

**Technology**

QR & AR: TECHNOLOGIES TO BRIDGE THE PHYSICAL AND DIGITAL WORLDS

Last year, after the emergence of the COVID-19 pandemic, Coca-Cola altered its freestyle beverage dispensers to enable consumers to hold their smartphone's camera to the machine's display. The camera auto-scans a QR (quick response) code, and that connects to the cloud, which brings the Coca-Cola Freestyle user interface to the phone screen with a full menu of more than 100 brands and flavors. After the customer makes a choice, the machine pours the selected drink, all in a contactless manner. Earlier this month, Lego and Universal Music Group collaborated to sell Lego Vidiyo, a new toy that allows kids to create online music videos starring physical Lego characters. Buyers snap a picture of their Lego figure via a smartphone app; then, using augmented reality (AR) technology, the figure comes to life on the screen, dancing and singing to pop music. After initially building and scanning the figure, kids can play almost entirely on the augmented reality video game. QR-code technology is relatively inexpensive and easy to implement, while AR technology can be quite expensive and complex. Though very different, both technologies are being used to bridge the physical and digital worlds at a time when consumers have elevated expectations that companies will provide omnichannel capabilities and access to information and content, and they expect those services wherever they may be and whenever they want them. The pandemic provided new momentum for QR codes and AR because both technologies can facilitate contactless commerce, but it is the way they are used to align companies' offerings with digitally trained consumers' desire for convenience, speed, access to information and novelty that will keep the momentum going after the pandemic has passed. (*Hospitality Technology*, 7/13/20; *Fast Company*, 2/16/21)

TAKEAWAYS

- The COVID-19 pandemic illustrated to companies and consumers the value that QR (Quick Response) codes and AR (Augmented Reality) can provide.
- Technologies that can bridge the physical and digital worlds, as QR and AR do, are valuable in a world where omnichannel offerings are popular and expected.
- Contactless services have offered safety during the pandemic and will have continued appeal after the pandemic because of way they align with the desires of the digitally trained consumer for novelty, speed and convenience.
- Utilization of the technologies will continue to grow even after the pandemic ends. Because of differences in costs, QR, the less expensive service, will spread more rapidly than AR, the more expensive service.

IMPLICATIONS

- Companies that offer QR and AR technologies will benefit.
- Large consumer-facing technology companies will attempt to increase their AR offerings.
- More brands will offer virtual try-ons for their products thanks to their popularity with consumers. Companies that don't offer this option will lose market share to those that do.
- QR codes can provide significant amounts of consumer data to the companies that utilize them, providing a competitive advantage.
- Contactless offerings will grow and could eliminate the need for some jobs in the services sector.
- QR codes will help facilitate the growth of mobile payments in the U.S.

QR Codes

QR technology has been around for three decades, having been created in Japan as a way for automakers to track cars through the assembly line. Unlike barcodes, which can store information only vertically, QR codes can store information both horizontally and vertically, enabling the square images to carry 100 times more information. QR codes, which are inexpensive and easy to produce, also work quickly, allowing the user to take a picture of the code via a smartphone in a physical environment to gain immediate access to mobile payment capabilities, digital information and e-commerce opportunities in a contactless manner, without the need to log in or provide a password. Inexpensive, fast and easy comprise a winning combination for digitally trained consumers. (*Mobile Payments Today*, 1/19/21)

Going Contactless with QR

While popular for many years in Asia, especially China, QR codes were slow to be adopted in the U.S. prior to 2020. Then, last year, the immediate need for new contactless operations during the COVID-19 pandemic led many companies, retailers and restaurants to introduce QR codes into their consumer-facing businesses. Last summer, New York City's Hudson Yards implemented QR codes so that visitors could interact with digital kiosks around the mall without touching anything. Similarly, Happy Returns, which enables returns of online-purchased goods to designated brick-and-mortar locations, announced in September that it would be expanding the use of QR codes as a safer alternative to person-to-person returns. During the year, other companies also offered or announced plans to offer QR codes as facilitators for contactless operations. (*Glossy*, 10/1/20)

- Guests at Tocaya Organica, a fast-casual chain, can point their phones at QR codes on each table, pull up the restaurant's menu and order. Each table has its own QR code so servers know where to bring the food.

- Amazon debuted its first Amazon Fresh store in Woodland Hills (CA). Customers can use the new Amazon Dash Cart, activated using a QR code and charged to their payment method on the way out of the store.

- Dunkin' announced plans to debut a new concept store with a checkout-free experience, similar to Amazon Go stores. Once customers opt in to the platform via Dunkin's app or kiosk, they will be able to use a QR code displayed on their phone to enter the store.

(*Glossy*, 10/1/20; *Nation's Restaurant News*, 10/26/20 and 11/16/20)

Companies may be more likely to offer QR codes because individuals have actually been using them. In 2020, there was a 35 percent increase in the number of

interactions per QR code. In fact, many digitally trained consumers actually prefer interacting with their phone rather than with a person. Amid the pandemic, approximately 45 percent of people said they prefer to view menus, place orders and pay for their meals over the phone rather than by interacting with a server when dining. Forty percent of those people said they will continue those practices even after the health crisis ends, according to *Pymnts*. In the last six months, 38 percent of U.S. and UK consumers claim that they have scanned a QR code at a restaurant, bar or café, while 37 percent have scanned a QR code at a retailer; and 32 percent have scanned a QR code on a consumer product. During Happy Returns' initial trial of the technology with Dressbarn, 75 percent of returns were made with QR codes in the first month they were

offered as an option. (*Glossy*, 10/1/20; *Modern Retail*, 12/31/20; *Pymnts*, 2/8/21 and 2/21)



"I don't shake hands anymore. Would you please just scan my QR code?"

QR Codes Enable Contactless Mobile Payments

Seeing the growing popularity of QR codes, payment software company Square started offering QR capabilities to restaurants in September. Square's offering allows customers not only to pull up a menu and order via

QR like at Tocaya Organica but also to pay, aligning with the digitally trained consumer's desire for convenience. Over 74 percent of Americans claim that they use their phone to order and pay for food and merchandise at least once a week, with nearly 48 percent using their phones for purchases several times a week or more. In a survey, 44 percent of Americans said "convenience" was the most important factor when ordering and paying for food and merchandise via their phone, with an additional 18.6 percent saying "ease of use" was the reason they preferred ordering and paying via their phones. This is driving other companies to offer QR codes as a link to mobile payment capabilities. (*The Verge*, 9/29/20; *QSR Web*, 11/12/20)

- Payment platform PayNearMe has started using QR codes on paper billing statements. Customers can pay their bills by scanning the code and instantly accessing their payment account without inputting an account number or password.

- Paypal is now offering QR code payments for contactless payments in iZettle's point-of-sale app. This follows the May 2020 launch of QR codes in the PayPal app, which is available in 28 markets around the world.

- Customers at 8,200 CVS pharmacy locations can use QR codes in PayPal and Venmo for contactless payments.

(*Pymnts*, 11/16/20 and 12/9/20; *Mobile Payments Today*, 1/19/21)

Access to Online Information and E-Commerce

In addition to the convenience and speed of ordering and paying by phone, the digitally trained consumer expects access to information or content as well as business transparency. In the past year, companies have begun utilizing QR codes on physical products to offer company and product information, as well as entertainment via the smartphone. Scanning a QR code on the menu at TAPS Fish House & Brewery, a chain in Southern California, starts an experience where guests can digitally "meet" the captain of the ship that caught the restaurant's food and

learn about where their food is from. In its home-meal kits, Vietnamese fast-casual chain Roll'd started using QR codes, which when scanned, point customers to a range of cooking demonstration videos that are available in multiple languages. In a separate example, 1-800-Flowers.com implemented a custom QR code to market a collaboration with designer Jason Wu. The online florist's customers receive a QR code attached to their orders, which when scanned unlock exclusive behind-the-scenes content from Wu. Direct-to-consumer (DTC) candle brand Cadence Candle Co. integrates curated Spotify music playlists with its products via printed QR code. The company's "about" page and "meet the founder" page are also both accessible via QR codes, printed on their packaging. (*QSR Media*, 10/20/20; *Modern Retail* 12/31/20; *Pymnts*, 2/21)

Other companies have taken a step beyond offering access to information or entertainment and now offer QR codes for easy access to e-commerce.

- Last year, Ralph Lauren began sewing labels with QR codes into garments as a means of tracking its supply chain and offering more transparency. The luxury brand also displays the code in stores for access to interactive shopping trips.

- In September, DTC company Bobblehaus hosted a pop-up in which every product had a QR code. Customers could scan the code on each product, see the product page on their phones and order it for delivery.

- Sam's Club and Circle K are both utilizing QR codes to link to mobile shopping from the fuel pump.

(*Glossy*, 10/1/20; *Chain Store Age*, 12/20; *Modern Retail*, 12/31/20)

QR codes can offer consumers fast and easy access to the information, content and services that they have come to expect. When consumers utilize those QR codes, it allows companies to connect a customer in a physical space to an online identity, potentially providing a treasure trove of data and analytics, which can help companies make smarter business and marketing decisions.



"You want art, words, or a QR code?"

Augmented Reality (AR)

Similar to QR codes, augmented reality (AR) is used to bridge the digital and physical worlds, and just like QR codes, corporate experimentation with AR was partially driven last year by the need for contactless operations. Between March and October 2020, Seek, a company that integrates QR codes and AR technologies, saw a 600 percent increase in demand for its technology solutions. While QR codes link to a digital environment via a smartphone picture, AR offers an interactive method of presenting digital information over a physical environment, offering an enhanced version of the real physical world via the use of digital visual elements, sound, or other sensory stimuli delivered via technology.



With his augmented reality headset he's actually eating in a five star restaurant.

Going Contactless with AR

Offering contactless and safe operations amid the pandemic was challenging for many companies, but especially those that rely on their customers' ability to try or try on products in a store, such as cosmetics retailers, where customers are accustomed to viewing how certain colors and shades look on them. While beauty brands have been experimenting with AR for years, during the last year the need for virtual try-ons drove AR adoption and engagement. As one example, since the start of the pandemic, beauty retailer Ulta's virtual try-on tool,

GLAMlab, has been engaged with by an increase of sevenfold. Foundations have been tried-on digitally more than 50 million times via the app since COVID-19 started. (*Harvard Business Review*, 10/7/20; *Marketing Dive*, 1/28/21)

Other beauty brands are increasing their adoption of AR as well.

- In December 2020, Google announced an integration with AR technology supplier Perfect Corp. and ModiFace, owned by L'Oréal, to offer virtual try-ons. The Google Shopping platform started showcasing thousands of lipstick and eyeshadow shades from brands including L'Oréal, MAC Cosmetics, Black Opal and Charlotte Tilbury.

- In December, Snapchat also collaborated with Perfect Corp. to offer makeup try-ons in its app.

- Hair-care brand Garnier offers virtual simulations of its coloring products in Google Lens, the search company's image-recognition app. Scanning Garnier boxes in stores with the Google Lens app activates L'Oréal's Modiface platform to simulate the hair color in an AR overlay on a live selfie.

- On January 22, Pinterest introduced its latest AR feature to let customers digitally try on eyeshadow shades from partners including Lancôme, YSL and NYX Cosmetics. This comes a year after Pinterest introduced a similar feature for lipstick. According to Pinterest, its users are five times more likely to show purchase intent on "try on" Pins than standard Pins.

(*Pymnts*, 1/22/21; *Glossy*, 1/25/21, *Marketing Dive*, 1/28/21)

Companies are spending money on these AR integrations because they align with the digitally trained consumers' desire for novelty, convenience and speed, and most important, as noted by Pinterest, AR has been shown to work in driving engagement and sales. Numerous studies have shown that integrating a virtual try-on experience with a brand's website can lead to increases in time spent on-site by as much as 101 percent and has resulted in an eight percent decrease in returns. Last year, Shopify released data showing that interactions with products that include AR had a 94 percent higher conversion rate than products without AR integration. (*Glossy*, 8/10/20; *Pymnts*, 10/8/20)

Companies experimenting with AR and virtual try-on technology to facilitate contactless engagement and shopping are not only in the beauty space.

- Last year, David's Bridal launched 50 SKUs using AR technology from Vertebrae. The bridal retailer saw a 100 percent lift in scheduled in-store appointments and a 30 percent increase in revenue. The company plans to add another 100 SKUs, including accessories, by this May.

- Last year, jewelry brand Kendra Scott introduced an AR tool enabling customers to virtually try on different earring styles from their homes and then make a purchase.

- Last May, Kohl's collaborated with Snapchat to create Kohl's AR Virtual Closet. Via the Snapchat app, consumers can enter an AR dressing room, virtually try on items and make a purchase without leaving home.

- Last June, sunglasses brand Bollé introduced a "Try-On, Try-Out" feature in partnership with AR firm QReal. The tool lets customers try Bollé's Phantom lens in two ways: The selfie-style option, which allows them to see how they would look wearing the lenses and frames, and a separate option, which provides the effect of looking through the lenses.

- Snapchat launched 15 different products and functionalities using augmented reality in the first nine months of 2020.

(*Harvard Business Review*, 10/7/20; *Pymnts*, 11/10/20, *Wall Street Journal*, 1/23/21; *Glossy*, 10/11/20 and 1/25/21)

Access to Information

In addition to being an effective tool for virtual try-ons, AR is being used to overlay digital information on the physical world via phones, glasses or headsets. AR-enabled information overlays have thus far been used mostly for commercial application and training, but they are slowly being developed for consumer-

facing applications. Apple, which currently facilitates AR via its iPhones and iPads, recently announced that it is working on AR glasses, which would provide the ability to superimpose images and information on the real world. Additionally, in February, the consumer technology giant filed for a number of patents related to augmented reality technology including a "head-mounted display unit with adaptable facial interface." Not to be left behind, in January it was reported that Samsung is also working on two different sets of AR glasses. Meanwhile, Niantic, which created the augmented reality game Pokémon Go, is attempting to build an ever-updating 3D map of the world, where users can quickly gather the information about a space just by holding up their phone. Other consumer-focused applications being developed include those for the car, where Hyundai and GM recently invested in Envisics, an AR provider working on heads-up hologram displays for automobiles. (*TechCrunch*, 11/11/20; *Digital Trends*, 1/21/21; *Macworld*, 3/1/21)

For companies, the pandemic illustrated the importance of having multiple ways to reach and engage with their customers and reiterated the necessity of omnichannel operations. QR codes and AR are now being recognized as technologies that can help accomplish those goals, as they bridge the physical and online worlds and make it easier for consumers to quickly get access to the information, products and services that they want, and that digitally trained consumers expect. Even when the pandemic ends, utilization of these technologies, and the services they enable – contactless operations, mobile payments, e-commerce links and virtual try-ons, among others – will continue to grow.