

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF SUPPLY CHAIN MANAGEMENT AND INFORMATION SYSTEMS

WINNING IN EVERYTHING, EVERYWHERE TO EVERYONE: AN ANALYSIS OF
WAL-MART AND AMAZON'S ROAD TO SUCCESS

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SPRING 2017

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Supply Chain & Information Systems
with honors in Supply Chain & Information Systems

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ABSTRACT

The purpose of this thesis is to explore the triumphs and struggles of retail companies adopting an omni-channel presence. In a climate of increased customer demands, current retail giants are forced to push previous boundaries in product assortment, speed of service, and supply chain innovation. Two companies particularly susceptible to changing market expectations are Wal-Mart and Amazon. In the quest to become the largest player in retail, each entity is experimenting in online and physical environments, causing much speculation as to who will “win” the hearts and dollars of U.S. retail customers.

To determine the likelihood of each company’s success, the historical philosophies and past practices of Wal-Mart and Amazon were analyzed. This analysis was used to compare the two companies on five key attributes that helped ascertain various sources of competitive advantage. All information was obtained through literature reviews of articles, publications, journals, and additional resources from 1962, the year of Wal-Mart’s founding, to present.

This research has shown that, while Wal-Mart currently possesses a more dominant physical advantage, Amazon has proven that they will provide the necessary resources, financial and otherwise, to win the retail market in a relentless quest for domination. However, due to Amazon’s extensive external business ventures that fund its current innovations, it is necessary to question how viable it is to compare the two companies. In order to continue to compete in the retail space, Wal-Mart must work on the marriage between online and store data, whereas Amazon must better leverage logistical operations with its third-party vendors. This suggests that both companies must focus on growth areas before either can overtake the market.

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ACKNOWLEDGEMENTS

To begin, I would like to extend my gratitude to my Thesis Supervisor, Dr. Novack, for his overwhelming support over the past four years. My academic career would have been far less fulfilling without his enthusiasm for not only Supply Chain practices, but also for each student who is fortunate enough to call him a mentor. I would also like to thank the professors that have helped cultivate my passion for learning over the past four years.

I would also like to thank my family, particularly my mother and father, for their encouragement throughout my educational career thus far, as well as the friends that have helped make Penn State home for me. Finally, I would like to thank my peers in the Schreyer Honors College and Supply Chain Management programs. This thesis was written in wonderful company, and I am forever grateful for the opportunity to be both challenged and supported by such intelligent individuals.

Chapter 1

Introduction

As the world moves towards an era of increasingly knowledgeable shoppers with insatiable expectations, the requirements of retail are changing significantly. In a generation of blurred lines between the digital and physical environments, speed, service and reliability are key factors in the success of any company. Furthermore, the competitive nature of the retail environment fosters a necessity to proactively manage change and risk. Among recent large-scale acquisitions and changes in network designs, companies are frantically trying to account for the facet of customer-facing interaction that they have thus far been missing. Whether this means developing a more robust and reliable online presence or altering physical outlets to excite customers in an increasingly screen-heavy world, many, if not all, strategic plans for the next five years involve altering existing capabilities to continue actively engaging audiences.

This rapidly changing environment forces companies to consider new and innovative improvements to their existing supply chains. To evaluate the paths of companies that are pursuing both online and in-store retailing, an examination of Wal-Mart and Amazon was conducted. While a thirty-year gap exists between the founding of the two companies, there is no shortage of debate as to who will emerge victorious in the battle to provide anything, to anyone, anywhere. The report will begin by comparing Wal-Mart's early strategic decisions that lead to its title as the largest company in the world as well as alterations made to its existing practices to cater to e-commerce requirements. A similar discussion will occur for Amazon, looking at the key choices made in the past and upcoming decisions for the future, in order to ensure success

for the future. By comparing the directions and strategies of the two companies, future predictions on each company's success in the same-day delivery market as well as other areas of growth.

The analysis below is compiled using article reviews to outline the historical and future strategies both Amazon and Wal-Mart. As a result, the report will integrate the standard 'literature review' section throughout, synthesizing researched information to draw conclusions about the past, present and future of the entities examined.

Chapter 2 Walmart

Company Background and History

The first Wal-Mart store was established in 1962 by Sam Walton. Walton's twelve years of retail experience prior to founding Wal-Mart shaped the company's principles and practices: "low prices, on a large scale, at minimal cost" (Hyde, 2015). Since the start, Wal-Mart "has been able to capture a huge market share by selling almost anything, and being almost anywhere" (Hyde, 2015). Wal-Mart's humble beginnings in rural and less populated areas brought "big-city discounting to small-town America," but quickly grew into what The Huffington Post describes as, "seemingly omnipresent expansion" ("Sam Walton, 2008; Kiser, 2010). By 1980, Wal-Mart's reach sprawled to 276 locations, adding about 100 each year, helping it achieve \$1 billion in revenue faster than any other company to date (Bowman, 2015). Today, Wal-Mart's 4,672 stores account for 680 million square feet of retail space under three different models: Wal-Mart Neighborhood Stores, Wal-Mart Discount Stores, and Wal-Mart Supercenters (Bowman, 2015). While reducing the number of stock-keeping units (SKUs) is on Wal-Mart's future horizon, varying store types still boast an extensive selection of anywhere from 29,000 to 142,000 different items for customers to purchase ("Our Retail Divisions," 2017).

The size and scalability of Wal-Mart's store model require sophisticated and near-flawless supply chain practices. Charles Fishman, author of *The Wal-Mart Effect*, perhaps best articulates Wal-Mart's reach by saying, "ninety percent of Americans live within fifteen miles of a Wal-Mart store" (Fishman, 2006). Intelligent supply chain design and integration foster Wal-Mart's ability to provide "everyday low prices" to its extensive U.S. customer base as well as

shoppers in the twenty-seven additional countries it services around the world (“Our Locations,” 2017). Below, the evolution of these practices are outlined.

Optimizing a Low-Cost Retail Supply Chain Through the Years

How Inventory Moves: Distribution Design and Key Practices

Wal-Mart opened its first distribution center near its newly relocated home office in Bentonville, Arkansas in 1970, a mere eight years after its founding (Thomas, 2006). As with many Wal-Mart practices, the motivation behind establishing Wal-Mart’s early distribution centers was to cut costs; utilizing distribution centers meant that Wal-Mart could buy items in bulk and save money on volume discounts (“Company Profile,” 2017). In the thirty years since, Wal-Mart has worked to create a distribution system that is “so tightly coordinated [that] store designs can minimize areas for stock and maximize floor space for retail” (LeCavalier, 2010). Two elements of the distribution model, the hub-and-spoke network design and cross-docking practices within the distribution centers, contribute to Wal-Mart’s ability to reduce costs while still serving their stores with above-average timeliness.

When Wal-Mart first began expanding its physical network, store openings followed “diffusion paths” which transcended from the Bentonville, Arkansas flagship store (Fetting, 2006). This expansion from the center point “spread out in all directions, with the same measured deliberation,” rather than focusing on high-velocity or predictably successful locations across different states or regions (Fetting, 2006). The choice to locate stores close to each other ultimately assisted Wal-Mart’s domination by density; when the chain eventually expanded nationally, stores were strategically placed not only in respect to distribution centers but also to

each other. This ensured saturation of the Wal-Mart brand and name as well as near unavoidable accessibility to customers.

The decision to infiltrate tight geographic regions before moving outward created a store network design optimal for efficient and cost-effective movement of inventory during store expansion. When designing its distribution network, Wal-Mart applied the diffusion paths used in store openings. The carefully located distribution centers, placed in areas with the densest populations of stores, led to the world's first hub-and-spoke model for distribution networks. Utilizing the geographic concentration of its stores, Wal-Mart places distribution centers (hubs) centrally located and close to approximately ninety to 100 stores (spokes) (Max, 2015; Bisk, 2015). This model further facilitated bulk ordering, as Wal-Mart could now order quantities in large volumes to service all of their stores and store it in centralized locations.

In addition to bulk ordering, the hub-and-spoke distribution model produces efficiencies for Wal-Mart's extensive transportation fleet. Each of its 160 distribution centers is located within a 130-mile distance, or less than a day's driving time, from the stores that it services ("Our Business," 2017). This network allows every store to receive a delivery in, at most, forty-eight hours, allowing stores to incur minimal inventory carrying costs as well as to utilize nearly all of its floor space for retail sales. In addition to centralizing locations based on its stores, distribution centers were also placed in respect to U.S. highways to facilitate ease of travel for Wal-Mart's massive transportation fleet (Figure 1). Utilizing the network design and taking advantage of existing infrastructure allows a single truck to rapidly serve a multitude of stores by ensuring full trailers and efficient drop-off routes.

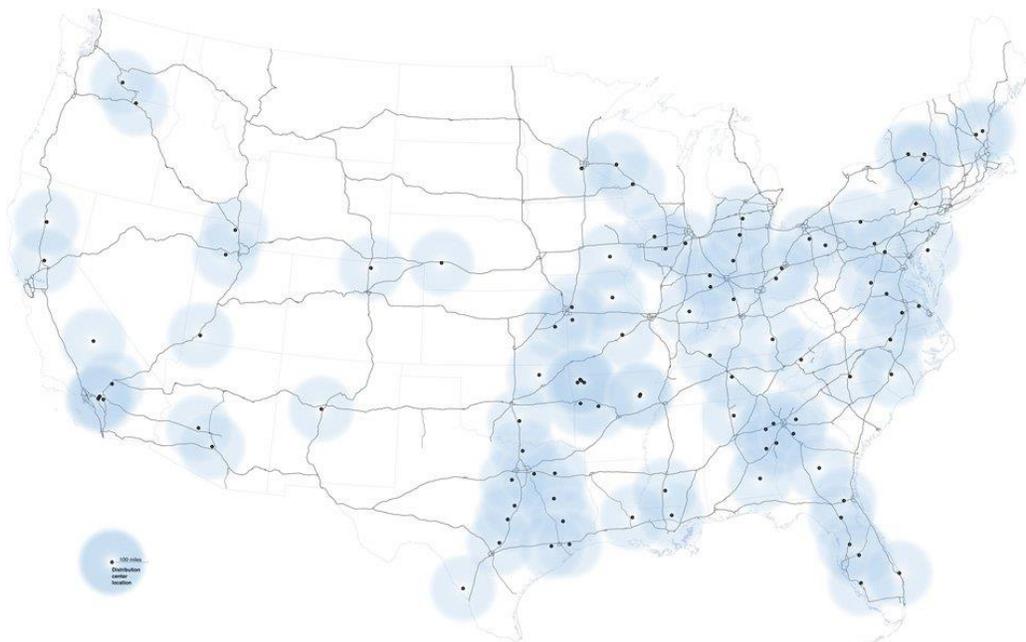


Figure 1 Map of U.S. Interstate Highways and Walmart D.C.'s (Lecavalier 2010)

Perhaps the most staggering aspect of Wal-Mart's supply chain is how alterations at any one phase respond to and catalyze changes across functions. This point is evident through thoughtful inventory management practices, elevated through transportation efficiencies and warehouse design. Utilizing both the hub-and-spoke system as well as the extensive transportation fleet, inventory handling evolved to minimize the amount of stationary storage space needed. By utilizing a "just-in-time inventory" approach, Wal-Mart completely eliminates the need for warehouses by delivering supplier goods directly to Wal-Mart trucks to be sent to stores (Greenspan, 2017). The accentuated cross-docking practice facilitates quick delivery to stores and reduces inventory-carrying cost by eliminating the time inventory spends in a static location - inventory is constantly moving, changing hands to be closer to the customer with each mile.

How Inventory Is Managed: Supplier Relations and Supporting Technology

Upon examining Wal-Mart's key suppliers, Charles Fishman noted, "...if you make guns or deodorant or movies, you wake up thinking about the same major customer, Wal-Mart"(Fishman, 2006). With a growing network of over 100,000 suppliers, Wal-Mart is consistently challenged to manage colossal amounts of inventory while continuing to provide its end-customers cost reductions (Walmart, 2009). Despite its nearly impossible pressures to continue providing everyday low prices, Wal-Mart exerts a tremendous amount of buying power over its suppliers. According to Wal-Mart's Supplier Index Report, "dozens of U.S. exchange-traded companies receive ten percent, twenty percent, even forty percent or more of their total revenues from Wal-Mart and its subsidiaries" ("Wal-Mart Supplier Index," 2016). The impact on sales volume that Wal-Mart generates crosses industry barriers and makes the retailer a force in supplier relations, and requires careful management to ensure that inventory is, in fact, available at all stores at the lowest possible cost.

Wal-Mart's integration of suppliers and manufacturers into its inventory management process preceded the term 'vendor managed inventory.' As early as 1980, Wal-Mart elevated its expectations of its cooperators by urging them to manage their own inventory within the Wal-Mart warehouses ("Walmart: Keys," 2017). Benefits of a vendor-managed inventory system include reduced costs in inventory management as well as transparency across the supply chain, both of which Wal-Mart realized sooner than most retailers through early adoption of this practice (Greenspan, 2017). A crucial aspect to successful vendor managed inventory processes is transparency in data between the manufacturer and supplier. Each party should know how much of what product the other has in order to make informed and intelligent production and

shipment decisions. Accordingly, Wal-Mart dedicated extensive resources to resources that support vendor-managed inventory as it expanded its store network.

Prior to incorporating vendor-managed inventory tactics, Wal-Mart recognized the importance of understanding “the art of what it needed, how much it needed and when it needed it” (Hyde, 2015). In 1975, Wal-Mart was “the first retailer to tie store and DC inventories together electronically” (Gilmore, 2012). This initial investment in knowledge-based infrastructure would be the first of many technological boundaries that Wal-Mart would incorporate in pursuit of a more efficient supply chain. By the mid-1980’s, the company had built an extensive computer network that helped them transmit information throughout the company and order more efficiently from suppliers, as well as adding bar codes to products to scan for point-of-sale data (Wailgum, 2017). This eventually lead to the development of Retail Link, first through software but eventually online, to “strengthen supplier partnerships...[by] providing vendors information on sales trends and inventory levels.” Most noteworthy in recent years, Wal-Mart pioneered radio-frequency identification (RFID) technology, an upgrade to traditional bar-codes that allows increased visibility to inventory across a multiple realms of the supply chain (Bisk, n.d.). Throughout its history, Wal-Mart emerged as a leader in innovative technology to supplement its already-strong supply chain practices.

Movement to E-Commerce

Despite its commitment to utilizing technology in its existing business, Wal-Mart underwent a significant learning curve when developing its online counterpart, Walmart.com. Its rocky beginnings were criticized by many in the industry, noting that, “the company that put

RFID and inventory management and point-of-sale automation and enormous-scale data warehousing on the map cannot get its Web site right” (Preston, 2006). Examining the two decades since the website’s founding helps paint a picture of the dramatic transformation in inventory management, supplier relations, target market and products required for online platforms in order to supplement the in-store experience.

Walmart.com’s Beginning

One of the first retailers to develop an online presence, Wal-Mart’s 1996 website contained company information but no ability to purchase products (Schneider, 2017). In the two and a half years following the website’s launch, Wal-Mart invested little in online infrastructure that connected customers to its physical stores (Schneider, 2017). Arguably, these inactive years cost Wal-Mart valuable time and competitive advantage in the long run. From 1995 to 1998, “the Internet economy grew 175 percent,” forcing Wal-Mart to develop premature infrastructure to meet the rapidly growing market (Henderson, 2000).

After a disastrous holiday season of attempted web sales in December 1999, in which Wal-Mart could not ensure delivery for Christmas in mid-December, the company renewed its dedication to developing its online platform (Schneider, 2017). In early 2000, Walmart.com was established as a separate entity from Walmart as a joint venture with Accel Partners (Zellner, 2000). The founding of Walmart.com required sharpening the company’s knowledge of web design and direct-to-consumer fulfillment. The decision to outsource these needs is a reflection of Wal-Mart’s desire to, “test the waters without committing to the resources to build the order-

taking, distribution and shipping facilities it would need to support the Internet Venture” (Goldman, 1999).

Early Challenges

Despite the renewed structural dedication to Walmart.com, economic investment in the operation was still minimal - analysts suggested that approximately \$100 million was put towards Walmart.com, a miniscule fraction of the \$8.5 billion for the existing store network in 2000 (Zellner, 2000). The lack of financial contributions toward Walmart.com can be explained by several factors. First, most of Wal-Mart’s audience did not fit the profile of 2000’s online shoppers; in 1999, Walmart.com CEO Jeanne Jackson noted that, “only about thirty percent of Wal-Mart customers currently have Internet access” (“Walmart.com Round 2,” 2000). This perpetuated investments into the avenues where most shoppers interacted with Wal-Mart: the stores. Furthermore, the low-priced commodity items through which Wal-Mart generated most of its sales dollars were not conducive to the price structure of online retailing. Wal-Mart’s original expectations for its online outlet were to parallel customers’ in-store experiences and product needs (Duxbury, 2005). However, the strategies that Wal-Mart used to keep their items’ costs low, such as the transportation efficiencies of ordering and shipping in bulk quantities and sending only full truckloads, were no longer viable when shipping individual products directly to customers. The challenge of balancing the costs of the product and shipping were felt heavily by the Wal-Mart team; on the most extreme end, a cup that cost twenty-five cents to produce incurred an eight-dollar two-day shipping cost (Zellner, 2000). In turn, it was clear that Wal-Mart needed to change the profile of items it was selling online.

The loss of supply chain efficiencies in the online model was further aggravated by Wal-Mart's struggle in leveraging its existing physical capabilities. Although Wal-Mart already possessed an extensive distribution network, it initially serviced the platform exclusively through new fulfillment centers. This involved using third parties such as Fingerhut and Airborne Logistics Services, as well as eventually opening its own facility in late 2001 (Zellner, 2000). When asked about the reasoning behind two dedicated networks, Jackson said, "we need a separate track for fulfillment and information systems, or we risk screwing up the parent business" ("Walmart Round 2," 2000). While this model prevented confusion of inventory between channels, it forced the company to incur more expenses in overhead costs of facilities as well as hold more inventory across the now-two distribution networks. However, servicing both channels out of one distribution path forces other dilemmas to arise in equipment and picking technique - while traditional warehouses are equipped to work in pallets and cases, online environments require touches on single items (Nash, 2015). These difficulties integrating the two customer access points posed a problem for Wal-Mart, whose greatest asset entering the online world was the extensive access it already had in place to its large market base.

Solutions and Innovations of the 2005 to 2015 Decade

In an effort to combat these challenges, Wal-Mart regained full financial control of Walmart.com in 2003 (Bhatnagar, 2004). Throughout the early 2000's, Wal-Mart reconfigured the profile of items that it sold online to appeal to discount shoppers seeking higher-end products. Products ranging from electronics to diamond engagement rings were offered through Walmart.com, where users could engage with the site's customization features (Bhatnagar,

2004). Additionally, Wal-Mart began integrating its in-store and online services as early as 2001 (Prior, 2001). For example, customers who bought tires online at Walmart.com could then schedule a replacement appointment at their local Wal-Mart store (Malecki, 2008). This practice established an early framework interweaving aspects of both supply chains to elevate the brand.

To continue expanding the now- “fastest growing division of Wal-Mart’s Stores,” Wal-Mart.com launched several services to drive customers to both the website and its stores (Duxbury, 2005). In July 2007, Wal-Mart’s Site to Store program allowed customers to purchase products online and pick them up at any of its 3,300 stores (Fleming, 2005). The program offered Wal-Mart significant supply chain efficiencies and savings, including \$5 million in shipping, 1,000 gallons of fuel per week and 20,000 boxes each month (Fleming, 2005). Site to Store utilized Wal-Mart’s existing delivery schedule through the hub-and-spoke distribution model, as “product arrives alongside regularly scheduled deliveries,” while still saving the retailer transportation costs through, “consolidation of smaller shipments on less-than-truckload carriers” (Fleming, 2005). Going a step further, Wal-Mart allowed individuals who live in metropolitan areas to pick up their Wal-Mart orders at FedEx locations if a store was not readily accessible (“Walmart Ramps Up,” 2010). Piloted in Boston and Los Angeles, the FedEx Site Pick Up program launched in New York, Chicago and Washington D.C. in 2010 as a way for Wal-Mart to “expand its outreach to cities.” (“Walmart Ramps Up,” 2010) Finally, Wal-Mart catered to its lower-income core demographics by allowing Walmart.com orders to be paid in cash, giving all customers access to the larger selection of items available on Walmart.com (Hachman, 2012). These tactics expanded Wal-Mart’s existing customer base by adapting the company’s extensive distribution network and sales points to include the online environment.

Integrating Wal-Mart's supply base into the website to maintain its wide variety of products on all mediums was imperative to Walmart.com's success. In 2006, Chief of Marketing John Fleming attempted to entice suppliers to Walmart.com by emphasizing its advantages on supplier relations with Wal-Mart stores (Hoffman, 2007). He discussed that current Wal-Mart suppliers should see Walmart.com as a way to "take products, test demand, and bring them to the attention of...counterparts at the Wal-Mart stores," while hopefuls should see it as, "a great entry into selling to the Wal-Mart customer" (Hoffman, 2007). In an effort to attract new customers through a widened supply base, the Wal-Mart Marketplace was launched in 2009, allowing designated retailers to offer products for sale on Wal-Mart's website (Edelson, 2009). Suppliers surveyed in 2010 reported "mixed signals" about future opportunities with Walmart.com, but many expressed the important role that Walmart.com would play in new product introductions, as well as their commitment to growing with the website (Troy, 2012). Expanding Wal-Mart's existing supply base, and therefore, product offerings through the website was yet another method of promoting the Wal-Mart brand and store.

Distribution Operations

Additionally, Wal-Mart's distribution operations required alterations to cater to online environments. As previously noted, Wal-Mart began developing dedicated fulfillment centers for its online operations. Orders placed at a Walmart.com distribution center follow a detailed order process, as seen in Figure 2. According to a research study on 'Carton-Mix Optimization for Walmart.com Distribution Centers,' "approximately seventy-five percent of the products shipped from the CDC were single-unit conveyable items..." (Ahire 2015). These CDCs ship "directly to

customers and to stores for customer pick-up” and required changes to the packaging and carton sizes used in a traditional Wal-Mart DC (Ahire 2015).

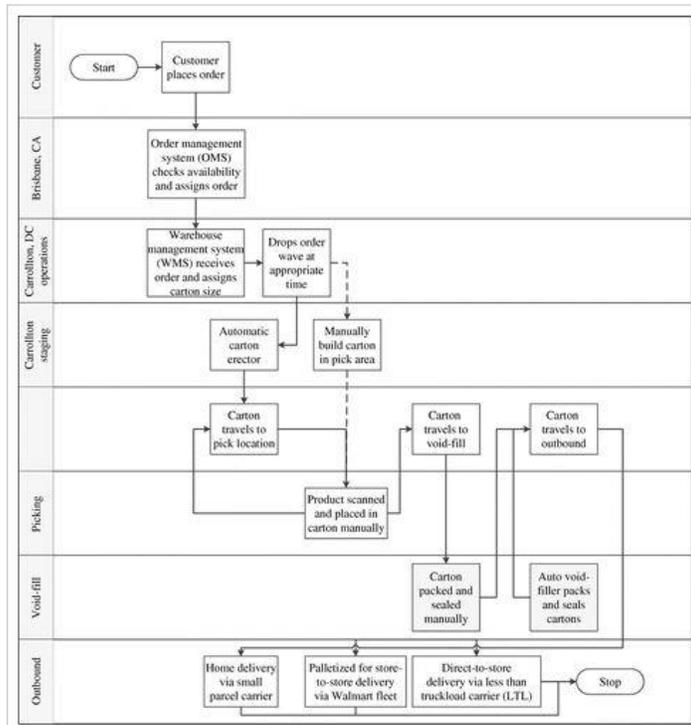


Figure 2 A Process Map of Walmart.com's Order Fulfillment Steps (Ahire 2015)

In 2013, Wal-Mart announced two additional fulfillment centers exclusively to complete Walmart.com orders (“Walmart Announces New Large-Scale,” 2013). These distribution centers supplement “Wal-Mart[’s] unique position to ship online orders from stores and many of its more than 130 distribution centers” (“Walmart Announces New Large-Scale,” 2013). Vice President of eCommerce Operations & Fulfillment Justen Traweck notes that, “one facility that we are building will have five times the SKU capacity that our entire network had a year ago” (“Walmart Expands,” 2015). To capture the entire picture of Wal-Mart’s e-commerce distribution network in 2015, eCommerce Logistics Engineer said the following:

“These large scale ecommerce fulfillment centers, combined with existing e-commerce facilities all over the country plus over eighty commerce retail locations are set up to ship

directly from store... add that to 4,500 retail locations that can be used as pick up points for orders, and you see the total picture of a dense, interconnected network that allows Wal-Mart to be closer to the customer” (“Walmart Expands,” 2015).

The supplementary locations allow Wal-Mart to grow its inventory and product selection while servicing the online environment more effectively, incorporating processes specialized for each-picks.

Recent Noteworthy Acquisitions and Additions

Wal-Mart’s journey to premiere online retailer required strategic partnerships and talent from outside of the corporation’s four walls. To accommodate its growing web sales, Wal-Mart made a series of web company acquisitions from 2012 to 2017, which specialize in advertising technology, supplements to grocery delivery services, as well as other tailored services supporting specific product lines (“Walmart Promises,” 2014). The most noteworthy of these additions indicate possible directions for Wal-Mart’s future growth.

@WalmartLabs

To accentuate its use of technology to provide customers with the products and services that they desire, Silicon Valley based @WalmartLabs was started in 2011 (“Retailers Get Scientific,” 2014). In its first year, the operation helped Walmart.com refine its search engine to suggest items to customers based on its social media accounts, and began conversations on how to facilitate same-day shipping (Manjoo, 2012). This section of the Wal-Mart giant also operated as an arm for tech startup acquisitions as well as the creation of “their own internal labs filled

with engineers who can speak retail” (“Retailers Get Scientific,” 2014). Its first major acquisition was Kosmix, a company that “primarily specializes in technology that we call the ‘social genome,’ which basically mines social media data...and creates a profile for a person, place, topic or event...” (Manjoo, 2012). In developing @WalmartLabs, the company hopes to more seamlessly integrate social media, mobile technology and its supporting information into its online and retail experiences. By 2014, the group acquired an additional thirteen startup companies to help them move toward future expertise in areas like app development, cloud computing and predictive analysis (“Retailers Get Scientific,” 2014). Moreover, continued investment in this realm of the company will only cause Wal-Mart to grow more sophisticated in its technological prowess.

Jet.com

In late 2016, Wal-Mart acquired online startup Jet.com for \$3 billion (“Walmart Agrees,” 2016). When asked “Why Jet.com?,” CEO Doug McMillion cites the “strengthening of Wal-Mart’s existing e-commerce infrastructure” (Reuters, 2016). Other sources speculate that, in addition to its supplementary technology, Jet.com will serve as “Wal-Mart’s vehicle for pursuing fashion” (Edelson, 2017). In either case, Jet.com will offer Wal-Mart diverse products and services to add to its existing capabilities.

Jet.com’s structure operates differently than a typical retailer’s website, but piqued Wal-Mart’s interest due to its unique pricing structures and algorithms. The website’s model is designed to create savings through transparency to the customers, by allowing “consumers to make options that reduce the seller’s cost,” including “agreeing not to return the items, selecting

a slower delivery option, adding more items to the basket and choose to pay with a debit card rather than a credit card” (Lindner, 2015). These choices help retailers save money by reducing costs in shipping as well as re-stocking rates for returned items. However, critics are wary of Wal-Mart’s ability to properly integrate Jet.com into its existing practices in areas such as procurement, merchandising and fulfillment (Cunnane, 2016).

Bringing Jet.com into the Wal-Mart family also included the talent and expertise of CEO Marc Lore. In addition to running the Jet.com operation, Lore was named President and CEO of Walmart’s entire U.S. ecommerce division, including Walmart.com (“Marc E. Lore,” 2017). An aspect of Lore’s strategic plan is pursuing more acquisitions to create a more robust inventory base through partnerships with companies that know how to properly manage certain product lines. Wal-Mart recently acquired ShoeBuy.com, a Zappos competitor (Levy, 2017). Lore noted that he will continue to pursue knowledge and talent in “categories where they are long-tail, high margin products with harder-to-crack brands” (Levy, 2016). This allows Wal-Mart’s brand and network to grow through the acquisition of high-revenue companies rather than internal operations.

Chapter 3

Amazon

Company Background

Established in 1996 by Jeff Bezos, Amazon.com began with the lofty goals of being the everything source for online shoppers. Beginning in limited product categories and eventually expanding, Amazon “currently accounts for one in three shopping transactions in North America,” boasting a selection of hundreds of millions of products for customers to enjoy (“How Many Products,” 2016). Its sprawling distribution network of 217 active facilities includes fulfillment and sortation centers, delivery stations, and a separate network dedicated to its grocery business, all in an attempt to service customers more efficiently and faster than its largest competitors (Wulfraat, 2017a). Widely criticized for its inability to achieve significant profits, the company experienced noteworthy upturns and downturns in its financial health during the two decades since its founding (Wulfraat, 2017a). Despite its troubles, Amazon ended 2016 with its fourth straight profitable quarter, providing investors with a rosy outlook on the company’s future (Goldman, 2016). Amazon continues to push industry boundaries by establishing itself not only as an online retailer, but also as a leader in distribution and technology through Amazon Fulfillment and Amazon Web Services.

The chapter below explores Amazon’s rise to success, from its humble beginnings as an online bookseller to its eventual rise as an e-commerce giant. In order to accurately understand the company’s future goals and objectives, key supply chain practices, growth strategies, and pivotal moments are identified and explored. Finally, a look into Amazon’s movement into

physical sales outlets provides an avenue for analysis on how the company will grow amidst its big-box retail competitors.

Company History: Optimizing an E-Commerce Supply Chain

Developing a Philosophy and Strategy

Although the name Amazon was not coined until later years, the idea of an online “everything store” began in 1994 during Bezos’s time as an employee for the technologically-inclined Wall Street firm D. E. Shaw (Stone, 2014). D. E. Shaw’s early integration of Internet technologies within the financial world forced Bezos to ponder other commercial uses for the medium. While Bezos began with the broad premise of trying to sell “everything,” he narrowed his scope for his start-up to one commodity: books. Bezos chose books because of their uniformity across retail outlets and seemingly innumerable selection; he wanted a product that consistently met customer expectations, thereby reducing apprehension about ordering without physical interaction, while also taking advantage of the unlimited shelf space available through the Internet. These themes would persevere as Amazon’s product selection evolved over the late 1990’s into DVDs and music, as Bezos urged his employees to find products that were, “high SKUs...were underrepresented in physical stores, and could easily be sent through the mail” (Stone, 2014). Accordingly, Amazon’s business model grew not by which products online customers desired, but by products that leveraged the Internet’s unique qualities to grow online retailing. (Stone, 2014).

Bezos credits his urgency to develop the company to the rapid growth of the Internet, which “jolted him out of complacency” (Stone, 2014). Exploring the new online territory became

the focal point of Amazon's founding business goals, as the company focused on coding and website infrastructure over distribution design, with many of its early orders taking weeks to ship to the customer. Part of this stemmed from Amazon's geographically dispersed customers, who, from early in the company's history, hailed from all fifty states as well as forty-five countries. (Stone, 2014).

Amazon outpaced its retail-counterparts through early adoption of the online environment. When confronted by executives at Barnes & Noble for a potential offer, Amazon declined, instead using the meeting as a cue to innovate before the retail outlet could launch its website. Furthermore, Amazon executives acknowledged that most large retailers, "...didn't want to put their most resourceful employees behind an effort that would siphon sales away from their more profitable stores" (Stone, 2014). While many of companies struggled and postponed shipping directly to consumers, Amazon ingrained the process, handling, and shipment of individual items into the company's philosophy and founding. (Stone, 2014).

How Inventory Moves

Distribution Decisions & Technological Advances

Accordingly, the nature of orders required a sophisticated and technologically efficient distribution model. After developing the company's goals and mission over the course of 1994, Amazon acquired its first warehouse in its new headquarters near downtown Seattle and, by 1995, the company received its first order (Stone, 2014). Early Amazon distribution operations involved a single warehouse, operating on a low fixed-costs model. Its first two fulfillment centers both opened by 1997 and were largely manual operations (Wulfraat, 2016).

As product selections and customer expectations rose, it was clear Amazon needed to expand its existing network. In response to the 1998 holiday season, in which Amazon significantly underestimated the volume of customers shopping on the site, the company added five new distribution centers in 1999 (Wulfraat, 2016). Bezos hired several Wal-Mart executives to help design Amazon's internal distribution centers, incorporating various technologies that optimized order management. One such technology was the Crisplant Sorting Machine, which combined anywhere orders into batches to be picked simultaneously (Stone, 2014). Once items were placed on the conveyer belt, the machine read an item's barcode and sent it to one of its 2,100 chutes, each representing an individual order, that lit up when ready to be packed and shipped (Hansell, 2002). While the automation did help alleviate some issues within the distribution centers, the 1999 holiday season revealed certain bottlenecks and problems with the technology. The vicious cycle of stalled orders was particularly painful: "...when sorting machines were operating at absolute peak capacity, any order that didn't successfully ship clogged a chute and backed up another customer order, which then also wouldn't ship on time" (Stone, 2014). These problems were enhanced by improper integration of new product lines into existing inventory management systems. The fear of losing customers' trust in a category by not delivering in an efficient and timely manner forced the company to over-order stock (Hansell, 1999).

The necessity of improving efficiency at internal operations was furthered by the dot-com bust at the turn of the century, which decimated many Internet start-ups. Recognizing fulfillment costs as Amazon's "single biggest operating expense," Bezos needed to find ways to reduce money spent on distribution operations (Marx, n.d.). In this discovery and remodeling process, Amazon considered outsourcing the service entirely, favoring utilization of dropship and third-

party services (Patsuris, 2001). Instead, it made the decision to reinvent its existing distribution network, replacing the Crisplant machines, which were consistently slowed by the speed of the humans. Bezos hired a new Vice President of Operations, Jeff Wilke, to lead the charge of data-driven decision-making through algorithms and measurements in the newly re-named “fulfillment centers” (Stone, 2014). This model involved “reducing variability with some basic tools,” such as incorporating Six Sigma tactics at the distribution center level (Marx, n.d.). Wilke’s goal was to make people more efficient, thereby reducing time spent per order to help lower inventory levels and associated costs (Mullins, 2010). The integration of intelligent automation driven by data and measurement has grown Amazon into the supply-chain centric company that the world now knows.

Traveling the Last Mile: Shipping

In one of its most controversial early moves, Amazon experimented with free shipping in July 2000. Upon the release of the book *Harry Potter and the Goblet of Fire*, Amazon offered customers free overnight shipping on the book’s release day. While the company lost about \$5 million on the promotion, the move proved Amazon’s loyalty to providing its customers superior service on their most desired products (Wiggin, 2009). Later that same year, Amazon enhanced holiday season shipping offers, through which customers were offered free shipping on their purchases of \$100 or more (Smith, 2014). Because customers consistently cited shipping costs as a top deterrent for placing online orders, Amazon explored the possibility of consistently reducing the cost of shipping to zero (Smith, 2014). Inspired by the segmentation of airline passengers, Amazon developed the premise of grouping its customers into those who demanded

their orders quickly and those who did not. This made “the free shipping offer permanent, but only for customers who were willing to wait a few extra days for their order,” allowing the company to reduce the expense of the program by placing the orders shipped for free on any truck that had excess room over a reasonable amount of time. The Free Super Saver Program piloted in 2002 and, over the course of a few months, consistently dropped the cost required to receive free shipping on an order (“Amazon Cuts Price,” 2002).

To supplement the Free Super Saver Program, Amazon introduced its now-famous Amazon Prime program. Through Prime, Amazon was able to provide three offerings to its customers: “first - we sped things up offering two-day shipping at a time when most customers expected to pay for 4-6 business days; second - we made two-day shipping predictable and guaranteed; third - we made it unlimited, all-you-can-eat with a single annual membership” (“Amazon Prime,” 2017). As if serendipitously, Amazon fulfillment centers were already built in a way that supported fast-tracking specific items; when the company first began exploring overnight, two-day and three-day shipping, it implemented a fast-lane order system to process items that customers wanted quicker than average shipping time permitted (Stone, 2014). By the time Prime was introduced, Amazon had already experienced the valuable learning curve and pain points of fast-delivery directly to the consumer.

While Amazon acknowledged that Prime was not initially profitable, the program became a mechanism for increased customer loyalty. As of 2017, experts estimated that Amazon had at least sixty-six million Prime members and calls the service “the key to Amazon’s dominance - period” (Rey, 2017). The company continues to expand what it means to be a Prime member, adding services like video streaming and access to Prime Day, Amazon’s own version of Black Friday discounting. Bezos and others laud the service for its convenience to customers, noting

that “being a Prime customer diminishes the likelihood someone will buy from anywhere else...” (Weise, 2015). Additionally, the convenient, fast and seemingly free shipping option helped Amazon expand into new product categories with existing customers, as evidenced in the fact that “customers spent as much as 150% more on Amazon after they became Prime members” (Tuttle, 2013).

How Inventory is Managed: Historical Struggles and Key Practices

During Amazon’s initial expansion into new product categories, the company struggled with effectively forecasting and managing inventory. As previously noted, Amazon vowed not to repeat its errors from the 1998 Christmas season during the following year. However, the company’s promises to consistently meet the holiday customers’ high demands cultivated a new problem: its growing distribution network now held too much inventory, incurring heavy carrying costs along the way. Lehman Brothers debt analyst Ravi Suria, who made a name for himself through his pessimistic outlook on Amazon’s future in the early 2000’s, observed that the company faced a challenge in generating positive cash flow because, like many big-box retailers, Amazon lacked “an ability to properly estimate the right amount of inventories needed to meet demand, at the right price, without overstocking” (Hof, 2000). Unwilling to sacrifice growth in the 1999 holiday season, “Amazon was forced to take a \$39 million write-down on inventory” on its \$676 million in sales in order to continue adding product offerings to its customers (Hof, 2000). The costs of holding inventory rested in a lack of sophisticated systems to track what was in each warehouse. To help alleviate these problems, Amazon began to make moves toward total logistics conquest and control. The company began operating its systems and

technology internally, promoting quick delivery time to customers as well as tighter control over inventory management (Stone, 2014). This would be the company's first steps in developing the internal systems that allowed it to dominate third-party online fulfillment.

Additionally, Amazon is an expert at several unique inventory management practices which it has grown famous for among industry experts. In 2005, Amazon incorporated a principle now known as "chaotic storage" into their fulfillment centers (Van Den Burg, 2016). The ability to harness a system dependent on data-driven automation stemmed from the robust operations Wilke put in place at the fulfillment centers, which ultimately lead to benefits such as, "saving space, maximizing labor, satisfying customers and reducing wear and tear" (Schofield, 2016). Barcodes drive the chaotic storage process, where human pickers, divided into "pick regions" across the fulfillment centers, use scanners to track their products' locations (Wheatley, 2000). Although this involves unlikely items being placed together in a shelving area, the "craziness actually increases accuracy, reducing the possibility of delivery mix-ups" (Greenfield, 2012). Rather than leave the process to human error, "the computer does the thinking, they [humans] do the walking and packing..." (Greenfield, 2012). Successful chaotic storage requires sophisticated inventory management tracking tools and technology, as well as predictive measures on items that customers might order together. Accordingly, the mastering of this practice relied on the strong internal systems that Amazon built in its early years.

Expanding Customer Offerings: Utilizing External Sellers & New Ventures

Convicted to enhancing customer experience on Amazon's website, Bezos and his colleagues worked to find ways to provide products at the lowest possible cost. In doing so, the

company acknowledged that it had to develop partnerships with its perceived competitors, and, in some instances, allow them to sell directly on Amazon's website to continue driving customers and traffic to the outlet. This led to several partnerships with existing retail giants, the first of whom being Toys"R"Us. Amazon wanted to exploit the toy space and its lucrative holiday sales, but lacked the expertise of forecasting which toys would be most attractive over a year in advance. The ten-year agreement with Toys"R"Us, established in 2000, required Toys"R"Us to provide the specialized knowledge of what toys should be bought at what price, and allowed Amazon to provide the company with its online retailing experience as well as warehouse space (Stone, 2014). In the early 2000's, Amazon began similar partnerships with AOL.com's Shopping Center, Borders, Circuit City, and other major retailers who lacked infrastructure to properly support their own websites (Soto, 2001). In turn, Amazon was afforded the opportunity to learn about products and markets it would eventually enter without incurring the cost of inventory as well as the ability to leverage the expertise of industry experts.

The idea of selling external inventory through Amazon expanded into the development of Amazon Marketplace, an avenue for third-party sellers to sell the same products as Amazon on the same pages. In the event that the third party could attract the customer through lower prices or other product offerings, Amazon would receive a commission on the sale for serving as the intermediary between the customer and the third party. This business model has proven extremely successful for Amazon, as many would-be competitors opt to utilize Amazon's existing network rather than develop its own and compete with the e-commerce giant. (Stone, 2014).

Fulfillment by Amazon

In the mid-2000's, Amazon first explored the idea of utilizing its expertise in warehouse operations to service other companies as a third-party provider. Fulfillment by Amazon, or FBA, exploded Amazon into the world's largest online provider by "not only letting other sellers list their items on its website but letting them outsource shipping as well" (Wohlsen, 2014). The agreement allows Amazon to continue its pursuit of providing an unlimited selection of products without incurring the inventory costs of those products. In 2016, "Amazon had delivered more than 2 billion packages for independent merchants, more than double its 2015 tally" (Deagon, 2017). Fulfillment by Amazon represents what is presumably the first of many movements that the company will make to enter into the logistics provider space.

Amazon Web Services

Amazon Web Services began in 2002 as a hacker's dream, registering more than 30,000 programmers into a program that allowed them to utilize the "series of application programming interfaces (APIs), free tools, and a support site within Amazon.com to help developers use its data" (Akin, 2003). Its initial purpose was to help smaller websites utilize Amazon's shopping tools within their own systems, and a major selling point of the program was in its user-specified features that allowed flexibility for its usage.

Today, Amazon Web Services has evolved into a dynamic plethora of offerings that allows companies to outsource technical capabilities to Amazon. The network of over sixty services is designed to work together to allow companies and individuals to perform actions like developing websites and applications, and deploying code to external services (Rouse, 2013;

“Amazon Web Services in Plain English,” n.d.). The most noteworthy among Amazon Web Services’ many advantages are its “flexibility, scalability and reliability,” in which users can purchase more storage space or infrastructure as needed and pay only for what they use (“What is AWS,” 2017). The adaptability of the offerings is apparent through the millions of companies that utilize Amazon Web Services, including Spotify, Netflix, Johnson & Johnson, Dow Jones, and Adobe (“What is AWS,” 2017). Now the company’s most profitable arm, the segment is on track to bring in more than \$10 billion per year in revenue (Wingfield, 2016).

Lab126 Product Developments

In an effort to enter into the hardware industry. Amazon developed a Silicon Valley-based division known as Lab126. Established in 2004, the group has since spearheaded several noteworthy projects for the company, the first of which was Amazon’s Kindle e-reader (Brustein, 2016). The Kindle and its subsequent lineage of products were a sensible, and almost predictable, way for Amazon to break into the hardware business, given its prior business decisions of starting with books before moving outward. While developments of the first Kindle took nearly three years, the success of the newest edition to family, the Kindle Fire, displays Amazon’s mastery of its network of outsourced suppliers in China and Taiwan as well as internal systems controlling inventory and forecasts (Denning, 2011). What made the Kindle most successful was Bezos’s insistence that the device include “a cellular connection so customers could download and access e-books from anywhere” (Carr, 2015).

The popularity of the Kindle lead to several other projects under Lab126’s supervision. The Amazon Dash, intended to develop Amazon’s grocery delivery services, utilizes barcodes

and voice control so customers can “say or scan” items to their online Amazon shopping cart for immediate replenishment (“All New Amazon Dash Wand,” 2017). Establishing itself as a leader in voice technology, the Amazon Echo speaker is a “hands-free device” that allows users to control their smart home, play music, and connect with existing applications such as Uber, StubHub!, and Domino’s (“Amazon Echo,” 2017). Amazon’s Fire TV complements its Prime video streaming services, in addition to hosting applications like Netflix, HBO Now, and Hulu (“Fire TV Family,” 2017). In its venture to compete with the iPhone, the Amazon Fire Phone fell under criticism for its high cost, resulting in a \$83 million inventory of unsold phones (Carr, 2015). However, the Fire Phone and Lab126’s other innovations were a way of “repositioning the brand away from being so utilitarian and toward becoming more of a lifestyle brand like Apple” (Carr 2015).

Noteworthy Acquisitions

Zappos.com

To gain footing in the apparel business, Amazon purchased online shoe retailer Zappos.com in 2009 (Parr, 2009). The website, which offered free delivery and returns, helped supplement and grow Amazon’s existing outlet for shoes, Endless.com; in the year of the acquisition, Zappos’s web traffic was nearly 4.5 million visitors, compared to Endless’s 77,000 (Lewis, 2014). Analysts dubbed the joining of the two companies as “similarly smart,” due to a similar desire to disregard short-term financial goals to support a long-term vision (Lacy, 2009). Zappos still runs most of its business independently of Amazon, emphasized by the fact that Zappos CEO Tony Hsieh thinks of Amazon as “a giant consulting company that we can hire if

we want - for instance, if we need help designing our warehouses” (Lashinsky, 2016). A glaring exception to this arose in 2012, when Zappos decided to turn over its warehouse operations to Amazon rather than opening a third warehouse of its own (McGarry, 2012). For Amazon, the acquisition further promoted their access to a new product line and its supporting data to continue its venture in personalized selling (“Can Amazon Be A Fashion Player,” 2012). All in all, Amazon acquired one of its fiercest competitors with a dedicated focus to customer service, while also expanding its product offerings to customers.

Quidsi

Quidsi, parent company of an online retail dynasty including Diapers.com and Soap.com, was sold to Amazon in 2010. Utilizing diapers as “the draw that brings in loyal customers who order over and over,” Quidsi found success by utilizing low-margin commodities to sell high-margin goods to a specific audience: parents who needed a more convenient shopping option that fit into their busy schedules (Urstadt, 2010). After failed attempts to acquire the company, Amazon tried to directly compete with Diapers.com through Amazon Mom, which provided members with free two-day shipping and a thirty percent discount on products, including diapers (Stone, 2014). In other words, Amazon saw Quidsi as a source of competition and, due to unsuccessful attempts at buying the entity, undercut their prices on major sources of revenue (Popper, 2012). While Amazon took a significant loss on these products, the reduced revenues did not compare to the risk of losing a market to another start up. The Quidsi acquisition indicates Amazon’s fierce negotiating tactics for websites it views as competitors: “if you can’t beat them, buy them” (Savage, 2016).

Kiva Systems

In an effort to continue warehouse automation and technological development, Kiva Systems entered the Amazon family in 2012 as its second largest acquisition at \$775 million (Rusli, 2012). Known as the robot producer, Kiva Systems manufactures automated warehouse technology, which delivers stock to human workers and guides the picking process (Eddy, 2012). This eliminates the need for pickers to walk throughout fulfillment centers and reduces errors in order management (Eddy, 2012). Business Insider author Mark Mills calls the Kiva acquisition Amazon's "logical connection between the physical and cyber worlds," which marries the company's already sophisticated Cloud technology to its warehouse operations (Mills, 2012). While child-companies Zappos.com and Diapers.com both utilized the robots prior to the acquisition, Amazon did not integrate the robots into its own operations until 2014 (Kim, 2015). Since then, Amazon rapidly expanded the use of Kiva robots in its distribution centers, employing 45,000 robots in twenty facilities in early 2017 (Shead, 2017). The Kiva purchase represents the company's dedication to enhancing the efficiency of distribution operations for years to come.

Establishing a Physical Presence

As early as 1997, Amazon explored the idea of establishing a presence in the retail space through a partnership with Starbucks, who wanted to carry Amazon products near their registers (Stone, 2014). From the onset of its founding, however, Amazon's low-cost model flourished through avoiding both traditional and untraditional costs associated with retail storefronts. It is important to note that the locations of Amazon fulfillment centers were chosen based off of U.S.

sales tax laws, not proximity to customers (Wulfraat, 2017a). Prior to legislative changes in 2013, Amazon avoided including sales tax in customer purchases because its fulfillment centers did not fall under the same specifications as a retail store front, which would be subjected to such fees. Therefore, its early network design was not built to efficiently ship to the majority of its customers, but to ensure that prices were kept as low as possible through avoidance of operating like a traditional, big-box retailer. After intently fighting legal battles with several states over sales taxes, Amazon shifted its network strategy to place fulfillment centers closest to large cities, with the “goal of enabling same-day delivery as an option for at least half of its U.S. customers” (Wulfraat, 2017a).

Despite its vehement avoidance of physical establishments, the company began to extend its retail reach beyond its website. As early as 2011, Amazon introduced the concept of Amazon Lockers to provide easier pick-up locations for customers’ online orders in major metropolitan areas (MacMillan, 2011). Rather than risking a missed package delivery, the company “installed large metal cabinets...in grocery, convenience and drugstore outlets that function like virtual doormen, accepting packages for a later pickup” (Bensinger, 2012). The locations, which operate at all hours of the day, help minimize the most expensive leg of transportation in Amazon’s delivery service: the “last mile” to the customers (Lariviere, 2013). The proposed benefit to locker hosts is the increased number of store visitors, who will hopefully make a purchase during the pick-up visit, as well as a small monthly rental fee. Many large retailers, including RadioShack and Staples, quickly ended the program in its stores as a result of direct competition with the site who “sells virtually everything it does - and possibly cheaper” (Bachman, 2013). Advances in the ordering process eventually allowed Amazon customers to return products through the lockers as well (Bergeron, 2016).

One of the spots where Amazon created a home for its locker concept was college campuses. The co-branded locations, conveniently close to university bookstores, provide same-day delivery to Prime Student members on textbooks and other necessities (Peterson, 2016). The program, dubbed a “feeder system for future Amazon customers,” provides students with more than a place to pick up their orders; the areas include “couches, conference tables and TVs set up with game controllers so students can play “Tetris” on Amazon Prime Video” (Rubin, 2016). Dedicated to creating an entertainment environment, the youthful nature of the outlets progresses the company’s brand loyalty among the growing millennial market segment.

Along with combating costs associated with delivering directly to customers and cultivating its future market, Amazon is growing its retail presence for another main purpose: selling its hardware. Beginning in 2014, Amazon brought its brand name in dense shopping areas as a medium to promote the Kindle Fire and Fire Phone (Duryee, 2014). Vending machines were placed in “event spaces, shopping centres, and airports” to physically connect customers to Amazon products, including an array of tablets and supporting accessories (Curtis, 2014; Siegal, 2014). These machines were eventually supplemented by pop-up mall kiosks and stores during peak seasons, allowing customers to engage in a try-before-you-buy experience (Duryee, 2014). By the end of August 2016, Amazon had sixteen pop-up stores across the country, ranging from 200 to 500 square feet in size, with plans to add up to 100 in 2017 (Peterson, 2016). While these stores are supposed to be short-term in nature, its 2014 flagship location in San Francisco was still open at the time of this research in March 2017 (Rubin, 2016).

Amazon Books

It was not until 2015 that Amazon opened its first permanent brick-and-mortar store. Operating in a familiar location and space, the Seattle location of Amazon Books opened with the intention of emulating the web experience in a store. When deciding what inventory the store will carry, the company uses “data from its e-commerce site such as customer ratings and sales to decide which books to stock” and incorporates the website’s reviews and ratings directly onto the shelf displays (Rao, 2016). This amounts to a selection of 5,000 to 6,000 books for customers to enjoy (Anderson, 2015). The store’s small size, a mere 7,400 square feet compared to the average 26,000 square feet of a Barnes & Noble, suggests Amazon does not intend to offer its unlimited selection physically to customers (Lindner, 2016). GeekWire author Frank Catalano says that Amazon is utilizing the customer practice of “showrooming” with their bookstores, in which customers can go to a physical store, look at products, and buy them for cheaper prices online (Catalano, 2016). However, instead of cultivating the need to look for a better deal, customers are assured that they will pay the same price in-store that they find on Amazon’s website (Catalano, 2016). The store also pushes customers to Amazon’s mobile app, which provides “detailed information about a product” as well as the ability to “buy products online” (Soper, 2015). Currently, there are four Amazon stores open and operating in California, Massachusetts, Oregon, and Washington, with plans to open additional California and Massachusetts locations and establish a presence in Illinois and New Jersey (“Amazon Books,” 2017). Most recently, the company announced that it would open a New York City location (Morris, 2017).

While Amazon never divulged exactly why they entered the retail space, analysts speculate several reasons. Some say that Amazon Books is intended to serve “most notably [as] a

place where customers can try out their Kindle and Fire Tablet devices,” amid statistics that millennials were less interested in e-readers than print copies of books (Kleinman, 2015).

Building on this, the purpose of the store may be Amazon “admitting that if it is to expand its share of the book market, it will need to invest in bricks as well as bits” (Carr, 2017). Another author suggests that the move was solely made to “help Amazon win on delivery” with retail stores serving as pick-up locations for customers (Elgan, 2016). Perhaps the most interesting theory involves personalized selling and data mining. Forbes author Rob Salkowitz says:

“If you are signed into the app with your account - as is likely - Amazon is immediately able to associate its online customer records with you...It knows your preferences, your buying history, your status as an Amazon Prime and/or Amazon credit card member, and who knows what else. Armed with that data, it can feed you recommendations, offer coupons and incentives, and do whatever it needs to close the sale as you are holding an item...That may eventually include offering you a personalized price that represents the company’s best guess at what you’d be willing to pay...” (Salkowitz, 2015).

Although all of the above reasons offer merit, the possibility of harboring customer data and using it to personalize offerings aligns well with the plans Amazon has for its introductory operations to brick-and-mortar grocery shopping.

Grocery Retailing & Amazon Go

Amazon’s latest venture explores the world of grocery shopping, incorporating extensive amounts of automation to the shopping experience. Its first attempt in the arena, a store and technology both titled Amazon Go, debuted in December 2016 in its home city of Seattle.

Occupying 1,800 square feet, far less than a traditional grocery store, the pilot's unique features caught the attention of industry professionals and customers alike (Bishop, 2016). Also known as "just walk out technology," the store utilizes "computer vision, sensor fusion and deep learning algorithms in order to automatically detect when products are taken from or returned to the shelves" (McLaughlin, 2016). Customers are tracked from the moment they check-in to the store through a scan of a mobile application ("Amazon Go," 2017). As a customer selects items, his or her shopping cart fills up on Amazon.com, automatically charging the user's Amazon account upon leaving the store with the items ("Amazon Go," 2017). Initial store offerings include commodities similar to what one would find a convenience store, including ready-made meals, common grocery items, and Amazon Meal Kits, which provide ingredients for meals prepared in 30 minutes or less ("Amazon Go," 2017).

Sources note that Amazon Go is one of three grocery solutions that the e-retailer-gone-retailer is testing out. Another Amazon team is working on a drive-through concept, where customers can order groceries ahead of time and pick them up without ever leaving their car. The final concept "combines in store shopping with curbside pickups," and mimics the size and nature of European grocery stores (Stevens, 2016). These innovations are representative of Amazon riding Wal-Mart's coat tail, as the company already established its curbside delivery services and plans to extend them in 2017. However, Amazon plans to dedicate significant resources to competing in the grocery arena: speculations in late 2016 observed that the combination of the three formats should result in Amazon opening "more than 2,000 brick and mortar grocery stores under its name" (Stevens, 2016).

The rationale behind these stores is that they will operate as a supportive arm of Amazon's online grocery operations, titled Amazon Fresh. Working as distribution centers for

the e-commerce giant, Wired author Davey Alba notes that, “you need places that can move all the fresh eggs and milk from week to week, and they might as well double as stores” (Alba, 2016). As Amazon continues the quest to keep its delivery times at an absolute minimum, it is learning to utilize the money and space it invests in its distribution operations to make a profit of its own.

Chapter 4

Comparison of Companies

In order to compare Amazon and Wal-Mart, several elements of their business models must be analyzed. The title of this paper poses the question of who will best serve “everything, to everyone, everywhere;” accordingly, the company that will ultimately forge ahead is the one who succeeds at providing a seemingly unlimited selection to a wide variety of customers. To understand the strengths and weaknesses that each possesses, the companies were evaluated on five key factors: market perception, innovation, distribution network design, transportation assets, and current financial state.

Market Perception

Both companies stress their desire to sell to everyone. However, each entity’s dominant platforms are appealing and accessible to specific markets and customer demographics. The most notable disparity between Wal-Mart and Amazon customers rests in their disposable incomes: on average, Amazon shoppers earn twelve percent more than their Wal-Mart counterparts (Gustafson, 2015). This gap widens when evaluating Amazon Prime customers, who, with an average income of \$69,300, earn twenty-five percent more than Wal-Mart’s everyday customers (Wahba, 2015). Going further, Wal-Mart sales account for eighteen percent of all Supplemental Nutrition Assistance Program’s food stamp dollars spent in the country (Clark, 2014). Accordingly, Wal-Mart serves a significant portion of the population whose gross income falls at

or below 130 percent of the poverty line (“A Quick Guide,” 2017). The difference in income helps explain other disproportions in the two customer bases. For example, Amazon customers are more likely to be college-educated and attend graduate school (Tice, 2010). This should come as no surprise - Wal-Mart brands itself as a low-cost provider and, in turn, attracts the most price-conscious individuals.

In the hotly contested millennial demographic, Wal-Mart is currently winning: young shoppers are driven to Wal-Mart for its prices, particularly on grocery products (Goodfellow, 2015a). Millennials note the importance of location in their shopping preferences, which Wal-Mart maintains a clear competitive advantage on over other retailers (Goodfellow, 2015a). However, a 2015 survey shows that young shoppers “don’t necessarily shop at Wal-Mart because they *want* to; this cash-strapped, financially conservative group does so because they *have* to” (Goodfellow, 2015a). The same survey found that millennials genuinely enjoy shopping from Amazon. Moreover, this demographic enjoys the subscription-based free shipping provided by Amazon Prime and associates it with positive customer service (Goodfellow, 2015b). The appeal of Amazon Prime among millennials is apparent, as almost forty percent of customers are under the age of thirty-five (Goodfellow, 2015b). Amazon’s ability to grow itself through this key audience, whose income is likely to grow as they establish their livelihoods and careers, could become a critical advantage for the company.

Wal-Mart struggles to be “liked” by high income and younger customers for several reasons. As a brick-and-mortar store, many individuals feel uncomfortable or unsafe shopping in Wal-Mart because of the customer base that currently shops there. The website PeopleOfWalmart.com is dedicated to documenting the odd, crude and sometimes incredible customers seen at Wal-Mart stores (Straker, 2015). This creates an undesirable shopping

environment for individuals who can afford to shop in other stores and will make purchasing decisions on factors other than cost. Overall, Wal-Mart's insistence on providing the lowest cost items hampers its ability to establish itself as a high-quality retailer.

In the opposite respect, Amazon's success with low-income customers is lackluster, stemming primarily from a lack of accessibility. Amazon's most popular service and largest selling point, Amazon Prime, requires a significant investment from customers of ninety-nine dollars per month, a price that is unaffordable to individuals with low disposable income. Conversely, Wal-Mart can easily service the twenty-five percent of customers who do not have access to debit cards, credit cards or a bank account through in-store purchases (Dages, 2016). Furthermore, thirteen percent of the population does not have access to the Internet, citing that they cannot afford it or are too old to learn how to use it (Anderson, 2016). These barriers to entry pose a significant risk for Amazon's accessibility to a lower income customer base.

Understanding which company holds the advantage in market perception forces an evaluation of who can overcome weaknesses, or whose weaknesses will grow obsolete, over time. While Amazon's primary disadvantage is its limited accessibility, the rise of the Internet continues to exceed expectations and, accordingly, individuals are more welcoming to the idea of e-commerce now than ever. More importantly, the number of Americans without access dwindles to a mere one percent when looking at the eighteen to twenty-nine year-old age range, alluding to the fact that Amazon will overcome its accessibility problems as the generation ages (Anderson, 2016). Wal-Mart struggles with a far greater challenge: disassociating the negative connotations of cheap products with its overall brand.

Additionally, Wal-Mart's customers prefer to shop at Amazon when given a choice. Amazon's advantage has already been noted with customers who shop at both locations: while

nineteen percent of Wal-Mart in-store shoppers purchase from Walmart.com, fifty-three percent shop on Amazon.com (Cheng, 2014). Furthermore, the duality of customers on the sites does not occur mutually. Only eighteen percent of Amazon shoppers buy products from Walmart.com, whereas seventy-four percent of Walmart.com shoppers also purchase from Amazon (Cheng, 2014). In turn, Amazon manages to capture Wal-Mart's customers and continues to penetrate its market through new tactics. Most notably, Amazon began targeting low-income shoppers by partnering with the Supplemental Nutrition Assistance Program to accept food stamps and subsidies for online grocery shopping (Soper, 2017). Overall, Amazon possesses creativity to reach previously inaccessible customers, while Wal-Mart faces a much bigger struggle in trying to re-establish its brand for high-income shoppers.

Innovation

When comparing innovation at Wal-Mart and Amazon, it is important to evaluate the motivation behind each company's investments in the category. Both companies' dedication to innovation stems from trying to provide all products at a large scale. Wal-Mart pushed boundaries on distribution technology to better service its stores, most famously with the integration of radio-frequency identification as discussed in Chapter 2. This technological investment provided better visibility to Wal-Mart's inventory across its vast distribution network, enabling the tracking of pallets across the supply chain to improve on-shelf availability (Bisk, 2017). Amazon's most dominant innovation, on the other hand, rests not in the way that it delivers products, but in defining what constitutes a product. It made bigger-than-retail legs(?) of its company by creating a service industry of cloud computing and storage, as noted through

Chapter 3's Amazon Web Services section. In turn, Amazon has "found ways to build vertical integration into every aspect of its infrastructure - and then sell its own vertical integration as a service for others to build upon" (Gewirtz, 2016).

In the two decades since the dawn of e-tailing, Wal-Mart's lag in investing in proper online infrastructure hampers its ability to compete with Amazon's innovation. As previously noted, Wal-Mart initially developed its website as a medium to supplement its store presence and, as a result, de-prioritized the initiative in favor of investments that would service its existing network. This resulted in a significant gap in the timelines of major Internet milestones between the two companies, promoting a trend of Wal-Mart following Amazon's footsteps on the innovation front. Wal-Mart's Marketplace launched years after Amazon's, and its website first mimicked user recommendations and product page design from its counterpart in 2014 (Gagliardi, 2015). These concepts, which are woven into the fabric of Amazon's business, are major reasons why the company has gained much of its market traction and acclaim.

Accordingly, Amazon is known and lauded for being an innovative company. Fans say that the company "constantly innovated both horizontally (across product areas and business policies) and vertically (over supply chain and distribution)" (Gewirtz, 2016). These innovations generate excitement about the Amazon brand, although critics often note that these additions are ahead of their time or lack scalability. At the center of Amazon's innovation rests its investment in data collection technologies, which helps it make intelligent decisions on future growth areas. Amazon Prime is often called the company's "flywheel: a device used in engines that provides constant energy. It is both an accelerant to Amazon's forward motion and a beneficiary" (Robischon, 2017). This creates a cyclic process of data collection, in that:

“...the more products and services Amazon is able to cram into Prime, the more likely users are to renew their membership and buy more stuff, which gives Amazon more data about their tastes and what they are likely to buy next. That information is used to spin out new products and services...” (Robischon, 2017)

In turn, Amazon created a series of platforms fixated on growing each of the company’s innovative pursuits independently of one another. This allows each sector to best decide how to serve its unique customers, building a brand not around its product offerings but around customer service. This premise gives Amazon a unique advantage over its competition and helps it maintain its title as one of the world’s most innovative companies.

Distribution Network

An important aspect in winning through the delivery space is proximity to the customer. The heightened costs of the last mile, “the portion of transit from the final delivery center to the customer’s door,” accentuate the necessity of a tightly controlled distribution network in pursuit of cost and speed advantages (Walsh, 2006). When looking at closeness to the customer, there is no comparison: Wal-Mart dominates. While thirty-one percent of the country resides within twenty miles of an Amazon fulfillment center, ninety percent of Americans live within fifteen miles of a Wal-Mart store, giving Wal-Mart an advantage in closeness to customer as well as volume of consumers it can serve (D’Onfro, 2015; Fishman, 2006). In order to fully comprehend the scope of Wal-Mart’s distribution control, it is necessary to compare both the motivation behind its distribution network design and size of the network.

When deciding where to place its distribution centers, the companies pursued dramatically different strategies. As discussed in Chapter 2, Wal-Mart created a hub-and-spoke model, through which it placed stores and distribution centers strategically around its customers. Network expansion occurred outward from the focal points, resulting in a high concentration of Wal-Mart stores across the network. Amazon, conversely, chose its fulfillment center locations based on where it could avoid passing sales taxes onto its customers (explored more in-depth in Chapter 3). Accordingly, Amazon's network was not initially designed with proximity to the customer as the primary consideration. While Amazon now must maintain a physical presence in most states irrespective of their sales tax laws, the company is unlikely to be able to saturate the market the same way that Wal-Mart did in its original network design.

Wal-Mart's footing as the world's largest retailer requires a distribution network that matches the title. Comparing the two networks on size alone, Wal-Mart's reach in terms of both number of stores and square footage in the U.S. is close to untouchable. Approximations on the size of the two networks are compared side-by-side in Table 1 below:

	Walmart	Amazon
Number of Distribution Facilities	148	217
Active Distribution Square Feet	125,641,715	89,200,500
Number of Customer-Facing Sales Points	5,332	34
Active Customer-Facing Sales Points Square Feet	775,000,000	40,200

Table 1 Comparison of Wal-Mart and Amazon's Distribution Footprint (See Appendix for Details)

Particularly noteworthy is the large disparity in customer-facing sales points. Wal-Mart possesses the dominant physical outlet for customers to interface with the brand. As Amazon begins to pursue expansion into storefronts, it is hard to argue that it will ever be able to match Wal-Mart's physical presence. It would take years, if not decades, to duplicate the footprint that

Wal-Mart has created, if it is even possible to replicate Wal-Mart's model given Amazon's existing network. When asked about Wal-Mart's competitive advantage over online retailers, CEO Doug McMillon noted, "Will it be easier for an e-commerce company to build out a massive store network and create a customer service culture at scale? Or are we better able to add digital and supply chain capabilities and leverage our existing stores? We like our chances" (Wahba, 2015).

While Wal-Mart's competitive advantage exists in its physical domination of the country, its numerous facilities are only useful if it can leverage data sharing and connectivity between its physical touch points. The retailer will need a sophisticated platform with decision rules about where the inventory for a given order should be picked to best leverage its network (Banker, 2013). This is the area in which Amazon excels, as seen through its ability to utilize its existing distribution network not only for its own products but also those of third-party sellers.

Overall, Wal-Mart possesses the dominant physical network to best provide fast delivery to customers across the country, particularly the small-town locations that its stores currently thrive in. If Wal-Mart adapts its original business model of bringing big-box retailing to less populous areas and reforms it for online shipping, it may be able to forward itself as the primary platform for the country as a whole.

Transportation

A key aspect of managing the transportation network is possessing ownership of the process to maximize efficiencies and eliminate stopping points along the way. In this respect, Wal-Mart has dedicated significant resources and effort. The retailer owns a fleet of 6,100

tractors and 61,000 trailers as well as employing 7,800 drivers (“Our Business,” 2017). In 2015, Wal-Mart attempted to further its grip on its entire transportation network by taking responsibility for suppliers’ transport to Wal-Mart distribution centers, with a goal of “handl[ing] suppliers’ deliveries in instances where Wal-Mart can do the same job for less, then use those savings to reduce prices in store...” (Wolf, 2010). In turn, Wal-Mart actively owns its delivery process to stores and can utilize this network in direct-to-customer delivery.

Conversely, Amazon is only now elevating its own transportation operations to the same extent that Wal-Mart has for years. Since its founding, the e-tailer “rel[ied] heavily on national parcel couriers to move product,” namely UPS and FedEx (Wulfraat, 2014). This relationship exposes Amazon to certain vulnerabilities. Because these relationships are not exclusive, Amazon is subjected to delays and backlogs at peak seasons; in other words, “when transportation assets are constrained at a national level, the shipments cannot go out on time, and then the pin needs to be spread around to all shippers” (Wulfraat, 2014). Although outsourcing this service costs the company approximately \$1.1 billion per year, Amazon lacks the scale to create efficiencies out of shorter trips and more packages per stop (Bensinger, 2016). However, 2015 reports note that the company is trying to operate a fleet to service its grocery delivery business, AmazonFresh (Okumura, 2014). Additionally, Amazon is making headway in air transportation in leasing a fleet of ten to twenty freighter jets to “connect its package fulfillment centers across the U.S.” (Gates, 2016). These attempts at ownership, while not as extensive as Wal-Mart’s, show a willingness to invest in transportation in the future.

While both companies dedicate resources to improving transportation efficiencies across their networks, neither has found an efficient way to account for the last-mile to the customer. This distance “accounts for the majority of a shipment’s cost and complexity,” and is growing

increasingly difficult for retailers to adapt to given the high number of endpoints in an omni-channel network (Walsh, 2006). In experimenting with possible solutions to this dilemma, both companies explored the option of contracting delivery to Uber and Lyft drivers (Okumura, 2014). Amazon cultivated their own program called Flex, allowing drivers to “pick up packages from warehouses using an Amazon app” (Bensinger, 2016). Although this solution is creative, it introduces a host of new problems with reliability of delivery and theft, as these drivers are not employed by Amazon or Wal-Mart and go through a limited pre-screening process.

The risks associated with traditional transportation mediums suggests that the companies will begin exploring other ways to get products to customers. One method that gains a lot of media attention is drone delivery. Both companies are actively pursuing this technology for direct-to-customer delivery, but variables such as costs to customer and legal concerns will keep the technology pre-emptive for the time being. The companies are each finding unique ways to integrate drones into their existing businesses. While Amazon recently successfully delivered a package to a consumer home, Wal-Mart received a patent allowing them to use drones for in-store and warehouse product movement when employees are unavailable (Berman, 2017). These uses suggest that the companies plan to use drones in drastically different manners.

In terms of who possesses the absolute advantage over transportation efficiencies, Wal-Mart’s close proximity to customers and ownership over its transportation network positions it as a front-runner. However, Amazon’s past success with integrating new technology into its existing systems suggests that it could move ahead of Wal-Mart in this space if Wal-Mart cannot properly utilize its competitive advantage.

Financial Analysis

Financial disparities exist between Wal-Mart and Amazon both in terms of past profitability and growth potential. At a glance, Amazon's total revenue for Q4 2016 was \$43.7 billion, for a positive year-over-year change of twenty-two percent (Sparks, 2017). Wal-Mart's Q4 revenue of \$130.9 billion represented a year-over-year growth of 0.9 percent (Sharma, 2017). These figures, while simplistic and high-level, allude to the current state versus future potential dilemma that arises when comparing the two. The companies' paths to get to their current positions, as well as general retail trends, allude to who will succeed in the future.

Amazon's slow-moving journey to profitability left many investors apprehensive during the company's early days. In Amazon's first seven years, it did not turn a profit due to its dedication to "build its brand and grasp market share" (McFarlane, 2014). These four years resulted in billion dollar losses as Jeff Bezos continued to pursue lofty and expensive growth opportunities (McFarlane, 2014). Some of these investments paid off, especially the development of Amazon Web Services. In 2016, this branch of the company achieved 135 percent profit on \$2.9 billion in sales (28). Due to the industry's high profit margins, Amazon Web Services "earns Amazon more profit than its entire North American retail division" (Statt, 2016). The incremental income Amazon brought in through its supplementary products gives it flexibility in how it spends and experiments in new industries.

Wal-Mart, with a U.S. sales figure of \$365.2 billion last year, continues to show the positive growth that investors expect from the retail giant (Gilmore, 2017a). Publicly traded since 1970, sales have grown in a close to exponential pattern since then through rapid store expansion ("Masters of Compounding," 2012). The company's overall financial health is accentuated by its investment in key product categories, such as groceries, where it now accounts

for twenty-five percent of all grocery dollars in the U.S. (“Walmart Profit, Revenue Beat Expectations,” 2016). Wal-Mart currently generates 9.2 percent of all retail sales, but this number has fallen by about half of a percent in the past five years (Whipp, 2016). Recently the company is showing a slowed growth rate, mostly because it adopted the mindset that made Amazon successful: “dropping a long-time focus on growing net sales and on operating expenses as a percentage of sales. Its aim now is to focus on making ‘strategic investments’ to support the ‘long-term health of the company’” (Banjo, 2016).

Wal-Mart’s newfound focus is evident when comparing the amounts that Amazon and Wal-Mart spend on capital expenditures as a percentage of operating cash flow. Here, capital expenditures are represented as “spend on real estate, equipment, and technology” (Gilmore, 2017b). The companies appear to have reversed spending trends over recent years. Amazon had capital expenditures of forty-one percent of operating cash flow in 2016, down about thirty-one percent from its 2015 numbers (Gilmore, 2017b). Wal-Mart’s percentage is slightly higher than Amazon’s on this metric, but staggeringly close at a mere one percent difference considering its incremental \$346 billion in revenue (Gilmore, 2017b). This supports Wal-Mart’s newfound dedication to moving profits back into the business to continue investing in innovation.

An important consideration in evaluating the future viability of both companies rests in current U.S. retail trends. While e-commerce retail sales still account for a less than ten percent of total retail sales, the growth of online shopping over traditional shopping is cause for consideration (Gilmore, 2017b). In the 2016 holiday season, total holiday sales were expected to be up by 3.6 percent, while e-commerce sales were predicted to rise at a rate of approximately double that figure (Statt, 2016). Moreover, Americans are growing increasingly comfortable with making online purchases and about eighty percent of Americans expecting to “do at least some

shopping on the Internet” during the holidays (Gilmore, 2017a). Accordingly, the rapid growth of Internet retailing suggests that both company’s future growths will vary directly with the rise of the medium.

While Wal-Mart says that “it saw a thirty-six percent growth in online sales in the U.S.” during Q4, the company is still lagging behind the industry in terms of overall e-commerce growth rates (Gilmore, 2017a). Moreover, this number includes the company’s acquisition of Jet.com, which accounted for a substantial portion of its overall growth (Gilmore, 2017a). According to the U.S. Department of Commerce, “e-commerce account[ed] for about three percent of Walmart sales, compared 7.8 percent across retail” in mid-2016 (Wahba, 2016b). Wal-Mart’s inability to keep up with industry averages may be due to its exceedingly high in-store sales, which continue to outpace its competition. Furthermore, August 2016 reports show that Wal-Mart managed to grow both in-store traffic and online sales, “the Holy Grail in retail,” accentuating the premise that it needs to utilize both mediums to achieve success (Wahba, 2016a).

Similar to other comparisons made throughout this chapter, the financial state of each company poses a conflict between evaluating current earnings versus future growth potential. Wal-Mart maintains a strong hold on the overwhelmingly dominant market of in-store retailing. However, Amazon shows greater potential in a growing market, where it continues to invest its earnings in new ways to provide to customers online. This forces a specific question: can Wal-Mart’s growth in online sales and innovation outpace the growth and acceptance of e-commerce? Based on its progress in the e-commerce industry so far, the answer appears to be no, in that the Internet and usage of online shopping are growing faster than Wal-Mart’s efforts to keep up with it. For this reason, financial growth in the online market is more critical than current profit in

evaluating potential. While Amazon cannot match Wal-Mart's current profitability, the Internet's scalability as users continue to adopt the medium suggests that the industry shows more promise of incremental profit year-over-year than Wal-Mart's primary platform of in-store retail.

Chapter 5

Future Predictions

Thus far, the past and present operations of both Amazon and Wal-Mart have been documented, analyzed and compared. It is apparent that each entity possesses advantages over the other. While Amazon's selection, dedication to innovation and brand availability, Wal-Mart's existing physical presence and transportation network offer the company potential supply chain efficiencies above its competitor.

Given these disparities, the question posed at the beginning of this research remains relevant: who can best serve everything, to everyone, everywhere? The above discussion makes it apparent that two other facets must be added to this question to accurately determine a 'winner' between the two retail giants - "in how much time?" and "at what cost?" Both companies display a dedication to getting products to a customer's doorstep in as little time as possible: Amazon offers customers its subscription-based Prime service, whereas Wal-Mart offers free two-day shipping on select products for orders over thirty-five dollars ("Free Shipping," 2017). These offerings allow customers to get products from each retailer in an equal amount of time, leaving one battle for delivery speed unfinished between the two giants: same-day delivery.

Same-Day Delivery

Same-day delivery emulates the instant gratification of in-store shopping in an online environment. While critics question the necessity of the service, it may be an appropriate solution for select products and networks. It is particularly attractive in densely populated areas for categories with short shelf-lives, including groceries (Tompkins, n.d.). Moreover, same-day delivery success can give retailers a competitive advantage in younger audiences with a high disposable income, whose lives revolve around rapid accessibility to goods and information.

However, the overwhelming challenge surrounding sustainable expedited delivery is cost. It is feasible to get products to customers in a minimal amount of time; consider the minutes or, at most, single hour it takes to receive a dinner order for delivery from a local restaurant. Although these deliveries are timely, they force the customer to incur significant costs, oftentimes asking to meet a delivery minimum in addition to paying a shipping fee disproportionate to the cost of the order. While consumers may be willing to incur this expense for take-out food, they are less receptive to incurring incremental costs for online orders. Amazon changed the perception that people should have to pay for shipping, with its Prime service. The alteration in customer expectations set a dangerous precedent for companies, who now must accept full responsibility for the cost of shipping. This poses a significant challenge for retailers competing in the same-day shipping market. A recent Deloitte survey shows that twenty-five percent of customers expect to pay nothing to have a product shipped to them on the same day they ordered it. Moreover, the costs of building the infrastructure that supports a same-day or near same-day distribution model is drastically different than most companies' existing networks, forcing high fixed costs in adopting the process.

Currently, Amazon offers customers same-day shipping with certain stipulations, including a limited selection of one million product offerings to thirty metropolitan areas around the country. Additionally, orders must be placed before noon and must be over thirty-five dollars, even for Prime members. Wal-Mart, conversely, recently piloted its two-day service and has yet to explore the same-day delivery market. The preliminary offerings of both companies suggest that there is room for either to dominate the market. (Alba, 2015).

Choosing a winner in this hotly contested arena requires exploration into the differences between who *should* win and who *will* win. Undoubtedly, Wal-Mart should win; its extensive network is better optimized to reach customers in timely manner. With the ability to use its stores as fulfillment centers, Wal-Mart will always be closer to the consumer and, with tweaks to its existing system, stands to find better ways to save on last-mile costs. Furthermore, the close distances between its stores and consumers provides an opportunity for transportation efficiencies in direct-to-customer delivery, as its distribution centers already send deliveries on daily and weekly basis to most parts of the country. In a competition that is driven by location, Wal-Mart certainly holds the upper-hand.

However, Wal-Mart's greatest pitfall is its early and continued philosophy of how its online presence should contribute to the business as a whole. For many years, the company outwardly noted that the sole purpose of its website was to support its existing store network. To succeed in same-day delivery, Wal-Mart needs to supplement its mindset: in addition to using its website driving traffic to stores, the stores must be utilized to deliver to online customers. This driving philosophy caused Wal-Mart to adapt slowly to the retail versus e-tail paradigm shift. While Wal-Mart is now beginning to innovate its website through a redesign and the integration of its Marketplace, the timeline of these improvements are drastically delayed in comparison to

the speed of its competition. The significant lag toward innovative solutions and integration of the online sales front put Wal-Mart behind in the quest for the online retailing market. The delay in developing its online platform, hampered by its resource and monetary focus on its stores, forces many to ask why Wal-Mart is so late on incorporating these elements into its business model.

Furthermore, Wal-Mart may struggle with selling a high-quality service to its dominant customer base. Same-day shipping is presumed to be successful with a young, affluent demographic; Wal-Mart's current demographic, heavily comprised of price-sensitive customers, may not think that any incremental cost of this service is worthwhile. Going further, the existing perception of Wal-Mart's brand will reduce its chances at obtaining customers driven by service quality over price. Accordingly, it may be necessary for Wal-Mart to re-brand its web presence to appeal to a more affluent demographic. The company could follow a path similar to Gap, Inc., who successfully segmented its customers through spin-off brands. Wal-Mart's pursuit of multiple, new acquisitions, particularly Jet.com, offers an opportunity at this type of separated branding.

Another aspect of this debate lies in who will incur the costs of same-day shipping: the company or the customer. This speaks more to a company's ability to sustain a profitable same-day delivery program than win a majority of the market. Due to its demographic appeal and current stronghold on the online retailing space, Amazon possesses the necessary web-traffic and demand for the service to become the dominant player among consumers. Nonetheless, Amazon will incur heavy monetary losses during the development of same-day delivery. Amazon's implementation of the process well before other retailers suggests that the company will once again prioritize growth before profit in the new venture.

Is It Fair to Compare?

In this respect, it is worthwhile to wonder if it is still viable to compare the two companies as direct competitors, considering the drastic differences in their services that emerged over time. Amazon possesses a unique ability to fuel its unprofitable ventures through its other successful offerings, including its growing Web Services sector. Going further, Amazon enamors investors through innovation, setting an unprecedented acceptance for continual support for initially unprofitable, at times nonsensical, growth opportunities. Amazon continually displays that it does not fear failure and will incur financial losses in pursuit of a longer strategic goal. These attributes make Amazon a formidable, and arguably unfair, opponent in the short-term, in which it will command market control over the same-day shipping industry. At its core, Amazon is not a retailer; it is a technology company trying to be an everything company, and leverages its success to experiment in new unprecedented realms.

Areas for Growth

Amazon

A major obstacle in Amazon trying to overcome is scalability, a skill that Wal-Mart mastered. As previously mentioned, this sets Wal-Mart up to better compete in physically delivering products directly to customers. Recognizing this risk to its potential business, it is possible that Amazon will apply lessons learned in its third-party fulfillment model to build its own transportation network that rivals today's largest shipping services. The restrictions imposed by its current providers seem counterintuitive to the company's complete process ownership

philosophy, suggesting that this movement is more likely than not. In this, the company will combat its struggle with scale by offering its own transportation services to its Marketplace providers, who already house their inventory at Amazon distribution centers. A movement in this direction will propel Amazon into the logistics space as a prominent third-party provider.

Wal-Mart

As for Wal-Mart, the retailer needs to leverage its data-collection potential by utilizing its massive in-store sales and marrying it to the online environment. It should begin these pursuits through the online service that it is most successful in: grocery sales. As the country's largest grocer, the company stands to gain from leveraging its competitive advantage in this critical product category. Moreover, it is using groceries as a way to drive traffic to both its website and stores through its Grocery Pick-Up program. Customers can order groceries online up to three weeks in advance and pick them up curbside from their closest Wal-Mart store for orders exceeding thirty dollars ("Walmart Grocery Pickup," 2017). This valuable service, which comes at no extra cost to the customer, combines the convenience of the Internet with Wal-Mart's extensive existing network.

Online grocery orders serve as a starting point for Wal-Mart to use data to drive sales. On the Wal-Mart Grocery website, customers must create an account before placing their first order. This allows Wal-Mart to better recommend products for repeat grocery shoppers. The potential for this program is enormous, primarily because Wal-Mart's Grocery Pick-Up drives traffic to both its website and store. Early results show that twenty-five percent of people utilizing the service are new shoppers at Wal-Mart, who have no consumer profile in the systems (Sozzi,

2016). In terms of future growth, Wal-Mart should utilize its grocery data to suggest other product categories for its customers through its main website, available for pick-up at the same time as their groceries. For example, if a customer orders a bag of coffee each week through Wal-Mart Grocery Pick-Up, it would be interesting if the website could track these orders and recommend supporting non-grocery products, like a coffee pot or mug. These mediums will most likely be explored as Wal-Mart elevates the sophistication of its recommendation service and completes ties between its online platforms. If and when Wal-Mart can control its data management, it will be a prime position to compete with Amazon.

Chapter 6

Conclusion

In summation, Wal-Mart and Amazon each possess competitive advantages that fuel a hotly contested debate on who will dominate the future of retailing. Similar to other companies in the industry, each struggles to adapt its current strengths to the omni-channel network required to win the retail market. Accordingly, the argument rests in who will overcome their existing business models' weaknesses fast enough to generate scalable success with the majority of the market.

Wal-Mart's thoughtful creation of its physical distribution channels, supported by its extensive transportation assets, offers it the upper hand in direct-to-customer delivery across the country. Additionally, its current profitability and financial health allow it to hold onto its title as the world's largest retailer. However, the company's success hinges on its ability to leverage its store footprint in elevating online sales. To do this, Wal-Mart should follow Amazon's example of developing robust data profiles on its customers. These profiles are starting with their most successful online service, Grocery Pick-Up, but the company must work to marry its data collection systems from all online portals to develop an individualized store for each customer. Wal-Mart's scale, both its blessing and curse, will prove challenging in this feat.

Amazon transformed online retailing by growing with the platform. It possesses notable advantages in its brand name and quality, hinging on its CEO's obsession with customer service. Moreover, the company's dedication to innovation regardless of the cost allows it to reap favorable outcomes with both its consumers and investors. In the future, Amazon will continue to struggle with conducting its operations in a cost-effective manner due to its prioritization of growth over profits. To accomplish this, Amazon must find ways to create scale out of its single-

delivery items. In turn, the company will have to dedicate resources into becoming a full-service logistics company and will do so next by optimizing transportation.

While Wal-Mart is in the best position to win with same-day delivery to customers, Amazon will prove victorious because of its commitment to winning a market regardless of the cost. Amazon wants to be a customer's primary medium for online shopping, and thus far has succeeded in this pursuit. Because of this, it will continue to promote its dominance in this market at all costs, ensuring that it beats competitors as the first to bring innovative customer offerings to the market. This guiding principle makes it a difficult entity to compete for traditional enterprises, who are accustomed to a world where profitability is synonymous with success.

Competitors in the retail space should grow accustomed to multiple, consistent paradigm shifts in consumer expectations and market capabilities. Although competing on a variety of customer-facing mediums is challenging, being at the forefront of this change offers companies a greater chance at success in the rapidly developing space. One of the most daunting aspects of this research was the amount of innovation that occurred over the course of its completion. This rate of change is unlikely to slow down given the level of current investment dedicated to breaking barriers between digital and physical, accentuating retail as a primary space for experimentation of inventive supply chain practices for years to come.

Appendix

Comparison of Distribution Footprints

Walmart's Distribution Footprint

	Walmart	Notes	Source
Number of Distribution Facilities	148	This figure excludes distribution centers exclusively dedicated to Sam's Club, but includes nineteen distribution centers that service both Wal-Mart and Sam's Club. These are composed of two shared distribution centers and seventeen perishable distribution centers	Wulfraat, 2017b
Active Distribution Square Feet	125,641,715	See Above	Wulfraat, 2017b
Number of Customer-Facing Locations	5,332		"Our Locations," 2017
Active Customer Facing Sales Points Square Feet	775,000,000		Wulfraat, 2017b

Amazon's Distribution Footprint

	Amazon	Notes	Source
Number of Distribution Facilities	217		Wulfraat, 2017a
Active Distribution Square Feet	89,200,500		Wulfraat, 2017a
Number of Customer-Facing Locations	34		
Number of Pop-Up Stores	29		"Amazon Pop-Up store," 2017
Number of Amazon Book Stores	5		"Amazon Books," 2017
Active Customer Facing Sales Points Square Feet	40,200		
Pop-Up Stores Square Footage	11,600	The Pop-Up Store Square footage was found by multiplying the number of Pop-Up stores by the average square feet per store (400 square feet).	Addady, 2016
Amazon Book Stores Square Footage	28,600	This number is the sum of square feet of all current book stores, listed below.	
Seattle Store Square Footage	5,500		Chappell, 2015
Chicago Store Square Footage	6,000		Zumbach, 2017
Portland Store Square Footage	7,800		Marum, 2016
Dedham Store Square Footage	5,800		O'Brien, 2017
San Diego Store Square Footage	3,500		Van Grove, 2017

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Lakeview." *Chicago Tribune*. *Chicago Tribune*, 21 Mar. 2017. Web. 02 Apr. 2017.

ACADEMIC VITA
ALEXANDRA CALDERARO

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EDUCATION

The Pennsylvania State University
University Park, PA

Bachelor of Science: Supply Chain Management and Information Systems

WORK EXPERIENCE

Johnson & Johnson
Skillman, NJ

Supply Planning, Baby Team Co-Op
Jan-July 2016

- Supply planned for 6 items in the Baby Franchise, responsible for managing communication with an external manufacturing site, product changes and dependent demand while maintaining a 99.99% UFR.
- Created a component tracking tool to improve production planning process efficiency by 33% for giftsets.
- Developed a process to help demand planners quantify historical impact of new product cannibalization and standardize assumptions and procedures for future launches.
- Provided recommendation on 8,211 packaging codes based on analytics from 5 external data sources to help commodity managers determine what items should be accounted for in the 2017 Procurement Business Plan.

L'Oreal USA
Cranbury, NJ

Accounts Supply Chain Intern
May-Aug 2015

- Evaluated retailer metrics for Walmart, Amazon, Rite Aid and CVS through scorecard assessments.
 - Recommended changes in order timing to balance international, interplant and replenishment volumes with key customer needs in the distribution center.
 - Analyzed the relationship between orders meeting the transportation planned ship date and arriving at the customer on time, revealing that 30% require expedited shipping and identifying a cost-saving opportunity.
-

LEADERSHIP EXPERIENCE

Alpha Xi Delta Fraternity, Beta Lambda Chapter
University Park, PA

President
Dec 2014-Dec 2015

- Lead and managed over 200 chapter members and an executive board of 7 members.
- Piloted improvement projects that resulted in a Penn State 2016 Chapter of Excellence Award, including raising chapter GPA ranking from 15th to 2nd among Panhellenic sororities.

THON Alternative Fundraising Chair

March 2016-Present

- Plan events that contribute to the chapter's 2016 donation of \$60,000 to the Four Diamonds Fund, which provides financial and emotional support to families impacted by pediatric cancer.

Penn State University Park Undergraduate Association
University Park, PA

Elected Representative
April 2014-April 2015

- Elected as 1 of 20 individuals to represent the undergraduate population of Penn State in university-wide conversations on general education reform, student fees, facilities usage.

The David Project
University Park, PA

Campus Leader
Jan 2015

- Selected as 1 of 2 students to represent Penn State in an inter-denominational mission overseas to Israel to examine cultural, political and economic impacts and issues in the Middle East.
-

ACHIEVEMENTS

- **Alpha Xi Delta Fraternity**, *Slaymaker-Kinsey Academic Achievement Award (2014)*
- **Penn State**, *The Presidents Freshmen Award (2014)*, *The Presidents Sparks Award (2015)*, *Evan Pugh Award (2016)*
- **The National Italian American Foundation**, *The Voyage of Discovery Scholarship Trip Recipient (2016)*