, are able to inspire them with fashion based on what they are looking for, and enable a more personalised shopping experience." — Sarah Wood, VP of Product, Farfetch

Farfetch is part of a growing trend of retailers and social media platforms — including Pinterest, Amazon, Target, H&M, and more — that are exploring visual search. Visual searches on Pinterest increased from 250 million in February 2017 to 600 million in February 2018, according to eMarketer, underlining growing customer adoption in the space.

As visual search adoption continues to gain traction, we'll begin to see new retailers jump on the visual search bandwagon, either through partnerships with relevant startups in the space (like Syte) or through in-house development.

Moreover, visual search presents an opportunity for retailers to acquire a new data stream on their customers' interests, informing retailers on how to personalize marketing, product assortment, and more.

Transitory

AUGMENTED REALITY AND VIRTUAL REALITY

Augmented and virtual reality are finding some acceptance across retail as they aid in areas from customer satisfaction to store planning.

In fall 2018, Macy's expanded its partnership with virtual reality startup Marxent labs. The purpose of the partnership? To help Macy's reduce return rates in its furniture department.

Marxent's in-store VR showroom service and platform help retailers market their products through in-store VR headsets that let customers visualize what furniture would look like in their homes. As part of the expanded partnership, Marxent will operate at Macy's in 70 stores nationwide, with plans to spread to 20 more locations in early 2019. After pilot tests at 3 stores, Macy's claimed returns decreased to under 2% for VR-influenced furniture sales.

Source: Biz Journals

Macy's use of Marxent highlights one of many use cases for augmented and virtual reality in retail.

Amazon envisioned a technology-enabled dressing room in a patent titled "Blended reality systems and methods," granted in January 2018. The patent highlights a tech-enabled mirror that would project images (using a screen set behind it) to give the illusion that customers are wearing different outfits.

In another example, Alibaba partnered with Starbucks to construct a 30K square foot mega-store in December 2017. The store integrates AR technology into the coffee-buying process: customers can learn about the coffee-making process and available products through an Alibaba-powered augmented reality app.

Augmented and virtual reality go beyond enhancing customer satisfaction. Startup InContext Solutions helps retailers plan out its stores by creating virtual simulations that track shopper preferences, actions, and even predict eye movement to optimize store layout and organization. The startup has worked with retailers including Walgreens, Walmart, and Home Depot.

While augmented and virtual reality offer a myriad of benefits to retailers, high upfront costs remain a barrier to adoption. Retailers will have to continue to experiment with how to best leverage the technologies to reap a return on their investment. Simply having a VR headset in-store is not going to fix all of an ailing retailer's problems.

CHATBOTS

Retailers could save significantly on customer service costs by using chatbots — if they can convince customers to use them.

Facebook wants users to order their morning lattes via chat.

The company's patent application entitled "Processing Payment Transactions Using Artificial Intelligence Messaging Services," published in June 2018, outlines a messaging bot that interprets and responds to users' purchase requests.

Specifically, the bot uses natural language processing (NLP) to interact with users and analyze their messages. It understands customers' product requests, confirms their purchases, and initiates payment based on the context of the exchange.

This development highlights the use of chatbots in retail more broadly.

In the context of Facebook, retailers have already been leveraging Facebook messenger bot to streamline the e-commerce experience for customers.

In 2018, Nike partnered with Facebook Messenger bot to sell a pair of Kyrie Irving signature shoes. To gain access to the shoes, customers had to open the messenger app and chat with Nike's SNKRS bot. The sale was a success, with the sneakers selling out within minutes.
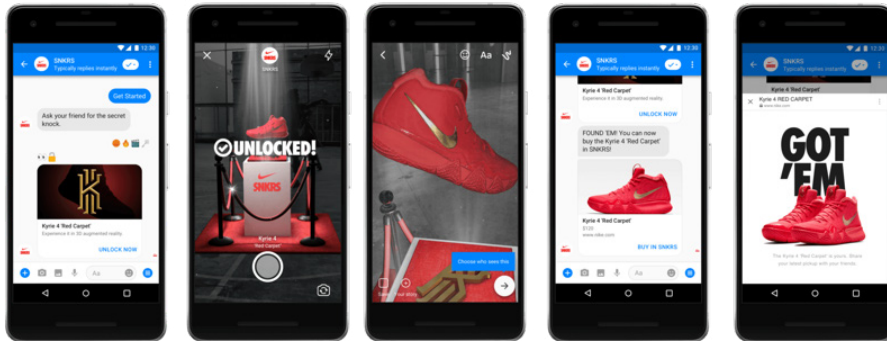
Source: Engadget

Beyond e-commerce, chatbots have a place in brick-and-mortar retail as well.

Conversational commerce platform Satisfi Labs is partnering with the Georgia aquarium to launch a location-based "Answer Engine" to help guide users through the museum, answer related questions, and provide information. While the aquarium is not a store, it provides an example of how AI and location-based chatbots could be used to help guide shoppers in large stores or shopping centers.

However, chatbots still face obstacles to customer adoption due to historically poor customer interfaces. Today, 70% of consumers still prefer human-to-human interaction when it comes to customer service, according to a recent study by the Sitel Group, and the future of chatbots in retail will depend on how well bots can mimic genuine human interaction.

QR CODES

QR code scanning has become second nature for many consumers.

QR Codes haven't always had it easy.

When they were first launched, QR codes failed to gain widespread adoption due to a variety factors: namely, users often had to download third-party scanning apps to scan a QR code, presenting an obstacle to wider-spread adoption.

A major game-changer for QR codes came when Apple decided to incorporate QR codes scanning functionality as part of the iPhone camera, eliminating a large barrier to adoption that existed in the past.

Mentions of "QR code" skyrocket on earnings calls

News mentions of "QR code", 2008 — 2018 YTD (12/11/18)
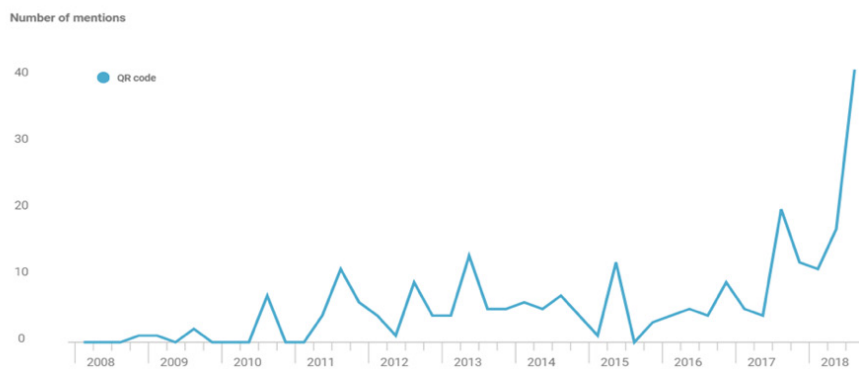
Today, a number of big-name retailers are testing out QR codes once again. Retailers from Target and Starbucks to Walmart and Dunkin' are using QR codes to facilitate mobile payments, and streamline the checkout process.

QR codes are even becoming an integral part of the connected store.

Amazon's cashier-less retail store Amazon Go identifies customers by having them scan QR codes as they walk in.

At Nike's new tech-enabled stores, customers scan QR codes on mannequins to learn more about the items being worn.

Retail tech company Ombori recently partnered with Microsoft and Swedish home retailer Clas Ohlson to unveil a QR-code powered interactive window display. Outfitted with motion sensors, the display awakens when someone walks by. When a person scans his QR code on the screen with his phone, he can use his smartphone as a remote device to control the screen and browse the contents of the store before walking in.

Going forward, it is estimated that coupons redeemed via QR codes on mobile phones will increase to 5.3 billion by 2022, up from ~1.3 billion in 2017, according to Juniper research — pointing to expected growth and use among consumers going forward.

Despite the QR code's resurgent popularity, challenges remain: QR codes are often susceptible to fraud, where scammers replace legitimate QR codes with malicious copies that can hack customer data. Retailers looking to increase their usage of QR codes will have to consider security challenges going forward.

VOICE SHOPPING

While devices like Alexa and Google Home are popular, few consumers are using them to actually purchase goods.

Alexa's feeling lonely.

In summer 2018, a report found that only 2% (roughly 1 million people) of Amazon Alexa users have shopped for products in 2018 using the voice interface. Of those, only 10% (100K people) had positive enough experiences that they shopped on Alexa more than once.

At-home voice assistants aren't the game changer for at-home shopping that some may have hoped for.

At this stage, e-commerce is a still a very visual experience, in which consumers have a strong hand in sorting through different products online and examining different details. In contrast, voice shopping tends to take away many of those familiarities.

For these reasons, voice shopping might be better suited for replenishing everyday household goods that require little research on the consumer's part before buying.

"Shopping is predominantly a visual and tactile experience." — Micah Collins, Director of Product Management and Hardware, Google

Nevertheless, some estimates still suggest that Alexa could bring in $5B in revenue through voice shopping by 2020, according to RBC Capital Markets.
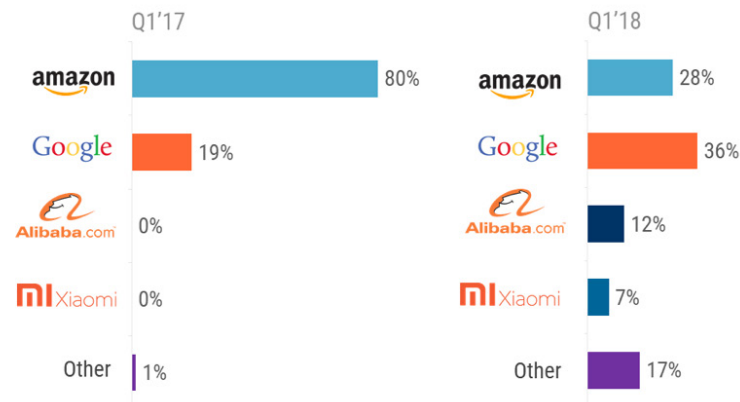
In December 2018, Alibaba unveiled a new voice assistant for logistics company Cainiao. The voice assistant is meant to help manage orders and deliveries, and is able to successfully navigate conversational obstacles such as interruptions, and non-linear speech — something that has previously been difficult for voice assistants to handle.

The recent development highlights China's growing global market share in the smart speaker market.

China's growing presence in smart speaker market

% of total global shipments by major players

Q1'17

amazon	80%
Google	19%
Alibaba.com	0%
Xiaomi	0%
Other	1%

Q1'18

amazon	28%
Google	36%
Alibaba.com	12%
Xiaomi	7%
Other	17%

Source: Canalys estimates, Smart Speaker Analysis, May 2018

CBINSIGHTS

As voice technology continues to advance, high adoption rates of devices like Alexa suggest that there could be a future where voice shopping takes off at a faster pace — we're just not there yet.

SOCIAL COMMERCE

While a new company in China may have cracked the social commerce code, retailers and social media companies are still trying to figure out how to implement social commerce in the west.

In the US, tech companies and retailers have not entirely been able to crack the code on social commerce.

Stateside consumers have traditionally treated e-commerce and social media as distinct activities, with one for socializing and another for purchasing. So someone might go on Facebook to chat with a friend and then go on Amazon to buy shoes, but she wouldn't buy shoes on Facebook or chat with friends on Amazon.

Historical attempts at social commerce by companies like Twitter, with its "buy button," have flopped.

More recently, however, we have begun to see some social commerce successes. The top 500 retailers brought in $6.5B in social commerce revenue in 2017, up 24% from 2016, according to a recent study.

The lukewarm reception to social commerce has not been the case in Asia.

China-based social commerce company Pinduoduo, which launched only in 2015, took only 2 years to reach over 100B RMB in revenue per year. Moreover, in June 2018, the company reached 195 million monthly active users. In July 2018, the company raised $1.6B through a US IPO.

Pinduoduo's fast rise in the world of Chinese e-commerce is bolstered by its unique approach to social commerce. Through its e-commerce platform, users can invite friends and contacts to join "shopping teams" to win discounts of up to 90% on certain items. Pinduoduo also integrates with social network WeChat, which has over 1B monthly active users.

Source: GGV Capital

The dynamic and interactive nature of Pinduoduo stands in stark contrast to attempts at social commerce in the US.

While there is no widely used equivalent of WeChat in the US, it begs the question if a similar model could be successful among American consumers.

WHERE IS ALL THIS DATA FROM?

The CB Insights platform has the underlying data included in this report

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