

Future of Same-Day Delivery and Innovative Technologies Transforming the Logistics Industry

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Abstract: *Customers are constantly demanding more convenient ways of delivery when they shop online, there should be an availability of multiple delivery options and also ensure that their order is received sooner than anticipated. A survey stated that 85% of online shoppers will buy more frequently when offered the same-day delivery option because the availability of enhanced delivery options has great positive effects on customer loyalty which also reduces returns. Macy's, Sam's Club, eBay, Dick's Sporting Goods, Bloomingdale's, Aldi, and Fresh are a few stores and services that have same-day delivery but my focus is on Walgreens. It is 100% possible for companies to offer same-day delivery services because they have to gain more business and satisfy the evolving demands of customers, the patients of modern-day consumers have increased and everyone wants few clicks and instant deliveries, and any business that will be able to achieve this will gain a competitive advantage and increase their revenue*

Keywords: *same-day delivery, blockchain, radio frequency identification, robotics and automation, drones, fleet management software, warehouse management system, internet of things, autonomous vehicles*

I. Introduction

The market for same-day delivery is fueled by underlying macro-trends including increasing GDP per capital, aiding online retail shopping vs. adoption, urbanization, and changing customer expectations. Customers are constantly demanding more convenient ways of delivery when they shop online, there should be an availability of multiple delivery options and also ensure that their order is received sooner than anticipated. There is a premium payment attached to this service but customers are willing to pay more for this service. Same-day delivery is a great opportunity for all retailers in the world to improve their services but it requires very high technology to carry out, challenges like lead times, complete visibility of inventories and warehouse, the flexibility of the last mile delivery, and also cost reduction to a level that customers are willing to pay. All online retailers have an interest in delivery time reduction because it gives them a competitive edge. Amazon joined same-day delivery in 2009 which fueled others to join and they are all looking for possibilities to leverage their distribution network to offer same-day delivery. Walmart on the other hand started developing its e-commerce channel in 2010 to provide the same service but its main focus is meeting customer's needs. A survey stated that 85% of online shoppers will buy more frequently when offered the same-day delivery option because the availability of enhanced delivery options has great positive effects on customer loyalty which also reduces returns. Macy's, Sam's Club, eBay, Dick's Sporting Goods, Bloomingdale's, Aldi, and Fresh are a few stores and services that have same-day delivery but my focus is on Walgreens.

II. Case Study: Walgreens

America's most loved pharmacy, health and beauty company, and second-largest pharmacy store chain which have a purpose of championing the health and wellbeing of every community in America. Operating more than 9,000 retail locations across America, Puerto Rico, and the U.S. Virgin Islands, Walgreens is proud to be a neighborhood health destination serving approximately 8 million customers each day. Walgreens pharmacists play a critical role in the U.S. healthcare system by providing a wide range of pharmacy and healthcare services. To best meet the needs of customers and patients, they offer a true Omni channel experience, with platforms bringing together physical and digital, supported by the latest technology to deliver high-quality products and services in local communities nationwide

Walgreens announces same-day prescription delivery as another way for customers to get the medications they need when, where, and how it is most convenient to them. The service is available in nearly all store locations seven days a week. Walgreens offers two types of same-day delivery: same-day prescription delivery and same-day delivery on retail store items. To receive same-day prescription delivery, eligible prescription orders need to be placed by 4 p.m. on weekdays and 1 p.m. on weekends and you must live within 15 miles of your Walgreens pharmacy location. If you're stocking up on other items in the store, you can receive those in as little as one hour from the time you ordered them as long as the order is placed by 7 p.m. Most items are eligible for same-day delivery except for photo products, alcohol, prescriptions, and gift cards.

Orders placed by 3 p.m. ET are shipped overnight and normally arrive to customers in 1 business day. Orders received after 3 p.m. will be processed the next business day and shipped overnight. Orders cannot be shipped via Expedited outside the 48 contiguous states. They also cannot be shipped to P.O. Boxes, APO, FPO, and DPO addresses and you don't need any membership fee payment but the delivery fee varies depending on the store location.

Is it possible for companies nowadays to offer same-day delivery?

It is 100% possible for companies to offer same-day delivery services because they have to gain more business and satisfy the evolving demands of customers, the patients of modern-day consumers have increased and everyone wants few clicks and instant deliveries, and any business that will be able to achieve this will gain a competitive advantage and increase their revenue:

1. 65% of consumers take cost and delivery times into account before even adding products to the shopping cart. Thus, delivery terms directly affect purchasing decisions.
2. 75% of respondents expect free shipping when buying from an e-commerce shop. This percentage is up 7 points compared to the previous year
3. 70% of customer data outline their expectations and requirements for optimal customer service, quick delivery times in 24 hours or less, multiple delivery options to choose from, and the ability to use various purchase and returns channels arbitrarily.
4. Almost 99% of retailers in the entire world plan to offer same-day delivery by 2024 because it increases their competitive edge by 85%

Are technologies required to achieve it?

1. Using in-house agile delivery management systems can improve efficiency
2. Partnering with Shipt which connects to local retailers in all neighborhoods
3. Route planning and optimization software will help to match the same-day delivery expectations of the customers.
4. Package tracking application software: Customers will be able to change their delivery time and location using their smartphone while the package is on the way. This visibility and flexibility allow the customers to personalize the shopping experience

5. Warehouse Management System (WMS) for proper coordination with other links in the Supply Chain which also connects the dispatching warehouse with all relevant transport agencies.

This technology is the key to fulfilling a growing number of picking orders without errors as quickly as possible because it controls the facilities' data accurately. This system is also a key factor in establishing priorities, picking strategies, and organizing the workforce so that workloads and duties are distributed accordingly.

Challenges Involved

Despite the opportunities to capture market share and increase customer satisfaction, retail companies are struggling to offer customers a competitive option

1. Delivery/transportation cost: Some latencies can increase the delivery cost of a single order, from the supplier's selection for the purchase of products to the last mile, effective route planning, and dispatching of orders. The transportation cost is also very high if the distance between the pickup point and delivery location is greater than expected for the same-day delivery and the mode of transportation can also greatly affect the product shipment

2. Some uses outdated dispatch manual which does not work for same-day delivery because they do not have time to check fleet availability for the demanded orders, no time to check the closet driver, or which fleet will be available to deliver the order most effectively. Without automation, it is very difficult to manage same-day delivery

3. Travel distance from customers: Very few retailers have their storage house closer to their customers which increases the travel distance between the fulfillment centers and the customers, not every business has a robust inventory management system which makes it difficult for businesses to guarantee inventory availability on demand

4. There is also a shortage of skilled workers, drivers, and fleets which puts pressure on the last mile deliveries. There is also a space shortage as the goods have to be accessible for orders to be picked. This can cause errors and delays in deliveries which will affect their customers

5. Oftentimes, customers want same-day delivery but are unwilling to pay the delivery charges and the seller ends up bearing the entire cost of making the delivery

6. Same-day delivery requires extremely efficient inventory management throughout the logistics network because companies have to pay close attention to the safety stocks, economic order quantities, service levels, modes of transportation, and the cost associated with each.

Innovative Idea Transforming Logistics Industry

Blockchain

This is a distributed database that ensures that all participants in the supply chain track, view, and verify real-time shipments. This decentralized technology can remove multiple layers of bureaucratic complexity through a secure and transparent transactional network. It will take away every piece of paperwork, reduce delays/errors, enable companies to identify potential issues before they cause significant damage, eliminate fraud, increase payment speed, and reduce cost across supply chains. Merck and Walmart along with IBM and KPMG are using blockchain as part of their program to improve the safety and security of drugs and increase the efficiency of the supply chain in the pharmaceutical industry.

Logistics areas: Transportation, Distribution, Material Handling, Logistics Network design

Radio Frequency Identification (RFID)

This uses electromagnetic fields to routinely identify and track tags attached to objects. This allows businesses to track the locations of their inventory by streamlining shipping operations, assisting in decision-making, great cost savings, and prompt response to customers. RFID stores other important information such as product type and expiration dates which are used to automate shipping operations and reduction of data inputted manually.

The RFID tags attached to cars during production are used to track their progress through the assembly line and implanted in livestock and drugs enabling identification.

Logistics Areas: Inventory Management, Supply and Demand Planning, Warehousing, storage, distribution, and transportation.

Robotics and Automation

Robots are designed to perform several works at once, collaborating with humans to reduce repetition /duplication of duties and provide labor during shortages. These technologies help in picking, packing, and sorting. There are also trailer-loading bots that relieve humans from the task and load vehicles in the most optimal way. Amazon set the bar in 2012 when they purchased Kiva Robots which helps the e-commerce giants to fulfill one-click orders in less than 15 minutes, a task that typically takes humans 60-75 minutes and the company's operating expenses were reduced by 20%. This speed and accuracy help to efficiently meet the rapid growth of online sales and on-time deliveries. In a large warehouse performing 200,000 picks, a day requires 75 employees + 8 hrs. shifts, but Kiva used 25 people, 1 shift to complete the task. Automation uses data-driven software to improve operational efficiencies in machines, this helps in advance packaging and labeling to streamline warehouse sorting systems and when introduced in the US Ports, their overall productivity was increased by as much as 30%.

Logistics Areas: Warehousing, Order fulfillment and processing, Storage, Inventory Management, and protective packaging.

Drones

Drone-based deliveries are expected to reach the \$20 billion mark within 10 years. This technology is used for last-mile deliveries in urban areas with heavy traffic congestion and to deliver medicines and relief packs to remote and rural areas. It is also used for security surveillance in different warehouses and factories. Walmart distribution centers use it to scan pallets which helps the logistics team view stored inventories and search for misplaced goods. Drones are also used to collect videos and images during inventory audits. This technology has generated savings in distribution costs, faster deliveries/ happy customers, reaches difficult areas, and reduces CO2 emissions. UPS recently entered a partnership with Zipline, a medical drone delivery startup to begin delivery in Africa.

Logistics Areas: Transportation, Fleet Management, Warehousing, Material Handling, Inventory Management, Distribution, and Storage.

Fleet Management Software

Logistics is a critical part of any business and globalization has made the supply chain more complex as a result, this technology is being used to lower costs and improve efficiency by providing real-time visibility into the location of vehicles and other assets, allowing them to optimize routes and minimize downtime. This software generates reports automatically on drivers' performances, gas usage, and preventive maintenance details. Examples include AUTOSIST, Fleetio, Avrios, ChevinFleetWave, and others.

Logistics Areas: Transportation, Distribution, Supply and Demand Planning, Fleet Management, and Management of 3PL service providers.

Warehouse Management System (WMS)

The logistics industry relied on traditional technologies in managing their warehouse operations but those are no longer relevant in today's technological advancement. WMS is designed to provide real-time visibility into all warehouse operations, improving efficiency and productivity. It reduces errors and improves the accuracy levels of all inventories. It has been reported that WMS has improved customer satisfaction and massive cost savings in the logistics industry. Examples are Info Plus, EVS Mobe3 WMS, NetSuite, and others.

Logistics Areas: Warehousing, Inventory Management, Storage, distribution, protective packaging, and information maintenance.

Wearable Technology

These are technologies that are designed to be used while worn. Examples are smartwatches, VR headsets, and smart glasses. DHL carried out a pilot project in one of their warehouses to test the ability of this technology to increase speed and reduce human error in warehouse order-picking processes. The result shows that they not only improved efficiency by 25% but also significantly increased employee satisfaction.

Logistics Areas: Warehouse, Material Handling, Storage, Inventory Management, and Order fulfillment and processing.

Internet of Things (IoT)

This is used in different ways, serving as temperature and humidity sensors that help in quality control and dictate when a package has been tampered with. It is estimated that more than 50 million objects will be connected to the internet instead of the current 5 million, which is a \$1.9 trillion opportunity for the logistics industry. In Amazon warehouse environments, smart sensors alert robots to replenishment needs or pick or pack orders while the onboard telematics optimizes delivery routes. The IoT connectivity has boosted operational efficiency, optimized usage, and strengthened operational security.

Logistics Areas: Warehousing, Material Handling, Inventory

Autonomous Vehicles

Logistics operations make use of these vehicles from forklifting to driverless plant trucks, pallet stackers, and warehouse machinery. These vehicles/trucks can effectively replace a driver and curb shortage in the industry. Companies like Waymo and Kodiak Robotics are using self-driven trucks and testing this technology across Texas and the West Coast. This can help alleviate risk and increase productivity for Logistics companies since last-mile delivery account for 53% of transportation cost.

Logistics Areas: Transportation, Fleet Management, Distribution, Warehousing

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