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WALMART: SUPPLY CHAIN MANAGEMENT[1]

Ken Mark wrote this case under the supervision of Professor P. Fraser Johnson solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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"Bring it on," said Walmart U.S. chief executive officer (CEO) Greg Foran, when asked about Amazon.com's moves to compete with Walmart Inc. (Walmart), the world's largest retailer. Foran was speaking at the Union Bank of Switzerland (UBS) Global Consumer and Retail Conference on March 7, 2019. "It galvanizes an organization into doing something," he said.[2] Walmart's supply chain strategy continued to evolve with its retreat from international markets,[3] a slowdown of retail expansion plans in the United States,[4] and a focus on its growing online business.[5]

With revenues of US$514 billion[6] in the fiscal year (FY) ended January 31, 2019,[7] Walmart achieved 4.2 per cent comparable sales growth in the United States in the fourth quarter of FY 2019, the best performance in the last decade. Its shares jumped 3.9 per cent higher on the news.[8]

As Walmart repositioned itself to grow its online presence, it added 1,000 grocery pickup locations during the past year and grew the number of grocery delivery locations to nearly 800. Walmart was working on the best way to deliver groceries directly to customers—it had a pilot test with Udelv for custom autonomous cargo vans to deliver groceries in Surprise, Arizona[9] and was collaborating with Ford on the development of self-driving cars for grocery deliveries.[10] These were only a few of the changes Walmart was making as it reshaped its supply chain strategy to tackle the "last mile."

Walmart seemed to have an advantage over Amazon in infrastructure. While Amazon had 75 fulfilment centres and 25 sortation centres in North America,[11] Walmart's vast store network in the United States was within 10 miles of 90 per cent of the U.S. population.[12] As competition between Walmart and its online and offline competitors continued to heat up, a key challenge facing Doug McMillon, the company's president and CEO, was deciding what changes needed to be made to Walmart's ever-expanding supply chain to support its strategic objectives. What supply chain capabilities would Walmart need as its business model continued to evolve?

THE RETAIL INDUSTRY

The top five global retailers in 2018 were Walmart ($514 billion), Amazon ($160 billion), the Schwarz Group in Germany ($102 billion), Carrefour in France ($89 billion), and Ahold Delhaize in The Netherlands ($71 billion).[13] U.S. retail sales, excluding motor vehicles and parts dealers, reached $6 trillion in 2018. Major categories included general merchandise, food and beverage, and health and personal care (see

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Exhibit 1). In the United States, retailers competed at local, regional, and national levels, with some of the major chains, such as Walmart and Costco, counting operations in foreign countries as well. In addition to the traditional one-store owner-operated retailer, the industry included formats such as discount stores, department stores (selling a large percentage of soft goods or clothing), variety and convenience stores, specialty stores, supermarkets, supercentres (combination discount and supermarket stores), Internet retailers, and catalogue retailers. Online retail sales were rising in importance in the United States, reaching $517.4 billion in 2018, with Amazon accounting for approximately 40 per cent of the total.[14]

There were two broad strategies in global retailing: variable pricing or "hi-lo pricing," and everyday low pricing (EDLP). Hi-lo pricing, practiced by retailers for decades, involved adjusting the retail price of items to optimize total gross margins. For example, at traditional grocery stores, while most prices of key items—such as milk, sugar, eggs, toothpaste, and detergent—were kept at market rates, a small number of products were discounted at below-market prices as part of short-term promotions. This strategy was used to attract customers with low-price offerings, expecting that they would also buy some of the high-price items, thereby expecting to increase overall profitability despite incurring losses on the few discounted items. Rotating promotional items allowed retailers to shift target customer segments.

On the other hand, an EDLP strategy meant that prices on items were generally consistent from week to week and were kept as low as possible in order to generate high consumer traffic. An EDLP strategy generally required the retailer to focus on opportunities to reduce operational and supply chain costs, which translated into lower retail prices. The goal, in an EDLP environment, was to generate higher aggregate gross profit by increasing the volume of items sold.

An emerging trend was demand from consumers for home delivery, especially from millennials, who prioritized convenience as part of the shopping process. This trend was spurred by the emergence of Amazon and other online retailers.[15]

WALMART STORES, INC.

Based in Bentonville, Arkansas, and founded by the legendary Sam Walton, Walmart was the number one retailer in the world with FY 2019 net income, from continuing operations, of $7.3 billion on sales of $514 billion (see Exhibit 2). Globally, Walmart had 2.2 million associates, conducted business in 27 countries, and served nearly 275 million customers each week in its more than 11,300 stores and numerous e-commerce websites that operated under 58 banners.[16] In the United States, Walmart had 1.5 million associates, and 5,362 stores and warehouse clubs.[17]

Beginning with its "big box" discount store format in the 1960s, Walmart's store formats around the world had grown to include supercentres, which were a larger version of a discount store that included groceries, merchandise, and apparel. Its strategy was to provide a broad assortment of quality products and services at "everyday low prices." In the United States, Walmart faced a wide range of competitors, including Target, Home Depot, Ikea, Costco, Kroger, Aldi, Walgreens, and CVS.[18] The company was also facing growing competition for large ticket general merchandise products and from online retailers, such as Amazon.com.

THE DEVELOPMENT OF WALMART'S SUPPLY CHAIN

Before he started Walmart Stores in 1962, Sam Walton owned a successful chain of stores under the Ben Franklin Stores banner, a franchisor of variety stores in the United States. Although he was under contract to purchase most of his merchandise requirements from Ben Franklin Stores, Walton was able to selectively purchase merchandise in bulk from other suppliers and transport these goods directly to his stores. When

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Walton recognized a new national trend, discount retailing—based on driving high volumes of product through low-cost retail outlets—he decided to open large warehouse-style stores, initially named "Walmart Discount City." Because many suppliers were not willing to send their trucks to his stores, which were located in rural Arkansas, Walton set up his own distribution operations.[19]

Walmart undertook an initial public offering in 1969 to raise funds to build its first distribution centre (DC) in Bentonville, Arkansas.[20] As the company grew between 1960 and 1990, it benefited from an improved national transportation infrastructure and the slow response of its competitors to changes in legislation, such as the removal of "resale price maintenance," which had prevented retailers from discounting merchandise. To keep an eye on his growing network, Walton piloted a small single-engine airplane, which he would land at air strips close to his stores.

Walmart's supply chain, a key enabler of its growth from its beginnings in rural Arkansas, was long considered by many to be a major source of competitive advantage for the company. It was one of the first firms to rely on data to make operational decisions, use bar codes, share sales data with suppliers, control its own logistics and transportation activities, and install point-of-sale information systems that collected item-level data in real time. As the company's supply chain practices became widely publicized, many of Walmart's practices were adopted by competitors and became industry standards.

Walmart.com

In the United States, Walmart had three main online programs: Walmart.com (launched in 2000), an online site selling an assortment of goods that were also available in company stores; Marketplace, a seamless platform that hosted third-party sellers on Walmart.com; and, Jet.com, a high-end retailer of consumer goods. The company was also partnering with major retail brands, such as Lord & Taylor and Advance Autoparts, to bring upscale brands to Walmart.com.

Launched in 2009, Walmart Marketplace was a third-party e-commerce platform that allowed independent sellers to sell both new and like-new products on Walmart.com. Many of these suppliers purchased overstocked items which were then resold. Some of the items that were sold by third-party resellers included $3,000 Celine bags, Miu Miu sunglasses, and Chanel perfume.[21]

To differentiate itself from Amazon, Walmart did not charge suppliers setup or monthly fees to list on Marketplace. However, Walmart did not allow its Marketplace sellers to use its supply chain network. Marketplace sellers had to fulfill orders on their own and manage customer service, including returns.

Walmart's e-commerce capabilities had been augmented when it purchased Jet.com in 2016 for $3.3 billion, positioning the site to target higher income urban shoppers.[22] The acquisition coincided with an effort by Walmart to source a larger variety of goods in an effort to attract a broader range of customers. For example, in 2015, Walmart.com had 7 million different items for sale online. By October 2018, it had over 75 million items online.[23] Doug McMillon indicated that Walmart had purchased Jet.com because of its customer service capabilities, e-commerce foundation, and talent base, along with the belief that both customer bases were complementary. Jet.com focused on urban millennials and offered online features that allowed shoppers to lower prices by opting out of free returns and paying with debit cards instead of credit cards. In contrast, Walmart.com featured low prices and attracted value-conscious buyers. McMillon was looking to grow both online businesses, stating:

> We're in the business of "saving people money so that they can live better." But the value of our customers' time cannot be overstated. To win the future of retail, we must save customers both

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> money and time. By combining with Jet.com's technology, shopping experience, customers, and talent, we will do exactly that. We will exceed their expectations![24]

In addition to trying to reach a higher income demographic by partnering online with retailers such as Lord & Taylor,[25] Walmart was looking to offer higher-end brands on its site. It purchased Bonobos, an online designer and seller of higher-end men's clothing; Moosejaw, an online outdoor products retailer; Hayneedle, an online furniture and home décor shop; and Shoebuy, an online shoe retailer. In October 2018, Walmart purchased plus-size digital brand Eloquii and lingerie retailer Bare Necessities.[26]

In May 2018, Walmart purchased 77 per cent of India's Flipkart, an e-commerce retailer, for $16 billion. Of that amount, $2 billion was earmarked for funding growth. Walmart intended for Flipkart to ". . . support national initiatives and . . . bring sustainable benefits in jobs creation, supporting small businesses, supporting farmers and supply chain development, and reducing food waste."[27] In February 2019, India introduced new e-commerce restrictions that prevented foreign online retailers from selling their own products online, restricting them to ". . . operate marketplace platforms where others sell goods to retail consumers."[28] The result was that Flipkart had to pull thousands of products offline.[29]

The combination of an improved Walmart.com website, positioning Jet.com at higher-end customers, and allowing third-party sellers to use Walmart Marketplace resulted in online revenue growth of 40 per cent to $15.7 billion in FY ended January 31, 2019.[30] Amazon's U.S. e-commerce sales were $206.82 billion in 2018, up 16.3 per cent from 2017.[31]

In an effort to raise profits—and recognizing that fulfilling orders online was more expensive—Walmart began raising prices on Walmart.com for basic food and household items.[32] A Morgan Stanley data analysis found that while Walmart dominated the market for lower-income consumers, Amazon attracted higher-income consumers.[33]

Procurement

Walmart's buyers, located in Bentonville, worked with suppliers to ensure that the correct mix of staples and new items was ordered. As Walmart grew, many of Walmart's largest suppliers opened offices in Bentonville, staffed by analysts and managers supporting Walmart's business.

Walmart expanded its global sourcing in the mid-1980s by establishing international purchasing offices in China and other countries, and working directly with suppliers to expand the company's line of private-label merchandise. Private-label products were appealing to customers as they were often priced at a discount to brand-name merchandise; for Walmart, the private-label items generated higher margins than suppliers' branded products. Private-label sales at Walmart, first developed in the 1980s, accounted for approximately 16 per cent of revenues, compared to about 25 per cent at U.S. rivals Safeway and Kroger. This was because Walmart's strategy was to procure top brands in volume and sell them at low prices.[34]

Every quarter, buyers met in Bentonville to review new merchandise, exchange information, and review a fully merchandised prototype store, which was located in a warehouse. In order to gather field intelligence, buyers toured stores and helped associates stock and sell merchandise. In addition to helping coordinate short-term plans for deliveries and inventories, Walmart worked with suppliers on medium- to long-term supply chain strategies, including product trends, capacity management, cooperation with upstream raw materials suppliers, and forecasting.

Globally, Walmart was thought to have approximately 60,000 suppliers,[35] of whom about 200—such as Nestlé, Procter & Gamble (P&G), Unilever, and Kraft—were key global suppliers. Walmart wielded

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enormous power over its suppliers. For example, P&G sales to Walmart represented 15 per cent of its annual revenues in 2018 but approximately two per cent of Walmart revenues.[36]

During negotiations with suppliers, Walmart insisted on a single invoice price and did not pay for co-operative advertising, discounting, or distribution. With Walmart's expectations for data analysis, category management responsibilities, and external research, it was common for key suppliers to have several employees working full-time to provide support. In order to harness the knowledge of its suppliers, "category captains" were introduced in the late 1980s to provide recommendations to improve overall category performance, including shelf space allocation for all suppliers.

Walmart announced in February 2019 that it would allow suppliers, such as P&G, Unilever, and Modelez, to advertise directly to consumers in its stores and online at Walmart.com.[37] The company had approximately 300 million visitors to its U.S. stores per month and the retailer was looking to generate revenues and boost profits. The move came at a time when Amazon was positioned to surpass Microsoft in online advertising revenues, moving into third place behind Google and Facebook in the $111 billion U.S. digital ad market.[38]

Distribution

Walmart's store openings were driven directly by its distribution strategy. Sam Walton had insisted on saturating the area within a day's driving distance of a DC in order to gain economies of scale, with an average distance of approximately 130 miles. This "hub-and-spoke" distribution-led store expansion strategy persisted as Walmart expanded from its roots in Arkansas, adding thousands of U.S. stores.

In 2019, Walmart had 173 DCs in the United States with 125.8 million square feet of total space.[39] Its DCs were focused on a variety of roles in the supply chain, including regional general merchandise, full-line grocery, grocery and perishable food, fashion, e-commerce fulfilment centres, specialty products (e.g., export, optical labs, pharmacy, returns processing, tires, print, and mail), import and redistribution, centre point,[40] and Sam's Club DCs. Approximately 77 per cent of store merchandise was shipped through its DC network with the remainder shipped direct-to-store (DSD) by suppliers.[41] Exhibit 3 provides data showing the number and type of U.S. distribution centres.

Walmart announced in January 2019 that it would add consolidation centres to improve supply chain efficiency. The current practice was for domestic suppliers with goods already in the United States to ship goods to one or more of the company's 42 regional general merchandise DCs. Suppliers sending goods from abroad would send their product to Walmart's import and redistribution centre points, and goods would then be sent to regional general merchandise DCs. In July 2019, Walmart planned to build its first consolidation centre, a 340,000 square foot high-tech distribution centre to receive product from suppliers. The new technology in the consolidation centre was expected to be three times faster than the manual processes used in traditional DCs. Walmart anticipated that it would add 10 consolidation centres to its supply chain network, which would ship product to regional general merchandise DCs.[42]

The company estimated that incomplete deliveries resulted in one-third of out-of-stock incidents in its stores. As a result, in 2019 Walmart increased requirements for on-time delivery performance. Suppliers shipping full truckload orders were now expected to meet their two-day window 87 per cent of the time, up from 85 per cent previously. Suppliers delivering less-than-truckload amounts were expected to deliver on time 70 per cent of the time, up from 50 per cent. Suppliers who did not meet its "on time, in full" guidelines would be fined 3 per cent of the amount invoiced.[43]

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The company employed approximately 8,000 truck drivers in the United States, who logged nearly 740 million miles per year. Walmart's truck fleet included an estimated 6,000 tractors, 53,500 trailers, and 5,600 refrigerated trailers.[44] General merchandise and dry grocery merchandise in the United States was transported primarily through Walmart's private truck fleet, and the company contracted with common carriers to transport the majority of its perishable grocery merchandise. Walmart invested in capabilities to improve delivery processes, coordinating and deploying the entire fleet as necessary. Uniform operating standards ensured that miscommunication between traffic coordinators, truckers, and store level associates was minimized.[45]

Walmart categorized its inventory into four distinct types: finished goods, and transit, buffer, and anticipation inventory. Finished goods referred to inventory that arrived from suppliers and was shipped, at regular intervals, to stores. Transit inventory referred to goods that were being transported via Walmart's global supply chain to warehouses. Buffer inventory was extra stock held in stores' backrooms to account for sudden and unexpected increases in demand. Anticipation inventory referred to goods held in stock for specific periods of high demand, such as Black Friday.[46]

Information Systems

As early as 1966, Sam Walton made information systems a focus at Walmart. The retailer had a central database by the 1980s, point-of-sale systems, and a satellite network. It launched its industry-leading Retail Link system in 1992, which was initially created to share inventory data with key suppliers. By 2019, Retail Link was a comprehensive information system providing all suppliers with access to information and decision support tools. Suppliers were able to use Retail Link to access real-time data on inventories and sales at the stock keeping unit (SKU) level, and download to purchase orders. Incorporating information on product performance and regional consumer demographics, Retail Link provided decision support systems that allowed suppliers to make data-driven decisions in areas such as sales forecasting, route scheduling, and assortment planning. Its capabilities provided even Walmart's smallest suppliers with tools once reserved for only large companies.[47]

The access to the Retail Link resources also came with increased accountability for suppliers. It allowed Walmart to offload data analysis to suppliers, expecting them to proactively monitor and replenish product on a continual basis, setting targets for supply chain inventories and service levels. The company's vendor managed inventory (VMI) program required suppliers to manage inventory levels at the company's distribution centres, based on agreed service levels. In some situations, suppliers owned the inventory in Walmart stores up to the point that the sale was scanned at checkout.

Walmart was an early adopter of RFID (radio frequency identification) tags to ensure cases of product moved efficiently through its distribution system, and it was estimated that Walmart saved $500 million a year by using RFID in its operations.[48]

Store Network

Sam Walton was an original adopter of EDLP at a time when most retailers in the 1960s and 1970s, such as K-Mart, practiced hi-low pricing. EDLP was a strategy that Walmart refined over the decades.

EDLP allowed Walmart to keep its costs low. Steady demand for product allowed management to control inventories and reduce stock-outs. The absence of promotions and discounts meant less spending on advertising. In turn, the company channelled the savings to lower prices. Walmart grew rapidly as customers were attracted by its assortment of low-priced product, as other retailers faltered. Over time, the

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company copied the merchandise assortment strategies of other retailers. It bought in bulk, bypassing distributors, and passed savings on to consumers.

Similar to its logistics operations, the company strived to optimize the efficiency of its stores through efforts to continually reduce costs. Its stores were simply furnished and constructed using standard materials, and light and temperature settings for all U.S. stores were controlled centrally from Bentonville.

Each Walmart store aimed to be the "store of the community." The display of merchandise was suggested by a store-wide template, indicating the layout of Walmart's various departments. This template was created by Walmart's merchandising department after analyzing data from Retail Link and the profile of the local community. Associates were able to alter the merchandising template to fit their local store requirements. Shelf space in Walmart's different departments—from shoes to household appliances to automotive supplies—was divided up, each spot allocated to specific SKUs. Thus, two Walmart stores a short distance apart could potentially stock different merchandise.

Retail Link provided Walmart DCs with close to real-time information on stores' in-stock levels, allowing merchandise to be pulled to stores automatically. In addition, store level information systems allowed suppliers to monitor product sales. In anticipation of changes in demand for some items, associates had the authority to manually input orders or override impending deliveries. To ensure that associates were kept up-to-date, management shared detailed information about day, week, and month store sales with all associates during daily 10-minute long "standing" meetings.

In 2018, Walmart announced that it would raise the hourly wages for entry level associates to $11—providing total compensation including benefits, of more than $17.50—in an effort to attract and retain talent.[49] The company was also experimenting with organizational models that would provide more decision-making power to people on the floor, in areas such as pricing and handling returns, thereby allowing reductions in manager ranks. Other cost-cutting initiatives included the use of automation and robots in stores to monitor inventory, clean floors, and unload trucks more quickly.[50]

In 2019, Walmart was expected to add just 10 stores in the United States as it focused on remodelling existing stores and building its e-commerce capabilities. As part of its focus on online, Walmart had closed 150 U.S. stores in 2015. Exhibit 4 provides a summary of Walmart capital expenditures for 2016–2019.

FOCUSING ON THE SUPPLY CHAIN

Walmart remained focused on improving its supply chain capabilities. In addition to implementing zero-based budgeting, the company was evaluating more than 300 technology-enabled initiatives to improve efficiency and to reduce costs. Some recent initiatives included warehouse unloading equipment, shelf-scanning robots, electronic shelf-edge labels, and development of new apps. Specifically, senior management had identified two broad areas where supply chain initiatives were critical to support corporate strategy: integrating retail stores and e-commerce to enhance the omnichannel experience of customers, and increasing the use of technology to assist customers and to reduce costs.[51]

Omnichannel

Walmart aimed to provide seamless omnichannel experience to customers, integrating retail stores and e-commerce systems, through services such as Walmart Pickup, Pickup Today, Grocery Pickup, Grocery Delivery, and Endless Aisle. Shoppers could order online, select a pickup time, and pick up their groceries at

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thousands of stores without leaving their cars. Marc Lore, president and CEO of Walmart U.S. e-commerce, commented on the opportunities at Walmart to integrate its store network with its e-commerce business:

> Wal-Mart has some really unique assets that no one else has. To date, we haven't fully leveraged the scale of Wal-Mart, specifically its 4,600 stores within 10 miles of 90 percent of the population. Fresh, frozen, over 100,000 general-merchandise SKUs are in that proximity. That product gets there in full truckloads—not cases and pallets—and those 4,600 warehouses are profitable. They're already covering their entire fixed expense. So each marginal dollar that ships out of there comes out at an incredible profit.[52]

Walmart's foray into grocery pickup and delivery began in 2014 when it introduced curbside pickup. Meanwhile, the U.S. online grocery market was growing rapidly—Forrester Analytics estimated that by 2022, the online grocery market would be valued at $36.5 billion, up from $26.7 billion in 2018. In 2019, Walmart had more than 2,100 grocery pickup locations and nearly 800 grocery delivery locations.[53]

Walmart was hoping that customers would come to the stores for the best deals on inexpensive items and place larger orders online. Speaking to an investor conference, Marc Lore observed that ". . . there's no cheaper way to get these products to consumers than have them come in the store and pick it off the shelf themselves."[54]

In April 2019, Walmart announced it had hired 40,000 store workers to pick groceries for online orders. The company was installing 900 pickup towers—each 16-feet high and located in the store parking lots—that would allow customers to pick up online orders without speaking to a store associate.[55] Customers placed orders online at Walmart.com or on the smartphone app and then received a barcode. When the order was ready, customers could go to a pickup tower in the Walmart parking lot, enter a barcode, and then wait for their products to be brought to them via conveyor belts.[56]

In a test in Nashville and New Orleans in September 2018, Walmart worked with Spark Delivery, a crowd-sourced delivery platform that matched independent drivers with Walmart delivery orders. Once orders were placed, Walmart's personal shoppers would pick up the merchandise and hand the orders off to independent delivery drivers managed by Delivery Drivers, Inc., a logistics service provider.[57] In September 2018, Walmart purchased Cornershop for $225 million.[58] Cornershop was a crowdsourced delivery platform for supermarkets, pharmacies, and food retailers in Mexico and Chile.[59] Walmart announced partnerships in January 2019 with Point Pickup, Skipcart, AxleHire, and Roadie, aimed at providing home delivery services to customers.[60] On June 7, 2019, Walmart announced the launch of a service, Walmart InHome, which would see employees deliver groceries directly to a customer's fridge. The service would be available in three cities: Kansas City (Missouri), Pittsburgh (Pennsylvania), and Vero Beach (Florida), and employees would wear body cameras, for security purposes, and enter residences equipped with smart locks that could be remotely unlocked.[61]

However, not all of Walmart's omnichannel experiments had been successful. In August 2017, Walmart had partnered with Google Express to make Walmart products available on Google's online marketplace. But Google confirmed via Twitter, on January 22, 2019, that Walmart products had been withdrawn from its online shelves.[62]

In January 2017, Walmart abandoned its effort to create a rival to Amazon Prime. The program, ShippingPass, had been introduced in 2015 and offered free two-day shipping for customers who paid a $49 membership fee. The program was replaced by free shipping for all orders greater than $35.[63]

An attempt by Walmart to turn its U.S. associates into an after-hours delivery workforce was scrapped in July 2018. A report in the industry magazine *Chain Store Age* noted that ". . . the initiative failed to gain

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traction in New Jersey specifically, due to employees being required to use their own cars and insurance policies during deliveries. Many also had no prior experience as couriers with a delivery service."[64]

Technology

In 2019, Walmart was engaged in a number of technology-related initiatives aimed at improving the customer experience and reducing costs. In September 2018, Walmart announced that some food suppliers would need to implement blockchain technology as part of a food traceability program. The objective was to track leafy greens, such as lettuce and spinach, from farm to store to improve food safety and quality.[65]

In April 2019, Walmart introduced robots in 300 U.S. stores to scan shelf inventory and boxes as they were unloaded from trucks.[66] Robotic floor scrubbers were deployed in 1,500 stores after having been tested in stores in 2018.[67] Walmart was also running an experiment with a shelf-scanning robot that travelled up and down store aisles, verifying shelf labels and looking for gaps in shelves signalling that product was out-of-stock.[68] Another robot picked refrigerated and frozen products to assist in filling grocery pickup orders.[69]

The company was also actively developing new apps for customers and store associates. The My Productivity app was designed to improve inventory management in stores. Associates could access the app on their smartphone and review real-time data and sales trends. It allowed associates to reorder specific items and respond to customer questions if needed. The company also launched Dotcom Store, an app that allowed associates to place orders for customers on Walmart.com, if products were not available or if they were out-of-stock.[70] Walmart also launched a detailed mobile store map for customers looking to navigate a particular store and "Check Out with Me"—an app that allowed customers to pay for their purchases while they were shopping.[71]

WALMART'S QUIET TRANSFORMATION

In 2019, Walmart was transforming itself—leveraging its store network and investing heavily in e-commerce—as part of a new strategy. The company had sold its Brazilian operations, while a proposed sale of its Asda chain to Sainsbury had been blocked by Britain's Competition and Market's Authority.[72] As it positioned itself to attract higher income customers online and invest in labour-saving technology, there was one part of the market that Walmart seemed to have vacated: the small-town, rural markets where it had started in the 1960s. Meanwhile, a new competitor, Dollar General, had built a strategy of opening its small stores in ". . . damaged inner-city neighbourhoods with basic goods at basic prices."[73]

Walmart's supply chain had grown more complex over time (see Exhibit 3). The company had saturated the United States with stores within minutes of 90 per cent of the country's population while simultaneously improving supply chain operations. Traditional customers still visited Walmart stores to stock up on food and merchandise at low prices. But now the world's largest retailer was in the middle of a transformation in the face of threat from a new class of competitors—online retailers, led by firms such as Amazon—who were winning over customers with a wider variety of goods and the convenience of home delivery.

While Amazon offered free shipping and other online services, such as streaming music and video, with its $119 annual Prime membership, Walmart provided free two-day shipping for orders over $35 to all customers.[74] On April 26, 2019, Amazon rattled the industry by announcing that Prime members would be getting free one-day delivery. Walmart responded in a tweet: "One-day free shipping . . . without a membership fee. Now THAT would be groundbreaking. Stay tuned."[75]

As Walmart's business model continued to evolve, a key challenge facing Doug McMillon was determining how Walmart's supply chain strategy would need to change to meet the challenges facing the company.

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EXHIBIT 1: U.S. RETAIL CATEGORIES (PARTIAL LIST) (IN US$ BILLIONS)

Category	2018
General merchandise stores	714.3
Food and beverage	742.5
Food services and drinking places	716.3
Gasoline	515.0
Building materials and gardening equipment and supplies	390.1
Furniture, home furnishings, electronics, and appliances	121.4
Health and personal care	345.3
Clothing and clothing accessories	274.7
Sporting goods, hobby, books, music	78.4

Source: “Advance Monthly Sales for Retail and Food Services, December 2018,” United States Census Bureau, February 14, 2019, accessed March 8, 2019, www.census.gov/retail/marts/www/marts_current.pdf.

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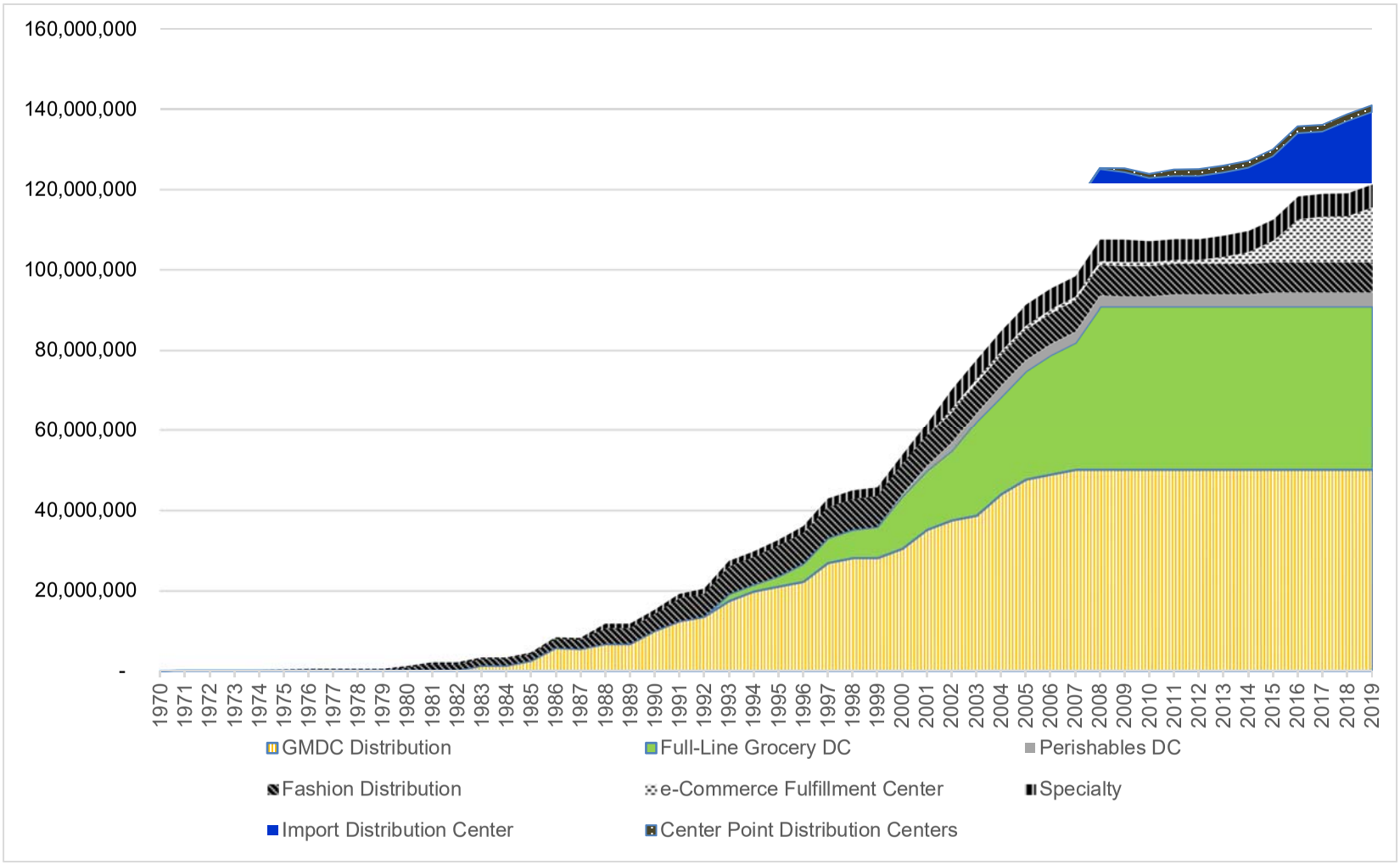
EXHIBIT 2: KEY FINANCIAL INFORMATION FOR AMAZON, WALMART, AND TARGET* (IN US$ MILLIONS)

Walmart (Fiscal year end January 31)	**2015**	**2016**	**2017**	**2018**	**2019**
Total revenue	485,651	482,130	485,873	500,343	514,405
Cost of sales	365,086	360,984	361,256	373,396	385,301
Operating income	27,147	24,105	22,764	20,437	21,957
Net income (loss)	16,363	14,694	13,643	9,862	7,179
Total shareholders' equity	85,937	83,611	80,535	80,822	79,634
Accounts receivable, net	6,778	5,624	5,835	5,614	6,283
Accounts payable	38,410	38,487	41,433	46,092	47,060
Inventories	45,141	44,469	43,046	43,783	44,269
Total assets	203,706	199,581	198,825	204,522	219,295
Amazon (Fiscal year end December 31)	**2014**	**2015**	**2016**	**2017**	**2018**
Net sales	88,988	107,006	135,987	177,866	232,887
Product & Services sales	70,080	79,268	94,665	118,573	207,232
AWS	4,644	7,880	12,200	17,459	25,655
Cost of sales	62,752	71,651	88,265	111,934	139,156
Operating income					
Product & Services sales	1,148	2,660	1,078	(225)	5,125
AWS	660	1,863	3,100	4,331	7,296
Fulfilment expenses	10,766	13,410	17,619	25,249	34,027
Net income (loss)	(241)	596	2,371	3,033	10,073
Total shareholders' equity	10,741	13,384	19,285	27,709	43,549
Accounts receivable, net	5,612	6,423	8,339	13,164	16,677
Accounts payable	16,459	20,397	25,309	34,616	38,192
Inventories	8,299	10,243	11,461	16,047	17,174
Total assets	54,505	65,444	83,402	131,310	162,648
Target (Fiscal year end February 2)	**2015**	**2016**	**2017**	**2018**	**2019**
Total revenue	72,618	73,785	70,271	72,714	75,356
Cost of sales	51,278	51,997	48,872	51,125	53,299
Operating income	4,535	5,530	4,969	4,312	4,110
Net income (loss)	2,449	3,321	2,669	2,928	2,937
Total shareholders' equity	13,997	12,957	10,953	11,709	11,297
Accounts receivable, net	493	379	385	416	468
Accounts payable	7,759	7,418	7,252	8,677	9,761
Inventories	8,790	8,601	8,309	8,657	9,497
Total assets	41,404	40,262	37,431	38,999	41,290

Note: *Amazon's fiscal year (FY) end was December 31. Walmart's and Target's FY end was approximately 30 days later, but in the following calendar year. For example, Walmart's FY end was January 31, 2019, and Amazon's 2018 FY end was December 31, 2018.
AWS = Amazon Web Services
Source: Amazon.com Inc., Walmart Inc., and Target Corporation, "Key Financial Information, 2015–2019," Mergent, accessed May 29, 2019.

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EXHIBIT 3: WALMART—U.S. DISTRIBUTION CENTERS—GROWTH 1970–2019*



Note:* Total square feet by type of distribution centre.
Source: Created by case authors using date from MWPVL International, "The Walmart Distribution Center Network in the United States," 2019, accessed April 5, 2019, www.mwpvl.com/html/walmart.html.

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EXHIBIT 4: WALMART U.S. CAPITAL EXPENDITURES (IN US$ MILLIONS)

	2019	2018	2017	2016
E-commerce, technology, supply chain, and other	5,218	4,521	4,162	3,963
Remodels	2,152	2,009	1,589	1,390
New stores and clubs, including expansions and relocations	313	914	2,171	3,194
Total U.S.	7,683	7,444	7,922	8,547

Sources: Walmart, *2019 Annual Report: Defining the Future of Retail*, 2019, accessed May 3, 2019, https://s2.q4cdn.com/056532643/files/doc_financials/2019/annual/Walmart-2019-AR-Final.pdf; Walmart, *Walmart: 2017 Annual Report, Moving with Speed*, 2017, accessed May 3, 2019, https://s2.q4cdn.com/056532643/files/doc_financials/2017/Annual/WMT_2017_AR-(1).pdf.

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ENDNOTES

[1] This case has been written on the basis of published sources only. Consequently, the interpretation and perspectives presented in this case are not necessarily those of Walmart Inc. or any of its employees.
[2] Hayley Peterson, "Walmart US CEO Tells Rivals Amazon, Aldi, and Lidl to 'Bring It on' as He Offers a Rare Look Inside the Company's Competitive Strategies," *Business Insider*, March 7, 2019, accessed March 7, 2019, www.businessinsider.com/walmart-ceo-reveals-strategies-against-amazon-aldi-and-lidl-2019-3.
[3] Anna Nicolao, "Walmart's UK Deal Signals a Rethink on Overseas Expansion," *Financial Times*, April 30, 2018, accessed March 7, 2019, www.ft.com/content/ef3fd640-4c8d-11e8-8a8e-22951a2d8493.
[4] Aine Cain, "The 'Backbone' of Walmart's Business Is Fading—But It Was Likely an Inevitable Shift for the Retail Giant," *Business Insider*, November 6, 2018, accessed March 7, 2019, www.businessinsider.com/walmart-supercenters-no-longer-expanding-2018-10.
[5] Pamela N. Danziger, "Walmart Doubles Down On Its Transformation Into A Technology Company," *Forbes*, October 22, 2018, accessed March 7, 2019, www.forbes.com/sites/pamdanziger/2018/10/22/walmart-doubles-down-on-its-transformation-into-a-technology-company/#4409da69404c.
[6] All currency amounts are in U.S. dollars unless specified otherwise.
[7] Walmart Inc, "Walmart U.S. Q4 Comp Sales(1) Grew 4.2% and Walmart U.S. eCommerce Sales Grew 43%, Q4 2019 GAAP EPS of $1.27," Walmart, February 19, 2019, accessed June 26, 2019, https://news.walmart.com/2019/02/19/walmart-us-q4-comp-sales-1-grew-42-and-walmart-us-ecommerce-sales-grew-43-q4-2019-gaap-eps-of-127.
[8] Matthew Boyle, "Walmart Surges After Reporting Its Best Holiday Quarter in Years," Bloomberg, February 19, 2019, accessed March 7, 2019, www.bloomberg.com/news/articles/2019-02-19/walmart-allays-retail-jitters-with-best-holiday-quarter-in-years.
[9] Nandita Bose, "Why Walmart Farms out Same-day Grocery Deliveries to Low-cost Freelance Drivers," Reuters, February 14, 2019, accessed April 30, 2019, www.reuters.com/article/us-walmart-labor-outsource-focus/why-walmart-farms-out-same-day-grocery-deliveries-to-low-cost-freelance-drivers-idUSKCN1Q30JS.
[10] Walmart, "Walmart U.S. Q4 Comp Sales (1) Grew 4.2% and Walmart U.S. eCommerce Sales Grew 43%, Q4 2019 GAAP EPS of $1.27," op. cit.
[11] Patrick Sisson, "9 Facts about Amazon's Unprecedented Warehouse Empire," Curbed, November 19, 2018, accessed March 7, 2019, www.curbed.com/2017/11/21/16686150/black-friday-2018-amazon-warehouse-fulfillment.
[12] Nandita Bose, "Walmart Discovers Why the 'Last Mile' Is the Hardest," livemint, July 30, 2018, accessed March 7, 2019, www.livemint.com/Companies/Uq2cw0QQhBkJ8mlOPClyfM/Walmart-discovers-why-the-last-mile-is-the-hardest.html.
[13] "Top 50 Global Retailers," *Stores: NRF's Magazine*, accessed March 30, 2019, https://stores.org/2018-top-50-global-retailers/.
[14] Fareeha Ali, "US Ecommerce Sales Grow 15.0% in 2018," Digital Commerce 360, February 28, 2019, accessed March 7, 2019, www.digitalcommerce360.com/article/us-ecommerce-sales/.
[15] Francine Kopun, "Grocery Stores Prioritizing Online Ordering, Home Delivery as Millennials Take over Market," *The Star,* June 1, 2018, accessed March 7, 2019, www.thestar.com/business/2018/06/01/grocery-stores-prioritizing-online-ordering-home-delivery-as-millennials-take-over-market.html.
[16] Walmart, *2019 Annual Report: Defining the Future of Retail*, 2019, accessed May 2, 2019, https://s2.q4cdn.com/056532643/files/doc_financials/2019/annual/Walmart-2019-AR-Final.pdf.
[17] "Location Facts," Walmart, accessed March 7, 2019, https://corporate.walmart.com/our-story/locations/united-states#/united-states.
[18] Hitesh Bhasin, "Top Walmart Competitors," Marketing 91, June 14, 2018, accessed March 7, 2019, www.marketing91.com/walmart-competitors/.
[19] "Our History," Walmart, accessed March 7, 2019, Walmart, https://corporate.walmart.com/our-story/our-history.
[20] Steven Nickolas, "If You Had Invested in Walmart Right after Its IPO," Investopedia, November 5, 2015, accessed March 7, 2019, www.investopedia.com/articles/markets/110515/if-you-had-invested-walmart-right-after-its-ipo.asp.
[21] Kate Dingwall, "Consumers Can Buy and Sell Luxury Brands at Walmart," Fashion Network, December 8, 2016, accessed May 5, 2019, www.fashionnetwork.com/news/Consumers-can-buy-and-sell-luxury-brands-at-Walmart,762287.html#.XPqAn0cpBGo.
[22] Trefis Team, "How Much of Wal-Mart's Revenue Will Come from E-Commerce In 2020?," Forbes, November 27, 2017, accessed April 30, 2019, www.forbes.com/sites/greatspeculations/2017/11/27/how-much-of-wal-marts-revenue-will-come-from-e-commerce-in-2020/#5567d85c59f2.
[23] Ben Fox Rubin, "Walmart Adding Millions More Items to Two-Day Shipping Program," Cnet, October 22, 2018, accessed June 6, 2019, www.cnet.com/news/walmart-adding-millions-more-items-to-two-day-shipping-program/.
[24] Doug McMillon, "Five Big Reasons Walmart Bought Jet.com," Walmart Today, September 19, 2019, accessed April 30, 2019, https://blog.walmart.com/business/20160919/five-big-reasons-walmart-bought-jetcom.
[25] "Lord & Taylor Flagship Store Will Debut on Walmart.com with More than 125 Premium Brands," Walmart, May 16, 2018, accessed April 30, 2019, https://news.walmart.com/2018/05/15/lord-taylor-flagship-store-will-debut-on-walmartcom-with-more-than-125-premium-brands.
[26] Nathaniel Meyersohn, "Walmart's Strategy to Solve the Amazon Puzzle Is Working," CNN Business, October 20, 2018, accessed March 7, 2019, www.cnn.com/2018/10/19/business/walmart-stores-grocery-pickup-amazon/index.html.
[27] Jon Russell, "Walmart Completes Its $16 Billion Acquisition of Flipkart," August 20, 2018, accessed March 7, 2019, https://techcrunch.com/2018/08/20/walmart-flipkart-deal-done/.
[28] Sankalp Phartiyal, "Walmart, Amazon Scrambling to Comply with India's New E-Commerce Rules," Reuters, January 31, 2019, accessed March 7, 2019, www.reuters.com/article/us-india-ecommerce/walmart-amazon-scrambling-to-comply-with-indias-new-e-commerce-rules-idUSKCN1PP1PN.

This document is authorized for use only by wassal Al Malki, CFA in 2021.

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[29] James Vincent, "Amazon and Walmart Hit Hard after New E-Commerce Rules in India Restrict Sales," The Verge, February 1, 2019, accessed March 7, 2019, www.theverge.com/2019/2/1/18206538/amazon-walmart-flipkart-india-e-commerce-rules-regulation-chaos.
[30] Sebastian Herrera, "In Amazon vs. Walmart Delivery Battle, a Fresh Salvo," *The Wall Street Journal*, June 3, 2019, accessed June 6, 2019, www.wsj.com/articles/amazon-in-war-with-walmart-touts-one-day-delivery-gains-11559563200.
[31] Fareeha Ali, op. cit.
[32] Sarah Nassauer, "Now Featured on Wal-Mart's Website: Higher Prices than Stores," *The Wall Street Journal*, November 12, 2017, accessed April 3, 2019, www.wsj.com/articles/now-featured-on-wal-marts-website-higher-prices-1510517219.
[33] Nathaniel Meyersohn, op. cit.
[34] Jonathan Birchall, "Wal-Mart Unveils Plans for Own-label Revamp," *Financial Times*, March 16, 2009, accessed January 15, 2012, www.ft.com/intl/cms/s/0/762b1f80-1259-11de-b816-0000779fd2ac.html#axzz1lv8XtooH.
[35] John Laumer, "Walmart to 60,000 Suppliers: We've Got 15 Really Important Questions for You," Treehugger, July 16, 2009, accessed April 30, 2019, www.treehugger.com/corporate-responsibility/walmart-to-60000-suppliers-weve-got-15-really-important-questions-for-you.html.
[36] P&G, *2018 Annual Report* accessed May 2, 2019, www.pginvestor.com/Cache/1001242072.PDF?O=PDF&T=&Y=&D=&FID=1001242072&iid=4004124.
[37] Nandita Bose, "Walmart Hopes to Boost Ad Business by Letting P&G, Unilever Advertise in Stores, Online," Reuters, February 26, 2019, accessed April 6, 2019, https://uk.reuters.com/article/walmart-suppliers-advertising/walmart-hopes-to-boost-ad-business-by-letting-pg-unilever-advertise-in-stores-online-idUKL3N20L01I.
[38] Taylor Soper, "Amazon's Big New Business: Here's How Much Advertising Revenue the Company Generated in 2018," GeekWire, January 31, 2019, accessed May 29, 2019, www.geekwire.com/2019/amazons-big-new-business-heres-much-advertising-revenue-company-generated-2018/.
[39] MWPVL International, "The Walmart Distribution Center Network in the United States," 2019, accessed April 5, 2019, www.mwpvl.com/html/walmart.html.
[40] Center Point distribution centres (DCs) were cross-docking terminals. Instead of having suppliers send less-than-truckload (LTL) shipments to normal DCs, the use of centre point DCs allowed Walmart to consolidate these LTL shipments into full truckload shipments. The trucks would then bring the merchandise to the nearest Walmart DC.
[41] Walmart, *2019 Annual Report*, op. cit.
[42] "High-Tech Consolidation Center Set to Open in July, Adding Efficiency to Walmart's Supply Chain," Walmart, accessed March 7, 2019, https://news.walmart.com/2019/01/14/high-tech-consolidation-center-set-to-open-in-july-adding-efficiency-to-walmarts-supply-chain.
[43] Jennifer Smith and Sarah Nassauer, "Walmart Toughens Delivery Demands for Suppliers," *The Wall Street Journal*, March 6, 2019, accessed March 7, 2019, www.wsj.com/articles/walmart-toughens-delivery-demands-for-suppliers-11551914501.
[44] "Walmart Trucking Payscale," TDS, February 3, 2019, accessed May 3, 2019, www.truckdriverssalary.com/walmart-trucking-payscale/.
[45] Walmart, *2018 Annual Report: Accelerating Innovation*, 2018, accessed May 2, 2019, https://s2.q4cdn.com/056532643/files/doc_financials/2018/annual/WMT-2018_Annual-Report.pdf.
[46] Roberta Greenspan, "Walmart's Inventory Management," Panmore Institute, February 21, 2019, accessed March 7, 2019, http://panmore.com/walmart-inventory-management.
[47] "Walmart's Retail Link System Talks to Suppliers through Data," Knowledge Group, June 26, 2017, accessed April 19, 2019, https://18knowledge.com/blog/walmart-retail-link-talks-to-suppliers-through-data/.
[48] "Important Things You Should Consider to ask Before You Buy Anything Online," RFID Privacy, accessed March 3, 2012, www.rfidprivacy.org/wal-marts-supply-chain-management-and-rfid.htm.
[49] Walmart, *2019 Annual Report*, op. cit.
[50] Sarah Nassauer, "Walmart to Try Thinning Store Manager Ranks," *The Wall Street Journal*, May 2, 2019, accessed May 3, 2019, www.wsj.com/articles/walmart-to-try-thinning-store-manager-ranks-11556807421.
[51] Chris Campbell, "Walmart Forms Plan to Battle Amazon," The Food Institute, Blog, October 23, 2018, accessed April 4, 2019, www.foodinstitute.com/blog/walmart-forms-plan-battle-amazon.
[52] "Wal-Mart Takes Aim at Amazon," *The Wall Street Journal*, October 23, 2017, accessed June 4, 2019, www.wsj.com/articles/wal-mart-takes-aim-at-amazon-1508811540.
[53] Russell Redman, "Walmart Tests No-Limit Online Grocery Delivery Servic," Supermarket News, June 17, 2019, accessed June 20, 2019, https://www.supermarketnews.com/online-retail/walmart-tests-no-limit-online-grocery-delivery-service
[54] Sarah Nassauer, "Now Featured on Wal-Mart's Website," op. cit.
[55] Sarah Nassauer and Chip Cutter, "Walmart Is Rolling Out the Robots," *The Wall Street Journal*, April 9. 2019, accessed April 16, 2019. www.wsj.com/articles/walmart-is-rolling-out-the-robots-11554782460?shareToken=stbab2d984013a41ad8cc34083b91caba6&reflink=article_email_share.
[56] Sarah Perez, "Walmart to Roll out over 500 More Pickup Towers to U.S. Stores This Year," Tech Crunch, April 6, 2018, accessed April 30, 2019, https://techcrunch.com/2018/04/06/walmart-to-roll-out-over-500-more-pickup-towers-to-u-s-stores-this-year/.
[57] "Walmart Tests New Last-mile Grocery Delivery Service," Walmart, September 5, 2018, accessed April 16, 2019, https://news.walmart.com/2018/09/05/walmart-tests-new-last-mile-grocery-delivery-service.
[58] Paul Page, "Walmart to Acquire Delivery Company Cornershop for $225 Million," *The Wall Street Journal*, September 13, 2018, accessed April 30, 2019, www.wsj.com/articles/walmart-to-acquire-delivery-company-cornershop-for-225-million-1536844672.

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[59] "Walmart to Acquire Cornershop in Mexico and Chile, Further Investing in Last-mile Delivery and Strengthening Omnichannel Strategy," Walmart, September 13, 2018, accessed April 30, 2019, https://news.walmart.com/2018/09/13/walmart-to-acquire-cornershop-in-mexico-and-chile-further-investing-in-last-mile-delivery-and-strengthening-omnichannel-strategy.
[60] "Walmart Expands Its Grocery Delivery Service Providers," Walmart, January 17, 2019, accessed April 16, 2019, https://news.walmart.com/2019/01/17/walmart-expands-its-grocery-delivery-service-providers.
[61] Sarah Nassauer, "Walmart Wants to Put Groceries into Your Fridge," *The Wall Street Journal*, June 7, 2019, accessed June 7, 2019, www.wsj.com/articles/walmart-wants-to-put-groceries-into-your-fridge-11559880060.
[62] Glenn Taylor, "What's Behind Walmart's Exit from Google Express?," Retail TouchPoints, January 25, 2019, accessed March 7, 2019, www.retailtouchpoints.com/features/news-briefs/what-s-behind-walmart-s-exit-from-google-express.
[63] Sarah Nassauer, "Wal-Mart to Scrap its Amazon Prime Rival," *The Wall Street Journal*, January 31, 2017, accessed June 4, 2019, www.wsj.com/articles/wal-mart-to-scrap-its-amazon-prime-rival-1485838861.
[64] CSA Staff, "Walmart Reportedly Cancels Employee Delivery Service," CSA: Chain Store Age, The Business of Retail, July 30, 2018, accessed March 7, 2019, www.chainstoreage.com/technology/walmarts-reportedly-cancels-employee-delivery-service/.
[65] Natalie Gagliordi, "Walmart Implements IBM's Blockchain for Food Traceability," ZDNet, September 24, 2018, accessed April 3, 2019, www.zdnet.com/article/walmart-implements-ibms-blockchain-for-food-traceability/.
[66] Jack Kelly, "Walmart Is Deploying Thousands of Robots to Take Over from Human Workers: What This Means for Your Job," *Forbes*, April 15, 2019, accessed April 16, 2019, www.forbes.com/sites/jackkelly/2019/04/15/walmart-is-deploying-thousands-of-robots-to-replace-human-workers-what-this-means-for-your-job/#5a3c518f51d8.
[67] Sarah Nassauer and Chip Cutter, op. cit.
[68] Jennifer Johnson, "This Shelf-scanning Robot Could Be Coming to a Store near You," *Forbes*, June 29, 2018, accessed April 6, 2019, www.forbes.com/sites/jenniferjohnson/2018/06/29/this-shelf-scanning-robot-could-be-coming-to-a-store-near-you/#1d1ca49273fb.
[69] Julia La Roche, "Exclusive: Walmart Unveils Grocery-picking Robots in Test Store," Yahoo! Finance, August 3, 2018, accessed April 6, 2019, https://finance.yahoo.com/news/exclusive-walmart-unveils-grocery-picking-robots-test-store-064113990.html.
[70] "Walmart Launches Dotcom Store Technology to Allow In-store Website Orders," Mobile Payments Today, December 4, 2018, accessed April 6, 2019, www.mobilepaymentstoday.com/news/walmart-launches-new-dotcom-store-technology-to-allow-in-store-website-orders/.
[71] Daniel Eckert, "Your Shopping Trip Just Got Easier with This New Store Assistant," Walmart Today, February 8, 2018, accessed April 6, 2019, https://blog.walmart.com/innovation/20180208/your-shopping-trip-just-got-easier-with-this-new-store-assistant.
[72] Saabira Chaudhuri, "Walmart's Bid to Create U.K.'s Largest Grocery Chain is Blocked," *The Wall Street Journal*, April 25, 2019, accessed May 3, 2019, www.wsj.com/articles/walmarts-british-arm-is-blocked-from-merging-with-u-k-supermarket-j-sainsbury-11556179804.
[73] Chris McGreal, "Where Even Walmart Won't Go: How Dollar General Took over Rural America," *The Guardian*, August 13, 2018, accessed April 6, 2019, www.theguardian.com/business/2018/aug/13/dollar-general-walmart-buhler-haven-kansas.
[74] "Here's How Walmart is Taking the Fight to Amazon Prime for the eCommerce Throne," eTail, accessed April 30, 2019, https://etailwest.wbresearch.com/walmart-strategy-to-beat-amazon-prime-ty-u.
[75] Khadeeja Safdar, "Target, Walmart Shares Take a Hit after Amazon's Move to One-day Shipping," *The Wall Street Journal*, April 26, 2019, accessed May 3, 2019, www.wsj.com/articles/target-walmart-shares-take-hit-after-amazons-move-to-one-day-shipping-11556310486.

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