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TO SEE WHERE RETAIL STORES ARE HEADING, LOOK TO CHINA

By Brad Loftus, Peter Burggraaff, Bill Urda, and Allison Zeller

With the arrival of Amazon Go, many realized that the future of retail had arrived. Powered by technology that eliminates the need for cashiers—or even a checkout process—Amazon Go is considered revolutionary. Since it was first announced in late 2016, retailers around the world have been trying to decide to what degree they need to alter their existing store-based business models in response. After all, digital transformation has already put more than one brick-and-mortar store out of business and forced countless others to come up with ways to avoid the same fate.

But while all eyes are on Amazon Go, China's two biggest e-commerce retailers, Alibaba and JD.com, have been moving much faster, and at a larger scale, with their own digital and automated store concepts. In addition to their versions of a seamless shopping and checkout experience, they are employing a wide variety of store technologies. Retailers should be evaluating those technologies and deciding whether to deploy them, test them, or just watch closely and see how they evolve before determining which of them, if any, to feature in their stores.

Much of their decision making around whether to deploy, test, or watch will hinge on the technologies themselves and their customers' adoption of them. Some technologies can be deployed today, while others are not ready for widespread adoption. Whether the full suite of technologies they want is ready or not, however, retailers need to be thinking about their future today.

Going Further and Faster Than Amazon Go

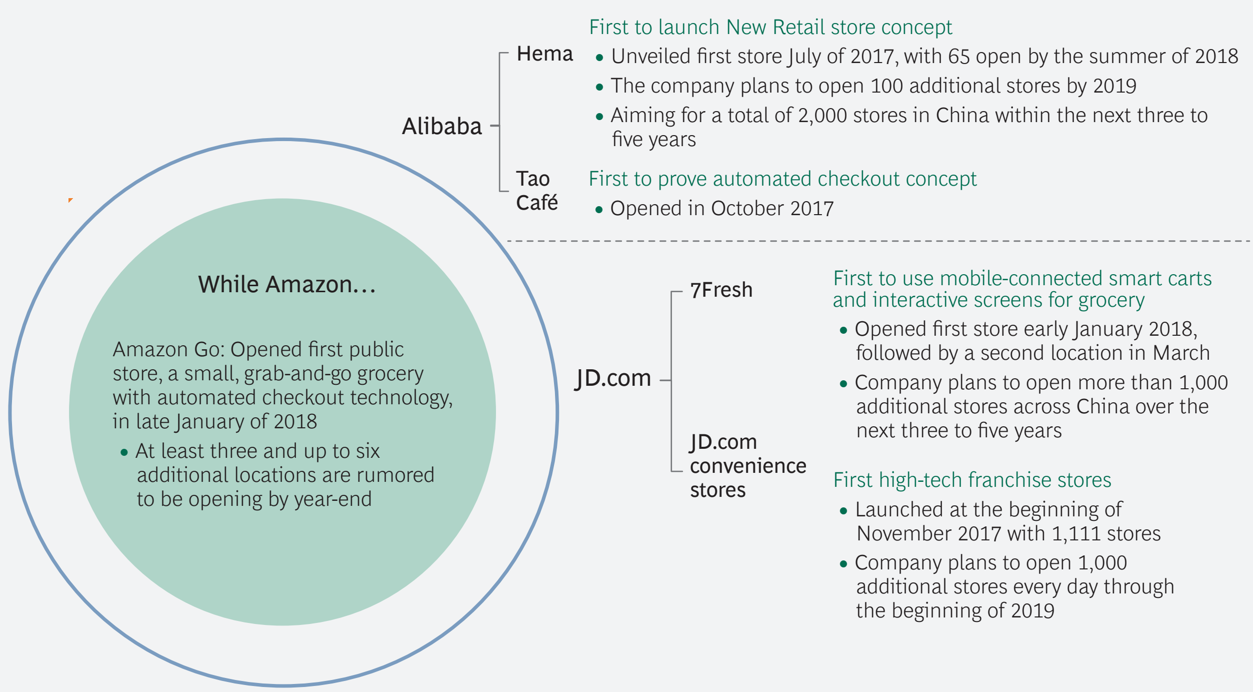
When you walk into an Amazon Go store, shopping for groceries means scanning your phone as you enter, grabbing what you need, and walking out. There are no cash registers; the items you've chosen are tracked through RFID and cameras, and your Amazon account is billed automatically through a dedicated app. Amazon Go made its debut earlier this year in Seattle, with a second store opening in the city in late August. Amazon reportedly plans to have 10 locations open by the end of 2018, about 50 by next year, and up to 3,000 by 2021.

Amazon is taking aim at seemingly every industry with a customer touchpoint—from auto parts to sporting goods to health care—but the Go concept is unique in that it marries the brick-and-mortar format with what Amazon calls its Just Walk Out technology, a combination of computer vision, sensor fusion, and deep learning. Indeed, Amazon Go isn't just enabling customers to walk out the door without passing through a checkout; it's also storing all their shopping data in order to give them increasingly personalized offers in the future. (See: "Profiting from Personalization," BCG article, May 2017.)

Alibaba and JD.com—China's largest and second-largest online retailers, respectively—have been investing in innovations that in many ways are ahead of Amazon Go. And when it comes to piloting and scaling those innovations, they're doing it more quickly. (See Exhibit 1.) For example, Alibaba opened its small-format, cashier-free convenience store, Tao Café, in 2017. It was an early example of the company's New Retail concept, which uses technology, data, and logistics to integrate the online and offline shopping experience. (See "How Companies in China Blend Digital and Physical Commerce," BCG article, October 2017.) The technology behind Alibaba's New Retail is similar to Amazon Go's, such as cameras and facial recognition software for tracking and purchasing.

While Amazon is only just beginning to roll out Amazon Go, Alibaba already has 65 of its Hema grocery stores up and running and is slated to bring that number to 100 by the end of 2018. Hema emphasizes fresh food and features in-store dining. As they walk the aisles, shoppers are able to access product information such as country of origin and nutritional value using Hema's smartphone app. And shoppers within a few kilometers of a Hema store can order through the app and have their groceries delivered in 30 minutes. The number of shoppers living within that delivery radius will increase greatly as Alibaba opens a planned 2,000 Hema grocery stores across China over the next three to five years.

Exhibit 1 | Chinese Retail Giants Alibaba and JD.com Started Early and Are Moving Fast



Source: BCG.

Meanwhile, since 2014, users of Alibaba's Alipay have increasingly been able to use the online payment platform to shop not just for Alibaba-branded retail services in its home country but around the world. Unlike other payment platforms such as PayPal, Alipay doesn't charge foreign cross-border fees unless the payment is made using a foreign credit or debit card, making it a more cost-effective option for consumers. The mobile payments service not only supports a cashless experience but also further embeds Alipay users into the company's overall ecosystem.

JD.com features technology similar to that used at Amazon Go, such as RFID and facial recognition software—enabling customers to pay without using their wallets or their smartphones—in its hundreds of convenience stores and in its 7Fresh grocery stores, the first of which opened in January of 2018. 7Fresh goes a step further with the use of smart carts, which take shoppers directly to the aisles where the products they want are located, and screens that display products' nutritional value and place of origin. At just over 43,000 square feet, 7Fresh stores are slightly smaller than Hema's, which are typically just under 50,000 feet, but still significantly larger than the first 1,800-square-foot Amazon Go store (its second store is even smaller, at 1,450 square feet).

In 2014, JD.com teamed up with Intel to create augmented reality (AR) technology for uses outside of groceries, such as a 3D fitting room and a makeup mirror. The two companies unveiled a Chinese AR innovation alliance in May 2018 that includes Lenovo, Walmart, cosmetics maker Carslan, and other AR and retail partners. The AR mirror, for example, will be featured in Walmart and Carslan stores.

Where to Look Before You Leap

Retailers worldwide should already be paying close attention to Alibaba and JD.com. But the goal is not just to figure out how to compete with them but also how to possibly emulate or even team up with them. Before they begin, though, retailers must take a close look at their existing and target customers and at their ability to adapt to new technologies. These technologies may reveal flaws in a company's business model, which retailers should be prepared to reevaluate, along with any limitations to their current internal organizational structures. And as always with a new technology, companies should explore the benefits not only of buying whatever technology is needed but also of building it, either alone or with a partner.

Know your customer. Just because a technology exists doesn't mean it's right for your business. You will first need to determine if a meaningful portion of your customer base wants a particular technology—and wants it badly enough to shop elsewhere to get it. Be sure to also consider how nonconsumer-facing technology would affect the customer experience.

For each technology, ask the following questions:

- Does it align with our core customer's preferences and expectations?
- Does it fit with our local market? What about other geographies?
- Would it make our customers' shopping experience easier, faster, or more enjoyable?
- Would it provide customers with an added perk, such as exclusivity, or a pricing discount?

Consider your business model. Before making an investment in a new technology, you need to know not only if it will drive sales or lower costs but how it will do so. You should also determine whether the technology creates an opportunity for your store or a threat. If it creates an opportunity, how will that be diminished if a competitor implements the technology first? And do you have the resources to withstand failure? Be open to creating a new business model, if necessary.

Recognize your limits. Your organization likely has neither the size nor the scale of an Alibaba, a JD.com, or an Amazon, all of which have the resources to use the market as a testing ground. Most retailers need to take a more calculated approach. Many promising retail technologies, such as Walmart's Scan & Go, for example, have ended up being considered "before their time." Scan & Go, which was first introduced in 2014, was rolled out at Sam's Club and numerous Walmart locations before the retailer pulled it from all Walmart stores in April 2018.

Consider partnerships versus building. Once you have determined that a particular technology is right for your organization, you should examine whether teaming up with a third party to build it—or even buying it yourself—is a better option than building it in-house. (See "The Build-or-Buy Dilemma in AI," BCG article, January 2018.) Working with a partner not only accelerates the innovation process—especially when that partner is a technology provider (think JD.com and Intel)—but also can help hedge your position in the market. Plug-and-play solutions, too, offer the benefit of others' expertise, and they can help get your business up to speed quickly. However, building a proprietary technology—or working with a partner to build one—offers the advantage of control and the option to sell or license it out, creating another revenue stream.

Deploy, Test, or Watch?

The answer to whether it is best to deploy, test (in partnership or on your own), or simply watch how a particular technology develops will depend in large part on the technology itself. If a tech tool appropriate for your business is already up and running, it should be put into use as soon as possible, especially if it makes your operations less labor-intensive or otherwise reduces costs. Newer technologies may need to be tried out or—for the time being—merely observed. Be sure to consider your sector, store size, number of SKUs, and the experience you're looking to offer your customers. Customer adoption is key. If your customers aren't yet comfortable with a technology, it may need to be kept on the watch list for now. (See Exhibit 2.)

Below we list the high-level starting points for technology investments and the path ahead from each. These will vary by business and by technology—what for some retailers may be a "watch," for others may be a "deploys," and technologies will evolve and move between categories.

Deploy. Your organization must deploy these technologies now or risk falling behind. Gather the necessary resources and talent (or outsource it) to get them up and running quickly:

- **Self-Scan/Self-Checkout and Click & Collect.** Your checkout doesn't necessarily have to be cashier-free or automated, but it should be fast, which increases customer convenience and helps the bottom line.

- **RFID for High-Value Items.** Having inventory visibility across your supply chain has become table stakes. RFID and handheld scanning technologies enable precise, real-time inventory tracking for automated order replenishment of higher-value items.

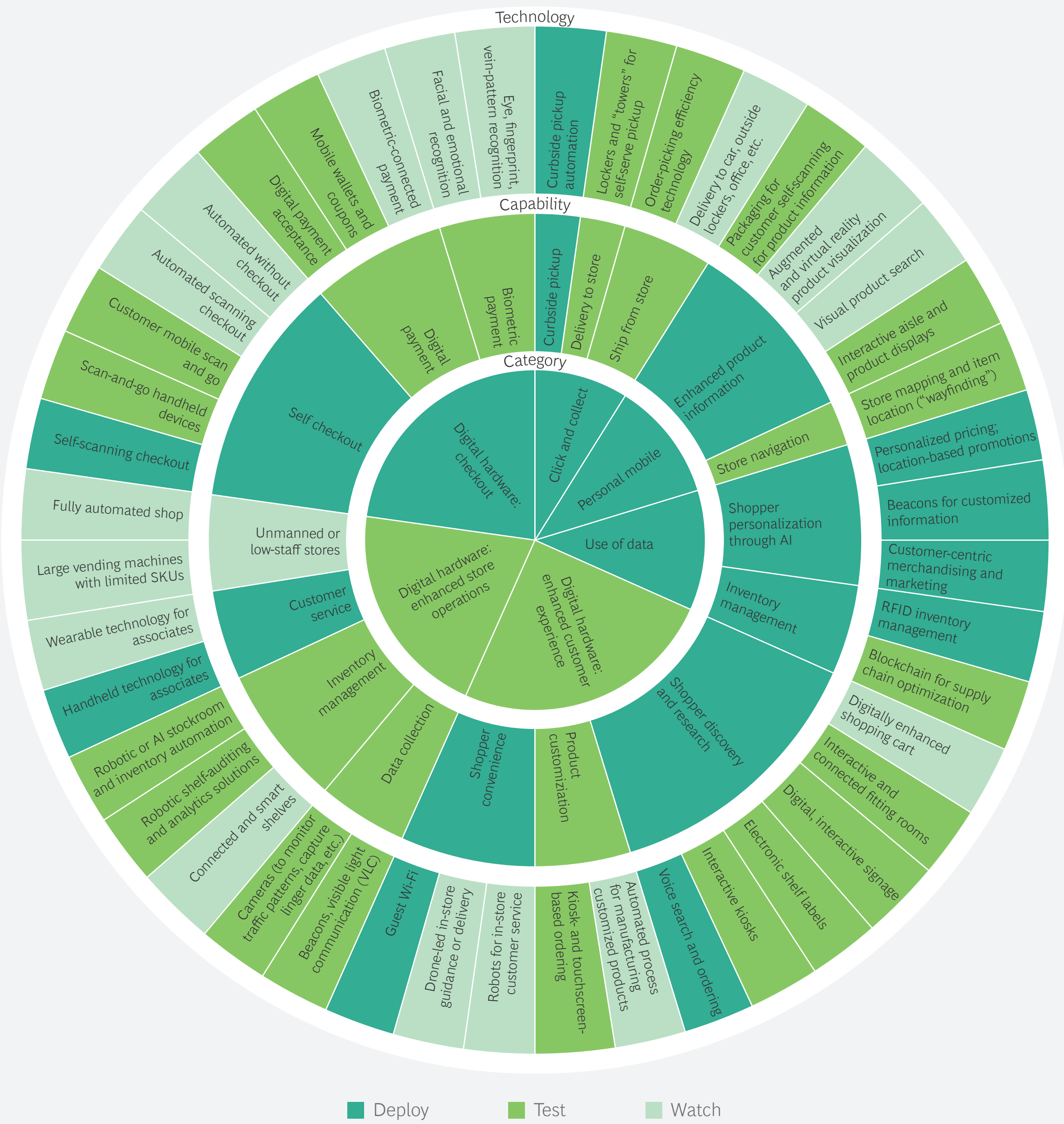
Test. These technologies are still in development, but now is the time to start testing and measuring whether they align with your customers, store formats, and business dynamics.

- **Camera Technology for Data Capture.** The camera technology now available to capture data is more accurate than ever before, and can be particularly useful in gathering customer flow and shopper traffic data for KPIs. Some retailers are already using it for large-scale loss prevention.

- **Voice Recognition Technology.** As the popularity of devices such as Google Home and Amazon Echo continues to grow, more and more shoppers will be looking to use similar voice technology in stores.

Exhibit 2 | A Heat Map Can Be Used to Plan Technology Investments

Every retailer must decide to deploy, test, or watch individual technologies according to its own unique needs. A heat map that contains the universe of possible technologies and how they relate to one another, like the example below, can help retailers visualize their plans and update them over time.



Source: BCG analysis.

- **Blockchain.** In addition to facilitating payments, blockchain greatly enhances the real-time accuracy and visibility of the supply chain.

- **Connected Shopping Lists.** By connecting the mobile shopping list apps to store maps, retailers can help customers navigate the store—and push them toward similar items and promotions.

- **Biometric Recognition Software.** While shoppers use this technology to make their purchases, retailers use it to gather data about those customers. Note, however, that its use has raised concerns among privacy experts.

- **RFID for Lower-Value Items.** As the price continues to drop, RFID is being tested for use with lower-value items such as groceries, where it will likely soon be economical.

Watch. These technologies are still developing and as yet are too expensive to scale. So, hold off for now, but monitor how companies with a high risk tolerance use them to better understand where the concepts work, where they don't, and how they can be improved. Be sure to track alignments with your customer base and to consider whether any of these technologies would generate a continued return on investment.

- **Fully Automated Stores.** Other retailers are already working on their own versions of Amazon Go and JD.com's cashier-free stores. Walmart, for example, is testing a fully automated store concept under an initiative it's calling Project Kepler.

- **Augmented Reality.** Retailers are using AR to enhance shoppers' in-store experience with virtual information that they can view through their smartphones, on in-store tablets or displays, or even on responsive-screen magic mirrors. For some categories, AR is already in the test or deploy phase: In addition to grocery and beauty, home-focused retailers such as IKEA, MADE.com, and Home Depot are using AR to help customers see what everything from furniture to appliances would look like in their space.

The future of retail has arrived—and it's not just Amazon Go. Chinese retailers are leading the way. By forging a path ahead so aggressively and at such a large scale with cutting-edge formats and technologies, Alibaba and JD.com have presented retailers worldwide with an unprecedented opportunity to observe shoppers' response to these innovations before deciding where they should go next.

Some retailers are teaming up with Chinese retailers to use the country as a testing ground. Carrefour, for example, recently opened its first Carrefour Le Marche store in partnership with Chinese retail giant Tencent in Shanghai. It plans to open two more in Shenzen before the end of 2018. As Thierry Garnier, Carrefour executive director for Asia, told Reuters, "We consider the Chinese market as a true laboratory that can inspire the rest of the group."

Other retailers are also ready to deploy new technologies to their formats. Whether it's time to deploy, test, or watch particular technologies in your store is ultimately up to you, but don't just look to Amazon Go before you decide; look first to China.

About the Authors

Brad Loftus is a senior partner and managing director in the Washington, DC, office of The Boston Consulting Group. You may contact him by email at loftus.brad@bcg.com.

Peter Burggraaff is an associate director in the firm's Amsterdam office. You may contact him by email at burggraaff.peter@bcg.com.

Bill Urda is a senior knowledge expert in BCG's Ho Chi Minh City office and a member of the firm's Consumer practice, specializing in the retail sector. You may contact him by email at urda.bill@bcg.com.

Allison Zeller is a senior knowledge analyst in the firm's Washington, DC, office. You may contact her by email at zeller.allison@bcg.com.

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