

THE DIGITAL CONSUMER REPORT



50%

Increase in Lowe's conversion rates after introducing AR

13 BILLION

The projected size of the global AR market by 2023

53%

Share of consumers interested in using AR in the next six months

SAMSUNG

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About

INTRODUCTION

AR AND THE DIGITAL ARCHITECTURE OF MODERN RETAIL

Not long ago, retail was exclusively brick-and-mortar. All a merchant needed to be competitive was a visually appealing, conveniently-located and easily-navigable physical space to sell their products. Good business meant designing and furnishing that space well, and staffing it with employees who would make customers feel accommodated and welcomed.

Recent advances in technology, however, have made it possible for merchants to construct all-new, digital spaces. Using sophisticated coding and advanced algorithms, retailers are expanding their brick-and-mortar stores by building interactive digital shopping places on the foundation of ones and zeros.

Augmented reality (AR) has changed how retailers think about space, and how their customers engage with it. Modern shoppers navigate between both the internet and the real world, forcing retailers to create a digital engagement strategy that doesn't just reflect their unique aesthetic and integrity, but also focuses on the always-connected lifestyles of today's consumers.

AR enhances physical spaces with digital tools, or transmits physical reality into the digital world. As such, AR applications are uniquely positioned to bridge the gap between brick-and-mortar and online stores, allowing shoppers to engage with both at once. Whether it's

image recognition-based tools that shoppers can use to "try on" a shade of lipstick, or interfaces that allow users to change the temperature of their homes from their phones, developers are making it easier to enrich consumers' physical lives with virtually-altered spaces.

In the augmented reality edition of the Digital Consumer Report, a Samsung Pay collaboration, PYMNTS explores the most innovative ways modern retailers are leveraging AR to their advantage.



Digital stores may be constructed differently than their brick-and-mortar counterparts, but their purpose is the same: transport the customer into a world of the retailers' creation – one they are selling along with their merchandise. Innovations in AR and image-recognition technologies, such as high-resolution screens and interactive software, have allowed merchants' brick-and-mortar styles to be transposed to the digital space, making them look and feel tactile.

These two-dimensional worlds can be as engaging as a physical store, and retailers that understand this and recognize the spatial components of tablet, smartphone and laptop screens are the most competitive. They appreciate their customers' desires to move through digital stores as they would move through the rooms of their homes.

The technology behind modern AR capabilities is still young and developing, but its potential is undeniable. In 2017, the global AR market was valued at \$1.43 billion, and by some estimates, it is set to reach \$12.97 billion by 2023.¹ Meanwhile, according to one recent survey, 53 percent of consumers say they are interested in using augmented reality within the next six months.²



But while nobody knows which AR applications will gain more traction in future, several retail-related AR applications have recently gained popularity, which indicates at the direction AR is going. PYMNTS investigated several of these use cases to assess how, and why, they have attracted the attention of consumers and merchants, alike, and how they stand to impact the future of the retail space.

¹ Author Unknown. Global augmented reality and mixed reality market 2018 review with forecasts. Reuters. 2018. <https://www.reuters.com/brandfeatures/venture-capital/article?id=38376>. Accessed October 2018.

² Stambor, Zak. Michael Kors is the first retailer to test Facebook's augmented reality ads. DigitalCommerce360. 2018. <https://www.digitalcommerce360.com/2018/07/10/michael-kors-is-the-first-retailer-to-test-facebooks-augmented-reality-ads/>. Accessed October 2018.



INSTORE





HOW RETAILERS ARE USING AR

TO “EXPAND”

THEIR BRICK-AND-MORTAR LOCATIONS

Adding mirrors to a room to make it look and feel larger is an age-old interior decorating technique: The reflective surface takes up little space, but gives the impression of a 3D room or hallway. This same feeling can also come from a digital screen.

Televisions, laptops, tablets, kiosks and mobile phones all have 2D surfaces, but the images we see inside them can feel real. Unlike the "space" in the mirror, though, the digital world is interactive: Consumers can manipulate the digital world with mice, keypads and touchscreens.

AR takes this idea to the next level. For example, most AR applications allow users to interact with the virtual world with their own hands, instead of controllers, making the technology feel organic and intuitive. The images AR applications project are extensions of the tangible world, and sophisticated AR technologies provide the look and feel of an altered physical reality. Shoppers can use these features to test new products and plan how to alter real spaces in the future or even modify 3D spaces in real time.

Advanced AR is a high-tech, modern version of the mirror effect, which makes it fitting that many retailers have used AR to improve upon the traditional mirror with the

introduction of smart mirrors, or interactive mirrors. In mid-2018, for example, Spanish fashion powerhouse Zara opened a brick-and-mortar location in East London equipped with interactive mirrors. The mirrors combine image-recognition technology, machine learning (ML) and radio-frequency identification (RFID) to determine which garments customers are holding. It then suggests additional pieces that would work together to create a complete outfit, and projects an image of the customer wearing it.³

This technology isn't new, though. Ralph Lauren installed 16 smart mirrors in the fitting rooms at its flagship location on Fifth Avenue in 2015. Like Zara's, the mirrors read items' RFID chips and recommend additional pieces for customers to try. Ralph Lauren's mirrors work differently than Zara's, though, making the technology unique and adding value to both the brand and the customer experience: They can translate five different languages. A Brazilian customer could speak to a sales

³ Author unknown. Zara opens store of the future with interactive mirrors and automated order collection points. Osborne Clark. 2018. <http://connectedconsumer.osborneclarke.com/retail/zara-opens-store-future-interactive-mirrors-automated-order-collection-points/>. Accessed October 2018.



associate in Portuguese, and the associate could reply in English, while the mirror automatically translates the conversation.⁴

The mirrors help customers associate the brand's name with seamless, interpersonal communication coupled with cutting-edge technology that enhanced their shopping experiences. Neiman Marcus is looking to convey this relationship-first message by installing smart mirrors in changing rooms and at makeup counters.

The mirrors use Intel-engineered technology and 3D cameras to provide customers with a 360-degree view of whatever they may be trying on. Each mirror

also features a touch-screen camera, which records customers' sessions with a makeup artist. These videos can be sent to customers via text message, allowing them to share it with friends on social media.⁵

Smart mirrors demonstrate how AR can enhance traditional, brick-and-mortar stores, but most modern stores are also accessible online, meaning merchants cannot overlook how customers use digital channels to browse and shop. While Ralph Lauren, Zara and Neiman Marcus have been modernizing the brick-and-mortar shopping experience, Target has been using AR to improve its online shopping experience.

The Target Beauty Studio, which is accessible via Target's website and its mobile app, allows shoppers to virtually try on any beauty product, from lipstick to false eyelashes. This is paired with a new chat feature that enables online customers to get real-time advice from sales associates. Target plans to bring the AR-based beauty app to its physical stores and is currently testing it in ten physical locations.⁶ Target is harmonizing its omnichannel approach by equipping its online and brick-and-mortar channels with similar features, making its customers' shopping experiences consistent, no matter where they shop.

In addition to being on-brand and practical, AR applications, like the Target Beauty Studio and smart mirrors, are undeniably whimsical. AR isn't just practical;

⁴ Strugatz, Rachel. Polo Ralph Lauren will today unveil the Oak Fitting Room at its flagship store on Fifth Avenue in New York City, an interactive touchable mirror created by Oak Labs. WWD. 2015. <https://wwd.com/business-news/retail/ralph-lauren-oak-labs-connected-fitting-rooms-10280895/>. Accessed October 2018.

⁵ Apte, Poornima. Tech tackles the fitting room. Racked. 2017. <https://www.racked.com/2017/4/19/15199318/tech-fitting-room>. Accessed October 2018.

⁶ Author unknown. Target launches augmented reality to boost beauty sales. Retail Info Systems. 2018. <https://risnews.com/target-launches-augmented-reality-boost-beauty-sales>. Accessed October 2018.

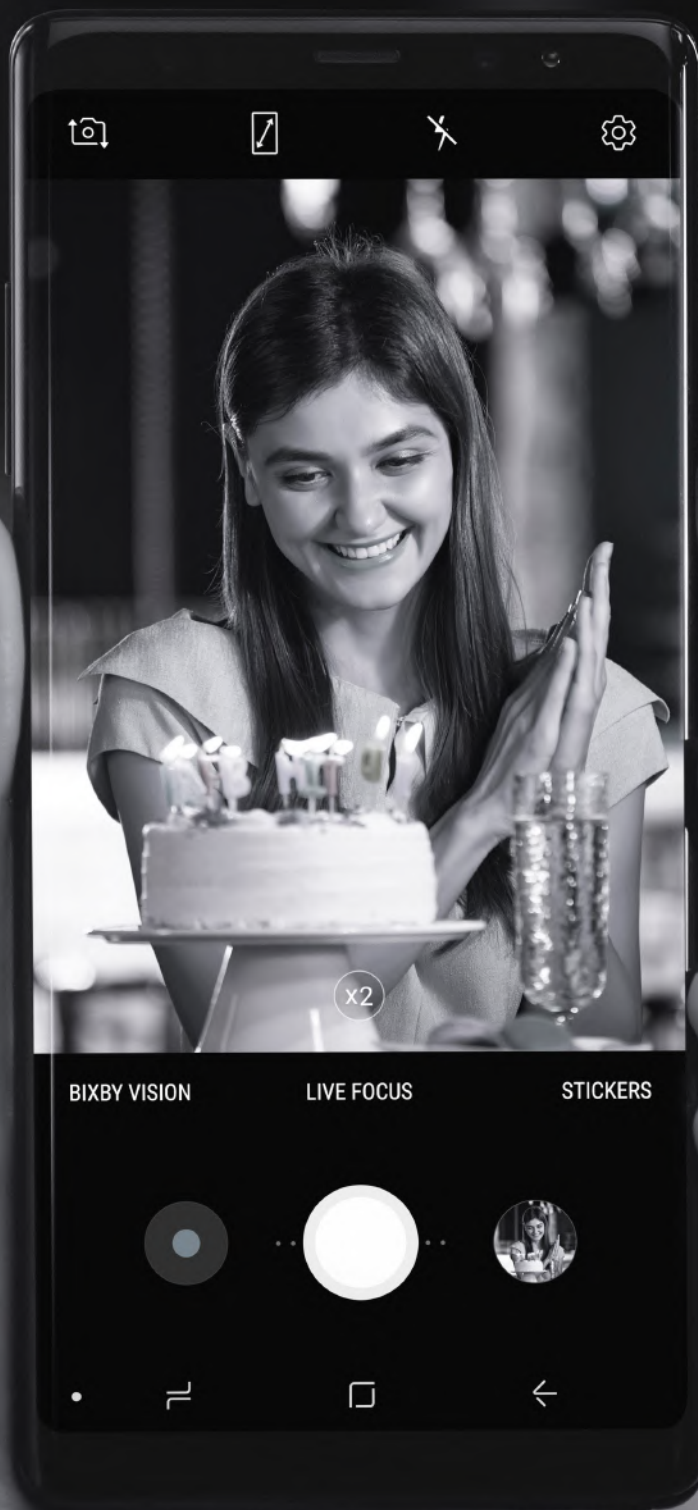
it's downright fun. These applications' creators want users to enjoy themselves and engage with them in the same way they would with a gaming console. AR is an effective gamification tool, and while Target and Zara use this to appeal to adults, others are more outright in their approach, targeting children with mobile gaming apps.

One of Walmart's recent AR experiments was an interactive, in-store mobile game. The game, which was available for a short time in Canada, served as part of a promotion for a clothing line featuring Nickelodeon's "Teenage Mutant Ninja Turtles." Similar gamified AR applications, where players train AR-generated characters with mobile devices located in store, were previously used to promote "The Avengers" and "The Amazing Spider-Man."⁷

Though these apps were created to boost sales for related merchandise, their gamification made the apps enjoyable and, like the interactive mirrors, they incorporate multiple commercial channels at once, mixing brick-and-mortar and digital features. AR can enhance a merchant's omnichannel functionality in ways that other technologies cannot, adding value to retailers' brick-and-mortar and digital engagement strategies. Value-added AR features can go even further, though, altering not just physical, but also cognitive and emotional spaces by providing a new, digital fulcrum for social interaction.



⁷ Tode, Chantal. Walmart embraces augmented reality to enhance in-store shopping. RetailDrive. 2018. <https://www.retaildrive.com/ex/mobilecommercedaily/walmart-embraces-augmented-reality-to-enhance-in-store-shopping>. Accessed October 2018.





ON THE PHONE



LEVERAGING THE SYNERGY

BETWEEN AR

AND SOCIAL MEDIA

For much of American history, citizens attended church not just to worship, but to socialize. They would dress in their finest clothes to make a good impression on their neighbors while catching up on the latest local gossip.

In the late 20th century, the shopping mall replaced the church as the location where consumers went to interact with friends. The locale may have changed, but the function was the same: to be social — to see and to be seen.

Now, social media is the new town commons. Modern consumers go online to socialize, show off clothes, indulge in gossip and share pictures and stories in much the same way that past generations once did at churches and malls. Some of the most competitive retailers understand this and are leveraging it to enhance their online engagement strategies. They are transforming their websites into the new “village commons,” where social enjoyment is enhanced with AR technology.

This is particularly true in apparel and beauty, which are the sectors that are most inclined to invest in AR. The objective of their business models directly addresses consumers’ desires to enhance their physical appearances, so many businesses of this type have already invested in AR to offer customers a virtual “try-

before-you-buy” experience that allows them to share their looks via social media.

When used right, social media can be an effective marketing tool. It appeals to modern audiences, who tend to dismiss most marketing campaigns as disingenuous or exploitative.⁸ On a basic level, they do not trust corporations, and aggressive advertisements do little to sway their opinions.⁹

Today’s consumers have decidedly different opinions regarding social media campaigns, however. They tend to see a retailers’ prominence on social media as a mark of legitimacy, which has caused many companies to attempt different social media marketing campaigns.¹⁰ That said, there is a right and a wrong way to use social media. For example, purchasing ad space on Facebook or Instagram is not enough. Shoppers don’t see a difference between ads on Facebook and ads on television, and a strategy like this is viewed as inauthentic, defeating the purpose of social media as a tool for audience engagement.

⁸ Wertz, Jia. Taking risks can benefit your brand — Nike’s Kaepernick campaign is a perfect example. Forbes. 2018. <https://www.forbes.com/sites/jiawertz/2018/09/30/taking-risks-can-benefit-your-brand-nikes-kaepernick-campaign-is-a-perfect-example/#ad1978f45aa5>. Accessed October 2018.

⁹ St. Louis, Molly. Here’s why Millennials are ignoring your brand (and what to do about it). Inc. 2018. <https://www.inc.com/molly-reynolds/heres-why-millennials-are-ignoring-your-brand-and-what-to-do-about-it.html>. Accessed October 2018.

¹⁰ Samuel, Kelly. Why authenticity is the most critical part of your social strategy in 2017. Forbes. 2017. <https://www.forbes.com/sites/forbesagencycouncil/2017/02/07/why-authenticity-is-the-most-critical-part-of-your-social-strategy-in-2017/#72c6c050301f>. Accessed October 2018.



On the other hand, most users do not see social media shares as a form of marketing. For merchants, these “organic” page views and shares are key to using social media correctly. AR applications that allow for social media sharing places marketing power in the hands of the consumer. Shoppers are not being told what to like – they are declaring what they like on their own terms.

Each social media share like that is an authentic, unpaid and entirely voluntary product endorsement that modern audiences implicitly trust.¹¹ The closeness and warmth consumers feel by connecting with others on social media, compared to the perceived coldness of traditional advertisements, makes it valuable to merchants.

Benefit Cosmetics recognizes and capitalizes on this with its customer engagement strategy, which features an online app called Benefit Brow Try-On. The app, first introduced in January 2018, uses augmented reality to allow shoppers to try on eyebrow makeup with their phone's camera. Artificial eyebrows may sound silly, but to render realistic, virtual eyebrow hair, sophisticated technology is necessary. It must be able to take in and process information about customers' natural eyebrows, while superimposing specific shades and textures onto their digital likenesses.

Benefit linked the app to social media, allowing users to share their new looks with their friends and followers, making the app a practical and authentic way to spread the word about a product online with genuine customer enthusiasm. Shoppers noticed and appreciated the difference. After the AR tool was launched, Benefit's online conversion rates for brow products soared by 80

¹¹ Samuel, Kelly. Why Authenticity is the most critical part of your social strategy in 2017. Forbes. 2017. <https://www.forbes.com/sites/forbesagencycouncil/2017/02/07/why-authenticity-is-the-most-critical-part-of-your-social-strategy-in-2017/#4a73db5301fc>. Accessed October 2018.

percent, with customers spending 90 percent more time on the site.¹²

Zara combined AR and social media when it introduced augmented reality displays to 120 of its brick-and-mortar stores worldwide in April 2018. The displays take the form of in-store sensors and window treatments, which customers can scan with their smartphone cameras, allowing them to see clothes of their choice superimposed onto moving holographic models via an easily-downloadable mobile app.

Users can seamlessly post AR-enhanced images to social media, and friends and followers can give their two cents about the look before the shopper commits to making a purchase.¹³ As with the Benefit Brow Try-On app, the sharable, social aspect of Zara's app is as crucial to its appeal as its AR functionality.

AR apps work because they are more than just marketing tools — they are a natural extension of the consumer's shopping experience. With traditional brick-and-mortar stores, customers might bring along a trusted friend or family member to give their opinions on different products, but with social media and AR, customers do not need to take their friends or family with them — they just need to be connected online.



¹² Young, Jessica. Benefit Cosmetics boosts conversion rate with launch of virtual makeover tool. Digital Commerce 360. 2018. <https://www.digitalcommerce360.com/2018/09/24/benefit-cosmetics-sees-conversion-rate-bump-with-launch-of-virtual-eyebrow-makeover-tool/>. Accessed October 2018.

¹³ Hills-Duty, Rebecca. Retailer Zara entice shoppers using augmented reality displays. VRFocus. 2018. <https://www.vrfocus.com/2018/04/retailer-zara-entice-shoppers-using-augmented-reality-displays/>. Accessed October 2018.



In this sense, the mobile devices customers use to activate and share AR tools are also being used to manipulate space — not by expanding it, but by defying it. Shoppers are using both retail apps and social media on their smartphones and tablets to feel closer to people on the other side of the screen, allowing them to feel a connection with others without having to be in the same physical space.

AR-based apps don't just connect shoppers to their friends, however. They also connect them with the retailer in their social spheres, whether that's because a retailer has pushed its brand name into the orbit of its customers' social lives, or even a facilitator thereof. When a customer uses a merchant's app to share a personal photo online, it's not just social media bringing these friends together — the brand is also helping to connect them as well, allowing its name to become associated with the warmth and intimacy of interpersonal connection.

It also becomes a type of personal branding for customers, allowing them to form their personal identities. When shoppers use an AR app to show their friends and loved ones a product or look they are considering for purchase, they are showing them a little piece of how they see themselves, and how they are looking to alter themselves or their homes. AR then becomes a tool for self-expression and individuality.

Therefore, it comes as no surprise that social media giant Facebook is modernizing its advertisements with "AR ads," a tool that allows users to virtually try on clothing or makeup from any label that purchased the ad space. Facebook is thereby providing its clients with an AR tool that would otherwise cost them a significant sum in

terms of both funding and time. The Facebook tool also includes a "Shop Now" feature, which brings customers straight to a retailer's website.

The service has yet to be officially unveiled, but has already garnered the interest of several major brands, such as Michael Kors, which was the first major brand to sign up to test the newsfeed-embedded AR service. Sephora has similarly expressed an interest in testing these ads.¹⁴

Facebook's marked interest in AR-based ads, and the fact that they will soon be available for purchase, shows that AR may begin diving even further into the mainstream retail market. On a corresponding cognitive level, the term "AR" may begin to feel more familiar to the consumers those ads appeal to.



¹⁴ Stambor, Zak. Michael Kors is the first retailer to test Facebook's augmented reality ads. Digital Commerce 360. 2018. <https://www.digitalcommerce360.com/2018/07/10/michael-kors-is-the-first-retailer-to-test-facebooks-augmented-reality-ads/>. Accessed October 2018.

SIDEBAR: WAYFAIR ON AR AND THE PATH TO SPATIAL COMPUTING RETAIL

According to Shrenik Sadalgi, head of next generation experiences at Wayfair, AR belongs squarely in the center of a modern retailer's business model.

"Augmented reality is a key piece" of Wayfair's business model, Sadalgi told PYMNTS in a recent interview. "There is no doubt about it."

One of the reasons why Wayfair has embraced AR, he said, is that the company sees AR as a natural extension of its technology-oriented business model. It also believes that investing in AR functionality is all but necessary in the modern retail space. Retail has already reached the point where AR functionality "is almost a requirement," he claimed, comparing its importance to the necessity of providing an image of a product when selling it online.

AR is particularly well-suited for use in the retail sector, and Sadalgi believes it's especially useful when it comes to selling home improvement goods and furniture — products designed to enhance the physical space of the home.

"The biggest thing [that AR can offer] is the context of the space" around a desired product, he said. If a customer is interested in purchasing a bed frame, but is

unsure whether the frame might clash with the home's decor, AR visualization tools can provide a spatial context for that product, and how it might look in the home, thereby adding value to the shopping experience.

"That kind of context," he explained, "is what augmented reality is really good at."

Sadalgi and his team ensured that Wayfair's product catalogue was AR-optimized, enabling a large portion to be viewed virtually, via the company's AR-based mobile app.

"[The app has] tens of thousands of products available," he said, noting that, unlike other AR-based apps, customers do not need to leave the app in order to access Wayfair's AR functionality.

Visualization is just a ground-level example of the potential uses for AR in retail, as Sadalgi and his team have much larger plans in store for the future of AR in the eCommerce sector.

The rapid improvement in AR technology hints at the eventual mainstream adoption of “spatial computing” — a type of user interface in which projections of digital space are superimposed onto spaces in the physical world, rather than contained to a two-dimensional screen.

“The computing environment is your space,” Sadalgi said. “There is no screen; there is no keyboard.”

With AR-based spatial computing systems, information is input with simple, natural gestures, which is akin to sci-fi flicks where the protagonist uses an AR headset to generate three-dimensional projections, bending and shaping them with nothing but hand gestures.

“You are turning your [physical] space into a productive activity,” he said.

While he's not entirely sure when the retail sector will adopt spatial computing systems, Sadalgi believes that the movement is already well under way.

“AR will become a new way of interaction,” he said. “The camera is going to become a new way for you to interact with your space [and it] has the potential to become the next shopping interface.”

AR has the potential to do for spatial computing technology what Amazon's Alexa has done for voice-recognition technology: transform it into a fast, frictionless channel for commerce.

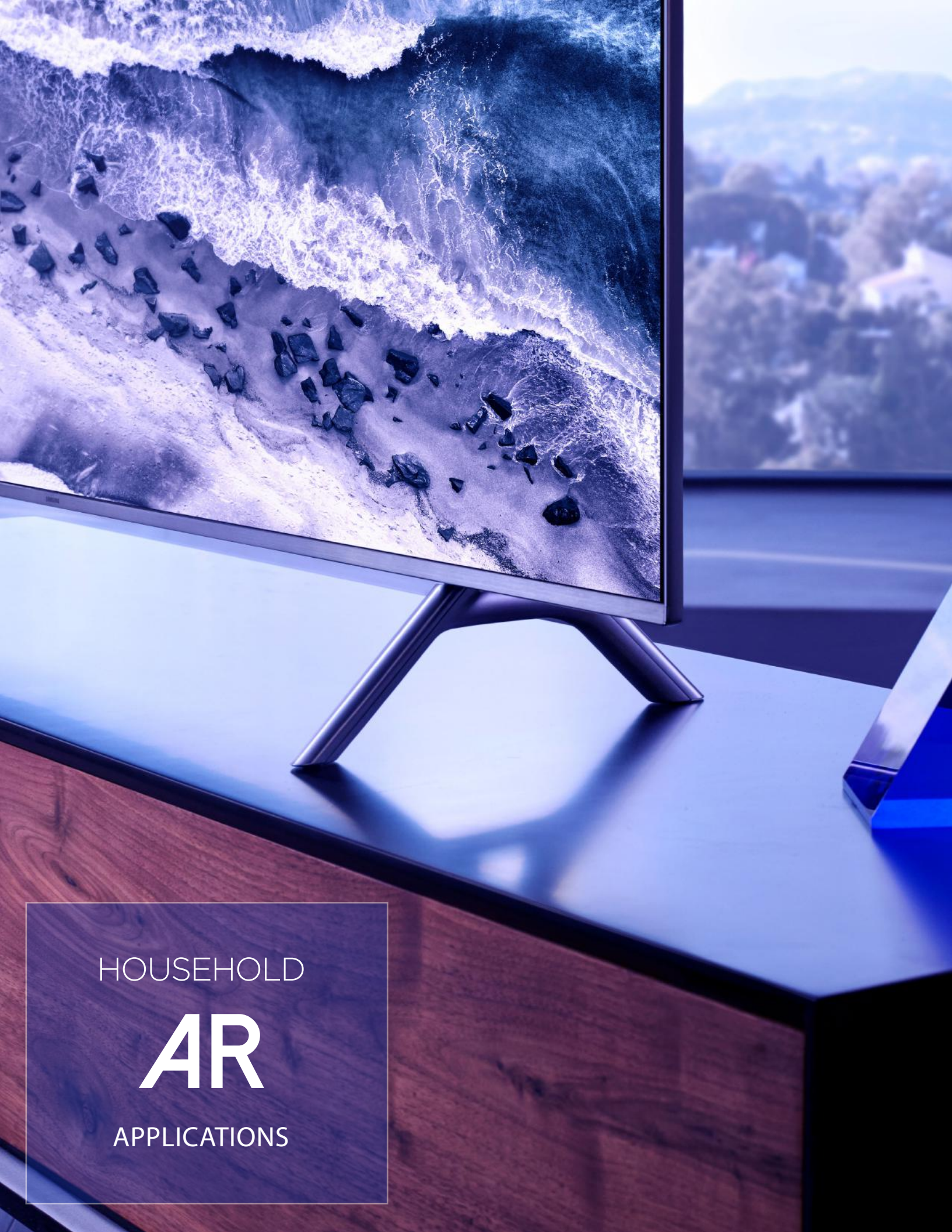
The ubiquitous adoption of basic, two-dimensional AR visualization functionality in the retail sector is “not far off,” according to Sadalgi. He believes that the pace at which modern merchants are acquiring AR-capable applications is staggering, and that it's happening so quickly that AR “will soon be a requirement. ... In the next two or three years, you will not be able to buy a product without it.”

Technology developers are representative of a wider movement in the retail space, one that champions the use of advanced technologies like AR as a means of reinventing shopping experiences to match modern consumers' technology-focused lifestyles. If Wayfair's ventures into AR-enhanced commerce and Sadalgi's predictions for the future are any indication, the not-too-distant future of the retail sector may be spatial.

INHOUSE







HOUSEHOLD

AR

APPLICATIONS

The fact that AR can manipulate real spaces and show what they might look like after a new piece of furniture has been added, or a wall has been removed, make it a particularly effective use case for modern furniture and home improvement retailers.

Lowe's AR app, Measured, uses advanced image-recognition technology for spatial recognition, providing to-scale measurements of any object in its field of vision. Users touch two points on the screen and the app measures the real-life distance between them, transforming the phone into a multipurpose measuring tool. Photos with the measurements superimposed upon them can be posted directly to social media.¹⁵

Ikea has offered AR features for years, but more of these types of merchants have been making significant headway in integrating AR technology into their business models. Houzz, for instance, released a mobile app earlier this year that uses shoppers' phones to help them visualize what a piece of furniture might look like in their homes. The app also automatically adds all items that customers view to an in-app shopping list, making it easier for them to review their browsing history and purchase a previously viewed item.¹⁶

Wayfair is similarly hoping to provide customers with value-added services and capitalize on advances in AR technology. It previously released an AR-based app that allows customers to visualize what different home furnishings might look like together — a tool that is also available on its website — but now the company plans to get physical.

The online-only retailer announced that it would be opening two pop-up shops in New Jersey and Massachusetts as part of a plan to collect data on how shoppers interact with their products in a brick-and-mortar setting. It plans to use that data to enhance its online functionality. The pop-up shops will leverage AR visualization tools to learn more about how in-person interaction with their products can affect online traffic. It also hopes to learn more about region-specific consumer trends and how certain online activities can translate to actual purchases.

¹⁵ Author unknown. Lowe's gives visualization a makeover with two new augmented reality apps. Ciscio PRNewswire. 2017. <https://www.prnewswire.com/news-releases/lowes-gives-visualization-a-makeover-with-two-new-augmented-reality-apps-300524640.html>. Accessed October 2018.

¹⁶ Aubrey, Dave. Decorate your house with augmented reality now with the Houzz app. VR Focus. 2018. <https://www.vrfocus.com/2018/01/decorate-your-house-with-augmented-reality-now-with-the-houzz-app/>. Accessed October 2018.



Bob Sherwin, Wayfair's head of North America marketing, said, "Physical pop-ups are a natural evolution of our test-and-learn culture," one that helps its customers visualize how the company can make its "store experience come to life in a physical setting."¹⁷ The pop-ups will collect consumer data from its in-store digital features and answer questions about whether the stores will attract more customers who prefer to see products in person.

Though these devices are diverse and versatile, they are also alike in that they require users to manipulate

controls in the physical world to alter what they see in the virtual spaces they create. There is one product, however, that aims to accomplish the opposite: to use digital technology and augmented reality to alter the physical world.

The Smart AR Home app, created by Binary Bananas, is among the first of its kind. Available on App Store and Google Play, Smart AR Home uses ARKit and ARCore to create a virtual map of a user's home on their mobile screen. The user can then manipulate controls, which are projected into their physical home via an AR-based interface, to change the settings of their household appliances.¹⁸ A user may want to dim the lighting in the family room, or change the temperature on the thermostat, which can be done by interacting with AR-enhanced images on mobile devices.

The list of smart appliances capable of interacting with the app is still small, but the app's creators have big plans.¹⁹ The company believes that its user interface will eventually give way to the next great retail ecosystem, doing for AR what Amazon's Alexa did for voice-recognition technology.

The most popular applications for AR are designed to furnish and manipulate space, but there are some consumer-facing applications that use AR to help consumers navigate through it. So, while others are

¹⁷ Bhattacharyya, Suman. What Wayfair's pop-up stores can teach it about its customers. Digiday. 2018. <https://digiday.com/retail/wayfair-pop-up-stores/>. Accessed October 2018.

¹⁸ Melnick, Kyle. Navigate your smart home devices in AR. VR Scout. 2018. <https://vrscout.com/news/smart-home-devices-in-ar/#>. Accessed October 2018.

¹⁹ Palladino, Tommy. This app lets you control your smarthome lights via augmented reality. Next Reality: Mobile AR News. 2018. <https://mobile-ar.reality.news/news/app-lets-you-control-your-smarthome-lights-via-augmented-reality-0185743/>. Accessed October 2018.

focused on home and store improvement, the Jarvish X-AR is taking AR into the streets.

The X-AR – which will hit the market in 2019 and has been likened to Iron Man's AI-based helmet, Jarvis – is a smart motorcycle helmet with built-in speakers that house several voice assistants, including Siri, Alexa and Google Assistant. Riders can communicate with these voice assistants in real time and an AR display allows them to view turn-by-turn directions, speed, weather, incoming calls and even features rear-facing cameras that double as side-mirrors.²⁰

Unlike the aforementioned apps, Jarvish's futuristic smart helmet is designed to be used while performing an extremely physical activity: driving a motorcycle at high speeds down a freeway. Because of this, voice-recognition technology is an ideal choice for the X-AR. It does not require careful calibration or a steady hand, which can be difficult to provide at 60 mph speeds. Its ability to respond to vocal cues and alter the projected images on the rider's lens accordingly makes its user interface as intuitive as asking a human for the time.

Because the product has yet to launch, it is not clear how quickly users will take to its voice recognition-based AR features. If they are well-received, it could open the



door to a host of new voice-operated AR tools and apps. It would not be too far a stretch to transpose that functionality into a wearable AR tool.

These applications are providing the building blocks for more advanced applications, the likes of which have only previously been seen in science fiction, but with advances in technology, an AR-driven retail space may not be as far-off as once imagined.

²⁰ Gartenburg, Chaim. Jarvish's smart motorcycle helmets will offer Alexa and Siri support and an AR display. The Verge. 2018. <https://www.theverge.com/circuitbreaker/2018/10/5/17940960/jarvish-smart-motorcycle-helmets-alexa-siri-support-augmented-reality-kickstarter>. Accessed October 2018.

FEATURE STORY

HOW LOWE'S AR BRIDGES THE GAP BETWEEN WHAT'S REAL AND IMAGINARY



FEATURE STORY:

Buying and selling home improvement goods has long been a source of frustration for consumers and merchants alike. For shoppers, installing something only to dislike how it looks means having to dismantle and return it.

To solve this problem, many retailers are looking to utilize AR to enhance the shopping experience. Home improvement giant [Lowe's](#), for instance, recently began leveraging AR to address timeless consumer problems, according to Josh Shabtai, director of lab productions at Lowe's Innovation Lab.

"What we are doing is solving age-old customer problems, and oftentimes, in new ways," he said.

In a recent interview with PYMNTS, Shabtai explained why he and his peers consider their primary business to be solving real-world problems their customers experience every day, and why the company maintains a "technology agnostic" philosophy.

SOLVING CONSUMER COMPLICATIONS

The primary cause of consumer frustration surrounding home improvement shopping, Shabtai said, is a lack of project visualization.

"One of the biggest problems that anyone who has gone through a home improvement journey has experienced is the difficulty in visualizing something before you get started," he said, noting that consumers often struggle to imagine how a product will ultimately fit with their decor.

AR tools can help alleviate this frustration, because it gives customers an opportunity to see what all kinds of products – even large pieces, like furniture – might look like in their homes before committing to the purchase. In this sense, they allow customers to "try before you buy," removing uncertainty from the equation. As a result, consumers become more confident with home improvement decisions, making them more likely to purchase products, boosting conversion rates.

"People have greater confidence when they preview a refrigerator in their kitchen, a grill on their patio or a couch in their living room," Shabtai claimed, a fact reflected in the improved conversion rates Lowe's observed after introducing a prototype AR tool to customers. The prototype showed consumers what a product might look like in their homes.



"We have seen some great results," Shabtai said. "With some products, we saw conversion rates increase about 50 percent above what they were."

AR could also add value to a customer's shopping experience by functioning as a navigation tool. Lowe's recently released an AR-based, in-store navigation app — Lowe's Vision Navigation — which acts as an "indoor GPS." The app provides customers with turn-by-turn directions for individual Lowe's brick-and-mortar locations. Shabtai and his team noticed that customers using the app "were about twice as fast to make their way around the store than they were if they were self-guided."

GAMIFYING THE RETAIL SPACE

Beyond AR's utilitarian appeal lies an element of whimsy and imagination — characteristics that appeal to customers' playful sides by gamifying the shopping experience. Customers appreciate the practical benefits of being able to "try before you buy," but they also enjoy seeing what the future might look like, were they to purchase any given item. In this way, AR allows customers to explore new, creative possibilities — without committing to expensive, frustrating purchases — by transforming the shopping experience into an experimental playground.

"We are all on the ground floor of augmented reality," Shabtai said, adding that the retail industry is "inspired" by AR-based games, most notably "Pokémon Go."

Lowe's AR tools appeal to the same creative sensibilities that are present in "Pokémon Go" and other games. In Shabtai's words, the appeal is the ability to "see the level of immersion, and the ability to transform your understanding of the world.... You can bring fantasy into your everyday and believe it and enjoy it."

Therefore, it comes as no surprise that Shabtai has a background in video game design, which familiarized him with advanced AR.

"I feel like [AR technology in retail] has been a long time coming," he said, comparing it to a band that has just reached mainstream status after coming out with its first hit single.

THE FUTURE OF AR IN RETAIL

Now that AR tools have finally hit the mainstream, Shabtai believes there are great things in store for its impact on retailers — especially online sellers. eCommerce purchases are encompassing a larger percentage of consumers' retail spend, but there is always the possibility that a product will look different in person than it did online. Shabtai thinks that AR visualization can help change that.

"Being able to [use AR] to see lifelike replications of [things] in your home changes the equation of online shopping," he said. "I think, as these technologies mature, you will see greater comfort in [online] shopping in areas that people may not have been as comfortable with before."

Shabtai expects that consumers will grow more comfortable with making clothing and home improvement purchases online as they gain access to additional AR tools.

Whether customers are using it for navigation purposes, for project visualization or simply to imagine how buying a product might alter their homes and lives, there is added value in using AR in the retail space. For this reason, AR just may be here to stay.



LOOKING FORWARD

THE BLUEPRINT FOR THE FUTURE OF RETAIL

It is with future developments and long-term implications in mind that merchants like Jarvish, Target, Wayfair, Facebook, Benefit Cosmetics and others are fostering their AR innovations. These developments play a major part in their creators' well-calculated, long-term strategic visions. Whether collecting consumer data, offering a platform for social interaction, visualizing a finished decorating project or simply providing a unique shopping experience, each is helping their brands build their aesthetic and reputation.

As the list of merchants investing in AR continues to grow, and the number of retail applications continues to swell, businesses and consumers alike are quickly amassing more information on how these technologies will impact them. Businesses are learning to use AR to optimize their sales and streamline their operations, while consumers are gradually coming to terms with their preferences for various services. Against this background, the retail space is gaining a new dimension, and a wider market for AR-based products is slowly but surely emerging. Though merchants continue to grapple with how far they can take AR, and what sort of AR applications consumers value, they are carving out their own spaces in the increasingly digitized, omnichannel world, and AR will be one of the primary tools in doing so.





SAMSUNG

PAY REPORT

about

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